

VOLUME LXIII

WHOLE NOS. 547-553

THE  
JOHNS HOPKINS  
UNIVERSITY CIRCULAR

1944

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BALTIMORE  
THE JOHNS HOPKINS PRESS  
1944

## CONTENTS

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### ***Circular, Number 547 (February)***

PAGE

School of Higher Studies of the Faculty of Philosophy, 1944-1945

Calendar .....	front cover
Table of Contents.....	3

### ***Circular, Number 548 (March)***

The College of Arts and Sciences; School of Engineering; School of Business Economics, 1944

Calendar .....	front cover
Entrance Examinations.....	front cover
Table of Contents.....	85

### ***Circular, Number 549 (April)***

Summer Session; College for Teachers, 1944

Calendar .....	front cover
Board of Trustees.....	211
Officers of Administration.....	211
Faculty .....	212
Demonstration School.....	213
General Statement.....	214
Courses of Instruction.....	218
Schedule .....	back cover

### ***Circular, Number 550 (May)***

School of Medicine, November 29, 1943-August 18, 1944

Calendar .....	front cover
Quarters .....	front cover
Contents .....	233

### ***Circular, Number 551 (June)***

School of Hygiene and Public Health, 1944-1945

Calendar .....	front cover
Quarters .....	front cover
Table of Contents.....	371

### ***Circular, Number 552 (July)***

College for Teachers, 1944-1945

Calendar .....	front cover
Registration .....	front cover
Board of Trustees.....	418
Officers of Administration.....	418

	PAGE
Faculty .....	419
Government of the College for Teachers.....	422
History and General Statement.....	423
General Information.....	438
Courses of Instruction.....	443
Evening Courses in Business Economics.....	469
Night Courses in Technology.....	470
 <i>Circular, Number 553 (November)</i>	
Report of the President of the University, 1943-1944	
Contents .....	567

New Series, 1944  
No. 1

Whole Number 547

THE  
JOHNS HOPKINS  
UNIVERSITY CIRCULAR

FEBRUARY, 1944

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SCHOOL OF HIGHER STUDIES  
OF THE  
FACULTY OF PHILOSOPHY

CATALOGUE NUMBER

ANNOUNCEMENTS OF COURSES  
1944-45

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BALTIMORE, MARYLAND  
PUBLISHED BY THE UNIVERSITY  
FEBRUARY, 1944



## CALENDAR, 1944-45

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June 26	Monday; College for Teachers Summer Session begins.
July 10	Monday; Registration for the Summer Term.
July 10	Monday; Instruction begins in the Summer Term.
August 5	Saturday; College for Teachers Summer Session closes.
September 25-30	Monday-Saturday; Oral examinations for advanced degrees.
September 30	Saturday; Instruction ends in the Summer Term.
October 1-8	Sunday-Sunday; Fall Vacation.
October 9-14	Monday-Saturday; Registration for the Fall Term.
October 9	Monday; Instruction begins in the Fall Term. See special announcement under Department of Education.
October 9	Monday; Instruction begins in the College for Teachers.
December 25	Monday; Christmas Day. All classes suspended.
December 26-30	Tuesday-Saturday; Oral examinations for advanced degrees.
December 30	Saturday; Instruction ends in the Fall Term.
December 31 to January 7	Sunday-Sunday; Winter Vacation.
January 8	Monday; Instruction begins in the Winter Term.
March 26-31	Monday-Saturday; Oral examinations for advanced degrees.
March 31	Saturday; Instruction ends in the Winter Term.
April 1-8	Sunday-Sunday; Spring Vacation.
April 9	Monday; Instruction begins in the Spring Term.
May 26	Saturday; Instruction ends in the College for Teachers.
June 25-30	Monday-Saturday; Oral examinations for advanced degrees.
June 30	Saturday; Instruction ends in the Spring Term.

### THE JOHNS HOPKINS UNIVERSITY CIRCULAR

ISSUED MONTHLY, FEBRUARY TO JULY, AND NOVEMBER.

Entered October 21, 1903, at Baltimore, Md., as second-class matter, under  
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THE  
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BALTIMORE, MARYLAND  
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FEBRUARY, 1944

## TABLE OF CONTENTS

---

	PAGE
Board of Trustees.....	4
Officers of Administration.....	4
Faculty .....	5
Academic Council.....	12
Board of University Studies.....	12
History of the University.....	14
Professorships and Lectureships.....	15
Admission and Degrees.....	18
Tuition Fees and Expenses.....	26
Registration Directions.....	28
Fellowships and Scholarships.....	29
Libraries .....	38
Departmental Announcements.....	39

## BOARD OF TRUSTEES

Carlyle Barton, <i>President</i>	Francis White
Theodore Marburg	John Lee Pratt
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Edwin G. Baetjer	Thomas B. Butler
Walter S. Gifford	John M. Nelson, Jr.
D. Luke Hopkins, <i>Vice-President</i>	Roy B. White
Donaldson Brown	Vannevar Bush
Lessing Rosenthal	J. Gilman D'Arcy Paul
Isaiah Bowman, <i>ex officio</i>	

---

Henry S. Baker, *Secretary*

---

## OFFICERS OF ADMINISTRATION

### UNIVERSITY

President: Isaiah Bowman

Provost: P. Stewart Macaulay

Librarian: Homer Halvorson	Treasurer: Henry Scott Baker
Assistant Librarians:	Assistant Treasurer and Business
Johannes Mattern	Manager: Wesley A. Taylor
J. Louis Kuethe	Assistant Treasurer and Comptroller:
Registrar: Irene M. Davis	John H. Gillicee
Manager of the Johns Hopkins Press:	Superintendent of Buildings and
Christian W. Dittus	Grounds: Frank Primrose

## FACULTY 1943-44<sup>1</sup>

---

ISAIAH BOWMAN, PH. D., SC. D., LL. D., *President of the University*  
[1935]<sup>2</sup>

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### PROFESSORS EMERITI

ETHAN ALLEN ANDREWS, PH. D., *Professor Emeritus of Zoölogy*  
[1930; 1887]

EDWARD WILBER BERRY, *Professor Emeritus of Paleontology*  
[1943; 1906]

ABRAHAM COHEN, PH. D., *Collegiate Professor Emeritus of Mathematics*  
[1940; 1895]

RHEINART PARKER COWLES, PH. D., *Professor Emeritus of Zoölogy*  
[1942; 1904]

JOSEPH CHRISTIE WHITNEY FRAZER, PH. D., SC. D., *Professor Emeritus and  
Research Professor of Chemistry*  
[1943; 1901]

JOHN CALVIN FRENCH, PH. D., *Librarian Emeritus of the University*  
[1943; 1904]

HERBERT SPENCER JENNINGS, PH. D., S. D., LL. D., *Professor Emeritus of Zoölogy*  
[1938; 1907]

WILLIAM KURRELMEYER, PH. D., *Professor Emeritus of German*  
[1944; 1900]

BURTON EDWARD LIVINGSTON, PH. D., *Professor Emeritus of Plant Physiology*  
[1940; 1909]

ARTHUR ONCKEN LOVEJOY, A. M., LL. D., *Professor Emeritus of Philosophy*  
[1938; 1910]

SAMUEL OTTMAR MAST, PH. D., *Professor Emeritus of Zoölogy*  
[1941; 1911]

EDWARD BENNETT MATHEWS,<sup>3</sup> PH. D., SC. D., *Professor Emeritus of Mineralogy  
and Petrography*  
[1939; 1894]

E. EMMET REID, PH. D., LL. D., *Professor Emeritus of Chemistry*  
[1937; 1914]

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<sup>1</sup> Arranged in groups in alphabetical order.

<sup>2</sup> A date in brackets indicates year of appointment to present rank; a second date means year of original appointment, if differing from the former.

<sup>3</sup> Died February 4, 1944.

HARRY FIELDING REID, PH. D., *Professor Emeritus of Dynamic Geology and Geography*  
[1930; 1896]

WILLIAM ROSENAU,<sup>1</sup> PH. D., D. H. L., *Professor Emeritus of Post-Biblical Hebrew*  
[1932; 1903]

CHARLES KEPHART SWARTZ, PH. D., *Professor Emeritus of Geology*  
[1931; 1904]

WESTEL WOODBURY WILLOUGHBY, PH. D., LL. D., *Professor Emeritus of Political Science*  
[1933; 1894]

ROBERT WILLIAMS WOOD, PH. D., LL. D., F. R. S., *Professor Emeritus of Experimental Physics*. Appointed Research Professor of Physics 1938, not on active service.  
[1938; 1901]

---

#### PROFESSORS

WILLIAM FOXWELL ALBRIGHT, PH. D., LITT. D., W. W. Spence Professor of *Semitic Languages*  
[1929; 1916]

DONALD HATCH ANDREWS, PH. D., *Professor of Chemistry and Director of the Chemistry Laboratory*  
[1930; 1927]

FLORENCE EILAU BAMBERGER, PH. D., *Professor of Education and Director of the College for Teachers*  
[1924; 1916]

J. ALVIN BEARDEN, PH. D., *Professor of Physics*  
[1939; 1929] Absent on leave

GEORGE BOAS, PH. D., *Professor of the History of Philosophy*  
[1933; 1921] Absent on leave

ERNST CLOOS, PH. D., *Professor of Structural Geology*  
[1941; 1931]

RICHARD T. COX, PH. D., *Visiting Professor of Physics*

GERHARD H. DIEKE, PH. D., *Professor of Physics*  
[1939; 1930]

PAUL EMILE DUMONT, PH. D., *Professor of Sanskrit and Indology*  
[1931]

GEORGE HEBERTON EVANS, JR., *Professor of Political Economy*  
[1942; 1924]

ERNST FEISE, PH. D., *Professor of German*  
[1928; 1927]

ROBERT DUDLEY FOWLER, PH. D., *Professor of Chemistry*  
[1943; 1936] Absent on leave

J. MONTGOMERY GAMBRILL, A. M., *Visiting Professor of American History*

---

<sup>1</sup> Died December 9, 1943.

- KENT ROBERTS GREENFIELD, PH. D., *Professor of Modern European History*  
[1930] Absent on leave
- HOMER HALVORSON, PH. D., *Librarian of the University*  
[1943]
- RAYMOND DEXTER HAVENS, PH. D., LITT. D., *Caroline Donovan Professor of English Literature*  
[1925]
- JOHN CHARLES HUBBARD, PH. D., LL. D., *Professor of Physics and Chairman of Undergraduate Work in Physics*  
[1927]
- HENRY CARRINGTON LANCASTER, PH. D., *James M. Beall Professor of French Literature*  
[1919]
- OWEN LATTIMORE, *Director and Lecturer in the Walter Hines Page School of International Relations*  
[1939; 1938] Absent on leave
- KEMP MALONE, PH. D., LITT. D., *Professor of English Philology*  
[1926; 1924]
- BENJAMIN D. MERITT, PH. D., D. LITT., LL. D., *Visiting Professor of Greek*
- FRANCIS DOMINIC MURNAGHAN, PH. D., *Professor of Applied Mathematics*  
[1928; 1918]
- NORMAN E. D. NEWELL, PH. D., *Professor (elect) of Paleontology and Stratigraphy*  
[1944]
- WALTER A. PATRICK, PH. D., SC. D., *Professor of Chemistry*  
[1924; 1917]
- A. HERMAN PFUND, PH. D., *Professor of Physics*  
[1926; 1906]
- DAVID MOORE ROBINSON, PH. D., LL. D., L. H. D., LITT. D., *W. H. Collins Vickers Professor of Archaeology and Epigraphy and Lecturer on Greek Literature*  
[1912; 1905]
- ROBERT BRUCE ROULSTON, PH. D., *Collegiate Professor of German*  
[1928; 1908]
- HENRY T. ROWELL, PH. D., *Professor of Latin*  
[1940] Absent on leave
- PEDRO SALINAS, PH. D., LITT. D., *Professor of Spanish Literature*  
[1940] Absent on leave
- G. WILSON SHAFFER, PH. D., *Professor of Physical Education; Dean of the College of Arts and Sciences*  
[1941; 1938]
- JOSEPH THEOPHILUS SINGEWALD, JR., PH. D., *Professor of Economic Geology*  
[1922; 1913]
- HAZELTON SPENCER, PH. D., *Professor of English*  
[1937; 1928]

*Faculty of Philosophy*

LEO SPITZER, PH. D., *Professor of Romance Philology*  
[1936]

CARL B. SWISHER, PH. D., *Thomas P. Stran Professor of Political Science*  
[1938; 1937]

BENJAMIN HARRISON WILLIER, PH. D., SC. D., *Henry Walters Professor of Zoölogy and Director of the Biological Laboratory*  
[1940]

OSCAR ZARISKI, PH. D., *Professor of Mathematics*  
[1937; 1929]

## ASSOCIATE PROFESSORS

DON CAMERON ALLEN, PH. D., *Associate Professor of English*  
[1942]

CHARLES ROBERTS ANDERSON, PH. D., *Associate Professor of American Literature*  
[1941]

FRANK RINGGOLD BLAKE, PH. D., *Associate Professor of Oriental Languages*  
[1925; 1902]

EDWARD RICHMOND BLANCHARD, PH. D., *Associate Professor of Chemistry*  
[1940; 1943] Summer and Fall Terms 1943

ROY J. BULLOCK, PH. D., *Associate Professor of Political Economy*  
[1942; 1928] Absent on leave

HAROLD CHERNISS, PH. D., *Associate Professor of Greek*  
[1936; 1933] Absent on leave

HOWARD E. COOPER, PH. D., *Associate Professor of Political Economy*  
[1942; 1928]

ALSOPE H. CORWIN, PH. D., *Associate Professor of Chemistry*  
[1939; 1932]

STEFÁN EINARSSON, PH. D., *Associate Professor of English*  
[1936; 1928]

BORIS EPHRUSSI, PH. D., *Associate Professor of Biology*  
[1942; 1941]

DAVID R. INGLIS, D. SC., *Associate Professor of Physics*  
[1942; 1938] Absent on leave

NATHAN JACOBSON, PH. D., *Associate Professor of Mathematics*  
[1943]

VALDIMER ORLANDO KEY, JR., PH. D., *Associate Professor of Political Science*  
[1940; 1938] Absent on leave

FREDERIC CHAPIN LANE, PH. D., *Associate Professor of History*  
[1935; 1928]



- EMILE MALAKIS, PH. D., *Associate Professor of French Literature*  
[1930]
- JOHANNES MATTERN, PH. D., *Associate Professor of Political Science; Assistant Librarian*  
[1938; 1911]
- SIDNEY PAINTER, PH. D., *Associate Professor of History*  
[1936; 1931]
- LLOYD G. REYNOLDS, PH. D., *Associate Professor of Political Economy*  
[1942; 1939]
- CHARLES S. SINGLETON, PH. D., *Associate Professor of Romance Languages*  
[1942; 1937]
- FOLKE SKOOG, PH. D., *Associate Professor of Botany*  
[1943; 1941]
- JOHN MORTIMER STEPHENS, PH. D., *Associate Professor of Education*  
[1937; 1930] Absent on leave
- DAVID EMRICH WEGLEIN, PH. D., *Associate Professor of Education*  
[1928; 1917]
- WILLIAM OSWALD WEYFORTH, PH. D., *Associate Professor of Political Economy*  
[1922; 1919] Absent on leave
- AUREL WINTNER, PH. D., *Associate Professor of Mathematics*  
[1935; 1930]
- FREDERICK Y. WISELOGLE, SC. D., *Associate Professor of Chemistry*  
[1943; 1936] Absent on leave
- 

## ASSOCIATES

- JUDSON LOWELL ANDERSON, PH. D., *Associate in Geology*  
[1943; 1940]
- GEORGE F. CARTER, PH. D., *Associate (elect) in Geography*  
[1944; 1943]
- JEAN GOTTMANN, LL. L., D. E. S., *Associate (elect) in Geography*  
[1944]
- RICHARD M. HAYWOOD, PH. D., *Associate in Latin and Greek*  
[1933; 1930]
- JOSEPH W. HICKMAN, PH. D., *Associate in Chemistry*  
[1943; 1940] Absent on leave
- RICHARD B. KERSHNER, PH. D., *Associate in Mathematics*  
[1942; 1940] Absent on leave
- RICHARD F. KIMBALL, PH. D., *Associate in Zoölogy*  
[1943; 1939]

*Faculty of Philosophy*

RICHARD C. LORD, JR., PH. D., <i>Associate in Chemistry</i> [1938; 1936]	Absent on leave
CLARA P. McMAHON, PH. D., <i>Associate in Education</i> [1943]	
MALCOLM CHARLES MOOS, PH. D., <i>Associate in Political Science</i> [1942]	
CLIFFORD T. MORGAN, PH. D., <i>Associate in Psychology</i> [1943]	Absent on leave
KARL JOSEF PELZER, PH. D., <i>Associate in Geography</i> [1942]	
LAWRENCE RIGGS, ED. D., <i>Associate in Education</i> [1939]	
MARK HOWARD SECRIST, PH. D., <i>Associate in Geology</i> [1938; 1930]	
CHARLES H. SHAW, PH. D., <i>Associate in Physics</i> [1942; 1938]	Absent on leave
RICHARD E. THURSFIELD, M. A., <i>Associate in Education</i> [1939]	
WALDEMAR T. ZIEGLER, PH. D., <i>Associate in Chemistry</i> [1942; 1938]	Absent on leave

## INSTRUCTORS

NORMAN HILL BOKE, PH. D., <i>Instructor in Biology</i> [1942]	
LLOYD BROWN, A. B., <i>Instructor in Geography</i> [1943]	
KARL J. BRUNINGS, PH. D., <i>Instructor in Chemistry</i> [1941]	
RANDOLPH CHAPMAN, PH. D., <i>Instructor in Petrography</i> [1939]	Absent on leave
CHARLES L. CHRIST, PH. D., <i>Instructor in Chemistry</i> [1942]	Absent on leave
ANDREW H. CLARK, M. A., <i>Instructor in Geography</i> [1943]	
ROBERT D. COWAN, A. B., <i>Instructor in Physics</i> [1944]	
L. KATHRYN DICE, ED. D., <i>Instructor in Education</i> [1943]	

## Faculty

11

- CLIFFORD HUGH DOWKER, PH. D., *Instructor in Mathematics*  
[1940] Absent on leave
- FREDERICK HALVERSON, PH. D., *Instructor in Chemistry*  
[1943]
- JAMES E. HENTHORN, A. B., *Instructor in Physics*  
[1944]
- ARTHUR LICHTENSTEIN, PH. D., *Instructor in Education*  
[1934] Absent on leave
- CHARLES W. PETERS, A. B., *Instructor in Physics*  
[1944]
- WILLIAM C. H. PRENTICE, PH. D., *Instructor in Psychology*  
[1943]
- J. ELMER RHODES, B. S., *Instructor in Physics*  
[1944]
- HANS RIS, PH. D., *Instructor in Biology*  
[1942]
- EILEEN SUTTON, PH. D., *Instructor in Biology*  
[1943]
- OLIVE A. WHILDIN, ED. D., *Instructor in Education*  
[1943]
- 

## LECTURERS

- FRITZ LIEBEN, PH. D., *Lecturer in Chemistry*
- SAMUEL ROSENBLATT, PH. D., *Lecturer on Jewish Literature*
- 

## RESEARCH ASSOCIATE

- MARY E. RAWLES, PH. D., *Research Associate in Embryology*  
[1940]
- 

## RESEARCH ASSISTANT

- SARAH E. FREEMAN, PH. D., *Research Assistant in Archaeology*  
[1935]

# GOVERNMENT OF THE SCHOOL OF HIGHER STUDIES OF THE FACULTY OF PHILOSOPHY

FOR THE YEAR 1943-1944

## ACADEMIC COUNCIL

The President of the University (*Chairman*)

D. H. Andrews.....	Term exp. Oct. 1944
J. T. Singewald, Jr.....	" " " 1944
J. A. Bearden.....	" " " 1945
C. B. Swisher.....	" " " 1945
H. C. Lancaster.....	" " " 1946
Kemp Malone.....	" " " 1946
W. F. Albright.....	" " " 1947
G. H. Evans, Jr. ( <i>Secretary</i> ).....	" " " 1947
F. D. Murnaghan.....	" " " 1948
D. M. Robinson.....	" " " 1948

The Provost of the University.

The Dean of the College of Arts and Sciences.

By authority of the Trustees, the Academic Council has met since the organization of the University to guide the various departments of study, to select the Fellows, and to act upon such other matters as may be brought before them.

## BOARD OF UNIVERSITY STUDIES

The President of the  
University (*Chairman*)

W. F. Albright

C. R. Anderson

J. L. Anderson

D. H. Andrews

Florence E. Bamberger

Philip Bard

J. A. Bearden

F. R. Blake

C. F. Bonilla

A. G. Christie

W. M. Clark

Ernst Cloos

A. H. Corwin

G. H. Dieke

Paul Dumont

Stefan Einarsson

G. H. Evans, Jr.

Ernst Feise

R. D. Fowler

J. M. Gambrill

Homer Halvorson

R. D. Havens

R. M. Haywood

J. W. Hickman

J. C. Hubbard

Nathan Jacobson

W. B. Kouwenhoven

H. C. Lancaster

F. C. Lane

P. S. Macaulay

(*ex officio*)

Emile Malakis

Kemp Malone

E. K. Marshall, Jr.

Johannes Mattern

K. F. Maxcy

E. V. McCollum

F. D. Murnaghan

Sidney Painter

W. A. Patrick

A. H. Pfund

L. G. Reynolds

D. M. Robinson

R. B. Roulston

G. W. Shaffer

H. E. Sigerist

J. T. Singewald, Jr.

(*Secretary*)

C. S. Singleton

Folke Skoog

Hazelton Spencer

Leo Spitzer

C. B. Swisher

L. H. Weed

David Weglein

W. O. Weyforth

B. H. Willier

Aurel Wintner

F. Y. Wiselogle

Abel Wolman

Oscar Zariski

W. T. Ziegler

By request of the Academic Council (October 8, 1883), this Board, consisting of the President, Professors, and Associate Professors of the Philosophical Faculty and of such other officers of instruction and administration as may be elected to membership by action of the Academic Council, has charge of the arrangement for the instruction of advanced students and of the examinations for the degrees of Doctor of Philosophy and Master of Arts.

---

COMMITTEE ON THE DEGREES OF MASTER OF EDUCATION AND  
DOCTOR OF EDUCATION

F. E. Bamberger ( <i>Chairman</i> )	P. S. Macaulay
W. F. Albright	R. M. Haywood
F. C. Lane	

---

COMMITTEE ON THE LIBRARY

The President of the University ( <i>Chairman</i> )	
Homer Halvorson ( <i>Secretary</i> )	B. H. Willier
Kemp Malone	G. H. Evans, Jr.
	Emile Malakis
	D. H. Andrews

---

COMMITTEE ON PUBLIC LECTURES

H. C. Lancaster ( <i>Chairman</i> )	F. D. Murnaghan
R. D. Havens	J. T. Singewald, Jr.

---

COMMITTEE ON APPLICATIONS FOR ADVANCED DEGREES

Hazelton Spencer ( <i>Chairman</i> )	A. H. Pfund
The Secretary of the Board of University Studies	

---

COMMITTEE ON SCHOLARSHIPS

H. E. Cooper ( <i>Chairman</i> )	A. H. Corwin
F. D. Murnaghan	Hazelton Spencer
J. T. Singewald, Jr.	D. M. Robinson

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## HISTORY OF THE UNIVERSITY

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The Johns Hopkins University was founded by a merchant of Baltimore, Johns Hopkins (1795-1873) who bequeathed the greater part of his estate for the establishment of a university and a hospital. The University was incorporated in 1867, the Trustees organized in 1870 and the first courses of instruction were offered in October 1876. The work of the philosophical division of the University was begun in a small group of buildings on Howard Street where it continued until 1916 when the present site at Homewood was occupied. The Medical School was opened in 1893, in buildings adjacent to the Johns Hopkins Hospital. The School of Engineering, established in 1912, forms part of the Homewood group. The School of Hygiene and Public Health was opened in 1918 in buildings on Howard Street but moved in 1925 to the present location near the Hospital.

The first President, inaugurated in February 1876, was Daniel Coit Gilman, who was followed upon his retirement in 1901 by Ira Remsen. Dr. Remsen resigned in 1912 and during a period of two years the duties of the presidential office were discharged by an Administrative Committee of the faculty, appointed by the Trustees. Dr. William H. Welch was the Chairman of the Committee. The third President was Frank Johnson Goodnow, who filled the office from 1914 until his resignation in 1929 when he was succeeded by Joseph Sweetman Ames, who retired in 1935. The fifth President is Dr. Isaiah Bowman, who assumed the duties of the office in July, 1935.

At the time of the organization of the Johns Hopkins University most of the institutions of higher education in this country were either colleges to which graduate schools had been added, or professional and technical schools. It was the declared intention of the trustees and president of the Johns Hopkins University to found an institution which would be characterized by academic freedom and mature scholarship, rather than by inflexible curricula designed to prepare students for a particular calling or to give them certain organized bodies of knowledge. While sharing with the traditional college the obligation of transmitting the intellectual heritage of the past, the University recognized the additional responsibility of expanding the bounds of knowledge through research.

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## PROFESSORSHIPS AND LECTURESHIPS

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### THE CAROLINE DONOVAN PROFESSORSHIP

Mrs. Caroline Donovan, of Baltimore, gave to the University in November, 1889, shortly before her death, a sum of money to establish a professorship of English Literature. The first appointment was made in 1905 when Dr. James W. Bright, was designated Caroline Donovan Professor of English Literature. Prior to that date courses of lectures were given by resident and non-resident scholars devoted to study in this field. Dr. Raymond D. Havens was appointed to this professorship in 1925.

### THE W. H. COLLINS VICKERS PROFESSORSHIP

By the will of Mr. William H. Collins Vickers, of Baltimore, who died December 25, 1917, a sum of money was given to the Trustees of the University to endow a professorship in Archaeology to be known as The W. H. Collins Vickers Chair in Archaeology. The incumbent, Dr. David M. Robinson, was appointed W. H. Collins Vickers Professor of Archaeology in 1920.

### THE WILLIAM OSLER PROFESSORSHIP

In order to honor the memory of Sir William Osler, whose interest in English literature was so great and whose generous bequest established the Tudor and Stuart Club in the University, the Trustees in June, 1925, established a chair to be called the William Osler Professorship of English Literature. Dr. Edwin Greenlaw was appointed in 1925. Since his death in 1931 no successor has been named.

### THE THOMAS P. STRAN PROFESSORSHIP

In November, 1924, as a memorial of the generosity of Mrs. Kate A. Stran, the Trustees established a professorship to be known as the Thomas P. Stran Professorship. From 1924 until his retirement in 1933, Dr. Westel W. Willoughby, Professor of Political Science, was the holder of this chair.

Dr. Carl B. Swisher, Professor of Political Science was appointed to the Stran professorship in 1938.

### THE ABRAM G. HUTZLER PROFESSORSHIP

In October, 1925, the Trustees established a chair in Political Economy to be known as the Abraham G. Hutzler Professorship. This was made possible by the generous gift made to the University by Mr. Abram G. Hutzler, of Baltimore. The first Hutzler Professor was Dr. Jacob H. Hollander who died in 1940.

## THE WILLIAM D. GILL PROFESSORSHIP

Dr. Burton E. Livingston was Gill Professor from 1931 until his retirement in 1940.

## JAMES M. BEALL PROFESSORSHIP

In 1932 the Trustees established a chair of French Literature in memory of the late Mr. James M. Beall of Baltimore, who by his will established the Beall Memorial Fund in 1916. Dr. Henry Carrington Lancaster has held this professorship since 1932.

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In January, 1904, the Trustees decreed that certain chairs should bear the names of leading contributors to the Endowment Fund of 1902, as memorials of their liberality. These are:

## THE B. N. BAKER PROFESSORSHIP OF CHEMISTRY

Dr. Joseph Christie Whitney Frazer held this professorship from 1920 until 1943.

## THE FRANCIS WHITE PROFESSORSHIP OF GREEK

Dr. Basil Lanneau Gildersleeve held this chair from 1904 until 1915 and was then designated Honorary Francis White Professor of Greek. Dr. Gildersleeve died in 1924, and in 1925 Dr. Charles William Emil Miller was named as his successor. Dr. Miller died in 1933. Dr. Benjamin D. Meritt was appointed in 1933 and resigned in 1936. No successor has been appointed.

## THE W. W. SPENCE PROFESSORSHIP OF SEMITIC LANGUAGES

The first Spence Professor was Dr. Paul Haupt who died in 1926. His successor is Dr. William Foxwell Albright.

## THE HENRY WALTERS PROFESSORSHIP OF ZOÖLOGY

Dr. William Keith Brooks was Walters Professor from 1904 until his death in 1908. His successor, Dr. Herbert Spencer Jennings, held this professorship from 1909 until his retirement in 1938. Dr. Benjamin Harrison Willier was appointed in 1940.

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## THE PERCY TURNBULL MEMORIAL LECTURESHIP

On May 6, 1889, Mr. and Mrs. Lawrence Turnbull, of Baltimore, founded a lectureship in memory of their son, Percy Graeme Turnbull, their purpose being to enable the University to offer an annual course of lectures on poetry by a lecturer to be chosen by the President of the University from among "properly qualified authors, writers, or professors of America or Europe." Thirty-six courses have been given on this foundation, the first in 1891.



THE JAMES SCHOULER LECTURESHIP

In March, 1908, Dr. James Schouler, of Boston, who had lectured in this University annually from 1891 until that time, announced his purpose to found a lectureship in the University, to be known as The James Schouler Lectureship of History and Political Science. The donor expressed the wish that "such lectures be given annually if possible, \* \* \* and that persons of promise or prominence be selected to lecture, who are capable of interesting as well as instructing an audience." The lectureship was inaugurated in April, 1909.

THE ALBERT SHAW LECTURESHIP

Dr. Albert Shaw, of New York, a graduate of this University, gave the University a sum of money, the income of which is used as the honorarium of a lecturer on Diplomatic History. The lectures have been given before the advanced students of history and political science, beginning in 1898.

THE GEORGE HUNTINGTON WILLIAMS MEMORIAL LECTURESHIP

In February, 1911, Mrs. George Huntington Williams, of Baltimore, her two sons, and Miss Cornelia Willams, of Utica, N. Y., gave to the University a fund to be known as the George Huntington Williams Memorial Fund, to perpetuate the memory of Dr. George Huntington Williams, late Professor of Inorganic Geology and Petrography in this University. One-half of the income of the fund is to be devoted to promoting investigation in the department of Geology; the remaining half is to be used in securing a lecturer of distinguished attainments on some topic of widespread contemporary interest. The lectureship is called The George Huntington Williams Memorial Lectureship. It was inaugurated in 1920.

THE JOHN A. J. CRESWELL MEMORIAL LECTURESHIP

The University received in October, 1920, from Mrs. John A. J. Creswell, of Cecil County, Maryland, a gift of money as a memorial to her husband, who was a statesman and lawyer of distinction. The income from this fund is to be applied to instruction or research in International Law, in such manner as may from time to time be deemed most advisable by the University authorities. The trustees have accordingly established a lectureship known as the John A. J. Creswell Memorial Lectureship in International Law. The first Creswell Lecturer was Dr. John H. Latané who was succeeded in 1930 by Dr. Frederick Sherwood Dunn. Dr. Dunn resigned in 1935, and no successor was appointed.

THE MEIER KATZ MEMORIAL LECTURESHIP

In 1935 the family of Meier Katz, of Baltimore, established as a memorial to him a lectureship in the Walter Hines Page School of International Relations. The lectures, which are open to the public, are given by distinguished scholars in the field of international relations.

# THE FACULTY OF PHILOSOPHY

## SCHOOL OF HIGHER STUDIES

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### ADMISSION

Students may be admitted to the School of Higher Studies of the Faculty of Philosophy in one of two ways: (1) with a bachelor's degree, or (2) with not less than two years of college work. Only exceptional students will be admitted on the second plan.

Admission to the School of Higher Studies implies acceptance of the student for highly specialized work under the direction of one of the departments of the Faculty of Philosophy. Departments may, therefore, determine by examination or otherwise the fitness of the student to pursue such a program of intensive study, and may limit the number of such students admitted.

It is recommended that Graduate Record Examination scores be submitted by students applying for admission or for scholarship aid. Information about this examination may be obtained by writing the Graduate Record Examination, 437 West 59th Street, New York City.

The courses in the School of Higher Studies are open to both men and women. Students in other branches of the University are admitted to a limited number of these courses under conditions stated in the respective circulars.

### RESIDENCE

During the first week of classes every student is required to file with the Registrar each term a list of his studies or a program of his work and a statement indicating whether it is full-time or part-time.

### ADVANCED DEGREES

The School of Higher Studies of the Faculty of Philosophy offers the following degrees: Master of Arts, Master of Education, Doctor of Education, and Doctor of Philosophy. For students admitted with a bachelor's degree the minimum residence required for the master's degree is one year and for the doctor's degree three years. For students admitted without a bachelor's degree the minimum residence required is three years for the master's degree and four years for the doctor's degree. For students admitted without a bachelor's degree who subsequently receive a bachelor's degree an additional year of residence will be required. The attainment of a degree, however, is not based solely upon the completion of the minimum residence required but also upon efficiency and achievement.

Each department establishes its own standards of admission, but the determination of minimum requirements for the degrees of Master of Arts and Doctor of Philosophy is vested in the Board of University Studies and for the degrees in education in the Committee on the Degrees of Master of Education and Doctor of Education. The right to determine in each case whether time spent in the University or elsewhere shall be considered as meeting the requirements of the regulations is reserved by these bodies. They may authorize the fulfillment of the minimum residence requirement by part-time residence extending over a longer period. In such event the aggregate of fees for part-time residence shall be at least equal to the fees for the equivalent full-time residence. However, in the case of candidates for the degree of Doctor of Philosophy, one year must be spent in actual physical residence at this University in undisturbed association with the department.

Candidates for doctoral degrees who have not completed all the requirements during the minimum residence time may complete the unfulfilled requirements by continued residence in this University, or, with the approval of the department, *in absentia*, provided that they are registered in this University at the time the degree is granted. If the meeting of the unfulfilled requirements involves attendance on seminars or courses, or use of the library or laboratory, the student shall be considered a student in the School of Higher Studies and subject to full tuition fees. If a student has completed all requirements except finishing his dissertation or essay and passing the final examinations, and makes no use of the University facilities beyond occasional conference with his department, he shall be charged no fees except that of \$40.00 when he presents himself as a candidate for his final examination.

Only teachers and school officials with at least two years of approved experience as teachers, supervisors, or administrators will be accepted as candidates for the degree of Master of Education. Three years will be required for the degree of Doctor of Education. Experience must be approved by the Department of Education. These degrees may be obtained by part-time residence. Applicants who have fulfilled the residence requirements may take advantage of the provisions set forth in the foregoing paragraph or may enroll as part-time students.

#### ACCEPTANCE OF CANDIDATES FOR DEGREES

Before a student can be accepted as a candidate for the degree of Doctor of Philosophy, the department in which he is a student must certify to the Board of University Studies that it has examined him and found him to have an adequate knowledge of at least two modern foreign languages designated by it as necessary for a scholar in its field. One foreign language is required of candidates for the Master of Arts.

Candidates for the degrees of Master of Education and Doctor of Education are not required to have a knowledge of foreign languages unless it is necessary for the research which they are pursuing. If languages should be required these must be specified on the application for admission

to candidacy. The Department of Education examines the student to find if he has adequate knowledge of the designated languages. If the student is not required to take the examination, his application must contain a certificate to that effect.

The application of a foreign student must be accompanied by a certificate from the department in which he is specializing that he has a satisfactory knowledge of English.

Candidates for advanced degrees must submit the following:

A. An application for admission to the School of Higher Studies showing previous scholastic record, proposed field of studies, and acceptance by the department. This is filed at the time of admission.

B1. Application as candidate for the degrees of Master of Arts or Doctor of Philosophy showing: (1) satisfaction of the modern language requirement; (2) graduate residence, including equivalents approved by the department or accepted by the Board, and other activities; (3) probable date of written and oral examinations (oral examination by the Board is not required of candidates for the degree of Master of Arts); and (4) approval of the application by the department. An application for the degree of Doctor of Philosophy must be accepted by the Board of University Studies at least two terms before the final examinations; an application for the degree of Master of Arts must be accepted by the Board at least one term before the final examinations. The application must be filed at least 10 days prior to the meeting of the Board at which it is to be presented.

*or*

B2. Application as candidate for the degree of Master of Education or Doctor of Education showing: (1) certificate from the Department of Education designating whether any languages are required; (2) graduate residence, including equivalents approved by the Department or accepted by the Committee (all work for the degree of Master of Education must be completed in this University), and other activities; (3) probable date of written and oral examinations (oral examination is not required of candidates for the degree of Master of Education); and (4) approval of the application by the Department. An application for the degree of Doctor of Education must be accepted by the Committee on the Degrees of Master of Education and Doctor of Education at least two terms before the final examinations; an application for the degree of Master of Education must be accepted by the Committee at least one term before the final examinations. The application must be filed at least 10 days prior to the meeting of the Committee at which it is to be presented. Before the application for the degree of Doctor of Education can be approved the student must pass the comprehensive examinations given, the last Saturday in September and the first Saturday in October, or the last Saturday in April and the first Saturday in May. These measure the candidate's knowledge and understanding in five fields: historical and philosophical backgrounds of educational policies; educational psychology; measurement of group and individual

growth and achievement; structure, administration, and supervision of education in America, and general principles underlying education at the three levels: elementary, secondary, and higher. These examinations must be satisfactorily completed at least one year before the candidate for the Degree of Doctor of Education expects to present himself for the degree. It is advisable to take them as soon as possible. For the full-time residents for the degree of Master of Education the comprehensive examinations will be given in the spring.

#### THE DEGREE OF MASTER OF ARTS <sup>1</sup>

The requirements for the degree of Master of Arts are as follows:

1. A bachelor's degree (or its equivalent) for admission.
2. Three consecutive terms of full time residence or the equivalent in part time work accumulated within five calendar years (except in the Department of Education).
3. An essay, if required by the candidate's department.
4. An adequate knowledge of one modern foreign language designated by the department as necessary for a scholar in that field.

#### THE DEGREE OF MASTER OF EDUCATION <sup>1</sup>

The requirements for the degree of Master of Education are as follows:

1. A bachelor's degree (or its equivalent) for admission.
2. Two years of approved experience as teacher, supervisor or school administrator.
3. An essay is required.
4. Two consecutive terms of sixteen weeks each of full time residence or the equivalent in part time work accumulated within five calendar years. This includes winter and summer courses.
5. Completion of required courses in this University—
  - a. Fundamental courses required of all students.
  - b. Courses assigned according to the major interest of the individual.

#### THE DEGREE OF DOCTOR OF PHILOSOPHY

General requirements for advanced degrees are stated in the preceding paragraphs. Special requirements for the degree of Doctor of Philosophy relate to the following matters: 1. the subject in which the candidate proposes to do intensive work, 2. the dissertation, and 3. the examinations.

##### 1. *The Subject*

The degree is conferred on the basis of intensive study in one of the departments of the School of Higher Studies of the Faculty of Philosophy.

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<sup>1</sup> All work toward the Master's degree must be taken in this University.

The program of study is therefore prescribed by the department and may represent work done wholly within the department or may include such supplementary work in another department as the committee in charge of the candidate's studies may direct. In any case this program must be so unified as to contribute to the highly specialized study which is characteristic of work leading to the doctor's degree. If the candidate has already received the degree of Master of Arts, his preliminary study submitted as an essay may constitute a part of his work for the doctorate. At least one year of full-time residence in addition to residence prior to receiving the master's degree is necessary.

## 2. *The Dissertation*

A distinctive requirement is the presentation of evidence that the candidate has carried to successful completion an original investigation in his principal subject upon a theme approved by his department. The results of this investigation must be embodied in a dissertation and submitted to the Board of University Studies.

A foreign student will not be permitted to choose a dissertation subject for which the chief sources of information are not available to the professors in charge.

Dissertations of foreign students, if in English, will be judged by the same minimum standards with reference to English style as are applied to the dissertations of other students.

The dissertation, to which shall be appended a brief biographical sketch of the author, must be prepared for presentation to the Board of University Studies in accordance with instructions to be obtained from the Registrar. It must be submitted to two or more referees appointed by the Board, four weeks before the candidate presents himself for the oral examination, unless the referees give him permission to submit it at a later date. In any case, two copies, one original and one carbon copy, must be deposited in the prescribed bound form in the Registrar's office by the referees, with their written report, at least ten days before the Board meeting at which the candidate presents himself for the oral examination.

Before the candidate is admitted to the oral examination, he must signify his intention, in the event of his receiving the degree, to print his dissertation in full or in part, and to satisfy the requirements specified below. The term "print" is to be construed as including permanent reproduction, in type form, by mimeograph, multigraph, flexotype, or other similar contrivance. To be accepted as satisfactory, the copies must conform in style, material and workmanship to samples submitted to the Librarian of the University and approved by him. These must have the prescribed title-page and must contain the biographical sketch.

The dissertation must be printed in full when the cost does not exceed \$100.00, and one hundred and fifty copies must be delivered to the University within two years from the time of the conferring of the degree. If the foregoing would entail an expense of more than \$100.00, the candi-

date may, with the approval of the department, submit one hundred and fifty copies of extracts or of an abridgment of not less than twenty-four octavo pages, each copy to be accompanied by an extended, analytical abstract of the dissertation as a whole.

Unless these printed copies are ready for presentation before the date for the conferring of the degree, a deposit of \$100.00 with the Treasurer of the University must be made. This deposit is to guarantee the delivery of the required printed copies to the University Librarian within two years from the date the degree is awarded, unless such time is extended by the Board of University Studies. If such delivery is not made the deposit is forfeited.

### 3. *The Examinations*

The candidate shall be subject to such written and oral examinations as may be prescribed by his department. These examinations may be taken at any time during the candidate's residence. The results of the examinations shall be reported in writing to the Board of University Studies, and, if these reports and the reports of the dissertation are satisfactory, the candidate shall be admitted to an oral examination in his subject. The oral examinations are held in the last week of every term. The Board of University Studies shall be represented at each oral examination (1) by the staff of the department in which the candidate is enrolled, (2) by other members of the Board designated by the President, at least equal in number to the former, and (3) by any other members of the Board who may voluntarily attend. In the case of a department having more than four members on its staff, the department may designate four of that staff as its representatives at each oral examination.

In written examinations no session shall exceed five hours. For the oral examination of the Board of University Studies the time allotted shall be not less than one hour.

The names of the candidates found worthy of the degree, after the oral examinations, will be submitted to the President and the Board of Trustees, and, with their approbation, the degree will be publicly conferred.

### THE DEGREE OF DOCTOR OF EDUCATION

This degree is primarily a professional one designed to provide effective preparation for careers in public or private schools and for eventual positions of leadership in the teaching profession. Its purpose is to unite scholarship with professional understanding and personal effectiveness for teaching. The dissertation may be a verification or extension of existing knowledge. It may involve schoolroom contacts, the schoolroom or school systems serving as a laboratory. The investigation must be scientifically sound whether it be an original study or an extension or verification of another study.

The general requirements for this degree are stated in preceding paragraphs. Special requirements for the degree of Doctor of Education relate to the following matters: 1. the period of residence, 2. the subject

in which the candidate proposes to do intensive work, 3. the dissertation, and 4. the examinations.

### *1. The Period of Residence*

At least three academic years or their equivalent shall be required in the case of students who are holders of a baccalaureate degree, and at least four academic years shall be required in the case of other students.

### *2. The Subject*

The degree is conferred on the basis of intensive study in one of the fields of education. The candidate's preliminary study leading to the degree of Master of Education may constitute a part of his work for the doctorate, and in addition he must complete satisfactorily certain courses and pass successfully such comprehensive examinations as are specified by the Department of Education.

### *3. The Dissertation*

A distinctive requirement is the presentation of evidence that the candidate has carried to successful completion an original investigation or a verification or extension of existing knowledge based directly upon school-room contacts, the schoolroom or school systems serving as a laboratory. The results of this investigation must be embodied in a dissertation and submitted to the Committee on the Degrees of Master of Education and Doctor of Education.

A foreign student will not be permitted to choose a dissertation subject for which the chief sources of information are not available to the professors in charge. Dissertations of foreign students, if in English, will be judged by the same minimum standards with reference to English style as are now applied to the dissertations of other students.

The dissertation, to which shall be appended a brief biographical sketch of the author, must be prepared and submitted to the Departmental Committee not later than *April 1*. The necessary revisions must then be made in order that it be ready for presentation to the Committee in accordance with instructions to be obtained from the Registrar. It will be submitted to two or more examiners, appointed by the President, four weeks before the candidate presents himself for the oral examination. Two copies, one original and one carbon copy, must be deposited with the written report by the examiners in the Registrar's office at least ten days before the beginning of the oral examination period.

Before the candidate is admitted to the oral examination, he must signify his intention, in the event of his receiving the degree, to print his dissertation in full or in part, and to satisfy the requirements specified below. The term "print" is to be construed as including permanent reproduction, in type form, by mimeograph, multigraph, flexotype, or other similar contrivance. To be accepted as satisfactory, the copies must conform in style,



material, and workmanship to samples submitted to the Librarian of the University and approved by him. These must have the prescribed title-page and must contain the biographical sketch.

The dissertation must be printed in full when the cost does not exceed \$100.00, and one hundred and fifty copies must be delivered to the University within two years from the time of the conferring of the degree. If the foregoing would entail an expense of more than \$100.00, the candidate may, with the approval of the Department, submit one hundred and fifty copies of extracts or of an abridgment of not less than twenty-four octavo pages, each copy to be accompanied by an extended, analytical abstract of the dissertation as a whole.

Unless these printed copies are ready for presentation before the date for the conferring of the degree, a deposit of \$100.00 with the Treasurer of the University must be made. This deposit is to guarantee the delivery of the required printed copies to the University Librarian within two years from the date the degree is awarded, unless such time is extended by the Committee on the Degrees of Master of Education and Doctor of Education. If such delivery is not made the deposit is forfeited.

#### 4. *The Examinations*

The candidate shall be subject to such written and oral examinations as may be prescribed by the Department of Education. These examinations may be taken at any time during the candidate's residence. The results of the examinations shall be reported in writing to the Committee, and, if these reports and the reports of the dissertation are satisfactory, the candidate shall be admitted to an oral examination before the Committee. Present at these examinations shall be (1) the staff of the Department of Education, and (2) other members of the Committee and faculty of the University as may be designated by the President.

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## TUITION FEES AND EXPENSES

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The following statements apply to all departments except Education.

### REGISTRATION FEE AND DEPOSIT

The fee for registration is \$1 per term. Payment of tuition fees is a part of registration and students are not permitted to begin work until satisfactory arrangements have been made with the Treasurer.

All students are required to make a deposit of \$20 which will be repaid them when they leave the University if there are no charges against them.

## TUITION AND LABORATORY FEES

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### FULL TIME RESIDENCE

#### Tuition Fees

The tuition fee for students who are holders of the bachelor's degree is \$100 per term. Students without the bachelor's degree are charged \$135 per term for the first three terms of residence and \$100 per term thereafter. All tuition fees are payable on the first day of each term. (See section on admission, page 18).

Withdrawals from the University should be reported promptly to the Registrar. No deduction in fees is allowed except in unusual cases.

Students who, after two years in the School of Higher Studies of the Faculty of Philosophy, present themselves as candidates for the degree of Bachelor of Arts are charged the regular college tuition fee for each term. They are credited with fees paid in the School of Higher Studies.

There is no extra charge for an elementary course in French, German or Spanish taken in the College of Arts and Sciences. The fee for such a course in the College for Teachers is \$18 per hour additional.

#### Laboratory Fees

The laboratory fee for students in the departments of Biology, Chemistry, and Physics is \$12 per term. The fee for those students who are taking work in two of these laboratories is \$20 per term. The laboratory fee for students in Geology is \$3.50 per term. Students taking part in Geological excursions pay their personal expenses. All laboratory fees are payable on the first day of each term. In all the laboratories, there are charges made for breakage, for apparatus not returned in good condition and for unusual supplies and special apparatus. Under certain conditions, the laboratory fee may be waived upon the recommendations of the director of the laboratory.

### SPECIAL STUDENTS

There are two classes of special students:

1. The privilege is offered to those who are engaged in some occupation outside the University and who are accepted as students in the School of Higher Studies to attend a limited number of lectures in the University, and/or to work in its laboratories.

The maximum number of hours of lectures or seminary work permitted is 6 per week, in case laboratory work is not done; and the maximum number of hours of laboratory work permitted is 10 per week if no lectures or seminaries are attended. If both lectures or seminary and laboratories are attended, the maximum number of hours permitted in the former is 3 and in the latter 6.

The fees charged for a term are \$12.50 per hour per week for lectures or seminaries, and \$2 per hour per week for laboratory work. Teachers of Maryland are granted a reduced rate of \$8 per hour per week for lectures or seminaries. This includes the teachers of both private and public schools of Baltimore City and the State as well as the regularly assigned substitutes. The term regularly assigned substitutes is applied to those who have annual salary status in the public school system of Baltimore. Fees are payable on the first day of each term.

2. A student who has not been admitted to any department but who wishes to attend a single course may do so with the consent of the professor in charge of the course. No record is kept of the work of such a student and the fees are those charged for students in class 1.

3. For information about the special fee of \$40.00 required of degree candidates who are not in residence see page 19.

### FEES FOR STUDENTS IN THE DEPARTMENT OF EDUCATION

Because terms in the Department of Education are sixteen weeks in length to coincide with the terms of the College for Teachers, instead of twelve weeks in length as in other departments in the Faculty of Philosophy, the fees are as follows, the conditions being the same as set forth in the foregoing sections:

Registration fee .....	\$ 1.50 per term
Deposit .....	\$ 20.00 at the time of registration
Full time tuition fee for students holding a bachelor's degree .....	\$150.00 per term
Full time tuition fee for students not holding a bachelor's degree.....	\$200.00 per term
Tuition fee for special students.....	\$ 20.00 per hour per week for lectures
Reduced rate for teachers registered as special students.....	\$ 12.50 per hour per week for lectures

## EXEMPTIONS

Members of the full-time teaching staff may take courses in any school of the University without payment of fees other than laboratory fees, but they will be liable for extra fees to cover the cost of material used. (This does not include the six week summer session.).

Former students who have received the degree of Doctor of Philosophy, Doctor of Education or Doctor of Engineering in this University may, under certain conditions, be relieved of the payment of tuition fees, but not laboratory and registration fees, for courses in the School of Higher Studies in the same field of study in which the doctorate was obtained. This privilege is sometimes extended to those who have received like degrees from other Universities.

## GRADUATION FEES

Before a degree is conferred, all outstanding accounts at the Treasurer's Office must be paid. In the case of a student who has not been in regular residence, the minimum for his tuition fees as a member of the School of Higher Studies will be equivalent to the amount charged for the minimum period of regular residence. (See p. 18.) Allowance is made for years spent in other universities, when the work done has been recognized by the department.

A deposit of \$100.00 must be made with the Treasurer by a candidate for the degree of Doctor of Philosophy or Doctor of Education before the degree will be conferred, unless he has satisfied the University requirements concerning the printing of his dissertation. (See pp. 22 and 25.)

The fees for diplomas are payable in advance and are as follows: for Master of Arts and Master of Education, \$10.00, and for Doctor of Philosophy and Doctor of Education, \$10.00, except in the case of a student who has previously received the degree of Master of Arts or Master of Education in this University, in which case the fee is \$5.00.

The University will furnish academic costume for use at public exercises. The charge for this is \$3.00.

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REGISTRATION DIRECTIONS

Registration days will be: Summer Term, July 10; Fall Term, October 9-14. Full-time students should pay their fees at the Treasurer's Office and then go to the Registrar's Office to fill in the necessary forms. Special students must report to the Registrar's Office the number of hours of work they are undertaking before their fees can be assigned. It should be noted that no student will be enrolled until he presents a receipt from the Treasurer and that no student is at liberty to attend classes until he is enrolled. The program of courses referred to on page 18 should be returned to the Registrar's Office within one week from the date of registration.

## FELLOWSHIPS AND SCHOLARSHIPS

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### FELLOWSHIPS BY COURTESY

Fellowships by Courtesy are awarded by the President upon recommendation of the Academic Council. Candidates for these honors are nominated by the departments concerned and are limited, as a rule, to persons who have received the degree of Doctor of Philosophy from this or another reputable institution, or who have attained independent reputation through publication. They must be in full-time residence at the University.

Holders of such fellowships are not charged tuition and registration fees; but they are not relieved of the payment of the laboratory fees and the deposit except by special action. Exception to this rule is made in the case of National Research Council Fellows, who pay no fees.

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### UNIVERSITY SCHOLARSHIPS

The Board of Trustees has established a number of scholarships of \$100 a term each in the School of Higher Studies. Students in residence and prospective students may apply. Part of the money available for this purpose accrues from the Fulton Endowment Fund and, consequently, the scholars assisted by this income are called Charles Carroll Fulton Scholars. In every case the amount granted is to be applied towards tuition.

Application for the Summer or Fall Terms must be made before March

1. Application for the Winter or Spring Terms must be made three months before the beginning of the term. Blanks for this purpose may be secured from the Registrar's Office. Successful candidates are expected to signify their acceptance within fifteen days after their appointment. Preference is given to candidates for the Ph. D. degree. Scholarships may be forfeited because of frequent or prolonged absence, defective scholarship or unworthy conduct. They are open only to students who expect to be in full residence during the year for which they are applying.

Special scholarships covering two-thirds of the cost of tuition are granted to students in the School of Higher Studies who have completed all their courses and residence requirements (i. e., at least nine terms, the equivalent of three years graduate work), have been in residence at this University for six terms, have been accepted as candidates for the doctor's degree, and are recommended by the department in which they are working as worthy of this encouragement.

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## PRESIDENT'S SCHOLARSHIP FUND

The President's Scholarship Fund was established in 1940 for the purpose of extending financial aid to a limited group of scholars of outstanding promise for work in the School of Higher Studies of the Faculty of Philosophy. For the coming year six scholarships from this Fund will be offered: three will be offered in the Department of Physics, the stipends of which will be \$1450 each for a period of four terms, without exemption from tuition and laboratory fees; three scholarships will be offered in the Department of English, the stipends of which will be \$800 each for a period of three terms, without remission of fees. These appointments are made by the President of the University for one year.

Application for the Summer or Fall Terms must be made before March 1. Application for the Winter or Spring Terms must be made three months before the beginning of the term. Blanks for this purpose may be secured from the Registrar's Office.

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THE NATIONAL FELLOWSHIP PLAN

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In 1928 the Department of Chemistry of The Johns Hopkins University initiated the National Fellowship Plan. The purpose of this plan is to bring selected students from all parts of the nation to the university to train them for careers in chemical research. An effort is made to select students of exceptional promise. The stipend of a fellowship which is held for the full period of graduate study is four thousand dollars.

National fellows are usually selected from the senior classes of colleges and universities, but in exceptional cases a first-year graduate student, a junior or a sophomore may be chosen. A student is eligible for a fellowship in the state where he holds residence or in the state where he has attended college. At the founder's request the fellowship may be given at large.

While a student may hold the fellowship for twelve quarters, in order to do so he must maintain a high standard of work. His continuance in the fellowship is contingent upon reappointment each year by the fellowship committee.

Application blanks and further information may be obtained from the Director of National Fellowships, Department of Chemistry.

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WILLIAM KEITH BROOKS RESEARCH FUND

In connection with the Half-Century Campaign of 1925, the alumni of the department of Zoology, Botany and Plant Physiology made contributions to establish an endowment fund in memory of Professor William Keith Brooks (1848-1908) first Professor of Zoology in this University.

By action of the trustees in 1931 it was provided that one-half of the income of the fund was to be added to the principal each year until the principal should amount to \$50,000; that the remaining one-half of the annual income was to be made available for awards to scholars in Zoology and Botany. After the fund amounts to \$50,000 the entire income is to be made available for such awards.

The general intent of the fund is to aid research in zoology and botany in proportion to subscriptions received from zoologists and botanists with emphasis upon aid to young men who may thus be enabled to complete research in hand or to broaden their fields of experience as by work in the tropics or abroad. Only applicants who are holders of a doctor's degree or who are approaching the completion of the work for this degree will be considered. The income available for awards in 1944-45 is \$350.

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#### THE ADAM T. BRUCE FELLOWSHIP

This fellowship was founded in 1887 by the mother of Adam T. Bruce, Ph. D., late fellow and instructor in this University, as a memorial to her son. In 1925, Mr. Frederick Bruce made an additional gift which was added to the fund. The stipend is \$1,000. The fellowship is bestowed annually upon the candidate who is considered most likely to promote biological science, and particularly zoology, by original research. The award is made by the Academic Council on the recommendation of the Department of Zoology.

#### REGULATIONS

Candidates for the Bruce Fellowship must make application before the first of March on blank forms to be secured from the Registrar. They must forward to the President, at the same time, such evidence of their qualifications for appointment as they desire to be considered; and any candidate may be required to appear in person. The successful candidate is expected to signify his acceptance not later than April 15.

The Bruce Fellow shall devote his time and study and research in biology at a place approved by the President of the University, and he shall, during the month of February in the year of his tenure of the fellowship, send to the President a written statement of the scientific work accomplished by him since his appointment.

The Bruce Fellow may be reappointed, but not oftener than twice, and he shall be exempt from charges for tuition and laboratory fees.

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#### THE EDWARD FRANKLIN BUCHNER RESEARCH FUND IN EDUCATION

The Edward Franklin Buchner Research Fund in Education was established in 1925 by the friends, alumni, and students who wished to honor Professor Edward Franklin Buchner and who wished to show their appreciation of what he had done for students in education at the Johns Hopkins University. The income is available for appropriations for research fellowships in Education. The stipend is \$300. The incumbent is not exempt from tuition and other fees.

The scholarship is open to men and women. It is offered to candidates of superior ability who can give evidence of a liberal education, such as the diploma of a college of good repute, and who are interested in research in the field of education. Application must be made before March 1 on a prescribed form to be obtained from the Registrar.

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#### THE DU PONT FELLOWSHIP

In order to encourage more promising students to engage in research work in the field of chemistry, E. I. Du Pont De Nemours & Company, Inc., have offered a fellowship in chemistry with a stipend of \$750 for 1944-45. The recipient of the award must submit quarterly a brief report of the progress of his research work. Application blanks and information may be secured from the Department of Chemistry.

#### THE MARSHALL ELLIOTT ROMANCE SCHOLARSHIP

The will of Professor A. Marshall Elliott, who died in 1910, contains the following provision: "I give and bequeath to the Johns Hopkins University, a body corporate, the sum of two thousand dollars to be used for the establishment of a scholarship for graduate students to be known as 'The Marshall Elliott Romance Scholarship in the Johns Hopkins University.'"

The scholarship thus established is awarded annually, just before the Christmas recess, by the Academic Council, to one of the students in Romance Languages who at the time are in their first or second year of work in the School of Higher Studies of the Faculty of Philosophy. The stipend of the scholarship is \$65.

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#### THE TENNEY FRANK FELLOWSHIP IN LATIN

This fellowship was established in 1939 as a memorial to Dr. Tenney Frank, Professor of Latin in the University from 1919 until his death in 1939. It is awarded annually upon the recommendation of the Latin Department to a candidate adequately equipped by training in Greek and Latin to pursue advanced study in this department. The stipend of the fellowship is \$500 and the holder is exempt from all tuition fees.

Application forms may be secured from the Registrar's Office and must be filed before March 1.

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#### THE BASIL L. GILDERSLEEVE FELLOWSHIP

During the half-century campaign in 1925, the University received contributions from the friends and former students of Dr. Basil Lanneau Gildersleeve, late Professor of Greek in this University. In a bequest



under her will, Mrs. Gildersleeve added to this fund, and the total amount, plus the interest which had accumulated and had been added to the principal, is now known as the Gildersleeve Fellowship Fund. The income of the fund is used as a fellowship and is awarded each year to a student in the Department of Greek. The stipend is \$625. Application should be made on a form to be secured from the Registrar, and should be filed before March 1.

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#### THE WILLIAM H. GRAFFLIN SCHOLARSHIP

The Grafflin Scholarship was established in 1918 by a bequest of the late William H. Grafflin, of Baltimore, and is awarded to an advanced student who desires to conduct research in industrial chemistry. Only applicants who are holders of the doctor's degree or who are approaching the completion of the work for this degree will be considered. The appointment is made for one year with the possibility of renewal. The stipend is \$1500 per annum. If the holder of the scholarship is a candidate for a degree, he is not exempt from tuition and other fees.

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#### THE CORNELIA G. HARCUM SCHOLARSHIP

As the result of a bequest of Miss Cornelia G. Harcum, a student in the Department of Archaeology, the University has established a scholarship open to women students in classical archaeology. The scholarship is called the Cornelia G. Harcum Scholarship, and its stipend is \$225. The holder is not exempt from tuition and other fees. Candidates must make application before the first of March on blank forms to be secured from the Registrar.

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#### THE WARREN B. HUNTING SCHOLARSHIP

In December 1925, the Trustees accepted from Mrs. Alice E. Hunting a sum of money for the establishment of a scholarship fund in honor of her son Warren Belknap Hunting, the fund to be known as the Warren Belknap Hunting Memorial Fund. Students in the Department of Political Science of the Philosophical Faculty are eligible for this scholarship the stipend of which is \$175. Applicants should apply on a blank form to be secured from the Registrar, before March 1, giving a brief statement of their academic interests and enclosing suitable recommendations. The holder of the scholarship is not exempt from tuition or other fees.

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## THE JOHNSTON SCHOLARSHIPS

The scholarships, of which there are three, known as the Henry E. Johnston Scholarship, the James Buchanan Johnston Scholarship, and the Henry E. Johnston, Jr., Scholarship, were founded in 1904 by Mrs. Harriet Lane Johnston, of Washington, formerly of Baltimore, in memory of her husband and her two sons. Three are awarded annually on the recommendation of the Academic Council. The stipend of each scholarship is \$500. The holders of these scholarships will be exempt from tuition fees. The Henry E. Johnston Scholarship will be awarded to a candidate in the Department of Political Economy. The James Buchanan Johnston Scholarship will be awarded to a candidate in the Department of Political Science. The Henry E. Johnston, Jr. Scholarship will be awarded to a candidate in the Department of Romance Languages. Candidates must make application before the first of March on blanks to be secured from the Registrar.

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## THE MALCOLM H. LAUCHHEIMER FELLOWSHIP

In 1937, Mr. and Mrs. Jacob M. Lauchheimer endowed a fellowship to be known as the "Malcolm H. Lauchheimer Fellowship," as a memorial to their son who received from this University the degrees of A. B. in 1914 and of Ph. D. in 1917. The fellowship with an annual stipend of \$250 is open to students in Political Science, but exceptions may be made in favor of the Department of History should there be found a candidate in that department whose interests and work are primarily in the field of constitutional history. Candidates must make application before the first of March on blanks to be secured from the Registrar.

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## THE GEORGE PEABODY SCHOLARSHIP

The George Peabody Scholarship was founded in 1912 by the Trustees of the Peabody Education Fund, who, in partial preparation for the closing of the Trust, presented to the University a gift which, increased by accrued income, is used as the endowment of a Peabody Scholarship in the Department of Education of the Faculty of Philosophy.

The scholarship is open to men and women who are residents of "The Southern and Southwestern States of our Union," including Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, Missouri, North Carolina, South Carolina, Tennessee, Texas, Virginia and West Virginia. It is offered to candidates who can give evidence of a liberal education, such as the diploma of a college of good repute, and who intend to continue work in education, preferably in connection with a system of public schools in the territory mentioned above. The stipend of the scholarship is \$250. The incumbent is not exempt from tuition and other fees, and is eligible for reappointment. Application must be made before March 1 on a prescribed form to be obtained from the Registrar.

## THE WALTER COTTRELL QUINCY FUND

Mrs. Martha R. Quincy, formerly of Pittsburgh, provided by will for a legacy to the University, to establish the "Walter Cottrell Quincy Fund," the annual income of which is to be equally divided among four meritorious students in the Department of Physics to be selected by the President of the University. The income available for awards in 1944-45 is \$640. The holders of these scholarships are not exempt from tuition and other fees. This fund was established in 1914.

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## THE WILLIAM S. RAYNER FELLOWSHIP

The Rayner Fellowship was founded in 1899 by Mrs. Bertha Rayner Frank and Mr. Albert W. Rayner, of Baltimore, to perpetuate in this University the name of their father, Mr. William S. Rayner, who had made unusual attainments in the Hebrew language and was interested in the promotion of Semitic studies. The stipend of the fellowship, which is bestowed annually by the Academic Council upon an advanced student in the department of Semitic languages, is \$325. The holder is exempt from tuition fees. Blank forms of application may be secured from the Registrar and must be filed before March 1.

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## THE EDMUND LAW ROGERS FELLOWSHIP

This endowment was established in 1910 by Mrs. Edmund Law Rogers and her daughter, Mrs. Kirby Flower Smith, in memory of the late Edmund Law Rogers, of Baltimore, and is known as the Edmund Law Rogers Fellowship.

The stipend of the fellowship is \$300 and the holder is exempt from tuition fees. It is awarded annually for proficiency in both the Greek and Latin languages and literatures. The candidate must have had at least two years of study in the Department of Latin of the School of Higher Studies of the Faculty of Philosophy of the Johns Hopkins University, or have satisfied the examiners of his training and ability by written examinations and the submission of a thesis. Application must be made before March 1, on a blank form to be secured from the Registrar.

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## THE JOHN ADAMS SCOTT SCHOLARSHIP

In June 1928, the Trustees accepted the offer of Mr. John C. Shaffer, of Chicago, to endow a scholarship for a student in Greek, to be known as the "John Adams Scott Scholarship," in honor of Professor Scott of Northwestern University, who received the degree of Doctor of Philosophy from this University in 1897. The stipend of \$225, is to be used in the discretion

of the Department of Greek in the University to help any student who is worthy of assistance. Candidates must make application before the first of March on blanks to be secured from the Registrar.

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#### THE ELLA E. SLACK SCHOLARSHIP

Mrs. Ella E. Slack, who died November 4, 1923, made a bequest to the University under the following provisions: "and so assign, transfer and convey residue to Johns Hopkins University, absolutely and free of further trust; with the request to said University that said fund be used for the establishment of a scholarship to be known as the 'Ella E. Slack Scholarship' the income from which shall be used to aid such student or students as said University may from time to time select." The stipend of the scholarship is \$275. The scholarship is awarded to a student in the School of Higher Studies of the Faculty of Philosophy and preference will be given to those subjects of study for which there is no other endowed scholarship or fellowship. The holder of the scholarship is not exempt from tuition or other fees. Candidates must make application before the first of March on blanks to be secured from the Registrar.

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#### THE JOHN MARTIN VINCENT FELLOWSHIPS

In April 1941 the Trustees established two Fellowships in the Department of History in recognition of the generosity of the late Professor John Martin Vincent, to be known as the John Martin Vincent Fellowships. Appointments will be made by the President of the University and will be for a period of one year. One fellowship will carry a stipend of \$1000, the other will carry a stipend of \$800. The holders of these fellowships are not to be exempt from tuition fees.

Application forms may be secured from the Registrar's Office and must be filed before March 1.

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#### THE CHARLES A. W. VOGELER MEMORIAL ARCHAEOLOGICAL FUND

Mr. Charles A. W. Vogeler, a former student of the Johns Hopkins University, who died on March 21, 1919, bequeathed this fund to the Trustees to be used for research in Greek Archaeology. It has been decided that the fund shall be placed at the disposal of the Department of Archaeology and Art, the income to be used for a fellowship—in which case the University will add the privilege of exemption from tuition fees—or for research abroad, or for any other purpose that the department may deem proper. The stipend of the fellowship is \$175. Candidates must make application before the first of March on blank forms to be secured from the Registrar.

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## PHI BETA KAPPA

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The Johns Hopkins University chapter of Phi Beta Kappa (Alpha of Maryland) was established in 1895. Each year the chapter elects to membership a limited number of members of the senior class of the College of Arts and Sciences, a small number of graduate students in the Faculty of Philosophy, and students in the School of Medicine whose records denote superior scholarship.

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## THE JOHNS HOPKINS CLUB

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The Johns Hopkins Club includes members of the faculty, alumni, and resident graduate students. The Club House, which was erected through the generosity of Mr. Theodore Marburg and Miss Amelia Marburg as a memorial to William A. Marburg and Charles L. Marburg, is located on the north side of the botanical gardens. There are spacious dining rooms, a comfortable lounge, game rooms, reading rooms, a smoking room and refreshment room as well as locker rooms and showers.

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## BUREAU OF APPOINTMENTS

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The University maintains a Bureau of Appointments which is under the supervision of the Registrar. The office of the Director of the Bureau is room 17, Remsen Hall. Here a register is kept of all present and former students who care to avail themselves of the University's assistance in finding permanent employment or part time and vacation work. No charge is made for services to applicants or employers and all who are interested are invited to call or write for further information.

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## LIBRARIES

THE UNIVERSITY LIBRARIES include about 689,024 bound volumes, selected with reference to the instruction and research carried on at Johns Hopkins. Of these volumes about 547,442 are housed at Homewood in Gilman Hall and in the following departmental libraries: chemistry, geology, engineering, physics, and biology. The main reading room, in which nearly 200 readers can be accommodated, contains a reference collection of about 10,000 volumes. Two other reference rooms, one for history, economics, political science, and law and one for the Greek and Latin classics, education, philosophy, and orientalia, are in the same building. Desks for the use of graduate students are provided in the bookstacks in close proximity to the collections with which they work.

The main reading room is open daily, except Sunday, from 9 a. m. to 9 p. m. (on Saturdays until 4 p. m.) and the other reference and reading rooms until 5 p. m., with provision in special cases for later hours.

THE WILLIAM H. WELCH MEDICAL LIBRARY, on Monument Street near Wolfe Street, contains the collections of the medical and allied sciences numbering about 141,582 bound volumes. Here in a library building of exceptional beauty and convenience the libraries of the School of Medicine, the School of Hygiene, and the Johns Hopkins Hospital have been combined into one central collection with ample facilities for reading and research.

THE PEABODY LIBRARY is a choice collection of books purchased since 1861. It is particularly full in the transactions of learned societies, in long historical series, and in costly illustrated books and includes 249,598 bound volumes and pamphlets, well catalogued and arranged and 1,790 maps. It is open daily without charge, from 9 a. m. to 6 p. m. THE MARYLAND DIOCESAN LIBRARY, of more than 32,000 volumes, is housed in the Peabody Library Building.

THE ENOCH PRATT FREE LIBRARY, at its central building, had on December 31, 1943, a total of 542,559 volumes, and at its 26 branches 263,287 more, duplicate copies. Its "all" depository of U. S. documents is completely classified and catalogued. Included in the above book stock figures are 60,379 volumes of important bound periodicals and transactions in every field, some of them beginning in the 18th century. More than 1,650 different current periodicals are received. The service of the Central Library is organized into nine subject departments—Science and Industry; Business and Economics; Civics and Sociology; Education, Philosophy and Religion; History and Travel; Biography; Literature; Fine Arts; Maryland. Each has a specially qualified staff for reference work, and issues an annual list of additions in its field. Open weekdays 9 a. m.—9 p. m. Its Peabody Heights Branch is not far distant from the campus (St. Paul St. near 25th St.); hours 1-9 p. m.

THE MARYLAND HISTORICAL SOCIETY LIBRARY contains 40,000 volumes of historical works and is open daily, except Sundays and holidays from 9-5 p. m.; Saturdays 9-4 p. m.

Other important libraries of Baltimore are the Bar library (70,942 volumes), and the Medical and Chirurgical Library (64,000 volumes).

Washington is so near that its museums and libraries may be easily visited. Among the chief institutions of interest to students are these:

- The Library of Congress.
- The Folger Shakespeare Library.
- The Smithsonian Institution and National Museum.
- The Army Medical and Surgical Museum and Library.
- The U. S. Coast and Geodetic Survey.
- The U. S. Geological Survey.
- The U. S. Naval Observatory.
- The Libraries of the Departments and Bureaus.
- The Corcoran Art Gallery.
- The National Gallery of Art.

## DEPARTMENTAL ANNOUNCEMENTS

### ARCHAEOLOGY AND ART

Professor ROBINSON

The archaeological material in the possession of the University includes good collections of inscriptions, marbles, bronzes, vases and other terracottas, coins, gems, etc., which not only serve the purpose of illustration but also form the basis of original investigation. These are supplemented by squeezes, photographs, and lantern slides, and by visits to museums in Baltimore, Washington, Philadelphia, and New York.

The subjects treated in the Seminary, or presented in lectures, vary from year to year, so that in three or four years of continuous residence students are brought into contact with the most important fields of archaeological research. The following courses will be given in 1944-45, running through three terms beginning on October 9, January 8, and April 9. Lectures, reports, and required reading in all courses. Other courses may be added.

1 P. Seminary in Greek and Roman Art. A three term course. Fall, Winter, and Spring. One hour weekly.

Reports and papers on original subjects. Problems in Greek and Roman Archaeology and Art. Study of results of excavations at Olynthus.

2 CP. Early Greek Vases, illustrating Greek Art and Religion. A one term course. Fall. One hour weekly.

3 CP. Greek Vases, illustrating Greek Life and Mythology. A one term course. Winter. One hour weekly.

4 CP. Later Greek and Roman Vases. A one term course. Spring. One hour weekly.

5 CP. The History and Topography of Athens. A three term course. Fall, Winter, and Spring. One hour weekly.

6 CP. Readings in Greek and Roman Historical Inscriptions. A three term course. Fall, Winter, and Spring. One hour weekly.

Use of originals, squeezes, and photographs.

7 CP. History of Greek Literature. A three term course. Fall Term: The Epic. Winter Term: Lyric Poetry and The Drama. Spring Term: Prose, Historians, Philosophers, and Orators. One hour weekly.

For those who are interested in Greek literature and its influence on later times. Translations will be used, and Greek, while desirable, is not required.

8 CP. Modern Colloquial and Archaeological Greek (for those who may go to Greece or be called on to translate or speak Greek). A three term course. Fall, Winter, and Spring. One hour weekly.

9 CP. Greek History from Prehistoric Times to the Peloponnesian War. A three term course. Fall, Winter, and Spring. One hour weekly.

For other courses in Art see announcements of the Department of History, and of the College for Teachers, especially *History of Art from the Pyramids to Picasso*, and *History of Greece, Archaeological, Religious, and Cultural*.

## BIOLOGY

Professor WILLIER

Associate Professor EHRUSI

Associate Professor SKOOG

Dr. KIMBALL

Dr. BOKE

Dr. RIS

Dr. SUTTON

Dr. RAWLES

Requirements for the degrees Master of Arts and Doctor of Philosophy include: (1) a thorough knowledge of either botany or zoölogy, or the two fields jointly; (2) two or three courses of graduate grade; (3) a dissertation. A reading knowledge of French and German is essential. For the degree of Doctor of Philosophy the principal emphasis is upon research, but a knowledge of related fields is necessary to insure scholarly investigation.

Applicants for admission to graduate work in biology should normally have had a thorough training in the fundamentals of botany, zoölogy, or both. In addition they should have had organic chemistry, college physics and geology. The ability to read French and German is desirable. A knowledge of calculus, statistics and physical chemistry will prove of considerable value in certain phases of biological work.

Graduate students desiring admission should apply not later than March 1 of the preceding year to the Chairman of the Department. Students who wish to enter without the bachelor's degree (in accordance with the conditions set forth on page 18) should correspond, or have a personal interview as early as possible, with some member of the departmental faculty.

51 P. Invertebrate Zoology. Every graduate student is encouraged to spend at least six weeks in the study of invertebrates in a marine biological laboratory where he will have access to living marine organisms in their natural habitat. A few scholarships are available for this purpose.

57 P. General Embryology. Professor WILLIER. A one term course. Not offered 1944-45.

The early stages of the development of invertebrates and vertebrates, including maturation and fertilization of the ovum, cleavage, and the formation of the germ layers; origin of the embryo. Embryological theories. Embryological technique.

Prerequisite: Biology 1 C or equivalent; a knowledge of invertebrate zoology is desirable.



- 59 P. Experimental Embryology. ————. A one term course.  
Not offered 1944-45.

An analytical study of the processes of embryonic development with laboratory work illustrating the fundamental methods and techniques.

Prerequisite: Biology 1 C or equivalent.

- 63 P. Comparative Plant Morphology. Dr. BOKE. A two term course.  
To begin any term.

The structure, development, and evolution of plants.

Prerequisite: Biology 1 C; Biology 2 C recommended.

- 64 P. Plant Physiology. Associate Professor SKOOG. A one term course.  
Offered each term.

The physiology and biochemistry of nutrition, water-relations and growth of the higher plants.

Prerequisite: A course in general botany and some knowledge of organic chemistry.

- 65 P. Cytology. Dr. RIS. A one term course. Offered each term if  
sufficient demand.

The structure and function of cellular components with emphasis on relations to genetics and evolution. Introduction to microscopic technique.

Prerequisite: Biology 4 C or equivalent.

- 116 P. Physiology of Development. Professor WILLIER. Reports and  
conferences on assigned topics. Fall term. Two hours weekly.

A consideration of the records of classical investigation on such subjects as embryonic organization and differentiation, hormones in development, sex-differentiation, neuro-embryology, and growth.

Prerequisites: Biology 8 C and 57 P or equivalents.

- 117 P. Genetics Seminar. Associate Professor EPHRUSSI and Dr. KIM-  
BALL. Reports and conferences on assigned topics. Winter term. Two  
hours weekly.

A consideration of the important literature on such subjects as physical bases of heredity, sex-determination, genes and the developmental process, mutation, and the genetic basis of evolution.

Prerequisite: Biology 4 C or equivalent.

- 118 P. Growth Seminar. Associate Professor SKOOG. Reports and con-  
ferences on assigned topics. Spring term. Two hours weekly.

A consideration of literature dealing with analysis and present concepts of plant growth with particular emphasis on synthetic and regulatory processes.

Prerequisites: Biology 2 C and Chemistry 2 C or equivalents.

- 218 P. Research in Structural Botany. Dr. BOKE. Offered each term.

Original investigation on problems in developmental anatomy and morphology of vascular plants. Limited to students who show promise of research ability.

- 219 P. Research in Plant Physiology. Associate Professor SKOOG.  
Offered each term.

Research by qualified students on problems related to the nutrition, growth and correlation in plants.

Prerequisites: Biology 2 C and Chemistry 2 C or equivalents.

- 220 P. Research in Genetics. Associate Professor EPHRUSSI, Dr. KIM-  
BALL and Dr. SUTTON. Offered each term.

Original research by advanced students on problems in cytogenetics, physiological genetics and genetics of protozoa.

221 P. Research in Cytology. Dr. Rts. Offered each term.

Research by advanced students on problems of descriptive and experimental cytology.

222 P. Research in Physiology of Development. Professor WILLIER.  
Offered each term.

Limited to those who are fully competent to carry on original investigations in the field of analytical embryology.

223 P. The Biology Club is composed of members of the staff and advanced students in the biological sciences and meets weekly for the presentation and discussion of the research work of the members of the departments as well as for review and discussion of important new literature. The meetings are open to all students interested in biological phenomena.

Additional graduate courses in biology are offered in the School of Hygiene and Public Health and the School of Medicine. For information concerning such offerings see the University Circulars of these schools.

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## CHEMISTRY

Professor PATRICK

Professor ANDREWS

Professor FOWLER (on leave)

Associate Professor CORWIN

Associate Professor WISELOGLE  
(on leave)

Dr. LIEBEN

Dr. LORD (on leave)

Dr. ZIEGLER (on leave)

Dr. HICKMAN (on leave)

Dr. BRUNINGS

Dr. CHRIST (on leave)

Dr. HALVERSON

Dr. ROSSI

Students are admitted to the Graduate Department of Chemistry under either of the two plans described on page 18 provided vacancies exist in the department. All students seeking admission under either plan, including those already enrolled in other branches of the University, must make application to the admission committee of the department. Blank forms for application should be secured from the Secretary of the department. Applications will be considered and reported on as promptly as possible after their receipt.

The plan for the admission of students who do not hold a bachelor's degree (Plan 2) is limited in its application to a few students of exceptional promise and demonstrated ability. Such students normally are expected to have completed, with honors, year courses in General or Inorganic Chemistry, Organic Chemistry, College Physics and Calculus, and also to possess a reading knowledge of French and German.

Students enrolling in the department for the first time are requested to present themselves on the Tuesday preceding the formal opening of the University term for informal placement examinations. The object of these

examinations is to facilitate the orientation of new students in the department and to indicate their courses of study for the year. These examinations will include mathematics, physics, physical, organic and inorganic chemistry. Reading examinations in scientific French and German will also be required at this time of all entering students who have studied these languages.

Because of the part which the department is playing in the war effort, it is not possible to plan in advance the details of the schedule with any certainty. The program of courses which follows shows the general nature of the material which the staff plans to offer.

**50 C. Intermediate Organic Chemistry.** Dr. BRUNINGS. A one term course. Lectures and recitation four hours weekly.

**51 C. Organic Qualitative Analysis.** A one term course. Laboratory six hours weekly.

**52 C. Organic Preparations.** Dr. BRUNINGS. A one term course. Lecture one hour weekly, and laboratory six hours weekly.

**53 C. Advanced Organic Laboratory Practice.** Associate Professor CORWIN. A one term course. Laboratory six or nine hours weekly.

**70 C. General Physical Chemistry.** Professor PATRICK. A two term course. Lectures and recitation four hours weekly.

**71 C. Physico-Chemical Laboratory Practice.** Dr. HALVERSON. A one term course. Laboratory nine hours weekly.

**102 P. Advanced Organic Chemistry.** Associate Professor WISELOGLE. A one term course. Not offered in 1944-45.

The course will cover intensively and in detail a single branch of organic chemistry. In 1943 the chemistry of nitrogen compounds was treated from the standpoint of structure, of bond strength, of configurational stability and of general reaction mechanism.

**104 P. Chemical Thermodynamics.** Professor Patrick. A two term course. Three lectures weekly.

Following a review based on mathematically rigorous methods of the fundamental thermodynamic laws and functions, a survey is made of the more important applications of thermodynamics to physico-chemical problems with special emphasis on the calculation of chemical equilibria. The numerical solution of complex problems employing data as it occurs in primary reference sources is an important part of the course.

**106 P. Special Topics in Physical Chemistry.** Professor PATRICK. A two term course. Three lectures weekly. Not offered in 1944-45.

Lectures in electro-chemistry and surface chemistry in alternate years. Thermodynamic calculation of half cell reactions leading to a coordination of the major problems of aqueous inorganic chemistry. The surface chemistry deals with the multiple relations between surface, electrical and chemical energies.

**110 P. Advanced Organic Chemistry.** Associate Professor CORWIN. A two term course. Two lectures weekly.

Chemistry 50 C or its equivalent will be prerequisite. A critical discussion of some of the modern theories of organic chemistry. Considerable descriptive material is included but the emphasis is upon the mechanisms of organic reactions and experimental methods available for establishing them.

- 111 P. **Advanced Organic Chemistry Laboratory.** Associate Professor CORWIN. A one term course offered each term. Six laboratory hours weekly.

This laboratory is designed to acquaint the future specialist in organic chemistry with laboratory tools essential to his work. Chemistry 50 C or its equivalent is prerequisite.

- 112 P. **Introduction to Atomic and Molecular Spectra.** Dr. HALVERSON and Dr. ROSSI. A three term course. Two lectures weekly.

The topics treated will include the experimental side of atomic spectra, theory of atomic spectra, atomic structure and the Periodic Table, the various types of molecular spectra and their interpretation, molecular structure and the theories of chemical binding.

- 114 P. **Crystal Chemistry.** Dr. HICKMAN. A two term course. Two lectures weekly. Not offered in 1944-45.

A study of interpretation of observed crystal structures and their correlation with physical and chemical properties.

- 170 P. **Special Topics in the History of Chemistry.** Dr. LIEBEN. A one term course. One lecture weekly.

The historical aspects of certain selected fields in chemistry will be presented, with emphasis on the relations between chemistry and the life sciences.

- 200 P. **Chemistry of Natural Products.** Associate Professor CORWIN. A one term course. Two lectures weekly.

The subject matter of this course varies with the trend of current discoveries. During the past few years it has included proteins and amino acids, nucleic acids, enzymes, alkaloids, simple hormones, sugars, terpenes, carcinogenic materials, sterols, sex hormones, cardiac aglucones, porphyrins, and the chemistry of all the known vitamins and related products. Emphasis is upon the chemical methods available for proof of structure and the peculiarities of poly-functional systems.

- 201 P. **Organic Preparations.** Associate Professor CORWIN. Offered each term. Six laboratory hours weekly.

The preparations in this course can be varied to suit the interest and needs of the student. It is designed to accompany course 200 P and includes both synthesis and isolation of naturally occurring substances.

- 202 P. **Instruments and Laboratory Apparatus in Organic Chemistry.** Associate Professor CORWIN. A one term course. Two lectures weekly. Not offered in 1944-45.

This course will include a discussion of the details of construction and manipulation of a number of instruments of value in organic chemical work. Especial emphasis will be laid upon instrumental errors and their evaluation, the errors in quantitative laboratory procedures and the theoretical aspects underlying these procedures.

- 204 P. **Organic Degradations.** Associate Professor CORWIN. A one term course. Two lectures weekly. Not offered in 1944-45.

This course is designed to supplement the usual undergraduate course in qualitative organic analysis. Its purpose will be to acquaint the student with general methods for the elucidation of chemical structures which can be applied to substances not amenable to treatment under the standard qualitative analytical schemes. It is intended to serve as an introduction into methods applicable to the study of biochemical unknowns and new natural products as well as the structures of synthetic unknowns formed by accident.

- 220 P. **Application of Modern Physical Methods and Theories to Organic Chemistry.** A one term course. Not offered in 1944-45.

A discussion of the use of dipole moments, magnetic susceptibilities, molecular spectra and

other physical techniques in the solution of the organic chemist's problems. Recent theories of chemical binding, of organic reactions and of light absorption by organic compounds will be considered. Course 112 P is a prerequisite for admission.

**230 P. Chemical Quantum Mechanics.** Professor ANDREWS. A two term course. Three hours weekly. Not offered in 1944-45.

A brief review of elementary quantum mechanics is followed by a discussion of applications to chemistry, with special emphasis on the quantum mechanical treatment of the chemical bond, compound formation and crystal structure.

**232 P. Statistical Mechanics in Chemistry.** Professor ANDREWS. A one term course. Not offered in 1944-45.

The foundations of statistical mechanics are discussed especially with relation to quantum mechanics and thermodynamics. Applications are made to the theories of heat capacity, spectra, diffusion, equilibria and statistical mechanics in problems of chemical research.

**234 P. Chemical Kinetics.** Professor ANDREWS. A one term course. Not offered in 1944-45.

The interpretation of the phenomena of chemical kinetics is discussed from the point of view of statistical mechanics and quantum mechanics. Problems are assigned covering calculation of potential energy surfaces, absolute reaction rates, and other topics which provide practice in the application of the principles of kinetics in chemical research.

**240 P. Mathematics in Chemical Theory.** Professor ANDREWS. A one term course. Not offered in 1944-45.

A discussion of the mathematical structure underlying the relations of thermodynamics, statistical mechanics and quantum mechanics especially as applied to chemical problems. The use of vector and tensor analysis, matrix algebra, the theory of groups, and general algebraic theory in chemical physics will be surveyed.

**250 P. Nuclear Chemistry.** Professor FOWLER. A one term course. Not offered in 1944-45.

The work of this course covers the principles and experimental procedures used in the study of nuclear transformations. Natural radioactivity, nuclear disintegration by alpha particles, protons, deuterons and neutrons, nuclear scattering, induced radioactivity, isotope separation, and the application of radioactive isotopes, and separated stable isotopes in chemical problems will be some of the subjects discussed.

**261 P. Advanced Laboratory in General Chemistry.** Professor PATRICK. Offered three terms. Six laboratory hours weekly.

The student is given the option here of laboratory work in physical or advanced inorganic chemistry laboratory.

**271 P. Advanced Laboratory in Chemical Physics.** Dr. ZIEGLER and Staff. Offered three terms. Six laboratory hours weekly.

Opportunity will be given for advanced experiments and preliminary research problems dealing with high vacua, precise electrical measurements, spectrography, low temperature phenomena, radioactivity induced by high voltage, isotope separation, the determination of structures with the help of X-rays, and related topics.

### *Seminaries*

Announcement will be made at the beginning of each term of the seminars to be offered.

**302 P. Colloid Chemistry.** Professor PATRICK. Not offered in 1944-45.

A seminar dealing with the physical and chemical phenomena occurring at surfaces, including the various electrical potentials involved.

- 304 P. Special Topics in Chemical Physics. Professor ANDREWS and Dr. ZIEGLER. Not offered in 1944-45.

Each year the seminary is devoted to selected fields such as Raman spectra, chemical binding, structure of molecules, heat capacities, band spectra and the like. Discussion covers the general background and current papers in the fields.

- 306 P. Applications of Quantum Mechanics to Chemistry. Professor ANDREWS. Not offered in 1944-45.

The seminary is devoted to a discussion of the role of quantum mechanics in the theories of the chemical bond, crystal structure, the metallic state, catalysis, chemical kinetics and the like. A knowledge of the exact treatment of the harmonic oscillator, the hydrogen-like atom, and other parts of elementary quantum mechanics is assumed.

- 308 P. Organic Chemistry. Associate Professor CORWIN and Dr. BRUNINGS.

The group will discuss topics selected from the whole field of organic chemistry. Emphasis will be upon structures of naturally occurring products, mechanisms of organic reactions and applications of new methods to the solution of organic problems.

- 310 P. X-Rays and Crystals. Dr. HICKMAN and Dr. CHRIST. Not offered in 1944-45.

Theory of diffraction by crystalline and amorphous materials. The Laue equations. The reciprocal lattice of Ewald. Interpretation of powder and single crystal photographs. Methods of crystal structure analysis. Trial and Error; Fourier analysis including Patterson-Harker Method; Algebraic Method; Crystal chemistry.

- 312 P. Nuclear Chemistry. (Joint seminar with the Physics Department.) Professor FOWLER and Associate Professor INGLIS. One hour weekly. Not offered in 1944-45.

- 314 P. Biochemistry. Associate Professor CORWIN, Dr. LIEBEN and Dr. BRUNINGS.

Special topics in the field of biochemistry.

#### *Research Seminars*

These are conducted in connection with the various fields of research. For the time and place of meeting consult with the members of the staff in charge.

- 402 P. Colloid and Electro Chemistry. Professor PATRICK.

- 404 P. Thermodynamics and Low Temperature Phenomena. Professor ANDREWS and Dr. ZIEGLER.

- 406 P. Biochemistry. Associate Professor CORWIN.

- 408 P. Organic Chemistry. Associate Professor WISELOGLE.

- 410 P. Nuclear Chemistry. Professor FOWLER.

#### *Journal Meeting.*

Research. A large part of the effort of the Department is devoted to original research by students working independently or in collaboration with members of the staff.

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## EDUCATION

Professor BAMBERGER

Associate Professor WEGLEIN

Associate Professor STEPHENS (on leave)

Dr. RIGGS

Mr. THURSFIELD

Dr. McMAHON

Dr. LICHTENSTEIN (on leave)

Mrs. BLACKISTON

Dr. DICE

The courses in Education begin Monday, October 9 and are organized in two terms (October and February) of sixteen weeks each.

## PURPOSE

In recognition of the distinctive position of public and private education in present-day life, the department strives to provide the more technical and specialized training for those preparing to carry forward administrative and supervisory work and offers a strong teacher education program for instructing in the field of education in colleges and universities. That knowledge of the conditions of pupil development may be increased and made available for use in the conduct of school systems, provision is also made for a more intensive and systematic study of educational problems arising in the practical field and in the fields of history of education, philosophy of education, and educational psychology.

## PREREQUISITES

The prerequisites<sup>1</sup> for the advanced degrees are determined in each case with reference to the student's major interest in education; but all students must have had or must include in their program of studies, introductory courses in history of education, educational or general psychology, philosophy of education, tests and measurements involving statistical treatment of educational data, and a survey course in the field of elementary, secondary, or higher education.

## COMPREHENSIVE EXAMINATIONS

All candidates for advanced degrees must pass a written comprehensive examination given either on the last Saturday in September and the first Saturday in October or on the last Saturday in April and the first Saturday in May. These measure the candidate's knowledge and understanding in five fields: historical and philosophical backgrounds of educational policies; educational psychology; measurement of group and individual growth and achievement; structure, administration, and supervision of education in America; and general principles underlying education at the three levels: elementary, secondary, and higher. Candidates for a doctor's degree must satisfactorily complete these examinations at least

<sup>1</sup> For these undergraduate courses, see Circular of the College for Teachers.

one year before presenting themselves for the degree. All candidates for masters' degrees must pass these comprehensives in the spring before being recommended for graduation.

Candidates for all advanced degrees must pass a final departmental oral examination.

#### SEMINARIES

The work of the department centers in the Seminars where the students receive training and criticism in educational research and discuss problems and interpretations of findings pertinent to their own investigations. There are two seminars in which all members of the department participate. Because of the mutual benefit derived from these seminars there will be frequent joint meetings. Students registering for either of these courses should keep this in mind in planning their schedules.

#### 1 P.<sup>1</sup> Introductory Seminary. A two term course. October and February.

Two hours weekly.

Orientation in educational research through a study of the various techniques employed in historical, experimental (laboratory and statistical), philosophical, and clinical investigations is the purpose of this course.

#### 2 P. Advanced Seminary. A two term course. October and February.

One hour weekly.

This seminary serves as a clearing house for students reporting upon their individual investigations. Open only to, and required of, all candidates approaching the completion of their research.

#### PHILOSOPHY OF EDUCATION

#### 11 P.A. Philosophical Backgrounds for Education. Professor BAMBERGER. A two term course. October and February. Two hours weekly.

This pro-seminar undertakes a comparative study of the several educational philosophies underlying diverse and differing practices and theories current in modern American education.

#### 11 P.B. Philosophical Backgrounds for Education. Professor BAMBERGER. A two term course. Not given 1944-45.

The educational philosophies of certain vital periods in educational history are critically examined.

#### 12 P. Philosophy of Education: The American Mind and Modern Patterns of Education. Professor BAMBERGER. A two term course. Not given 1944-45.

Required of all candidates for the doctoral degrees.

#### 13 P. Research Problems in Philosophy of Education. Professor BAMBERGER. A two term course. October and February. Hours arranged to meet individual needs of students.

Advanced students wishing to work on problems in the philosophy of education are admitted to this course in which the procedures involved in educational philosophical research are examined and applied to directed research.

Equivalent to one hour of graduate work.

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<sup>1</sup> Courses marked "P" are advanced and those marked "T" are introductory.



- 13 T.B. Social Problems Affecting Education. A two term course.  
October and February. Two hours weekly.

Problems confronting modern social institutions are surveyed in relation to education. A group of experts, each a specialist in his field, is invited to present problems of special interest.

#### HIGHER EDUCATION

- 80 P. Higher Education. Professor BAMBERGER. A two term course.  
October and February. Two hours weekly.

The history of higher education in America is discussed and emphasis is laid upon problems of organization, curriculum, and student guidance.

#### HISTORY OF EDUCATION AND COMPARATIVE EDUCATION

- 21 P. History of American Education. Mr. THURSFIELD. A two term course. October and February. Three hours weekly.

This advanced course makes an intensive study of American education in the Nineteenth Century to the close of the Reconstruction Period.

- 23 P. Educational Biographies. Mr. THURSFIELD. A one term course.  
Not given 1944-45.

The contributions of selected leaders in education are critically examined.

- 24 P. Research Problems in the History of Education. Mr. THURSFIELD. A two term course. October and February. Hours arranged to meet the individual needs of students.

Advanced students wishing to work on problems in the history of education are admitted to this course. Historical method is studied and applied in directed research.

Equivalent to one hour of graduate work.

- 26 P. Comparative Education. Mr. THURSFIELD. A one term course.  
Not given 1944-45.

#### EDUCATIONAL PSYCHOLOGY

- 31 P.A. Modern Psychological Theories in Education. Dr. DICE.  
A one term course. February. Two hours weekly.

Consideration is given to those theories which have been thought useful in the explanation of educational data. Required of all students.

- 31 P.B. Educational Psychology. Dr. DICE. A one term course.  
October. Two hours weekly.

This course deals with the data regarding intelligence, learning, and school achievement. Original sources of data are used. Required of all students.

- 33 P. Problems in the Psychological Study of Education. A two term course. Not given 1944-45.

- 34 P. Theories of Educational Psychology: A Seminary Course.

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|---------------------------|--------------------|--------------------|
| A. THEORIES OF BEHAVIOR.  | A one term course. | Not given 1944-45. |
| B. THEORIES OF LEARNING.  | A one term course. | Not given 1944-45. |
| C. THEORIES OF SCHOOLING. | A one term course. | Not given 1944-45. |

- 9 T.A. Psychology of Adolescence. Dr. RIGGS. A one term course. October. Two hours weekly.

A study is made of physical growth, mental development, emotional maturity, and the personal-social relationship of adolescents. Special reference is made to the effects of these factors on behavior.

- 9 T.B. Problems of Adolescent Adjustment. Dr. RIGGS. A one term course. Not given 1944-45.

An examination of areas and problems of adjustment facing modern adolescents is conducted with a view to arriving at a better understanding of the factors involved and the means of securing better adjustments.

- 6 T. Personality and Character in Education. Dr. McMAHON. A one term course. February. Two hours weekly.

An analysis and evaluation of the principles involved in character and personality measurements are made and surveys of recent experimentation in the field of character education are examined.

- 7 T. Child Guidance and Behavior Problems. Dr. McMAHON. A two term course either term of which may be taken separately. Two hours weekly.

A. IN THE ELEMENTARY SCHOOL. October term.

B. THE DELINQUENT CHILD. February term.

The factors influencing behavior and methods of diagnosis and treatment are studied, and illustrative cases are presented for discussion.

#### CLINICAL AND EXPERIMENTAL EDUCATION

- 41 P. Probability Theory and Statistics. ————. A two term course. October and February. Two hours weekly.

This course reviews measures which characterize groups and differences between groups (probability and sampling variations); relationship between variables, including linear, curvilinear partial, and multiple correlation. Special emphasis is given to the underlying assumptions and the limitations of statistical methods and the place of statistics in educational research. A laboratory period is included.

- 11 T. Clinical Methods in Education. A one term course. Not given 1944-45.

This course introduces students to the scientific procedures for measuring and diagnosing intelligence. Interview tests are demonstrated and various methods of case study approach are considered. Opportunity is afforded students to specialize in diagnostic and remedial techniques.

Laboratory fee: \$1.00.

#### EDUCATIONAL SUPERVISION AND ADMINISTRATION

- 51 P. Supervision: General Principles Underlying the Function and Organization of Supervision. Professor BAMBERGER. A one term course. October. Two hours weekly.

Problems arising in the guidance of teachers and the appraisal and improvement of instruction are critically studied. Criteria for evaluating teacher efficiency and instructional skill are among the problems discussed.

- 52 P. Problems in the Scientific Study of Supervision. Professor

BAMBERGER, Dr. RIGGS, and Dr. McMAHON. A two term course. October and February. Hours arranged to meet the individual needs of students.

Registration in this course is limited to students pursuing investigations upon specific problems in the supervision and improvement of instruction. Individual conferences are substituted for class work. Equivalent to one hour of graduate work.

Prerequisite: Education 51 P or its equivalent.

### 53 P. Supervision:

A. IN THE ELEMENTARY SCHOOL. Professor BAMBERGER and Dr. McMAHON. A one term course. February. Two hours weekly.

B. IN THE SECONDARY SCHOOL. Professor BAMBERGER and Dr. RIGGS. A one term course. October. Two hours weekly.

This course stresses the major developments in the organization, guidance, and improvement of instruction. It coordinates the supervisory activities of the principal and heads of departments with those of the supervisor from the central office.

56 P. School Administration. Section I. Associate Professor WEGLEIN. A two term course. October and February. One hour weekly.

This course includes a treatment of topics, such as the following: classification, progress, and promotion of pupils; organization of special classes; selection and distribution of textbooks; measuring results of teaching; operation of school buildings; school records and reports; school attendance; improvement of teachers; health education; extra-curricular activities; relation of schools to other social agencies.

## EDUCATIONAL GUIDANCE

62 P. Research Problems in Guidance. Dr. RIGGS. A two term course. October and February. Hours arranged to meet individual needs of students.

Advanced students wishing to work upon problems of guidance are admitted. Individual conferences are substituted for class work.

Equivalent to one hour of graduate work.

162 T. The Role of the Teacher in Personnel Work. Dr. RIGGS. A one term course. February. Two hours weekly.

Designed for teachers and other non-specialists in personnel work, this course offers a survey of the pupil personnel field with special reference to the information needed by teachers in applying individual and group guidance techniques to the classroom situation. It aims at an understanding of the nature, aims, and functions of various pupil personnel services from the teacher's point of view.

## ELEMENTARY EDUCATION

22 T. Newer Instructional Practices in the Elementary School. Dr. McMAHON. A one term course. October. Two hours weekly.

A critical study of recent trends and newer practices in elementary education is undertaken with the view of examining their fundamental philosophies and psychological principles.

23 T. Recent Research Studies in Elementary Education. Dr. McMAHON. A one term course. February. Two hours weekly.

Reviews important investigations and research at the elementary school level. Analyses of their contributions to and implications for education are made.

**25 T. Children's Literature.** Professor BAMBERGER. A two term course. October and February. Two hours weekly.

**A. A HISTORY OF CHILDREN'S BOOKS.**

An examination of the literature materials, both in prose and poetry, from early historical periods to the latest modern types available for children's use is made.

**B. LITERATURE AND THE CHILD.**

Criteria of selection and methods of presentation are critically examined. Certain valuable techniques in reading, in story-telling, and in dramatization are discussed.

**33 T. Practice Teaching in Elementary Grades.** Dr. McMAHON. A two term course. October and February. Hours arranged to meet the individual needs of students.

Arrangements for individual conferences and practice work are made. This course carries two points credit. Wherever possible opportunities are provided for internship in local schools.

NOTE: For additional courses in elementary education, consult the Circular of the College for Teachers.

## SECONDARY EDUCATION

**71 P. The Structure and Pattern of Education in the United States.** Dr. RIGGS. A one term course. February. Two hours weekly.

Modern American education is examined with special reference to the following: financing education, teacher status in America, administration of school units, relation of government to education, community relationships, and general curricular patterns. Emerging patterns and recent proposals for improvement of American education are considered.

**72 P. Recent Proposals for the Reconstruction of the American Secondary School.** Dr. RIGGS. A one term course. Not given 1944-45.

Various proposals for the reconstruction of secondary education are critically considered. Recent recommendations as a result of evaluation procedures are studied as well as suggestions growing out of war pressure and trends in the "general education" movement.

**75 P. Research Problems in Secondary Education.** Dr. RIGGS. A two term course. October and February. Hours to be arranged to meet individual needs of students.

Advanced students wishing to work on some problem in secondary education are admitted upon obtaining permission from the instructor. Individual conferences are substituted for class work.

Equivalent to one hour of graduate work.

**112 T. The Secondary School: The Curriculum and Instruction.** Associate Professor WEGLEIN. A two term course. October and February. One hour weekly.

Consideration is given to the general problems connected with the program of studies, curricula, and courses of study. Attention is also given to types of learning and methods of instruction.

See Education 12 T in the Circular of the College for Teachers.

**113 T. The Secondary School: Organization and Classroom Management.** Associate Professor WEGLEIN. A two term course. October and February. One hour weekly. 1945-46.

- 120 T. Problems of Secondary School Principals.** A one term course.  
Not given 1944-45.

This course, intended for principals, vice-principals, special assistants, and those preparing for these positions in the secondary schools, is given by a number of experts in secondary education who present the problems of administration and discuss other significant problems in secondary schools.

- 118 T. Group Activities in Secondary Schools.** Dr. RIGGS. A one term course. Not given 1944-45.

The theory and practice of the program of extra-curricular activities in secondary schools are examined. Principles of group work as well as content and techniques for carrying on activities are considered. Students are given an opportunity to investigate and to make detailed plans for an activity which is of special interest.

- 115 T. Observation and Participation in Secondary Schools.** Mrs. BLACKISTON. A two term course. October and February. One hour of lecture and three hours of observation weekly.

This course, required of all students preparing for teaching, provides for observation, participation, and individual conferences.

- 114 T. Teaching in Secondary Schools: Theory, Observation, and Practice.** Dr. RIGGS. A two term course. October and February. Three hours weekly.

Successful completion of this course fulfills the general requirement of practice teaching in the various States as well as meeting specifically those of Maryland. It consists of two main divisions: I. Principles of Secondary School Teaching, and II. Observation and Practice Teaching.

- 91 T. The Theory of the Junior High School.** Dr. RIGGS. A one term course. October. Two hours weekly.

This course surveys junior high school theory and practice in regard to its historical development, aims and special functions, pupil personnel, curriculum, guidance services, articulation with other school units, extra-curriculum, and general teaching methods.

NOTE: See Education 12 T in the Circular of the College for Teachers.

- 73 P. Laboratory Course in the Teaching of the Social Studies.** Mr. THURSFIELD. A two term course. October and February. Two hours weekly.

Problems in materials, methods, curricula, courses of study, and units are considered in relation to individual interests.

- 74 P. Social Studies Curricula for Secondary Schools.** Mr. THURSFIELD. A two term course. Not given 1944-45.

- 117 T. Historical Literature and History Teaching.** Mr. THURSFIELD. A one term course. October. Two hours weekly.

This advanced course for history teachers presents through lectures and readings the results of recent scholarship and interpretations in world history; approximately one-third of the time is devoted to American history. Bibliographical materials are supplied for continuing professional growth.

- 93 T. Methods of Teaching History in Secondary Schools.** Mr. THURSFIELD. A two term course. October and February. One hour weekly.

A. The Junior High School. B. The Senior High School.

These practical courses emphasize teaching organization and materials at the respective grade

levels. They trace the development and consider the aims, present tendencies, and suggested programs of the social sciences in relation to the general aims of instruction. They provide opportunities for teachers to examine such material as textbooks, collateral readings, and visual aids, and to familiarize themselves with standard reference works, professional periodicals, and other literature in their field. Assignments in construction of lesson plans, objective tests, and in evaluation of textbooks are arranged with special reference to individual interests.

NOTE: For courses in special methods in the various subjects in the secondary school curriculum, consult the Circular of the College for Teachers.

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### JOURNAL CLUB

Journal Club meetings are held on the third Tuesday of every month beginning October 17, 1944.

A large part of the time is devoted to a discussion of the original research of students working individually, of staff members in collaboration with students, and to reports on current literature in the field of education.

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### EDUCATIONAL CONSULTATION

Through this consultation service, the Department of Education offers opportunities for case studies of pupils. Those desiring this assistance will first secure appointment by communicating with Professor Florence E. Bamberger.

Schools, parents, and social agencies desiring the benefits of examination and treatment of children may secure them by following the above procedure.

There is an examination fee of \$5.00 for other than public school pupils.

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### ENGLISH

Professor HAVENS  
Professor MALONE  
Professor SPENCER

Associate Professor EINARSSON  
Associate Professor ANDERSON  
Associate Professor ALLEN

Students are expected, when they enter, to be able to read French and German and to have had a year of college work in modern European history and a year in philosophy. Deficiencies in these subjects are to be made up during the first year; the examinations in French and German should be passed not later than the beginning of the second year, by which time, likewise, all books on the reading list should have been read. Examinations are given in the field of each course at the end of the year; students who are not taking examinations for the master's or doctor's degree normally take at least one course examination with each professor with whom they study.

A preliminary oral examination must be taken at least six months before the candidate presents himself for examination for the doctor's degree. The completed dissertation must be handed in not later than April 15 of the year in which a student expects to receive his degree.

### INTRODUCTORY COURSES

Students will normally take all these courses (as many as possible the first year) unless they have had equivalent work elsewhere. Properly qualified undergraduates may take these courses with the consent of the instructors concerned. Also, attention of graduate students is called to the following courses listed in the circular of the Undergraduate Schools: English 2 C, American Literature; English 8 C, English and Scottish Popular Ballads; English 10 C, Chaucer.

- 1 P. Bibliography. Associate Professor ALLEN. A three term course. Fall, Winter, and Spring. One hour weekly.

How to find material, how to investigate a subject, how to prepare a manuscript for publication.

- 3 P. Introduction to Linguistic Study. Professor MALONE. (Omitted in 1944-45.)

- 4 P. Introduction to Medieval Studies. Professor MALONE. (Not to be offered in 1945-46.) A three term course. Fall, Winter, and Spring. One hour weekly.

A study of the characteristic features of medieval civilization, with particular attention to literature and the fine arts. Lectures and outside reading.

- 5 P. Introduction to the Study of the Drama. Professor SPENCER. A two term course. Fall and Winter.

The drama as a form of art, the chief critical theories about it, and the main currents of its development in Europe from the Greeks to the present time. Study of typical plays (in translation), with extensive collateral reading.

- 6 P. Old and Middle English. Associate Professor EINARSSON. A three term course. Fall, Winter, and Spring. Three hours weekly.

An introduction to the English language as spoken and written in medieval times.

- 7 P. Modern English. Professor MALONE. (Omitted in 1944-45).

### PROSEMINARIES

Courses are given each year in the following fields. Candidates for higher degrees normally complete one year's work in at least three of the fields. Since the subject matter varies from year to year, students will usually pursue at least one of them for two or more years.

- 11 P. Germanic Dialects. Associate Professor EINARSSON. A three term course. Fall, Winter, and Spring. Two hours weekly.

In 1944-45, Gothic or Icelandic, according to demand.

**12 P. Medieval English Literature.** Professor MALONE. A three term course. Fall, Winter, and Spring. Three hours weekly.

Intensive study of selected monuments, and wide collateral reading. The writings chosen will vary from year to year. In 1944-45, Old English Heroic Poetry; in 1945-46, Lyric Poetry.

**14 P. The Nondramatic Literature of the English Renaissance.** Associate Professor ALLEN. A three term course. Fall, Winter, and Spring. Three hours weekly.

In 1944-45, Poetry and Prose from the death of Elizabeth to the Restoration. A general survey of the major writers and their intellectual milieu. In 1945-46, the nondramatic literature of the latter half of the seventeenth century, with special emphasis on Milton and Dryden.

**15 P. The English Drama.** Professor SPENCER. A three term course. Fall, Winter, and Spring. Three hours weekly.

In 1944-45, a survey of the English drama from the beginning to 1600, with special emphasis in the first half-year to the immediate pre-Shakespeareans, and in the second half-year to Shakespeare's early work. In 1945-46, the drama of the seventeenth century, with special reference to Shakespeare's later work and the development of English comedy from Jonson to Shirley.

**16 P. The Eighteenth and Early Nineteenth Centuries.** Professor HAVENS. (Omitted in 1944-45.)

In 1945-46, English Neoclassicism, its nature and manifestations in Dryden, Swift, Pope, Prior. In 1946-47, English Romanticism, its nature, manifestations, and development, a study of ideas and movements as reflected in eighteenth-century literature.

**18 P. American Literature.** Associate Professor ANDERSON. A three term course. Fall, Winter, and Spring. Three hours weekly.

The beginnings of Realism: Howells, James, the Local Colorists, Norris, Dreiser; Moody, Robinson, Frost, the Imagists and others. In 1945-46, the Romantic Revolution in America, down to the Civil War.

**19 P. Milton.** Professor HAVENS. (Not to be offered in 1945-46 or 1946-47.) A three term course. Fall, Winter, and Spring. Three hours weekly.

All the poems, English, Latin, and Italian, together with the chief prose works.

#### SUPPLEMENTARY COURSES

##### a. Individual Work.

Provision will be made for students who desire to supplement the regular courses by individual reading or investigation under guidance. Fields in which special courses are not offered, work in dissertations, or special research planned by those who already hold the doctor's degree come under the province of this course. Students will be helped to plan a definite program, and will meet a member of the departmental staff in frequent conference.

##### b. The Journal Club. Fall, Winter, and Spring. Two hours the second week of each month.

Students, fellows, and members of the staff meet once a month to discuss research in progress in journals and important books.

##### c. The English Conference. Fall, Winter, and Spring as occasion warrants

Under the leadership of a member of the staff, of a research fellow, or of some visiting scholar, students of the department meet from time to time to study special topics not covered by the formal courses.



## SEMINARIES

A. English Grammar. Associate Professor EINARSSON. Fall, Winter, and Spring. Two hours alternate weeks.

In 1944-45, Syntax, Morphology, or Phonology, according to demand.

B. Medieval English Literature. Professor MALONE. Fall, Winter, and Spring. Two hours alternate weeks.

In 1944-45, Piers Plowman; in 1945-46, Middle English Metrical Romances.

C. The Nondramatic Literature of the English Renaissance. Associate Professor ALLEN. Fall, Winter, and Spring. Two hours weekly.

In 1944-45, special studies in Spenser; in 1945-46, Donne and his successors.

D. English Literature in the Eighteenth and Early Nineteenth Centuries. Professor HAVENS. W., 3-5. Professor Havens's apartment.

Byron or Shelley. In 1945-46, Johnson and his Circle; in 1946-47, The Art of the Novel.

E. English Drama. Professor SPENCER. Fall, Winter, and Spring. Two hours weekly.

Restoration and eighteenth-century drama; in 1945-46, Rise of Realism in the nineteenth century, and twentieth-century Postrealism.

F. Special Studies in American Literature. Associate Professor ANDERSON. M., 3-5. Gilman Hall 113.

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GEOGRAPHY

Dr. PELZER

Dr. CARTER

Mr. GOTTMANN

Mr. BROWN

1 CP. Climatology. Mr. GOTTMANN. A one term course. Two hours weekly. Not to be given in 1944-45.

The course is concerned with a systematic and regional treatment of the climates of the world.

2 CP. Geomorphology. ————. A one term course. Two hours weekly. Not to be given in 1944-45.

The course is concerned with a systematic and regional treatment of landforms of the world.

3 CP. Geography of Plant and Animal Domestication as an Approach to Culture History. Dr. CARTER. A one term course. Two hours weekly.

The origins of domestication and distribution of basic plant and animal complexes.

4 CP. Studies in Human Geography. Dr. CARTER. A one term course. Two hours weekly.

Detailed studies of the habitat, economy, and society of selected peoples.

**5 CP. Destructive Exploitation and Conservation of Natural Resources.** Dr. PELZER. A one term course. Two hours weekly.

The course will deal with human mismanagement of natural resources such as vegetation, wildlife, soil and mineral resources and the development of conservation policies and techniques.

**11 CP. Geography of the Far East.** Dr. PELZER. A one term course. Two hours weekly.

The course covers China, Manchuria, Korea and Japan.

**12 CPa. Geography of Southeastern Asia.** Dr. PELZER. A one term course. Two hours weekly.

Survey of the geographical and economic conditions and political problems of the Philippine Islands, the Netherlands Indies and British Malaya.

**12 CPb. Geography of Southeastern Asia.** Dr. PELZER. A one term course. Two hours weekly.

Survey of the geographical and economic conditions and political problems of French Indo-China, Thailand, Burma and India.

**13 CP. Geography of the Mediterranean World.** Mr. GOTTMANN. A two term course. Two hours weekly.

A regional geography with special emphasis on human and economic problems.

**14 CP. Geography of Western Europe.** Mr. GOTTMANN. A one term course. Three hours weekly.

A regional geography covering France, the British Isles, Belgium, the Netherlands and Luxembourg.

**16 CP. Geography of Northern and Central Europe.** Dr. PELZER. A one term course. Two hours weekly.

A regional geography covering the Scandinavian countries, Germany, Switzerland and Czechoslovakia.

**17 CP. Geography of the Soviet Union.** Mr. GOTTMANN. A three term course. Summer, Fall, and Winter. Two hours weekly.

The first term will be devoted to general features, such as climate, vegetation, soils, and landforms; populations, agriculture, industry, and commerce. The second and third terms will deal with regional aspects.

**18 CP. Geography of Latin America.** Dr. CARTER. A two term course. Two hours weekly.

The course deals with the physical, economic and cultural aspects of the geography of Latin America.

**20 CP. The Geography of North America.** ————. A one term course. Two hours weekly. Not to be given in 1944-45.

A general survey course. It is hoped that courses in the geography of regions of the continent may also be offered by different members of the department.

**32 CP. The History of Cartography.** Mr. BROWN. A one term course. Two hours weekly. Not to be given in 1944-45.

Early conceptions of the universe; the development of cosmography and map making from the beginning of the Christian Era to the end of the 18th century.

**33 CP. The Mapping of America from 1492 to 1800.** Mr. BROWN. A one term course. Two hours weekly. Not to be given in 1944-45.

## GEOLOGY

Professor SINGEWALD

Dr. SECRIST

Professor CLOOS

Dr. ANDERSON

Professor NEWELL

Dr. CHAPMAN (on leave)

The courses in geology are arranged to cover the entire field of geology from the elements to advanced discussions of special topics in historical geology, paleontology, petrography, dynamical geology and economic geology.

## INTRODUCTORY COURSES

**11 CPa. Physical Mineralogy.** Dr. ANDERSON. A one term course.

Fall and Spring. Four lectures and six hours of laboratory work weekly.

A course covering the basic laws and fundamentals of geometrical and physical crystallography, including preparation for prospective students of structural crystallography by X-ray methods, and supplemented by practical exercises with crystal models.

**11 CPb. Chemical and Descriptive Mineralogy.** Dr. ANDERSON. A one term course. Summer and Winter. Four lectures and six hours of laboratory work weekly.

The systematic study of about 175 important minerals. Determinative work includes exercises on sight recognition, as well as more accurate identification before blowpipe and by means of other physical and chemical tests. Occurrences, association and uses of minerals are studied with the aim of giving a comprehensive understanding of mineralogy.

Prerequisite: Physical Mineralogy, 11 CPa.

**12 CP. Historical Geology.** Professor NEWELL. The course runs continuously through a number of terms, any of which may be taken separately. Fall, Winter and Spring. One lecture and two hours of pre-seminary work weekly. Not to be given in 1944-45.

This course aims to present the main events in the past history of the earth, as disclosed by the stratified rocks and the relics of animal and plant life which they contain, and the principles of stratigraphic correlation.

**13 CPa. Topographic Surveying.** Dr. SECRIST. A one term course.

Fall and Spring. Two lectures and three hours of laboratory weekly.

**13 CPb. Geologic Surveying.** Dr. SECRIST. A one term course.

Summer and Winter. Two lectures and three hours of laboratory weekly.

These courses include discussions of the methods of geologic surveying and mapping; the construction and interpretation of topographic and geologic maps; the interpretation and applications of aerial photographs; the construction of block diagrams; and outdoor training in field procedure and in the use of the plane table and alidade.

Prerequisite: Topographic Surveying 13 CPa.

**14 CPa. General Geophysics.** Professor CLOOS. A two term course.

Fall and Winter. Two lectures weekly.

The earth and its physical properties; its size, weight, rigidity. Geologic conceptions of the earth's interior. Magnetism. Earthquakes, their geography, origin, frequency, and effect on human life. Volcanoes. Crustal deformation.

- 14 CPb. Applied Geophysics. Professor CLOOS. A one term course. Spring. Two lectures weekly.

Application of geophysical methods to prospecting with a description of the instruments and analysis of the fundamental principles involved. The geological application of geophysical surveys is illustrated by a demonstration of problems encountered in the field.

- 15 CP. Structural Geology. Professor CLOOS. A one term course. Fall and Spring. Four lectures weekly.

The position of rocks in the earth's crust. Structure elements, like folds, faults, joints, etc. and their significance in geological interpretation. Recognition of structures in the field, construction and interpretation of maps and structure sections. Application of mechanical principles to geology. Geologic structures and surface forms. Structural geology applied to practical problems. Experimental geology.

Prerequisite: Geology 1 C.

### ADVANCED COURSES

- 25 P. Microscopic Petrography. Dr. ANDERSON. A one term course. Fall. Three lectures and two afternoons of laboratory work weekly.

A course designed to acquaint the student with the principles and technique of modern petrography. The theory of optics as applied to crystals; the optical properties of the more important rock forming minerals. Identification of minerals by the immersion method and by the universal stage.

- 26 P. Petrology of the Igneous Rocks. Dr. ANDERSON. A two term course. Winter and Spring. Three lectures and two afternoons of laboratory work weekly.

The physical chemistry of the important silicate systems; origin and differentiation of magmas; mechanics of igneous intrusion; petrographic provinces. Discussion of structures and textures of igneous rocks, classifications of igneous rocks and description of important rock families. Study of rocks in thin sections by means of the universal and integrating stages, paragenesis and alteration of the minerals. Opportunity is afforded for study of rock suites from various localities and for original work in petrology.

Prerequisite: Microscopic Petrography 25 P.

- 27 Pa. Petrology of the Sedimentary Rocks. Dr. ANDERSON. A one term course. Winter. Three lectures and one afternoon of laboratory work weekly.

The origin, transportation and environments of deposition of sediments; structures, textures and classification; statistical and mineral analyses of sediments.

Prerequisite: Microscopic Petrography 25 P.

- 27 Pb. Petrology of the Metamorphic Rocks. Dr. ANDERSON. A one term course. Spring. Three lectures and two afternoons of laboratory work weekly.

Types of metamorphism; structures and deformation; recrystallization; mineral facies and mineral zones; principles and types of metasomatism; metamorphic differentiation. Crystalline schists and their distribution. Opportunity is afforded for the study of metamorphic rock suites in the laboratory.

Prerequisite: Microscopic Petrography 25 P.

- 28 P. Systematic Paleontology. Professor NEWELL. A three term course. Fall, Winter and Spring. May be begun in any term. Three lectures and one afternoon of laboratory work weekly. Not to be given in 1944-45.

A systematic course in invertebrate paleontology covering the morphology, ontogeny, distribution and phylogeny of the various groups represented in the geologic record and their existing representatives.

**29 Pa. Advanced Structural Geology.** Professor CLOOS. A one term course. Winter. Three lectures weekly.

Systematic structural geology. Tectonics of igneous and metamorphic rocks. Mechanical analysis of tectonic units.

Prerequisite: Structural Geology 15 CP.

**29 Pb. Petrofabrics.** Professor CLOOS. A one term course. Spring. Three lectures weekly.

Analysis of rock fabrics. Use of the universal stage, statistical orientation analysis. Fabrics and rock formation and deformation, flowage, recrystallization. Application to geological field problems.

Prerequisite: Advanced Structural Geology 29 Pa.

**30 Pa. Regional Geology of North America.** Professor CLOOS. A one term course. Fall. Three lectures weekly.

Application of structural geology to North America. Discussion of structures like Canadian shield, basins, Appalachian geosyncline etc. Interpretation of geologic structures and areas.

**30 Pb. Regional Geology of Europe.** Professor CLOOS. A one term course. Winter. Three lectures weekly.

Application of structural geology to Europe. Fennoscandia; Caledonian, Variscian, and Alpine geosynclines and their deformation.

**30 Pc. Regional Geology of Other Continents.** Professor CLOOS. A one term course. Spring. Three lectures weekly.

Application of structural geology to South America, Africa, and Asia. Analysis of the principal tectonic units.

**31 P. Principles of Ore Deposits.** Professor SINGEWALD. A three term course. Fall, Winter and Spring. Three lectures weekly.

A consideration of the content, classification, and genesis of ore deposits. Magmatic segregation, contact metamorphism, metasomatism, source and nature of mineralizing solutions, physical conditions of ore deposition, zonal theory, ore shoots, superficial alteration and enrichment are some of the topics discussed.

**32 P. Ore Deposits of the United States.** Professor SINGEWALD. A three term course. Fall, Winter and Spring. Three lectures weekly.

A discussion of the mineralization of the United States with descriptions of ore deposits that are of special scientific interest or of great economic importance.

In connection with 31 P and 32 P, two weeks in May are devoted to a field trip. A northern trip to mineral deposits in Pennsylvania, New Jersey, and New York, and a southern trip to deposits from Virginia to Alabama are taken in alternating years.

**33 P. Petroleum Geology.** Dr. ANDERSON. A two term course. Fall and Winter. Two lectures weekly.

The physical and chemical characteristics of petroleum; its origin, migration and accumulation; reservoir rocks and petroleum structures; exploration and development of oil structures; the Carbon Ratio theory and petroliferous provinces.

#### LIBRARY

The library of the geological department is a large collection of carefully selected works which contains practically all monographs and original publications referred to in geological literature, with sufficient text-books, compendiums, and other works of compilation to meet the needs of the less mature students.

## GERMAN

Professor FEISE

Professor ROULSTON

- 5 P. Survey of 17th Century Literature. Professor FEISE. A two term course. Fall and Winter. Two hours weekly.
- 6 P. The Literature of Enlightenment. Professor FEISE. A one term course. Spring. Two hours weekly.
- 7 P. Goethe's Poems. Professor FEISE. A one term course. Fall. Two hours weekly.
- 8 P. Lyric Poetry of the 19th Century. Professor FEISE. A one term course. Winter. Two hours weekly.
- 9 P. Modern Drama. Professor FEISE. A one term course. Spring. Two hours weekly.
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## GREEK

Professor ROBINSON

Professor MERITT (visiting professor)

Associate Professor CHERNISS (on leave) Dr. HAYWOOD

To be enrolled in this department, the student must have mastered an amount of Greek that is the equivalent of four books of Xenophon's *Anabasis*, six books of Homer, one book of Herodotus, and one book of Thucydides. Latin, French, and German are indispensable to the student of Greek. Attention is called, in this connection, to the regulations on p. 10 of this circular. The advanced courses are changed each year, so that the fundamental work of the department may be covered in three or four years. Interested students should address their inquiries to Dr. Haywood. The following schedule has been planned for 1944-45.

- 4 P. Proseminary: Homer and Aristotle. Dr. HAYWOOD. A three term course. Fall, Winter, and Spring. Two hours weekly.
- 10 P. History of Greek Literature. Professor ROBINSON. A three term course. Fall Term: The Epic. Winter Term: Lyric Poetry and The Drama. Spring Term: Prose, Historians, Philosophers, and Orators. One hour weekly.
- For those who are interested in Greek literature and its influence on later times. Translations will be used, and Greek, while desirable, is not required.
- 14 P. Apollonius Rhodius and Theocritus. Professor ROBINSON. A three term course. Fall, Winter, and Spring. One hour weekly.
- 15 P. Problems in Greek Epigraphy. Professor MERITT. A three term course. Fall, Winter, and Spring.

## HISTORY

Professor GREENFIELD (on leave)	Professor GAMBRILL (visiting professor)
Mr. LATTIMORE (on leave)	Associate Professor PAINTER
	Associate Professor LANE

The purposes of instruction in the department are training in historical scholarship and writing, and preparation to give instruction in history.

The research collections readily accessible include those of the Peabody Library and the Maryland Historical Society, the Library of Congress, the National Archives, and the departments of the Government in Washington.

## REQUIREMENTS

All candidates for advanced degrees are required to have the broad knowledge of history and historical literature necessary for effective teaching. Most of this information must be obtained by independent reading.

Departmental requirements for the Master of Arts degree are: (1) An essay, written in clear and idiomatic English, which shows a critical handling of the sources used and success in organizing these effectively with reference to the subject. (2) A reading knowledge of one foreign language. (3) Participation, for the period required by the Board of University Studies, in four courses of graduate or CP level, some of which will normally be in other departments. (4) The passing of written examinations which test the candidate's general knowledge of history.

Training for the degree of Doctor of Philosophy centers in the Methods Courses, the Advanced Courses, and the Seminar. In addition, each student will select through personal conferences certain fields for special reading and those fields will be stressed in his written and oral examinations. A reading knowledge of French and German is required of all candidates for the doctorate. Because of the extensive reading demanded both for the general examinations and for the dissertation, which is the most important requirement, candidates usually need more than three years of full time work.

## INTRODUCTORY COURSES

These courses are critical surveys of the fields and periods indicated. They are normally offered to supplement undergraduate preparation and to assist students who need help in organizing their knowledge. During the war, the terms in which they will be offered may be changed according to the needs of the students and the availability of the staff.

## 1 P. Ancient Oriental History.

The course in Ancient Oriental History announced by the Oriental Seminary, preferably the terms devoted to the pre-historic period and the beginning of civilization.

**2 P. Greek History and Historiography.**

The course in Greek History and Historiography announced by the Department of Archaeology and Art, preferably the terms devoted to fifth- and fourth-century Greece.

**3 P. Roman History.**

The course in Roman History announced by the Latin Department, preferably the terms devoted to the Empire.

**2 CPa. History of England. Medieval England to 1485.** Associate Professor PAINTER. A one term course. Three hours weekly.

**2 CPb. History of England. Tudor and Stuart England, 1485-1713.** Associate Professor PAINTER. A one term course. Three hours weekly.

**2 CPc. History of England. 1713 to the Present.** Associate Professor PAINTER. A one term course. Three hours weekly.

**6 CP. Studies in the History of American Civilization.** Professor GAMBRILL. A three term course. Fall, Winter, and Spring. Two hours weekly.

An intensive study in selected topics in American history from the 1860's to the present.

**11 CP. Medieval and Renaissance France.** Associate Professor PAINTER. A three term course. Three hours weekly.

**12 CPa. The Early Renaissance in Europe.** Associate Professor LANE. A two term course. Fall and Winter. Three hours weekly.

Special attention will be given to the development of trade and of urban culture in Italy, Germany, and the Netherlands, and to the growth of national differences in Western Europe between 1250 and 1494.

**12 CPb. High Renaissance and Reformation.** Associate Professor LANE. A one term course. Spring. Three hours weekly.

Europe in the early sixteenth century with special attention to Italy, Germany, and Switzerland.

**13 CP. The Age of Mercantilism.** Associate Professor LANE. A three term course.

The general development of West European culture in the late sixteenth century and the seventeenth century, and, in particular, the economic life and governmental policies connected with overseas expansion.

**14 CPa. The Age of the Enlightenment.** Professor GREENFIELD. A one term course. Not offered in 1944-45.

**15 CP. History of Modern Europe.** Professor GREENFIELD. A three term course. Not offered in 1944-45.

Students in History are advised to elect historical courses offered by the Departments of Political Economy and Political Science, described in the statements of these Departments.

Special lectures in History are given each year by distinguished scholars from outside the University.



## METHODS COURSES

These courses will begin in whichever term they are needed by the students. Candidates for the degree of Doctor of Philosophy normally begin 20 P and 21 P in their first term of graduate work.

20 P. *The Use and Criticism of Historical Evidence.* The staff. A three term course. Two hours, alternate weeks.

21 P. *Historical Bibliography.* The staff. A three term course. Two hours, alternate weeks.

Introduction to works of reference and collection of sources.

22 P. *The Art and Practice of Historical Writing.* The staff. A two term course. Two hours, alternate weeks.

Important historical works will be read and criticized as examples of style and method.

## ADVANCED COURSES

These courses are not surveys, but offer an introduction to advanced study within certain fields in which the Department is prepared to give intensive instruction and, in specific areas, to guide research. They are designed to show how important historical conclusions are reached, suggest inquiries, and provide training more specialized than that given in the Methods Courses. Each course embraces three kinds of instruction: lectures on special topics; reading and critical analysis of substantial secondary works; guidance in the use of sources peculiar to the field. The lectures may be taken independently.

23 P. *France and England in the Middle Ages.* Associate Professor PAINTER.

24 P. *The Age of Early Capitalism.* Associate Professor LANE.

25 P. *Liberalism and Nationalism in Western Europe in the Eighteenth and Nineteenth Centuries.* Professor GREENFIELD.

26 P. *American Thought and Culture.* Professor GAMBRILL.

## SUPPLEMENTARY FIELDS OF SPECIALIZATION

Dissertations in Oriental History may be undertaken by students with the necessary qualifications under the direction of Mr. Lattimore, Director of the Walter Hines Page School of International Relations. Research in the history of Medicine may similarly be taken up under the direction of staff members of the Institute of the History of Medicine.

## THE SEMINAR

For advanced students who are doing independent research and who have demonstrated their capacity.

Two hours, alternate weeks.

**INDOLOGY****Professor DUMONT**

The hours of meeting will be arranged at the opening of the session. Classes will be conducted by Professor DUMONT.

- 1 P. Introduction to the Comparative Philology of the Indo-European Languages. A three term course. Fall, Winter, and Spring. One hour weekly.
- 2 P. Elementary Sanskrit. A three term course. Fall, Winter, and Spring. Two hours weekly.
- 3 P. A detailed study of Classical Sanskrit Texts. A three term course. Fall, Winter, and Spring. Two hours weekly.
- 4 P. A detailed study of Vedic Texts. A three term course. Fall, Winter, and Spring. Two hours weekly.
- 5 P. Masterpieces of Sanskrit Literature. Reading and commentary of selected passages from Sanskrit literature in English. A two term course. Fall and Winter. One hour weekly.

**LATIN****Professor ROWELL (on leave)****Dr. HAYWOOD**

- 1 P. Seminary. A three term course. Two hours weekly. Fall: *Elegy*. Winter: *Vergil*. Spring: *Horace*.
- 2 P. Roman History. A three term course. Fall, Winter, and Spring. One hour weekly.  
Lectures and readings in the sources, especially *Tacitus*.
- 3 P. Reading Course. A four term course. Summer: *Seneca's Essays*. Fall and Winter: *Cicero's Essays*. Spring: *Authors of the Fourth and Fifth Centuries*.
- 4 P. Composition. A two term course. Summer and Fall. One hour weekly.

## MATHEMATICS

Professor MURNAGHAN

Professor ZARISKI

Associate Professor WINTNER

Associate Professor JACOBSON

Dr. KERSHNER (on leave)

Dr. DOWKER (on leave)

The program of study and research is so arranged that twelve terms are normally necessary for the Ph.D. degree. Before devoting himself primarily to research, a student is expected to have a satisfactory knowledge of the material covered in the introductory courses given during the first year (indicated by the letter A below), and of the greater part of the material covered in the courses which are indicated by the letter B.

Students who have already studied the material of these courses are examined before being admitted to the advanced courses. The courses marked C are seminar courses. All students are expected to show a satisfactory reading knowledge of French and German before the end of the first year and are advised to acquire a reading knowledge of other modern European languages. Only those of the courses listed below for which there is sufficient demand will be given in 1944-45.

**A 1 P. Projective Geometry; Non-Euclidean Geometry; Topology.**

Professor ZARISKI. A three term course. Fall, Winter, and Spring. Three hours weekly.

The first term is devoted to the foundations of plane projective geometry. The main topics treated are: axioms, theorem of Desargues, theorem of Pappus and the fundamental theorem on projectivities; coordinates and algebraic implications of the axioms; non-commutative fields; collineations, correlations and the theory of conics.

Second term: Non-Euclidean Geometry. The main topics treated are: the group of motions in the Euclidean and the non-Euclidean geometries; angles and distances in the various geometries; geometry of convex regions; realization of hyperbolic and elliptic geometries on a surface of constant curvature.

Third term: Topology. The main topics deal with cells, complexes and manifolds; non-orientable manifolds; classification of two-dimensional manifolds.

**A 2 P. Algebra.** Associate Professor JACOBSON. A three term course.

Fall, Winter, and Spring. Three hours and exercises weekly.

The main topics are: rings and integral domains, unique factorization theorems; polynomial domains, quotient fields and residue class rings; vectors, matrices and linear transformations over an arbitrary field; bilinear forms, symmetric and Hermitian matrices; elementary group theory; elementary theory of fields.

**A 3 P. Theory of Functions of Real Variables.** Associate Professor

WINTNER. A three term course. Fall, Winter, and Spring. Three hours and exercises weekly.

The main topics treated are: Dedekind sections; sequences; convergent and summable series; closed, open, perfect, and Borel sets; measurable sets; functions; sequences of functions; measurable functions; theory of convergence in measure; the integral of Lebesgue; continuity; derivatives; bounded variation; decomposition theory of monotone functions; the fundamental theorem of calculus; convergence in the mean and Fourier series; Stieltjes' integral; Fubini's theorem.

**B 1 P. Algebraic Geometry.** Professor ZARISKI. A three term course.

Fall, Winter, and Spring. Three hours and exercises weekly.

This course is an introduction to the geometry on algebraic curves and varieties. The treat-

ment is based on abstract algebra. The following topics will be included: fields of rational functions on algebraic varieties; birational transformations; rational curves and the theorem of Lüroth; elementary valuation theory; the Riemann surface of a curve; prime divisors, divisor classes (linear series) and the theorem of Riemann-Roch; abstract differentials and Abelian integrals; linear systems of plane curves and the theorem of Bertini; Cremona transformations and valuation-theoretic analysis of their fundamental loci; integrally closed domains and normal varieties; prime divisors of the first kind; resolution of singularities of an algebraic surface.

**B 2 P. Advanced Algebra.** A one term course. Associate Professor JACOBSON. Three hours and exercises weekly.

The main topics are: Galois group theory, theory of fields, algebraic numbers.

**B 3 P. Elementary Point Set Theory and Topology.** A one term course. Three hours and exercises weekly.

The main topics are: Collections, well-ordering, fundamental axioms, Baire functions, Borel sets, transformations, compact and connected sets; the simple arc, cyclic elements. Metrical theory. Two-dimensional manifolds, fundamental group and covering spaces. Homology theory of complexes.

**B 4 P. Differential Equations, Calculus of Variations; Differential Geometry.** A three term course. Fall, Winter, and Spring. Three hours and exercises weekly.

The main topics treated are: questions of existence, uniqueness and continuity of the solutions of ordinary differential equations; stationary points; differential geometry of curves; partial differential equations of the first order; Cauchy characteristics; the Euler-Lagrange equations; conjugate points; the E-function of Weierstrass and the independent integral of Hilbert; contact transformations and the elements of the Hamilton-Jacobi theory; integral invariants; systems of total differential equations; Pfaffians; classical types of partial differential equations of the second order; characteristic surfaces and bi-characteristics; some general existence theorems; the Euler-Lagrange equations in two dimensions; differential geometry of surfaces.

**B 5 P. Theory of Analytic Functions.** Associate Professor WINTNER. A three term course. Fall, Winter, and Spring. Three hours and exercises weekly.

Cauchy's theory of single-valued analytic functions; power series and Laurent series; Abelian and Tauberian theorems; calculus of residues, with applications (including the gamma function and the Riemann zeta function); entire functions; elementary functions and their inverses; the monodromy theorem; analytic continuation; Riemann surfaces; conformal mapping; correspondence of the boundaries; elliptic functions; the moduli group; modular functions; uniformization and conformal mapping.

**B 6 P. Applied Mathematics.** Professor MURNAGHAN. A three term course. Fall, Winter, and Spring.

The main topics treated are: Vector analysis, matrices, the Fourier integral, integral equations, boundary value problems, operational calculus, calculus of variations, elements of elasticity and hydrodynamics.

**B 7 P. Harmonic Analysis and Its Applications.** Associate Professor WINTNER. A three term course. Fall, Winter, and Spring.

The topics treated are: trigonometric interpolation; hidden periodicities; harmonic and anharmonic Fourier series; conditionally periodic movements; mathematical theory of band spectra and Fourier integrals; Fourier transforms of ordinary linear differential equations; filters; small vibrations; propagation of waves in infinite lattices; parabolic equations and Fourier integrals; applications to statistical mechanics; hyperbolic equations and their characteristics and bi-characteristics; Riemann's method; fundamental solutions; Fourier decompositions into planar, spherical and cylindrical waves; the general form of Huygens' principle; standard solutions of Maxwell's equations; dispersing media; Fourier integrals and mathematical problems in quantum theory.

**C 1 P. Arithmetic Theory of Algebraic Varieties.** Professor ZARISKI.  
A three term course. Fall, winter, and Spring. Two hours weekly.

**C 2 P. Theory of Rings.** Associate Professor JACOBSON. A two term course. Two hours weekly.

**C 3 P. Introduction to the Elementary and Analytic Theory of Numbers.** Associate Professor WINTNER. A three term course. Fall, Winter, and Spring. Three hours weekly.

The topics treated are elementary and of fundamental interest. The second part of the course presupposes the first part of the course B 5 P. The main topics treated are: Finite Abelian groups and their representations; linear congruences; characters; additive and multiplicative functions (functions of Euler, Moebius, and Liouville; sums of powers of divisors); Gaussian sums; quadratic residues; Pell's equation; partitions; representation of numbers as sums of squares; elements of the theory of Dirichlet series (including their fundamental Tauberian theorems); L-series; distribution of primes in arithmetical progressions; the prime number theorem.

**C 4 P. Topics in Algebra and Algebraic Geometry.** Professor ZARISKI and Associate Professor JACOBSON. A three term course. One hour weekly.

**C 5 P. Elasticity and Hydrodynamics.** Professor MURNAGHAN. A three term course. Fall, Winter, and Spring. Two hours weekly.

**C 6 P. Theory of Group Representations.** Professor MURNAGHAN. A three term course. Fall, Winter, and Spring. Two hours weekly.

**C 7 P. Tensor-analysis.** Professor MURNAGHAN. A one term course. Two hours weekly.

**D. Seminary.** One hour weekly. Fall, Winter, and Spring.

The reader is referred to courses announced by the Departments of Physics and Chemistry and to the announcement of the Department of Mathematics in the circular of the Undergraduate Schools.

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## ORIENTAL SEMINARY

Professor ALBRIGHT

Associate Professor BLAKE

Dr. ROSENBLATT

Courses are adapted to the needs of students who wish to specialize in the Bible, in Semitic philology, in the archaeology, history, and literature of the Ancient Orient, in Jewish and Islamic studies, and in various modern Oriental languages.

Candidates for a doctorate in a philological field must satisfy the staff of the department that they can read scholarly French and German at sight. They will also be expected to have an adequate command of Latin and Greek. They will further be required to master at least one Oriental

language thoroughly, and to show a satisfactory knowledge of at least two additional ones.

Candidates for a doctorate in the field of Oriental archaeology must have a thorough training either in historical architecture or in classical archaeology. They must be able to read technical French and German at sight. Such students will not be required to study more than one Oriental language. In the case of students wishing to specialize in both archaeological and philological fields suitable modifications in the requirements will be made.

#### A. HISTORICAL AND ARCHAEOLOGICAL COURSES

1 P. The Background of Israelite Religion. (Seminar for advanced students.) Professor ALBRIGHT. A three term course. Fall, Winter, and Spring. Two hours weekly.

2 P. Ancient Oriental History I (-1800 B. C.). Professor ALBRIGHT. A three term course. Fall, Winter, and Spring. One hour weekly.  
To be followed by II (1800-1100 B. C.) and III (1100-300 B. C.).

3 P. Ancient Oriental Archaeology and Art II (Mesopotamia). Professor ALBRIGHT. A three term course. Fall, Winter, and Spring. One hour weekly.

To be followed by III (Palestine, Syria, Asia Minor) and I (Egypt).

4 P. Jewish History Since the Renaissance. Dr. ROSENBLATT. A three term course. Fall, Winter, and Spring. Two hours weekly.  
This course will consist of lectures and readings.

#### B. LINGUISTIC AND PHILOLOGICAL COURSES

11 P. Elementary Hebrew. (The instructor to be announced.) A three term course. Fall, Winter, and Spring. One or two hours weekly.

12 P. Rapid Reading of the Hebrew Bible. Professor ALBRIGHT. A three term course. Fall, Winter, and Spring. One hour weekly.

13 P. Mediaeval Hebrew Poetry. Dr. ROSENBLATT. A three term course. Fall, Winter, and Spring. One hour weekly.

14 P. Hebrew Phonology. Associate Professor BLAKE. A three term course. Fall, Winter, and Spring. One hour weekly.  
This course will be followed by Hebrew Morphology and Syntax.

15 P. The Book of Habakkuk. Professor ALBRIGHT. A three term course. Fall, Winter, and Spring. One hour weekly.

16 P. Biblical Aramaic. Associate Professor BLAKE. A three term course. Fall, Winter, and Spring. One hour weekly.

17 P. Readings in the Babylonian Talmud. Dr. ROSENBLATT. A three term course. Fall, Winter, and Spring. Two hours weekly.

- 21 P. Syriac Elements (Script, Phonology, Forms). Associate Professor BLAKE. A three term course. Fall, Winter, and Spring. One hour weekly.
- 22 P. Syriac Syntax (with Prose Composition). Associate Professor BLAKE. A three term course. Fall, Winter, and Spring. One hour weekly.
- 23 P. Ethiopic Elements (Script, Phonology, Forms). Associate Professor BLAKE. A three term course. Fall, Winter, and Spring. One hour weekly.
- 24 P. Ethiopic Syntax (with Prose Composition). Associate Professor BLAKE. A three term course. Fall, Winter, and Spring. One hour weekly.
- 25 P. Arabic Elements (Script, Phonology, Forms). Dr. ROSENBLATT. A three term course. Fall, Winter, and Spring. One hour weekly.
- 26 P. Arabic Syntax (with Prose Composition). Associate Professor BLAKE. A three term course. Fall, Winter, and Spring. One hour weekly.
- 27 P. The Koran and its Commentaries. Dr. ROSENBLATT. A three term course. Fall, Winter, and Spring. One hour weekly.
- 28 P. Assyrian and Babylonian Cuneiform. Professor ALBRIGHT. A three term course. Fall, Winter, and Spring. Two hours weekly.
- 29 P. Canaanite Cuneiform Texts. Professor ALBRIGHT. A three term course. Fall, Winter, and Spring. Two hours weekly.
- 30 P. Egyptian Hieroglyphics. Professor ALBRIGHT. A three term course. Fall, Winter, and Spring. Two hours weekly.
- 31 P. Comparative Semitic Grammar: Morphology. Associate Professor BLAKE. A three term course. Fall, Winter, and Spring. One hour weekly.

This course will be followed by Syntax and Phonology.

- 32 P. Semantics (Involution of the Sentence). Associate Professor BLAKE. A three term course. Fall, Winter, and Spring. One hour weekly.

Once a week the members of the department will meet for discussion and reports. The hour will be determined later.

Each year the subjects are changed, so that all important phases of the work of the Oriental Seminary will be covered in three years. Additional courses in relevant subjects will generally be given if there is sufficient demand for them. For example, members of the staff are prepared to teach modern Arabic, Persian, Amharic, Tagalog, etc. Interested students are invited to correspond with Professor Albright.

## PHYSICS

Professor PFUND	Professor COX (visiting professor)
Professor HUBBARD	Professor BEARDEN (on leave)
Professor DIEKE	Associate Professor INGLIS (on leave)
Dr. SHAW (on leave)	

Students can be admitted to the Physics Department in either of two ways: (see p. 18).

1. With an A. B., B. Sc. or equivalent from a College or Engineering School. Minimum time required for the degree of doctor of philosophy, three years (nine quarters).

2. Under the new plan after two or three years of college work, provided they have a good working knowledge of Analytical Geometry and Calculus. Minimum time required for the degree of doctor of philosophy four years (twelve quarters).

All students should have a fair reading knowledge of French and German. If they do not have this upon entering, they should acquire it during their first year in the Department, as well as remove any other deficiencies which might exist in their preparation.

The student, advised by a committee of the staff of the Department, chooses a program of study best suited to him. The only formal requirement of the Department is that before a student is allowed to begin research for his dissertation, he must show in a series of informal examinations that he has obtained, through class work or otherwise, a good knowledge of fundamental physics.

## INTRODUCTORY COURSES

2 CP. Modern Physics. Professor Cox. A two term course. Spring and Summer. Two hours weekly.

A continuation of General Physics into the field of activity in physics, chiefly since 1900, including the properties of vibrating systems, electron physics, radiation, spectra, atomic and molecular structure, X-rays and their application to atomic physics, radio-activity and recent developments in nuclear physics, cosmic rays.

11 CP. Applied Spectroscopy. Professor DIEKE. A one term course. Two lectures and two laboratory periods weekly.

Use and adjustments of various types of spectrographs, light sources, densitometers etc. especially for the analysis of metals and other problems of importance in industry.

22 CP. Introduction to Theoretical Mechanics. Professor Cox. A two term course. Spring and Summer. Two hours weekly.

An introduction to the mathematical treatment of physical problems. Familiarity with the calculus is required. The topics include kinematics and dynamics of particles of coupled oscillators, and rigid bodies. Vector notation is introduced, but the methods used are elementary, the more advanced methods being given in 211 P.

23 CP. Introduction to Electricity and Magnetism. Professor Cox.



A two term course. Fall and Winter. Two lectures and one laboratory period weekly.

Lectures and laboratory work intended to establish fundamental principles and methods of measurement useful in research in the various fields of physics and in other physical sciences. Subjects: units, methods of measurement, induction, reaction time of circuits, D. C. and A. C. networks, filters, rectifiers transformers thermoelectricity, thermionic emission, vacuum tubes.

**24 CP. Introduction to Quantum Mechanics and Atomic and Molecular Structure.** Professor DIEKE. A three term course. Summer, Fall, and Winter. Two hours weekly.

A course intended to familiarize the student with the most fundamental aspects of quantum mechanics. The approach is chiefly through the wave mechanical treatment of simple problems which are important for Physics and Chemistry, such as the rotator, harmonic oscillator, hydrogen atom, formation of molecules, emission of  $\alpha$  particles, etc. The theoretical results are correlated with the experimental facts.

The more advanced phases of this subject are given in 214 P.

**25 CP. Vibrations and Sound.** Professor HUBBARD. A one term course. Winter. Two hours weekly.

Mechanical and electromechanical systems, propagation of sound, applications.

**31 CP. Optics.** Professor PFUND. A one term course. Summer and Winter. Four hours weekly.

A systematic study of refraction, interference, diffraction, dispersion and polarization accompanied by lecture demonstrations.

**32 CP. Laboratory for 31 CP.** A one term course. Summer and Winter. Two laboratory periods weekly.

Training in the manipulation of optical apparatus including modern spectroscopes of high resolving power and spectrometers for the ultraviolet and infrared.

**33 CP. Wave Motion and Radiation.** Professor PFUND. A one term course. Fall and Spring. Three hours weekly.

Study of vibrations, waves, resonance phenomena, etc. In the second part the laws of radiation of a black body, optical pyrometry and radiations of atoms are discussed.

**34 CP. Laboratory for 33 CP.** A one term course. Fall and Spring. Two laboratory periods weekly.

Optical pyrometry, verification of radiation laws. Infrared spectroscopy, Zeeman and Raman Effects, etc.

**35 CP. Advanced Laboratory Course in Physics.** Professor COX. A three term course. Begins each term.

A study and performance of experiments on kinetic theory of gases, diffusion pump, methods of measuring pressure, electrical discharge through gases, excitation potentials, fundamental constants, Geiger counters, radioactivity, thyratrons, X-rays: diffraction, intensity measurements, absorption limits and fluorescence.

**36 CP. Informal Exercises in Spectrum Analysis.** Professor DIEKE. A three term course. Fall, Winter, and Spring. One lecture and one laboratory period weekly.

Lectures on the principal methods used in spectroscopic research, use of spectrographs, light sources, spectroscopic photography, spectrochemical analysis, intensity measurements, wave length measurements, etc. The problems worked out in the laboratory provide the student with an opportunity to acquire practical knowledge of these methods.

## ADVANCED COURSES

203 P. Molecular Structure and Band Spectra. Professor DIEKE. A two term course. Winter and Spring. Two hours weekly.

Introduction to the structure of diatomic molecules and their spectra. Isotopes. Polyatomic molecules. Raman effect.

204 P. Radioactivity and Nuclear Physics. Professor Cox. A two term course. Spring and Summer. Three hours weekly.

The first half-year will be devoted primarily to experimental aspects and the second half-year to interpretation. The topics treated will include radio-active transformations; disintegration and scattering; binding, excitation, magnetic properties and general structure of nuclei; cosmic rays and heavy-particle forces.

205 P. Physical Foundations of Electronics. Professor DIEKE. A one term course. Winter. Two hours weekly.

211 P. Theoretical Mechanics. Professor Cox. A two term course. Fall and Winter. Two hours weekly, with a problem hour every second week.

The Lagrange and Hamilton equations of mechanics. Conservation principles. Small vibrations. Normal coordinates. Planetary motion. Motions of rigid bodies. Elasticity and fluid flow.

212 P. Kinetic Theory and Statistical Mechanics. Professor HUBBARD. A three term course. Spring, Summer, and Fall. Two hours weekly.

Principles, general methods and applications of kinetic theory and statistical mechanics.

213 P. Theory of Electricity and Magnetism. Professor DIEKE. A three term course. Spring, Summer, and Fall. Two hours weekly.

Mathematical treatment of electric and magnetic phenomena. Maxwell's theory, electron theory, electromagnetic waves and the electromagnetic theory of light, microwaves, wave guides.

214 P. Quantum Mechanics. Professor DIEKE. A two term course. Two hours weekly.

General aspects of quantum mechanics. Wave mechanics and matrix mechanics as special cases. Theory of radiation, theory of the electron and of nuclear processes.

215 P. Advanced Optics. Professor PFUND. A two term course. Fall and Winter. Two hours weekly.

A classical treatment of geometrical optics, diffraction, theory of dispersion, polarization, etc.

216 P. Thermodynamics. Professor HUBBARD. A two term course. Summer and Fall. Two lectures and one problem hour weekly.

Fundamental theory and its application to physical problems.

221 P. Physics Colloquium. Fall, Winter, and Spring.

Discussion of articles in current journals and reports on research in progress by local and visiting physicists.

222 P. Physics Seminar. Professors DIEKE and Cox. Fall, Winter, and Spring.

Intended to acquaint the students with the methods and results of modern physics. Each student is supposed to present some phase of the subject.

232 P. Vibrating Systems, Sound and Ultrasonics. Professor HUBBARD. A one term course. Winter. Three hours weekly.

233 P. X-rays. Professor BEARDEN. A one term course. Two hours weekly.

Discovery, properties and production of X-rays. Atomic structure by the scattering of X-rays. Theory of dispersion and its use in the determination of  $e/m$ . Crystal structure and intensity of reflection from crystals. Ejection of photo-electrons by X-rays and precision methods of measuring X-ray wave lengths.

234 P. Physics of the Solid State. Associate Professor INGLIS. A two term course. Two hours weekly.

Discussion of experiments and theory dealing principally with the electronic structure of metals and other solids.

236 P. Recent Advances in Ultrasonics. Professor HUBBARD. A one term course. Spring. Two hours weekly.

237 P. Theory of Relativity. Professor DIEKE. A two term course. Two hours weekly.

240 P. Research Work under the direction of the staff members.

Attention is called to related courses in the Departments of Chemistry, Mathematics, and Electrical Engineering.

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## POLITICAL ECONOMY

Professor EVANS

Associate Professor BULLOCK (on leave)

Associate Professor WEYFORTH  
(on leave)

Associate Professor COOPER

Associate Professor REYNOLDS

The program of the candidate for the Ph. D. degree in Political Economy is made up of a number of elements which, taken as a whole, provide both general training in Political Economy and specialized equipment in one portion of the subject. Through courses, the topics of which vary from year to year, and through reading which is required in connection with these courses, the Department seeks to equip the student with the technical tools and a broad background in economic fact and theory. Through the writing of a dissertation the student acquires both a first-hand acquaintance with modes of economic inquiry and a thorough knowledge of one field of Political Economy. As the student's research progresses it is presented to the Seminary, where it receives both faculty and student criticism. Finally, each student is required to take work in one or more cognate subjects. The amount varies with the student's previous training. Ordinarily this requirement is met by taking, during the first two years of residence,

specific work in one or more of the four fields—Political Science, History, Philosophy, and Mathematics.

The requirements for the degree of Master of Arts in Political Economy include the successful completion of a full year of instruction in Economics, satisfactory work in a cognate subject, and the writing of an essay in the field of Economics. The essay is prepared under the direction of a member of the staff and is subjected to Seminary criticism. At the end of the period of residence the student is given a general examination in Economics—partly written, partly oral. Upon the passage of the examination and the acceptance of the essay, the student is recommended for the degree, provided the requirement of the Board of University Studies with respect to a reading knowledge of a foreign language has been met. The aim of the program is to give a year of post-graduate work that will prove helpful to one who plans to teach, go into government service, or carry on economic research.

#### COURSES FOR 1944-45

The courses in Economics to be offered in the academic year 1944-45 will be selected from the following in accordance with the needs of the students in the Social Studies.

**1 P. Seminary.** Professor EVANS and Associate Professors COOPER and REYNOLDS. A three term course. Fall, Winter, and Spring. Two hours weekly.

**2 P. Development of Economic Opinion.** Professor EVANS. A three term course. Fall, Winter, and Spring. One hour weekly.

A course on the development of economic thought that is designed to link the past to the present. The periods and areas treated vary from year to year so as to provide in the entirety a comprehensive program of study.

**12 P. Economic Theory.** Professor EVANS. A three term course. Fall, Winter, and Spring. One hour weekly.

An examination of the basic principles of contemporary economic theory and their relation to the major economic problems.

**13 P. The Corporation.** Professor EVANS. A three term course. Fall, Winter, and Spring. One hour weekly.

The historical development of the corporation with emphasis upon its adaptation to changing economic conditions.

**14 P. Industrial Fluctuations.** Associate Professor WEYFORTH. A two term course. Fall and Winter. Two hours weekly.

[Since Dr. Weyforth is on leave, this course will be given only if there is sufficient demand.]

**18 P. Economic Statistics.** ————. A two term course. Winter and Spring. Two hours weekly.

A study of the statistical and mathematical tools important for modern economic research.

**19 P. The Dynamics of Labor Supply and Employment.** Associate Professor REYNOLDS. A one term course. Fall. Two hours weekly.

An examination of the effect of fluctuations in the demand for labor on the size and composition of the labor force, with particular reference to the experience of the United States since 1930.

**20 P. The Determination of Wages.** Associate Professor REYNOLDS.

A two term course. Winter and Spring. Two hours weekly.

An inquiry into the determinants of the wage structure, with particular attention to the characteristics of labor markets, the explanation of wage differentials, and the problems involved in wage regulation.

**21 P. International Financial Relations.** Associate Professor WEYFORTH. A one term course. Spring. One hour weekly.

[Since Dr. Weyforth is on leave, this course will be given only if there is sufficient demand.]

The Political Economy Journal Club meets once a month for discussion of current economic literature. It is attended by the students and members of the staff. A reading course is organized each year by the more advanced students of the Department for cooperative study of economic texts.

Students who have finished two years of college work with high standing may be accepted as candidates for the degree of A. M. or Ph. D. in Political Economy. Such students must have had an introductory course equivalent to Elements of Economics. It is desirable that they should have had also a course in Statistics.

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**POLITICAL SCIENCE**

Professor SWISHER

Associate Professor KEY (on leave)

Associate Professor MATTERN

Dr. MOOS

The Department of Political Science seeks to promote understanding of the realities of politics and political organization and of the theoretical and legal structure upon which political organization rests. Students have access to important research facilities in Washington in addition to those of the University. The facilities of Annapolis and Baltimore may be utilized in the study of state and local governments. The Department places emphasis on personal relationships and personal instruction rather than on rigid course requirements. Graduate work in political science should be accompanied by a considerable amount of work in related fields, the content varying in terms of the needs of individual students. Students enrolling in the Department are expected to possess a basic knowledge of political science, economics, and American and European history, together with such competence in foreign languages as is needed for handling the materials.

**COURSES**

**2 P. Constitutional Law of the United States.** Professor SWISHER.

A two term course. Fall and Winter. Two hours weekly.

The analysis of Supreme Court decisions and other source materials to show the development of the American constitutional system during recent years.

**3 P. Legislation.** Professor SWISHER. Given 1945-46.

The course deals with legislative problems and procedure, the capacity of modern legislatures to cope with complex sociological problems, legislative sanctions and their effectiveness, and the development of subordinate legislation.

- 4 P. Parties and Politics. Dr. Moos. A one term course. Spring. Two hours weekly.

This course is an intensive survey of the historical evolution of American political parties and an analysis of the salient features of practical politics.

- 6 P. Public Administration. Dr. Moos. A two term course. Fall and Winter. Two hours weekly.

An intensive analysis of the general problems of public administration with special emphasis on American experience at the federal level.

- 7 P. Comparative Government and Politics. Associate Professor MATTERN. A three term course. Fall, Winter, and Spring. Two hours weekly.

The government and politics of major foreign governments will be studied on the basis of documentary material.

- 8 P. Fundamentals of Political Science. Associate Professor MATTERN. Given 1945-46.

Content and method will be studied on the basis of theory and practice.

- 14 CP. American Constitutional Development. Professor SWISHER. A three term course. Fall, Winter, and Spring. Two hours weekly.

The course deals with changes in the American constitutional system brought about down through the years by the impact of changed political and economic circumstances. It covers developments in legislative, executive, and judicial branches of the government.

- 15 P. International Relations. Dr. Moos. Given 1945-46.

A survey of the origins, dynamic forces, and problems of the Western World with emphasis on the post-World War period. Special attention will be devoted to nationalism, imperialism, the foreign policies of the major powers, and the structural framework of agencies for international organization.

- 16 P. Federal Control of Corporations. Professor SWISHER. A one term course. Spring. Two hours weekly.

The course deals with efforts of the federal government to restrain national and international monopolies. It analyzes enforcement of antitrust laws and patent laws. It delves into accounts of recent efforts to protect the public interest in discoveries and inventions by legislative action. Finally, it studies resemblances between corporation edicts and inter-corporation agreements, on the one hand, and governmental statutes, treaties, and executive agreements on the other.

#### SEMINARS

- 25 P. General Seminar. All members of the Department. Two hours every third week.

Alternates with the special seminars. Student reports on phases of special research and on current political science literature are read by teachers and students prior to each meeting, and are analyzed and criticized in detail.

- 26 P. Significant Books in Political Science. Professor SWISHER. Two hours every third week.

- 27 P. Current Supreme Court Decisions. Professor SWISHER. Given 1945-46.

- 30 P. Problems of Administrative Tribunals. Associate Professor KEY. Given 1946-47.

- 31 P. Contemporary American Political Thought. Dr. Moos. Two hours every third week.

## PSYCHOLOGY

Dr. MORGAN

Dr. PRENTICE

with the cooperation of  
Professor SHAFFER

Graduate study leading to the M. A. and Ph. D. degrees in Psychology will be offered in cooperation with the departments of Biology and Education of the School of Higher Studies of the Faculty of Philosophy and with the departments of Psychiatry and Physiology of the School of Medicine. The principal emphasis is on research, and students may specialize in physiological, experimental, or clinical psychology, but a thorough knowledge of the fundamentals of psychology and allied fields is required.

Students desiring admission should apply not later than March 1 to the Department of Psychology. They should have had, in addition to undergraduate work in Psychology, elementary courses in mathematics, physics, biology and chemistry, and advanced courses in these fields are desirable. Graduate work in Psychology will be implemented with those advanced courses in the laboratory and clinical sciences that are most closely related to the field of research. It is highly desirable that candidates enter with a reading knowledge of German, but in any event reading knowledge of German and French (or Russian) is required for the Ph. D. degree.

**2 CP. Experimental Psychology.** Dr. MORGAN, Dr. PRENTICE and Assistants. A two term course, comprising three lectures and two laboratory periods weekly. Fall and Winter.

This course is prerequisite for all Psychology courses above the elementary level. It is required of all students concentrating in Psychology. The course will teach the student the fundamentals of experimental method and laboratory technique in Experimental and Physiological Psychology.

Prerequisites: Biology 1 C, Psychology 1 C.

**3 CP. Developmental Psychology.** Dr. MORGAN. A one term course. Winter. Three hours weekly.

A course in the genesis and evolution of adult human behavior as seen in the observation of animals and children.

**4 CP. Abnormal Psychology.** Professor SHAFFER. A one term course. Spring. Three hours weekly.

A course designed for the consideration of problems of psycho-biological functioning.

Prerequisite: Psychology 1 C.

**5 CP. Social Psychology.** Dr. PRENTICE. A one term course. Fall. Three hours weekly plus practicum (see note below).

A study of selected psychological problems arising from the nature of social organization. This course will have no regularly scheduled laboratory hours, but the student will be expected to do field observation and experimental work beyond the three hours scheduled for class meetings.

- 11 CP. Seminar in Perception. Members of the staff. Reports and conferences on assigned topics. A one term course. Fall. Two hours weekly to be arranged.

A study of perceptual processes as seen in vision, hearing, and the lower senses, in learning, and in social behavior.

- 12 CP. Seminar in Personality. Members of the staff. Reports and conferences on assigned topics. A one term course. Winter. Two hours weekly to be arranged.

A study of the dynamics of individual differences in personality and additional characteristics as illuminated by specialized studies.

- 13 CP. Seminar in Motivation. Members of the staff. Not offered 1944-45.

- 14 CP. Seminar in Language. Members of the staff. Not offered 1944-45.

- 20 P. Research in Physiological Psychology. Dr. MORGAN. Offered each term.

Original research by qualified students on problems of neural function, hormones, and nutrition in relation to human and animal behavior.

- 21 P. Research in Experimental Psychology. Dr. PRENTICE. Offered each term.

Original research by qualified students on problems of motivation, perception, and learning in human behavior.

- 22 P. Research in Abnormal and Clinical Psychology. Professor SHAFFER. Offered each term.

Work by qualified students in psychopathology and problems of personality may be carried out in cooperation with the Sheppard-Pratt Hospital.

- 223 P. The Biology Club is composed of members of the staff and advanced students in the biological sciences and meets weekly for the presentation and discussion of the research work of the members of the department as well as for review and discussion of important new literature. The meetings are open to all students interested in biological phenomena.

NOTE: Courses in Physiological Chemistry, Physiology, Neurology, and Psychiatry are offered by the School of Medicine and are open to qualified graduate students in Psychology. There are also courses of interest in special phases of psychological research offered by the departments of Mathematics, Physics, Education, Chemistry, and Biology of the School of Higher Studies of the Faculty of Philosophy. For details, see the announcements of the proper schools.

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# ROMANCE LANGUAGES

Professor LANCASTER

Professor SALINAS (on leave)

Professor SPITZER

Associate Professor MALAKIS

Associate Professor SINGLETON

All graduate courses in Romance languages will be three term courses in 1944-45. Fall, Winter, and Spring.

## FRENCH

1 P. Seminary in French Literature. Professor LANCASTER. Two hours weekly.

French Drama and Criticism of the Seventeenth Century.

2 P. Seminary. Professor SPITZER. Reading of Old Provençal Texts, followed by Latin Renaissance texts. One hour and a half weekly. (To be given in 1945-46.)

3 P. Historical Grammar of French, Part I: Phonology. Professor SPITZER. One hour weekly.

4 P. Old French Readings: *Aucassin et Nicolette* and *Le jeu de la feuillée*. Professor SPITZER. One hour and a half weekly.

5 P. The Sixteenth Century. Professor LANCASTER. One hour weekly.

6 P. The Seventeenth Century. Professor LANCASTER. One hour weekly.

7 P. The Eighteenth Century. Associate Professor MALAKIS. One hour weekly.

8 P. The Nineteenth Century: The Novel. Associate Professor MALAKIS. One hour weekly.

## ITALIAN

9 P. Dante: *Vita Nuova* and *Inferno*. Associate Professor SINGLETON. One hour weekly.

10 P. Boccaccio: *Decameron*. Associate Professor SINGLETON. One hour weekly.

## SPANISH

- 11 P. La literatura de la Edad Media: del *Poema del Cid* a *La Celestina*. Professor SALINAS. One hour weekly. (To be given in 1945-46.)
- 12 P. La Novela de los siglos XVI y XVII. Professor SALINAS. One hour weekly. (To be given in 1945-46.)
- 13 P. Seminario. Professor SALINAS. Two hours weekly. (To be given in 1945-46.)
- 14 P. El archipreste de Hita: *Libro de buen amor*. Professor SPITZER. One hour and a half weekly.
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# THE JOHNS HOPKINS UNIVERSITY

BALTIMORE

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REPORT OF THE PRESIDENT

# JOHNS HOPKINS



*Catalogue Number*  
of  
The College of Arts and Sciences  
The School of Engineering  
The School of Business Economics

*The Johns Hopkins University Circular*

NEW SERIES 1944, NUMBER 2

WHOLE NUMBER 548

PUBLISHED BY THE UNIVERSITY AT BALTIMORE 18, MARYLAND

MARCH, 1944

## CALENDAR

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### 1944

April 10	Monday; Beginning of Instruction in the Spring Term.
June 26-July 1	Monday-Saturday; Examinations.
July 2-9	Sunday-Sunday; Summer Vacation.
July 7	Friday; Registration for Summer Term.
July 10	Monday; Beginning of Instruction in the Summer Term.
September 25-30	Monday-Saturday; Examinations.
October 1-8	Sunday-Sunday; Fall Vacation.
October 6	Friday; Registration of new Students.
October 9	Monday; Beginning of Instruction in the Fall Term.
December 25	Monday; Christmas Day. All classes suspended.
December 26-30	Tuesday-Saturday; Examinations.
December 31- January 7	Sunday-Sunday; Winter Vacation.

### 1945

January 8	Monday; Beginning of Instruction in the Winter Term.
March 26-31	Monday-Saturday; Examinations.
April 1-8	Sunday-Sunday; Spring Vacation.
April 9	Beginning of Instruction in the Spring Term.
June 25-30	Monday-Saturday; Examinations.
July 1-8	Sunday-Sunday; Summer Vacation.

THE JOHNS HOPKINS UNIVERSITY CIRCULAR

ISSUED MONTHLY, FEBRUARY TO JULY AND NOVEMBER

Entered October 21, 1903, at Baltimore, Md., as second-class matter, under  
Act of Congress of July 16, 1894

# JOHNS HOPKINS UNIVERSITY

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## TABLE OF CONTENTS

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	PAGE
BOARD OF TRUSTEES.....	4
OFFICERS OF ADMINISTRATION.....	4
FACULTY .....	5
THE UNIVERSITY .....	16
History and General Statement.....	16
The Homewood Campus.....	17
Libraries .....	18
UNDERGRADUATE SCHOOLS.....	20
War Time Programs.....	20
Student Life.....	21
Requirements for Admission.....	26
Tuition Fees and Expenses.....	28
General Information.....	29
THE COLLEGE OF ARTS AND SCIENCES.....	35
Government of the College of Arts and Sciences.....	36
Instruction in the College.....	38
Requirements for the Degree of Bachelor of Arts.....	41
Scholarships .....	46
Courses of Instruction.....	50
THE SCHOOL OF BUSINESS ECONOMICS.....	81
Government of the School of Business Economics.....	82
Instruction in the School of Business Economics.....	83
Requirements for the Degree of Bachelor of Science in Economics	84
Scholarships .....	86
THE SCHOOL OF ENGINEERING.....	87
Government of the School of Engineering.....	88
Instruction in the School of Engineering.....	89
Scholarships .....	92
Degree Programs and Courses of Instruction.....	96
APPENDIX .....	123

## BOARD OF TRUSTEES

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Roy B. White

Vannevar Bush

J. Gilman D'Arcy Paul

Isaiah Bowman, *ex officio*

---

Henry S. Baker, *Secretary*

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## OFFICERS OF ADMINISTRATION

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President: Isaiah Bowman

Provost: J. Stewart Macaulay

Treasurer: Henry Scott Baker

Librarian: Homer Halvorson

Assistant Treasurer and Business

Assistant Librarians:

Manager: Wesley A. Taylor

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J. Louis Kuethe

John H. Gillicee

Registrar: Irene M. Davis

Manager of the Johns Hopkins Press:

Superintendent of Buildings and

Christian W. Dittus

Grounds: Frank Primrose

Dean of the College of Arts and Sciences

G. Wilson Shaffer

Dean of the School of Engineering

William Bennett Kouwenhoven

Acting Director of the School of Business Economics

Howard E. Cooper



## FACULTY FOR 1943-44

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This list includes, besides the professors and instructors in the College of Arts and Sciences and the School of Engineering, other members of the University faculty who are directly engaged in the instruction of undergraduate students. The names are arranged in the several groups in alphabetical order. A date in brackets indicates the year of appointment to present rank; a second date means year of original appointment if differing from the former.

### PRESIDENT OF THE UNIVERSITY

ISAIAH BOWMAN, PH. D., LL. D., SC. D.

[1935]

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### PROFESSORS EMERITI

ETHAN ALLEN ANDREWS, PH. D., *Professor Emeritus of Zoölogy*

[1930; 1887]

EDWARD WILBER BERRY, *Professor Emeritus of Paleontology*

[1943; 1906]

ABRAHAM COHEN, PH. D., *Collegiate Professor Emeritus of Mathematics*

[1940; 1895]

RHEINART PARKER COWLES, PH. D., *Professor Emeritus of Zoölogy*

[1942; 1904]

JOSEPH CHRISTIE WHITNEY FRAZER, PH. D., SC. D., *Professor Emeritus and Research Professor of Chemistry*

[1943; 1901]

JOHN CALVIN FRENCH, PH. D., *Librarian Emeritus*

[1943; 1904]

WILLIAM KURRELMAYER, PH. D., *Professor Emeritus of German*

[1944; 1900]

SAMUEL OTTMAR MAST, PH. D., *Professor Emeritus of Zoölogy*

[1941; 1911]

L. WARDLAW MILES, PH. D., M. D., LL. D., *Collegiate Professor Emeritus of English*

[1942; 1926]

E. EMMET REID, PH. D., LL. D., *Professor Emeritus of Chemistry*

[1937; 1914]

CHARLES KEPHART SWARTZ, PH. D., *Professor Emeritus of Geology*

[1931; 1904]

JOHN BOSWELL WHITEHEAD, PH. D., *Professor Emeritus of Electrical Engineering*

[1942; 1898]

## PROFESSORS

DONALD HATCH ANDREWS, PH. D., *Professor of Chemistry and Director of the Chemistry Laboratory*

[1930; 1927]

FLORENCE EILAU BAMBERGER, PH. D., *Professor of Education and Director of the College for Teachers*

[1924; 1916]

J. ALVIN BEARDEN, PH. D., *Professor of Physics*

[1939; 1929]

Absent on leave

GEORGE BOAS, PH. D., *Professor of the History of Philosophy*

[1933; 1921]

Absent on leave

ALEXANDER GRAHAM CHRISTIE, Dr. Eng., *Professor of Mechanical Engineering and Director of the Night Courses in Technology*

[1920; 1914]

ERNST CLOOS, PH. D., *Professor of Structural Geology*

[1941; 1931]

RICHARD T. COX, PH. D., *Visiting Professor of Physics*

GERHARD H. DIEKE, PH. D., *Professor of Physics*

[1939; 1930]

PAUL EMILE DUMONT, PH. D., *Professor of Sanskrit and Indology*

[1931]

PAUL H. EMMETT, PH. D., *Professor of Chemical Engineering*

[1937]

Absent on leave

GEORGE HEBERTON EVANS, JR., PH. D., *Professor of Political Economy*

[1942; 1924]

ERNST FEISE, PH. D., *Professor of German*

[1928; 1927]

ROBERT DUDLEY FOWLER, PH. D., *Professor of Chemistry*

[1943; 1936]

Absent on leave

J. MONTGOMERY GAMBRILL, A. M., *Visiting Professor of American History*

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

[1930]

Absent on leave

HARRY M. GWYNN, Colonel, Infantry, U. S. Army, *Professor of Military Science and Tactics*

[1942]

HOMER HALVORSON, PH. D., *Librarian of the University*

[1943]

RAYMOND DEXTER HAVENS, PH. D., LITT. D., *Caroline Donovan Professor of English Literature*

[1925]

JOHN CHARLES HUBBARD, PH. D., LL. D., *Professor of Physics and Chairman of Undergraduate Work in Physics*

[1927]

WILLIAM BENNETT KOUWENHOVEN, DIPL. ING., DR. ING., *Professor of Electrical Engineering and Dean of the School of Engineering*

[1930; 1914]

HENRY CARRINGTON LANCASTER, PH. D., *James M. Beall Professor of French Literature*

[1919]

OWEN LATTIMORE, *Director and Lecturer in the Walter Hines Page School of International Relations*

[1939; 1938]

Absent on leave

KEMP MALONE, PH. D., LITT. D., *Professor of English Philology*

[1926; 1924]

FRANCIS DOMINIC MURNAGHAN, PH. D., *Professor of Applied Mathematics*

[1928; 1918]

NORMAN D. NEWELL, PH. D., *Professor (elect) of Paleontology and Stratigraphy*

[1944]

WALTER A. PATRICK, PH. D., SC. D., *Professor of Chemistry*

[1924; 1917]

A. HERMAN PFUND, PH. D., *Professor of Physics*

[1926; 1906]

DAVID MOORE ROBINSON, PH. D., LL. D., L. H. D., LITT. D., *W. H. Collins Vickers Professor of Archaeology and Epigraphy and Lecturer on Greek Literature*

[1912; 1905]

ROBERT BRUCE ROULSTON, PH. D., *Collegiate Professor of German*

[1928; 1908]

HENRY T. ROWELL, PH. D., *Professor of Latin*

[1940]

Absent on leave

PEDRO SALINAS, PH. D., LITT. D., *Professor of Spanish Literature*

[1940]

Absent on leave

G. WILSON SHAFFER, PH. D., *Professor of Physical Education; Dean of the College of Arts and Sciences*

[1941; 1938]

JOSEPH THEOPHILUS SINGEWALD, JR., PH. D., *Professor of Economic Geology*

[1922; 1913]

HAZELTON SPENCER, PH. D., *Professor of English*

[1937; 1928]

LEO SPITZER, PH. D., *Professor of Romance Philology*

[1936]

CARL B. SWISHER, PH. D., *Thomas P. Stran Professor of Political Science*  
[1938; 1937]

JOSEPH TRUEMAN THOMPSON, B. S. IN ENG., *Professor of Civil Engineering*  
[1930; 1919]

BENJAMIN HARRISON WILLIER, PH. D., SC. D., *Henry Walters Professor of Zoölogy and Director of the Biological Laboratory*  
[1940]

ABEL WOLMAN, DR. ENG., *Professor of Sanitary Engineering*  
[1937]

OSCAR ZARISKI, PH. D., *Professor of Mathematics*  
[1937; 1929]

#### ASSOCIATE PROFESSORS

DON CAMERON ALLEN, PH. D., *Associate Professor of English*  
[1942]

CHARLES ROBERTS ANDERSON, PH. D., *Associate Professor of American Literature*  
[1941]

CHARLES FRANCIS BONILLA, PH. D., *Associate Professor of Chemical Engineering*  
[1940; 1937]

ROY J. BULLOCK, PH. D., *Associate Professor of Political Economy*  
[1942; 1928] Absent on leave

HAROLD CHERNISS, PH. D., *Associate Professor of Greek*  
[1936; 1933] Absent on leave

THOMAS F. COMBER, JR., S. B., in C. E., *Associate Professor of Civil Engineering*  
[1933; 1920]

HOWARD E. COOPER, PH. D., *Associate Professor of Political Economy, Acting Director of the School of Business Economics and Director of the Evening Courses in Business Economics*  
[1942; 1928]

ALSOPH H. CORWIN, PH. D., *Associate Professor of Chemistry*  
[1939; 1932]

STEFÁN EINARSSON, PH. D., *Associate Professor of English*  
[1936; 1928]

BORIS EPHRUSSI, PH. D., *Associate Professor of Biology*  
[1942; 1941]

FERDINAND HAMBURGER, JR., DR. ENG., *Associate Professor of Electrical Engineering*  
[1941; 1931] Absent on leave

DAVID R. INGLIS, D. SC., *Associate Professor of Physics*  
[1942; 1938] Absent on leave

- NATHAN JACOBSON, PH. D., *Associate Professor of Mathematics*  
[1943]
- VALDIMER ORLANDO KEY, JR., PH. D., *Associate Professor of Political Science*  
[1940; 1938] Absent on leave
- FREDERIO CHAPIN LANE, PH. D., *Associate Professor of History*  
[1935; 1928]
- EMILE MALAKIS, PH. D., *Associate Professor of French Literature*  
[1936]
- JOHANNES MATTERN, PH. D., *Associate Professor of Political Science; Assistant Librarian*  
[1938; 1911]
- SIDNEY PAINTER, PH. D., *Associate Professor of History*  
[1936; 1931]
- LLOYD G. REYNOLDS, PH. D., *Associate Professor of Political Economy*  
[1942; 1939]
- CHARLES S. SINGLETON, PH. D., *Associate Professor of Romance Languages*  
[1942; 1937]
- FOLKE SKOOG, PH. D., *Associate Professor of Botany*  
[1943; 1941]
- JULIAN CHASE SMALLWOOD, M. E., M. A., *Associate Professor of Mechanical Engineering*  
[1920; 1916]
- JOHN MORTIMER STEPHENS, PH. D., *Associate Professor of Education*  
[1937; 1930] Absent on leave
- DAVID EMRICH WEGLEIN, PH. D., *Associate Professor of Education*  
[1928; 1917]
- WILLIAM OSWALD WEYFORTH, PH. D., *Associate Professor of Political Economy*  
[1922; 1919] Absent on leave
- AUREL WINTNER, PH. D., *Associate Professor of Mathematics*  
[1935; 1930]
- FREDERICK Y. WISELOGLE, SC. D., *Associate Professor of Chemistry*  
[1943; 1936] Absent on leave

## LECTURERS

- JOHN F. BAXTER, JR., PH. D., *Lecturer in Chemistry*
- JEAN GOTTMANN, LL. L., D. E. S., *Visiting Lecturer in Geography*
- FRITZ LIEBEN, PH. D., *Lecturer in Chemistry*

## ASSISTANT PROFESSORS

HARRISON M. DIVER, JR., B. E., *Captain, Corps of Engineers, U. S. Army, Assistant Professor of Military Science and Tactics*  
[1942]

HOLLIS B. FARNUM, B. S., *First Lieutenant, Infantry, U. S. Army, Assistant Professor of Military Science and Tactics*  
[1944]

OSCAR J. L. HELM, A. B., *Captain, Infantry, U. S. Army, Assistant Professor of Military Science and Tactics*  
[1942]

CHARLES R. PFEFFER, B. E., *Major, Corps of Engineers, U. S. Army, Assistant Professor of Military Science and Tactics*  
[1942]

CHARLES C. REEDER, B. E., *Major, Corps of Engineers, U. S. Army, Assistant Professor of Military Science and Tactics*  
[1941]

## ASSOCIATES

RONALD TAYLOR ABERCROMBIE, M. D., *Director Emeritus of Physical Education*  
[1941; 1905]

JUDSON LOWELL ANDERSON, PH. D., *Associate in Geology*  
[1943]

ARTHUR O. BABENDREIER, *Associate in Drawing*  
[1931; 1923]

MATHEW H. BILYK, M. E., M. S., *Associate in Mechanical Engineering*  
[1943; 1941]

GEORGE F. CARTER, PH. D., *Associate (elect) in Geography*  
[1944; 1943]

CARL T. DEVINE, PH. D., *Associate in Business Economics*  
[1942]

N. BRYLLION FAGIN, PH. D., *Associate in English*  
[1932]

JOHN CHARLES GEYER, DR. ENG., *Associate in Sanitary Engineering*  
[1937] Absent on leave

RICHARD M. HAYWOOD, PH. D., *Associate in Latin and Greek*  
[1933; 1930]

JOSEPH W. HICKMAN, PH. D., *Associate in Chemistry*  
[1943; 1940] Absent on leave

THOMAS F. HUBBARD, B. E., *Associate in Civil Engineering*  
[1931; 1925]

- RICHARD B. KERSHNER, PH. D., *Associate in Mathematics*  
[1942; 1940] Absent on leave
- RICHARD F. KIMBALL, PH. D., *Associate in Zoölogy*  
[1943; 1939]
- FRANK WOLFERT KOUWENHOVEN, M. E., *Associate in Mechanical Engineering*  
[1928; 1920]
- THORSTEIN LARSEN, M. A., *Associate in Electrical Engineering*  
[1942] Absent on leave
- RICHARD C. LORD, JR., PH. D., *Associate in Chemistry*  
[1938; 1936] Absent on leave
- CLARA P. McMAHON, PH. D., *Associate in Education*  
[1943]
- FREDERICK WILBUR MEDAUGH, B. E., *Associate in Civil Engineering*  
[1924; 1919]
- C. FRANK MILLER, DR. ENG., *Associate in Electrical Engineering*  
[1943; 1941]
- MALCOLM CHARLES MOOS, PH. D., *Associate in Political Science*  
[1942]
- CLIFFORD T. MORGAN, PH. D., *Associate in Psychology*  
[1943] Absent on leave
- WILLIAM KELSO MORRILL, PH. D., *Associate in Mathematics*  
[1940; 1930]
- EDWARD TAYLOR NORRIS, PH. D., *Associate (elect) in English*  
[1944; 1932]
- KARL JOSEF PELZER, PH. D., *Associate in Geography*  
[1942]
- JAMES H. POTTER, M. E., *Associate in Mechanical Engineering*  
[1943; 1940]
- MYRICK WHITING PULLEN, S. B., LL. D., *Associate in Electrical Engineering*  
[1918; 1912]
- LAWRENCE RIGGS, ED. D., *Associate in Education*  
[1939]
- JAMES D. SCOTT, D. S. C., *Associate in Business Economics*  
[1941] Absent on leave
- MARK HOWARD SECRIST, PH. D., *Associate in Geology*  
[1938; 1930]
- CHARLES H. SHAW, PH. D., *Associate in Physics*  
[1942; 1938] Absent on leave

RICHARD E. THURSFIELD, M. A., *Associate in Education*  
[1939]

RALPH K. WITT, PH. D., *Associate in Chemical Engineering*  
[1937]

WALDEMAR T. ZIEGLER, PH. D., *Associate in Chemistry*  
[1943; 1938]

Absent on leave

#### INSTRUCTORS

LLOYD M. BEIDLER, B. S., *Instructor in Physics*  
[1944]

NORMAN HILL BOKE, PH. D., *Instructor in Biology*  
[1942]

SAMUEL G. BOURNE, B. S., *Instructor in Mathematics*  
[1943]

WALTER C. BOYER, B. E., *Instructor in Civil Engineering*  
[1944]

LLOYD A. BROWN, A. B., *Instructor in Geography*  
[1943]

KARL J. BRUNINGS, PH. D., *Instructor in Chemistry*  
[1941]

REYNOLD E. CARLSON, M. A., *Instructor in Political Economy*  
[1940]

Absent on leave

JERRY CAVAGNOL, M. A., *Instructor in Chemistry*  
[1944]

RANDOLPH V. CHAPMAN, PH. D., *Instructor in Petrography*  
[1939]

Absent on leave

CHARLES L. CHRIST, PH. D., *Instructor in Chemistry*  
[1942]

Absent on leave

ANDREW H. CLARK, M. A., *Instructor in Geography*  
[1943]

ROBERT D. COWAN, A. B., *Instructor in Physics*  
[1944]

L. KATHRYN DICE, D. ED., *Instructor in Education*  
[1943]

THOMAS M. DONAHUE, A. B., *Instructor in Physics*  
[1944]

CLIFFORD HUGH DOWKER, PH. D., *Instructor in Mathematics*  
[1940]

Absent on leave

LOUIS F. DRUMMETER, A. B., *Instructor in Physics*  
[1944]



WALTER W. EWELL, B. E., *Instructor in Civil Engineering*  
[1944]

LEROY R. FURLONG, B. S., *Instructor in Physics*  
[1944]

FRANCIS WILCOX GLUCK, M. D., *Instructor in Medicine and Medical Officer at Homewood*  
[1938; 1935]

FREDERICK HALVERSON, PH. D., *Instructor in Chemistry*  
[1943]

ALBERT L. HAMMOND, PH. D., *Instructor in Philosophy*  
[1943]

STANLEY S. HANNA, A. B., *Instructor in Physics*  
[1943]

BRYANT E. HARRELL, B. S., *Instructor in Chemistry*  
[1944]

ROBERT L. HENRY, A. B., *Instructor in Physics*  
[1943]

JAMES E. HENTHORN, A. B., *Instructor in Physics*  
[1944]

GEORGE R. JACKSON, B. S., *Instructor in Chemistry*  
[1944]

CLARENCE E. KEEFER, B. E., *Instructor in Sanitary Engineering*  
[1942]

ROBERT KILBOURNE, *Instructor in English*  
[1943]

CHARLES C. KILLINGSWORTH, M. A., *Instructor in Political Economy*  
[1942]

GEORGE W. KNIPP, PH. D., *Instructor in English*  
[1943]

JOHN M. KOPPER, B. E., *Instructor in Electrical Engineering*  
[1942]

JOSEPH T. KUMMEL, B. E., *Instructor in Chemical Engineering*  
[1944; 1941]

ARTHUR LICHTENSTEIN, PH. D., *Instructor in Education*  
[1934]

Absent on leave

FREDERICK W. LIGHT, M. D., *Instructor in Mathematics*  
[1943]

C. GARDNER MALLONEE, B. E., *Instructor in Physical Education*  
[1944]

GEORGE T. MOODY, PH. D., *Instructor in Romance Languages*  
[1943]

PANOS MORFHOPOULOS, PH. D., *Instructor in Romance Languages*  
[1937] Absent on leave

MARCUS A. NAYLOR, A. B., *Instructor in Chemistry*  
[1944]

CHARLES W. PETERS, A. B., *Instructor in Physics*  
[1944]

WILLIAM C. H. PRENTICE, PH. D., *Instructor in Psychology*  
[1943]

ROBERT W. RESNICK, A. B., *Instructor in Physics*  
[1944]

J. ELMER RHODES, B. S., *Instructor in Physics*  
[1944]

HANS RIS, PH. D., *Instructor in Biology*  
[1942]

ROBERT G. ROUSH, B. E., *Instructor in Electrical Engineering*  
[1944]

HAROLD K. SOHL, A. B., *Instructor in Mathematics*  
[1943]

ALBERT B. STEWART, B. S., *Instructor in Physics*  
[1944]

EILEEN SUTTON, PH. D., *Instructor in Biology*  
[1943]

HAROLD N. TAYLOR, B. E., *Instructor in Chemical Engineering*  
[1944]

RICHARD TAYLOR, *Instructor in Chemistry*  
[1944]

GEORGE J. THALER, B. E., *Instructor in Electrical Engineering*  
[1944]

SUMNER B. TWISS, B. S., *Instructor in Chemistry*  
[1944]

HEINZ VON SCHUCHING, DR. JUR., *Instructor in German*  
[1943]

JAMES L. A. WEBB, PH. D., *Instructor in Chemistry*  
[1943]

FREDERICK G. WHELAN, B. E., *Instructor in Electrical Engineering*  
[1944]

JAMES H. WOODBURN, B. S., *Instructor in Mechanical Engineering*  
[1941]

SOLOMON ZWERDLING, A. B., *Instructor in Chemistry*  
[1944]

#### RESEARCH ASSISTANTS

ROBERT ANDERSON, PH. D., *Research Assistant in Chemical Engineering*  
[1942]

DAVID A. EDWARDS, *Research Assistant in Chemical Engineering*  
[1943]

JAMES HOLMES, PH. D., *Research Assistant in Chemical Engineering*  
[1942]

CARVILLE V. MACE, B. E., *Research Assistant in Chemical Engineering*  
[1943]

THOMAS H. SMOOT, B. S. in M. E., *Research Assistant in Mechanical Engineering*  
[1941]

PAUL D. WOLFE, B. E., *Research Assistant in Chemical Engineering*  
[1943]

# The University

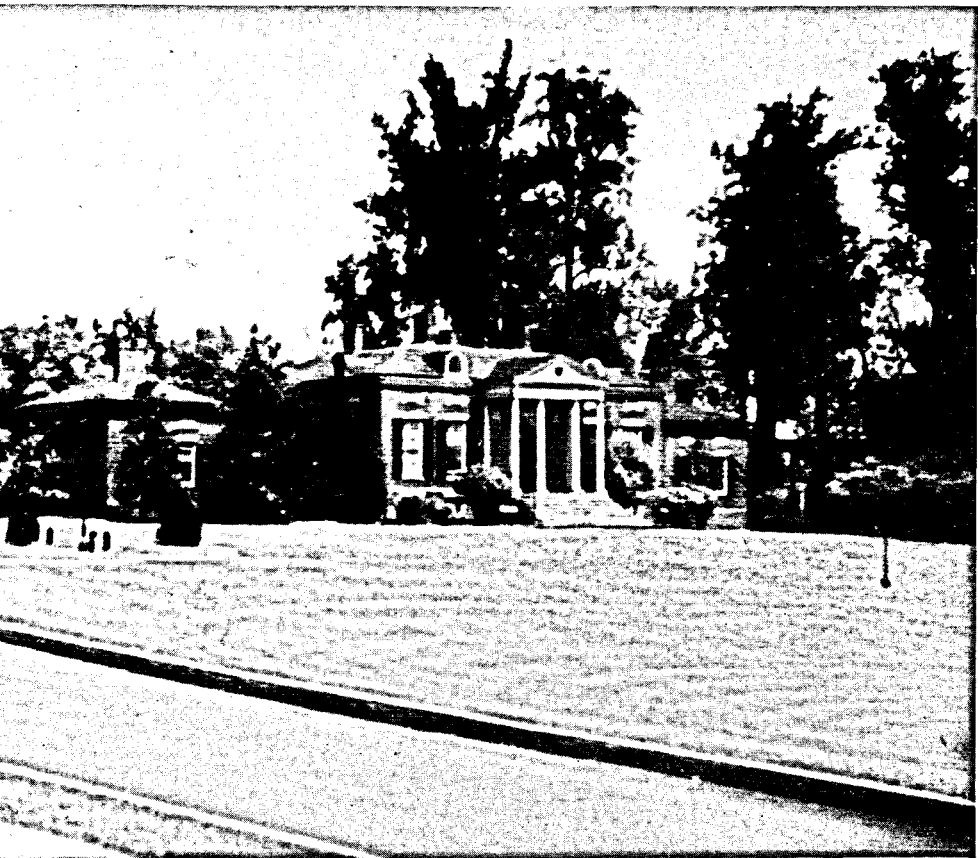
## History and General Statement

THE JOHNS HOPKINS University was founded by a merchant of Baltimore, Johns Hopkins (1795-1873) who bequeathed the greater part of his estate for the establishment of a university and a hospital. The University was incorporated in 1867, the Trustees organized in 1870 and the first courses of instruction were offered in October 1876. The work of the philosophical division of the University was begun in a small group of buildings on Howard Street where it continued until 1916 when the present site at Homewood was occupied. The Medical School was opened in 1893, in buildings adjacent to the Johns Hopkins Hospital. The School of Engineering, established in 1912, forms part of the Homewood group. The School of Hygiene and Public Health was opened in 1918 in buildings on Howard Street but moved in 1925 to the present location near the Hospital.

The first President, inaugurated in February 1876, was Daniel Coit Gilman, who was followed upon his retirement in 1901 by Ira Remsen. Dr. Remsen resigned in 1912 and during a period of two years the duties of the presidential office were discharged by an Administrative Committee of the faculty, appointed by the Trustees. Dr. William H. Welch was the Chairman of the Committee. The third President was Frank Johnson Goodnow, who filled the office from 1914 until his resignation in 1929 when he was succeeded by Joseph Sweetman Ames, who retired in 1935. The fifth President is Dr. Isaiah Bowman, who assumed the duties of the office in July 1935.

Undergraduate life at Johns Hopkins centers about three schools—the College of Arts and Sciences, the School of Engineering and the School of Business Economics. Each will be described in detail in later pages of this booklet. On the same campus with the undergraduate schools is the School of Higher Studies—the pioneer center in this country of advanced training and scientific and scholarly research. The carefully selected libraries and the well equipped laboratories of this school are of direct benefit to undergraduates. Faculty members chosen for their ability to uphold Hopkins standards in postgraduate work and in research share their time and talents with the collegiate schools.





HOMWOOD HOUSE



GILMAN HALL

## The Homewood Campus

While the University itself affords many unusual opportunities for a student who wishes more than the minimum in the way of education, its location in the City of Baltimore offers additional advantages. For those interested in the arts, the Maryland Institute, the Peabody Conservatory, the Walters Art Gallery, and the Baltimore Museum of Art—the latter located on a tract which once was a part of the Homewood campus—are easily accessible. Special lectures during the year bring to Homewood scholars of world-wide reputation, eminent scientists and leaders in public affairs. The proximity of Washington, which is only forty miles from Baltimore, is an added advantage for students interested in the arts, the sciences, or in government.

The Homewood campus is not the least of the University's attractions. Its hundred acres of lawn and woodland lie just within the inner circle of the city's suburbs. It is bordered on one side by Baltimore's principal north-south artery—Charles Street—yet its size and arrangement are such that its location in the city is a convenience without being an annoyance.

All of the buildings on the campus are relatively new and all derive their Georgian style from the historic Homewood House, which stands at the main entrance to the campus and which is regarded as one of the finest examples of the architecture of the period.

Since the campus was planned as a unit, the arrangement of buildings and other facilities is compact and convenient. Classroom and laboratory buildings are grouped around a central quadrangle with the dormitory, gymnasium, playing fields, and the student center—Levering Hall—nearby and connected by private drives and footpaths. Other conveniences on the campus include a university book store, operated in conjunction with the Johns Hopkins Press, a lunch room and soda fountain, a post office and a barber shop. A small but adequate shopping center is located within a few minutes walk of the campus and there are a number of churches within a radius of a few blocks.



## Libraries

THE UNIVERSITY Libraries include about 689,024 bound volumes, selected with reference to the instruction and research carried on at Johns Hopkins. Of these volumes about 547,442 are housed at Homewood in Gilman Hall and in the following departmental libraries: chemistry, geology, engineering, physics, and biology. The main reading room, in which nearly 200 readers can be accommodated, contains a reference collection of about 10,000 volumes. Two other reference rooms, one for history, economics, political science, and law and one for the Greek and Latin classics, education, philosophy, and orientalia, are in the same building. Desks for the use of graduate students are provided in the bookstacks in close proximity to the collections with which they work.

The main reading room is open daily, except Sunday, from 9 a. m. to 9 p. m. (on Saturdays until 4 p. m.) and the other reference and reading rooms until 5 p. m., with provision in special cases for later hours.

THE WILLIAM H. WELCH MEDICAL LIBRARY, on Monument Street near Wolfe Street, contains the collections of the medical and allied sciences numbering about 141,582 bound volumes. Here in a library building of exceptional beauty and convenience the libraries of the School of Medicine, the School of Hygiene, and the Johns Hopkins Hospital have been combined into one central collection with ample facilities for reading and research.

THE PEABODY LIBRARY is a choice collection of books purchased since 1861. It is particularly full in the transactions of learned societies, in long historical series, and in costly illustrated books and includes 249,598 bound volumes and pamphlets, well catalogued and arranged and 1,790 maps. It is open daily without charge, from 9 a. m. to 6 p. m. THE MARYLAND DIOCESAN LIBRARY, of more than 32,000 volumes, is housed in the Peabody Library Building.

THE ENOCH PRATT FREE LIBRARY, at its central building, had on December 31, 1943, a total of 542,559 volumes, and at its 26

branches 263,287 more, duplicate copies. Its "all" depository of U. S. documents is completely classified and catalogued. Included in the above book stock figures are 60,379 volumes of important bound periodicals and transactions in every field, some of them beginning in the 18th century. More than 1,650 different current periodicals are received. The service of the Central Library is organized into nine subject departments—Science and Industry; Business and Economics; Civics and Sociology; Education, Philosophy and Religion; History and Travel; Biography; Literature; Fine Arts; Maryland. Each has a specially qualified staff for reference work, and issues an annual list of additions in its field. Open weekdays 9 a. m.-9 p. m. Its Peabody Heights Branch is not far distant from the campus (St. Paul St. near 25th St.); hours 1-9 p. m.

THE MARYLAND HISTORICAL SOCIETY LIBRARY contains 40,000 volumes of historical works and is open daily, except Sundays and holidays from 9-5 p. m.; Saturdays 9-4 p. m.

Other important libraries of Baltimore are the Bar Library (70,942 volumes), and the Medical and Chirurgical Library (64,000 volumes).

Washington is so near that its museums and libraries may be easily visited. Among the chief institutions of interest to students are these:

- The Library of Congress.
- The Folger Shakespeare Library.
- The Smithsonian Institution and National Museum.
- The Army Medical and Surgical Museum and Library.
- The U. S. Coast and Geodetic Survey.
- The U. S. Geological Survey.
- The U. S. Naval Observatory.
- The Libraries of the Departments and Bureaus.
- The Corcoran Art Gallery.
- The National Gallery of Art.

# Undergraduate Schools

## War Time Programs

### Accelerated Program

**U**NDERGRADUATE COURSES are offered the year round in terms of 12 weeks each. All degree programs extend over 10 terms and are arranged for the benefit of students who wish to take advantage of the accelerated program. No student is obliged to follow this program if he can make satisfactory arrangements with his adviser. Many courses are given in alternate terms and other courses are designed to extend through 2 or 3 terms so that difficulties may arise if one does not remain in regular attendance.

### Army Specialized Training Program

**S**INCE JUNE of 1943 the University has been giving courses to soldiers assigned here under the Army Specialized Training Program. The instruction which is provided for the military group is substantially the same as that offered to civilian students, though the two groups are not in the same classes.

### Armed Forces Institute

**C**IVILIAN STUDENTS of the University who are called to military duty before the completion of their degree program are encouraged to enroll for courses approved by the Armed Forces Institute. The advisers and deans of the several schools guide the students in the selection of courses.

### Programs for Returned Service Men

**T**HE UNIVERSITY is prepared to accept applications for admission or advanced standing from men wishing to continue their education after discharge from the armed forces. In appraising such applications, full consideration will be given to records

which may deviate from the conventional due to the demands and interruptions imposed by the war. There will be no relaxation in standards, but an effort will be made to give credit for all work satisfactorily accomplished, whether that work has been done in a conventional high school or collegiate program or in connection with special training activities of the armed services.

It is presumed that most returning service men will wish to follow more or less closely the curriculum of one of the undergraduate schools. Some special courses, however, already have been made available and others will be added as the University's post-war program develops.

## Student Life

### The Student Council and the Honor System

THE OUTSTANDING organization of Hopkins undergraduates is the Student Council, the principal function of which is the administration of the honor system.

The Johns Hopkins Honor System is the self-imposed moral code of a community of gentlemen. It exists to guarantee high standards of conduct in this community and to limit membership to persons who are able and willing to maintain them. Its provisions are enforced by the Student Council of the University and must be obeyed by members of the undergraduate student body, without exception.

The Honor System governs not only conduct in class and examination rooms, but also the behavior of undergraduates on the Campus, or at the location of Campus sponsored activities.

The Student Council has the full support of the faculty and administrative officers of the University. New students are expected to acquaint themselves with the broad aspects of the operation of the Honor System and also with its specific provisions.

### Extra Curricular Activities

THE CENTER of many of the extra curricular activities is Levering Hall, operated by the Hopkins Branch of the Baltimore Y. M. C. A. as a non-sectarian center for all students. The

building itself is commodious and well designed for the purpose with lounges, game rooms, study rooms and meeting rooms, as well as offices for student organizations. The range of activities to be found on the campus reflects a variety of tastes. The incoming student is invited to make his selection from the following list, membership in each being dependent on ability or interest in the field which the activity represents:

THE NEWS-LETTER—a student newspaper.

THE HULLABALOO—a class annual managed each year by the junior class. Members of other classes are eligible for positions on the staff.

THE BARNSTORMERS—a dramatic group which presents at least one major play each year.

THE MUSICAL CLUB—which includes the Glee Club and vocal and instrumental groups.

THE JOHNS HOPKINS ORCHESTRA—an endowed organization devoted to serious music.

THE DEBATING COUNCIL—which engages each year in a schedule of intercollegiate debates.

THE CAMERA CLUB—open to all students interested in photography.

In addition to these regular and recognized activities, there are on the Homewood campus a number of scientific and scholarly groups in which membership is limited but to which new students, in accordance with their interests and inclinations, may aspire:

PHI BETA KAPPA—honorary academic society.

TAU BETA PI—honorary engineering society.

OMICRON DELTA KAPPA—an honorary fraternity which recognizes leadership and ability in campus activities.

PI DELTA EPSILON—an honorary journalistic fraternity.

SIGMA XI—scientific fraternity.

THE TUDOR AND STUART CLUB—established and endowed in 1918 by Sir William and Lady Osler in memory of their son, Revere Osler. This distinctive literary group occupies club

rooms in Gilman Hall. Qualifications for membership include an interest in English literature, particularly of the Tudor and Stuart period.

In addition to these organizations, the Engineering School supports student branches of the American Institute of Electrical Engineers, the American Society of Mechanical Engineers, the American Society of Civil Engineers, and the Chemical Engineers Association.

The Alexander K. Barton Cup is awarded each year to that member of the Senior Class of any undergraduate department of the University who has most faithfully served the interests and ideals of the University and who, by his character and influence throughout his collegiate course, has best exemplified the qualities which earned and held for Alexander K. Barton, of the class of 1914 of the Johns Hopkins University, the respect and affection of his fellows, both during his course in college and in his life outside. The winner of the cup is selected by a committee composed of the Chairman of the Faculty Committee on Student Affairs, who is to serve as Chairman, the Director of Athletics, the Dean of the College of Arts and Sciences and the Dean of the School of Engineering.

### Athletics

THE HOPKINS students may participate in athletics in the required physical education program, as members of inter-collegiate teams, or in the broadly developed intramural program.

Physical education is required in every term of residence, and an effort is made to introduce each student to every recreational opportunity that is afforded by the University. Physical fitness is stressed, but considerable attention is given to vigorous games. Activities are arranged for the best interests of the individual student and according to his physical requirements, and special emphasis is placed upon activities that can be carried over into later life.

The intramural program is participated in by almost the entire student body, and a wide variety of sports is included. Touch foot-

ball, basketball, volley ball, and softball leagues have been most popular. Fraternity, dormitory, class, and club teams are organized for such participation.

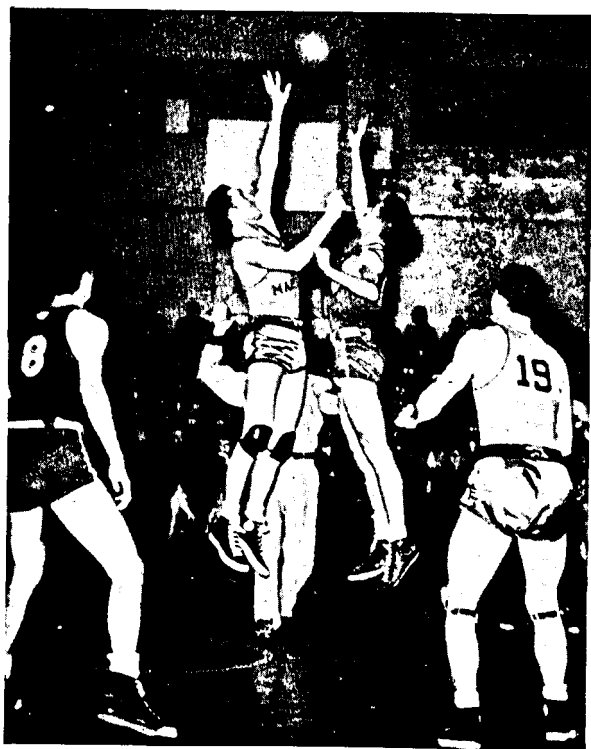
The intercollegiate program embraces thirteen sports, including football, soccer, cross country, basketball, wrestling, rifle, fencing, swimming, baseball, lacrosse, track, tennis, and golf. The lacrosse teams have been especially successful, having won more national championships than any other college and having represented the United States in the Olympic games on both occasions when lacrosse was a part of the Olympic program.

The University has guarded against the commercialization of intercollegiate athletic contests by a unique plan. No admission is charged to athletic contests and no guarantees are given to visiting teams. The entire program is operated and supported as a regular department of the University, entirely for the benefit of the students. Alumni or others who wish to attend the athletic contests are provided with cards of admission for which there is no charge. Spectators are, in effect, guests of the University and the student body.

### Alumni Memorial Hall

**A**LUMNI MEMORIAL Hall is a residence hall which accommodates a large number of students, both graduate and undergraduate, as well as a few faculty members. Residents are provided with rooms and medical service and have the use of the social hall. It is hoped that by July the cafeteria will be open for civilian use. One interesting feature of life in the dormitory is the series of programs arranged by the dormitory fellows for the purpose of bringing the residents into closer contact with University affairs. New students will find here ample opportunity to make friends and come into close contact with campus activities.

Accommodations consist of single rooms and suites for two men. Rental includes care of rooms, heat, light, and the use of the following furniture for each occupant: bed, with linen and blankets, chiffonier, desk, bookcase, and two chairs. Full information will be sent by the Business Manager of the University upon request.

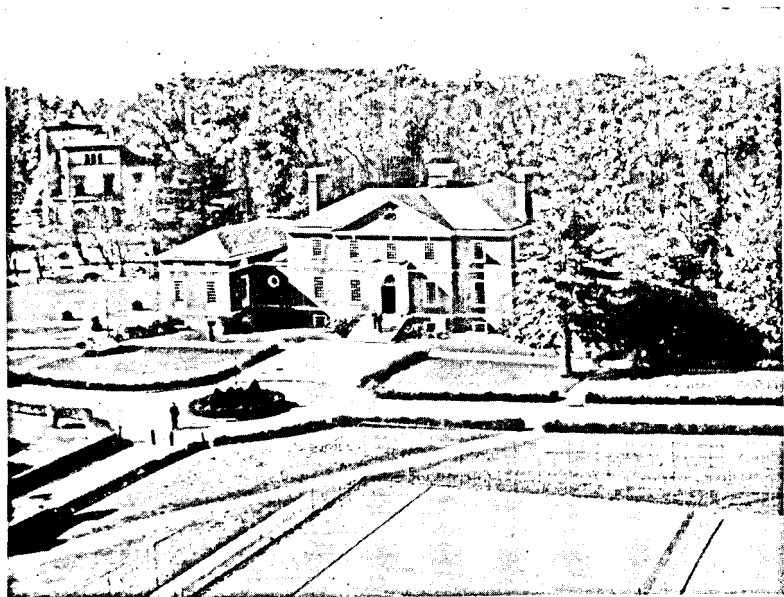


BASKETBALL

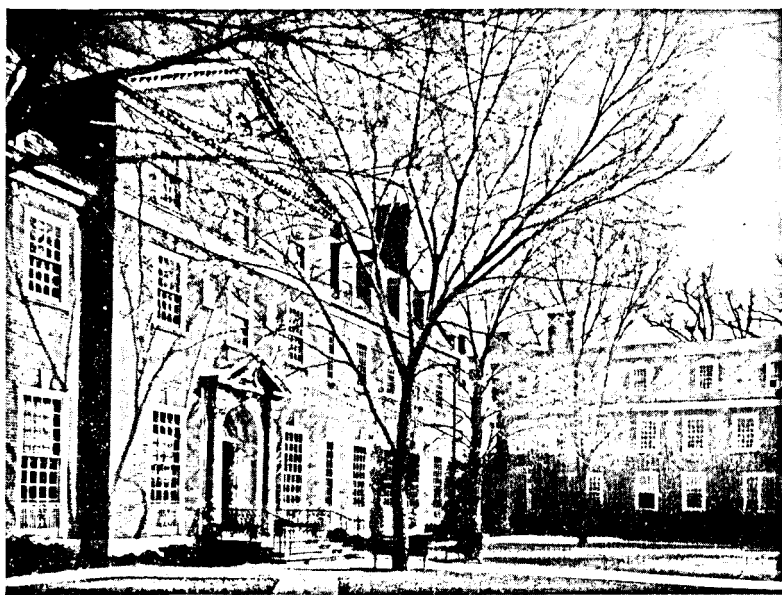


LACROSSE





LEVERING HALL



ALUMNI MEMORIAL HALL

### Medical Care of Students

THE SERVICES of the medical officer are available to all undergraduate students. They are free to consult the medical officer on problems of general health and questions relating to participation in athletics and corrective gymnastics. They may also call upon the medical officer for first aid and routine treatment of injuries incurred while participating in a University activity.

The benefit of complete medical service cannot be extended to students who do not live on the campus, but for dormitory residents the medical care is comparable to that usually provided by a family physician. The medical officer receives dormitory students at his office during regular hours, or in case a student cannot leave his room, the medical officer calls upon him there during those hours. In case of sudden illness at other hours of the day or night, students may apply to the senior proctor who, in his discretion, may summon the physician.

The plan does not provide for the costs of hospitalization, X-ray, the attention of specialists, or other extraordinary expenses.

All students, including those who do not reside on the campus, are given a thorough physical examination when they enter the University and as often thereafter as the medical officer may deem advisable.

### Bureau of Appointments

THE UNIVERSITY maintains a Bureau of Appointments which is under the supervision of the Registrar. The office of the Director of the Bureau is room 17, Remsen Hall. Here a register is kept of all present and former students who care to avail themselves of the University's assistance in finding permanent employment or part time and vacation work. No charge is made for services to applicants or employers and all who are interested are invited to call or write for further information.

## Requirements for Admission

**Y**OUNG MEN who wish to pursue undergraduate courses should apply to the Registrar of the University for a blank form of "Application for Admission." A deposit of \$5.00 must accompany this application unless the student is applying for an Open Scholarship or for a State Scholarship in the School of Engineering.

Students who are interested are invited to correspond with the Registrar during their high school years in order to receive advice in planning their programs. Application should be filed early in the second term of the senior year in school.

An applicant for admission must be certified by the principal of a school approved by one of the regional associations of colleges and secondary schools or he must give evidence by passing examinations that he has the equivalent of a secondary school course. The required units of high school work are as follows:

English ..... 3 units (4 years)

Foreign Languages ... For the College of Arts and Science:  
2 units in each of two languages or  
3 units in one language

For the School of Engineering:  
2 units in one foreign language

For the School of Business Economics:  
2 units in one modern foreign language

Algebra .....  $1\frac{1}{2}$  units for prospective majors in engineering, science, pre-medicine and economics—1 unit for others

Plane Geometry ..... 1 unit

Electives ..... to make a total of 15.

The elective units must be chosen from the following subjects: mathematics, languages, history and the other social studies, the sciences and drawing (1 unit). Applicants for admission to the School of Business Economics

may offer as electives commercial law, commercial geography, commercial arithmetic, bookkeeping and accounting.

NOTE:  $\frac{1}{2}$  unit in Trigonometry is recommended for majors in engineering, science and pre-medicine. Latin and either French or German are recommended for majors in pre-medicine.

A letter of recommendation from a person not related to the applicant and a statement from the family physician must be supplied in connection with the application. A personal interview with each prospective student will be arranged at a convenient point by the Registrar.

The scholastic requirements set forth above are minimum requirements. The University reserves the right to reject applicants even though these minimum requirements for admission have been met.

### Advanced Standing

A STUDENT seeking admission with advanced standing should make application on a regular admission blank to be obtained from the Registrar. This application together with an official transcript of the applicant's college record should be sent to the Registrar's office. The Committee on Advanced Standing will take appropriate action.

## Tuition Fees and Expenses

### Application Fee

ALL APPLICANTS for admission except applicants for scholarships are required to send a fee of \$5.00 with their applications. This fee will be returned to all those who are refused admission. Those who are accepted but who do not attend will forfeit the fee; those who enter the University will have this sum credited toward their tuition.

### Deposit

Upon entering the University each student is required to deposit \$20.00, which is repaid when he leaves if there are no charges against him.

### Tuition and Other Fees

The tuition fee is \$165.00 per term, payable at the beginning of the term.\* No one is at liberty to attend classes until he has paid the tuition fee and deposit at the Treasurer's office. There are no additional fees for registration, use of laboratories (except in the night schools), use of athletic fields and gymnasium, attendance at athletic contests and membership or participation in student activities. Class dues of \$1.25 per term and a mail box fee of \$ .25 per term must be paid by each student when he registers.

Students withdrawing from the University must at once notify the several instructors concerned, as well as the Registrar. They will be liable to the full charge for the term unless a reduction is recommended. This is done in the case of men entering the armed forces.

Holders of State scholarships are exempt from all fees except the deposit of \$20.00 referred to above.

### Graduation Fees

Before a degree is conferred all outstanding accounts at the Treasurer's office must be paid.

The fee for the diploma of Bachelor of Arts is \$5.00.

The University will furnish academic costume for use at public exercises. The charge for this is \$3.00.

\* The fee for late registration is \$3.00.

## General Information

### Advisers

Each student upon admission is assigned to a member of the faculty, who acts as his adviser and endeavors to establish with him relations of friendliness and confidence.

The adviser of each student confers with him and assigns him to the courses to be taken.

Students must report to their advisers at the beginning of each term.

### Examinations

*The Honor System prevails in all examinations (see p. 21).*

**Course Examinations:** Examinations of all classes are held at the close of each term. These examinations are based upon the work of the preceding term, and the time allotted is as follows: in a three-hour or four-hour course three hours of examination, in a one-hour or two-hour course two hours of examination. Laboratory examinations may be conducted during the last laboratory period of each term.

**Comprehensive Examinations:** In addition to the satisfactory completion of courses, candidates for the A. B. degree are required to give evidence of their range of knowledge and originality of thought by passing a comprehensive examination given by the group to which their concentration subject belongs.

**Absence from Examinations:** A student who is absent from the final examination in any course must report to the Dean as soon as the circumstances which caused the absence will permit. If the Dean is satisfied that the absence was justifiable, he will give permission for a deferred examination in place of the one missed, subject to the usual fee. If the excuse is not approved, a mark of Failure will be recorded. (See Marks, below.)

**Fee for Special Examination:** A fee of \$5.00 is charged for every special examination, except that one fee will cover all deferred examinations due to the same cause. No exceptions are made.

**Permit Required for Special Examinations:** A student who is to take any special examination must obtain a written permit from the Registrar's Office and a receipt from the Treasurer's Office showing that the fee has been paid and the Dean's permission given (if necessary). *No instructor may admit a student to such an examination except on the presentation of the permit.*

## Reports and Marks

**Official Reports:** At the close of each examination period every instructor files with the Registrar official reports of the standing of his students. These reports are based both upon the regular exercises of the term and upon the examinations, and are expressed in the prescribed system of marks.

**Marks:** The scale of marks for official reports is as follows: In the College of Arts and Sciences and the School of Business Economics A, B, C, D—passing marks; F—failure. There is no conditional failure. In the School of Engineering 10, 9, 8 etc., 10 being "excellent" and 6 "barely passing." 5.5 denotes a conditional failure, to be absolved at the discretion of the instructor within 30 days after the beginning of the term immediately following. 5.0 denotes failure, to be absolved only by repeating the course.

In case an instructor is not prepared to give a definite mark for the term, in view either of sickness of the student or of some justifiable delay in the completion of certain work, he may report a symbol "I" meaning incomplete. If the student's work is incomplete or unsatisfactory for reasons other than those so stated, this extension of time is not allowed. A definite mark for the term is recorded when the work has been completed. In case no mark is reported within a month after the usual time for making reports, a grade of failure will replace the "I," unless special arrangements are made with the Dean. Engineering students in the fourth to tenth terms report to the Dean of the School of Engineering; all others report to the Dean of the College of Arts and Sciences.

**Absolving a Failure:** With the instructor's permission, a student who fails the first term of a course may be permitted to

remain in the course during the second term. If the work of the second term is successful, and if the nature of the course is such as to warrant it, the mark at the end of the second term may be considered as absolving the first term failure.

Any other failure may be absolved only by repeating the course.

In every case where a failure is absolved by repeating the course, this fact shows on the record and the new mark does not replace the F.

**Change of Marks:** No mark on an official report may be changed except:

- (a) To correct a clerical error.
- (b) To replace an "Incomplete."
- (c) To replace an "F" as provided above.

**Informal Reports:** Informal reports of standing are made to the Registrar in the middle of each term. They are for the information of students and their advisers and failures so reported do not affect the student's permanent record unless the course is dropped after an informal report of failure is received. In this case "F" or 5.0 is shown on the record.

**Graduation with Honor:** A student whose grade in his studies is sufficiently high, will receive his degree WITH HONOR.

## Courses

**Method of Changing a Course:** A student who wishes to drop a course, or to take one not already on his schedule, must obtain permission from his adviser, the instructor in the course, and the Dean, who must signify their approval by signing a slip provided for the purpose. This slip must then be filed with the Registrar. At any time an instructor may, with the approval of the Dean, exclude from his class any student whose preparation has been found to be insufficient or whose work is unsatisfactory. *A course dropped without filing the prescribed form will count as a failure.* (Also see Informal Reports above.)

**Transfer from One Undergraduate School to Another:** A student wishing to transfer from one undergraduate school to another must make application upon a form obtainable from the Registrar,



with the approval of the Deans of the two Schools and his Adviser, and must comply with such conditions as may be specified in granting the application and must make up any difference between the entrance requirements of the two schools. He cannot count for graduation any course already taken which is not approved for graduation in the school he is entering.

### Exclusion from the University

A student who is admitted with a condition must absolve it before he enrolls for his fifth term. Failure to do this will result in exclusion from the University.

At the end of any term, college students who are seriously in arrears may be requested by the Executive Committee of the Board of Collegiate Studies to withdraw from the College.

A student in Engineering who at any time has accumulated in his record three failures, or three conditions, or any combination of these amounting to three, ceases to be a member of the University. A failure recorded on an earlier official report, which has not been absolved, counts as one of these three. In case the student desires to return to the University, he must make written application to the Board of Collegiate Studies, if he is in his first three terms, or to the Board of Engineering Studies, if in the fourth to tenth terms, stating fully the grounds on which he asks reinstatement.

### Probation

The Dean may at any time put on probation any student who falls behind in his work.

A student on probation may be required to withdraw from any student activity.

### Relations with Other Departments and Institutions

**Other University Departments:** Candidates for graduation may register for study in other departments of the University, such as the College for Teachers, the Evening Courses in Business Economics, or the School of Hygiene and Public Health, if they have the consent of the Dean.

**Other Institutions:** No candidate for graduation shall follow courses in any professional school, or in any institution other than the University, unless permission to do so has been expressly granted by the Executive Committee. This permission will not, in general, be given to students who are assigned the full number of hours in the College.

### Admission to the School of Medicine

Students desiring to apply for admission to the Johns Hopkins School of Medicine, should follow the program outlined for students in the Pre-Medical Group. See p. 45.

This same program also meets the requirements of other medical schools in the country. The student, however, is advised to consult the printed announcement of the school he wishes to enter, and to plan his course of study accordingly under the guidance of his adviser.

### Limitations upon the Number of Courses

An Engineering student whose work is seriously in arrears, or who has not fully completed the entrance requirements, may not, except by permission of the Board of Engineering Studies, take the full number of prescribed courses.

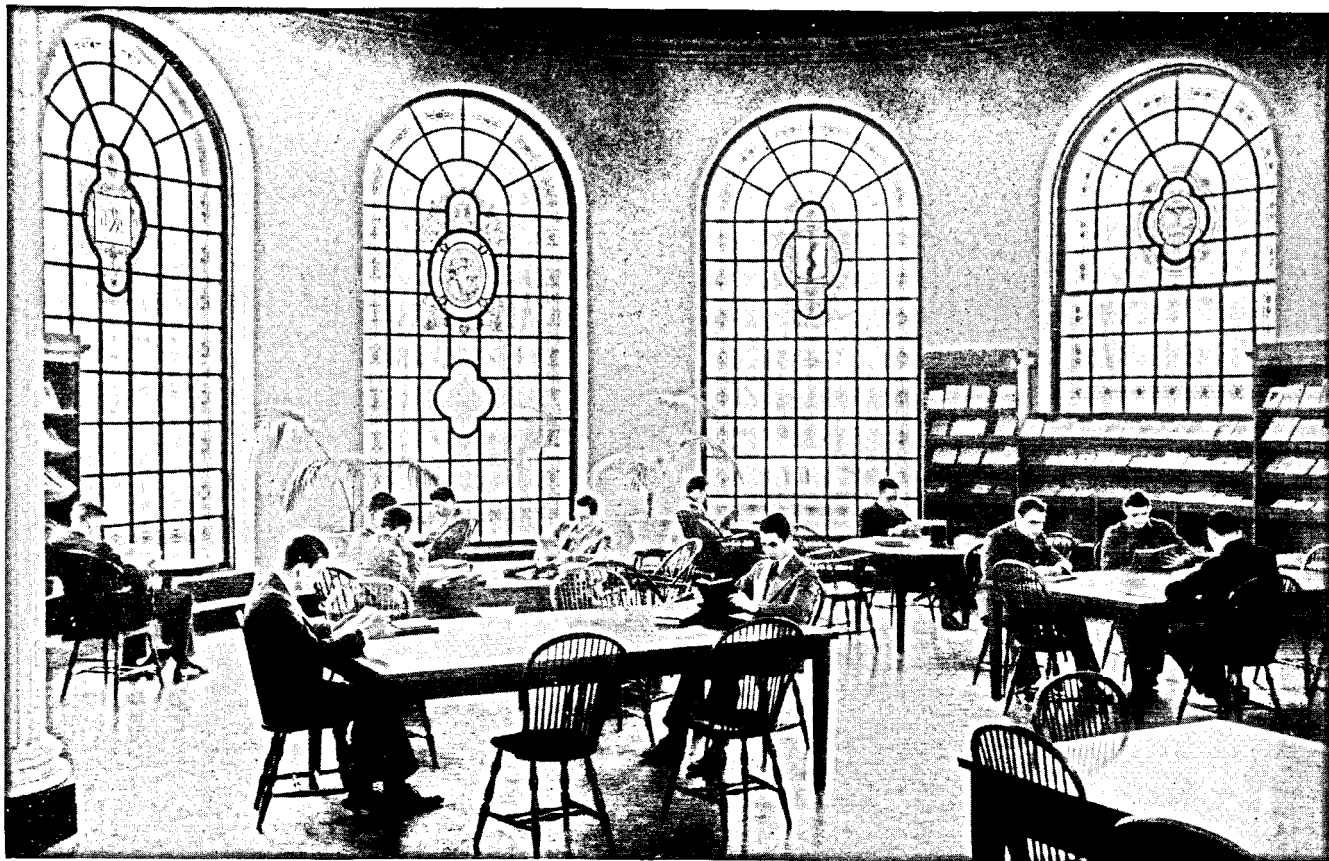
An Engineering student taking the full number of prescribed courses for any term is not allowed to take any additional course, except by consent of his Adviser and subject to the approval of the Board of Engineering Studies.



MERGENTHALER HALL (Biology)



REMSEN HALL (Chemistry)



MAIN READING ROOM OF THE LIBRARY

THE COLLEGE OF ARTS AND  
SCIENCES

## Government of the College of Arts and Sciences

### Academic Council

The President of the University (*Chairman*)

D. H. Andrews.....	Term exp. Oct. 1944
J. T. Singewald, Jr.....	" " " 1944
J. A. Bearden.....	" " " 1945
C. B. Swisher.....	" " " 1945
H. C. Lancaster.....	" " " 1946
Kemp Malone.....	" " " 1946
W. F. Albright.....	" " " 1947
G. H. Evans, Jr., ( <i>Secretary</i> ).....	" " " 1947
F. D. Murnaghan.....	" " " 1948
D. M. Robinson.....	" " " 1948

The Provost of the University.

The Dean of the College of Arts and Sciences.

### Board of Collegiate Studies

The President of the University (*Chairman*)

G. W. Shaffer (*Vice-Chairman*)

R. B. Roulston (*Secretary*)

J. L. Anderson	W. B. Kouwenhoven	L. Riggs
D. H. Andrews	H. C. Lancaster	M. H. Secrist
F. E. Bamberger	F. C. Lane	C. S. Singleton
H. E. Cooper	P. S. Macaulay	H. Spencer
G. H. Evans, Jr.	E. Malakis	C. B. Swisher
E. Feise	K. Malone	J. T. Thompson
H. M. Gwynn	J. Mattern	B. H. Willier
R. D. Havens	W. K. Morrill	F. Y. Wiselogle
R. M. Haywood	F. D. Murnaghan	O. Zariski
J. C. Hubbard	E. T. Norris	W. T. Ziegler
R. F. Kimball	S. Painter	

## Committees of the Board of Collegiate Studies

## 1. Executive Committee

G. W. Shaffer ( <i>Chairman</i> )	F. D. Murnaghan
R. B. Roulston ( <i>ex officio</i> )	J. T. Thompson
G. H. Evans	H. E. Cooper
J. C. Hubbard	B. H. Willier

## 2. Committee on Educational Methods and Policies

G. H. Evans ( <i>Chairman</i> )	J. C. Hubbard
D. H. Andrews	H. Spencer
G. W. Shaffer	J. M. Stephens
H. Cherniss	P. S. Macaulay
R. M. Haywood	

## 3. Committee on Scholarships and Honors

R. B. Roulston ( <i>Chairman</i> )	R. M. Haywood
H. E. Cooper	W. K. Morrill

## 4. Committee on Student Affairs

J. C. Hubbard ( <i>Chairman</i> )	T. F. Hubbard
H. E. Cooper	S. Painter
G. W. Shaffer	

## 5. Committee on the Schedule

J. F. Baxter ( <i>Chairman</i> )	H. E. Cooper
A. G. Christie	G. W. Shaffer
F. D. Murnaghan	H. M. Gwynn
J. C. Hubbard	R. F. Kimball

## 6. Committee on School Relations

G. W. Shaffer ( <i>Chairman</i> )	W. K. Morrill
W. B. Kouwenhoven	

## 7. Committee on Advanced Standing

S. Painter ( <i>Chairman</i> )	Karl Brunings
E. T. Norris	Irene M. Davis ( <i>Secretary</i> )

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## Instruction in the College

### Plan of Instruction

THE COLLEGE of Arts and Sciences is organized to meet the needs of two classes of students: those who desire a liberal education leading to the degree of Bachelor of Arts; and those who wish pre-professional training and are planning to enter the School of Higher Studies of the Faculty of Philosophy, the Medical School, or professional schools in other universities. The curriculum for the first five terms is arranged with a view to giving the student the background and necessary subjects for either a liberal education or a professional career.

At the end of the fifth term a student may either continue work for the Bachelor's degree or in special cases he may become a candidate for the degree of Doctor of Philosophy in the School of Higher Studies. Those who wish to remain in the College as candidates for the degree of Bachelor of Arts, or to prepare themselves further for admission to the School of Higher Studies must apply to the Board of Collegiate Studies for permission to remain in the College. Such permission will be given only to those students who give evidence by the character of their work that they deserve encouragement to acquire a liberal education or to prepare further for professional training. The curriculum of the last five terms is arranged in accordance with the student's elected field of study.

### War Time Program

IN ORDER that young men may prepare themselves for military or professional services as promptly as possible, the College is providing four terms of undergraduate instruction yearly beginning in July, October, January, and April. Each term is twelve weeks long, leaving a week of vacation between terms. The plan of instruction is arranged so that new students may be

admitted in July, and in October, and in April if there is sufficient demand. Detailed statements as to the various courses are to be found on the following pages.

### Pre-Medical Course

UNDER WARTIME conditions a majority of the students are preparing for careers in medicine or the sciences. The pre-medical program extends over six terms and offers full preparation for any medical school, including the Johns Hopkins School of Medicine. This school, along with others, has adopted the recommendation of the American Medical Association to waive the bachelor's degree as a prerequisite. The present pre-medical curriculum includes all of the courses in Chemistry, Physics, Biology and Mathematics previously offered and also makes provision for a course in English Composition, one in a foreign language, one in psychology, and one in American History. Most of the other courses in the humanities which were regularly offered in the four year program of peace time must, unfortunately, be omitted in order to make possible the highest degree of acceleration.

### Science Majors

YOUNG MEN with outstanding scientific ability are encouraged to major in chemistry, physics or mathematics in order to devote themselves, after graduation, to pressing problems related to the war effort. The bachelor's degree is given after ten terms of twelve weeks each. The chemistry department offers a well-rounded program of courses in inorganic, organic, analytical and physical chemistry. There is a serious shortage of chemists due to war demands for new metals, plastics and therapeutic agents as well as explosives, screening smokes, incendiaries and other chemical warfare agents. In physics a fundamental course is given in Heat, Mechanics, Electricity, Magnetism, Light and Sound, followed by advanced specialized courses. Physicists are in great demand, owing to the many applications of the science in radio and telephonic communication, submarine and airplane detection, aero-

dynamics and hydrodynamics, ordnance, and artificial radio-activity. Mathematics, the study which is fundamental to all the physical sciences and engineering, is a professional field with great opportunities for valuable service in war time. Men well trained in mathematics are needed as teachers in the Army and Navy as well as in the colleges and high schools. Modern mechanized warfare requires a very large body of men with some knowledge of mathematics and a smaller group with a sufficient mastery of the field to teach and work on difficult advanced problems. Adequate facilities for both groups are found in the Hopkins mathematics department.

### Languages and Social Studies

Ample provision is made for students wishing to major in English, foreign languages and the social studies. Courses are likewise available for majors in scientific and technical fields who wish to include a study of the humanities in order to gain a well rounded education. Detailed information is to be found in the following pages.

## Requirements for the Degree of Bachelor of Arts

In order to receive the degree of Bachelor of Arts the student must fulfill certain requirements:

### Matriculation

He must be admitted as a candidate for the degree of Bachelor of Arts. This is called Matriculation and the requirements for admission are stated on page 26.

### Residence

The regular period of residence is ten terms. A student may be admitted to advanced standing in accordance with the regulations given on p. 27, but in all cases the candidate for the degree of Bachelor of Arts must pursue the last three terms of his course for that degree in this institution.

### Payment of Fee

See p. 28.

### Course of Study

#### COURSES REQUIRED FOR THE DEGREE:

##### English A

The minimum requirement in composition is the freshman course, English A. Students are expected, however, to maintain, throughout the entire period of residence, a high standard in all written work in all courses. Failure to write well will result in assignment to English B, for remedial drill. No credit is given for English B, and no credit will be given for any course until English B has been absolved.

##### English 1 C

##### History A and B

##### Foreign languages

Two standard courses beyond the elements in any foreign language (ancient or modern), or one standard course beyond elements in French and another in German. Note.—Students who expect to take graduate work are advised to acquire a reading knowledge of foreign languages necessary for study in the particular field which they expect to enter.

Elements of Economics

Biology 1 C, or Geology 1 C, or Chemistry 1 C and either 3 C  
or 5 C, or Physics 1 C, or Botany

Physical Education

### Group Suggestions for the First Five Terms

#### Social Science Group \*

Political Science 1 C should be taken as early in the college course as possible. Mathematics and Biology 1 C are recommended.

#### Pre-Medical Group

See p. 45.

#### Natural Science Group

English A

English 1 C

History A

Mathematics 1 C or 2 C

Modern Foreign Languages

Chemistry 1 C

Physics 1 C

Mathematics 3 C†, or Biology 1 C, or Geology 1 C

Physical Education

Two or three of the following:

History B

Political Economy 1 C

Chemistry 2 C or 3 C or 5 C

Geology

#### Literature and Language Group

The required courses listed on p. 41 and three or four of the following electives.

Botany

Chemistry 1 C and either 3 C or 5 C

Geology 1 C

Greek 1 C

Latin 2 C

Mathematics 1 C or 2 C

Philosophy 1 C

Physics 1 C

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\* Students who are preparing for the study of law should see p. 44.

† Mathematics 3 C is required for majors in mathematics, physics and chemistry.

### Courses to be Taken During the Last Five Terms:

In addition to the foregoing courses the student will choose a subject in which to concentrate in one of the following groups:

Social Sciences (History, Political Economy, Political Science, History of Philosophy, Ethics, Geography and Education).

Natural Sciences (Biology, Chemistry, Geology, Mathematics, Physics).

Literature and Language (English, French, German, Italian, Spanish, Latin, Greek, Hebrew, Sanskrit, Archaeology and History).

Pre-Medical Studies.

He will have to meet two sets of requirements for graduation; one fixed by the department in which he concentrates, the other fixed by the group. He will be advised in his concentration subject by a faculty member in that subject and by a group representative in collateral subjects. Specific requirements of each department are announced elsewhere in this circular in connection with the courses to be offered. In addition to these requirements, the student must take a sufficient number of courses in allied subjects to prepare himself for the comprehensive examination.

### Social Science Group

#### Requirements:

A knowledge of the characteristic forms of the economic systems of the past and present, of the causes and consequences of the industrial revolution, and of the economic development of the United States.

A knowledge of human geography.

A knowledge of international problems and organization in modern times.

A knowledge of the organization and functioning of the principal governments of the world.

An acquaintance with the more important political and economic theories of the past and present, and of their historical setting.

A knowledge of modern European history.

A knowledge of the history of the United States.

An understanding of the methods of the social sciences.

The student must satisfy the group that he has fulfilled the above requirements by passing a comprehensive examination. Ordinarily this examination is taken in the tenth term, but in exceptional cases students may be permitted to take it at an earlier time. In preparing himself for the comprehensive examination, the student may take the courses designed by the various departments to supply such knowledge, supplementing them with collateral reading, or, with the consent of his adviser, he may depend solely upon his own reading and study. This privilege, however, will be granted only to superior students.

For students of the group who are preparing for the study of law the following program is suggested:

Suggestions for the first five terms:

American National Government	Elements of Economics
History of Occidental Civilization	Mathematics
English A	Statistics
English Literature	A natural science
Two foreign language courses	

Suggestions for the last five terms:

Constitutional Law	American Literature
Public Administration	Money
Foreign Governments	Banking
Philosophy	Labor Economics or Government and
English Constitutional History	Business
American History	Principles of Accounting

### Natural Science Group

A student majoring in mathematics or any of the natural sciences is expected to acquire familiarity with the fundamentals of several of the basic branches of science and their accessory subjects in addition to doing some specialized work in his major scientific subject. A student is not permitted to begin the specialized work of his major subject until he has passed the introductory scientific courses normally taken in the first half of his course with marks high enough to indicate that he is adequately prepared for more advanced work.

During the latter half of his course the student follows a pro-

gram approved by his adviser in the department of his major subject and by the Natural Science Group Committee.

### Literature and Language Group

Students in this group read widely in English, French, German, Latin, and Greek literature. This general reading may be done in the original language or in translation. This work should be supplemented by reading in European history and philosophy, either in courses or independently. The comprehensive examination is based upon the reading list.

Students majoring in English are advised to acquire a thorough knowledge of at least one foreign language.

The literature and language group and the Department of History will plan a special program for students who wish to combine concentration in history with a comprehensive study of literature. See also announcement of Department of History.

### Pre-Medical-Group

Students who are planning for a professional career in medicine should major in the Pre-medical Group of Studies. They should arrange a program of study which furnishes a broad training in the natural sciences basic to medicine, in the humanities and in the social sciences. This has the advantage of permitting the student to acquire a broad cultural background so highly desirable for the physician.

For the Bachelor of Arts degree with a major in the pre-medical group the student must have completed satisfactorily (1) courses required of all students for graduation and (2) the following courses in the natural sciences: Biology 1 C or equivalent, 3 C, 4 C, and 8 C; Chemistry 1 C, 2 C, 3 C, 4 C, 5 C, and 21 C; Mathematics 1 C or 2 C; Physics 1 C; and Psychology 1 C. It is recommended that two or three additional courses be chosen from the following: Biology 2 C, 5 C; Geology 1 C; Latin 1 C; Philosophy 1 C and 10 C; and Political Science 1 C. German 1 C and French 1 C, usually taken during the first five terms, are required for a major in the Pre-medical Group.

For the duration of the war medical schools will consider applicants without the bachelor's degree. The minimum requirements for medical school admission may be met in six terms.



## Scholarships

### Hopkins Scholarships

THE BOARD of Trustees has established ten scholarships in the College of Arts and Sciences, each of which grants free tuition to young men in need of financial aid. They are open to students from all States; but, in accordance with the will of the founder of the University, preference is given those whose homes are in Maryland, Virginia or North Carolina. Awards are made at the beginning of each term and are tenable for the two terms subsequent to the appointment. The scholarships may be forfeited because of frequent or prolonged absence, defective scholarship, or unworthy conduct. The University reserves the right to make no appointments or to appoint fewer than the regular number if the candidates do not have the requisite qualifications. These scholarships are awarded by the President of the University upon the recommendation of the Scholarship Committee. There is no limitation upon the number which may be awarded in a given class, but no more than ten may be held in any one term, including new appointments and renewals. New students must take a competitive examination in mathematics, English and one foreign language; those in residence are judged by their University records. In all cases attention is given to character and to financial need.

NOTE:—The following awards are also open to students in the School of Business Economics.

### Open Scholarships

OPEN SCHOLARSHIPS are available each year to worthy young men of exceptional ability from schools outside of Maryland. These scholarships, which carry free tuition, are honor awards and are given only to candidates who have achieved high scholastic standing in their respective secondary schools and who

have given evidence of leadership and character. The total number which may be held in any one term is forty in the College of Arts and Sciences and eight in the School of Business Economics. This includes new appointments and renewals.

Awards to entering students are based upon the recommendations of the headmasters or principals of the schools, and upon the reports of interviews conducted by representatives of the University. They may be renewed if the University record is satisfactory in every respect and they may be forfeited because of defective scholarship or unworthy conduct.

Candidates must file their applications with the Registrar, from whom appropriate blanks may be obtained. Awards are made at the beginning of each term and are for two terms.

### Grants

The Board of Trustees authorizes grants up to \$82.50 a term each to students in the College of Arts and Sciences and the School of Business Economics. Several of these are open to entering students, special preference being given those who pass with credit the scholarship examination. Grants to students in the University are based upon their scholastic records.

Applicants are required to give satisfactory evidence of good character and pecuniary need. Blanks may be obtained from the Registrar.

The awards are made by the Dean of the College of Arts and Sciences at the beginning of each term.

### Woodyear Scholarships

Mrs. William E. Woodyear, of Baltimore, gave a sum of money to the Trustees in 1893 as a memorial to her husband. Provision is made for the annual bestowal of scholarships of \$50.00 each per term, awards being tenable for two terms, and subject to renewal. At present they are awarded to young men who are known to the Dean of the College to be in need of pecuniary assistance, and who, at the same time, have given evidence of character and ability. Application blanks may be secured from the Registrar.

### The Eli M. Lamb Memorial Scholarship

The Alumni Association of the Friends' School of Baltimore gave to the University in 1916 a fund for the establishment of a scholarship to be known as the "Eli M. Lamb Memorial Scholarship." To the income from the fund, the Trustees add free tuition to an extent sufficient to make the annual award a tuition reduction of \$50.00 per term for two terms. The scholarship is offered to undergraduates prepared at the Friends' School, of which Mr. Lamb was the founder and for many years the active head.

### The A. Z. Hartman Memorial Scholarship

Under the will of the late Mrs. Susan M. Hartman, of Baltimore, the University received in 1917 a sum of money with which to establish a scholarship in memory of her husband, the late A. Z. Hartman, for many years Professor of Greek and Latin in the Baltimore City College. The stipend of the scholarship is \$50.00 per term for two terms. Application should be made on a prescribed form to be secured from the Registrar's Office.

### The Z. Morton Katz Memorial Scholarship

The friends of Z. Morton Katz, of Baltimore, formerly a student in this University, who lost his life in the battle of Montfaucon in France, have established a memorial scholarship to be awarded annually to a member of the graduating class of the Baltimore City College, on the ground of superior character and scholarship, preferably to a student who would not otherwise be financially able to enter the University. The holder of this scholarship is entitled to free tuition for three terms.

### The Hortense G. Moses Scholarship

The Federation of Jewish Women's Organizations has established the "Hortense G. Moses Scholarship for the Encouragement of Hebrew Learning," to be awarded annually to the student doing the best work in elementary Hebrew. The stipend of the scholarship is limited to the income from the Hortense G. Moses Scholarship Fund.

### Baltimore City College Alumni Grants

The Alumni Association of the Baltimore City College offers annually to selected graduates of that school, grants of \$100 each to be applied towards their tuition in college. The Johns Hopkins University is one of the institutions in which these grants may be used.

### The Vernon Lynch Scholarships

In 1925 Mr. Edmund Lynch of New York gave to the Johns Hopkins University a sum which has since been augmented to be used as the endowment of scholarships in this University. They are called the Vernon Lynch Scholarships in honor of the brother of the donor, who died while engaged in service during the World War.

Two scholarships are open to graduates of the Baltimore City College who, at the time of their selection are eligible for admission to the Johns Hopkins University. They will be selected not only on the basis of excellence in school studies but also of high character, manliness, courage and distinctive manifestations of ambition and ability. The selection of such students rests with the Alumni Association of the Baltimore City College. The stipend of each scholarship is \$125.00 per term for two terms. Holders of these scholarships may be reappointed.

### The Myer A. L. Frank Scholarship

Under the will of the late Mrs. Martha Frank Lauer the sum of ten thousand dollars (\$10,000.00) was bequeathed to the University for a scholarship in memory of the donor's brother. The Myer A. L. Frank Scholarship is awarded to a graduate of the Baltimore City College. The award is usually made for two terms in the amount of one hundred and twenty-five dollars (\$125.00) per term.

# Courses of Instruction

## ARCHAEOLOGY AND ART

Professor ROBINSON

- 1 T. History of Art from the Pyramids to Picasso. A two term course. Two hours weekly. Gilman 109, Tuesday 8.20-10.00 p.m.

(a) Ancient Art.

A general outline is made of ancient architecture, sculpture, and painting with some attention to the minor arts and to drawing as seen on vases. The development of the different branches of ancient art from prehistoric times is systematically considered and their influence on later art emphasized. Lectures are illustrated by slides, photographs, casts, and original antiquities. Books recommended: Helen Gardner, *Art Through the Ages* (Harcourt, Brace & Co.); Fowler-Wheeler, *Greek Archaeology* (New York, 1909).

(b) Medieval and Modern Art.

History of the development of Medieval, Renaissance, and Modern Architecture, Sculpture, and Painting. Visits to museums in Baltimore, Washington, Philadelphia, and New York. Textbook: Helen Gardner, *Art Through the Ages*.

- 2 CP. Early Greek Vases, Illustrating Greek Art and Religion. A one term course. Fall. One hour weekly.
- 3 CP. Greek Vases, Illustrating Greek Life and Mythology. A one term course. Winter. One hour weekly.
- 4 CP. Later Greek and Roman Vases. A one term course. Spring. One hour weekly.
- 5 CP. 'The History and Topography of Athens. A three term course. Fall, Winter, and Spring. One hour weekly.
- 6 CP. Readings in Greek and Roman Historical Inscriptions. A three term course. Fall, Winter, and Spring. One hour weekly.

Use of originals, squeezes, and photographs.

- 7 CP. History of Greek Literature. A three term course. Fall Term: The Epic. Winter Term: Lyric Poetry and The Drama. Spring Term: Prose, Historians, Philosophers, and Orators. One hour weekly.

For those who are interested in Greek literature and its influence on later times. Translations will be used, and Greek, while desirable, is not required.

- 8 CP. Modern Colloquial Greek. A three term course. Fall, Winter, and Spring. One hour weekly.
- 9 CP. Greek History from Prehistoric Times to the Peloponnesian War. A three term course. Fall, Winter, and Spring. One hour weekly.

For further information about the above courses see the Circular of the School of Higher Studies.

## BIOLOGY

Professor WILLIER

Associate Professor EPHRUSSI (on leave)

Associate Professor SKOOG

Dr. KIMBALL

Dr. BOKE

Dr. RIS

Dr. SUTTON

And Assistants

## REQUIREMENTS FOR MAJOR

It is recommended that students who propose to concentrate in the biological sciences obtain a broad foundation in biology, chemistry, physics, mathematics and geology (including paleontology). A reading knowledge of both German and French is desirable. Students desiring to major in biology should consult a departmental advisor for details.

- 1 C. General Biology.** Professor WILLIER, Associate Professors EPHRUSSI, and SKOOG, Dr. KIMBALL, Dr. RIS, Dr. SUTTON and Assistants. A two term course. Offered every term if sufficient demand. Lecture-recitation and laboratory periods to be arranged.

An introduction to the principles of biology both as a source of general culture and as a background necessary for all advanced work in the biological and medical sciences.

Same as AST 951 and 952.

- 2 C. General Botany.** Associate Professor SKOOG and Dr. BOKE. A two term course offered any term, if sufficient demand. Lecture-recitation and laboratory periods to be arranged.

A general survey of the plant sciences, with special reference to the structure and development of the various groups of plants.

- 3 C. Comparative Anatomy of Vertebrates.** Dr. RIS and Assistants. A one term course. Offered every term if sufficient demand. Lecture-recitation and laboratory periods to be arranged.

A study of representative chordate types with laboratory dissections demonstrating the comparative morphology and evolution of the various organ systems.

Prerequisite: Biology 1 C or equivalent.

Same as AST 953.

- 4 C. Genetics.** Associate Professor EPHRUSSI and Dr. KIMBALL. A one term course. Offered each term if sufficient demand. Lectures three hours weekly.

A presentation of the principles of heredity and their bearing on the problems of evolution and development.

Prerequisite: Biology 1 C or Biology A or equivalent.

- 5 C. Organic Evolution.** Associate Professor EPHRUSSI and Dr. KIMBALL. A one term course. Fall if sufficient demand.

Classical theories and evidence for evolution. Modern views of genetic factors of evolutionary changes.

Prerequisite: Biology 4 C or equivalent.

- 8 C. Embryology.** Professor WILLIER and Assistants. A one term course. Each term if sufficient demand. Lecture-recitations three hours weekly and laboratory six hours weekly.

Embryonic development of vertebrates, including organ formation. Theories of organ formation based upon experimental evidence.

Prerequisite: Biology 1 C or Biology A or equivalent.

Same as AST 954.

- 10 C. Marine Biology.** Courses in marine biology are offered during the summer months at the Chesapeake Biological Laboratory at Solomons Island, Maryland. For details and registration see chairman of department.

- 22 C. Problems in Biology.** The members of the staff. A one term course beginning each term. Hours to be arranged.

Intended for advanced students who wish individual instruction in the laboratory methods used in the investigation of biological problems. Open to those who have given evidence of unusual intellectual ability and originality. Resignation only with the consent of the staff member to be in charge. Registration for this course may be repeated.

- 51 P. General Embryology.** Professor WILLIER. A one term course. (Not to be offered in 1944-45.)

The early stages of the development of invertebrates and vertebrates, including maturation and fertilization of the ovum, cleavage, and the formation of the germ layers; origin of the embryo. Embryological theories. Embryological technique.

Prerequisite: Biology 1 C or equivalent and a second course in zoology.

- 59 P. Experimental Embryology.** ————. A one term course. (Not to be offered in 1944-45.)

An analytical study of the processes of embryonic development with laboratory work illustrating the fundamental methods and techniques.

- 63 P. Comparative Plant Morphology.** Dr. BOKE. A two term course. To begin any term.

The structure, development, and evolution of plants.

Prerequisite: Biology 1 C; biology 2 C recommended.

- 64 P. Plant Physiology.** Associate Professor SKOOG. A one term course. Fall. Three hours lecture and six hours laboratory weekly.

The physiology and biochemistry of nutrition, water-relations and growth of the higher plants.

Prerequisite: A course in general botany and some knowledge of organic chemistry.

- 65 P. Cytology.** Dr. RIS. A one term course. Offered each term if sufficient demand.

The structure and function of cellular components with emphasis on relations to genetics and evolution. Introduction to microscopic technique.

Prerequisite: Biology 4 C or equivalent.

- 223 P. The Biology Club** is composed of members of the staff and advanced students in the biological sciences, and meets weekly for the presentation and discussion of the research work of the members of the departments as well as for review and discussion of important new literature. The meetings are open to all students interested in biological phenomena. Th. 8 p. m. Mergenthaler Hall 304.

## CHEMISTRY

Professor PATRICK  
Professor ANDREWS  
Professor FOWLER (on leave)  
Associate Professor CORWIN  
Associate Professor WISELOGLE  
(on leave)  
Dr. LIEBEN

Dr. LORD (on leave)  
Dr. ZIEGLER (on leave)  
Dr. HICKMAN (on leave)  
Dr. BRUNINGS  
Dr. CHRIST (on leave)  
Dr. BAXTER  
Dr. HALVERSON

## REQUIREMENTS FOR MAJOR

Students planning to major in Chemistry should include the following courses in the program of their first four terms:

- a. Mathematics 1 C or 2 C, and 3 C; or AST 406, 407, 408, 401.
- b. Physics 1 C; or AST 304, 305, 306.
- c. Chemistry 1 C, 5 C, 3 C or 2 C and 21 C.

For the remaining terms of his course the student will follow a program, arranged by his advisor according to both individual and departmental requirements.

- 1 C. Chemical Fundamentals.** Dr. BAXTER or Dr. HALVERSON. A two term course beginning Summer and Fall, also Spring if sufficient demand. First term (1 Ca), lectures and recitations three hours weekly and laboratory three hours weekly; second term (1 Cb), lectures and recitation three hours weekly and laboratory six hours weekly.

No previous knowledge of chemistry is required for this course. The work covers the general principles of chemistry, the descriptive chemistry of the most common elements and inorganic compounds and an elementary consideration of the relations between the structures of compounds and their properties. It is recommended that if Mathematics 1 C or 2 C has not been taken previously, one of them be taken concurrently.

- 5 C. Qualitative Analysis.** Dr. BAXTER or Dr. HALVERSON. A one term course. Fall, Winter, and Spring. Lectures and recitations three hours weekly, and laboratory six hours weekly.

The classroom work is a continuation of Chemistry 1 C. The laboratory work is inorganic qualitative analysis using semi-micro procedures.

Prerequisite: Chemistry 1 C.

- 3 C. Quantitative Analysis.** ——. A one term course. Summer, Fall, and Winter. Lectures and recitations three hours weekly, and laboratory six or nine hours weekly.

Training in the basic techniques of gravimetric and volumetric analysis. Advanced practice in stoichiometric calculations.

Prerequisite: Chemistry 1 C.

- 2 C, 21 C. Introductory Organic Chemistry.** Dr. BRUNINGS. A two term course. Beginning Fall and Spring. Lectures and recitations three hours weekly, and laboratory six hours weekly.

A descriptive survey of the more important compounds of carbon and their reactions and uses. The laboratory work includes the preparation of about twenty compounds.

Prerequisite: Chemistry 1 C.



**4 C. Elements of Physical Chemistry.** Dr. HALVERSON. A one term course. Lectures three hours weekly. Offered when required.

This course is arranged especially for students of limited mathematical training who wish some knowledge of those topics in physical chemistry which are of value in the study of the biological and medical sciences. This course does not offer adequate training in physical chemistry for students who wish to do advanced work in chemistry.

Prerequisites: Chemistry 1 C and Physics 1 C or AST 304, 305, and 306.

**7 C. The Chemistry of Biologically Important Substances.** Dr. LIEBEN. A one term course. Fall and Spring. Lectures and conferences two hours weekly.

This course supplements Chemistry 2 C with a more comprehensive and detailed survey of the general chemistry of substances of especial interest and importance to students of biology, medicine, and biochemistry.

Prerequisite: Chemistry 2 C.

**50 C. Intermediate Organic Chemistry.** Dr. BRUNINGS. A one term course. Fall and Spring. Lectures and recitations three hours weekly.

This course continues Chemistry 2 C with a more detailed treatment of the theories and practice of organic chemistry. Considerable attention is devoted to the industrial preparation of compounds of commercial importance. The course is intended only for chemical engineers and students majoring in chemistry.

Prerequisite: Chemistry 2 C.

**51 C. Organic Qualitative Analysis.** A one term course. Laboratory six hours weekly. Offered when required.

The work involves the systematic identification of organic compounds from a study of their properties and reactions.

Prerequisite: Chemistry 2 C and 21 C.

**52 C. Organic Preparations.** Dr. BRUNINGS. A one term course. Summer and Winter. Lecture one hour weekly, and laboratory six hours weekly.

Application of general organic laboratory technique to larger scale preparations, including examples of high temperature and catalytic reactions.

Prerequisite: Chemistry 21 C. Chemistry 50 C should have been taken previously or be taken concurrently.

**53 C. Advanced Organic Laboratory Practice.** Associate Professor CORWIN. A one term course. Laboratory six or nine hours weekly. Offered when required.

The number of students who can be admitted to the course in any one term is limited and the permission of the instructor must be obtained before registration. The work involves the preparation of compounds requiring more specialized techniques than are possible in an elementary course. These include heterocyclic derivatives, special aromatic compounds, and aromatic free radicals. Students who make an honor grade in the first term will be permitted to continue the course a second term during which they may undertake preparations from primary sources in the chemical literature.

Prerequisites: Chemistry 3 C, 50 C, and 52 C.

**70 C. General Physical Chemistry.** Professor PATRICK. A two term course beginning Summer and Winter. Lectures and recitations four hours weekly.

A general survey of physical chemistry including chemical thermodynamics for students specializing in chemistry and chemical engineering. A knowledge of differential and integral calculus is assumed.

Prerequisite: Mathematics 3 C and Physics 1 C.

71 C. Physico-Chemical Laboratory Practice. A one term course. Fall and Spring. Laboratory nine hours weekly.

This course is intended to be taken concurrently with the second term of Chemistry 70 C.

Certain courses announced in the Circular of the School of Higher Studies are open to qualified undergraduate students. Also certain courses offered by the Department of Chemical Engineering may be elected by students majoring in chemistry. The permission of the instructors is necessary before registering in Graduate and Engineering Courses.

The following courses in the Army Specialized Training Program will be given if there is a demand: Chemistry 205, 206, 211, 125, 261 and 262.

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## EDUCATION

Professor BAMBERGER

Associate Professor WEGLEIN

Dr. RIGGS

Mr. THURSFIELD

Dr. MCMAHON

Dr. DICE

The University resources make it possible to provide programs in both the academic and professional fields for prospective teachers. The general scope of the program of teacher education includes courses in historical backgrounds of some of the major developments in American education; fundamental theories which underlie modern education; modern psychological principles underlying education; measurement of group and individual intelligence, achievement, and personality; health education; general theory of senior high school and observation, participation, and practice teaching; and special methods in the two subjects the student is planning to teach. The Director of the College for Teachers has information concerning the specific requirements of the departments of education of Baltimore City and the State of Maryland and students preparing for teaching positions in the city and state high schools are advised to consult her.

Students in the Social Science Group electing Education as the major subject must include in their programs Education 1 T, 2 T, 3 T, 12 T, 13 T.B, a general survey course in Education, and an advanced course chosen from among the following: Education 11 P.A, 31 P.B, or 21 P. (See the Circular of the School of Higher Studies of the Faculty of Philosophy.)

These students are required to take a comprehensive written examination given at least a month prior to the general comprehensive examination which is required of all students in the Social Science Group.

At the beginning students majoring in Education follow, as closely as possible, the schedule listed for the Social Science Group.

The following program is suggested for the second half of the student's program.

Education 1 T, 2 T, 3 T, 12 T, 13 T.B, 91 T or 112 T, 11 P.A, 31 P.B, 21 P; Philosophy 10 CP; Political Science 1 C; Sociology 1 T. Electives in Political Economy, History, and English.

Students should consult their advisers as early as possible so that the sequential program of courses is planned correctly.

*The courses in the Department of Education and College for Teachers are given in two terms of sixteen weeks each beginning October 9 and February 5, and in the Summer Session of six weeks.*

The hours for the following courses are announced in the Circular of the College for Teachers.

**1 T. Educational Psychology: Introductory Course.** Dr. DICE. A two term course. October and February. Two hours weekly.

This course emphasizes the characteristics of the learner and the nature of the learning process. Conditions of adjustment and their relation to the educative process as well as to personal development are given proper attention.

**2 T. Philosophy of Education.** Professor BAMBERGER. A two term course. October and February. Two hours weekly.

This introductory course stresses the philosophical background of some of the major developments of American education as well as some of the problems of modern significance.

**3 T. The History of Education.** Mr. THURSFIELD. A two term course. October and February. Two hours weekly.

Consideration is given to the educational demands of changing political, economic, and social conditions; the rise and decline of educational institutions; the importance of informal educational agencies; changing curricula and educational methods; educational leadership and the emergence of a teaching class.

**12 T. Educational Tests and Measurements: Introductory Course.** Dr. McMAHON. A one term course. October. Two hours weekly.

A number of intelligence, achievement, and personality tests are given, scored, and analyzed both for instructional purposes and to secure data for the personnel records of individual students. Practice is given in the necessary elementary statistics involved.

**13 T.B. Social Problems Affecting Education.** A two term course. October and February. Two hours weekly.

Problems confronting modern social institutions are surveyed in relation to education. A group of experts, each a specialist in his field, is invited to present problems of special interest.

**91 T. The Theory of the Junior High School.** Dr. RIGGS. A one term course. October. Two hours weekly.

This course surveys junior high school theory and practice in respect to its historical development, aims and special functions, pupil personnel, curriculum, guidance services, extra-curriculum, articulation with other school units, and general teaching methods.

**112 T. The Secondary School: The Curriculum and Instruction.** Associate Professor WEGLEIN. A two term course. October and February. One hour weekly.

Consideration is given the general problems connected with the program of studies, curricula, and courses of study. Attention is also given to types of learning and methods of instruction.

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## ENGLISH

Professor HAVENS

Professor MALONE

Professor SPENCER

Associate Professor EINARSSON

Associate Professor ANDERSON

Associate Professor ALLEN

Dr. NORRIS

Instructors to be appointed

Courses in the Department of English are open to all students of the College of Arts and Sciences. Every student who chooses English as his major subject must have absolved the courses described on p. 42. In addition he must meet the requirements of the Literature and Language Group, described on p. 45. The student will be expected to have at the end of his final year a knowledge of the entire field of English and American literature.

Seven hours a week in courses over the five-term period, which is the normal requirement, should serve as the minimum amount of preparation for achieving this goal. Some individual work in addition to the regular courses will be expected. The courses in the College of Arts and Sciences may, with the permission of one's departmental adviser and the consent of the instructors concerned, be supplemented by Introductory Courses in the School of Higher Studies English program and courses in the College for Teachers. The department recommends that a student elect as many as possible of the following courses in other departments:

Philosophy	10 CP	History of Philosophy	Dr. HAMMOND
History	2 C	History of England	Professor PAINTER
Art	1 T	History of Art	Professor ROBINSON

French, German, Latin: advanced courses in addition to the general requirement.

The department is prepared to modify the normal requirements for students of exceptional ability if it seems advisable.

All other information may be obtained from the departmental adviser to whom each student will be assigned.

**A. English Writing.** Dr. NORRIS and Assistants. A three term course beginning every term. Three hours weekly, first term; two hours, second and third terms. Sections to be arranged.

A course chiefly in expository and argumentative writing.

Required of all first-year men. Students who already write well may, however, absolve this course by passing the achievement test upon entrance.

Same as AST 111.

**1 C. Survey of English Literature.** Required of all students in the College of Arts and Sciences. Professors HAVENS, MALONE, and SPENCER; Associate Professors EINARSSON, ANDERSON, and ALLEN; Dr. NORRIS (in general charge of the course). A two term course. Fall

and Winter, Spring and Summer. Students may enter in any term. Three hours weekly.

The object of this course is the enjoyment and understanding of the major works of English prose and poetry from the Renaissance to the present time.

**2 C. American Literature.** Associate Professor ANDERSON. A two term course. Winter and Spring. Three hours weekly.

A survey of American literature from the beginning to the present, with emphasis on the major authors of the nineteenth century. Anthology and wide supplementary readings.

**5 C. Introduction to the Study of the Drama.** Professor SPENCER.

A two term course, but with permission of the instructor may be taken for one term. Fall and Winter. Three hours weekly.

The drama as a form of art, the chief critical theories about it, and the main currents of its development in Europe from the Greeks to the present time. Study of typical plays (in translation), with extensive collateral reading.

**10 C. Chaucer.** Professor MALONE. A two term course, but the first term may be taken by itself. Winter and Spring. Three hours weekly.

The *Canterbury Tales* will be read. Text: Oxford *Chaucer*. Oxford University Press.

**12 C. Milton.** Associate Professor ALLEN. A one term course. Fall. Three hours weekly.

All of the poetry and some of the better known prose works.

**13 C. The Eighteenth Century.** Professor HAVENS. A one term course. Fall. Three hours weekly.

Neoclassic art as exemplified in the principal poems and prose writings of Swift, Pope, Johnson, and their contemporaries.

**15 C. Browning and Tennyson.** Associate Professors ALLEN and ANDERSON. A one term course. Summer. Three hours weekly. First six weeks, Associate Professor ALLEN; last six weeks, Associate Professor ANDERSON.

Browning the first six weeks; Tennyson the last six weeks. Intensive studies of both poets.

**16 C. Twentieth Century Literature.** Associate Professor ANDERSON.

Last six weeks only of the Summer term. Equivalent to a one term course. Five hours weekly.

American and British poetry since 1890.

**17 C. The English Novel.** Professor HAVENS. A two term course. Fall and Winter. One hour weekly.

Fall: the chief works of prose fiction from the beginnings through Jane Austen. Winter: from Scott through Hardy. Student papers every other week preceding class discussion. Attention will be directed chiefly to the art of the individual novel.

**20 C. Restoration Verse and Prose.** Associate Professor ALLEN. A one term course. Spring. Three hours weekly.

The chief poets and essayists, 1660-1700. Special attention will be given to Marvell, Butler, Rochester, Cowley, Temple, and Dryden.

- 21 C. Elizabethan Drama. Associate Professor ALLEN. First six weeks only of the Summer term. Equivalent to a one term course. Five hours weekly.

A study of the drama from the beginning until the death of Queen Elizabeth.

#### 40 C. Reading Courses.

Such courses are offered each year for those students qualified to take them. They generally supply an opportunity for the student to become acquainted with some field not equally explored in the other courses. Special programs are arranged to suit individual needs, with conferences and reports.

Work in debating, organized as a student extra-curricular activity, is presented each year under departmental supervision.

Most of the following courses, omitted in 1944-45, will be offered in 1945-46.

- 8 C. English and Scottish Popular Ballads. Professor MALONE.
- 11 C. Shakespeare. Professor SPENCER.
- 14 C. Romantic Poets. Professor HAVENS.
- 18 C. Tudor Literature. Associate Professor ALLEN.
- 19 C. Donne and His Contemporaries. Associate Professor ALLEN.

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## GEOGRAPHY

Dr. PELZER  
Dr. CARTER

Mr. GOTTMANN  
Mr. BROWN

- 1 C. Physical Geography—The Earth Condition of Human Society. Dr. CARTER. A one term course offered every term. Two lecture hours and one section meeting weekly.

The earth and its planetary relation; weather and climate; the climates of the world; vegetation distribution; land forms; soil and water resources; the nature and use of maps.

- 2 C. Economic Geography—Use of Earth Resources in Different Regions of the World. ————. A one term course. Fall, Winter, and Spring. Two lecture hours and one section meeting weekly.

Geography of transportation (shipping, railways, roads, air routes); major forms of agricultural land use; fishing; lumbering; mining; manufacturing and world trade.

Prerequisite: 1 C.

- 3 C. Political Geography—Political and Social Organization of the Earth's Surface. Dr. PELZER. A one term course. Winter and Spring. Two lecture hours and one section meeting weekly.

Major racial groups, nationalities and religions; the political areas of the world; geography of the "Great Powers"; the position of the United States in relation to other powers.

Prerequisite: 1 C and 2 C.

The following courses will be given only if a sufficient number of students register:

- 11 CP. Geography of the Far East. Dr. PELZER. A one term course. Fall. Two hours weekly.

The course covers China, Manchuria, Korea, and Japan.

- 12 CPa. Geography of Southeastern Asia. Dr. PELZER. A one term course. Winter. Two hours weekly.

Survey of the geographical and economic conditions and political problems of the Philippine Islands, the Netherlands Indies and British Malaya.

- 12 CPb. Geography of Southeastern Asia. Dr. PELZER. A one term course. Spring. Two hours weekly.

Survey of the geographical and economic conditions and political problems of French Indo-China, Thailand, Burma and India.

- 13 CP. Geography of the Mediterranean World. Mr. GOTTMANN. A two term course. Summer and Fall. Two hours weekly.

A regional geography with special emphasis on human and economic problems.

- 14 CP. Geography of Western Europe. Mr. GOTTMANN. A one term course. Winter. Three hours weekly.

A regional geography covering France, the British Isles, Belgium, the Netherlands and Luxembourg.

- 16 CP. Geography of Northern and Central Europe. Dr. PELZER. A one term course. Two hours weekly. (Not offered in 1944-45.)

A regional geography covering the Scandinavian countries, Germany, Switzerland and Czechoslovakia.

- 17 CP. Geography of the Soviet Union. Mr. GOTTMANN. A three term course. Summer, Fall, and Winter. Two hours weekly.

The first term will be devoted to general features, such as climate, vegetation, soils, and landforms; populations, agriculture, industry, and commerce. The second and third terms will deal with regional aspects.

- 18 CP. Geography of Latin America. Dr. CARTER. A two term course. Winter and Spring. Two hours weekly.

The course deals with the physical, economic and cultural aspects of the geography of Latin America.

- 32 CP. The History of Cartography. Mr. BROWN. A one term course. Not offered in 1944-45.

Early conceptions of the universe; the development of cosmography and map making from the beginning of the Christian Era to the end of the 18th century.

- 33 CP. The Mapping of America from 1492 to 1800. Mr. BROWN. Not offered in 1944-45.
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## GEOLOGY

Professor SINGEWALD  
Professor CLOOS

Professor NEWELL  
Dr. SECRIST

Dr. ANDERSON

## A SUGGESTED PROGRAM FOR A MAJOR IN GEOLOGY

During the first five terms the student majoring in Geology will follow, as closely as possible, the schedule listed for the Natural Science Group. See p. 42.

During the last five terms, the schedule will be arranged by his adviser, according to both individual and departmental requirements. In general, the following courses will be included in the schedule.

Geology 11 CP, 12 CP, 13 CP, 14 CP, 15 CP, Biology 1 C, Chemistry 1 C and 5 C, Civil Engineering Surveying.

**1 C. Elements of Geology.** Dr. SECRIST; Professors SINGEWALD and CLOOS participating. A two term course. Four lectures and recitations and three hours of laboratory work weekly.

a. Fall and Spring. The development of the features of the surface of the earth, earthquakes, volcanoes, and mountain making.

b. Summer and Winter. An outline of the history of the earth and brief discussions of economic geology and applied geophysics.

A three day field trip is made in the spring.

NOTE: Students who expect to take both 1 Ca and 1 Cb should take 1 Ca before 1 Cb.

**2 Ca. Elements of Crystallography and Mineralogy.** Dr. ANDERSON.

A one term course. Summer and Winter. Three lectures and demonstrations and one hour of laboratory weekly.

The fundamentals of crystallography supplemented by a study of crystal models is followed by a description of the more common and more important minerals supplemented by their identification and determination.

Some knowledge of chemistry is a prerequisite.

**2 Cb. Elements of Lithology.** Dr. ANDERSON. A one term course.

Fall and Spring. Three lectures and one hour of laboratory weekly.

This course discusses rocks and their geologic and economic importance. It includes the following topics: the rock-forming minerals, the nature of rocks and their origin and history, the role of rocks in the development of land forms, soils, and mineral deposits, the relation of rocks to engineering problems such as water supply, reservoir and dam construction, building stones, and road materials and foundations.

A three day field trip is conducted in the spring at the same time as the field trip in Course 1 C.

Some knowledge of chemistry is a prerequisite.

**3 C. Elements of Meteorology.** Professor CLOOS. A one term course offered every term. Three hours of lecture and three hours of laboratory weekly.

Composition, structure and stratification of the atmosphere. Function and use of instruments, observation of weather elements like clouds, visibility, etc. Evaporation, condensation, and



precipitation. Adiabatic temperature changes. Stability and instability. Temperature variations and weather. Wind systems. Air masses and air mass analysis. Fronts, cyclones, and anticyclones. Weather analysis and weather forecasting. Weather maps and their interpretation. Climates. Applied meteorology.

The course is designed to provide the student with a practical knowledge of the essential facts, principles, and methods of meteorology.

**4 C. Military Geology.** Professor CLOOS. A one term course. Summer and Winter. Two lectures weekly.

Application of geology to military problems: Ground water and drainage, workability of ground, resistance to artillery fire, building materials and supplies, tunneling and fortifications, camouflage, shelter, detection and transmission of vibrations, interpretation of geologic maps and sections, use of aerial photography, geology as an aid in strange terrains.

**11 CPa. Physical Mineralogy.** Dr. ANDERSON. A one term course. Fall and Spring. Four lectures and six hours of laboratory weekly.

A course covering the basic laws and fundamentals of geometrical and physical crystallography, including preparation for prospective students of structural crystallography by X-ray methods, and supplemented by practical exercises with crystal models.

**11 CPb. Chemical and Descriptive Mineralogy.** Dr. ANDERSON. Winter and Summer. Four lectures and six hours of laboratory weekly.

The systematic study of about 175 important minerals. Determinative work includes exercises on sight recognition as well as more accurate identification before blowpipe and by means of other physical and chemical tests.

Occurrences, association and uses of minerals are studied with the aim of giving a comprehensive understanding of mineralogy.

Prerequisite: Physical Mineralogy 1 CPa.

**12 CP. Historical Geology.** Professor NEWELL. The course runs continuously through a number of terms, any of which may be taken separately. Fall, Winter, and Spring. One lecture and two hours of pre-seminary work weekly. (Not offered in 1944-45.)

This course aims to present the main events in the past history of the earth, as disclosed by the stratified rocks and the relics of animal and plant life which they contain, and the principles of stratigraphic correlation.

**13 CP. Topographic and Geologic Surveying.**

a. Topographic Surveying. Dr. SECRIST. A one term course. Fall and Spring. Two hours of lecture and three hours of laboratory weekly.

b. Geologic Surveying. Dr. SECRIST. A two term course. Winter and Summer. Two hours lecture and three hours of laboratory weekly.

Prerequisite: Topographic Surveying 3 CPa.

These courses include discussions of the methods of geologic surveying and mapping; the construction and interpretation of topographic and geologic maps; the interpretation and applications of aerial photographs; the construction of block diagrams; and outdoor training in field procedure and in the use of the plane table and alidade.

**14 CPa. General Geophysics.** Professor CLOOS. A two term course. Fall and Winter. Two lectures weekly.

The earth and its physical properties; its size, weight, rigidity. Geologic conceptions of the earth's interior. Magnetism. Earthquakes, their geography, origin, frequency, and effects on human life. Volcanoes. Crustal deformation.

**14 CPb. Applied Geophysics.** Professor CLOOS. A one term course. Spring. Two lectures weekly.

Application of geophysical methods to prospecting with a description of the instruments and

analysis of the fundamental principles involved. The geological application of geophysical surveys is illustrated by a demonstration of problems encountered in the field.

**15 CP. Structural Geology.** Professor CLOOS. A one term course. Fall and Spring. Four lectures weekly.

The position of rocks in the earth's crust. Structure elements, like folds, faults, joints, etc. and their significance in geological interpretation. Recognition of structures in the field, construction and interpretation of maps and structure sections. Application of mechanical principles to geology. Geologic structures and surface forms. Structural geology applied to practical problems. Experimental geology.

Prerequisite: Geology 1 C.

## GERMAN

Professor FEISE

Professor ROULSTON

Dr. VON SCHÜCHING

**German Elements.** Professor FEISE and Dr. VON SCHÜCHING. A three term course beginning every term. Three hours weekly.

This course is intended for those who have no previous knowledge of German, or who wish to take it for purposes of review. A thorough foundation in grammar is given, with extensive reading practice and prose composition.

**1 C. Intermediate German.** Professors FEISE and ROULSTON, Dr. VON SCHÜCHING. A three term course beginning every term. Three hours weekly.

This course consists of class readings, private assignments and practical exercises.

Prerequisite: German Elements.

**2 C. Advanced German Reading.** Professor FEISE and Dr. VON SCHÜCHING. A three term course. Fall, Winter, and Spring. Three hours weekly. Students may enter at any term.

Reading and interpretation of classical, modern, or scientific texts according to previous agreement, outside reading and reports.

Prerequisite: German 1 C or equivalent.

**4 C. German Literary Masterpieces.** Professor FEISE. A one term course offered every term. Three hours weekly.

Prerequisite: German 2 C.

## GREEK

Professor ROBINSON

Dr. HAYWOOD

Students who wish to choose Greek for their major subject should consult Dr. HAYWOOD. Besides the Greek instruction to be specified in each case, a student electing a major in this department must pass the comprehensive examination of the department and must have completed at least three courses of college Latin.

- 1 C. Introductory Course.** Dr. HAYWOOD. A two term course. Summer and Fall, repeated Fall and Winter. Three hours weekly.

This course is intended for students who have had no previous training in Greek and is open both to students who wish to make Greek an integral part of their course of study and to those who feel that an elementary knowledge of Greek will be a supplementary aid in their own special fields.

- 2 C. Attic Prose.** Dr. HAYWOOD. A two term course. Summer and Fall. Three hours weekly.

Prerequisite: Greek 1 C or its equivalent.

- 3 C. Selections from Homer.** Dr. HAYWOOD. A one term course. Winter. Three hours weekly.

Students who have completed Greek 1 C may enter this course but completion of courses 1 C, 2 C, and 3 C or their equivalents is required for admission to all more advanced courses in the Greek department.

- 4 C. Introduction to Greek Drama.** Dr. HAYWOOD. A two term course. Winter and Spring. Three hours weekly.

- 5 C. Greek Composition.** Dr. HAYWOOD. A one term course beginning every term. One hour weekly.

- 6 C. Supervised Reading.** Dr. HAYWOOD.

The material of this course will be selected with a view to the special needs of the students who enter it. Admission by special arrangement with the instructor.

- 10 CP. History of Greek Literature.** Professor ROBINSON. Fall Term: The Epic. Winter Term: Lyric Poetry and The Drama. Spring Term: Prose, Historians, Philosophers, and Orators. One hour weekly.

Open to those who are interested in Greek literature and its influence on later times. Translations will be used and Greek, while desirable, is not required.

- 14 CP. Apollonius of Rhodes and Theocritus.** Professor ROBINSON. A three term course. Fall, Winter, and Spring. One hour weekly.

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## HISTORY

Professor GREENFIELD (on leave)

Associate Professor LANE

Professor GAMBRILL (visiting professor)

Associate Professor PAINTER

Students who wish to choose History for their major subject should consult Dr. Lane. They will be required to complete a program of courses approved by an adviser in the department, and to produce in a field of specialization an essay showing ability to use the methods of the historical scholar. They will be given an oral examination on medieval and modern European and English history and the history of the United States. The department may, before recommending a candidate for the degree, require a comprehensive written examination in history.

A student concentrating in History may present himself for his comprehensive examination in either the Literature and Language Group or the Social Science Group.

The terms in which courses are to be offered will be announced later in accordance with the availability of the staff and the needs of the students.

**A. Occidental Civilization to the Seventeenth Century. Associate Professors LANE and PAINTER.**

An introductory study of the beginnings of our civilization in the Mediterranean basin and its development in Western Europe. Emphasis will be placed on the growth of ideas that have influenced the West.

**B. Occidental Civilization from the Seventeenth Century to the Present. Professor GREENFIELD and Associate Professor LANE. (Not offered in 1944-45.)**

Continuation of History A. A study of the transformation of society and thought in the Western nations and the world-wide dispersion of Western civilization during the last three centuries.

**1 Ca. American History I, Roots of American Traditions. A one term course. Two lectures and one section meeting weekly.**

**1 Cb. American History II, Democratic Government in the United States. A one term course. Two hours weekly.**

**1 Cc. American History III, America in World Affairs. A one term course. Two hours weekly.**

A study of American foreign policy and the development of our relations with the nations of the Americas, Europe, and Asia; the emergence of the United States as a world power; the resultant changes in national point of view and in responsibilities for international leadership.

Prerequisite: American History I or the equivalent.

**2 CPa. History of England I. Medieval England to 1485. Associate Professor PAINTER. A one term course. Three hours weekly.**

**2 CPb. History of England II. Tudor and Stuart England, 1485-1713. Associate Professor PAINTER. A one term course. Three hours weekly.**

**2 CPc. History of England III. 1713 to the Present. Associate Professor PAINTER. A one term course. Three hours weekly.**

**2 CPd. History of the British Empire. Associate Professor PAINTER. A one term course. Three hours weekly.**

**3 C. Modern European Nations. A three term course. Three hours weekly.**

A study of the modern European nations, their formation and their rivalries, the growth of their political, economic and social institutions, and their imperial expansion.

**6 CP. Studies in the History of American Civilization. Professor GAMBRILL. A three term course. Two hours weekly.**

An intensive study of selected topics in American History from the 1860's, designed for students who have had not only the equivalent of History 1 Ca, b, and c, but also have taken or are taking one or more courses in American constitutional history, American economic

history, American literature, and American social history. (See the announcements of the departments of Political Science, Political Economy, English, and the College for Teachers.)

**11 CP. Medieval and Renaissance France.** Associate Professor PAINTER. A three term course. Three hours weekly. (Not offered in 1944-45.)

**12 CPa. The Early Renaissance in Europe.** Associate Professor LANE. A two term course. Three hours weekly. (Not offered in 1944-45.)

**12 CPb. High Renaissance and Reformation.** Associate Professor LANE. A one term course. Three hours weekly.

Europe in the early sixteenth century with special attention to outstanding personalities in Italy, Germany, or Switzerland.

**13 CP. The Age of Mercantilism.** Associate Professor LANE. A three term course. Three hours weekly.

The general development of West European culture in the late sixteenth century and the seventeenth century, and, in particular, the economic life and governmental policies connected with overseas expansion.

**14 CPa. The Age of the Enlightenment.** Professor GREENFIELD. (Not offered in 1944-45.)

**14 CPb. The Beginnings of the Revolutionary Era, 1789-1815.** Professor GREENFIELD. (Not offered in 1944-45.)

**15 CP. History of Modern Europe Since 1815.** Professor GREENFIELD. (Not offered in 1944-45.)

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## LATIN

Professor ROWELL (on leave)

Dr. HAYWOOD

In addition to the required courses on p. 42, students majoring in Latin will be expected to include the following courses during the last five terms: Latin (5 hours weekly), two courses each in Greek and in a modern language, one course each in archaeology, philosophy, a natural science and a social science.

**1 C. Elementary Course.** Dr. HAYWOOD. A two term course. Summer and Fall; will be repeated Winter and Spring for sufficient number of students. Three hours weekly.

**2 C. Cicero and Ovid.** Dr. HAYWOOD. A two term course. Summer and Fall. Three hours weekly.

**3 C. Survey of Latin Literature.** Dr. HAYWOOD. A two term course. Winter and Spring. Three hours weekly.

- 4 C. Plautus and Terence. Dr. HAYWOOD. A two term course. Winter and Spring. Three hours weekly.
- 5 C. Readings in Latin Prose for Advanced Students. Dr. HAYWOOD. A two term course. Summer and Fall. Two hours weekly.
- 6 C. Readings in Latin Poetry for Advanced Students. Dr. HAYWOOD. A two term course. Winter and Spring. Two hours weekly.

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## MATHEMATICS

Professor MURNAGHAN

Professor ZARISKI

Associate Professor WINTNER

Associate Professor JACOBSON

Dr. MORRILL

Dr. KERSHNER (on leave)

Dr. DOWKER (on leave)

Mr. BOURNE

Mr. LIGHT

Mr. SOHL

and Assistants

Students majoring in Mathematics should conform during their first five terms to the requirements of the Natural Science Group. Both French and German should be selected as Modern Languages, and it is advisable that Physics 1 C and Chemistry 1 C be selected among the electives.

During the last five terms, two courses in Mathematics and two or three standard courses in allied subjects, to be selected on consultation with the student's adviser, should be taken.

- 1 C. Trigonometry; Analytic Geometry; Calculus. A two term course offered every term. Six hours weekly.

This course is for students who enter without Trigonometry.

- 2 C. Analytic Geometry; Calculus. A two term course offered every term. Five hours weekly.

This course is open only to those students who are credited with Trigonometry for matriculation.

- 3 C. Calculus; Advanced Analytic Geometry. A two term course offered every term. Five hours weekly.

Prerequisite: Mathematics 1 C or 2 C.

- 5 E. Elements of Differential Equations. A one term course. Four hours weekly.

- A 1 P. Geometry and Topology. Professor ZARISKI. A three term course. Fall, Winter, and Spring. Three hours weekly.

This course is planned as an introduction to three main branches of geometry: metric and projective geometry, differential geometry, topology. The main prerequisite is an introductory course in analytical geometry.

**A2 P. Algebra.** Associate Professor JACOBSON. A three term course. Fall, Winter, and Spring. Three hours weekly.

This course is an introduction to the basic concepts of modern algebra.

**A3 P. Analysis.** Associate Professor WINTNER. A three term course. Fall, Winter, and Spring. Three hours weekly.

This course treats topics in advanced calculus, vector analysis, differential equations and functions of a complex variable.

**AST\* 406. Algebra and Trigonometry.** A one term course offered each term. Six hours weekly.

In algebra a review of high school algebra is given; quadratic equations, logarithms and the Binomial Theorem are included. In trigonometry, emphasis is placed on accuracy of computation.

**AST\* 407. Analytic Geometry.** A one term course offered each term. Five hours weekly.

Elementary plane and solid analytic geometry. Polar coordinates; parametric equations; transcendental equations.

Prerequisite: AST 406 or its equivalent.

**AST\* 408. Differential and Integral Calculus.** A one term course offered each term. Five hours weekly.

Differentiation with applications to maxima and minima. The definite integral with applications including areas and volumes.

Prerequisite: AST 407 or its equivalent.

**AST\* 401. Integral Calculus, Differential Calculus, and Differential Equations.** A one term course offered each term. Five hours weekly.

Multiple integrals, centers of mass, moments of inertia. Infinite series. Partial derivatives. Linear differential equations with constant coefficients.

**AST\* 402. Advanced Differential Equations and Operational Calculus.** A one term course offered each term. Three hours weekly.

Integration of linear differential equations by infinite series; operational methods; partial differential equations; Fourier series.

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## MILITARY SCIENCE AND TACTICS

Colonel GWYNN

Lieutenant FARNUM

The Reserve Officers' Training Corps was organized to provide officers for the Officers' Reserve Corps. A large percentage of the officers now in the army are graduates of the Reserve Officers' Training Corps.

With the establishment of Officers' Candidate Schools and other training units by the army, enrollments in the Advanced Courses of the Reserve Officers' Training Corps were discontinued. The Basic Courses remaining

\* This course is for military students.

are designed to give students the fundamentals of military training and to aid them in obtaining commissions as officers in the Army of the United States. These systematic courses of military instruction are given while students are pursuing their general and professional studies, and the methods employed are designed to fit them for service in the army.

In addition to the military value of the course it aids materially in developing a manly, self reliant attitude and the ability to think and act quickly and clearly.

#### THE COURSES IN GENERAL

Courses in Military Science consist of the Basic Course of five terms.

Military Science I (A, B, and C)—Three Terms

Military Science II (A and B)—Two Terms

These comprise four hours weekly, normally two hours of class work and two hours of practical work, drill, or other outdoor exercise.

#### AGREEMENT

Students enrolling in Military Science agree to pursue the Basic Course for five terms, or until such time as they may be inducted into the service or withdraw from college prior to the expiration of five terms.

No additional obligation for service in the Army is incurred.

#### UNIFORM

A uniform is furnished free to each student by the Government. Members of the Reserve Officers' Training Corps must appear in proper uniform at drill. The uniforms must be kept in good condition by the students and returned on demand.

#### OUTLINE OF COURSES

**Military Science IA (First Term), IB (Second Term), and IC (Third Term), 4 hours.**

*Drill Attendance:* Fundamentals of Infantry close and extended order drill; and dismounted ceremonies.

*Class Attendance:* Military Law; Organization of the Army; Military Courtesy; Military Sanitation, Hygiene, and First Aid; Interior Guard Duty; Field Fortifications; Night Operations; Map Reading and Aerial Photography; Rifle Marksmanship; and Individual Security and Scouting and Patrolling.

**Military Science IIA (Fourth Term) and IIB (Fifth Term), 4 hours.**

*Drill Attendance:* Infantry close and extended order drill; dismounted ceremonies; and combat problems.

*Class Attendance:* Defense Against Chemical Warfare, Mechanized Attack, and Air Attack; Marches and Bivouacs; Rifle Marksmanship; Musketry, Tactics of Small Units; Infantry Weapons; and Military Sketching.

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## PHILOSOPHY

Dr. HAMMOND

- 1 Ca. Scientific Method. A one term course. Spring and Fall. Four hours weekly.
  - 1 Cb. Logic. A one term course. Summer and Winter. Four hours weekly.
  - 10 CPa. History of Ancient Philosophy. A one term course. Fall. Two hours weekly.
  - 10 CPb. History of Modern Philosophy. A one term course. Winter. Two hours weekly.
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## PHYSICAL EDUCATION

Professor SHAFFER  
Dr. GLUCK  
Mr. MALLONEE

Mr. OWINGS  
Mr. WARNER  
and Assistants

The course in physical education and athletics is required of all students during each term of residence. The activities included are worked out for the best interests of the students according to their physical requirements. In the required classes the students are introduced to every activity on the sports program and become acquainted with all the recreational opportunities afforded by the University. The activities in the program are sufficiently varied to meet the interests of all students. The program includes lectures in physical education, health, and hygiene, so arranged as to give a fairly comprehensive training in physical education.

In good weather the classes are carried on mostly in the open on the various playfields about the campus.

The regular field at Hopkins, known as Homewood Field, is used for all scheduled games as well as for practice. In its construction, attention was paid to the problem of drainage and this has made it an ideal playground. It is enclosed by a quarter-mile cinder track and an excellent 220-yard straightway. Dressing room facilities are provided, with lockers, showers, and lavatories. Two stands of ferro-concrete accommodating about 3500 spectators each have been erected. In addition to these, seats are provided in temporary or "knockdown" bleachers.

A practice ground is just south of Homewood Field, and an excellent baseball field is located south of Levering Hall. Other areas are provided for outdoor basketball, touch football, volley ball, playground ball, lacrosse,

soccer, handball, cross country, wrestling, fencing, tennis, badminton, golf, tumbling, gymnastics, boxing, etc.

The gymnasium for indoor activities has a floor space of 150 by 90 feet with a pitch of 22 feet which allows facilities for any of the sports in the curriculum.

The department provides an extensive program of intramural sports in which over 85% of the students participate. The University is represented by thirteen inter-collegiate teams including football, soccer, cross country, basketball, wrestling, swimming, rifle, fencing, lacrosse, baseball, track, tennis, and golf. The control of intercollegiate athletics is vested in the department of physical education and consequently the athletic contests are operated as a part of an integrated educational program. The University has abandoned the practice of charging admission to athletic contests and of trading guarantees with other colleges. All sports are arranged on a two-year, home and-home basis, with the visiting team paying its own expenses. Admission to the contests played at Homewood is free, but by card only.

In order to prevent ill-advised participation in sports and to guard against over-indulgence in training, athletic teams of the University are under the control of the Director; no student is allowed to become a member of a team unless his physical condition is satisfactory and his strength up to the required standard. Students with Epidermophytosis (Athlete's Foot) are forbidden to use baths or showers in common on the University campus unless they are under acceptable treatment. Each entering student is required to present himself for a medical examination as a part of his registration, and students are urged to return for consultation and advice on the broad problems of health.

Entering students will be assigned to physical education sections and will receive appointments for physical examinations on the day of registration. These examinations will be given in the University Infirmary.

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## PHYSICS

Professor HUBBARD

Professor PFUND

Professor DIEKE

Professor BEARDEN (on leave)

Professor COX (visiting professor)

Associate Professor INGLIS (on leave)

Dr. SHAW (on leave)

Mr. HANNA

Mr. HENRY

## REQUIREMENTS FOR MAJOR

All students planning to major in physics should conform during the first five terms to the requirements of the Natural Science Group (page 42). These include mathematics through differential and integral calculus, general chemistry, and general physics.

During the last five terms the student, in consultation with his adviser, should elect two groups of courses, the first, of a total of not less than 360 class hours, being primarily fundamental physics courses and chosen from the courses below, including Modern Physics, Introduction to Theoretical Mechanics, Introduction to Electricity and Magnetism, Optics, and Wave Motion and Radiation. The second group, totalling not less than 168 class hours, should include such courses as are needed to implement the major in physics for specific purposes, according to the student's desire. If the student intends to do graduate work in physics he should elect Elementary Analysis and Applied Mathematics, and Introduction to Quantum Mechanics and Atomic and Molecular Structure. If more interested in applied physics, the student might elect instead the courses in radio theory and electron tubes offered in the School of Engineering. For some phases of industrial physics the courses in physical and organic chemistry, and in physical mineralogy are suggested. It should be noted that a one hour course for one term is counted as 12 class hours, and that for the purpose of evaluating credits toward the major in physics, one laboratory period in general will count for one class hour, the only exceptions being the Advanced Laboratory course in General Physics and the Informal Exercises in Spectrum Analysis. Each of these courses counts as 48 class hours per term.

**1 Ca. Mechanics.** Professor HUBBARD and assistants. A one term course.

Two lectures, two conferences, and one two-hour laboratory period, and one hour for writing reports, weekly. One additional three-hour laboratory period for students in the School of Engineering.

**1 Cb. Sound, Heat, and Light.** Professor HUBBARD, Mr. HANNA, and Mr. HENRY. A one term course. Two lectures, two conferences, one two-hour laboratory period, and one hour for writing reports, weekly. One additional three-hour laboratory period for students in the School of Engineering.

**1 Cc. Electricity and Magnetism.** Professor HUBBARD and assistants. A one term course. Two lectures, two conferences, one two-hour laboratory period and one hour for writing reports, weekly. One additional three-hour laboratory period for students in the School of Engineering.

Same as AST 304, 305 and 306.

**2 C. Modern Physics.** Professor COX. A two term course. Spring and Summer. Two hours weekly.

A continuation of General Physics into the field of activity in physics, chiefly since 1900, including the properties of vibrating systems, electron physics, radiation, spectra, atomic and molecular structure, X-rays and their application to atomic physics, radio-activity and recent developments in nuclear physics, cosmic rays.

**11 CP. Applied Spectroscopy.** Professor DIEKE. A one term course. Two lectures and one or two laboratory periods weekly.

Use and adjustments of various types of spectrographs, light sources, densitometers etc., especially for the analysis of metals and other problems of importance in industry.

- 22 CP. Introduction to Theoretical Mechanics. Professor Cox. A two term course. Spring and Summer. Two hours weekly.

An introduction to the mathematical treatment of physical problems. Familiarity with the calculus is required. The topics include kinematics and dynamics of particles of coupled oscillators, and rigid bodies. Vector notation is introduced, but the methods used are elementary, the more advanced methods being given in 211 P.

- 23 CP. Introduction to Electricity and Magnetism. Professor Cox. A two term course. Fall and Winter. Two lectures and one laboratory period weekly.

Lectures and laboratory work intended to establish fundamental principles and methods of measurement useful in research in the various fields of physics and in other physical sciences. Subjects: units, methods of measurement, induction, reaction time of circuits, D. C. and A. C. networks, filters, rectifiers, transformers, thermoelectricity, thermionic emission.

- 24 CP. Introduction to Quantum Mechanics and Atomic and Molecular Structure. Professor DIEKE. A three term course. Summer, Fall, and Winter. Two hours weekly.

A course intended to familiarize the student with the most fundamental aspects of quantum mechanics. The approach is chiefly through the wave mechanical treatment of simple problems which are important for Physics and Chemistry, such as the rotator, harmonic oscillator, hydrogen atom, formation of molecules, emission of a particles, etc. The theoretical results are correlated with the experimental facts.

The more advanced phases of this subject are given in 214 P.

- 25 CP. Vibrations and Sound. Professor HUBBARD. A one term course. Two hours weekly.

Mechanical and electromechanical systems, propagation of sound, applications.

- 31 CP. Optics. Professor PFUND. A one term course. Summer, Winter, and Spring. Four hours weekly.

A systematic study of refraction, interference, diffraction, dispersion and polarization accompanied by lecture demonstrations.

- 32 CP. Laboratory for 31 Cp. A one term course. Summer and Winter. Two laboratory periods weekly.

Training in the manipulation of optical apparatus including modern spectroscopes of high resolving power and spectrometers for the ultraviolet and infrared.

- 33 CP. Wave Motion and Radiation. Professor PFUND. A one term course. Fall and Spring. Three hours weekly.

Study of vibrations, waves, resonance phenomena, etc. In the second part the laws of radiation of a black body, optical pyrometry, and radiations of atoms are discussed.

- 34 CP. Laboratory for 33 CP. A one term course. Fall and Spring. Two laboratory periods weekly.

Optical pyrometry, verification of radiation laws. Infrared spectroscopy, Zeeman and Raman Effects, etc.

- 35 CP. Advanced Laboratory Course in Physics. Professor Cox. A three term course, beginning each term.

A study and performance of experiments on kinetic theory of gases, diffusion pump, methods of measuring pressure, electrical discharge through gases, excitation potentials, fundamental constants, Geiger counters, radioactivity, thyratrons, X-rays: diffraction, intensity measurements, absorption limits and fluorescence.

**36 CP. Informal Exercises in Spectrum Analysis. Professor DIEKE.**

A three term course. Fall, Winter, and Spring. One lecture and one laboratory weekly.

Lectures on the principal methods used in spectroscopic research, use of spectrographs, light sources, spectroscopic photography, spectrochemical analysis, intensity measurements, wave length measurements, etc. The problems worked out in the laboratory provide the student with an opportunity to acquire practical knowledge of these methods.

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## POLITICAL ECONOMY

Professor EVANS

Associate Professor WEYFORTH (on leave)

Associate Professor BULLOCK (on leave)

Associate Professor COOPER

Associate Professor REYNOLDS

Dr. SCOTT (on leave)

Dr. DEVINE

Mr. CARLSON (on leave)

Mr. KILLINGSWORTH

### REQUIREMENTS FOR MAJOR

The student whose principal subject is Economics is expected, in addition to meeting the requirements of the Social Science Group and the Board of Collegiate Studies, to cover intensively the following fields of study:

1. Economic Principles
2. Money and the Financial Organization of Society
3. Industrial Fluctuations
4. Labor Problems
5. Social Reform
6. Statistical Method
7. International Economics
8. Whatever additional study the Department may deem advisable in the case of each individual student.

Some of these requirements may be fulfilled by pursuing courses offered in the undergraduate department and others by means of special reading. Satisfactory completion of the courses is necessary, and the passing of an examination in specified reading is required.

Attention is called to the fact that students who have completed the requirements for a major in Political Economy are eligible to take certain United States Civil Service examinations in the fields of Economics and Statistics. Those preparing for these examinations should, in addition to the Statistics course, take a minimum of thirty-three term hours in Economics.

### 1 C. Elements of Economics. The staff. A two term course beginning every term. Four hours weekly.

The primary aim of this course is to show the principles upon which economic society is organized and operated. Particular attention is given to the theory of value and the theory of distribution. It is part of the purpose of the course to indicate the application of scientific principles to current economic problems.

Required of all students before graduation.

Except as otherwise indicated, each of the following courses will be given in any term in which it is needed.

**1 E. Elements of Economics.** Professor EVANS. A one term course. Four hours weekly.

A course in the basic principles of Political Economy designed for students in the School of Engineering. Leading current economic problems are given particular attention.

NOTE: Only under exceptional circumstances is this course open to students of the College, who must have the permission of Professor Evans to enter it.

**2 C. Statistics.** Mr. KILLINGSWORTH. A two term course. Three hours of lecture and two hours of laboratory weekly.

This course deals with the use of elementary statistical methods and the interpretation of statistical data. It includes a critical survey of existing data on prices, wages, profits, production, employment, and business fluctuations. Exercises are assigned weekly.

Prerequisite: Mathematics 1 C or 2 C.

**3 Ba. Money.** Associate Professor WEYFORTH. A one term course. Four hours weekly. Not given in 1944-45.

In this course an analysis is made of the functions of money and of various types of monetary systems. Particular attention is given to the relationship between money and prices. International monetary relations are studied. Special consideration is given to recent developments in monetary theory and policy.

Prerequisite: Political Economy 1 C.

**3 Bb. Banking.** Associate Professor WEYFORTH. A one term course. Four hours weekly. Not given in 1944-45.

The following subjects are studied in this course: the theory and operations of commercial banking, the origin, organization and operations of the Federal Reserve System, recent problems in commercial banking and in credit control, the growth of governmental agencies for financing business and agriculture, and the relations between fiscal policy and credit policy.

Prerequisite: Political Economy 1 C.

**4 B. Organized Labor.** Mr. KILLINGSWORTH. A one term course. Four hours weekly.

An analysis of the psychological and economic origins of American trade unionism, with a consideration of the structure, policies, and tactics growing out of the fundamental objectives of organized labor, and a discussion of governmental labor policy and of the impact of trade unions on the American economy.

**11 B. Principles of Accounting.** Associate Professor COOPER or Dr. DEVINE. A two term course. Four hours weekly.

A study is made of the following: financial statements as the goal of accounting endeavor, the analysis and recording of business facts in the accounting books and records, and the methods of opening and closing the books for a single proprietorship, a partnership, and a corporation. The use of controlling accounts and consignment accounts is considered. Many practical problems are assigned to develop facility in the handling of accounting records and a ready appreciation of their significance.

NOTE: A one term course in the Principles of Accounting is offered to students in the Engineering School. It is not open to students of the College.

**11 E. Elements of Accounting.** Dr. DEVINE. A one term course. Four hours weekly.

A survey of accounting essentials with emphasis on industrial corporations. Attention is given to the problems of depreciation, inventory control, and elementary cost finding.

NOTE: This course is open to students of the School of Engineering only.

**12 C. American Economic History.** Professor EVANS. A one term course. Four hours weekly.

A discussion of the influence of economic forces upon politics and social life in the United States.

**32 B. Industrial Management.** Dr. SCOTT. A one term course. Four hours weekly. Not given in 1944-45.

This course provides a practical introduction to the more important types of problems encountered by executives in the field of industrial management. The main objective is to develop the ability to analyze and solve problems in production management. This is accomplished by providing students with the background on each major topic, and then by requiring them to apply their knowledge to the solution of real problems taken from actual manufacturing practice.

The problems discussed cover such subjects as: raw materials supply, plant layout, labor supply, job standards and methods of wage payment, personnel relations, planning and scheduling, quality control, raw materials inventory control, cost control, budgetary control, and factory organization.

Prerequisite: Political Economy 1 C.

**36 B. Corporation Finance.** Professor EVANS. A two term course. Four hours weekly.

In this course the theory and practice of corporation finance will be considered with emphasis given to the problems encountered in the United States. The more important topics include: advantages and disadvantages of corporate organization; the choice of different types of securities to be issued; methods by which these securities are floated; dividend policy; refunding of debt and provisions for amortization; governmental regulation; receivership and reorganization.

Prerequisite: Political Economy 1 C, 2 C, and 11 B.

**42 C. Business Cycles.** Associate Professor WEYFORTH. A one term course. Three hours weekly. Not given in 1944-45.

In this course the various types of fluctuations in business activity will be described. The principal theories of business cycles will be studied. Attention will be given to the statistical material serving as a basis for the analysis of business fluctuations, and to the use of this material in determining business policy. Proposed measures for securing greater stability in business activity will be considered.

Prerequisites: Political Economy 1 C and 2 C.

**43 C. The Organization and Control of Industry.** Associate Professor REYNOLDS. A two term course. Four hours weekly.

This course centers on the control of prices and production in industry, trade, and agriculture. Attention is given to the economics of monopolies and industrial combinations. The economic, political, and administrative problems involved in anti-trust regulation, public utility regulation, and public operation of industry are explored. The course concludes with a discussion of the problem of centralized control of prices and production, with particular reference to war-time experience.

**45 C. International Financial Relations.** Associate Professor WEYFORTH. A two term course. Four hours weekly. Not given in 1944-45.

**46 C. Labor Economics.** Associate Professor REYNOLDS. A two term course. Four hours weekly.

This course deals with the development of a laboring class, the earnings and conditions of labor, and the attempts which have been made to improve labor's economic position through legislation. The effort to deal with the risks of unemployment, old age, accidents and illness through social security is discussed. Attention is also paid to the possibility of maintaining a minimum standard of life through government activities in such fields as housing, food distribution, and medical care.

Certain graduate courses listed in the catalogue of the School of Higher Studies are open to students whose work has been of outstanding quality. For admission to any one of these, application should be made to the instructor concerned.

## POLITICAL SCIENCE

Professor SWISHER

Associate Professor KEY (on leave)

Associate Professor MATTERN

Dr. MOOS

Work in Political Science is given both to impart significant general knowledge and to provide preliminary training for graduate work in Political Science, for professional study in the field of law, and for civil service examinations leading to government employment. Majors in Political Science will also take courses in economics and history and other fields, the selection of courses depending on various needs and interests. Certain Political Science courses given in the College for Teachers may be important for meeting civil service requirements.

*Courses for the summer term will be arranged to meet the needs of the students seeking instruction.*

**1 C. American National Government.** Professor SWISHER. A three term course. Fall, Winter, and Spring. Two hours weekly.

This course offers a descriptive and critical survey of the American political system in relation to the social and economic problems of the modern world. It examines the constitutional system in its broader political aspects, the roles of the party system and of pressure groups, the expansion of governmental functions and of public administration, the relation of government to business, and the impact of war upon governmental activity.

**3 C. American Constitutional Law.** Professor SWISHER. A three term course. Fall, Winter, and Spring. Two hours weekly.

The course is a study of the Constitution of the United States in terms of decisions of the Supreme Court. The cases used demonstrate the nature of the judicial function and of the federal system, and the powers of the national government in terms of which federal control over enterprise is exercised.

**4 C. Introduction to Public Administration.** Dr. MOOS. A three term course. Fall, Winter, and Spring. Two hours weekly.

This course is a study of problems of organization in public administration, administrative controls, and the administrative application of public policy. Problems of financial administration are examined and personnel administration receives special emphasis.

**6 C. Foreign Governments.** Associate Professor MATTERN. A three term course. Fall, Winter, and Spring. Two hours weekly.

A survey of the main types of government prior to and since the outbreak of the present war.

**8 Ca. International Law.** Dr. MOOS. A one term course. Fall. Two hours weekly.

The course deals with the history and nature of international law. Stress is laid upon the conflicts between theory and reality.



**8 Cb. International Organization and Relations.** Dr. MOOS. A one term course. Winter. Two hours weekly.

The course deals with the subject matter of international relations and with agencies and institutions through which such relations are conducted. The role of the great powers in world politics receives special emphasis.

**8 Cc. American Foreign Policy.** Dr. MOOS. A one term course. Spring. Two hours weekly.

The course provides a survey of the domestic and international forces entering into the formation of American foreign policy. Attention is devoted to the organization and activities of the diplomatic and consular services, other personnel and agencies of the State Department, the Board of Economic Warfare, and such other agencies of the federal government as engage in the shaping of foreign policy.

**11 C. Political Science Seminar.** Professor SWISHER and associates. Offered each term. Meets on call approximately for two-hour sessions each third week.

The Seminar is open only to Political Science majors and is conducted principally for seniors. Senior theses provide the basis of much of the discussion. Adequate participation is necessary for students who are to be recommended for graduation.

**14 CP. American Constitutional Development.** Professor SWISHER. A three term course. Fall, Winter, and Spring. Two hours weekly.

The course deals with changes in the American constitutional system brought about down through the years by the impact of changed political and economic circumstances. It covers developments in legislative, executive, and judicial branches of the government.

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## PSYCHOLOGY

Dr. MORGAN

Dr. PRENTICE

with the cooperation of

Professor SHAFFER

### REQUIREMENTS FOR MAJOR

The student who is expecting to concentrate in Psychology will receive the basic training for all the Biological Sciences. He will be expected to complete, in addition to courses required of all students, Mathematics 1 C or 2 C, Chemistry 1 C and 5 C, Biology 1 C, Physics 1 C, Chemistry 2 C and 21 C, Geology 1 Ca, Biology 4 C, *either* Biology 3 C *or* Physiology, and Biology 8 C. In addition, he will be required to have Psychology 1 C, 2 CP, and two other half-courses chosen from among Psychology 3 CP, 4 C, and 5 CP. Reading knowledge of German and some knowledge of Statistics is also strongly recommended.

**1 C. General Psychology.** Dr. PRENTICE, Dr. MORGAN and assistants. Fall and Winter. A two term course. Three hours weekly.

This course will introduce the student to the fields and methods of Psychology and to the elements of psychological theory. Psychology 1 C is prerequisite to all other courses in Psychology and will ordinarily be offered for students in their third college term.

**AST 904 and 905. General Psychology.** Dr. PRENTICE. A two term course. Summer and Fall. Four hours weekly.

This course, especially designed for students in the AST pre-medical program will teach the elements of human behavior. Emphasis will be put on the origins and inter-relations of normal functions. Topics to be included are: (first term) vision and hearing, learning, and memory; (second term) thinking, intelligence, and personality.

**2 CP. Experimental Psychology.** Dr. MORGAN, Dr. PRENTICE and assistants. A two term course. Fall and Winter. Lectures three hours weekly and laboratory six hours weekly.

This course is prerequisite for all Psychology courses above the elementary level. It is required of all students concentrating in Psychology. The course will teach the student the fundamentals of experimental method and laboratory technique in Experimental and Physiological Psychology.

Prerequisites: Biology 1 C, Psychology 1 C.

**3 CP. Developmental Psychology.** Dr. MORGAN. A one term course. Winter. Three hours weekly.

A course in the genesis and evolution of adult human behavior as seen in the observation of animals and children.

**4 C. Abnormal Psychology.** Professor SHAFFER. A one term course. Spring. Three hours weekly.

This course is intended to give a picture of the full range of normal and abnormal human functioning. The development of deviations of psychological functions are seen as manifestations of total personality disturbances and consideration is given to all factors that enter into the functioning of the human being.

Prerequisite: Psychology 1 C.

**5 CP. Social Psychology.** Dr. PRENTICE. A one term course. Fall. Three hours weekly, plus practicum.

A study of selected psychological problems arising from the nature of social organization. This course will have no regularly scheduled laboratory hours, but the student will be expected to do field observation and experimental work beyond the three hours scheduled for class meetings.

**22 C. Research in Psychology.** Dr. MORGAN or Dr. PRENTICE. One term. Offered each term.

Psychology majors in their last year will be expected to devote one term to original research. In some cases, work in the Seminar (11-14 CP) may be substituted.

**11-14 CP. Problems in Psychology** Members of the staff. A one term course; hours to be arranged.

These courses will ordinarily be offered each term with the subject matter changing from one semester to the next. Open only to especially qualified students.

**1 T. General Psychology.** A two term course. (See Announcement of the College for Teachers.) Under certain circumstances, this course may be substituted for Psychology 1 C.

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## ROMANCE LANGUAGES

## FRENCH

Professor LANCASTER

Associate Professor MALAKIS

Professor SPITZER

Associate Professor SINGLETON

Professor SALINAS (on leave)

Dr. MOODY

**French Elements.** Professor LANCASTER and Dr. MOODY. A three term course. Summer, Fall, and Winter. Three hours weekly.

This course is planned for students beginning the study of French and aims to impart a good reading knowledge of the language. It includes grammar, pronunciation, composition, and translation.

**1 C. French Reading.** Associate Professor MALAKIS. A three term course. Summer, Fall, and Winter. Three hours weekly.

Prerequisite: French Elements or equivalent.

**2 C. Survey of French Literature.** Professor LANCASTER. A three term course. Summer, Fall, and Winter. Students may enter at any term. Three hours weekly.

Prerequisite: French 1 C or equivalent.

**3 C. Conversation.** Associate Professor MALAKIS and Professor DUMONT. A one term course beginning every term. One hour weekly.

Prerequisite: French Elements.

**4 C. Composition.** Associate Professor MALAKIS and Professor DUMONT. A one term course beginning every term. One hour weekly.

Prerequisite: French Elements.

## ITALIAN

Associate Professor SINGLETON

**1 C. Elements.** A three term course. Summer, Fall, and Winter. Three hours weekly.

Hours will be arranged to suit a majority of students. Students should report to Professor SINGLETON, 207 Gilman Hall, during registration. There are no special requirements for admission to this course.

**2 C. Readings.** A three term course. Fall, Winter, and Spring. Three hours weekly.

Prerequisite: Italian Elements or equivalent.

## SPANISH

Professor SALINAS

Dr. MOODY

**1 C. Modern Authors.** Dr. MOODY. A one term course beginning every term. Three hours weekly.

Prerequisite: Spanish Elements or equivalent.

**2 C. Classical Authors.** Professor SALINAS. A three term course. Fall, Winter, and Spring. Three hours weekly. (To be given in 1945-46.)

**THE SCHOOL OF BUSINESS  
ECONOMICS**

## Government of the School of Business Economics

### Academic Council

See p. 36.

### Committee of the School of Business Economics

The President of the University (*Chairman*)

G. W. SHAFFER

G. H. EVANS, JR.

W. O. WEYFORTH

R. J. BULLOCK, *Director* (on leave)

H. E. COOPER, *Acting Director*

L. G. REYNOLDS

J. D. SCOTT (on leave)

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## Instruction in the School of Business Economics

THE JOHNS HOPKINS School of Business Economics was organized in 1922 to provide facilities for those students who contemplate a business career. Its program combines a liberal education with a substantial training in business organization and practice. The School of Business Economics does not aim to turn out finished business executives. Through a process of careful selection of students, coupled with a broad training in liberal and technical courses, the School does succeed in sending out graduates equipped to take advantage of the opportunities offered by business, and thus work their way into positions of responsibility.

Due to the war, nearly all of the students have gone into various branches of the armed services. Many of the faculty have done likewise; others are engaged in various kinds of war work. As a result very few advanced business courses are being offered. The courses ordinarily included in the first year and a few courses beyond the first year are still being given and it is possible, therefore, for high school graduates under 18 years of age to enter the School of Business if they wish to do so. Students who enter military service after a short period of time in the University may continue their studies by taking correspondence courses under the direction of the Armed Forces Institute. Each student will be aided by his adviser in planning a suitable course of study so that work done by correspondence may be applied toward the degree. Following discharge from the service attendance in the University may be resumed.

Courses in the Department of Political Economy are announced on p. 74, along with other courses in the College of Arts and Sciences. Evening courses in Business Economics are being carried on as usual, and are announced in a separate circular.

## Requirements for the Degree of Bachelor of Science in Economics

The degree Bachelor of Science in Economics is conferred as evidence that the student has successfully fulfilled the following requirements:

- (1) Matriculation as a candidate for the degree of B. S. in Economics.
- (2) Completion of all required courses listed below.
- (3) Completion of sufficient other approved courses to make a total of 125 semester hours.
- (4) Completion in the last terms of a research project in some phase of business to be assigned.
- (5) Attendance in the School for a certain minimum time.
- (6) Payment of fees.

### Outline of Courses

The following courses are required in the first year:

Accounting .....	11 B
Principles of Economics.....	1 C
Engineering Drawing.....	111 E
English writing.....	A
Mathematics .....	1 C or 2 C
Physical training	
Military Science I may be added if desired	

The following courses are required in the second year:

Advanced Accounting.....	14 B
Statistics .....	2 C
Marketing .....	20 B
American National Government.....	1 C
English Literature.....	1 C
Physical training	
Military Science II may be added if desired	

Courses required for graduation that may be taken in the last two years:

Money .....	3 Ba
Banking .....	3 Bb
Corporation Finance.....	36 B
Commercial Law.....	22 B
Public Administration.....	4 C
One of the following natural sciences	
Biology .....	1 C
Chemistry .....	1 C
Geology .....	1 C
Physics .....	1 C
History of Occidental Civilization from the Seventeenth Century to the Present.....	B
Physical training	

The senior research is required to be completed during the student's last year.

Courses in Business and Economics that may be elected during the last two years:

Advertising .....	21 Ba
Sales Management.....	21 Bb
Industrial Organization and Contracts.....	317 E
Labor .....	4 B
Public Finance.....	26 B
Business Cycles.....	28 B
Government and Business.....	29 B
Industrial Management.....	32 B
Advanced Economic Theory.....	33 C
Public Utilities.....	34 C
Theory and Technique of Investments.....	35 C
The Development of Economic Opinion.....	37 P
International Financial Relations.....	38 P
Labor Economics.....	39 P

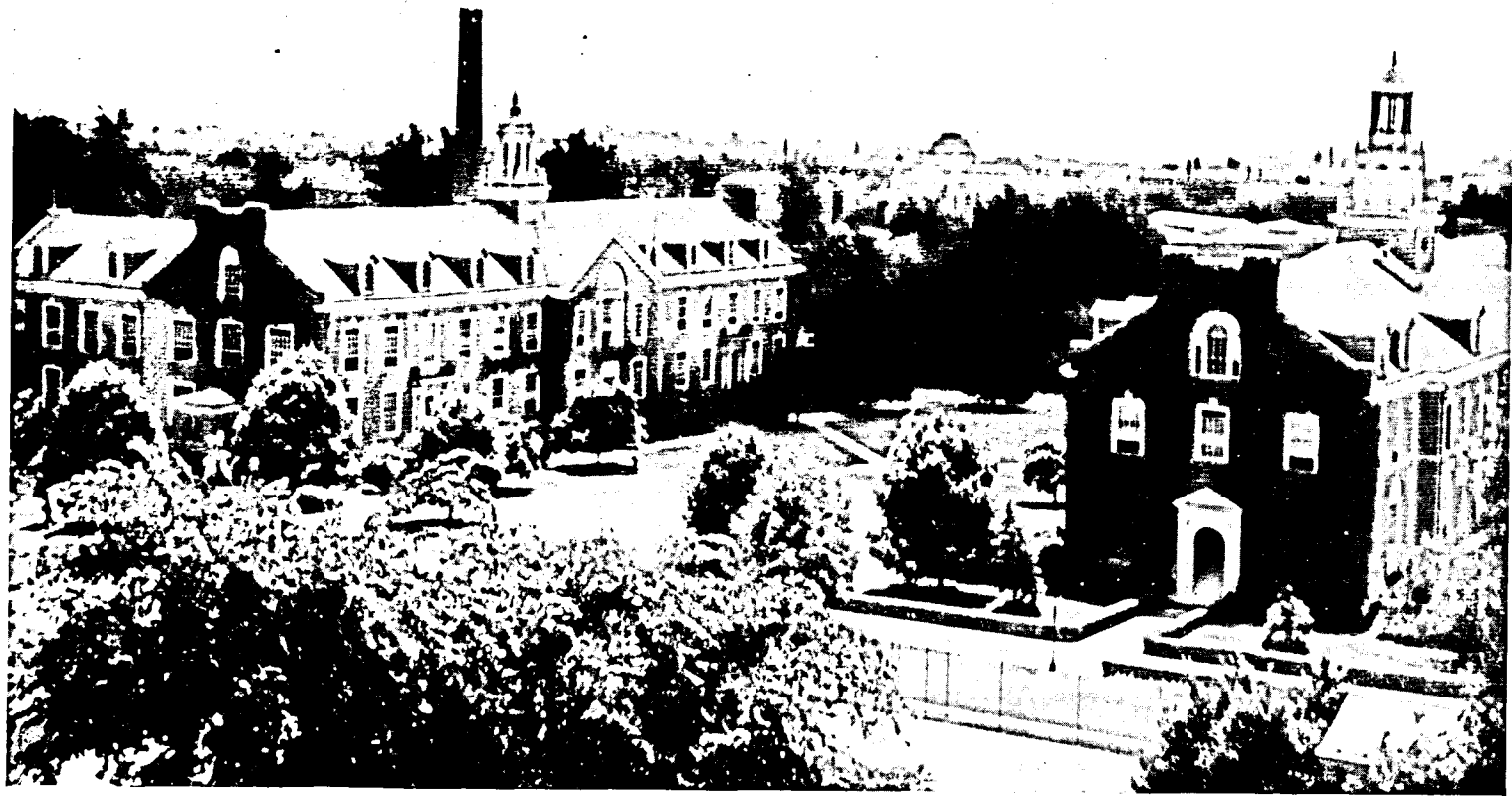
Courses sufficient to provide a total of 125 points must be taken. These courses may include Military Science, Engineering, or courses offered in the College of Arts and Sciences or in the College for Teachers.

## Scholarships

Scholarships announced on pp. 46 to 49 are open to students in the School of Business Economics.

A loan scholarship of \$250 from the American Bankers' Association Foundation for Education in Economics is available for a student of senior grade or a special student. An award will be made only to a competent and deserving student whose major course is in banking, economics or a related subject.





MARYLAND HALL  
(Electrical and Mechanical Engineering)

LATROBE HALL  
(Civil Engineering and Geology)



ROWLAND HALL (Mathematics and Physics)

# THE SCHOOL OF ENGINEERING

## Government of the School of Engineering

### Advisory Board of the School of Engineering

#### The President of the University (*Chairman*)

W. B. Kouwenhoven ( <i>Secretary</i> )	A. G. Christie	Abel Wolman
P. S. Macaulay	J. T. Thompson	F. D. Murnaghan
G. W. Shaffer	P. H. Emmett	A. H. Pfund
J. C. W. Frazer		

This board was constituted by a resolution of the Trustees, May 9, 1913. It consists of the President of the University, certain members of the Faculty representing engineering and cognate sciences, and the Provost and the Dean of the College of Arts and Sciences.

### The Board of Engineering Studies

#### The President of the University (*Chairman*)

#### The Dean of the School of Engineering (*Vice-Chairman*)

R. K. Witt ( <i>Secretary</i> )	F. W. Medaugh	T. Larsen
A. G. Christie	T. F. Comber, Jr.	J. C. Geyer
J. C. Hubbard	F. W. Kouwenhoven	J. M. Kopper
J. T. Thompson	A. O. Babendreier	J. H. Potter
P. H. Emmett	T. F. Hubbard	M. H. Bilyk
Abel Wolman	F. Hamburger, Jr.	J. Woodburn
J. C. Smallwood	C. F. Miller	C. R. Pfeffer
M. W. Pullen	C. F. Bonilla	

This board, appointed annually, acts for the advisory Board on all questions pertaining to undergraduate instruction.

### Standing Committees of the Board of Engineering Studies

#### *Executive Committee*

W. B. Kouwenhoven	A. G. Christie
( <i>Chairman</i> )	
J. T. Thompson	C. F. Bonilla
( <i>Secretary</i> )	

#### *Curriculum Committee*

W. B. Kouwenhoven	A. G. Christie
( <i>Chairman</i> )	
J. T. Thompson	C. F. Bonilla
( <i>Secretary</i> )	

#### *Committee on Advanced Standing*

A. G. Christie	Irene M. Davis
( <i>Chairman</i> )	F. Hamburger, Jr.
C. F. Bonilla	J. T. Thompson

# Instruction in the School of Engineering

## The Foundation

**T**HE ESTABLISHMENT of the School of Engineering of the Johns Hopkins University was made possible by the passage of an Act of the General Assembly of the State of Maryland in its session of 1912. The preamble of the Act quotes the Declaration of Rights of the State as follows: "The Legislature ought to encourage the diffusion of knowledge and virtue, the extension of a judicious system of general education, the promotion of literature, the arts, sciences, agriculture, commerce and manufactures, and the general amelioration of the condition of the people." The Act further states that its purpose is the extension to the people of this State of opportunities, facilities, and advantages for education in applied science and advanced technology not hitherto available to them.

The Act provides a liberal appropriation for the erection of buildings and the purchase of equipment, and a continuing annual appropriation to the University. In conformity with the purpose and provisions of the Act the University offers each year a number of scholarships granting free tuition to residents of the State of Maryland. (See page 92.)

Instruction was begun in the branches of Civil, Electrical, and Mechanical Engineering in the first of the new laboratories at Homewood, in October, 1914.

## War Time Program

The School of Engineering offers graduate and undergraduate courses in the branches of Civil, Electrical, Mechanical, Chemical and Sanitary Engineering. (It has been selected by the United States Army for Engineering Training under the Army Specialized Training Program.) An accelerated program was adopted in June 1942, whereby forty-eight weeks of instruction are offered in each calendar year. The year is divided into four terms of twelve weeks' duration, with a week's vacation at the end of

each term. The satisfactory completion of ten terms of instruction is required for the Bachelor of Engineering Degree. The plan of instruction is so arranged that new students may be admitted in July, and in October and in April if there is sufficient demand.

Detailed statements concerning the various courses are to be found in the following pages. These aim to give students a thorough training in the principles of the various branches of Engineering and an introduction to the methods of practice in general use. Emphasis is placed on fundamental and cultural studies in the first three terms. In the later terms these studies are combined with professional studies preparing graduates to take an intelligent and increasingly responsible part in engineering undertakings. Particular effort is made to impart a thorough grounding in the general principles of the branches of engineering, the greater portion of the time being devoted to this purpose. The further study of special applications is assigned to the graduate years.

The program of studies for the first, second, and third terms is the same in all branches. Engineering studies begin in the fourth term, increasing in number and extent in succeeding terms. The fundamental and general educational studies are conducted with the aid of the faculties of the College of Arts and Sciences, the College for Teachers and the School of Business Economics.

Students may choose at the beginning of the fourth term the branch of Engineering which they wish to follow. The later terms are devoted mainly to professional studies of the principal subject. One of the earlier courses in each subject is arranged with special reference to the needs of students in other branches of Engineering.

In addition to recitations and personal conferences, practical work in the laboratory, demonstrations, and the study of existing engineering installations are prominent features of the methods of instruction.

Students who do not enter the armed services upon the completion of their prescribed term of study are required to complete four months of industrial experience as a prerequisite for graduation.

A valuable feature of the undergraduate instruction is the train-

ing offered by membership in the student branches of the American Society of Civil Engineers, the American Institute of Electrical Engineers, the American Society of Mechanical Engineers, the American Institute of Chemical Engineers, and the Society of American Military Engineers. The programs of their meetings include papers by the student members and by visiting engineers. Each of these student branches is under the general advisory direction of a member of the teaching staff.

The University maintains Senior Division Units, Infantry and Engineering, of the Reserve Officers' Training Corps under the direction and control of the War Department. On entering the University a student may elect to enroll as a member of either of these units for five terms.

### Graduate Courses

The graduate courses offer advanced professional instruction in the fields of Civil, Sanitary, Electrical, Mechanical and Chemical Engineering. Detailed information is given in the circular of the School of Engineering which will be mailed upon request.

### Night Courses in Technology

Special engineering courses are offered at night under the direction of the School of Engineering to those who are unable to attend day classes. These courses are accepted as credit towards the degree of Bachelor of Science in Engineering. Information concerning them may be secured from the Registrar.

## Scholarships

### Open Scholarships

**O**PEN SCHOLARSHIPS are available each year to worthy young men of exceptional ability from schools outside of Maryland. These scholarships, which carry free tuition, are honor awards and are given only to candidates who have achieved high scholastic standing in their respective secondary schools and who have given evidence of leadership and character. The total number which may be held in any one term is twenty. This includes new appointments and renewals.

Awards to entering students are based upon the recommendations of the headmasters or principals of the schools, and upon the reports of interviews conducted by representatives of the University. They may be renewed if the University record is satisfactory in every respect and they may be forfeited because of defective scholarship or unworthy conduct.

Candidates must file their applications with the Registrar, from whom appropriate blanks may be obtained. Awards are made at the beginning of each term and are for two terms.

### State Scholarships

**T**HE LEGISLATIVE bill which established the School of Engineering makes liberal provision for scholarships granting free tuition to deserving students who reside in the State of Maryland. (See Appendix.)

One hundred and twenty scholarship are awarded to young men from Baltimore City and the various counties of the State whose means are such that they are unable to procure a technical education unless free tuition is granted them. In addition twenty-one scholarships are open to graduates of seven colleges of Maryland.

The scholarships are awarded so that as nearly as possible the same number of appointments in each county is made each year.



For the year 1944-45 scholarships are vacant in the counties and in Baltimore City in accordance with the following list:

Allegany .....	5	Dorchester .....	3
Anne Arundel.....	3	Frederick .....	3
Baltimore .....	2	Garrett .....	3
Baltimore City:		Harford .....	1
First District.....	3	Howard .....	1
Second District.....	5	Kent .....	1
Third District.....	1	Montgomery .....	4
Fourth District.....	3	Prince George's .....	4
Fifth District.....	2	Queen Anne's .....	2
Sixth District.....	3	Somerset .....	3
Calvert .....	1	St. Mary's .....	2
Caroline .....	2	Talbot .....	2
Carroll .....	2	Washington .....	4
Cecil .....	1	Wicomico .....	2
Charles .....	2	Worcester .....	3

The total number of scholarships which may be held by the residents of the various counties and of Baltimore City, is given in the following list:

Allegany .....	6	Dorchester .....	4
Anne Arundel.....	4	Frederick .....	5
Baltimore County.....	6	Garrett .....	3
Baltimore City:		Harford .....	3
First District.....	6	Howard .....	2
Second District.....	6	Kent .....	2
Third District.....	6	Montgomery .....	4
Fourth District.....	6	Prince George's.....	4
Fifth District.....	6	Queen Anne's.....	2
Sixth District.....	6	Somerset .....	3
Calvert .....	2	St. Mary's.....	2
Caroline .....	3	Talbot .....	3
Carroll .....	4	Washington .....	5
Cecil .....	3	Wicomico .....	3
Charles .....	2	Worcester .....	3

### Competitive Examination for Scholarships

In order to secure one of these scholarships, application must be made both for entrance<sup>1</sup> to the University and for scholarship on blank forms which will be furnished by the Registrar of the University. Applications for the scholarships are considered only after the applicants have satisfied the requirements for admission.

When there is more than one applicant for a particular scholarship, a competitive examination is held. This examination is in

<sup>1</sup> Application for admission should be made during the last term in high school.

Mathematics, English, and the elements of one of the four foreign languages—French, German, Spanish, Latin. The scope of each subject is that of the requirements for entrance. The examination in the three subjects covers one three-hour session.

Public announcement is made immediately of the relative standing of the applicants in the competitive examination. Each successful competitor then secures the certification of the Senator from his county or legislative district that the applicant resides in such county or district, and that his financial circumstances are such that he is unable to pursue a technical education unless free tuition be granted. The results of the competitive examination are sent to the respective Senators, together with the necessary blank forms of certification. No award of a scholarship is made until this certificate is received.

In addition to the scholarships in the above list six scholarships "At Large" are awarded to any otherwise properly qualified residents of the State of Maryland. Four of these scholarships are open for 1944-45.

Three scholarships are also offered to Maryland graduates of each of the following Colleges: Loyola College, University of Maryland, St. John's College, Western Maryland College, and Washington College. The award of these scholarship is made without reference to the ability of the applicants to pay the fees, and is solely on the basis of merit as certified by the Presidents of the Colleges. Graduates of these institutions who have specialized in Mathematics and Physics or Chemistry may, as graduate students, enter a four term curriculum leading to the degree of Bachelor of Engineering.

All the scholarships entitle the holders to free tuition, free textbooks, and exemption from laboratory fees.

In each county and city legislative district the Senator has the privilege of recommending one of the scholarship holders for the "Senatorial Emolument" of \$200 or other provision for defraying the cost of board and lodging. The recipient of the emolument is said to hold a "Senatorial Scholarship." Senatorial Scholarships may be awarded for 1944-45 in Allegany County, Baltimore City Second, Fourth and Sixth Districts, and in Carroll, Charles, Garrett, Howard, Montgomery, Prince George's, Queen Anne's, Somerset, St. Mary's, Talbot and Worcester Counties.

Appointments to scholarships are made for a calendar year. Renewals are conditional upon behavior, scholastic ability, industry, and upon the number of vacancies due to graduation or withdrawals at the end of each year.

During 1943-44 there were four twelve-week terms. One hundred and thirty and a half regular State scholarships, including thirty-nine Senatorial awards and thirty-three and three-quarter appointments to residents of Maryland, were awarded during the year. For the list of appointments, see p. 120.

## Basic Engineering Courses

The work of the first three terms of the engineering program is common to all branches of engineering. The courses are basic and fundamental in nature and are so arranged that the requirements of the Basic Engineering Army Specialized Training Program are met. The work includes mathematics, science and cultural subjects, and is conducted with the aid of the faculty of the College of Arts and Sciences. The courses are designed to build a foundation upon which the Advanced Engineering Program rests.

FIRST TERM		Class Lab.	SECOND TERM		Class Lab.
Mathematics 1 Ca or 2 Ca..		6 or 5	Mathematics 1 Cb or 2 Cb..		6 or 5
or			or		
Mathematics AST 406.....	6		Mathematics AST 407.....	5	
Physics 1 Ca or AST 304...	4	6	Physics 1 Cb or AST 305...	4	6
Chemistry 1 Ca.....	3	3	Chemistry 1 Cb.....	3	6
or			or		
Chemistry AST 205.....	3		Chemistry AST 206.....	3	3
English AST 111 A.....	3		English 111 B.....	3	
Engineering Drawing 111 E		6	Engineering Drawing 111 E		6
Physical Education.....	4		Physical Education.....	4	
Military Science 1 A			Military Science 1 B		
(Elective)	2	2	(Elective)	2	2

THIRD TERM		Class Lab.
Mathematics 3 Ca.....	5	
or		
Mathematics AST 408.....	5	
Physics 1 Cc or AST 306...	4	6
Chemistry 5 C.....	3	6
English 111 C.....	3	
Descriptive Geometry 111 E		6
Physical Education.....	4	
Military Science 1 C		
(Elective)	2	2

# Civil Engineering

Professor THOMPSON  
Professor WOLMAN  
Associate Professor COMBER  
Mr. MEDAUGH  
Mr. HUBBARD

Mr. KEEFER  
Mr. BABENDREIER  
Dr. GEYER (on leave)  
Mr. BOYER  
Mr. EWELL

THE UNDERGRADUATE course of ten terms in Civil Engineering is planned to fully prepare the student for entrance into the Civil Engineering profession. The first three terms are the basic courses common to all branches of engineering and give fundamental training in mathematics, science, drawing, and cultural subjects.

The fourth, fifth and sixth terms correspond to the professional instruction under the Army Specialized Training Program.

The seventh, eighth, ninth and tenth terms augment the Army Program and complete the requirements for the Bachelor of Engineering degree from this University.

The aim of the Department is to give sound, fundamental training in the four main divisions of Civil Engineering: structural analysis and design; transportation; sanitary engineering; and hydrology. Courses are given in Mechanical and Electrical Engineering to broaden the training and because Civil Engineers must often work in collaboration with engineers in these fields.

The outlook of the student is also enlarged by courses in geology, political economy and the legal and social aspects of engineering. These courses are designed to relate work in engineering to the physical and social world which are so closely related and so vitally affected by it.

The Department is well equipped with the necessary laboratories and drafting rooms for efficient instruction.

In connection with the courses in transportation and structures the Department conducts a modern laboratory where standard tests and original investigations are made on the materials bearing on these subjects.

The hydraulics laboratory affords facilities for making studies of the flow of water in pipes and open channels. It is also equipped with pumps of various kinds and with hydro-power generators such as the Pelton wheel and Francis turbine.

There are available for the several courses in surveying a full equipment of modern transits, levels, sextants, and plane tables. Some of these, used in the advanced courses, are of the precision type.

Graduate courses are provided for those who desire to work toward the Master's or Doctor's degree, in such manner as to fit the needs and desires of properly qualified students who may apply for them. The purpose of these courses is to permit students, who have acceptable undergraduate training, to specialize more fully in some particular branch. A catalog describing the graduate courses will be sent on request.

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## Degree Program

FOURTH TERM		Class	Lab.	FIFTH TERM		Class	Lab.
Mathematics AST 401.....	5			Strength of Materials AST 401 .....	4		
Mechanics AST 401.....	6			Materials Testing Laboratory AST 401.....	3		
Surveying (Elementary) AST 407.....	2	4		Stress Analysis AST 413..	2	3	
Elements of Electrical Engineering AST 401.....	4	4		Fluid Mechanics AST 401..	4		
Engineering Drawing—Structural Drafting AST 408 .....	3			Surveying—Advanced AST 408 .....	2	3	
Physical Education.....	4			Internal Combustion Engines AST 405.....	3	3	
Military Science IIA (Elective) .....	2	2		Physical Education.....	4		
				Military Science IIB (Elective) .....	2	2	
SIXTH TERM				SEVENTH TERM			
Structural Design AST 403	4	3		Descriptive Geomtry 111 E	1	3	
Water Supply and Sewage AST 403.....	3	3		Mathematics AST 403.....	3		
Transportation AST 403...	3	3		Thermodynamics AST 401, Laboratory 420.....	5	3	
Foundations AST 403.....	3	3		Theory of Structures 131 E	3	6	
Engineering Drawing—Topographic Drafting AST 409	3			Political Economy I E.....	3		
Physical Education.....	4			Physical Education.....	4		
EIGHTH TERM				NINTH TERM			
Theory of Structures 131 E	3	6		Geology 1 Ca.....	3	3	
Principles of Accounting 11 E .....	3	3		Hydraulics and Fluid Mechanics 133 E and 147 E.	5	3	
Metallography and Heat Treatment AST 430.....	4			Seminar 144 E.....	1		
Advanced Surveying and Geodesy 135 E and 145 E	3	6		Sanitary Engineering 142 E	3	3	
Physical Education.....	4			Structural Engineering 141 E .....	3	6	
TENTH TERM							
Seminar 144 E.....	1			Physical Education.....	4		
Legal and Social Phases of Engineering 148 E.....	2						
Sanitary Engineering 142 E	3	3					
Structural Engineering 141 E .....	3	6					
Transportation Engineering 143 E .....	3	3					
Geology 2 Cb.....	3						
Physical Education.....	4						

**AST 401. Strength of Materials.** Four class hours per week for one term.

Elementary theory of Strength of Materials, includes stresses and strains, riveted and welded joints, simple beams, continuous beams, deflection of beams, combined stress, and columns.

**AST 403. Foundations.** Three class and three laboratory hours per week for one term.

Elementary soil mechanics; pile foundations; spread footings, plain and reinforced; caissons; subaqueous foundations; retaining walls.

**AST 403. Structural Design.** Four class and three laboratory hours per week for one term.

Elementary design of structures in steel and reinforced concrete and wood. Deflection of trusses. Elementary analysis of indeterminate structures.

**AST 403. Transportation.** Three class and three laboratory hours per week for one term.

Elementary design, construction and maintenance of highway, railways and airways.

**AST 403. Water Supply and Sewerage.** Three class and three laboratory hours per week for one term.

Design, construction and operation of public water supply and sewerage systems. Water purification and treatment. Sewage treatment.

**AST 407. Surveying (Elementary).** Two class and four laboratory hours per week for one term.

Recitations, laboratory and field work. Practical problems in use of instruments and measurements of angles, elevations and distances, stadia, elementary topographical surveying, and computations of areas.

**AST 408. Engineering Drawing—Structural Drafting.** Three hours laboratory per week for one term.

Practice in drawing various structural elements and details. Reading and use of structural drawings.

**AST 408. Surveying (Advanced).** Two class and three laboratory hours per week for one term.

Vertical and horizontal curves, earthwork computations, reconnaissance and location surveys, simple practical astronomy, and practice in field on problems studied in class.

**AST 409. Engineering Drawing, Topographic Drafting.** Three laboratory hours per week for one term.

Topographic drawings, map projections, conventional symbols, solution of problems related to maps and topography.

**AST 413. Stress Analysis.** Two class and three laboratory hours per week for one term.

Analytical and graphical stress analysis, bridge trusses, influence diagrams, wind stresses, lateral bracing, portals. Plate girder theory and design.

**111 E. Engineering Drawing and Descriptive Geometry.** Two drafting-room periods of three hours each, weekly for three terms.

The student is given practice in the elements of mechanical drawing and freehand sketching, including the making of finished drawings in pencil, and tracings in ink. He also studies the



elements of descriptive geometry, with problems covering intersections, projections, and developments.

**131 E. Theory of Structures.** Three class and six laboratory hours per week for two terms.

This course is an introduction to the theory and practice of structural design. The lecture and recitation periods are devoted to discussions of the following: analytical and graphical stress analysis of a variety of structures including roof and bridge trusses, lateral bracing systems, trestles, portals, mill building bents, arches and dams; influence lines and their applications to moving load stress phenomena; impact stresses, index stresses, counter stresses, etc. The theory of beam stress phenomena, including principal stresses, is also covered and is applied to plate girder theory and design.

The drafting-room periods are devoted to the applications of the foregoing in selected problems, including several designs.

**133 E and 147 E. Hydraulics and Fluid Mechanics.** Five class hours and one laboratory period of three hours per week for one term.

This course deals with the fundamental principles of hydrostatics and hydrodynamics and with the application of these principles to practical problems. Laboratory exercises include experiments with orifices, rectangular and V-notch weirs, Pitot tubes, nozzles, pipes and open channels, turbines, Venturi meter, current meter, Pelton wheel, hydraulic ram and centrifugal pump. Fluid mechanics consists of a study of dimensional analysis, dynamic similarity and models, viscous and turbulent flow of fluids, non-uniform flow, flood routing, hydraulic machines, surge and water hammer, mathematical and graphical solution of potential flow problems, curve plotting and graphical derivation of formulae.

**135 E and 145 E. Advanced Surveying and Geodesy.** Three class hours and six hours laboratory per week for one term.

This course consists of advanced instruction in simple, compound and easement curves, earth work and mass diagrams and highway surveying. Practical astronomy and its applications in the field are included. The fundamentals of geodesy and geodetic surveying are studied and applied. Instruction is also given in the use of the sextant, plane table surveying, city surveying, adjustment of instruments, mapmaking and projections.

**141 E. Structural Engineering.** Three class and six laboratory hours per week for two terms.

The recitation and lecture periods include the analysis of stresses, methods of design and interpretation of specifications in steel and reinforced concrete. The subjects include: plate girders, columns, riveted and welded joints, three-hinged arches, cantilever bridges, earth pressure, truss deflection, method of work, moment distribution; the theory and design of reinforced concrete slabs, beams, columns, and retaining walls.

The work in the drafting-room during one term consists of the complete design and general drawing of a plate girder railroad bridge, the complete design and general drawing of a modern highway bridge, and the construction of Williot diagrams.

The work in the drafting-room during the second term consists of the preparation of drawings and the solution of problems in reinforced concrete, concrete buildings, retaining walls, and reinforced concrete arches.

**142 E. Sanitary Engineering.** Three class and three laboratory hours per week for two terms.

Lecture and recitation periods during one term include a study of the following subjects: hydrology, water supply sources, works for collection, transportation, and distribution of water, and sewerage systems. The drafting room periods are devoted to the design of water supply and sewerage systems.

During the other term, lecture hours are devoted to a study of water purification, sewage treatment and the general sanitary sciences. The laboratory includes performance and interpretation of the biological and chemical water and sewage tests and field trips to typical sanitary engineering works.

**143 E. Transportation Engineering.** Three class and three laboratory hours per week for one term.

The development of the American transportation system is treated historically so as to bring out the elements involved in the resulting present competition. Emphasis is placed upon the administrative, legislative, and managerial problems of finance and operation as well as upon the more traditional aspects of planning, design and maintenance. The materials of construction are covered in the laboratory periods but a part of these periods is also spent in working out current problems in the field of economics and operation.

The course gives consideration in varying degree to transportation by rail, water, highways and air.

**144 E. Seminar.** One hour per week for two terms.

One term is devoted to the principles and practice of public speaking, with some attention to the methods of organizing and conducting meetings. In the following term, the meetings are conducted by the students under the supervision of members of the faculty. Numerous reports on current scientific and engineering topics are prepared and submitted, the emphasis being placed on the proper preparation of the manuscript, the method of conducting the meeting and the manner of presenting the reports orally.

**148 E. Legal and Social Phases of Engineering.** Two hours per week for one term.

This course covers the making of contracts and specifications, methods of financing, public works in general, enabling and other types of legislation, the essentials of valuation and rate making, the development of multiple-purpose river undertakings, the creation and management of metropolitan utility districts, elements of municipal, county, state and Federal relationships in utility operation, and the effect of engineering upon society.

# Electrical Engineering

Professor KOUWENHOVEN  
Associate Professor HAMBURGER  
Mr. PULLEN  
Mr. LARSEN (on leave)  
Dr. MILLER

Mr. KOPPER  
Mr. ROUSH  
Mr. THALER  
Mr. WHELAN

THE CURRICULUM in Electrical Engineering has been arranged with the aim of giving a sound knowledge of underlying principles in the subjects of mathematics, physics, and chemistry; a constant contact with carefully chosen general educational topics, with special insistence on written and spoken English; and as wide a survey of the principles and practice of electrical engineering as may be safely attempted in an undergraduate program.

The strictly electrical courses begin in the fourth term. The curriculum of the fourth to the seventh terms, inclusive, follows the recommended outline of the Advanced Army Specialized Training Program. In his sixth and seventh terms a student may elect to follow either a power or a communications option. The courses of the eighth, ninth and tenth terms provide training in certain important phases of engineering which are not included in the Army program. The completion of all ten terms is required for the degree.

The undergraduate laboratories have been liberally designed and equipped. Constant attention is given to the content and organization of the laboratory courses. Ample resources are available for supplementing the equipment with new and important apparatus as indicated by current practice.

The dynamo laboratory is located in Machinery Hall. The various types of direct and alternating current generators are motor driven. Facilities are provided for brake tests on all types of continuous and alternating current motors. Machinery Hall also contains the switch board controlling the equipment for the operation of a 240 volt, 400 ampere-hour storage battery used for experimental purposes.

The radio laboratory provides facilities for the study of vacuum tube characteristics and communication problems. The laboratories also contain ample provision for electrical measurements and tests of all sorts as described in connection with the various courses enumerated below.

Particular attention may also be directed to the facilities for experimental investigation and research. The laboratories for graduate research are well equipped for study of the properties of dielectrics as applied to insulation; special attention has been devoted to the development of advanced methods of measurement in all fields, and the assembly of the requisite precision apparatus; similar attention has been given to the requirements for participation in the rapidly expanding study of radio transmission.

In the graduate courses the student completes his formal study of the theory and practice of general electrical engineering. He may also by investigation and experimental research extend his knowledge in any chosen direction. The library, the graduate laboratories, and the shops have been equipped especially for independent research. A catalog describing the graduate courses will be sent on request.

### Degree Program

FOURTH TERM	Class	Lab.	FIFTH TERM	Class	Lab.
Mathematics AST 401.....	5		Electric Circuits AST 414..	5	6
Mechanics AST 401.....	6		Engineering Mathematics		
Electrical Measurements			AST 403.....	3	
AST 403.....	6		Strength of Materials AST		
Electric and Magnetic Phenomena AST 405.....	5	3	401 .....	4	
Shop Practices AST 406 A..	3		Materials Testing Laboratory AST 401.....		3
Physical Education.....	4		Direct Current Machinery		
Military Science II A (Electric) .....	2	2	AST 409.....	3	3
			Physical Education.....		4
			Military Science II B (Electric) .....	2	2

## SIXTH TERM

## POWER OPTION

Electronics and Associated Circuits, Theory and Laboratory AST 415.....	5	6
Electric Circuits, Transients AST 416.....	2	3
Alternating Current Machinery AST 411.....	4	3
Thermodynamics AST 401.....	5	
Physical Education.....		4

## SEVENTH TERM

## POWER OPTION

Alternating Current Machinery AST 412.....	3	6
Servo Mechanisms and Control Devices AST 424....	3	3
Internal Combustion Engines (Class and Laboratory) AST 410 and AST 411...	6	4
Electric Power Transmission AST 412.....	3	
Physical Education.....		4

## EIGHTH TERM

Heat Engines, 2nd Half 305 E.....	4	6
Surveying AST 407.....	2	4
Advanced Electricity and Magnetism 221 E.....	4	
Fluid Mechanics AST 401..	4	
Shop Practices AST 406...	3	
Physical Education.....		4

## SIXTH TERM

## COMMUNICATIONS OPTION

Electronics and Associated Circuits, Theory and Laboratory AST 415.....	5	6
Electric Circuits, Transients AST 416.....	2	3
Electric Circuits, Distributed Constants AST 417.....	3	
Alternating Current Machinery AST 410.....	5	3
Physical Education.....		4

## SEVENTH TERM

## COMMUNICATIONS OPTION

High Frequency and U. H. F. Circuits and Laboratory AST 420.....	6	6
Servo Mechanisms and Control Devices AST 424....	3	3
Communications Networks AST 422.....	3	3
Radiation and Propagation AST 426.....	3	
Physical Education.....		4

## NINTH TERM

Electrical Senior Laboratory 229 E.....		12
Electric Illumination and Electric Railways 215 E..	4	
Power Plant Calculations 309 E.....	4	
Political Economy 1 E.....	3	
Kinematics AST 402.....	3	3
English 11 E.....	2	
Physical Education.....		4

## TENTH TERM

## Class Lab.

Electrical Senior Laboratory 229 E.....	12
Advanced Electrical Measurements 225 E.....	4
Metallography and Heat Treatment AST 430.....	4
Principles of Accounting 11 E.....	3 3
Industrial Organization and Contracts 317 E.....	4
Physical Education.....	4

**AST 401. Elements of Electrical Engineering.** Four class hours and four laboratory hours per week for one term.

This course deals first with the principles of direct current circuits and machinery. Emphasis is placed on the use of electrical measuring instruments in the laboratory where they are used in the testing of various circuits, generators and motors. Following the direct current studies, alternating current circuits and machinery are similarly treated. Intended for non-electrical engineering students, the course is largely practical.

**AST 403. Electrical Measurements.** Six laboratory hours per week for one term.

An introductory laboratory course designed to give practice in the use of electrical measuring instruments in various types of circuits. Magnetic circuit measurements are included.

**AST 405. Electric and Magnetic Phenomena.** Five class hours and three laboratory hours per week for one term.

A basic course in the elements of electricity and magnetism. Particular emphasis is placed on the properties of electric and magnetic circuits as especially applicable to electrical engineering.

**AST 409. Direct Current Machinery.** Three class hours and three laboratory hours per week for one term.

This study of direct current machinery deals with the construction, characteristics, operation and use of such machines.

**AST 410. Alternating Current Machinery.** Five class hours and three laboratory hours per week for one term.

For Communications Specialists. A study of alternating current machinery, its construction, operation, characteristics and applications. Emphasis is placed on induction machinery and transformers. Selsyn devices are analyzed.

**AST 411. Alternating Current Machinery.** Four class hours and three laboratory hours per week for one term.

For Power Specialists. This course covers a thorough study of the theory, construction, operation and characteristics of alternating current generators, synchronous motors, and transformers. Especial attention is paid to the factors which control the characteristics of the machines.

**AST 412. Alternating Current Machinery.** Three class hours and six laboratory hours per week for one term.

For Power Specialists. This course is a continuation of AST 411 covering single and poly-phase motors, synchronous converters, poly-phase rectifiers and variable speed alternating current motors.

**AST 412. Electric Power Transmission.** Three class hours per week for one term.

For Power Specialists. A study of the electrically long power circuit. Current and voltage distribution, power flow and power limits are covered. Problems of stability and regulation are analyzed.

**AST 414. Electric Circuits.** Five class hours and six laboratory hours per week for one term.

A study of direct and alternating current circuits, mostly in the steady state condition. Analysis is largely based on the use of Kirchoff's Laws as applied to both types of circuits. In the alternating current studies, single and polyphase circuits are studied especially in regard to power and energy measurements. Attention is paid to non-sinusoidal waves of voltage and current.

**AST 415. Electronics and Associated Circuits.** Five class hours and six laboratory hours per week for one term.

In this course the theory underlying electronic devices is presented. The application of this theory leads to a discussion of electron tubes with respect to their behavior in electrical circuits. In particular, consideration is given to the use of electron tubes as rectifiers, amplifiers, both audio and radio, and oscillators and modulators.

**AST 416. Electric Circuits, Transients.** Two class hours and three laboratory hours per week for one term.

This course deals with transients in direct and alternating current circuits. Non-linear circuits are analyzed.

**AST 417. Electric Circuits, Distributed Constants.** Three class hours per week for one term.

For Communications Specialists. A study of the electric circuit with distributed parameters. Voltage and current distribution in the steady state. Characteristics of open and coaxial lines. Use of line as a circuit element. Use of line as a measuring device. Loading. Impedance matching and stubbing.

**AST 420. High Frequency and Ultra High Frequency Circuits.** Six class hours and six laboratory hours per week for one term.

For Communications Specialists. This course, following AST 415, stresses electronic devices in the high frequency field. It covers the behavior of circuits at high frequency and the extension of high frequency circuit theory to the ultra high frequency field. Consideration is given to special devices required to generate ultra high frequency energy and to the problem of radiation with specific attention to antenna arrays, wave guides, horns and parabolas.

**AST 422. Communication Networks.** Three class hours and three laboratory hours per week for one term.

For Communications Specialists. A study is made of the properties of transmission networks and wave filters. The material is presented by a consideration of the general properties of networks and generalized filter theory leading to the use of a network as a wave filter. Simple filters, derived type filters and composite filters are presented.

**AST 424. Servo-Mechanisms and Control Devices.** Three class hours and three laboratory hours per week for one term.

This course covers a general treatment of automatic control devices including mechanical and electronic relays, thrusters, selsyn devices, amplidyne and similar machines.

**AST 426. Radiation and Propagation.** Three class hours per week for one term.

For Communications Specialists. A study of the general properties of electromagnetic waves followed by specific attention to antennas, radiation and field distribution. With respect to the propagation of electromagnetic waves such factors as the ionosphere, ground and sky waves and fading characteristics are included.

**203 E. Elements of Electrical Engineering.** Three class hours and six laboratory hours per week for one term.

This course deals with the principles and applications of alternating current circuits and machinery. Elementary principles of vector representation as applied to circuits with combinations of resistance, inductance and capacitance are emphasized. The elementary theory of the alternating current generator, transformer and simpler types of alternating current motors is studied. The laboratory work in this course parallels the classroom instruction.

**215 E. Electric Illumination and Electric Railways.** Four class hours and nine laboratory hours per week for one term.

A study is made of the principles of electric illumination and the present types of available lighting sources and methods of design are discussed. The electric operation of railways starting from the mechanical problem of train movements is studied together with motor and transmission characteristics of the available systems.

**221 E. Advanced Electricity and Magnetism.** Four class hours per week for one term.

This course serves as an introduction to the advanced mathematical theory of electricity and magnetism. Topics include: the electric and magnetic fields, potential, specific inductive capacity, and its influence in the electric field; theory of magnetism; the history and development of electromagnetic theory; transient conditions in electric circuits.

**225 E. Advanced Electrical Measurements.** Four class hours per week for one term.

This course deals with the theory, properties, and performance of all modern types of indicating, integrating, and recording instruments, with special reference to alternating current circuits.

**229 E. Electrical Senior Laboratory.** Twelve hours of laboratory work, per week for two terms.

Experimental laboratory work is offered which parallels the class-room work of the electrical courses of the ninth and tenth terms.



# Mechanical Engineering

Professor CHRISTIE  
Associate Professor SMALLWOOD  
Mr. KOUWENHOVEN

Mr. POTTER  
Mr. BILYK  
Mr. WOODBURN

THE CURRICULUM in Mechanical Engineering aims to give the student a thorough training in the principles that underlie the practice of the profession. The first three basic terms are devoted largely to the fundamental sciences, to mathematics and to general educational courses. The fourth to sixth terms follow the programs laid down by the Army Student Training program for Mechanical Engineers. The seventh to tenth terms are devoted to additional courses deemed necessary to give the student a thorough understanding of the general principles involved rather than a specialized training in any one branch of mechanical engineering. These are supplemented by courses in electrical engineering, fluid mechanics, heat transfer and by general educational subjects.

Much attention is given to laboratory work, in which the principles developed in the classroom are applied. The laboratory and its machine equipment are of modern type. The University Power Plant, which is adjacent to Maryland Hall, was designed with particular reference to availability for laboratory work. Students thus become familiar with boilers, stokers, engines, turbines, pumps, heaters, condensers, etc., in actual commercial use. The 75-horsepower Buckeyemobile unit in the power plant is particularly suitable for testing work. The gas engine laboratory is partly located in Machinery Hall, and besides gas and gasoline engines Diesel engines have been installed. Fuel, gas, and oil laboratories and special research rooms are located in Maryland Hall. Machinery Hall contains a complete equipment of testing machines to determine the strength of materials and for testing cements and concrete, with an electric furnace and other apparatus for the heat treatment of steel, several steam engines, gas engines, a complete pump-testing plant, a complete refrigerating equipment, a large air compressor plant, apparatus for testing and

calibrating instruments for measuring air, a Thomas electrical gas meter, a complete air washer equipment, and other miscellaneous apparatus. The power house is provided with an evaporator system for boiler make-up which is arranged for tests. A laboratory for the metallographic examination of metals is also provided.

Advanced courses are offered for graduate students who may wish to extend their training beyond the work covered in the undergraduate program. Such students are expected to conduct original research in the laboratories. Certain of the advanced courses are open to ninth and tenth term students who are qualified to take them. A catalog describing the graduate courses will be sent on request.

## Degree Program

FOURTH TERM		Class	Lab.	FIFTH TERM		Class	Lab.
Mathematics AST 401.....	5			Strength of Materials AST 401 .....		4	
Mechanics AST 401.....	6			Materials Testing Laboratory AST 401.....			3
Thermodynamics AST 401.....	5			Internal Combustion Engines AST 410.....		6	
Engineering Drawing AST 406 .....		4		Mechanical Laboratory AST 420 .....			3
Shop Practices AST 406...		6		Kinematics AST 402.....		3	3
Physical Education.....		4		Metallography and Heat Treatment AST 430.....		4	
Military Science II A (Elective) .....	2	2		Physical Education.....			4
				Military Science II B (Elective) .....		2	2
SIXTH TERM				SEVENTH TERM			
Mechanical Vibrations AST 410 .....	3			Heat Engines 305 E.....		4	6
Machine Design AST 408..	3	6		Elements of Electrical Engineering 203 E.....		3	6
Fluid Mechanics AST 401..	4			Mathematics AST 403.....		3	
Internal Combustion Engines Laboratory AST 411....			4	Structural Design AST 403		4	3
Elements of Electrical Engineering AST 401.....		4	4	Physical Education.....			4
Physical Education.....			4				
EIGHTH TERM				NINTH TERM			
Heat Generation and Transmission 327 E.....		4		Power Plant Calculations 309 E.....		4	
Mechanical Laboratory 310 E .....			6	Mechanical Laboratory 310 E .....			6
Seminary and Journal 313 E		1		Seminary and Journal 313 E		1	
Alternating Current Machinery AST 410.....		5	3	Machine Design 307 E.....		3	6
Production Methods 325 E.		2	3	Political Economy 1 E.....		3	
Descriptive Geometry 111 E		1	3	English 11 E.....		2	
Physical Education.....			4	Physical Education.....			4
TENTH TERM		Class		Lab.			
Steam Turbines 321 E.....			4				
Principles of Accounting 11 E .....		3	3				
Industrial Organization and Contracts 317 E.....			4				
Mechanical Laboratory 310 E .....			6				
Surveying AST 407.....		2	4				
Physical Education.....			4				

**AST 401. Mechanics.** Six class hours per week for one term.

Statics; including vectors, forces, moments, couples, resolution of forces, bridge trusses, friction, etc. Dynamics; linear and angular displacements, velocities and acceleration, motion of projectiles, relative motion, Newton's Laws, form of work, impulse and momentums, conservation of momentum, etc.

**AST 401. Thermodynamics.** Five class hours per week for one term.

Gas laws; equation of state, gas constants, pressure-temperature-volume relations; energy, heat and work, specific heats, adiabatic and polytropic processes, air compression; The Carnot cycle, entropy, reversibility, heat pump, Brayton, Otto and Diesel cycles; steady flow equations, nozzle; liquids and vapors, steam tables and charts, steam power, refrigeration; Dalton's law, humidity, etc.

**AST 401. Materials Testing Laboratory.** Three laboratory hours per week for one term.

Operation of testing machines and instruments; tension, compression, bending, torsional and hardness tests, tests of wooden beams, welded joints and springs.

**AST 402. Kinematics.** Three class and three laboratory hours per week for one term.

Vectors, velocities, rectilinear motion, tangential and normal accelerations, relative motion, transmission of motion, graphs, cams, gearing, generation of gear teeth, worm wheels, linkwork, slider crank, belts and belt drives, trains of mechanism, etc.

**AST 405. Internal Combustion Engines.** Three class hours and three laboratory hours per week for one term.

The principles of the design, construction and operation of internal combustion engines. Laboratory work covers the calibration and use of measuring instruments and the operation, adjustment and tests of internal combustion engines, etc.

**AST 406. Engineering Drawing.** Four laboratory hours per week for one term.

Detail and assembly drawings. Simple mechanisms and machines—representation, idioms, conventions, specifications and reading. Empirical drawings and charts. Jigs and Fixtures (basic principles).

**AST 406. Shop Practices.** Three or six laboratory hours per week for one term.

Theory and practice of gas and electric welding; forging and heat treating; hand tools and bench work; sheet metal layout; theory and operation of machine tools including lathes, milling machines, shapers, planers and grinders; measurement and measuring instruments.

**AST 408. Machine Design.** Three class and six laboratory hours per week for one term.

Stresses in machine parts, types of fastenings, fits with tolerances and allowances, welded joints, springs, bearings, brakes, shafts, couplings, forms of drives, crank shafts, flywheels, gearing, etc.

**AST 410. Internal Combustion Engines.** Six class hours per week for one term.

Fuels and combustion, petroleum products, heat transfer by radiation, conduction and convection, Otto cycle engines; standard cycles; carburation, detonation; valve gear and timing, turbo charges, fuel injection, knock, Diesel engines, gas turbines including their cycles, and performance.

**AST 410. Mechanical Vibrations.** Three class hours per week for one term.

Harmonic and non-harmonic vibrations, systems of one or more degrees of freedom, free and forced vibrations, with or without damping, balancing machines, self-excited vibrations, vibration measuring instruments.

**AST 410. Physical Metallurgy.** Three class hours and two laboratory hours per week for one term.

The structure of metals and alloys interpreted by phase diagrams. The laboratory work consists of the preparation and microscopic examination of specimens, photomicrographs, heat treatment and routine testing.

**AST 411. Internal Combustion Engines Laboratory.** Four laboratory hours per week for one term.

The operation and adjustment of internal combustion engines and the influence of various operating conditions. Performance tests of spark ignition and Diesel engines.

Effects of changing characteristics on operation, etc.

**AST 420. Mechanical Laboratory.** Three laboratory hours per week for one term.

Calibration and use of testing instruments, simple tests on engines, centrifugal pumps, fans, etc., the use of ASME Power Test Codes.

**AST 430. Metallography and Heat Treatment.** Four class hours per week for one term.

The properties, heat treatment, limitations and correct application of metal. Fundamentals of heat treatment, pure metals and alloys, aluminum, magnesium and copper metals and alloys, the heat treatment of carbon and alloy steels, welding, tool steels, cast iron.

**305 E. Heat Engines.** Four hours of class work and six hours of laboratory per week for one term.

This course follows Thermodynamics AST 401 and amplifies some of the topics dealt with in it, such as refrigeration, air compression, nozzles for steam and air, etc. It also deals with principles of combustion, boilers, steam power auxiliaries, the steam engine and turbine, binary vapor engines, and ideal turbine cycles as regenerative and reheat, etc. Laboratory work covers tests of steam engines and turbines, condenser, feed water heater, and fuel and gas analyses.

**307 E. Machine Design.** Three hours of class work and six hours of designing per week for one term.

The class work consists of lectures and recitations covering the fundamental static and dynamic principles involved in the design of machine elements. Elementary work in vibration is included. In the laboratory the rational approach is utilized in the solution of comprehensive design problems.

**309 E. Power Plant Calculations.** Four class hours per week for one term.

This course deals with the calculations involved in the economic selection of such steam plant equipment as boilers, furnaces, chimneys, engines, turbines, condensers, pumps, and other auxiliaries; calculations of hydro-electric and Diesel engine plants and the cost considerations in the design of plants to suit given load conditions.

**310 E. Mechanical Laboratory.** Six hours of laboratory work per week for three terms.

This course familiarizes the student with the commercial operation of power plant equipment

and with the methods of analyzing its performance by studying the results of experiments. All work is in the nature of special problems to be solved experimentally with the power house and laboratory equipment.

**313 E. Seminary and Journal Meeting.** One class hour per week for two terms.

The seminary and journal meeting are conducted by members of the faculty and participated in by senior students. Attention is devoted principally to papers on engineering topics not covered in any other course. Papers on mechanical developments are also presented for discussion. Consideration is given to personnel problems of industry.

**315 E. Materials of Engineering.** Three hours of class work and six hours of laboratory per week for one term.

A study is made of the manufacturing processes and physical properties of such engineering materials as cast iron, wrought iron, carbon and alloy steels, non-ferrous metals and alloys, woods, clay products, limes, cements and concretes. The theory of alloys is given much consideration.

The laboratory work consists of experimental studies on the testing machines of tensile, compressive and bending strengths of various materials used in engineering and the heat treatment of steels, also microphotographic and macrographic studies of metals.

**317 E. Industrial Organization and Contracts.** Four class hours per week for one term.

The first part of the course deals with the principles of industrial organization as applied to productive industries; modern industrial tendencies, forms of ownership, types of organization, the functions of a conventional factory organization and its system for handling orders; storekeeping methods; planning, routing, and scheduling work; shop records and costs; wage payment; betterment plans; safety-first organization; employment methods; burden and depreciation; plant location and arrangement; motion and time studies.

The second part of the course deals with engineering contracts and specifications and with some portions of commercial law.

**321 E. Steam Turbine Calculations.** Four class hours per week for one term.

The topics included are: the conversion of heat energy into velocity and kinetic energy and the application of the principles developed to the design of simple impulse, Rateau, Curtis, and Parsons types of turbines. The materials in use and the proportioning of the turbines are discussed. Consideration is given to the commercial uses and performance of steam turbines and turbo-gears. Condition curves and bleeder calculations are discussed.

**325 E. Production Methods.** Two hours of class work and three hours laboratory per week for one term.

This course deals with a study of the machinery process and organization needed to manufacture a commercial article on a production basis. It involves a study of the design of the article, planning of processes, and selection of manufacturing machinery. Visits will be made to plants near Baltimore to study the processes followed.

**327 E. Heat Generation and Transmission.** Four class hours per week for one term.

Topics included are: the principles of combustion of solid, liquid and gaseous fuels in power and industrial furnaces; heat transmission by conduction, radiation and convection with reference to fluids inside and outside of pipes and to condensation and evaporation; heat transfer apparatus, air conditioning, driers, heating and ventilation of buildings, heat insulation

# Chemical Engineering

Professor EMMETT  
Associate Professor BONILLA  
Dr. WITT

Mr. KUMMER  
Mr. TAYLOR

THE STUDENT who enters upon a course in Chemical Engineering undertakes to prepare himself for a place in chemical industry. His work as a chemical engineer may be in any one of a number of specialized fields. It may consist of designing chemical equipment, operating chemical plants, conducting research work fundamental to some chemical industry, directing the activities of a chemical company as an executive, developing new processes from the laboratory to the full size industrial scale or undertaking any combination of these and similar activities. The industries that are open to the chemical engineer are so numerous as to cover a large portion of our modern industrial structure, including the manufacture and production of gas and petroleum products, coke, paper, iron and steel, alloys, chemicals, dyestuffs, medicinals, food products, fertilizers, natural and artificial textiles, soap, plastics, explosives, rubber goods, paints, lacquers, photographic supplies, and many other products.

The undergraduate course is designed to lay a broad foundation for a career in chemical engineering by combining a fundamental training in chemistry, physics, mathematics, engineering and the principles of chemical engineering. Specialization is deferred to the graduate years.

The chemical engineering unit operation laboratory affords the student a means of testing experimentally the conclusions reached in the class room study of the basic unit operations that are common to most of the chemical engineering processes of industry. Experimental apparatus is available for studying fluid flow, heat transfer, filtration, drying and absorption, distillation, evaporation and grinding.

A detailed outline and description of the various courses that are offered is given on pages 117 to 119.

Graduate work is offered in this department leading to either the master's or doctor's degree. Students with a sufficient and

satisfactory training in chemistry, physics, mathematics, engineering and chemical engineering may enroll to pursue graduate study and to carry on research work. Courses are offered in Advanced Unit Operations, Electrochemistry, Industrial Catalysis, High Pressure Technology, Advanced Chemical Calculations, Applied Chemical Thermodynamics, Industrial Fuels and Combustion. Furthermore, the graduate program is so arranged as to allow the student to select some of his graduate courses in chemistry, in physics, in other branches of engineering, or in any of the other departments offering specialized graduate courses in which he may be interested. A catalog describing the graduate courses will be sent on request.



## Degree Program

FOURTH TERM		Class	Lab.	FIFTH TERM		Class	Lab.
Mathematics 3 Cb.....	5			Strength of Materials AST			
Chemistry 3 C.....	3	9		401 .....	4		
Mechanics AST 401.....	6			Gas & Fuel Analysis 531 E.	3	6	
English 1 Ca.....	3			Materials Testing Labora-			
or				tory AST 401.....		3	
Modern Language a.....	3			Physical Metallurgy AST			
Physical Education.....		4		410 .....	3	2	
Military Science II A (Elec-				Chemistry 2 Ca.....	3		
tive) .....	2	2		English 1 Cb.....	3		
				or			
				Modern Language b.....	3		
				Physical Education.....		4	
				Military Science II B (Elec-			
				tive) .....	2	2	
SIXTH TERM				SEVENTH TERM			
Thermodynamics AST 401.	5			Heat Engines (lectures)			
Mechanical Laboratory AST				305 Eb.....	4		
420 .....		3		Chemistry 50 C.....	4		
Chemistry 2 Cb.....	3			Chemistry 52 C.....	1	6	
Chemistry 21 C.....		6		Chemistry 70Cb.....	4		
Chemistry 70 Ca.....	4			Chemistry 71 C.....		9	
Shop Practices AST 406...		3		Unit Operations 604 Ea....	4		
Mathematics 5 E.....	4			Physical Education.....		4	
Physical Education.....		4					
EIGHTH TERM				NINTH TERM			
Elements of Electrical Engi-				Accounting 1 E.....	4		
neering AST 401.....	4	4		Technical Inorganic Pro-			
Electrical Measurements				cesses 608 E.....	3		
AST 403.....		6		Industrial Chemical Calcu-			
Political Economy 1 E....	4			lations 603 E.....	4		
Unit Operations 604 Eb....	4			English 11 E.....	1		
Chemical Engineering Lab-				Report Meeting 610 E....	1		
oratory 605 Ea.....		6		Research Problem 612 E...		6	
Industrial Chemical Calcu-				Chemical Engineering Lab-			
lations 602 E.....	4			oratory 605 Eb.....		6	
Physical Education.....		4		Plastics Technology 653 E..	1	2	
				Physical Education.....		4	
TENTH TERM				Class Lab.			
Chemical Plan Design 607 E	2	3					
Technical Organic Processes							
609 E.....		3					
English 11 E.....		1					
Report Meeting 610 E....		1					
Industrial Organization 317							
E. ....		4					
Research Problem 612 E....		6					
Chemical Engineering Lab-							
oratory 605 Ec.....		6					
Industrial Electrochemistry							
616 E.....		3					
Physical Education.....		4					

**AST 401. Fluid Mechanics.** Four class hours per week for one term.

This course studies the physical properties of fluids, hydrostatics and flotation, flow of fluids in conduits and around bodies, propagation of sound, and the operation of hydraulic equipment such as pumps, couplings, shock absorbers and aircraft hydraulic equipment.

**602 E. Industrial Chemical Calculations.** Four hours weekly for one term.

Attention is given to the solution of numerous problems involving the application of physical chemistry to industrial aspects of fuels, combustion, gas and chemical production processes.

**603 E. Industrial Chemical Calculations.** Four hours weekly for one term.

This course is continuation of 602 E. Attention is given particularly to the application of reaction velocity and thermodynamic principles to chemical processes.

**604 E. Unit Operations.** Four hours weekly for two terms.

This course deals with certain unit operations basic to chemical and gas engineering, including the flow of fluids, the flow of heat by conduction, convection and radiation, evaporation, distillation, gas absorption, extraction, crushing and grinding, humidification and air conditioning, mechanical separation, and filtration, together with numerous applications of industrial stoichiometry and the study of the economic considerations involved in the selection of equipment for the various unit operations.

**605 E. Chemical Engineering Laboratory.** Six hours laboratory, weekly for three terms.

A laboratory study is made of the operation of the basic types of chemical engineering equipment, special attention being centered on the various unit operations involved.

**607 E. Chemical Plant Design.** Two hours lecture and three hours laboratory, weekly for one term.

The fundamental factors involved in the economic designing of commercial chemical apparatus and plants are discussed in class and applied in an actual plant design.

**608 E. Technical Inorganic Processes.** Three hours weekly for one term.

This is a descriptive study of the various industrial inorganic chemical processes. Special attention is given to materials of construction, flow sheets, chemical reactions, and unit operations involved.

**609 E. Technical Organic Processes.** Three hours weekly for one term.

This is a descriptive study of the various industrial organic chemical processes. Materials of construction, flow sheets, unit operations, and the chemical reactions involved are studied in detail.

**610 E. Report Meeting in Chemical Engineering.** One hour weekly for two terms.

In this course students are assigned topics for individual study and investigation and are required to prepare and present papers covering the assigned subjects.

**611 E. Fluid Mechanics.** Four hours class work and three hours laboratory, weekly for one term.

The class work covers the fundamental principles of flow of gases and liquids, and their applications to problems of producing, controlling and measuring fluid flow; and of determining drag and the effects of streamlining. The laboratory work includes experiments on characteristics of blowers and pumps; resistance to flow of air and water; calibration of orifices, Pitot tubes and other measuring devices; visual methods of analyzing flow; and drag and lift of aerodynamic shapes in a wind tunnel.

**612 E. Research Problems.** Six hours weekly for two terms.

Each student selects an experimental problem in technical chemistry or chemical engineering and attempts to solve it in the course of the school year. The work includes a survey of the literature, planning and setting up of the apparatus, obtaining experimental data, and writing a complete report.

**531 E. Gas and Fuel Analysis.** Three hours class work and six hours laboratory, weekly for one term.

This course is designed to acquaint the student with the more important methods for the laboratory examination of the materials encountered in gas manufacture. Particular emphasis is placed upon the chemical analysis of these materials. Attention is also given to important thermal and physical properties which govern the efficient and economic use of fuels. Students familiarize themselves with the use of calorimeters, various types of gas analysis apparatus, the analysis of coal, typical water conditioning materials, gas purifying material, and with the methods for determining the important properties of oil.

**616 E. Industrial Electrochemistry.** Three hours class weekly for one term.

This is a course in theoretical and industrial electrochemistry, covering electroplating of copper, nickel, chromium, zinc, lead, silver, gold and other less commonly plated metals, electrorefining, electrowinning, treatment of anode slimes, fused electrolytes, alkali and chlorine, hydrogen and oxygen, corrosion, primary and secondary cells, electro-osmosis, and electric furnaces.

**653 E. Plastics Technology.** One hour class work and two hours laboratory per week for one term.

Chemistry of high polymers, and production and testing of molded materials.

## Military Science and Tactics

See announcement on p. 68.

# Holders of State Scholarships in Engineering

1943-1944—June, October, and January Terms

<i>Name</i>	<i>Type</i>	<i>Residence District or County</i>
ALBAN, S. A.	Senatorial	Carroll
ANDRIOTIS, T. M.	Ordinary	Second District
ARNOLD, A. R.	Senatorial	Fifth District
AWALT, R. F.	½ Ordinary	Fifth District
BACHMAN, R. J.	Loyola	
BAKER, W. E.	Ordinary	Baltimore
BALDWIN, T. I.	Ordinary	Anne Arundel
BARON, SEYMOUR	Ordinary	Fourth District
BARTH, WILLIAM	Senatorial	Dorchester
BEARD, V. M.	Ordinary	Carroll
BIRX, D. L.	{ Ordinary Senatorial	Sixth District Sixth District
BITTLE, R. D.	Ordinary	Garrett
BOENNING, W. R.	{ Ordinary Senatorial	First District First District
BOSWORTH, J. R.	Ordinary	Baltimore
BRILL, M. E.	Ordinary	Fourth District
CARLTON, J. D.	Ordinary	Allegany
CICHELLI, M. T.	Loyola	
CIZEK, ERIC	Ordinary	Third District
CLARK, H. B.	At Large	
COBLENTZ, C. H.	{ Ordinary Senatorial	Frederick Frederick
COOPER, J. H.	Ordinary	Fourth District
CRAIG, S. L.	Senatorial	Cecil
CULLER, F. L., JR.	Ordinary	Frederick
DARROW, J. O.	Ordinary	Talbot
DAVIS, D. M., JR.	Senatorial	Garrett
DAWES, T. D.	{ Ordinary Senatorial	Baltimore Baltimore
DODGE, R. A.	Ordinary	Third District
DOYLE, J. F.	Ordinary	Second District
DURNEY, H. A., JR.	½ Ordinary	Fifth District
EBY, ROBERT	Ordinary	Somerset
EICHEMBERGER, T. S.	Ordinary	Third District
EISENBERG, A. A.	At Large	
EVANS, W. E.	Senatorial	Wicomico
FELDMAN, J. J.	½ Ordinary	Third District
FLYNN, R. P.	At Large	

<i>Name</i>	<i>Type</i>	<i>Residence District or County</i>
GERBER, M. L.	Ordinary	Second District
GESER, M. H.	Ordinary	Fourth District
GIBSON, J. W.	Senatorial	Calvert
GLASS, J. S.	½ Ordinary	Third District
GLASSER, E. S.	Ordinary	Fourth District
GLASSMAN, I.	Ordinary	Fourth District
GRAULING, C. H., JR.	Ordinary	Sixth District
GRAY, M. G.	Ordinary	Sixth District
GRAYBEAL, B. A.	Ordinary	Cecil
GROH, A. B.	Ordinary	Worcester
GWYNN, F. B., JR.	Senatorial	Charles
HAACKE, C. D.	{ ½ Ordinary + Sen. Emol.	Third District
HANSON, E. M.	Ordinary	Third District
HARPER, J. T.	Senatorial	Kent
HARTLE, C. K.	{ Ordinary Senatorial	Frederick Frederick
HEINE, M. A.	½ Ordinary	Fifth District
HOFFMAN, H. W.	At Large	
HOLDCRAFT, R. M.	½ Ordinary	Fifth District
HOOK, R. E.	Ordinary	Allegany
HOOVER, D. B.	Ordinary	Baltimore
KAISLER, J. G.	Ordinary	Second District
KATSKI, A. J.	Ordinary	Anne Arundel
KEARNS, J. P., JR.	Senatorial	Fifth District
KEENAN, J. W.	Senatorial	Howard
KLEIN, JACOB	Ordinary	First District
KOHNE, H. F., JR.	Senatorial	Allegany
LAIR, W. M.	Senatorial	First District
LAMBERT, H. R.	Ordinary	Garrett
LEONARD, R. A.	Senatorial	Worcester
LIBIS, C. F.	Senatorial	Caroline
LOREK, A.	Ordinary	Fourth District
MAGNESS, WM.	Ordinary	Howard
MALLIS, M. N.	Ordinary	First District
MALONEY, J. C.	Ordinary	Baltimore
MANLEY, W. L.	Ordinary	Sixth District
MEDIN, A. L.	Ordinary	Sixth District
MICHAEL, R. C.	Ordinary	Frederick
MIDDLEKAMP, L. C.	Ordinary	Allegany
MILLER, G. J., JR.	Loyola	
MOHLHENRICH, G. M.	Ordinary	Baltimore
MORAN, F. J.	Ordinary	Allegany
NEILD, A. B.	Senatorial	Dorchester
O'SHEA, ALBERT	Ordinary	Third District

<i>Name</i>	<i>Type</i>	<i>Residence District or County</i>
PERRY, C. S.	½ Ordinary	Fifth District
PIPKIN, J. E.	Ordinary	First District
REAVES, D. P.	Senatorial	Wicomico
RICHARD, T. C.	{ Ordinary + ½ Sen. Emol.	Caroline
ROGERS, P. B.	{ Ordinary Senatorial	Wicomico Wicomico
ROOP, J. C.	Ordinary	Carroll
ROTHERMEL, C. E.	Senatorial	Cecil
RUBIN, R. J.	{ Senatorial Ordinary	Fourth District Fourth District
SEESE, C. R.	{ Ordinary + ½ Sen. Emol.	Caroline
SHANTY, F.	Senatorial	Sixth District
SHIFLER, R.	{ Ordinary + ½ Sen. Emol.	Washington
SMEAK, C. O., JR.	{ Ordinary + ½ Sen. Emol.	Washington
SMITH, J. F., JR.	½ Ordinary	Third District
SMITH, M. W.	Senatorial	Anne Arundel
SMITH, T. A.	Senatorial	St. Mary's
SMITH, W. B.	Ordinary	Frederick
SNYDER, E. O.	Ordinary	Baltimore
STALEY, L. K.	Ordinary	Harford
STENDER, W. M.	½ Ordinary	Third District
STEWART, W. R.	Ordinary	Frederick
STRAUCH, J. G.	Ordinary	Sixth District.
SUMMERS, C. J.	Ordinary	Fifth District
TENBERG, M. M.	Ordinary	Fifth District
WAGNER, H. B.	Ordinary	Fifth District
WAGNER, W. L.	Ordinary	Carroll
WALLACE, R., JR.	Senatorial	Harford
WARFIELD, R. L., JR.	Ordinary	Frederick
WOOD, D. W.	Ordinary	Allegany
WRIGHT, G. C.	Senatorial	Harford
YATES, H. W.	{ Ordinary + ½ Sen. Emol.	Washington
YOUNG, R.	{ ½ Ordinary Ordinary	Third District Third District
ZEICHNER, E. R.	Ordinary	First District
ZIMMERMAN, M. U., JR.	Senatorial	Talbot

## Appendix

THE SCHOOL of Engineering was established by the Board of Trustees of the University in the year 1912 as a result of a bill passed by the General Assembly of Maryland, January, 1912.

The bill, which follows, was approved by the Governor of the State on April 4, 1912.

### THE TECHNICAL SCHOOL BILL

#### LAWS OF MARYLAND

January Session, 1912, Chapter 90

AN ACT providing for the establishment of scholarships in applied science or advanced technology available to the residents of this State; appropriating to The Johns Hopkins University for this purpose the sum of six hundred thousand dollars, and also the annual sum of fifty thousand dollars; and providing also a bond issue for said appropriation of six hundred thousand dollars.

*Whereas*, it is declared in Article 43 of the Declaration of Rights of this State, that "the Legislature ought to encourage the diffusion of knowledge and virtue, the extension of a judicious system of general education, the promotion of literature, the arts, sciences, agriculture, commerce and manufactures, and the general amelioration of the condition of the people"; and

*Whereas*, in furtherance of the principle so declared it is deemed advisable to extend to the people of this State the opportunities and facilities for education in applied sciences and advanced technology, and free tuition in said courses of study by adequate provision for scholarships for said purposes; and

*Whereas*, by resolution of the House of Delegates and the Senate, special committees were appointed to confer with the Trustees of The Johns Hopkins University for the purpose of determining the advisability of establishing at the University a school or department of applied science and advanced technology, and of providing for free scholarships in the course of study pursued therein; and said committees have favorably reported the plan therefore embodied in this Bill; Therefore,

SECTION 1. Be it enacted by the General Assembly of Maryland that the sum of six hundred thousand dollars is hereby appropriated to The Johns Hopkins University; to be paid to said University on the first day of November, 1912, or as soon thereafter as the proceeds from such sale of the bonds authorized by Section 6 of this Act shall have been received by the State.

SECTION 2. And be it further enacted, that there is hereby appropriated to The Johns Hopkins University the annual sum of fifty thousand dollars, and that the Treasurer of this State be and he is hereby authorized and directed, upon the Warrant of the Comptroller, to pay to The Johns Hopkins

University the sum of fifty thousand dollars annually, accounting from January 1st, 1913.

SECTION 3. And be it further enacted, in order to better subserve the interests of this State, and to offer advantages to the young men of the counties and of Baltimore City not otherwise available to them at present, the said The Johns Hopkins University, in consideration of said appropriations made by the foregoing Sections 1 and 2, shall establish one hundred and twenty-nine (129) scholarships entitling the holders to free tuition in said department of applied science or advanced technology, or in the courses preparatory thereto, which scholarships shall be open to the worthy young men of this State as hereafter set forth.

SECTION 4. And be it further enacted, that said scholarships shall be apportioned or allotted as follows:

First: There is hereby apportioned to the residents of each of the counties of this State and of each of the Legislative Districts of the City of Baltimore a number of said scholarships equal to the representation in or number of Delegates which such County or District may be entitled to elect to the House of Delegates at the time of the passage of this Act. Six scholarships, or scholarships at large, shall be open to the residents of this State, without reference to the County or Legislative District in which they may reside.

Only such deserving young men, whose residence in such County or District shall be bona fide, and whose means are such that they are unable to procure such technical education unless free tuition is granted them, shall be eligible for appointment to such scholarship. Whenever any vacancy shall occur in the scholarships allotted to the residents of any County or Legislative District, such fact shall be advertised by the University in a newspaper published in such County or City, and due notice given of the date, time and place of the examination for said scholarship. The list of candidates who pass the examination shall be prepared and published and their relative standing or order of merit given.

Notice of any vacancy in the scholarships at large shall be given by advertisement published in a newspaper published in the City of Baltimore, and the names of the qualified candidates and the order of their standing or merit shall be similarly published.

None of the scholarships provided for by this Section First shall, however, be awarded by the University to any candidate therefor, unless the Senator from the County or Legislative District in which such applicant resides certifies that his residence in such County or District is bona fide and that his financial circumstances are such that he is unable to procure such education without free tuition as above provided.

Whenever there are several applicants for the same scholarship all eligible under the foregoing requirements and all certified as eligible by the Senator from the County or District as above provided, that then the award of the scholarship by the University shall not be based on the standing or order of merit alone, but the merit and financial circumstances shall be considered together for the purpose of selecting the most deserving of said applicants.

Second: Three of said scholarships are apportioned or allotted to graduates of each of the following colleges: Loyola College, Maryland Agricultural College, Mount St. Mary's College, Rock Hill College, St. John's College, Washington College, Western Maryland College.

The award of scholarships to the graduates of said Colleges shall be made without regard to the ability of the applicants to pay tuition fees, and such award shall be determined solely by the scholastic standing and merit of the applicant as determined and certified by the president or other executive officer of the college of which he may be a graduate.



Third: The original and subsequent awards of scholarships shall be so arranged, so far as their number and the duration of the courses of study permit, that subsequently the same number of original awards as distinguished from renewals or reappointments shall be made each year, and so that such residents of said Counties or Legislative Districts and graduates of said Colleges may at all times hold the number of such scholarships to which they are entitled, and so that the total number of such scholarships so held at one time may as nearly as possible be equal to, but shall not exceed, one hundred and twenty-nine scholarships.

Fourth: The holder of any scholarship hereby provided for shall be entitled to free tuition in any one of the courses in applied science or advanced technology, or the courses preparatory thereto, which may be from time to time established and defined by the University. Appointments to scholarships shall be made for one scholastic year, but the holder of any such scholarship who may in character, industry and ability conform to the standards and requirements of the University shall be entitled to reappointment or renewal of the award at the expiration of each year until the selected course of study shall have been completed; the holder of any scholarship hereby provided for shall be subject to no expense for laboratory fees, library dues, the purchase or use of books or supplies, matriculation and graduation fees, or any expense as a student at said institution.

Nothing herein contained shall in any way impair or affect the control by said University of its operation and of any of the studies pursued therein, or impair or in any way affect the power to fix the standards of scholarship required for admission to the University or for the continued prosecution of studies therein, or the examination or other methods of ascertaining or determining such fitness in scholarship or otherwise, or the power to maintain, prescribe and enforce the discipline, rules and regulations of the University.

Fifth: No distinction shall be made as to the rights and privileges or duties and obligations between the holders of said free scholarships and students who may pay the regular tuition. The holders of said scholarships shall have the same right in the selection of any of the established courses of study in applied science or advanced technology, or courses preparatory thereto, and the same privileges, facilities and service in the pursuit of said studies while in attendance at said University, and shall be equally subject to the same requirements as to scholarship, character and industry, and to the same rules and regulations now or hereafter established by the University both at the time of and in respect of the admission to such courses and during the course of study and the prosecution thereof, as the students who pay the regular tuition fee; provided that one of the scholarships herein provided for or allotted to each of the counties and each of the Legislative Districts of Baltimore City shall be known as a "Full Senatorial Scholarship" and the holder thereof shall be furnished or supplied by the said Johns Hopkins University with board, lodging, heat and light, free of expense, or in lieu thereof, at the election of the said University, be paid the sum of two hundred dollars (\$200) per school year in equal monthly installments, during the session of said University, in advance; and provided further that in awarding said "Full Senatorial Scholarships" the financial ability of the applicant, his parents, or those upon whom he depends for support shall be taken into consideration.

SECTION 5. And be it enacted, in order to provide for facilities especially adapted for the pursuit of said studies in applied science and advanced technology, said The Johns Hopkins University shall construct buildings and provide equipment necessary or appropriate for a department of applied science and advanced technology at a cost of not less than six hundred thousand dollars, said construction, equipment and expenditure shall be made from time to time as the needs of said department may require. It is the

intention with reference to the scholarships awarded to the counties and the City of Baltimore, that the entrance requirements to the technical courses or courses preparatory thereto at The Johns Hopkins University shall begin where the graduating requirements of the approved high schools of this State leave off, or of the Baltimore Polytechnic Institute, and it is further provided that the officials of The Johns Hopkins University shall report to the Board of Public Works in detail as to the expenditure of the appropriation of \$600,000 provided for in this Act.

SECTION 6. And be it enacted, for the purpose of providing funds for the payment of said sum of six hundred thousand dollars, a loan is hereby created to be called the Technical School Loan of 1912, to the amount of six hundred thousand dollars. Said Loan shall bear date September 1st, 1912, and shall be payable as to principal fifteen years after said date, and shall bear interest at the rate of four per cent. per annum, payable on the first days of March and September in each year. Said loan and the bonds or certificates issued as evidence thereof shall be redeemable at par and accrued interest at any time after the expiration of ten years from the date thereof, and on the first day of March or September in such year. Notice of such intention to redeem shall be given by publication four times in some daily newspapers published in the City of Baltimore, the first publication to be made at least sixty days prior to the redemption date. Said loan and every part thereof and the interest payable thereon, and the certificates or evidences thereof shall be and remain exempt from State, County and municipal taxation.

The Governor, Comptroller of the Treasury, and Treasurer, or a majority of them are hereby authorized and directed to have prepared proper bonds or certificates of indebtedness of the State in good and sufficient form, to aggregate the amount of six hundred thousand dollars as evidence of such loans; such bonds or certificates of indebtedness shall bear date September 1st, 1912, and shall not be issued in less sums than one hundred dollars or some multiple thereof, each of said bonds or certificates of indebtedness shall be signed by the Treasurer of the State and countersigned by the Comptroller of the Treasury, and shall bear interest at the rate of four per cent. per annum, payable semi-annually on the first day of March and the first day of September in each year; such portion of said bonds or certificates shall be registered and such portion shall have interest coupons attached thereto, as the Governor, Comptroller of the Treasury and Treasurer, or a majority of them, shall determine.

In order to provide for the selling of the bonds or certificates of indebtedness aforesaid, to be issued under the provision of this Act, the Governor, Comptroller of the Treasury and the Treasurer of this State, or a majority of them, are hereby directed to advertise twice a week for four successive weeks between the first day of August and the fifteenth day of September, 1912, in two newspapers published in the City of Baltimore, that the Treasurer will be ready, at such date prior to September 20, 1912, and at such place or places as may be named in said advertisement, to receive bids for bonds or certificates of indebtedness issued under the provision of this Act, under such regulation as may be made in the discretion of the Governor, Comptroller of the Treasury and Treasurer, or a majority of them, and the accrued interest between the date of the bonds or certificates and the time of sale and delivery of any payment for said bonds or certificates shall be adjusted with the purchaser thereof under such regulations as may be made in the discretion of the Governor, Comptroller of the Treasury and Treasurer, or a majority of them; and upon the day mentioned in said advertisement as the day for opening the bids for the proposals thereby called for, they shall receive such sealed proposals for the purchase of the bonds or certificates of indebtedness designated in said advertisement; and on the opening of such sealed proposals, as many of said bonds or certificates of indebtedness as have been so bid for shall be awarded by the Governor, Comptroller

of the Treasury and Treasurer, or a majority of them, to the highest responsible bidder or bidders therefor for cash if the prices are adequate, in the judgment of the Governor, Comptroller and Treasurer or a majority of them; and when two or more bidders have made the same bid, and such bid is the highest and the bonds or certificates so bid for by the highest responsible bidders are in excess of the whole amount of the bonds or certificates so offered for sale, such bonds or certificates of indebtedness shall be awarded such highest responsible bidders bidding the same price in a ratable proportion. In case for any reason said advertisement for bids shall not be made at the time hereinbefore specifically provided, then the Governor, Comptroller of the Treasury and Treasurer, or a majority of them, shall as promptly as conveniently possible fix some other time for the publication of said advertisement and some other date for the receipt of bids, and shall give notice thereof by advertisement published twice a week for four successive weeks in two newspapers published in the City of Baltimore as above provided. In case any of said bonds or certificates so offered for sale are not bid for, or if any insufficient price be bid for them, they may be subsequently disposed of under the direction of the Governor, Comptroller of the Treasury and Treasurer, or a majority of them, at private sale upon the best terms they can obtain for the same; provided they shall not be sold at private sale for less than par and accrued interest.

The County Commissioners of this State and the Mayor and City Council of Baltimore are directed to levy the State taxes for the year 1913, and annually thereafter, at the rate of  $\frac{3}{4}$  of one per cent. on each one hundred dollars of assessable property, until the principal and interest of said bonds or certificates shall have been paid, to be collected according to law, to meet the interest and create a sinking fund for the redemption of said loan.

SECTION 7. And be it further enacted that this Act shall take effect from date of passage.

Approved April 4, 1912.

P. L. GOLDSBOROUGH,  
*Governor.*

JESSE D. PRICE,  
*President of the Senate.*

[SEAL]

JAMES MCC. TRIPPE,  
*Speaker of the House of Delegates.*

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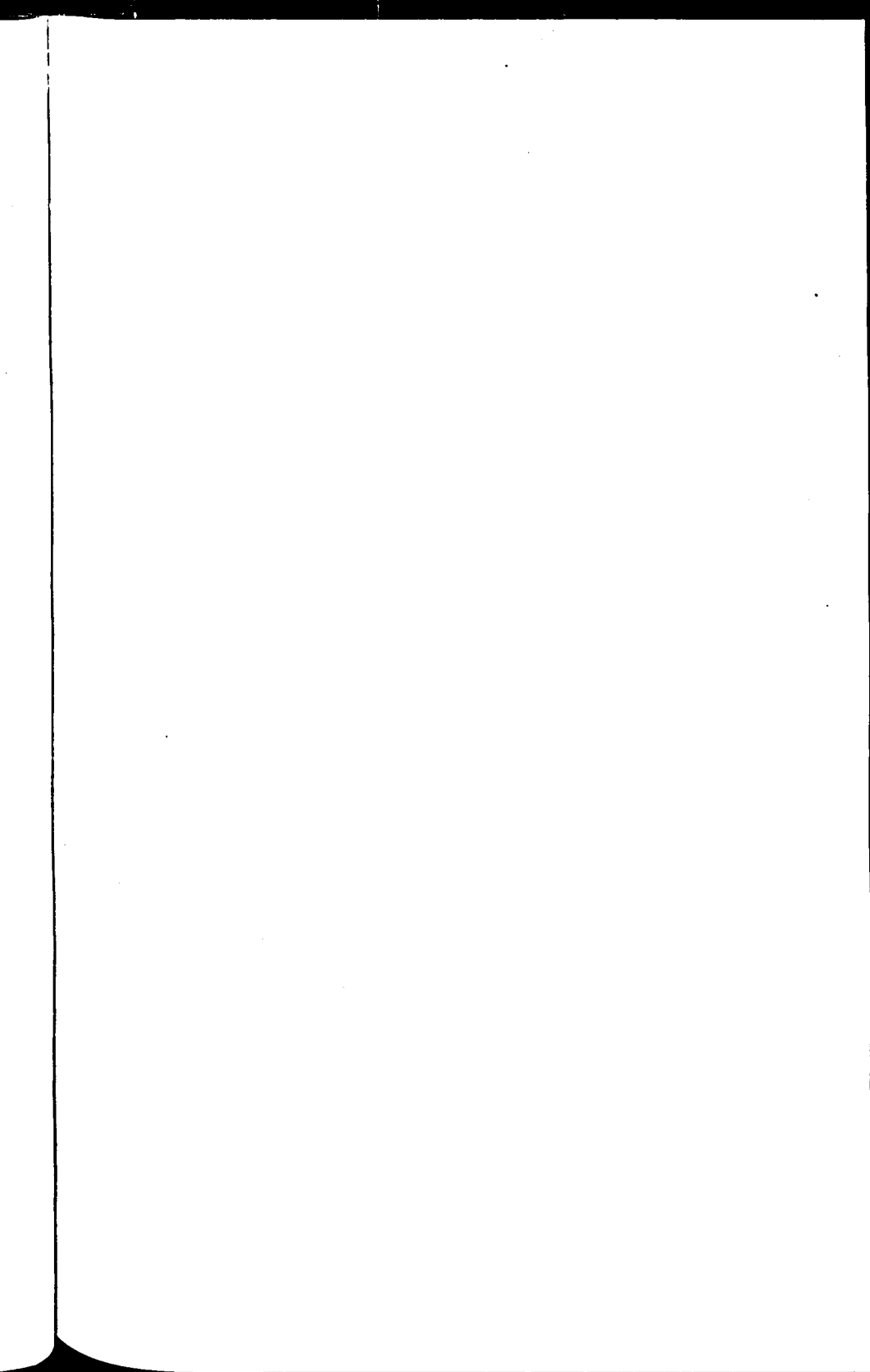
The Board of Trustees of the University, at their meeting on May 6, 1912, adopted the following resolutions and thereby established the School:

*Resolved*, That The Johns Hopkins University hereby accepts the offer of the State of Maryland to The Johns Hopkins University of six hundred thousand dollars and an annual sum of fifty thousand dollars, in consideration of the establishment of the scholarships provided in said Act, and agrees on its part to carry out the terms of said Act.

*Resolved*, That the Board of Trustees of the University record its appreciation of the action of the State of Maryland, in the passage of the legislation referred to, and the earnest desire and intent of the Board to coöperate with the State to secure the best results for the young men of the State, whose educational welfare will be committed to the University under the terms of the Act.

*Resolved*, That a copy of these Resolutions be forwarded to the Governor, the President of the Senate, and the Speaker of the House of Delegates.

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# THE JOHNS HOPKINS UNIVERSITY

BALTIMORE

FOUNDED 1876

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Issues of the Johns Hopkins University Circular are published  
under the following titles:

SCHOOL OF HIGHER STUDIES  
OF THE

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CATALOGUE NUMBER OF

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THE SCHOOL OF ENGINEERING

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DEGREES A. B., B. E., B. S. IN ECON.

(Engineering open to Men and Women,  
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SUMMER SESSION

COLLEGE FOR TEACHERS

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(Open to Men and Women)

---

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---

REPORT OF THE PRESIDENT

New Series, 1944  
No. 3

Whole Number 549

THE  
JOHNS HOPKINS  
UNIVERSITY CIRCULAR

APRIL, 1944

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SUMMER SESSION  
COLLEGE FOR TEACHERS  
CATALOGUE NUMBER  
JUNE 26—AUGUST 5  
1944

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BALTIMORE 18, MARYLAND  
PUBLISHED BY THE UNIVERSITY  
APRIL, 1944

## CALENDAR, 1944

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### College for Teachers, Summer Session (six weeks).


- June 19-24, 9 a. m. to 4 p. m., daily (Saturday, 9 a. m. to 1 p. m.)—Registration, Remsen Hall, Homewood.
- June 26            Monday; Opening of the Summer Session.
- August 5           Saturday; Close of Summer Session.

### College of Arts and Sciences, Summer Term (twelve weeks).

- July 10            Monday; Opening of Summer Term.
- September 30    Saturday; Close of Summer Term.
- October 9           Monday; Sixty-ninth regular session begins.
- October 9           Monday; College for Teachers, thirty-sixth year begins.
- October 9           Monday; Night Courses in Technology, twenty-ninth year begins.
- October 9           Monday; Evening Courses in Business Economics, twenty-ninth year begins.

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All work in the Summer Session will begin promptly on Monday morning, June 26. It is important that students should reach Baltimore in time to be present at the opening exercises of each course which they intend to pursue.

 Registration should be made prior to June 23. It may be made, in advance, by mail prior to June 17; after this date in person only (see page 6).

THE JOHNS HOPKINS UNIVERSITY CIRCULAR

ISSUED MONTHLY, FEBRUARY TO JULY, AND NOVEMBER.

Entered October 21, 1903, at Baltimore, Md., as second-class matter, under Act of Congress of July 16, 1894

THE JOHNS HOPKINS UNIVERSITY

SUMMER SESSION

1944

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SUMMER SESSION

*College for Teachers*

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DAVID E. WEGLEIN, PH. D. Associate Professor of Education; Superintendent of Public Instruction, Baltimore.	<i>Education</i>

### HOMWOOD DEMONSTRATION SCHOOL

School No. 44, Harford Road and 32nd Street

EDITH V. WALKER, M. ED., Principal

#### *Junior High School*

MRS. KATHERINE S. STRITEHOFF, A. B.	Science
KATHLEEN POWERS, M. A.	English
MARY N. VICKERS, A. B.	English
DOROTHY HUTH, A. B.	Mathematics
ISADORE H. MILLER, B. S.	Geography
LOUISE E. HOCK, A. B.	History

#### *Elementary School*

MRS. MARIE SCHMUCK	Grade 6
VIRGINIA WHITE, B. S.	Grade 5
MARGARET LANGENFELDER	Grade 4
BERTHA GOODMAN	Grade 3
HELEN KNOX	Grade 2
ELIZABETH HARTJE	Grade 1

## GENERAL STATEMENT

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The Summer Session of the Johns Hopkins University has been authorized by the Board of Trustees and forms an integral part of the work of the University.

The thirty-fourth Summer Session opens on Monday, June 26, and continues until Saturday, August 5, inclusive. Instruction in each subject is given daily from Monday to Friday according to the schedule of courses, unless otherwise specified in the statement of certain courses. The usual standard of instruction is maintained.

### SELECTION OF COURSES

Candidates for the degree of Bachelor of Science should consult with the Director of the College for Teachers.

Special advisers are assigned to those students who are majoring in Education or who are principally interested in teaching.

Students seeking credit that will enable them to meet in part or in full the requirements of state or city certificates should select their academic and professional courses in accordance with the regulations in force under the Board of Education or Examiners to whom their record will be submitted for acceptance.

### ACADEMIC CREDIT

Graduate courses, leading to the degrees of Master of Arts and Master of Education, are credited by the respective departments in accordance with the rulings of the Board of University Studies and of the Committee on the Degrees of Master of Education and Doctor of Education. For further information concerning the requirement of one year of residence or its equivalent in part-time work accumulated within five calendar years for the Master of Arts and Master of Education degrees, see the Circular of the School of Higher Studies of the Faculty of Philosophy.

Undergraduate students receive credit for satisfactory completion of those courses designated as U. A course of one hour daily, recitation or lecture, during the session is credited with two points. If the course includes laboratory work, two or three hours of laboratory work daily during the session is credited with two points. In certain specified courses more credit is allowed because of the peculiar nature of the courses. *Exceptional students, who give promise of making an A for a course, may be assigned extra work beyond the regular requirements of the course, for which, after the A has been achieved, they may receive one point extra credit. This additional work must be completed during the Summer Session.* Candidates for the degree of Bachelor of Science at this University may receive total credits of not more than nine points in one Summer Session.

The scale of marks for official reports is A, B, C, D, and F. *In order to receive credit students must complete all work offered for such credit during the Summer Session.* In exceptional cases and with the consent of the Director, instructors may report the symbol I, meaning incomplete, for students who for some extreme circumstances, such as illness, have not quite absolved the courses. *This mark, however, must be changed within a week*

*after the close of the session. Otherwise no credit may be received, nor may the time be extended and the I automatically becomes an F. If a student has not taken the examination, he is reported as "no credit" and not as failed.*

Students not matriculated in the University receive upon request, certificates indicating the amount of work satisfactorily accomplished. These certificates indicate the quality and value of the completed courses and are accepted by State, County, and City Superintendents, and Boards of Examiners for the extension or renewal of teachers' certificates and for credits for salary increment according to law.

#### ADMISSION AND ATTENDANCE

There are no formal examinations for admission. Students, both men and women, who wish to pursue courses for their cultural and professional growth as well as those working for an academic degree, may be admitted to such courses as the respective instructors consider them qualified to pursue with advantage. *Admission to specific courses is determined solely by the instructors giving such courses.*

All classes begin promptly on June 26, carrying out the schedule provided on page 3 of the cover. The Registrar's office (19 Remsen Hall) is open for registration daily from Monday, June 19, from 9 a. m. to 4 p. m. (Saturday, 9 a. m. to 1 p. m.). After June 26, admission to each course is restricted to registered students. Students may make changes in their courses, which must be reported *in person* to the Registrar's office, up to and including June 27. After this date any change of courses in which students have registered may be made only upon payment of an additional fee of two dollars (\$2.00).

All fees, including both tuition and special laboratory fees, *must* be paid at the Treasurer's office *immediately* as an item of registration. *Attention is called to the fee of three dollars (\$3.00) for the privilege of registration after June 26 and of two dollars (\$2.00) for the privilege of any change of courses after June 27.*

All special arrangements concerning fees must be made with the Treasurer's office.

#### LOCATION

The summer session is held in the buildings of the University at Homewood, a tract of approximately one hundred acres in the northern part of Baltimore. Entrances are on North Charles Street at 32nd and 34th Streets. Footpath entrances are through Wyman Park, which lies on the southern and western sides of the grounds.

Homewood may be reached from Camden Station (B. & O.) by the St. Paul Street trolley (No. 17); one should alight at 31st Street, walk one block west, and enter the grounds at 32nd Street. From Mount Royal Station (B. & O.) one walks two blocks east to Charles Street and takes the trolley (No. 29) to 32nd or 34th Street. From Pennsylvania Station one takes the trolley (No. 29) to 32nd or 34th Street.

#### EXPENSES

The enrollment fee of three dollars (\$3.00) is payable by each student each summer. *This fee must be paid immediately and is never refunded.*

The regular tuition fee is forty dollars (\$40.00), payment of which entitles the student to attend as many as three *single* courses or their

equivalent. An additional course, with the exceptions noted in the statements of certain courses, may be attended upon the payment of an extra fee of seventeen dollars (\$17.00). A number of departments offer *double* courses which students should note in planning their schedules and in determining tuition fees. The tuition fee for a *single* course is twenty-five dollars (\$25.00), unless otherwise noted in the statement of any particular course.

The tuition fee for all officers and teachers employed in public schools in Maryland (including Baltimore City and the counties), as evidenced by superintendents' certificates, is twenty-seven dollars (\$27.00), payment of which entitles such persons to register in as many as three *single* courses or their equivalent. This special tuition fee is available also to prospective teachers whose appointment is officially certified to the Director not later than July 15. It is not available to teachers withdrawing from service in Maryland after June 1, or not under appointment by July 15.

Students failing to attend regularly the courses in which they have registered are subject to the payment of the full fee.

*Failure to register and pay tuition and laboratory fees before the close of June 26 will entail an additional fee of three dollars (\$3.00).*

*After June 27 any change of courses in which students have registered may be made only on payment of an additional fee of two dollars (\$2.00).*

Registration, which includes payment of all fees, should be made in person or by mail in advance of the opening of the session. Students desiring to register by mail may first obtain from the Registrar's office, upon request, a registration card, which is to be returned accompanied by remittance of the exact amount of tuition and other charges. Registration by mail will be received up to and including June 17; after this date, in person only, at the University.

A deposit fee of ten dollars (\$10.00) grants to students who desire, the privilege of borrowing books (non-reserved) from the library for the usual period of two weeks. This amount is returned at the end of the session if there are no charges incurred in the meanwhile.

Additional fees are required for materials used in some of the courses; for details, see statement of courses.

*No remission of fees is granted for withdrawals after July 1 except under very unusual circumstances. If such remission is granted, students are charged full tuition for any week they have begun.*

It is assumed that students, in registering, accept all regulations as herein stated.

Checks are received in payment of fees when drawn to the order of The Johns Hopkins University. For the convenience of students while in residence at the University, the Treasurer receives out-of-town checks and drafts for payment upon collection. There is no charge for this service.

#### BOARD AND LODGING

Alumni Memorial Hall, the residence hall of the University, is open for occupancy by men and women students in the Summer Session. Rooms are furnished with all essentials with the exception of towels. Each occupant supplies his own. The room rate is \$36.00 per person, not per suite, for the six weeks and includes light, service, and laundry of bed linens. It

does not include meals since no meals are served to civilian students in the dormitory. It is hoped, however, that the cafeteria on the campus will be open for students. Meals may be obtained in the dining rooms of the apartment houses directly opposite the campus and in the restaurants in close proximity to the University.

Rooms are reserved in order of application and upon payment of a deposit fee of \$5.00. This deposit is forfeited if reservation is cancelled after June 15, and if room is not claimed in person before two p.m. on Tuesday, June 27.

Application for room reservation should be made to the Executive Secretary of the College for Teachers.

A list of rooming and boarding houses in the vicinity of the University is available.

#### RECITALS

Students are invited to the recitals which are given at the Peabody Conservatory of Music every Sunday evening in connection with the summer session of the Conservatory.

#### THE UNIVERSITY POSTOFFICE AND BOOKSTORE

The University postoffice, in the basement of Gilman Hall, is open during the summer session. Students may have their mail addressed in care of The Johns Hopkins University. Boxes may be rented for the session upon payment of a fee of twenty-five cents.

The bookstore of the Johns Hopkins Press (120 Gilman Hall) is open daily and will supply instructors and students with textbooks, stationery, and other materials at list prices.

#### BUREAU OF APPOINTMENTS

The University Bureau of Appointments in the Registrar's office extends its services *gratis* to students registered in the Summer Session. These services include assistance in placing students in academic and non-academic positions.

#### WASHINGTON

Washington, but forty miles distant from Baltimore, affords students opportunities for sightseeing and for work in the Folger Library or the Library of Congress.

#### GILMAN LOUNGE

An attractive room on the ground floor of Gilman Hall has been furnished for the use of women students.

## COURSES OF INSTRUCTION

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The University reserves the right to withdraw any of these courses if the registration is below ten.

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Courses are numerically marked.

*S* or *TS* after the numeral indicates the courses offered in the Summer Session of the College for Teachers.

*C* after the numeral indicates the courses offered in the Summer Term of the College of Arts and Sciences. The Summer Term extends from July 10 to September 30, and includes courses in Biology, Chemistry, English, Foreign Languages, History, Philosophy, Physics, Political Economy, and Political Science. Qualified matriculated students in the Summer Session are permitted to register for two courses in the Summer Term of the College of Arts and Sciences and one in the Summer Session. Circulars will be sent on request.

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The letters *U* or *G* which, in the descriptive statements appear just before the scheduled time, signify the kind of credit allotted. *U* signifies collegiate credit, *G* credit toward an advanced degree. In a few courses, marked *G* and *U*, students may receive credit toward an advanced degree upon completion of work of an advanced nature. In no case is credit toward an advanced degree permitted in courses marked *U* only, except by special permission of the department concerned.

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Arrangements for additional courses not included in the program may be made. Application for such courses should be made to the Director.

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Consult bulletin boards in all buildings for room schedule.

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### BIOLOGY

1S. General Biology. Associate Professor GLASS. *U* Lectures, 9.00 a. m. and 1.00 p. m.; laboratory, 10.00-12.00 m. and 2.00-4.00 p. m.

Representatives of the plant and animal kingdoms (including man) are studied in order to introduce the fundamental principles pertaining to their form, functioning, development, heredity, evolution, and ecology. Field work is included in the course.

Laboratory fee: \$3.00.

All students are expected to furnish their own dissecting sets, slides, cover glasses, and razor blades.

The satisfactory completion of this course meets the requirement of a course in science for the degree of Bachelor of Science.

NOTE.—In the arrangement of programs and determination of fees, students should note that Biology 1S is equivalent to a *double* course in the Summer Session. Students are advised to take the whole course in one session, but in exceptional circumstances may be admitted to the first three weeks of the course in one year and to the second half of the course in a subsequent year.

**3C.\* Comparative Anatomy of Vertebrates. Dr. RIS and assistants.**

A one term course. Lecture-recitation and laboratory periods to be arranged.

A study is made of representative chordate types with laboratory dissections demonstrating the comparative morphology and evolution of the various organ systems.

Prerequisite: Biology 1S or equivalent.

**CHEMISTRY \*****1Ca. Chemical Fundamentals. Dr. BAXTER or Dr. HALVERSON. A two term course beginning in the Summer Term. Lectures and recitations three hours weekly and laboratory three hours weekly.**

No previous knowledge of chemistry is required for this course. The work covers the general principles of chemistry, the descriptive chemistry of the most common elements and inorganic compounds, and an elementary consideration of the relations between the structures of compounds and their properties. It is recommended that if Mathematics 1C (Trigonometry; Analytic Geometry; Calculus) or Mathematics 2C (Analytic Geometry; Calculus) has not been taken previously, one of them be taken concurrently.

**3C. Quantitative Analysis. A one term course. Lectures and recitations three hours weekly and laboratory six or nine hours weekly.**

Training is given in the basic techniques of gravimetric and volumetric analysis. Advanced practice in stoichiometric calculations is also given.

Prerequisite: Chemistry 1C.

**70C. General Physical Chemistry. Professor PATRICK. A two term course beginning in the Summer Term. Lectures and recitations four hours weekly.**

A general survey is made of physical chemistry including chemical thermodynamics for students specializing in chemistry and chemical engineering. A knowledge of differential and integral calculus is assumed.

Prerequisites: Mathematics 3C and Physics 1C.

**HOMEWOOD DEMONSTRATION AND OBSERVATION SCHOOL**

The Homewood Demonstration School will be held at Public School No. 44, Harford Road and 32nd Street.

The Demonstration School is conducted in cooperation with the public school officials of Baltimore, and pupils successfully completing the work in the School are given an opportunity to secure promotion in the City schools at the beginning of the next school year. The program and schedule have been planned jointly by Mr. William R. Flowers, Assistant Superintendent of Public Instruction, Baltimore, and the Education Department of the Johns Hopkins University. It consists of all grades in the elementary and junior high schools. The teachers have been selected because of their skill and ability in handling the grades to which they have been assigned. In the elementary grades each class is presided over by one of these teachers and the work in the junior high grades is in the hands of subject matter specialists in English, mathematics, social studies, and science. The School is open to students for observation on Tuesday, June 27.

\* These courses are offered in the Summer Term of the College of Arts and Sciences.



## EDUCATION \*

56PS. School Administration. III. Associate Professor WEGLEIN.  
G 9.00

This course includes a treatment of topics, such as the following: classification, progress, and promotion of pupils; organization of special classes; selection and distribution of textbooks; measuring results of teaching; operation of school buildings; school records and reports; school attendance; improvement of teachers; health education; extra-curricular activities; relation of schools to other social agencies.

## 51PS. Supervision of Schools. Professor BAMBERGER. G and U 10.00

An analysis of current practices in supervision together with an examination of significant investigations and surveys in the field of both secondary and elementary supervision is undertaken. Each graduate member of the class selects, in accordance with his interests and needs, a special problem for detailed investigation.

31PS.A. Modern Psychological Theories in Education. Dr. DICE.  
G 11.00

Consideration is given to those theories which have been thought useful in the explanation of educational data.

1TS.A. Educational Psychology: Introductory Course. Dr. DICE.  
U 12.00

This course is the first half of the required course given in the regular session. It includes an examination of the nature of educational achievement, of the abilities underlying achievement, and of the conditions necessary for efficient learning.

NOTE.—For a course in Psychology of Adolescence, see Education 9TS.A.

## 2TS.B. Philosophy of Education. Professor BAMBERGER. U 8.00

This is the second half of the required course given in the regular session and serves as a philosophical approach to some of the major problems concerning education.

## 3TS.A. The History of Education. Dr. TATUM. U 9.00

The history of education in the western world is presented through a series of significant units. Those salient ideas and movements of the past which have influenced modern education from primitive times through the Protestant Reformation are stressed. The relation of education to changing political, economic, and social conditions is studied. Special emphasis is placed upon the contributions to educational theory and practice of such leaders as Plato, Aristotle, Cicero, Quintilian, Abelard, Erasmus, and Calvin.

NOTE.—This is the equivalent of the first half of the course in the History of Education given during the regular session.

## 3TS.B. The History of Education. Dr. TATUM. U 10.00

This course traces educational development from the seventeenth century to the present, devoting special consideration to American education. Particular emphasis is directed to the contributions of such leaders as Locke, Comenius, Rousseau, Pestalozzi, Barnard, Herbart, and Thorndike.

NOTE.—This is the equivalent of the second half of the course in the History of Education given during the regular session.

12TS. Educational Tests and Measurements: Introductory Course.  
Dr. McMAHON. U 11.00

The more important group tests for measuring pupil adjustment are studied with a view to understanding principles of selection. Practice in giving and scoring tests is provided, together with sufficient elementary statistics to permit students to tabulate, analyze, and interpret results. Each student is expected to administer a testing program to a group of pupils.

NOTE.—Education 12TS combined with 111TS or 91TS or 21TS.A or B fulfills the requirement of a survey course in Education for the Bachelor of Science degree.

\*In order to facilitate the plans of candidates for advanced degrees, the Department of Education will arrange committee meetings for those students who are working on their dissertations during the summer session.

**6TS. Personality and Character in Education. Dr. McMAHON. G and U 10.00**

An analysis and evaluation of the principles involved in character and personality measurements are made and surveys of recent experimentation in the field of character education are examined.

**15TS. Reading Clinic. Dr. DICE. G and U 9.00**

The incidence of reading disability, its causes and theories are presented. Methods of remedial treatment as determined by the results of diagnosis are studied. Each student is responsible for carrying on an actual case study under the guidance of the instructor.

*The Harvard Films for the Improvement of Reading* will be demonstrated and applied to certain cases.

This clinic course is open to teachers of the elementary, junior and senior high school grades. Laboratory fee: \$1.50.

**17TS. Audio-Visual Aids to Instruction. Dr. HARTLEY. G and U M. and W., 2.30-3.20 p. m.; Tu. and Th., 2.30-3.45 p. m.**

Methods for vitalizing the various school subjects through the use of pictures, slides, filmstrips, maps, charts, school journeys, realia, motion pictures, radio, records and transcriptions are discussed, together with practical applications. Experience is afforded in the location of materials, operation of apparatus, preparation of pupil and teacher-made aids, and actual presentation of concrete materials. Individual assignments in relation to unique problems are arranged.

Material fee: \$2.00.

NOTE.—For additional information concerning the materials of audio-visual education in geography, see Education 75S, Workshop in the Teaching of Geography.

For a course in audio aids in the teaching of music see Music 1S, Audio Aids in Music Appreciation.

**111TS. The Secondary School: Current Problems in Secondary Education. Associate Professor WEGLEIN. G 10.00**

This course treats of the present-day administrative problems of secondary schools, including such topics as classification of pupils, provision for individual differences, curricula and courses of study, methods of teaching, extra-curricular activities, the measurement of results, educational and vocational guidance, and the relation of senior to junior high schools.

NOTE.—Education 111TS combined with Education 12TS fulfills the requirement of a survey course in Education for the Bachelor of Science degree.

**121TS. The Teacher in the Modern Secondary School. Dr. HAWKINS. G and U 11.00**

The philosophy and program of the modern high school from the viewpoint of the classroom teacher is studied. It includes the purposes of secondary education, characteristics of adolescents, types of high school programs, instructional techniques on the high school level, importance of pupil guidance, evaluation of the school's effectiveness, the individual teacher's part in the school's development, and probable future trends in American secondary education.

**9TS.A. Educational Psychology: Understanding the Adolescent. Dr. HAWKINS. G and U 9.00**

A study is made of the "teen-age" boys and girls, including their physical, intellectual, and emotional development; their personal and social adjustment; home, the school, and the community; the importance of physical and mental hygiene; implications for secondary education and guidance programs.

**93TS. Methods of Teaching History in Secondary School. G and U 8.00**

**A. THE JUNIOR HIGH SCHOOL.**

**B. THE SENIOR HIGH SCHOOL.**

These practical courses emphasize teaching organization and materials at the respective grade levels. They trace the development and consider the aims, present tendencies, and suggested programs of the social sciences in relation to the general aims of instruction. They provide opportunities for teachers to examine such materials as textbooks, collateral readings, and visual aids, and to familiarize themselves with standard reference works, professional periodicals, and other literature in their field. Assignments in construction of lesson plans, objective tests, and in evaluation of textbooks are arranged with special reference to individual interests.

**131TS. Methods of Teaching English in the Senior High School. Dr. TAYLOR. G and U 11.00**

This course acquaints students with the recognized methods on the high school level of teaching the various phases of English. A study is also made of the selection of materials for the teaching of literature and composition; the methods of providing for individual differences, interests, and capacities; and the responsibility of the secondary school in developing proper habits of reading and study. Attendance at several lessons given in the demonstration school is required.

**91TS. The Theory of the Junior High School. Dr. TAYLOR. U 12.00**

This course surveys junior high school theory and practice in regard to its historical development, aims and special functions, pupil personnel, curriculum, guidance services, articulation with other school units, extra-curriculum, and general teaching methods.

NOTE.—Education 91TS combined with 12TS fulfills the requirement of a survey course in Education for the Bachelor of Science degree.

**95TS. Methods of Teaching English in the Junior High School. Dr. TAYLOR. G and U 11.00**

This course presents desirable methods of teaching the various phases of junior high school English including literature, oral and written expression, and functional grammar. Attention is also given to such topics as the trends in the selection and presentation of literature in the junior high school, differences and abilities of pupils in composition and literature, the needs of backward and accelerated pupils, and cultivation of proper habits of reading and study. Attendance at several lessons given in the demonstration school is also required.

**102TS. Methods of Teaching Geography in the Junior High School. Miss SMUCK. G and U 11.00**

A critical evaluation is made of the selection, organization, and teaching techniques of geography in the modern junior high school program to meet new conditions caused by the war. A comparative study is made of the structure of typical geography units as they have been worked out in representative junior high school systems. Considerable attention is given to the presentation of geographic materials through visual aids and sensory techniques.

**23TS. Recent Research Studies in Elementary Education. Dr. McMAHON. G and U 8.00**

Reviews are made of important investigations and research in relation to curriculum development on the elementary school level. Analyses of their contributions to and implications for education are made.

**21TS.A. A Survey of Elementary Education: Curriculum of the Elementary School. Miss ADAMS. U 11.00**

The function of the curriculum in terms of the learner on the elementary level is the basic point of departure. Attention is given to the problem of the selection and organization of subject matter so as to develop the kind of individual and the type of society thought desirable. Distinctive types of curriculum planning are considered in relation to the learners' needs.

NOTE.—Education 21TS.A combined with Education 12TS fulfills the requirement of a survey course in Education for the Bachelor of Science degree.

**21TS.B. A Survey of Elementary Education: Modern Types of Teaching in Elementary School. Miss ADAMS. U 12.00**

The contrast between the traditional assignment-study-recite-test organization and the modern experience-type and functional-unit procedures is critically discussed. Attention is given to new objectives and methods of evaluation. The selection, organization, and production of pertinent teaching materials for use in the classroom together with a study of the best practices found in various localities of the United States is undertaken.

NOTE.—Education 21TS.B combined with Education 12TS fulfills the requirement of a survey course in Education for the Bachelor of Science degree.

*The Demonstration School*

**32TS. A Study of the General Principles of Education through Analysis of Demonstration Lessons. Professor BAMBERGER. G and U 11.00**

This course attempts to unite theory and practice. A series of planned observations, in

which students work out outlines of subject matter, methodology, and appraisal to be used by the teachers giving the demonstration lessons, is followed by discussion of the general principles underlying observed practice.

This course is designed to meet the needs of principals, vice-principals, supervisors, and practice teachers in their supervisory activities, as well as those of classroom teachers.

An additional credit may be earned by the completion of additional observations and reports.

#### A. IN THE ELEMENTARY GRADES.

#### B. IN THE JUNIOR HIGH GRADES.

Individual students interested in specific subjects for the junior high school, departmental, or platoon schools may be assigned a series of observations and readings for intensive work in their preferred field.

### Note.—Observations in Special Subjects in the Junior High Grades of the Demonstration School.

For observation in the Homewood Demonstration School in connection with special subjects taught in the junior high grades, students must register in the courses given by the instructors of the special subjects. An extra credit of one point for this work may be obtained by meeting the following requirements: a minimum of ten observations between June 27 and August 3; notebooks; records; written reports; and attendance upon at least one conference weekly held by the instructors in the special methods courses. Those students registered in Education 32TS may not duplicate observation periods.

It is important that students complete the arrangements for this work with the instructors before June 27.

No student is allowed to make the above arrangement in connection with more than one course.

### Workshops

#### 75S. Workshop in the Teaching of Geography. G and U 2.00-3.50

The workshop deals with methods and materials in the teaching of geography. A collection of the newest and best materials are a feature.

Individual problems of students in the teaching of geography are studied. Teachers having similar problems work in groups. Much opportunity for discussion and for organization of materials for teaching are given in small groups, in class sessions, and in individual conferences.

Groups in the elementary, junior and senior high areas will be formed as needed.

Members of the Geography Department will assist in the discussion of subject matter.

Note.—In the arrangement of programs and determination of fees, students should note that Education 75S is a *double* course.

For a course in Audio-visual Aids to Instruction, see Education 17TS.

#### 76S. Workshop in Early Childhood Education. Miss COOPER and Consultants: Mrs. AGNES B. PARK and Mrs. SADIE D. GINSBERG. G and U Lectures, Tu. and Th., 8.00; observation and participation, three hours daily, M., W., and F.

This course is based on observation and participation in nursery school and includes a discussion of the psychological theories underlying pre-school education. Arrangements are made for a study of library material and puppetry suitable for pre-school children. Additional time is required for this.

The opening lecture on "The Role of Nursery Education in a Democracy" will be given on Monday, June 26.

Note.—In the arrangement of programs and determination of fees, students should note that Education 76S is a *double* course. Satisfactory completion of this will carry six points credit. Laboratory fee: \$1.00.

### Educational and Vocational Guidance

#### 161TS.A. Principles and Practice of Educational and Vocational Guidance. Miss BUCHWALD. G and U 9.00

This course is designed for those interested or engaged in educational and vocational guidance in the various units of a school system, in social agencies, or other organizations dealing with this problem. It surveys the guidance movement, guidance programs, and guidance techniques. It includes a study of methods of guidance and counseling; the use of objective tests in guidance; guidance measures and records; individual adjustment, placement, and follow-up.

**161TS.C. Occupational Information and Group Guidance. Miss BUCHWALD. G and U 10.00**

The purpose of this course is to assist counselors, advisers, and teachers of occupations in securing an overview of the organization of and trends in modern occupational life; to suggest procedures for securing, evaluating, and presenting occupational information; and to study courses of study and methods to be used in the class in occupations or in group guidance. The changes in occupations and occupational life due to the war are stressed.

**INSTITUTE ON PROFESSIONAL AND PUBLIC RELATIONS**

An Institute on Professional and Public Relations sponsored by The Johns Hopkins University, the National Education Association, the State Teachers' Association, and various local associations will be held on the campus.

"The Teacher's Role in the Development of Education—Next Steps" will be the general theme. Such topics as "The Teacher's Role in Promoting Constructive Legislation," "The Teacher's Role in the Future Supply of Teachers," and the like will be discussed.

Dr. Earle T. Hawkins, Supervisor of High Schools, State Department of Education, Maryland, will be the leader.

Place: The Johns Hopkins University, Gilman Hall.

Time: To be announced.

**SPECIAL METHODS COURSES**

A minimum of ten registrants is required.

The following methods courses at the various levels of instruction are offered under the above condition. In order that these courses may be organized promptly at the beginning of the Summer Session, interested students are urged to communicate with the Director, as soon as possible, indicating by title the course desired and sending their names and addresses.

*Secondary Education*

**121TS. Teaching of French in Secondary Schools. G and U**

This course is concerned with the objectives of modern foreign language teaching, recent trends and developments, methods of procedure, audio-visual material, typical lesson plans, also practical problems in teaching reading, vocabulary, and other phases of the subject.

**122TS. Teaching of Latin in the Secondary Schools. G and U**

This course considers the objectives and recent developments of instruction in Latin at the junior and senior high school levels.

**7S. Teaching of Geometry in the Senior High School. G and U**

This course considers such topics as the objectives and techniques of teaching critical parts of plane geometry, units of instruction, illustrative materials, projects, directed study, and testing.

**73S. Teaching of Science in the Senior High School. G and U**

Consideration is given to the objectives, selection and organization of content, methods of instruction, standards of achievement, methods of evaluation, and equipment and apparatus. Opportunity is provided students to develop their interests in the various special sciences.

**96TS. Teaching of General Science in the Junior High School. G and U**

This course considers aims and purposes of science instruction in grades seven, eight, and nine; selection and organization of curriculum materials; techniques of instruction; apparatus; equipment; and procedures of evaluation.

**100TS. Teaching of Mathematics in the Junior High School. G and U**

Consideration is given to the objectives, content, and methods of presenting those topics in arithmetic, algebra, intuitive geometry, and numerical trigonometry, which constitute the modern junior high school course.

*Elementary Education***15TS.B. Elementary School Curriculum: Reading in the Intermediate Grades. U**

From a critical evaluation of research findings, principles and procedures which function in meeting various problems relative to the teaching of reading are derived and applied.

**27TS.A. Elementary School Curriculum: Language Arts in the Intermediate Grades. U**

This course includes the planning of a modern program of language arts with stress on the two aspects of communication—speaking and writing English.

**28TS.A. Elementary School Curriculum: Arithmetic in the Intermediate Grades. U**

The psychology, objectives, and procedures of present-day arithmetic instruction are developed. Difficulties in arithmetic reasoning receive special attention.

**30TS. Elementary School Curriculum: Science in the Elementary Grades. U**

Units of science suitable to the elementary grades are developed.

**51TS. Critical Appraisal of the New Primary Procedures. Miss GERSTMAYER. U**

This course examines critically curricula materials, techniques, and practices at the primary level which furnish opportunities for cooperative enterprises, and serves also as a background for democratic thinking.

**27TS.B. Primary Curriculum: Language Arts. Miss GERSTMAYER. U**

Aims, methods, and equipment for the teaching of language in the primary school are discussed.

**28TS.B. Primary Curriculum: Arithmetic. Miss GERSTMAYER. U**

This course makes practical applications of the fundamental principles of modern educational theory to arithmetic instruction.

**72S. Primary Curriculum: Reading. U**

Attention is given to the preparatory stage of reading and to the materials and activities employed in developing reading readiness. Special emphasis is placed on the means of building a reading vocabulary with children as it applies to carefully planned experience-reading designed to lead to a basal text.

**ENGLISH****11S. Early English Drama. Associate Professor ALLEN. U 9.00**

A study is made of the growth of the drama and the development of the theater from the decline of the Roman Theater to the appearance of Shakespeare.

**22TS. Fundamentals of Speech. Mr. PEARCE. U 8.00**

Practical training in speaking clearly, fluently, and convincingly is given. The general principles of speech are covered through textbook assignments and discussion, and class time is devoted almost wholly to actual practice guided by individual criticism. Emphasis is on the handling of the audience and preparation and organization of the speech. The Presto Recorder is used for diagnostic and remedial purposes.

**17TS. Modern American and British Poetry. Dr. FAGIN. U 10.00**

A study is made of the significant poets of the present and the immediate past. The chief emphasis is laid on modern trends in poetic technique and thought.

**6S. English Literature from Spenser through Pope. Dr. FAGIN. U 9.00**

This course offers a survey of English literature from the Elizabethan Age to the middle of the eighteenth century.

**1S.B. English Writing. Dr. FAGIN. U 12.00**

This course includes a study of the elements of style and of the principles of description, narration, exposition, and argumentation, with frequent practice in writing. It is equivalent to the second half of the usual college requirement in English composition. Students who have not had the first half may be admitted to this course upon the approval of the instructor.

## FRENCH

**AS. Elementary French. Associate Professor SEIBERT. U 11.00-12.50**

This course is planned for students beginning the study of French. The work consists of a study of the essentials of grammar, drill in pronunciation, composition, and the use of a conversational reader. The aim is to complete the work usually accomplished in French Elements in the winter session.

*NOTE.*—In the arrangement of programs and determinations of fees, students should note that French AS is a *double* course.

**1TS. French Readings. Associate Professor SEIBERT. U 9.00-10.50**

The prerequisite for this course is a knowledge of the elements of French. The work of the course is intensive reading with a review of grammar.

*NOTE.*—In the arrangement of programs and determination of fees, students should note that French 1TS is a *double* course.

**2C.\* Survey of French Literature. Professor LANCASTER. A three term course. Summer, Fall, and Winter. Students may enter at any term. Three hours weekly.**

Prerequisite: French 1TS or equivalent.

**3C.\* Conversation. Associate Professor MALAKIS and Professor DUMONT. A one term course. One hour weekly.**

Prerequisite: French Elements.

**4C.\* Composition. Associate Professor MALAKIS and Professor DUMONT. A one term course. One hour weekly.**

Prerequisite: French Elements.

## GEOLOGY

**1S. Elements of Meteorology. Professor CLOOS. U 10.00**

The course is designed to provide a practical knowledge of the essential facts, principles, and methods of meteorology, and includes: composition, structure and stratification of the atmosphere; function and use of instruments, observation of weather elements like clouds, visibility, etc.; evaporation, condensation, and precipitation; adiabatic temperature changes; stability and instability; temperature variations and weather; wind systems; air masses and air mass analysis; fronts, cyclones, and anti-cyclones; weather analysis and weather forecasting; weather maps and their interpretation; climates; applied meteorology.

Concurrent enrollment in Geology 2S is a requisite of this course.

**2S. Laboratory Course in Meteorology. Professor CLOOS. U 2.00-4.00**

The course is open to those concurrently taking the six weeks course in the Elements of Meteorology and to those who have previously completed the course. It includes: temperature, pressure and rainfall distribution; use of instruments; dynamical meteorology; air mass analysis; use of weather maps; weather forecasting.

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\* These courses are offered in the Summer Term of the College of Arts and Sciences.

## GEOGRAPHY

## 1S. Physical Geography. Dr. CARTER. G and U 9.00

This course presents the elements of physical earth science: earth sun relationships, latitude, longitude, time; insulation, temperature, pressure, winds, and ocean currents; rainfall and storms; soils; vegetation and climates of the world. The aim of the course is to give the student an understanding of why the major physical regions of the earth are as they are as well as where they are.

## 2S. Regional Geography of Western Europe. Mr. GOTTMANN. G and U 8.00

This course emphasizes the cultural and economic geography of the British Isles, the Low Countries, France, and the Iberian Peninsula.

NOTE.—For Workshop in the Teaching of Geography, see Education 75S.

## GERMAN

## AS. German Elements. Dr. VON SCHÜCHING. U 8.00-9.50

This beginning course is intended for those who have no previous knowledge of the language or who wish to take the work for purposes of review. A thorough foundation in grammar is given, with the emphasis laid upon the acquisition of a ready knowledge of the language.

NOTE.—In the arrangement of programs and determination of fees, students should note that German AS is a *double* course.

## 1TS. German Readings. Dr. VON SCHÜCHING. U 11.00-12.50

This course consists of class readings, private assignments, and practical exercises.

Prerequisite: German Elements.

NOTE.—In the arrangement of programs and determination of fees, students should note that German 1TS is a *double* course.

## MATHEMATICS

## 1TS. Plane Trigonometry. U 9.00

Prerequisite: Elementary algebra.

## 2TS. College Algebra. U 11.00

NOTE: In case these courses are not given, students may register for Mathematics 1C, or 2C beginning July 10 and may remain for six weeks to August 19, to complete the unit in these subjects.

1C.\* Trigonometry; Analytic Geometry; Calculus. A two term course beginning in the Summer Term. Six hours weekly.

2C.\* Analytic Geometry; Calculus. A two term course beginning in the Summer Term. Five hours weekly.

3C.\* Calculus; Advanced Analytic Geometry. A two term course beginning in the Summer Term. Five hours weekly.

Prerequisite: Mathematics 1C or 2C.

## MUSIC

## 1S. Audio Aids in Music Appreciation. Dr. KEEFER. U 1.00

This course considers the audio material available for the use of teachers in the elementary schools. It includes recordings of songs, bands, symphonies, and operas; what to order and how to use them in the classroom at the various grade levels. Records and other illustrative material are demonstrated.

NOTE.—For an additional course on Audio-visual Aids to Instruction, see Education 17TS.

\* These courses are offered in the Summer Term of the College of Arts and Sciences.



#### 4TS. The Rise of Orchestral Music. Dr. KEEFER. U 11.00

The history of instruments, forms, ideas, and texture from the time of Haydn to the present is studied in relation to the aesthetic current of the time. Study is supplemented by an extensive collection of recordings.

### PHILOSOPHY

#### 1TS.A. History of Philosophy. Dr. HAMMOND. U 10.00

This study of Greek philosophy corresponds to the first half of a year's course in the history of philosophy. The discussion centers on the politics and aesthetics of Plato and Aristotle, with readings in the *Republic* and the *Poetics*.

#### 2TS.B. American Philosophy from 1880 to the Present. Dr. GAUSS. G and U 12.00

A study is made of the philosophical backgrounds of social and educational thought in America as viewed in the writings of Royce, Harris, the Pragmatists, and later thinkers.

This is the equivalent of the second half of the course given in the regular session.

### PHYSICS

#### 1S. Pro-Seminary in the Teaching of Physics. Professor Cox. G and U 11.00

This pro-seminary course is intended for teachers and prospective teachers of physics. Each student in the class is given the opportunity to demonstrate three lecture experiments; give the equivalent of one hour of explanation of physical principles; give the equivalent of one hour of demonstration of problems; report brief biographies of at least three leading scientists; demonstrate two laboratory experiments; be on record for at least three comprehensive criticisms of the work of others in the class or of the conduct of current physics courses; construct and propose an outline of physics instruction for students of physics; itemize the apparatus necessary for an experiment, select it from the catalogues, and write directions for carrying on the experiment.

#### 1Ca.\* Mechanics. Professor HUBBARD, Mr. HANNA, Mr. HENRY, and assistants. A one term course. Two lectures, two conferences, one two-hour laboratory period, and one hour for writing reports weekly.

#### 1Cb.\* Sound, Heat, and Light. Professor HUBBARD, Mr. HANNA, Mr. HENRY, and assistants. A one term course. Two lectures, two conferences, one two-hour laboratory period, and one hour for writing reports weekly.

#### 1Cc.\* Electricity and Magnetism. Professor HUBBARD, Mr. HANNA, Mr. HENRY, and assistants. Two lectures, two conferences, one two-hour laboratory period and one hour for writing reports weekly.

### RUSSIAN

#### 1S. Russian Language and Literature. Dr. KEEFER. U 9.00-10.50

This elementary course prepares the student to read in the language.

NOTE.—In the arrangement of programs and determination of fees, students should note that Russian 1S is a double course.

\* These courses are offered in the Summer Term of the College of Arts and Sciences.

## SOCIAL SCIENCE \*

*History*

## 1S. European History from 1700-1825. Mrs. ROSETT. U 10.00

This course offers a survey of European History from the last years of Louis XIV to the close of the Napoleonic Wars. Stress is laid on the movement of the Enlightenment, the French Revolution, and the reaction of Europe to the Revolution.

## 2S. European History from 1815-1914. Mrs. ROSETT. U 11.00

This course offers a survey of European history from the fall of Napoleon to the outbreak of war in 1914. It deals specifically with the legacy of the French Revolution in France and in Europe, the social and political effects of the Industrial Revolution, the unification of Italy and Germany, the rise of counter-revolutionary ideologies anticipating fascism and the causes of the First World War.

## 3S. History of the United States from Jefferson to Jackson. Dr. BROWN. G and U 10.00

A study is made of the period marked by the rise of the common man. The social, economic, and political factors that resulted in the Jeffersonian revolution of 1800, the War of 1812, the post-war expansion, and Jacksonian democracy are explored. Each student selects a topic or person for investigation and must present preliminary and final reports on this research. This course is intended for advanced students in American history.

## 4S. History of the United States, 1763-1944. Dr. BROWN. U 11.00-12.50

This is a general survey of the development of the American nation.

NOTE.—In the arrangement of programs and determination of fees, students should note that History 4S is a *double* course.

*Political Economy*

## 47S. Government Control of Industry. Associate Professor REYNOLDS. G and U 12.00

This course includes a discussion of the problems of central economic planning, with particular reference to wartime experience in the United States, and also a consideration of such partial regulatory devices as anti-trust legislation, public utility regulation, public operation of particular industries, and control of agricultural prices and production.

## 12S. American Economic History. Professor EVANS. U 9.00

This course discusses the influence of economic forces upon politics and social life in the United States since the Civil War.

*Political Science*

## 1S. Politics and Pressure Groups in Wartime. Dr. MOOS. U 9.00

The course opens with a brief analysis of the origins and development of American political parties. It will continue thereafter with an intensive survey of current presidential nominating conventions and current presidential campaigns.

## 2S. Fundamentals of Government and Politics. Associate Professor MATERN. U 10.00

The course deals with theories and realities of government and politics, national and international, with illustrations from past and present.

\* For courses in Geography see page 17.

*Sociology***1S. Introductory Sociology. Professor McDUGLE. U 11.00**

An introduction is given to the scientific study of the origin, development, organization, and function of group life. Special attention is given to the biological, racial, ecological, and cultural backgrounds of the social order. A brief study of religion, the family, and the state is made in terms of the principles, theories, and facts developed.

**2S. Urban Social Problems. Professor McDUGLE. G and U 12.00**

Basic study of recent population trends in city life is followed by intensive consideration of three pressing problems—public and private housing, urban recreation, and juvenile delinquency.

**SPANISH****AS. Spanish Elements. Miss BIANCHINI. U 9.00-10.50**

This course intended for students beginning the study of Spanish, consists of a study of the essentials of grammar, drill in pronunciation, and composition. Use of a reader for practice in accurate translation and reading starts as soon as the class is able to begin this phase of the work. The aim of the course is to complete the work usually accomplished in Spanish Elements in the regular session.

NOTE.—In the arrangement of programs and determination of fees, students should note that Spanish AS is a *double* course.

**1TS.A. Spanish Readings. Dr. SORIA. U 11.00**

The course consists of reading and discussion of modern authors, grammar review, and composition. It is the equivalent of the first half of the course in this subject given in the regular session.

**1TS.B. Spanish Readings. Miss BIANCHINI. U 12.00**

The course consists of reading and discussion of modern authors, grammar review, and composition. It is the equivalent of the second half of this course given in the regular session.

## SCHEDULE

### 8.00-8.50 a. m.

- Education 2TS.B. Philosophy of Education
- Education 23TS. Recent Research Studies in Elementary Education
- Education 76S. Workshop in Early Childhood Education (Lecture, Tu. and Th.; observation and participation, three hours daily, M., W., and F.)
- Education 93TS. Methods of Teaching History in Secondary School
- English 22TS. Fundamentals of Speech
- Geography 2S. Regional Geography of Western Europe
- German AS. German Elements (8.00-9.50)

### 9.00-9.50 a. m.

- Biology 1S. General Biology (Lecture, and 1.00 p. m.)
- Education 3TS.A. History of Education
- Education 9TS.A. Educational Psychology: Understanding the Adolescent
- Education 15TS. Reading Clinic
- Education 56PS. School Administration. III
- Education 161TS.A. Principles and Practice of Educational and Vocational Guidance
- English 6S. English Literature from Spenser through Pope
- English 11S. Early English Drama
- French 1TS. French Readings (9.00-10.50)
- Geography 1S. Physical Geography
- German AS. German Elements (continued)
- Mathematics 1TS. Plane Trigonometry
- Russian 1S. Russian Language and Literature (9.00-10.50)
- Political Economy 12S. American Economic History
- Political Science 1S. Politics and Pressure Groups in Wartime
- Spanish AS. Spanish Elements (9.00-10.50)

### 10.00-10.50 a. m.

- Biology 1S. General Biology (Laboratory, 10.00-12.00 m. and 2.00-4.00 p. m.)
- Education 3TS.B. History of Education
- Education 6TS. Personality and Character in Education
- Education 51PS. Supervision of Schools
- Education 111TS. The Secondary School: Current Problems in Secondary Education
- Education 161TS.C. Occupational Information and Group Guidance
- English 17TS. Modern American and British Poetry
- French 1TS. French Readings (continued)
- Geology 1S. Elements of Meteorology
- Philosophy 1TS.A. History of Philosophy
- Russian 1S. Russian Language and Literature (continued)
- History 1S. European History from 1700-1825
- History 3S. History of the United States from Jefferson to Jackson
- Political Science 2S. Fundamentals of Government and Politics
- Spanish AS. Spanish Elements (continued)

### 11.00-11.50 a. m.

- Biology 1S. General Biology (Laboratory, continued)
- Education 12TS. Educational Tests and Measurements: Introductory Course
- Education 21TS.A. Survey of Elementary Education: Curriculum of the Elementary School
- Education 31PS.A. Modern Psychological Theories in Education
- Education 32TS. Study of the General Principles of Education through Analysis of Demonstration Lessons
- Education 95TS. Methods of Teaching English in the Junior High School
- Education 102TS. Methods of Teaching Geography in Junior High School
- Education 121TS. The Teacher in the Modern Secondary School
- Education 181TS. Methods of Teaching English in the Senior High School
- French AS. Elementary French (11.00-12.50)
- German 1TS. German Readings (11.00-12.50)
- Mathematics 2TS. College Algebra
- Music 4TS. Rise of Orchestral Music
- Physics 1S. Pro-Seminary in the Teaching of Physics
- History 2S. European History from 1815-1914
- History 4S. History of the United States, 1763-1944 (11.00-12.50)
- Sociology 1S. Introductory Sociology
- Spanish 1TS.A. Spanish Readings

### 12.00-12.50 p. m.

- Education 1TS.A. Educational Psychology: Introductory Course
- Education 21TS.B. Survey of Elementary Education: Modern Types of Teaching in Elementary School
- Education 91TS. The Theory of the Junior High School
- English 1S.B. English Writing
- French AS. Elementary French (continued)
- German 1TS. German Reading (continued)
- Philosophy 2TS.B. American Philosophy from 1880 to the Present
- History 4S. History of the United States, 1763-1944 (continued)
- Political Economy 47S. Government Control of Industry
- Sociology 2S. Urban Social Problems
- Spanish 1TS.B. Spanish Readings

### 1.00-1.50 p. m.

- Biology 1S. General Biology (Lecture, continued)
- Music 1S. Audio Aids in Music Appreciation

### 2.00-4.00 p. m.

- Biology 1S. General Biology (Laboratory, continued)
- Education 76S. Workshop in the Teaching of Geography
- Geology 2S. Laboratory Course in Meteorology

### 2.30-3.20 p. m.

- Education 17TS. Audio-visual Aids to Instruction (M. and W.)

### 2.30-3.45 p. m.

- Education 17TS. Audio-visual Aids to Instruction (Tu. and Th.)

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THE  
JOHNS HOPKINS  
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MAY, 1944

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SCHOOL OF MEDICINE

ESTABLISHED IN CONNECTION WITH THE JOHNS HOPKINS HOSPITAL

CATALOGUE NUMBER

NOVEMBER 29, 1943—AUGUST 18, 1944

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BALTIMORE 18, MARYLAND  
PUBLISHED BY THE UNIVERSITY  
MAY, 1944

## CALENDAR

For the term November 29, 1943—August 18, 1944.

1943.

November 29 (Monday)—Instruction begins.

December 24 (Friday)—Christmas vacation begins. 9 a. m.

1944.

January 3 (Monday)—Instruction resumed. 9 a. m.

July 3 and 4 (Monday and Tuesday)—Independence Day holiday. All classes suspended.

August 7, 8, 9, 10 (Monday-Thursday)—Final examinations.

August 18 (Friday)—Fourth Year class graduates.

September 22 (Friday)—Registration for entering class.

September 25 (Monday)—Instruction resumed.

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## QUARTERS

1st Qr.: November 29, 1943 to February 1, 1944, inc.

2nd Qr.: February 7, 1944 to April 1, 1944, inc.

3rd Qr.: April 10, 1944 to June 3, 1944, inc.

4th Qr.: June 8, 1944 to August 4, 1944, inc.

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The office of the Dean of the Medical Faculty is in the Physiology building, 710 North Washington Street, and is open daily from 9 a. m. to 5 p. m.

For catalogue and general information, address the OFFICE OF THE DEAN, SCHOOL OF MEDICINE, JOHNS HOPKINS UNIVERSITY, 710 NORTH WASHINGTON STREET, BALTIMORE 5, MD.

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# CONTENTS

	PAGE
TRUSTEES OF THE JOHNS HOPKINS UNIVERSITY.....	5
TRUSTEES OF THE JOHNS HOPKINS HOSPITAL.....	5
OFFICERS OF ADMINISTRATION.....	6
FACULTY .....	7
STUDENTS, NOVEMBER 29, 1943-AUGUST 18, 1944:	
CANDIDATES FOR THE DEGREE OF DOCTOR OF MEDICINE.....	82
STUDENTS IN ART AS APPLIED TO MEDICINE.....	43
GEOGRAPHICAL DISTRIBUTION OF STUDENTS ENROLLED AND LIST OF COLLEGES ATTENDED .....	44
ADVISORY BOARD OF THE MEDICAL FACULTY.....	45
STANDING COMMITTEES OF THE FACULTY.....	46
MEDICAL BOARD OF THE JOHNS HOPKINS HOSPITAL.....	48
MEDICAL STAFF OF THE JOHNS HOPKINS HOSPITAL AND DISPENSARY.....	49
MEDICAL AND SURGICAL STAFF OF THE BALTIMORE CITY HOSPITALS.....	64
REQUIREMENTS FOR ADMISSION AND GRADUATION—GENERAL DESCRIPTION OF THE COURSE OF INSTRUCTION OFFERED TO CANDIDATES FOR THE DEGREE OF DOCTOR OF MEDICINE:	
History of the University.....	68
The School of Medicine.....	69
Requirements for Admission.....	70
Wartime Program of Instruction.....	71
Requirements for Graduation.....	74
General Plan of Instruction.....	74
Examinations and Promotions.....	76
Instruction for Graduates in Medicine.....	77
Special Students.....	78
Instruction in Art as Applied to Medicine.....	78
Clinical Opportunities.....	78
GENERAL INFORMATION:	
Registration .....	79
Tuition and Other Fees.....	80
Microscopes .....	81
Hospital Appointments.....	81
Medical Care of Students.....	82
Libraries .....	82
Lectureships .....	83
Alumni Fund for Medical Scholarships.....	84
Read Drug and Chemical Company Scholarship.....	84
The Henry Strong Denison Fund for Medical Research.....	84
Medical Societies.....	85
Medical History Club.....	85
Publications .....	85
DEPARTMENTS AND SUBJECTS OF INSTRUCTION:	
Anatomy .....	86
Art as Applied to Medicine.....	87
Bacteriology .....	88
Gynecology .....	89
History of Medicine.....	90
Medical Jurisprudence.....	92

	PAGE
Medicine .....	92
Dermatology .....	99
Diseases of Nervous System.....	99
Obstetrics .....	100
Ophthalmology .....	102
Pathology .....	104
Pediatrics .....	106
Pharmacology and Experimental Therapeutics.....	107
Physiological Chemistry.....	108
Physiology .....	109
Preventive Medicine.....	110
Psychiatry .....	111
Surgery .....	113
Orthopedic Surgery.....	118
Urology .....	119
Laryngology and Otology.....	119
Röntgenology .....	120

SCHEDULE OF COURSES FOR THE SESSION OF NOVEMBER 29, 1943-AUGUST 18, 1944:

First Year.....	122
Second Year.....	123
Third Year.....	124
Fourth Year.....	125

APPENDIX:

Endowment .....	126
The Women's Medical School Fund.....	126
The Mary Elizabeth Garrett Fund.....	127
Requirements for Admission approved by the Medical Faculty, February 4, 1893	128

ALPHABETICAL LIST OF NAMES.....	130
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## TRUSTEES

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## FACULTY

November 29, 1943–August 18, 1944 \*

---

ISAIAH BOWMAN, PH. D., SC. D., LL. D., *President of the University*  
[1935]† Oak Place, Guilford

---

### PROFESSORS

WINFORD HENRY SMITH, M. D., SC. D., *Ex Officio (Director, the Johns Hopkins Hospital)*  
[1911] 220 Wendover Rd., Guilford

LEWIS HILL WEED, M. D., SC. D., LL. D., *Professor of Anatomy and Director of the Department of Anatomy, and Director of the School of Medicine*  
[1919; 1914] Warrington Apts.

E. KENNERLY MARSHALL, JR., PH. D., M. D., LL. D., *Professor of Pharmacology and Experimental Therapeutics and Director of the Department of Pharmacology and Experimental Therapeutics*  
[1932; 1911] 419 Hawthorne Rd.

WARFIELD THEOBALD LONGCOPE, M. D., *Professor of Medicine and Director of the Department of Medicine*  
[1922] 3 St. Martin's Rd., Guilford

EDWARDS ALBERT PARK, M. D., *Professor of Pediatrics and Director of the Department of Pediatrics*  
[1927] Garrison, Md.

WILLIAM MANSFIELD CLARK, PH. D., SC. D., *DeLamar Professor of Physiological Chemistry and Director of the Department of Physiological Chemistry*  
[1927] The Gardens, 40th St. and Stony Run Lane

HENRY E. SIGERIST, M. D., D. LITT., LL. D., *William H. Welch Professor of the History of Medicine and Director of the Institute of the History of Medicine.*  
[1932; 1931] 3956 Cloverhill Rd.

PHILIP BARD, PH. D., *Professor of Physiology and Director of the Department of Physiology*  
[1933] The Gardens, 40th St. and Stony Run Lane

ALAN CHURCHILL WOODS, M. D., *Acting Professor of Ophthalmology and Director of the Department of Ophthalmology*  
[1934; 1919] 103 Millbrook Rd.

NICHOLSON JOSEPH EASTMAN, M. D., *Professor of Obstetrics and Director of the Department of Obstetrics*  
[1935; '927] 111 Witherspoon Rd.

---

\* The names in the several groups are arranged in the order of appointment, and are corrected up to April 1, 1944.

† A date in brackets indicates appointment to present rank; a second date means year of original appointment, if differing from the former.

RICHARD WESLEY TE LINDE, M. D., *Professor of Gynecology and Director of the Department of Gynecology*  
[1939; 1922] 1105 Bryn Mawr Road

PERRIN H. LONG, M. D., *Professor of Preventive Medicine and Director of the Department of Preventive Medicine*  
[1940; 1929] [On leave of absence, U. S. A.]

GEORGE WASHINGTON CORNER, M. D., SC. D., *Professor of Embryology (Director, Department of Embryology, Carnegie Institution of Washington)*  
[1940] 4 Merryman Ct.

ALFRED BLALOCK, M. D., *Professor of Surgery and Director of the Department of Surgery*  
[1941] 4204 Underwood Rd.

JOHN CLARE WHITEHORN, M. D., *Henry Phipps Professor of Psychiatry and Director of the Department of Psychiatry*  
[1941] 307 Overhill Rd.

---

THOMAS STEPHEN CULLEN, M. B., D. SC., LL. D., *Professor Emeritus of Gynecology*  
[1939; 1895] 20 E. Eager St.

ADOLF MEYER, M. D., LL. D., SC. D., *Professor Emeritus of Psychiatry*  
[1941; 1908] 4305 Rugby Rd., Guilford

CHARLES DAVID SNYDER, PH. D., *Professor Emeritus of Experimental Physiology*  
[1941; 1908] 4709 Keswick Rd.

HUGH HAMPTON YOUNG, M. D., *Professor Emeritus of Urology.*  
[1942; 1898] 100 W. Cold Spring Lane

\*WILLIAM GEORGE MACCALLUM, M. D., *Professor Emeritus of Pathology.*  
[1943; 1898]

---

#### ADJUNCT PROFESSORS

SAMUEL JAMES CROWE, M. D., *Adjunct Professor of Laryngology and Otology*  
[1932; 1908] 4332 N. Charles St.

WALTER EDWARD DANDY, M. D., LL. D., *Adjunct Professor of Neurological Surgery*  
[1932; 1913] 3904 Juniper Rd., Guilford

GEORGE E. BENNETT, M. D., *Adjunct Professor of Orthopedic Surgery*  
[1942; 1914] 4 East Madison St.

---

GUY LEROY HUNNER, M. D., *Adjunct Professor Emeritus of Gynecology*  
[1939; 1901] Medical Arts Bldg.

---

#### ASSOCIATE PROFESSORS

LOUIS HAMMAN, M. D., *Associate Professor of Medicine*  
[1915; 1903] 9 E. Chase St.

---

\* Died February 3, 1944.

- RICHARD HOLDEN FOLLIS, M. D., *Associate Professor of Surgery*  
[1918; 1902] 30 Whitfield Rd.
- ALAN MASON CHESNEY, M. D., SC. D., *Associate Professor of Medicine and Dean*  
[1921; 1913] 1419 Eutaw Pl.
- ESTHER LORING RICHARDS, M. D., *Associate Professor of Psychiatry*  
[1922; 1917] 41 W. Preston St.
- JOHN STAIGE DAVIS, M. D., *Associate Professor of Surgery*  
[1923; 1909] Severn Apts.
- CHARLES ROBERT AUSTRIAN, M. D., *Associate Professor of Medicine*  
[1923; 1910] 1417 Eutaw Pl.
- ARNOLD RICE RICH, M. D., *Associate Professor of Pathology*  
[1923; 1919] 14 Edgevale Rd.
- J. HOWARD BROWN, PH. D., D. SC., *Associate Professor of Bacteriology*  
[1923] 27 Merrymount Rd.
- ADOLPH HANS SCHULTZ, PH. D., *Associate Professor of Physical Anthropology*  
[1925] 402 Bretton Pl.
- LLOYD WARREN KETRON, M. D., *Associate Professor of Dermatology*  
[1928; 1914] 1125 St. Paul St.
- BARNETT COHEN, PH. D., *Associate Professor of Physiological Chemistry*  
[1928] 10 W. Read St.
- LEO JOHN GOLDBACH, M. D., *Associate Professor of Ophthalmology*  
[1929; 1914] 6 E. Eager St.
- CLYDE ALVIN CLAPP, M. D., *Associate Professor of Ophthalmology*  
[1929; 1919] 513 N. Charles St.
- WARFIELD MONROE FIROR, M. D., *Associate Professor of Surgery*  
[1929; 1922] 107 Longwood Rd.
- L. EMMETT HOLT, JR., M. D., *Associate Professor of Pediatrics*  
[1930; 1922] 6 N. Boulder Lane
- MARION HINES, PH. D., *Associate Professor of Anatomy*  
[1930; 1925] 1210 Eutaw Pl.
- HARVEY BRINTON STONE, M. D., *Associate Professor of Surgery*  
[1931; 1913] 18 W. Franklin St.
- EDWIN COWLES ANDRUS, M. D., *Associate Professor of Medicine*  
[1931; 1922] [On leave of absence]
- JONAS STEIN FRIEDENWALD, M. D., *Associate Professor of Ophthalmology*  
[1931; 1923] 1212 Eutaw Pl.
- CURTIS FIELD BURNAM, M. D., *Associate Professor of Surgery*  
[1932; 1904] 1418 Eutaw Pl.
- STACY RUFUS GUILD, PH. D., *Associate Professor of Otology and Director of  
the Otological Research Laboratory*  
[1932; 1926] 17 Elmwood Rd., Roland Park
- A. BRAZIER HOWELL, *Associate Professor of Anatomy*  
[1932; 1928] [On leave of absence.]

- CURT P. RICHTER, PH. D., *Associate Professor of Psychobiology*  
[1932; 1921] 221 W. Lafayette Ave.
- \*ORTHELLO RICHARDSON LANGWORTHY, M. D., *Associate Professor of Neurology*  
[1932; 1922] 622 N. Washington St.
- FRANK R. FORD, M. D., *Associate Professor of Neurology*  
[1932; 1923] Medical Arts Bldg.
- LEO KANNER, M. D., *Associate Professor of Psychiatry*  
[1933; 1928] 4510 Wentworth Rd.
- EDWARD HENDERSON RICHARDSON, M. D., LL. D., *Associate Professor of Gynecology*  
[1934; 1910] 9 E. Chase St.
- BERTRAM MOSES BERNHEIM, M. D., *Associate Professor of Surgery*  
[1934; 1911] 2424 Eutaw Pl.
- HUGH WILSON JOSEPHS, M. D., *Associate Professor of Pediatrics*  
[1934; 1920] Roland View Ave., Ruxton, Md.
- JOHN ARCHIBALD CAMPBELL COLSTON, M. D., *Associate Professor of Urology*  
[1934; 1916] 1201 N. Calvert St.
- JOHN WILLIAM PIERSON, M. D., *Associate Professor of Roentgenology*  
[1934; 1916] 1107 St. Paul St.
- WILLIAM FRANCIS RIENHOFF, JR., M. D., *Associate Professor of Surgery*  
[1934; 1921] 1201 N. Calvert St.
- OWSEI TEMKIN, M. D., *Associate Professor of the History of Medicine*  
[1935; 1932] 419 Alabama Rd., Towson
- FERDINAND CHRISTIAN LEE, M. D., *Associate Professor of Surgery*  
[1936; 1920] Riderwood, Md.
- LEROY MATTHEW POLVOGT, M. D., *Associate Professor of Laryngology and  
Otology*  
[1936; 1925] 1201 N. Calvert St.
- WENDELL STANLEY MUNCIE, M. D., *Associate Professor of Psychiatry*  
[1936; 1929] 11 E. Chase St
- EARL L. BURKY, M. D., *Associate Professor of Ophthalmology*  
[1937; 1922] Loch Raven, Md.
- JAMES BORDLEY, III, M. D., *Associate Professor of Medicine*  
[1937; 1928] [On leave of absence, U. S. A.]
- FRANK B. WALSH, M. D., *Associate Professor of Ophthalmology*  
[1937; 1931] Cromwell Bridge Rd., Towson, Md.
- HENRY M. THOMAS, JR., M. D., *Associate Professor of Medicine*  
[1939; 1922] [On leave of absence, U. S. A.]
- JOHN THEODORE KING, M. D., *Associate Professor of Medicine*  
[1939; 1915] [On leave of absence, U. S. A.]
- SAM SHIRLEY BLACKMAN, JR., M. D., *Associate Professor of Pathology*  
[1939; 1927] 211 E. Chase St.

---

\* On leave to Department of Psychiatry.



- ALAN FRANK GUTTMACHER, M. D., *Associate Professor of Obstetrics*  
[1939; 1926] 1039 N. Calvert St.
- LUDWIG EDELSTEIN, PH. D., *Associate Professor of the History of Medicine*  
[1939; 1934] 1403 W. Cold Spring Lane
- JOHN WARD BAYLOR, M. D., *Associate Professor of Laryngology and Otology*  
[1940; 1919] 1118 St. Paul St.
- JOSEPH EARLE MOORE, M. D., *Associate Professor of Medicine*  
[1940; 1919] Medical Arts Bldg.
- CHALMERS LAUGHLIN GEMMILL, M. D., *Associate Professor of Physiology*  
[1941; 1926] [On leave of absence, U. S. N.]
- EDWIN NASH BROYLES, M. D., *Associate Professor of Laryngology and Otology*  
[1941; 1926] [On leave of absence, U. S. N.]
- CHANDLER MCCUSKEY BROOKS, PH. D., *Associate Professor of Physiology*  
[1941; 1933] 312 E. Lake Ave.
- LAWSON WILKINS, M. D., *Associate Professor of Pediatrics*  
[1942; 1928] 1014 St. Paul St
- JOHN EARLE BORDLEY, M. D., *Associate Professor of Laryngology and Otology*  
[1942; 1931] [On leave of absence, U. S. A.]
- WILLIAM L. STRAUS, JR., PH. D., *Associate Professor of Anatomy*  
[1943; 1927] Sheffield Apts.
- HOUSTON SPENCER EVERETT, M. D., *Associate Professor of Gynecology*  
[1943; 1926] 11 E. Chase St.
- HENRY N. HARKINS, M. D., *Associate Professor of Surgery*  
[1943] 2 Pauline Rd., Ruxton, Md.
- 
- THOMAS RICHARDSON BROWN, M. D., *Associate Professor Emeritus of Medicine*  
[1941; 1899] 14 Whitfield Rd.

#### ASSOCIATES

- LOUIS PHILIP HAMBURGER, M. D., *Associate in Medicine*  
[1904; 1899] 1207 Eutaw Pl.
- WALTER ALBERT BAETJER, M. D., *Associate in Medicine*  
[1916; 1912] 1115 St. Paul St.
- PAUL WISWALL CLOUGH, M. D., *Associate in Medicine*  
[1919; 1908] 24 E. Eager St.
- SYDNEY ROROTHAM MILLER, M. D., *Associate in Medicine*  
[1918; 1913] 1115 St. Paul St.
- HARRY RICHMOND SLACK, JR., M. D., *Associate in Laryngology and Otology*  
[1918; 1913] 1100 N. Charles St.
- EVELETH WILSON BRIDGMAN, M. D., *Associate in Medicine*  
[1919; 1913] 11 E. Chase St.
- WILLIAM ALEXANDER FISHER, M. D., *Associate in Surgery*  
[1920; 1909] 715 Park Av.

- ISAAC ROSENBAUM PELS, M. D., *Associate in Dermatology*  
[1920; 1911] 1010 St. Paul St.
- JAMES JULIAN CHISOLM, M. D., *Associate in Laryngology and Otology*  
[1920; 1916] 1114 St. Paul St.
- THOMAS PECK SPRUNT, M. D., *Associate in Medicine*  
[1921; 1909] 1035 N. Calvert St.
- EMIL NOVAK, M. D., *Associate in Gynecology*  
[1922; 1915] 26 E. Preston St.
- ERNEST HOWARD GAITHER, M. D., *Associate in Medicine*  
[1922; 1917] 12 E. Eager St.
- LESLIE BENJAMIN HOHMAN, M. D., *Associate in Pauchiatry*  
[1922; 1920] [On leave of absence U. S. N.]
- HARRY LOUIS HOMER, M. D., *Associate in Surgery*  
[1923; 1916] Riderwood, Md.
- DEWITT BELLINGER CASLER, M. D., *Associate in Gynecology*  
[1924; 1908] 13 W. Chase St.
- SAMUEL WOILMAN, M. D., *Associate in Medicine*  
[1927; 1907] 2424 Eutaw Pl.
- ROBERT WILKINSON JOHNSON, JR., M. D., *Associate in Orthopedic Surgery*  
[1927; 1919] 4 E. Madison St.
- LESLIE HELLERMAN, PH. D., *Associate in Physiological Chemistry*  
[1927] 4012 Liberty Heights Av.
- ISRAEL WILLIAM NACHLAS, M. D., *Associate in Orthopedic Surgery*  
[1929; 1919] [On leave of absence, U. S. A.]
- CHARLES ALEXANDER WATERS, M. D., *Associate in Roentgenology*  
[1930; 1915] 1100 N. Charles St.
- MARY VAN R. BUELL, PH. D., *Associate in Medicine*  
[1930; 1921] 3002 St. Paul St.
- EDWARD MERVIN BRIDGE, M. D., *Associate in Pediatrics*  
[1931; 1928] 2709 Cheswolde Rd., Mt. Washington
- SARAH SHELDON TOWER, PH. D., M. D., *Associate in Anatomy and Assistant in Psychiatry*  
[1942; 1928] Cowpens Rd., Towson, Md.
- NICHOLAS FLOYD ADAMS, JR., M. D., *Associate in Laryngology and Otology*  
[1931; 1929] 1118 St. Paul St.
- ELLIOTT H. HUTCHINS, M. D., *Associate in Surgery*  
[1932; 1919] 1227 N. Calvert St.
- LESLIE NEWTON GAY, M. D., *Associate in Medicine*  
[1932; 1919] 1114 St. Paul St.
- WILLIAM HORSLEY GANTT, M. D., *Associate in Psychiatry*  
[1932; 1929] 8 St. John's Rd.
- LAY MARTIN, M. D., *Associate in Medicine*  
[1933; 1925] 1201 N. Calvert St.

- CHARLES WILLIAM WAINWRIGHT, M. D., *Associate in Medicine*  
[1933; 1926] 9 E. Chase St.
- MOSES PAULSON, M. D., *Associate in Medicine*  
[1933; 1927] 11 E. Chase St.
- LEO BRADY, M. D., *Associate in Gynecology*  
[1934; 1921] Medical Arts Bldg.
- LASLO KAJDI, M. D., *Associate in Pediatrics*  
[1934; 1926] 2200 Taylor Ave.
- HARRIET GRIGGS GUILD, M. D., *Associate in Pediatrics*  
[1934; 1927] Northwood Apts.
- JOHN MILLER TRAIN FINNEY, JR., M. D., *Associate in Surgery*  
[1934; 1926] 2947 St. Paul St.
- AMOS R. KOONTZ, M. D., *Associate in Surgery*  
[1934; 1926] [On leave of absence, U. S. A.]
- BENJAMIN MAY BAKER, JR., M. D., *Associate in Medicine*  
[1935; 1928] [On leave of absence, U. S. A.]
- THOMAS CAMPBELL GOODWIN, M. D., *Associate in Pediatrics*  
[1935] [On leave of absence, U. S. A.]
- ALEXANDER JONAS SCHAEFFER, M. D., *Associate in Pediatrics*  
[1936; 1924] [On leave of absence, U. S. A.]
- HELEN BROOKE TAUSSIG, M. D., *Associate in Pediatrics*  
[1936; 1930] 414 E. Lake Ave.
- GEORGE ADOLPH STEWART, M. D., *Associate in Surgery*  
[1937; 1921] [On leave of absence, U. S. A.]
- JUSTINA HAMILTON HILL, M. S., SC. D., *Associate in Urology*  
[1937; 1922] Calvert Court Apt.
- EDWARD M. HANRAHAN, JR., M. D., *Associate in Surgery*  
[1937; 1923] 1201 N. Calvert St.
- LAWRENCE RICHARDSON WHARTON, M. D., *Associate in Gynecology*  
[1937; 1920] 1201 N. Calvert St.
- THOMAS RODNEY CHAMBERS, M. D., *Associate in Surgery*  
[1937; 1924] 18 W. Franklin St.
- EDWARD ANDREW KITLOWSKI, M. D., *Associate in Surgery*  
[1937; 1926] 3409 Greenway
- LLOYD GRIFFITH LEWIS, M. D., *Associate in Urology*  
[1937; 1930] [On leave of absence, U. S. A.]
- A. MURRAY FISHER, M. D., *Associate in Medicine*  
[1937; 1931] 18 E. Eager St.
- JOHN EAGER HOWARD, M. D., *Associate in Medicine*  
[1937; 1931] Lutherville, Md.
- WALTER LAFOLLETTE WINKENWERDER, M. D., *Associate in Medicine*  
[1937; 1927] [On leave of absence, U. S. A.]

- WALTER LEE DENNY, M. D., *Associate in Urology*  
[1937; 1928] Walbert Apts.
- AUSTIN HISLOP WOOD, M. D., *Associate in Urology*  
[1938; 1923] Medical Arts Bldg.
- GEORGE GROSS FINNEY, M. D., *Associate in Surgery*  
[1938; 1926] [On leave of absence, U. S. A.]
- ISAAC RIDGEWAY TRIMBLE, M. D., *Associate in Surgery*  
[1938; 1928] [On leave of absence, U. S. A.]
- GRANT E. WARD, M. D., *Associate in Surgery*  
[1938; 1928] Medical Arts Bldg.
- LOUISE LITTIG SLOAN, PH. D., *Associate in Ophthalmology*  
[1938; 1929] [On leave of absence]
- MORRIS ROSENFELD, M. D., *Associate in Pharmacology and Experimental Therapeutics*  
[1938; 1930] [On leave of absence, U. S. A.]
- WARDE BAUNTON ALLAN, M. D., C. M., L. M. C. C., *Associate in Medicine*  
[1938; 1931] 6 E. Eager St.
- PAUL PADGET, M. D., *Associate in Medicine*  
[1938; 1934] [On leave of absence, U. S. A.]
- EDWARD MCCOLGAN WALZL, PH. D., M. D., *Associate in Laryngology and Otology*  
[1942; 1936] 522 N. Washington St.
- HUGH JUDGE JEWETT, M. D., *Associate in Urology*  
[1938; 1937] 1201 N. Calvert St.
- HORACE HODES, M. D., *Associate in Pediatrics*  
[1938] [On leave of absence, U. S. N.]
- C. HOLMES BOYD, M. D., *Associate in Medicine*  
[1939; 1927] 24 E. Eager St.
- ELLA HUTZLER OPPENHEIMER, M. D., *Associate in Pathology*  
[1939; 1924] 7703 Crossland Rd., Pikesville, Md.
- EDWIN LORENZO CROSBY, M. D., DR. P. H., *Associate in Preventive Medicine*  
[1939] The Johns Hopkins Hospital
- JERZY EDWIN ROSE, M. D., *Research Associate in Psychiatry*  
[1939] [On leave of absence, U. S. A.]
- MIRIAM ESTHER BRAILEY, M. D., DR. P. H., *Associate in Pediatrics*  
[1940; 1932] Northwood Apts.
- EDWARD STEPHEN STAFFORD, M. D., *Associate in Surgery*  
[1940; 1932] [On leave of absence, U. S. A.]
- ELEANOR ALBERT BLISS, SC. D., *Associate in Preventive Medicine*  
[1943; 1934] 1026 N. Calvert St.
- MIDDLETON ELLIOTT RANDOLPH, M. D., *Associate in Ophthalmology*  
[1940; 1934] [On leave of absence, U. S. A.]
- RICHARD TILLARD SHACKELFORD, M. D., *Associate in Surgery*  
[1940; 1936] [On leave of absence, U. S. A.]

- THOMAS MCPHERSON BROWN, M. D., *Associate in Medicine*  
[1940; 1939] [On leave of absence, U. S. A.]
- JOHN JOSEPH PHAIR, M. D., DR. P. H., *Associate in Preventive Medicine and Acting Director of the Department of Preventive Medicine*  
[1940] 7103 Rich Hill Rd.
- CAROLINE BEDELL THOMAS, M. D., *Associate in Medicine*  
[1941; 1935] 314 Overhill Rd.
- HENRY MORGENTHAU FOX, M. D., *Associate in Psychiatry*  
[1941; 1934] [On leave of absence, U. S. A.]
- DUDLEY CYRUS BABB, M. D., *Associate in Laryngology and Otology*  
[1941; 1935] [On leave of absence, U. S. A.]
- CLINTON NATHAN WOOLSEY, M. D., *Associate in Physiology*  
[1941; 1933] 1902 McElderry St.
- W. HALSEY BARKER, M. D., *Associate in Medicine and Assistant Dean*  
[1941; 1937] 300 Kerneway
- RUSSELL ANDREW NELSON, M. D., *Associate in Medicine*  
[1943; 1938] 1907 McElderry St.
- LOUIS M. HELLMAN, M. D., *Associate in Obstetrics*  
[1941; 1938] [On leave of absence, U. S. N.]
- HARRIS B. SHUMACKER, JR., M. D., *Associate in Surgery*  
[1941; 1938] [On leave of absence, U. S. A.]
- ELMER JAMES MULLIGAN, M. D., *Associate in Laryngology and Otology*  
[1941; 1939] 6307 Harford Rd.
- RAYMOND EARL LENHARD, M. D., *Associate in Orthopedic Surgery*  
[1942; 1927] 1107 St. Paul St.
- ANGUS LLOYD MACLEAN, M. D., C. M., *Associate in Ophthalmology*  
[1942; 1926] 1201 N. Calvert St.
- JACOB H. CONN, M. D., *Associate in Psychiatry*  
[1942; 1931] 2325 Eutaw Pl.
- ALAN BERNSTEIN, M. D., *Associate in Medicine*  
[1942; 1933] 1039 N. Calvert St.
- JAMES CLAGGETT OWINGS, M. D., *Associate in Surgery*  
[1942; 1927] 18 W. Franklin St.
- SAMUEL McLANAHAN, JR., M. D., *Associate in Surgery*  
[1942; 1933] 108 E. 33d St.
- CHARLES FRANKLIN MOHR, M. D., *Associate in Medicine*  
[1942; 1936] Medical Arts Bldg.
- A. CALVIN BRATTON, JR., PH. D., M. D., *Associate in Pharmacology and Experimental Therapeutics*  
[1942; 1937] 4210 Loch Raven Rd.
- LYDIA BOWMAN EDWARDS, M. D., *Associate in Preventive Medicine and Associate in Pediatrics*  
[1942; 1939] [On leave of absence, U. S. P. H. S.]

- JACK SMALLWOOD GUYTON, M. D., *Associate in Ophthalmology*  
[1942; 1938] 1934 McElderry St.
- RUTH A. MILLER, PH. D., *Associate in Anatomy*  
[1943] St. James Apts.
- NATHAN BERNARD HERMAN, M. D., *Associate in Medicine and Physician-in-Charge Medical Care of Students and Employees*  
[1943; 1921] 1041 St. Paul St.
- HOWARD HANFORD HOPKINS, M. D., *Associate in Dermatology*  
[1943; 1928] 1125 St. Paul St.
- AMOS FRANCIS HUTCHINS, M. D., *Associate in Urology*  
[1943; 1934] 1227 N. Calvert St.
- AUSTIN LAMONT, M. D., *Associate in Surgery*  
[1943; 1934] 2 Warrenton Rd.
- WALTER FLEISCHMANN, M. D., *Associate in Pediatrics*  
[1943; 1938] 3319 Winterbourne Rd.
- MAURICE SULLIVAN, M. D., *Associate in Dermatology*  
[1943; 1937] [On leave of absence, U. S. A.]
- SAMUEL A. TALBOT, PH. D., *Associate in Physiological Optics*  
[1943; 1935] 701 W. Melrose Ave.
- NICHOLAS L. BALLICH, JR., M. D., *Associate in Psychiatry*  
[1943; 1939] 535 N. Wolfe St.
- J. LOGAN IRVIN, PH. D., *Associate in Physiological Chemistry*  
[1943; 1941] 612 Marwood Rd.
- ALFRED EDWARD MAUMENEE, JR., M. D., *Associate in Ophthalmology*  
[1943; 1939] 719 N. Broadway
- LUIS ORTEGA, M. D., *Associate in Neurology*  
[1943; 1940] 10 E. 33d St.
- DONALD F. PROCTOR, M. D., *Associate in Laryngology and Otology*  
[1943] 6 E. Eager St.
- LEWIS BROWN HILL, M. D., *Associate in Psychiatry*  
[1943] 10 W. Madison St.
- 
- JAMES HALL MASON KNOX, JR., PH. D., M. D., *Associate Emeritus in Pediatrics*  
[1942; 1902] 211 Wendover Rd.

### INSTRUCTORS

- JOHN GARDNER MURRAY, JR., M. D., *Instructor in Obstetrics*  
[1917; 1915] 9 E. Chase St.
- HARRY M. ROBINSON, M. D., *Instructor in Medicine*  
[1919] 106 E. Chase St.
- EUGENE JOSEPH LEOPOLD, M. D., *Instructor in Medicine*  
[1920; 1907] 200 W. Lafayette Av.

JACOB COHEN, M. D., <i>Instructor in Medicine</i> [1922; 1918]	1804 Eutaw Pl.
CECIL H. BAGLEY, M. D., <i>Instructor in Ophthalmology</i> [1925; 1922]	Latrobe Apts.
CECIL WOODS VEST, M. D., <i>Instructor in Gynecology</i> [1926; 1912]	1014 St. Paul St.
LOUIS FREDERICK KRUMREIN, M. D., <i>Instructor in Medicine</i> [1926; 1922]	722 N. Kenwood Av.
*ARTHUR HEBB, M. D., <i>Instructor in Surgery</i> [1926; 1924]	115 E. Eager St.
HARRY WASSERMAN, M. D., <i>Instructor in Medicine</i> [1927; 1926]	1501 Eutaw Pl.
DAVID CORBIN STREETT, M. D., <i>Instructor in Medicine</i> [1928; 1913]	712 Park Av.
GRACE BAKER, M. D., <i>Instructor in Psychiatry</i> [1928; 1926]	203 W. Lanvale St.
LEON GINSBURG, M. D., <i>Instructor in Dermatology</i> [1929; 1925]	1800 N. Charles St.
LOUIS SACHS, M. D., <i>Instructor in Surgery</i> [1929; 1926]	Marlborough Apts.
BERRY CARROLL MARSHALL, M. D., <i>Instructor in Psychiatry</i> [1929]	419 Hawthorne Rd.
AARON ROBINSON, M. D., <i>Instructor in Ophthalmology</i> [1930; 1925]	1817 Eutaw Pl.
BENJAMIN H. RUTLEDGE, M. D., <i>Instructor in Medicine</i> [1930; 1927]	[On leave of absence, U. S. A.]
SAMUEL WHITEHOUSE, M. D., C. M., <i>Instructor in Medicine</i> [1930; 1927]	1720 Eutaw Pl.
EDMUND PENDLETON HUNTER HARRISON, JR., M. D., <i>Instructor in Obstetrics</i> [1930; 1928]	2903 N. Charles St.
ROBERT VICTOR SELIGER, M. D., <i>Instructor in Psychiatry</i> [1939; 1928]	2030 Park Av.
THOMAS CONRAD WOLFF, M. D., <i>Instructor in Medicine</i> [1930; 1929]	4210 Tuscany Ct.
THOMAS TERRY BURGER, M. D., <i>Instructor in Pediatrics</i> [1930; 1929]	3301 N. Charles St.
CHESTER EZEKIEL HURWITZ, M. D., <i>Instructor in Ophthalmology</i> [1931; 1925]	2326 Eutaw Pl.
HOWARD MILTON KERN, M. D., <i>Instructor in Surgery</i> [1931; 1926]	1719 Eutaw Pl.
GEORGE LEWIS STICKNEY, M. D., <i>Instructor in Gynecology</i> [1931; 1926]	Latrobe Apts.

\* Died April 24, 1944.

- JOHN TILDEN HOWARD, M. D., *Instructor in Medicine*  
[1931; 1928] 12 E. Eager St.
- EDWIN DAVID WEINBERG, M. D., *Instructor in Orthopedic Surgery*  
[1932; 1925] 1208 Eutaw Pl.
- FRANK ROBERT SMITH, JR., M. D., *Instructor in Medicine*  
[1932; 1927] [On leave of absence, U. S. N.]
- JOHN H. TRESCHER, M. D., *Instructor in Medicine*  
[1932; 1928] 1035 N. Calvert St.
- EVELYN HOWARD, PH. D., *Instructor in Physiology*  
[1932; 1931] 1924 McElderry St.
- CHARLES O'DONOVAN, JR., M. D., *Instructor in Pediatrics*  
[1933; 1931] [On leave of absence, U. S. N.]
- HAROLD RAY BOHLMAN, M. D., *Instructor in Orthopedic Surgery*  
[1934; 1926] Medical Arts Bldg.
- MOSES GELLMAN, M. D., *Instructor in Orthopedic Surgery*  
[1934; 1929] 1411 Eutaw Pl.
- RALPH GORMAN HILLS, M. D., *Instructor in Medicine*  
[1934; 1933] [On leave of absence, U. S. A.]
- CHARLOTTE MCCARTHY, M. D., *Instructor in Medicine*  
[1935; 1927] Medical Arts Bldg.
- FRED MILLER REESE, M. D., *Instructor in Ophthalmology*  
[1935; 1933] [On leave of absence, U. S. A.]
- ROBERT ANDREW PAUL REITER, M. D., *Instructor in Medicine*  
[1935; 1933] 3408 Windsor Ave.
- J. HERMAN LONG, M. D., *Instructor in Gynecology*  
[1935] [On leave of absence, U. S. A.]
- FIRMADGE KING NICHOLS, M. D., *Instructor in Gynecology*  
[1935] [On leave of absence, U. S. A.]
- BESSIE LOUISE MOSES, M. D., *Instructor in Obstetrics*  
[1936; 1925] Medical Arts Bldg.
- ARCHIBALD STUART CHALFANT, M. D., *Instructor in Medicine*  
[1936; 1931] 6210 York Rd.
- CHARLES BERNARD BRACK, M. D., *Instructor in Gynecology*  
[1936; 1934] [On leave of absence, U. S. A.]
- JOHN MORLAND SPENCE, JR., M. D., *Instructor in Obstetrics*  
[1936; 1934] [On leave of absence, U. S. A.]
- RICHARD FRANCE, M. D., *Instructor in Medicine*  
[1936; 1935] [On leave of absence, U. S. N.]
- JOHN WARNER PARSONS, M. D., *Instructor in Medicine*  
[1936; 1935] [On leave of absence, U. S. N.]
- WALTER BLOCK, M. D., *Instructor in Pediatrics*  
[1936] 3310 Bateman Ave.



- RICHARD CARMICHAEL TILGHMAN, M.D., *Instructor in Medicine*  
[1936] [On leave of absence, U. S. A.]
- HUGH G. WHITEHEAD, M.D., *Instructor in Medicine*  
[1936] [On leave of absence, U. S. N.]
- WALTER JAHREISS, M.D., *Instructor in Psychiatry*  
[1936] 3703 Clark's Lane
- EDWARD STINSON, JR., M.D., *Instructor in Urology*  
[1937; 1934] 18 E. Eager St.
- WHITMER BENNETT FIOR, M.D., *Instructor in Roentgenology*  
[1937; 1936] [On leave of absence, U. S. A.]
- MARCUS OSTRO, M.D., *Instructor in Roentgenology*  
[1937; 1936] 1810 Eutaw Pl.
- WILLIAM NEILL, JR., M.D., *Instructor in Surgery*  
[1937] 3917 Canterbury Road
- ROGER D. REID, PH.D., *Instructor in Bacteriology*  
[1937] [On leave of absence, U. S. A.]
- WILLIAM MARSHALL ROWLAND, M.D., *Instructor in Ophthalmology*  
[1938; 1929] [On leave of absence]
- GEORGE OTTO GEY, M.D., *Instructor in Surgery*  
[1938; 1933] 427 N. Broadway
- HOWARD CHANDLER SMITH, M.D., *Instructor in Urology*  
[1938; 1934] Medical Arts Bldg.
- FRANCIS WILCOX GLUCK, M.D., *Instructor in Medicine*  
[1938; 1935] 715 Park Ave.
- WILFORD ANDERSON HALL COUNCILL, M.D., *Instructor in Urology*  
[1938; 1936] 9 E. Mt. Royal Ave.
- RICHARD WALTER GRAHAM, JR., M.D., *Instructor in Surgery*  
[1938; 1936] [On leave of absence, U. S. A.]
- PAUL VICTOR LEMKAU, M.D., *Instructor in Psychiatry*  
[1938; 1936] [On leave of absence, U. S. A.]
- WILLIAM CURTIS STIFLER, JR., M.D., *Instructor in Pediatrics*  
[1938; 1936] [On leave of absence, U. S. A.]
- JOHN WHITRIDGE, JR., M.D., *Instructor in Obstetrics*  
[1938; 1936] [On leave of absence, U. S. A.]
- MURRAY MARCUS COPELAND, M.D., *Instructor in Surgery*  
[1938; 1937] [On leave of absence, U. S. A.]
- THOMAS R. FORBES, PH.D., *Instructor in Anatomy*  
[1938; 1937] [On leave of absence]
- MARY STEWART GOODWIN, M.D., *Instructor in Pediatrics*  
[1938] 16 E. Biddle St.
- HEINZ HERRMANN, M.D., *Instructor in Ophthalmology*  
[1938] 2212 E. Hoffman St.

- J. ARTHUR WEINBERG, M. D., *Instructor in Surgery*  
[1939; 1931] [On leave of absence, U. S. A.]
- FRANCIS A. ELLIS, M. D., *Instructor in Dermatology*  
[1939; 1932] 8 E. Madison St.
- FRANK FURSTENBERG, M. D., *Instructor in Medicine*  
[1939; 1935] [On leave of absence, USPHS]
- ARTHUR IRVIN FINK, M. D., *Instructor in Medicine*  
[1939; 1936] 724 W. North Av.
- LAWRENCE KATZENSTEIN, M. D., *Instructor in Medicine*  
[1939; 1936] [On leave of absence, U. S. A.]
- EDMUND LUDLOW KEENEY, M. D., *Instructor in Medicine*  
[1939; 1937] 1201 N. Calvert St.
- MOSES SAMUEL SHILING, M. D., *Instructor in Medicine*  
[1939; 1937] [On leave of absence, USPHS.]
- JAMES IRVING MOORE, M. D., *Instructor in Ophthalmology*  
[1939; 1936] [On leave of absence, U. S. A.]
- VICTOR NAJJAR, M. D., *Instructor in Pediatrics*  
[1939] 6 N. Boulder Lane
- LOUIS K. ALPERT, M. D., *Instructor in Medicine*  
[1940; 1939] [On leave of absence, U. S. A.]
- ROBERT EDWARD GARDNER, M. D., *Instructor in Psychiatry*  
[1939] Spring Grove State Hospital, Catonsville, Md.
- ELEANOR DELES, M. D., *Instructor in Obstetrics*  
[1940; 1937] 150 Wilson St.
- H. ALVAN JONES, M. D., *Instructor in Orthopedic Surgery*  
[1940; 1932] 1107 St. Paul St.
- GEORGE O. EATON, M. D., *Instructor in Orthopedic Surgery*  
[1940; 1933] [On leave of absence, U. S. A.]
- RUTH WILMANN'S LIDZ, M. D., *Instructor in Psychiatry*  
[1940; 1936] 7017 Kenleigh Rd.
- GEORGE FARBER, M. D., *Instructor in Roentgenology*  
[1940; 1937] 219 W. Monument St.
- MILTON BERNARD KRESS, M. D., *Instructor in Medicine*  
[1940; 1937] 2312 Callow Ave.
- ROBERT CLYATT KIMBERLY, M. D., *Instructor in Surgery*  
[1940; 1938] [On leave of absence, U. S. A.]
- THEODORE LIDZ, M. D., *Instructor in Psychiatry*  
[1940; 1938] [On leave of absence, U. S. A.]
- MITCHELL HOOPER MILLER, M. D., *Instructor in Medicine*  
[1942; 1939] [On leave of absence, U. S. A.]
- MARIE M. CAKETOVA, M. D., *Instructor in Preventive Medicine*  
[1940] 3021 N. Calvert St.

- \*GORDON IRA TREVETT, M. D., *Instructor in Preventive Medicine*  
[1942; 1940] 1014 Overbrook Rd.
- ISABELLE GILBERT SCHAUB, A. B., *Instructor in Bacteriology*  
[1941; 1928] 4032 Deepwood Rd.
- RACHEL GUNDRY, M. D., *Instructor in Psychiatry*  
[1941; 1932] 5002 Frederick Rd.
- JOHN MARCH HAWS, M. D., *Instructor in Obstetrics*  
[1941; 1935] 9 E. Chase St.
- MARCUS M. RAVITCH, M. D., *Instructor in Surgery*  
[1941; 1936] [On leave of absence, U. S. A.]
- GEORGE O. DOAK, PH. D., *Instructor in Medicine*  
[1941; 1937] 432 Rosebank Ave.
- JAMES DONALD WOODRUFF, M. D., *Instructor in Gynecology*  
[1941; 1938] [On leave of absence, U. S. A.]
- WILHELM H. BUSCHKE, M. D., *Instructor in Ophthalmology and Virginia Fair  
Vanderbilt Fellow in Ophthalmology*  
[1943; 1938] 2215 Elsinor Ave.
- BARBARA JEAN BETZ, M. D., *Instructor in Psychiatry*  
[1941; 1939] 622 N. Washington St.
- RICHARD HAHN, M. D., *Instructor in Medicine*  
[1942; 1939] 1701 Eutaw Pl.
- CONSTANTINO P. MANAHAN, M. D., *Instructor in Obstetrics*  
[1941; 1939] Pentridge Apts.
- PALMER F. C. WILLIAMS, M. D., *Instructor in Medicine*  
[1941; 1939] Pikesville, Md.
- GEORGEANNA SEEGAR JONES, M. D., *Instructor in Gynecology*  
[1941; 1939] 325 Hawthorne Rd.
- RUTH WICHELHAUSEN, M. D., *Instructor in Bacteriology*  
[1941; 1939] 1014 N. Broadway
- RAY S. SNIDER, PH. D., *Instructor in Physiology*  
[1941; 1939] 103 Ridgewood Rd.
- JOHN ARTHUR LUETSCHER, JR., M. D., *Instructor in Medicine*  
[1941; 1940] 1922 McCleddy St.
- HOWARD KEMP RATHBUN, M. D., *Instructor in Medicine*  
[1941; 1940] 500 N. Washington St.
- ANTHONY AUGUST ALBANESE, PH. D., *Instructor in Pediatrics*  
[1941] Northwood Apts.
- HANS BIX, M. D., *Instructor in Pediatrics*  
[1941] Georgian Court Apts.
- PALMER HOWARD FUTCHER, M. D., *Instructor in Medicine*  
[1941] [On leave of absence, U. S. N.]
- SYDNEY GELLIS, M. D., *Instructor in Pediatrics*  
[1941] [On leave of absence, U. S. A.]

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\* Died May 4, 1944.

- JACOB LIGHT, M. D., *Instructor in Pediatrics*  
[1941] [On leave of absence]
- WILLIAM BREEN VANDEGRIFT, M. D., *Instructor in Pathology*  
[1941] [On leave of absence, U. S. A.]
- BOWMAN JOYNER HOOD, M. D., *Instructor in Medicine*  
[1942; 1936] 317 Broxton Rd.
- WEBSTER H. BROWN, M. D., *Instructor in Roentgenology*  
[1942; 1938] [On leave of absence, U. S. A.]
- FRANCIS JOSEPH OTENASEK, M. D., *Instructor in Surgery*  
[1942; 1938] 808 N. Broadway
- SAMUEL LIVINGSTON, M. D., *Instructor in Pediatrics*  
[1942; 1939] 3804 Park Heights Ave.
- DANIEL L. DOHERTY, JR., M. D., *Instructor in Roentgenology*  
[1942; 1940] [On leave of absence, U. S. A.]
- WILLIAM DRUMMOND EATON, M. D., C. M., *Instructor in Obstetrics*  
[1942; 1940] 11 E. Chase St.
- JEROME D. FRANK, PH. D., M. D., *Instructor in Psychiatry*  
[1942; 1940] [On leave of absence, U. S. A.]
- JOHN E. GREGORY, M. D., *Instructor in Pathology*  
[1942; 1940] The Johns Hopkins Hospital
- ROY OTTO SCHOLZ, M. D., *Instructor in Ophthalmology*  
[1942; 1940] 814 N. Broadway
- ROGER BURDETTE SCOTT, M. D., *Instructor in Gynecology*  
[1942; 1940] 801 N. Broadway
- RICHARD NELSON TILLMAN, M. D., *Instructor in Medicine*  
[1942; 1940] 3035 St. Paul St.
- ASA DOUGAL YOUNG, M. D., *Instructor in Roentgenology*  
[1942; 1940] [On leave of absence, U. S. A.]
- GEORGE MERRILL, M. D., *Instructor in Medicine*  
[1943; 1940] Baldwin, Md.
- JOHN BALL FRERICHS, M. D., *Instructor in Pathology*  
[1942; 1941] The Johns Hopkins Hospital
- GERALD A. GALVIN, M. D., *Instructor in Gynecology*  
[1942; 1941] The Johns Hopkins Hospital
- AVERILL STOWELL, M. D., *Instructor in Physiology*  
[1942; 1941] [On leave of absence, U. S. A.]
- HARRY F. KLINEFELTER, JR., M. D., *Instructor in Medicine*  
[1942; 1939] [On leave of absence, U. S. A.]
- ROBERT LEE GRAHAM, M. D., *Instructor in Pathology*  
[1942] 3 Stratford Rd.
- MARY ELLIS TURNER, A. B., *Instructor in Urology*  
[1942] Calvert Court Apts.

- ELIZABETH G. FRAME, PH. D., *Instructor in Chemical Urology*  
[1942] 105 Woodlawn Rd.
- NOBEL W. GUTHRIE, M. D., M. P. H., *Instructor in Medicine*  
[1942] 638 E. 33d St.
- ROBERT GORDON SHEPHERD, PH. D., *Instructor in Pharmacology and Experimental Therapeutics*  
[1943; 1940] 5509 Lothian Rd.
- RUDOLPH A. MICHELSON, M. D., *Instructor in Medicine*  
[1943; 1929] 2230 Eutaw Place
- ROBERT WILLIAM GARIS, M. D., *Instructor in Medicine*  
[1943; 1936] 1014 St. Paul St.
- HENRY MATHIES HENSEN, M. D., *Instructor in Medicine*  
[1943; 1937] 20 E. Preston St.
- JEROME HARTZ, M. D., *Instructor in Psychiatry*  
[1943; 1939] The Johns Hopkins Hospital
- MILTON EDWARD LOWMAN, M. D., *Instructor in Medicine*  
[1943; 1939] 5013 Park Heights Ave.
- HENRY LIPPINCOTT HAINES, M. D., *Instructor in Laryngology and Otology*  
[1943; 1940] 1916 McElderry St.
- ARTHUR THOMAS WARD, JR., M. D., *Instructor in Laryngology and Otology*  
[1943; 1940] 201 Paddington Rd.
- SARAH BOWDITCH, M. D., *Instructor in Medicine*  
[1943; 1941] [On leave of absence, U. S. A.]
- ELLIOTT VOSS NEWMAN, M. D., *Instructor in Medicine*  
[1943; 1941] 513 N. Wolfe St.
- WILLIAM FRANKLIN HUGHES, JR., M. D., *Instructor in Ophthalmology*  
[1943; 1939] 619 N. Washington St.
- HAROLD SOMERS FISH, PH. D., *Instructor in Anatomy*  
[1943; 1941] 5907 Bellona Ave.
- LESTER LEE HASENBUSH, M. D., *Instructor in Psychiatry*  
[1943; 1942] 521 N. Washington St.
- KATHERINE HELEN BORKOVICH, M. D., *Instructor in Medicine and Assistant in Pediatrics*  
[1943; 1942] 808 N. Broadway
- RICHARD RAPP OWENS, M. D., *Instructor in Medicine*  
[1943; 1942] The Johns Hopkins Hospital
- FRANCES ELBA MYRTLE READ, M. D., *Instructor in Pediatrics*  
[1943; 1942] The Johns Hopkins Hospital
- MARGARET HAMILTON DONALD SMITH, M. D., *Instructor in Pediatrics*  
[1943; 1942] Sydenham Hospital
- JAMES M. SPRAGUE, PH. D., *Instructor in Anatomy*  
[1943; 1942] 411 Woodlawn Road
- WILLIAM POLK LONGMIRE, JR., *Instructor in Surgery*  
[1943; 1942] The Johns Hopkins Hospital

- WALTER E. LOCH, M. D., *Instructor in Laryngology and Otology*  
[1943; 1939] 1011 N. Charles St.
- RICHARD J. BING, M. D., *Instructor in Medicine*  
[1943] Lutherville, Md.
- HAROLD JOSEPH MAGNUSON, M. D., *Instructor in Medicine*  
[1943] 7806 Old Harford Rd., Parkville, Md.
- ELIZABETH PEABODY TREVETT, M. D., *Instructor in Pediatrics*  
[1943] Garrison, Md.
- ELIZABETH CONE, *Instructor in Art as Applied to Medicine*  
[1943] 419 N. Broadway
- RANICE BIRCH, A. B., *Instructor in Art as Applied to Medicine*  
[1943] 529 N. Wolfe St.
- JOHN LYFORD, III, M. D., *Instructor in Orthopedic Surgery*  
[1943; 1942] The Johns Hopkins Hospital
- ROY STINSON BIGHAM, JR., M. D., *Instructor in Medicine*  
[1943] 947 N. Broadway
- HANIA WISLICKA EHLERS, M. D., *Instructor in Pediatrics*  
[1943] 1014 St. Paul St.
- GEORGE WALTON DUNCAN, M. D., *Instructor in Surgery*  
[1943; 1941] The Johns Hopkins Hospital
- HERBERT ELIAS SLOAN, JR., M. D., *Instructor in Surgery*  
[1943; 1941] The Johns Hopkins Hospital
- ALBERT CONRAD SNEEL, JR., M. D., *Instructor in Ophthalmology*  
[1943; 1941] 1904 McElderry St.
- ANTONIO JOHNSTON WARING, JR., M. D., *Instructor in Pediatrics*  
[1943] The Johns Hopkins Hospital
- EARL H. DEARBORN, PH. D., *Instructor in Pharmacology and Experimental Therapeutics*  
[1943] 918 St. Paul St.
- JANET B. HARDY, M. D., *Instructor in Pediatrics*  
[1944; 1943] 1920 McElderry St.
- MORVYTH JOYCE McQUEEN-WILLIAMS, M. D., *Instructor in Roentgenology*  
[1944; 1942] The Johns Hopkins Hospital
- LUVIA TAYLOR, M. D., *Instructor in Psychiatry*  
[1944; 1942] 721 N. Broadway
- EDWIN LAWRENCE KENDIG, JR., M. D., *Instructor in Pediatrics*  
[1944] 837 W. University Parkway
- JULIA TUTELMAN APTER, M. D., *Instructor in Ophthalmology*  
[1943] 821 N. Broadway
- LOIS FESS, M. D., *Instructor in Gynecology*  
[1943] 702 N. Broadway
- DEAN WINN ROBERTS, M. D., *Instructor in Pediatrics*  
[1944; 1942] 513 N. Wolfe St.

- RUSSELL BURTON ROTH, M. D., *Instructor in Urology*  
[1944; 1940] The Johns Hopkins Hospital
- LOIS FRAYSER, M. D., *Instructor in Pediatrics*  
[1944] Sydenham Hospital

## ASSISTANTS

- MARIE E. PERKINS, A. B., *Assistant in Physiological Chemistry*  
[1925] 1325 Eutaw Pl.
- SAHLER MOSES GREENBERG, M. D., *Assistant in Medicine*  
[1930] 4613 Eastern Av.
- H. EDMUND LEVIN, M. D., *Assistant in Medicine*  
[1930] 2037 Park Av.
- JOSEPH NATHAN ZIERLER, M. D., *Assistant in Medicine*  
[1930] 2318 Eutaw Pl.
- JOHN FRANK HEWITT, M. D., *Assistant in Orthopedic Surgery*  
[1934] 922 W. University Pkwy.
- HERBERT ELIJAH WILGIS, M. D., *Assistant in Surgery*  
[1934] McDonogh, Md.
- MANUEL GICHNER, M. D., *Assistant in Medicine*  
[1935] [On leave of absence, U. S. A.]
- SAMUEL BUTLER GRIMES, JR., M. D., *Assistant in Pediatrics*  
[1935] [On leave of absence, U. S. A.]
- MANES SCHEUER HECHT, M. D., *Assistant in Pediatrics*  
[1935] [On leave of absence, U. S. A.]
- HARRY WILLIAM PRIMAKOFF, M. D., *Assistant in Medicine*  
[1935] Temple Gardens
- CONRAD ACTON, M. D., *Assistant in Medicine*  
[1937] [On leave of absence, U. S. A.]
- HARRY EMMANUEL BLOOM, M. D., *Assistant in Ophthalmology*  
[1937] 908 N. Charles St.
- LYMAN SINCLAIR ABBOTT, M. D., *Assistant in Ophthalmology*  
[1938] 620 Highwood Dr.
- MATTHEW DEBUSKEY, M. D., *Assistant in Pediatrics*  
[1938] [On leave of absence, U. S. A.]
- HENRY BENEDICT MAKOVER, M. D., *Assistant in Medicine*  
[1938] [On leave of absence, USPHS.]
- LEONARD ABRAMOVITZ, M. D., *Assistant in Medicine*  
[1939] [On leave of absence, U. S. A.]
- BERNARD J. COHEN, M. D., *Assistant in Medicine*  
[1939] Marlborough Apts.
- ALBERT JULIUS GLASS, M. D., *Assistant in Neurology*  
[1939] [On leave of absence, U. S. A.]

- WILLIAM GRAFTON HERSPERGER, M. D., *Assistant in Medicine*  
[1939] Medical Arts Bldg.
- NATHAN E. NEEDLE, M. D., *Assistant in Medicine*  
[1939] 2314 W. North Av.
- HARRY MAXIMILIAN ROBINSON, JR., M. D., *Assistant in Medicine*  
[1939] [On leave of absence, U. S. A.]
- HARRY STEINMAN, PH. D., *Assistant in Medicine*  
[1939] 3227 Powhatan Ave.
- WILSON LYON GRUBB, M. D., *Assistant in Pediatrics*  
[1940] Tudor Arms Apts.
- AARON HARRIS, M. D., *Assistant in Medicine*  
[1940] [On leave of absence, U. S. N.]
- MAX LEVIN, M. D., *Assistant in Neurology*  
[1940] [On leave of absence, U. S. A.]
- WILLIAM BARRIS McALLISTER, JR., M. D., *Assistant in Pathology*  
[1940] [On leave of absence, U. S. N.]
- IRVIN SAUBER, M. D., *Assistant in Medicine*  
[1940] [On leave of absence, U. S. A.]
- PAUL WILLIAM SPEAR, M. D., *Assistant in Medicine*  
[1940] [On leave of absence, U. S. A.]
- HARRY ALLEN TEITELBAUM, M. D., *Assistant in Neurology*  
[1940] [On leave of absence, U. S. A.]
- HYMAN ARNE WEINER, M. D., *Assistant in Medicine*  
[1940] [On leave of absence, U. S. A.]
- DANIEL WILFSON, M. D., *Assistant in Medicine*  
[1940] 5721 Park Heights Ave.
- ELIZABETH ILIFF, M. D., *Assistant in Medicine*  
[1941; 1940] 1014 St. Paul St.
- WALTER BUCK, M. D., *Assistant in Medicine*  
[1941] [On leave of absence, U. S. A.]
- SIDNEY SCHERLIS, M. D., *Assistant in Medicine*  
[1941] [On leave of absence, U. S. A.]
- WILLIAM DAVID WOLFE, M. D., *Assistant in Dermatology*  
[1941] [On leave of absence, U. S. A.]
- PHILIP PENDLETON STEPTOE, JR., M. D., *Assistant in Obstetrics*  
[1941] The Johns Hopkins Hospital
- ROBERT NELSON COOLEY, M. D., *Assistant in Roentgenology*  
[1941] [On leave of absence, U. S. N.]
- DOUGLAS STONE, M. D., *Assistant in Surgery*  
[1941] [On leave of absence, U. S. A.]
- JOHN HINTON SHACKELFORD, D. D. S., *Assistant in Preventive Medicine*  
[1941] Baltimore Life Bldg.



- KATHERINE KEMPNER RICE, SC. D., M. D., *Assistant in Psychiatry*  
[1941] The Johns Hopkins Hospital
- MARY HYDE ROBBINS LOCH, M. B., *Assistant in Medicine*  
[1942; 1939] 1026 N. Broadway
- THEODORE ALEXANDER, M. D., *Assistant in Roentgenology*  
[1942] The Johns Hopkins Hospital
- NATHANIEL STANLEY APTER, M. D., *Assistant in Psychiatry*  
[1942] 821 N. Broadway
- DAVID B. CHEEK, M. D., *Assistant in Gynecology*  
[1943; 1942] 702 N. Broadway
- JOSEPH MICHAEL CORDI, M. D., *Assistant in Pediatrics*  
[1942] [On leave of absence, U. S. A.]
- HERMAN KRIEGER GOLDBERG, M. D., *Assistant in Ophthalmology*  
[1942] 8 E. Eager St.
- JOSEPH M. HEIDELMAN, M. D., *Assistant in Ophthalmology*  
[1942] Baltimore City Hospitals
- LOUIS REULING, M. D., *Assistant in Roentgenology*  
[1942] The Johns Hopkins Hospital
- HUGO VICTOR RIZZOLI, M. D., *Assistant in Surgery*  
[1943; 1942] 724 N. Broadway
- LUCILLE BEADENKOPF ROBINSON, A. B., *Assistant in Bacteriology*  
[1942] Ridgemed Apts.
- HOWARD WILBUR JONES, JR., M. D., *Assistant in Surgery*  
[1942] [On leave of absence, U. S. A.]
- JOHN M. McDONALD, M. D., D. P. H. (Camb.), *Assistant in Preventive Medicine*  
[1942] 5713 Rusk Ave.
- TRUDE TIETZE, M. D., *Assistant in Psychiatry*  
[1942] 3903 Edgewood Rd.
- HERBERT GOLDSTONE, M. D., *Assistant in Medicine*  
[1942] 2243 Linden Ave.
- GENEVIEVE MILLER, A. B., A. M., *Assistant in the History of Medicine*  
[1943] Hopkins Apts.
- GILBERT JAY VOSBURGH, M. D., *Assistant in Obstetrics*  
[1943] [On leave of absence]
- LEROY EDWARD DUNCAN, JR., M. D., *Assistant in Medicine and Assistant Physician-in-Charge Medical Care of Students and Employees*  
[1943] 909 N. Broadway
- MARY GRIFFITH, M. D., *Assistant in Obstetrics*  
[1943] The Johns Hopkins Hospital
- WILLIAM C. OWENS, M. D., *Assistant in Ophthalmology*  
[1943] The Johns Hopkins Hospital
- ROBERT WESTON, M. D., *Assistant in Medicine*  
[1943] Baltimore City Hospitals

- EDUARD ASCHER, M. D., *Assistant in Psychiatry*  
[1943] 2428 Lakeview Ave.
- DAVID DOVE, M. D., *Assistant in Medicine*  
[1943] Baltimore City Hospitals
- RAYA EPHRUSSI, M. D., *Assistant in Medicine*  
[1943] Calvert Court Apts.
- JOSEPH FORD, M. D., *Assistant in Neurology*  
[1943] Baltimore City Hospitals
- LUCILLE PRICE, M. D., *Assistant in Psychiatry*  
[1943] The Johns Hopkins Hospital
- FRANCIS W. HELFRICK, M. D., *Assistant in Pediatrics*  
[1943] 501 N. Wolfe St.
- VIRGIL SCOTT, M. D., *Assistant in Medicine*  
[1943] 3203 N. Charles St.
- ELOISE TRESCHER, M. D., *Assistant in Medicine*  
[1943] Hamlyn Apt.
- CHARLES A. WAGNER, M. D., *Assistant in Roentgenology*  
[1943; 1940] [On leave of absence, U. S. A.]
- FREDERIC ARTHUR GLASS, M. D., *Assistant in Dermatology*  
[1943] 1208 Eutaw Place
- CHARLOTTE H. WASKOWITZ, A. B., *Assistant in Medical Psychology*  
[1943] 19 S. Linwood Ave.
- ROBERT EUGENE ARNOT, M. D., *Assistant in Psychiatry*  
[1943] The Johns Hopkins Hospital
- ALFRED BURTON DIXON, M. D., *Assistant in Obstetrics*  
[1943] [On leave of absence, U. S. A.]
- S. WALTER LANDAU, M. D., *Assistant in Medicine*  
[1943] Reisterstown, Md.
- REGINA KLUG, A. B., *Assistant in Psychiatry*  
[1943] 502 Beaumont Ave.
- GEORGE HENRY BUNCH, JR., M. D., *Assistant in Surgery*  
[1943] The Johns Hopkins Hospital
- JOHN WESLEY CHAMBERS, M. D., *Assistant in Surgery*  
[1943] The Johns Hopkins Hospital
- JOHN RANKIN BIRMINGHAM, M. D., *Assistant in Medicine*  
[1943] The Johns Hopkins Hospital
- MERCER CARTER BLANCHARD, JR., M. D., *Assistant in Pediatrics*  
[1943] The Johns Hopkins Hospital
- GEORGE EASTMAN CARTWRIGHT, M. D., *Assistant in Medicine*  
[1943] The Johns Hopkins Hospital
- ABRAHAM GENECIN, M. D., *Assistant in Medicine*  
[1943] The Johns Hopkins Hospital

- STUART L. JOSLIN, M. D., *Assistant in Pediatrics*  
[1943] The Johns Hopkins Hospital
- ROBERT KAYE, M. D., *Assistant in Pediatrics*  
[1943] The Johns Hopkins Hospital
- PAUL MESSIER, M. D., *Assistant in Ophthalmology*  
[1943] The Johns Hopkins Hospital
- BRIAN F. MURPHY, M. D., *Assistant in Pathology*  
[1943] 724 N. Broadway
- GEORGE EDWARD MURPHY, M. D., *Assistant in Pathology*  
[1943] 2231 St. Paul St.
- PAUL ELI WILSON, M. D., *Assistant in Pediatrics*  
[1943] The Johns Hopkins Hospital
- NEVA ABELSON, M. D., *Assistant in Pediatrics*  
[1944] 508 N. Broadway
- JAMES HOYT JENKINS, JR., M. D., *Assistant in Obstetrics*  
[1944] The Johns Hopkins Hospital
- JOHN RUSSELL JORDAN, M. D., *Assistant in Obstetrics*  
[1944] 702 N. Broadway
- INGEBORG SYLLM, M. D., *Assistant in Pediatrics*  
[1944] 533 N. Wolfe St.
- GEORGE A. HANNA, JR., M. D., *Assistant in Roentgenology*  
[1944] The Johns Hopkins Hospital
- JOHN R. EGAN, M. D., *Assistant in Urology*  
[1944] The Johns Hopkins Hospital

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 LECTURERS

- EVANDER FRANCIS KELLY, PHAR. D., SC. D., *Lecturer in Pharmacy*  
[1923] 2215 Constitution Ave., Washington, D. C.
- EUGENE O'DUNNE, A. M., LL. B., *Lecturer in Medical Jurisprudence*  
[1926] 704 Cathedral St.
- JOHN MCFARLAND BERGLAND, M. D., *Lecturer in Obstetrics*  
[1930] 1014 St. Paul St.
- SANFORD VINCENT LARKEY, M. D., *Lecturer in the History of Medicine*  
[1935] [On leave of absence, U. S. A.]
- G. CANBY ROBINSON, M. D., *Lecturer in Medicine and Lecturer in Preventive Medicine*  
[1936] [On leave of absence, Red Cross]
- THOMAS BOURNE TURNER, M. D., *Lecturer in Medicine*  
[1936] [On leave of absence, U. S. A.]
- HARRY EAGLE, M. D., *Lecturer in Medicine*  
[1936] 2800 Lawina Rd.
- EDWARD HICKS HUME, M. D., *Lecturer in the History of Medicine*  
[1938] 156 Fifth Ave., New York City

- JOHN C. GITTINGS, M. D., *Lecturer in Pediatrics*  
[1939] Harwood, Md.
- JAMES STEVENS SIMMONS, M. D., PH. D., S. D., *Lecturer in Preventive Medicine*  
[1940] War Dept., Washington, D. C.
- CHARLES S. STEPHENSON, M. D., *Lecturer in Preventive Medicine*  
[1940] Navy Dept., Washington, D. C.
- HUNTINGTON WILLIAMS, M. D., DR. P. H., *Lecturer in Preventive Medicine*  
[1940] Baltimore City Health Dept.
- MARGARET MERRELL, SC. D., *Lecturer in Preventive Medicine*  
[1941] 1808 Eutaw Pl.
- EDWIN FRANCIS DAILY, M. D., *Lecturer in Obstetrics*  
[1941] Children's Bureau, U. S. Dept. Labor, Washington, D. C.
- E. GURNEY CLARK, M. D., *Lecturer in Medicine and Lecturer in Preventive Medicine*  
[1942] Hopkins Apts.
- W. THURBER FALES, C. P. H., SC. D., *Lecturer in Preventive Medicine*  
[1942] 4403 Elderton Ave.
- CLARK HARVEY YEAGER, M. D., M. P. H., *Lecturer in Preventive Medicine*  
[1942] 13 Midvale Rd.
- CHARLES HOWE ELLER, M. D., DR. P. H., *Lecturer in Preventive Medicine*  
[1943] Northwood Apts.

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 FELLOWS

- ERWIN H. ACKERKNECHT, M. D., *Fellow in the History of Medicine*  
[1941] 2300 Callow Ave.
- CHARLES EDWIN ILIFF, JR., M. D., *Edith Strohn Copley Fellow in Ophthalmology*  
[1943; 1942] The Johns Hopkins Hospital
- FRANK KAZUO INUI, M. D., *Fellow in Surgery*  
[1943; 1942] 702 Gladstone Ave.
- THOMAS W. FARMER, M. D., *John D. Archbold Fellow in Medicine*  
[1943] 3401 N. Calvert St.
- ANTHONY STEPHEN FELSEOVANYI, M. D., *Parke Davis Fellow in Medicine*  
[1943] 2833 St. Paul St.
- JEAN C. SABINE, M. D., *Fellow in the History of Medicine*  
[1943] 82 Elm St., Montclair, N. J.
- JANE WINTERITZ, PH. D., *John D. Archbold Fellow in Medicine*  
[1943] 811 N. Broadway
- JAMES JACKSON RAGAN, JR., M. D., *William Stewart Halsted Fellow in Surgery*  
[1943] 537 N. Wolfe St.
- JOHN L. HOPSON, M. D., *John D. Archbold Fellow in Medicine*  
[1943] 916 N. Broadway
- GEORGE ALLEN STREETER, M. D., *John D. Archbold Fellow in Medicine*  
[1943] 3707 St. Paul St.

## FELLOWS IN RESIDENCE

OSCAR C. CROXATTO, M. D., *Commonwealth Fund Fellow in Pathology*  
826 N. Broadway

RODRIGUEZ DELFINO, M. D., *Fellow of the American Academy of Pediatrics*  
610 N. Broadway

HEITOR MARBACK, M. D., *Kellogg Foundation Fellow in Ophthalmology*

HUMBERTO ROTONDO-GRIMALDI, M. D., *Rockefeller Foundation Fellow in Psychiatry*

147 W. Lanvale St.

EUGENIO VALLE, M. D., *Rockefeller Foundation Fellow in Pediatrics*  
923 N. Broadway

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## STUDENTS

November 29, 1943–August 18, 1944

### CANDIDATES FOR THE DEGREE OF DOCTOR OF MEDICINE

#### FOURTH YEAR

STEPHEN BOURNE ANDRUS. S. B., Haverford College, 1941.	Minneapolis, Minn.	512 N. Broadway
KEITH AULL. A. B., University of Missouri, 1941.	Kansas City, Mo.	510 N. Broadway
HERBERT DAVID AXILROD. A. B., Princeton University, 1941.	Atlantic City, N. J.	1006 N. Broadway
EDGAR PHILIP BANG. A. B., Johns Hopkins University, 1941.	Flushing, L. I., N. Y.	520 N. Broadway
* RALPH CHAMBERS BETHEA. A. B., Mississippi College, 1940; Medical Student, Tulane University Medical School, 1940-1942.	Jackson, Miss.	518 N. Broadway
CLAUDIA BARTON BLAIR. S. B., Birmingham Southern College, 1940; Medical Student, University of Alabama School of Medicine, 1940-1943.	Birmingham, Ala.	800 N. Broadway
GEORGE WILLIAM BORKOVIC. S. B., Geneva College, 1941.	Vamport, Pa.	814 N. Broadway
GIBSON PACKER BUCHANAN. A. B., Princeton University, 1941.	Pittsburgh, Pa.	512 N. Broadway
CHARLES WILHELM BURKLUND. A. B., Midland College, 1938; S. B., University of Nebraska, 1940.	Sutherland, Neb.	1729 E. Oliver St.
WILLIAM JOHN HUGHES BUTTERFIELD. A. B., Oxford University, 1942; Medical Student, <i>ibid.</i> , 1939-1942.	Birmingham, England.	24 N. Broadway
WILLIAM HAROLD CHAPMAN. S. B., Davidson College, 1941.	Marion, N.C.	507 N. Wolfe St.
JAMESON LEWIS CHASSIN. S. B., Harvard University, 1941.	Maspeth, L. I., N. Y.	1035 N. Broadway
DENTON ARTHUR COOLEY. A. B., University of Texas, 1941; Medical Student, <i>ibid.</i> , 1941-1942.	Houston, Texas.	520 N. Broadway
PAUL SHIELDS CRANE. S. B., Davidson College, 1941.	Pascagoula, Miss.	101 W. Monument St.
ALVIN JOSEPH CUMMINS. S. B., Georgetown University, 1941.	Washington, D. C.	1004 N. Broadway
EDWARD RUNKLE DANA. A. B., Wesleyan University, 1941.	Columbus, O.	606 N. Broadway
JAMES EDWARD DAVIS. A. B., University of Oklahoma, 1942.	Oklahoma City, Okla.	606 N. Broadway
JEROME RICHARD DORKIN. A. B., Lehigh University, 1941.	Camden, N. J.	Sinai Hospital
MILTON THOMAS EDGERTON, JR. A. B., Emory University, 1941; Medical Student, <i>ibid.</i> , 1941-1943.	Atlanta, Ga.	1015 N. Broadway

\* Degree conferred January 24, 1944.

CHARLES ELY FLOWERS, JR.	Zebulon, N. C.	613 N. Washington St.
S. B., The Citadel, 1941; Medical Student, University of North Carolina School of Medicine, 1941-1943.		
JOSEPH WARREN GARDELLA.	Arlington, Mass.	505 N. Wolfe St.
S. B., Harvard University, 1941.		
WILLIAM GRANT GILGER, II.	Lakewood, O.	803 N. Broadway
A. B., Williams College, 1941.		
HOWARD CHARLES GOODMAN.	Buffalo, N. Y.	507 N. Wolfe St.
A. B., Harvard University, 1941.		
MARGARET MARY HAMMOND.	New York, N. Y.	800 N. Broadway
A. B., Woman's College of the University of North Carolina, 1941.		
PEGGY ANN HANSON.	Baltimore, Md.	808 Cathedral St.
A. B., Manhattanville College of the Sacred Heart, 1941.		
ROBERT CARL HARTMANN.	Everett, Wash.	326 E. 33d St.
A. B., Johns Hopkins University, 1941.		
JOHN FREDERICK HAWKINS, JR.	Baltimore, Md.	8 E. 39th St.
A. B., Johns Hopkins University, 1941.		
SYLVIA MERRILL HELFRICK.	Weymouth Hghts., Mass.	501 N. Wolfe St.
A. B., Radcliffe College, 1940.		
WILLIAM HENRY HENNINGER.	Tamaqua, Pa.	2143 Homewood Ave.
S. B., Muhlenberg College, 1941.		
ELMER HOFFMAN.	Baltimore, Md.	1738 Thomas Ave.
A. B., Johns Hopkins University, 1941.		
ANN McAVOY HORN.	New York, N. Y.	800 N. Broadway
A. B., Sarah Lawrence College, 1941.		
JONATHAN HOWLAND.	Marion, Mass.	1912 McElderry St.
A. B., Harvard University, 1941.		
ROBERT WILKINSON JOHNSON, III.	Baltimore, Md.	16 Midvale Rd.
A. B., Princeton University, 1941.		
DAVID THEODORE KATZ.	Baltimore, Md.	1035 N. Broadway
S. B., Ohio State University, 1940, and M. S., 1941.		
RICHARD FULTON KIEFFER, JR.	Baltimore, Md.	5220 Springlake Way
S. B., Franklin and Marshall College, 1941.		
JOSEPH DILL BAKER KING.	Baltimore, Md.	1908 McElderry St.
A. B., Princeton University, 1941.		
BARBARA MARIA KORSCH.	Boston, Mass.	800 N. Broadway
A. B., Smith College, 1941.		
JOHANNES PETER KULKA.	New York, N. Y.	1031 N. Broadway
A. B., Cornell University, 1941.		
RICHARD ALLEN LEMMER.	Kalamazoo, Mich.	606 N. Broadway
A. B., Kalamazoo College, 1941.		
JOHN LLEWELLYN LEWIS, JR.	Alexandria, Va.	935 N. Broadway
A. B., Princeton University, 1941.		
SOPHIE MADLER LEWIS.	Alexandria, Va.	935 N. Broadway
A. B., Barnard College, 1941.		
* MARJORIE GRETA LEWISOHN.	New York, N. Y.	901 N. Broadway
A. B., University of Michigan, 1940.		
** THEODORA FINNEY LIPPITT.	Winnetka, Ill.	1908 McElderry St.
A. B., Vassar College, 1939.		
CHARLES DILLON McEVOY, JR.	South Barre, Mass.	937 N. Broadway
A. B., Amherst College, 1941.		
JOHN MCGEE.	Sutter Creek, Cal.	1030 N. Broadway
A. B., University of California, 1941.		
MARJORIE LAMONT MCGEE.	Canton, O.	1030 N. Broadway
A. B., Duke University, 1941.		
JAMES ROBERT McVAY, JR.	Kansas City, Mo.	606 N. Broadway
A. B., University of Missouri, 1941.		

\* Degree conferred February 1, 1944.

\*\* Degree conferred February 28, 1944.

- EDWARD COLTON MEEK, JR. Portland, Ore. 614 N. Washington St.  
S. B., Oregon State College, 1941.
- \* ROBERT CHARLES MELLORS. Cincinnati, O. 824 N. Broadway  
A. B., Western Reserve University, 1937; M. A., 1938 and Ph. D., 1940; Medical Student, *ibid.*, 1940-1942.
- LEON GEORGE MICHELL, II. Lynn, Mass. 717 N. Broadway  
S. B., Tufts College, 1941.
- WILLIAM ROBERT MILNOR, JR. Wilmington, Del. 512 N. Broadway  
A. B., Princeton University, 1941.
- KIRK MOORE. Terre Haute, Ind. 512 N. Broadway  
A. B., Princeton University, 1941.
- VERNON MORSE PADGETT. La Plata, Md. 1931 E. Monument St.  
A. B., St. John's College, 1941.
- ROBERT TARBERT PARKER. Towson, Md. 35 Alleghany Ave., Towson  
A. B., Johns Hopkins University, 1941
- HELEN ANITA PEEK. West Palm Beach, Fla. 1912 McElderry St.  
A. B., Vassar College, 1940.
- ROBERT SIMEON BEAUREGARD PENTON. Wetumpka, Ala. 2400 E. Monument St.  
A. B., University of Alabama, 1941; Medical Student, *ibid.*, 1941-1942.
- LESTER PERSKY. Cleveland Hgts., O. 1023 N. Broadway  
S. B., University of Michigan, 1941.
- PHILIP CHASE PRATT. Livermore Falls, Me. 716 N. Broadway  
A. B., Bowdoin College, 1941.
- RICHARD MARION RALSTON. E. Weymouth, Mass. 520 N. Broadway  
A. B., Harvard University, 1941.
- JOSEPH WILLIAM THORPE REDFEARN. Yorkshire, England. 24 N. Broadway  
A. B., Cambridge University, 1941; Medical School, *ibid.*, 1939-1942.
- EDMÉ RÉGNIER. Salem, Mass. 222 Wendover Rd.  
A. B., Johns Hopkins University, 1941.
- HOWARD THOMAS ROBINSON, JR. Cumberland, Md. 5 E. 33rd St.  
A. B., Johns Hopkins University, 1941.
- EDWARD KINZEL RUSSELL. Batesville, Ark. 542 Radnor Ave.  
A. B., Johns Hopkins University, 1941.
- HOWARD EARL SANDERS. Springfield, O. 814 N. Broadway  
A. B., Wittenberg College, 1941.
- WILLIAM GEAR SPENCER, JR. Franklin, Ind. 604 N. Broadway  
A. B., Franklin College, 1941.
- MELCHIJAH SPRAGINS. Baltimore, Md. 2622 N. Calvert St.  
A. B., Johns Hopkins University, 1941.
- \* MARY RAYMOND STREETER. Baltimore, Md. 3707 St. Paul St.  
A. B., Vassar College, 1940.
- JAMES FRANKLIN SUPPLEE, III. Baltimore, Md. 4410 Bedford Pl.  
A. B., Princeton University, 1941.
- CHLOE BOLGIANO ULSHAFFER. Cockeysville, Md. 708 N. Broadway  
A. B., College of Notre Dame of Maryland, 1941.
- THOMAS RICHARD ULSHAFFER. Nesquehoning, Pa. 708 N. Broadway  
A. B., Johns Hopkins University, 1941.
- PHILIP WHITTLESEY. Newton Centre, Mass. 1013 N. Broadway  
A. B., Bowdoin College, 1941.
- WALTER JETER WILKINS, JR. Pine Bluff, Ark. 925 N. Broadway  
A. B., Washington & Lee University, 1941.
- ROBERT STRINGER WILSON. Clarksburg, W. Va. 606 N. Broadway  
A. B., West Virginia University, 1941.
- EDGAR WOODY, JR. Thomasville, Ga. 606 N. Broadway  
S. B., University of Georgia, 1941.
- CLAIRE JACKSON WYATT, JR. Rome, Ga. 606 N. Broadway  
A. B., Vanderbilt University, 1941.

\* Degree conferred February 1, 1944.



ROBERT WILLIAM YOUNG. S. B., University of Florida, 1941.	Daytona Beach, Fla.	3725 <i>Delverne Rd.</i>
BERTRAM ZHEUTLIN. A. B., University of Michigan, 1941.	Jersey City, N. J.	724 <i>N. Broadway</i>

(77)

## THIRD YEAR

WILLIAM WHITLEY ASHLEY. A. B., Princeton University, 1943.	San Francisco, Cal.	510 <i>N. Broadway</i>
ALFRED BAER. A. B., Ohio State University, 1942.	Cleveland, O.	721 <i>N. Broadway</i>
CLAUD MILLER BAYS. A. B., Berea College, 1942.	Guage, Ky.	636 <i>N. Washington St.</i>
ALAN EDDY BELL. S. B., California Institute of Technology, 1942.	Seattle, Wash.	814 <i>N. Broadway</i>
EBEN THORPE BENNET. S. B., Bates College, 1942.	Lubec, Me.	909 <i>N. Broadway</i>
JOHN JOSEPH BENTON. S. B., University of Florida, 1942.	Gainesville, Fla.	518 <i>N. Broadway</i>
FREDERICKA BART BERGER. A. B., Vassar College, 1942.	Pittsburgh, Pa.	800 <i>N. Broadway</i>
MARCUS BERNARD BERGH. S. B., University of Miami, 1942.	Coconut Grove, Fla.	1818 <i>N. Broadway</i>
CARL ALFRED BERTSEN, JR. A. B., University of California, 1942.	San Francisco, Cal.	1031 <i>N. Broadway</i>
VERNARD FRANKLIN BOND, JR. A. B., George Washington University, 1942.	Arlington, Va.	3118 <i>Grindon Ave.</i>
CHARLES HASKELL BOWERS. A. B., Bowdoin College, 1942.	Newton Highland, Mass.	716 <i>N. Broadway</i>
DORIS ELIZABETH CHAMBERS. A. B., Brown University, 1942.	Taunton, Mass.	800 <i>N. Broadway</i>
CLYDE BREWER COPE, JR. S. B., Washington and Jefferson College, 1942.	Charleroi, Pa.	1005 <i>N. Broadway</i>
JAMES ENGLISH COUSAR, III. S. B., Hampden-Sydney College, 1942.	Covington, Va.	606 <i>N. Broadway</i>
CLYDE JOHNSON DAWE. A. B., Lafayette College, 1942.	Easton, Pa.	1203 <i>N. Broadway</i>
CHARLTON DESAUSURE. A. B., Princeton University, 1942.	Charleston, S. C.	510 <i>N. Broadway</i>
GORDON WATKINS DOUGLAS. A. B., Princeton University, 1942.	Catonsville, Md.	1603 <i>Ridge Rd., Catonsville</i>
GORDON SHELTON DUGGER. A. B., University of North Carolina, 1941; Medical Student, <i>ibid.</i> , 1942-43.	Vilas, N. C.	5110 <i>St. Georges Ave.</i>
JARL EDVARD DYRUD. A. B., Concordia College, 1942.	Maddock, N. Dak.	716 <i>N. Broadway</i>
JOHN ELLIS EICHENLAUB. A. B., Johns Hopkins University, 1942.	Washington, D. C.	1715 <i>Fairmount Ave.</i>
JAMES OTIS ELAM. A. B., University of Texas, 1942.	Washington, D. C.	521 <i>N. Wolfe St.</i>
JOHN DAVID ELDER, JR. S. B., Hamilton College, 1942.	Catonsville, Md.	518 <i>N. Broadway</i>
RALPH LANDIS ENGLE, JR. S. B., University of Florida, 1942.	Coral Gables, Fla.	518 <i>N. Broadway</i>
MARY ALLEN ENGLISH. A. B., Baylor University, 1942.	Waco, Tex.	800 <i>N. Broadway</i>

- EDMUND MCASHAN FOUNTAIN. Houston, Tex. 606 N. Broadway  
A. B., Washington and Lee University, 1942.
- FREDERICK GEORGE GERMUTH, JR. Halethorpe, Md. 5704 Second Ave., Halethorpe  
A. B., Johns Hopkins University, 1942.
- SHERWOOD WARREN GORENS. Milwaukee, Wis. 1004 N. Broadway  
Ph. B., University of Wisconsin, 1942.
- JOHN SUMMERFELD GREEN, III. Towson, Md. 28 Alleghany Ave., Towson  
A. B., Princeton University, 1942.
- ROBERT CAMERON HAGAN. Roanoke, Va. 518 N. Broadway  
S. B., Hampden-Sydney College, 1942.
- HERMAN NELSON HAMILTON. Winder, Ga. 727 N. Broadway  
S. B., University of Alabama, 1942; Medical Student, *ibid.*, 1942-1943.
- VIRGIL HANSON. Los Angeles, Cal. 201 E. 33d St.  
A. B., University of California at Los Angeles, 1942.
- JOHN WILLIAM HILLMAN. Emory, Va. 518 N. Broadway  
S. B., Emory and Henry College, 1942.
- THOMAS MARTIN HORSLEY. Lovington, Va. 716 N. Wolfe St.  
S. B., Hampden-Sydney College, 1942.
- JOHN GREILICH HULL. Tupper Lake, N. Y. 3619 Kimble Rd.  
A. B., Harvard University, 1942.
- ROBERT ANDREW HYDE. North Manchester, Ind. 517 Beaumont Ave.  
A. B., Manchester College, 1939; D. Sc. in Hygiene, Johns Hopkins University, 1942.
- ANDREW BEAUMONT JOHNSON, II. Columbus, O. 518 N. Broadway  
A. B., Ohio State University, 1942.
- JOHN LESTER KEE, JR. Waco, Tex. 1005 N. Broadway  
A. B., Baylor University, 1942.
- WILMER DEEVER KEHNE. Frederick, Md. 606 N. Broadway  
A. B., Amherst College, 1942.
- JOSEPH JOHN KRISTAN. Wallingford, Conn. 520 N. Broadway  
A. B., Johns Hopkins University, 1942.
- ERNEST MARCELLUS LARMORE, JR. Tyaskin, Md. 1013 N. Broadway  
S. B., Washington College, 1942.
- MILTON DMITRI LEVINE. Jersey City, N. J. 731 N. Broadway  
A. B., Johns Hopkins University, 1939 and D. Sc. in Hygiene, 1942.
- EVAN LARSON LEWIS. Silver Spring, Md. 719 N. Broadway  
A. B., Howard College, 1942.
- BERNARD LOWN. Lewiston, Me. Blood Bank J. H. II.  
A. B., University of Maine, 1942.
- ALFRED EDGAR LUCKETT. San Angelo, Tex. 909 N. Broadway  
A. B., University of Texas, 1942.
- MARTIN BENZYL MACHT. Baltimore, Md. 14 E. Eager St.  
A. B., Johns Hopkins University, 1939 and Ph. D., 1942.
- GEORGE V. MANN. San Diego, Cal. 3415 Guilford Terrace  
A. B., Cornell College, 1939; D. Sc. in Hygiene, Johns Hopkins University, 1942.
- GEORGE BROCKENBROUGH MCADAMS. Baltimore, Md. 100 W. University Pkwy.  
A. B., Princeton University, 1942.
- ROY DONALDSON MCCLURE, JR. Detroit, Mich. 606 N. Broadway  
A. B., Duke University, 1942.
- FRANKLIN BOWMAN MCKECHNIE. West Roxbury, Mass. 716 N. Broadway  
S. B., Harvard University, 1942.
- GORDON CAMPBELL MEACHAM. Baltimore, Md. 510 N. Broadway  
A. B., Princeton University, 1942.
- JOHN HAROLD MILLER. Milwaukee, Wis. 1023 N. Broadway  
A. B., University of Wisconsin, 1943; Medical Student, *ibid.*, 1942-1943.
- DANIEL CAMERON MONTGOMERY, JR. Greenville, Miss. 606 N. Broadway  
A. B., Princeton University, 1942.
- HOBACE GREELEY MOORE, JR. Shreveport, La. 533 N. Wolfe St.  
A. B., Johns Hopkins University, 1942.

- JOHN THOMAS MORRIS, JR. Ensley, Ala. 727 N. Broadway  
S. B., Birmingham-Southern College, 1941; Medical Student, University of Alabama School of Medicine, 1941-1943.
- JAMES SLATER MURPHY. New York, N. Y. 518 N. Broadway  
Princeton University, 1940-1942; Medical Student, Cornell University Medical College, 1942-1943.
- HAROLD HASTINGS NEWMAN, JR. Salisbury, N. C. 606 N. Broadway  
A. B., Catawba College, 1942; Medical Student, University of North Carolina School of Medicine, 1942-1943.
- RUFUS KAY NIMMONS, JR. Seneca, S. C. 606 N. Broadway  
S. B., Davidson College, 1942
- RUSSELL HORTON POPE. Stratford, Conn. 733 N. Broadway  
S. B., Yale University, 1942.
- MARCEL ROCHE. La Florida, Caracas, Venezuela. 1031 N. Broadway  
S. B., Saint Joseph's College, 1942.
- LEONARD SCHERLIS. Baltimore, Md. 4114 Garrison Blvd.  
A. B., Johns Hopkins University, 1942.
- CHARLES DANIEL SHERMAN, JR. Avon Park, Fla. 1729 E. Oliver St.  
S. B., University of Florida, 1942.
- JEAN RIEBLING SHERMAN. Baltimore, Md. 1729 E. Oliver St.  
A. B., Goucher College, 1942.
- AMAZIAH PARKER SMITH. Goldsboro, N. C. 908 N. Broadway  
A. B., University of North Carolina, 1932.
- GEORGE DAVID SPENCE. Kennett, Mo. 814 N. Broadway  
S. B., Harvard University, 1942
- HARRISON CLARK SPENCER. Baltimore, Md. 4912 Midwood Ave.  
S. B., Dickinson College, 1942.
- KATHERINE SPRUNT. Baltimore, Md. 4407 Norwood Rd.  
A. B., Wellesley College, 1942.
- HAROLD JACOB STEIN. Dayton, O. 817 St. Paul St.  
A. B., Johns Hopkins University, 1935 and D. Sc. in Hygiene, 1938.
- JOHN CLARENCE TAYLOR, JR. Anderson, S. C. 817 N. Broadway  
A. B., Erskine College, 1942.
- WILLIAM DELANO VOORHEES, JR. Queens Village, N. Y. 520 N. Broadway  
A. B., Johns Hopkins University, 1942.
- CHARLES HANSELL WATT, JR. Thomasville, Ga. 606 N. Broadway  
S. B., Davidson College, 1942.
- WATTS RANKIN WEBB. Gulfport, Miss. 606 N. Broadway  
A. B., University of Mississippi, 1942.
- ESS ALBERT WHITE, JR. Jackson, Miss. 606 N. Broadway  
S. B., Millsaps College, 1941.
- HOMER CHAPIN WICK, JR. Washington, D. C. 606 N. Broadway  
George Washington University, 1937-1939, and Harvard University, 1939-41; Medical Student, University of North Carolina School of Medicine, 1942-1943.
- JOHN HUBBLE WILKINS. Tulsa, Okla. 411 Hawthorne Rd.  
A. B., Johns Hopkins University, 1942.
- JOHN GRANT WILMER. Washington, D. C. 510 N. Broadway  
A. B., Yale University, 1942.
- WILLIAM WELCH WINTERITZ. New Haven, Conn. 606 N. Broadway  
A. B., Dartmouth College, 1942.
- ABNER CALHOUN WITHAM. Atlanta, Ga. 1031 N. Broadway  
A. B., Emory University, 1942.
- BARBARA YOUNG. Chillicothe, Ill. 800 N. Broadway  
A. B., Knox College, 1942.
- JAMES HENRY YOUNG. Anderson, S. C. 518 N. Broadway  
A. B., Erskine College, 1942.
- JOSEPH MARVIN YOUNG. Greenville, Miss. 1012 N. Broadway  
S. B., Harvard University, 1942.
- FRANCES LOUISE ZOECKLER. Hamadan, Iran 800 N. Broadway  
A. B., College of Wooster, 1941.

## SECOND YEAR

LEE WEIL BASS. A. B., Johns Hopkins University, 1943.	Findlay, O.	724 N. Broadway
RICHARD SQUIER BENUA. S. B., Adelbert College, 1943.	Columbus, O.	518 N. Broadway
LEWIS WILLIAM BLUEMLE, JR. A. B., Johns Hopkins University, 1943.	Williamsport, Pa.	1518 N. Broadway
RICHARD ALTON BRAGDON. A. B., University of Maine, 1943.	Westbrook, Me.	518 N. Broadway
ERNEST CLAIBORNE BROWN, JR. A. B., Johns Hopkins University, 1943.	Knoxville, Tenn.	1518 N. Broadway
MYRON ISAAC BUCHMAN. A. B., Lehigh University, 1943.	Sea Gate, N. Y.	810 N. Broadway
TRENT BUSBY. A. B., University of North Carolina, 1942.	Salisbury, N. C.	719 N. Broadway
STEWART WILLIAM BUSH. S. B., Massachusetts State College, 1943.	Holyoke, Mass.	536 N. Chester St.
JOHN LOWE BUTLER. S. B., University of Idaho, 1942.	Shelley, Idaho.	814 N. Broadway
JAMES RANDALL CANTRELL. A. B., Johns Hopkins University, 1944.	Baltimore, Md.	411 Hawthorne Rd.
JAMES FREEMAN CASON. S. B., University of Florida, 1943.	Jacksonville, Fla.	803 N. Broadway
JAMES JULIAN CHISOLM, JR. Princeton University.	Baltimore, Md.	4424 Underwood Rd.
JOSEPH WENTWORTH COXE, III. A. B., Hampden-Sydney College, 1943.	Roanoke, Va.	606 N. Broadway
MARY COBB DARDEN. S. B., Maryville College, 1941.	Decatur, Ga.	636 N. Washington St.
LEWIS ROBBINS DAY. A. B., Johns Hopkins University, 1943.	Lincoln, Neb.	619 N. Washington St.
FRANKLIN LAFAYETTE DEBUSK. S. B., University of Florida, 1943.	Gainesville, Fla.	518 N. Broadway
ERNEST VALIANT DEMOSS. A. B., Princeton University, 1944.	Baltimore, Md.	708 E. 41st St.
FRANCIS MARION DICK. A. B., University of California, 1941.	Montgomery Creek, Cal.	636 N. Washington St.
WILLIAM RICHARD DRUCKER. S. B., Harvard University, 1943.	Wilmette, Ill.	1034 N. Broadway
EDMUND LAWRENCE DUBOIS. A. B., Johns Hopkins University, 1943.	Newark, N. J.	806 N. Broadway
MARY DYKEMA. A. B., Vassar College, 1941.	Grosse Pointe, Mich.	636 N. Washington St.
HERNÁN JOSÉ FACIO. S. B., Harvard University, 1943.	San Jose, Costa Rica	546 W. University Pkwy.
EUGENIE ANTOINETTE FLERI. S. B., Marymount College, 1943.	Brooklyn, N. Y.	901 N. Broadway
ROBERT HERMAN FRANTZ. B. S., Bucknell University, 1943.	Lewisburg, Pa.	636 N. Washington St.
HERMAN ANDERSON GALLEY, JR. Lafayette College.	York, Pa.	533 N. Wolfe St.
JOAN GANNON. University of Manchester, 1940-1943.	Stockton Heath, Cheshire, England	731 N. Broadway
ALBERT VALDEMAR GUDE. A. B., Emory University, 1942.	Atlanta, Ga.	606 N. Broadway
JOHN LAWRENCE HAMPSON. A. B., Allegheny College, 1943.	Waynesburg, Pa.	806 N. Broadway

ANDERSON PAGE HARRIS. S. B., Davidson College, 1943.	Roxboro, N. C.	606 N. Broadway
CLINTON RABBE HARRISON. A. B., Hope College, 1943.	Holland, Mich.	606 N. Broadway
CARL MORSE HERBERT, JR. A. B., Harvard University, 1943.	Manasquan, N. J.	533 N. Wolfe St.
ALANSON HINMAN. A. B., Stanford University, 1942.	Redwood City, Cal.	801 N. Broadway
KARL EMIL HOFAMMANN, JR. Princeton University.	Altoona, Pa.	828 N. Broadway
ANNA MARIE HOWLAND. A. B., Goucher College, 1938.	Baltimore, Md.	1912 McElderry St.
LAURENCE STUART JACKSON. S. B., Dickinson College, 1943.	Catonsville, Md.	22 Wyndcrest Ave.
WAYNE NILES JACOBUS. Johns Hopkins University.	East Orange, N. J.	1013 N. Broadway
JAMES JOHN JAMBOR. A. B., Kenyon College, 1942.	Wauwatosa, Wis.	902 N. Broadway
THOMAS NELSON PAGE JOHNS. A. B., Hampden-Sydney College, 1943.	Richmond, Va.	606 N. Broadway
JOHN TRIPLETT HAXALL JOHNSON. Princeton University.	Baltimore, Md.	16 Midvale Rd.
MOULTON KINSINGER JOHNSON. A. B., Princeton University, 1943.	Washington, D. C.	801 N. Broadway
HENRY FRANK KOSTER. A. B., Columbia University, 1943.	New York, N. Y.	719 N. Broadway
WILLIAM MINSTER KUNKEL, JR. S. B., Franklin and Marshall College, 1943.	Harrisburg, Pa.	614 N. Washington St.
JULIA MAE NYE LATTA. A. B., University of California at Los Angeles, 1941.	Los Angeles, Cal.	733 N. Broadway
FRANK HICKS LOGAN. S. B., Davidson College, 1943.	Rutherfordton, N. C.	606 N. Broadway
JOHN DONALD MACCARTHY, JR. A. B., Washington and Jefferson College, 1943.	Cranford, N. J.	2400 E. Monument St.
GERALDINE MAY MARGULES. A. B., Brown University, 1943.	Providence, R. I.	800 N. Broadway
JAMES SLOANE MARTIN. Franklin and Marshall College.	Lancaster, Pa.	614 N. Washington St.
STEPHEN GRAHAM MAY. S. B., University of New Hampshire, 1942.	Manchester, N. H.	520 N. Broadway
VICTOR ALMON MCKUSICK. Tufts College.	Guilford, Me.	1004 N. Broadway
ANDREW GLENN MORROW. A. B., Wabash College, 1943.	Indianapolis, Ind.	518 N. Broadway
GEORGE ALLEN MOULTON, JR. S. B., Massachusetts College of Pharmacy, 1939; M. S., Purdue University, 1940.	Peterborough, N. H.	108 Elmhurst Rd.
ROBERT WILBUR MOWRY. S. B., Birmingham-Southern College, 1944.	Birmingham, Ala.	520 N. Broadway
GAINES KENNETH PALMES. S. B., George Washington University, 1943.	Washington, D. C.	533 N. Wolfe St.
ALAN GUYATT PARKS. A. B., Oxford University, 1943; Medical Student, <i>ibid.</i> , 1940-1943.	Banstead, Surrey, England	510 N. Broadway
PETER RANDALL. A. B., Princeton University, 1943.	Philadelphia, Pa.	614 N. Washington St.
FREEMAN LEIGH RAWSON, JR. A. B., Bates College, 1943.	Rockland, Mass.	518 Cathedral St.
LEONARD FRANCIS ROSENZWEIG. A. B., Johns Hopkins University, 1944.	Rockville Centre, L. I., N. Y.	2404 E. Baltimore St.

MARRION UPSHUR SCOTT. A. B., Washington and Lee University, 1943.	Grosse Pointe, Mich.	536 N. Chester St.
HENRY MURRAY SEIDEL. A. B., Johns Hopkins University, 1943.	Passaic, N. J.	1019 N. Broadway
RICHARD HANCE SHEPARD. A. B., Washington and Lee University, 1943.	Tulsa, Okla.	536 N. Chester St.
ROBERT HENRY SMITH. Harvard University.	Little Neck, L. I., N. Y.	520 N. Broadway
JOHN LELAND SOSMAN. A. B., Harvard University, 1943.	Chestnut Hill, Mass.	520 N. Broadway
WILLIAM ALBERT SPENCER. S. B., Georgetown University, 1943.	Oklahoma City, Okla.	814 N. Broadway
JOHN EASTER SWEENEY. Johns Hopkins University.	Wilmette, Ill.	520 N. Broadway
OLLIE HAMMOND THOMPSON, JR. A. B., St. John's College, 1943.	Hurlock, Md.	1034 N. Broadway
RICHEY LAUGHLIN WAUGH, JR. S. B., Harvard University, 1943.	Brighton, Mass.	518 N. Broadway
MARVIN LEE WEIL. S. B., University of Florida, 1943.	Gainesville, Fla.	1019 N. Broadway
DONALD LEONARD WHITENER. A. B., Catawba College, 1943.	Whitsett, N. C.	518 N. Broadway
ROBERT HARGREAVES WHITTLESEY, Birmingham, Mich. A. B., Wesleyan University, 1943.		309 W. Dolphin St.
JAMES KNOX VAN ARSDALE WILLSON. A. B., Emory University, 1943.	Albany, Ga.	828 N. Broadway
JESSE RODMAN WILSON, JR. A. B., Princeton University, 1943.	New York, N. Y.	518 N. Broadway
NORMAN FRANCIS WYATT. A. B., Washington and Lee University, 1943.	Petersburg, Va.	719 N. Broadway
IRVING YOUNG. A. B., Johns Hopkins University, 1943.	Brooklyn, N. Y.	806 N. Broadway
THEODORE EVERETTE YOUNG. University of Kansas.	Oxford, Kan.	518 N. Broadway

(74)

## FIRST YEAR

THEODORE CRANDALL ALFORD, JR. Haverford College.	McLean, Va.	4400 Roland Ave.
WILLIAM COOKE ANDREWS. Princeton University.	Norfolk, Va.	817 N. Broadway
JOHN HAMILTON ANGELL. A. B., Johns Hopkins University, 1943.	Towson, Md.	3100 N. Calvert St.
JOSEPH ALOYSIUS ARENA, JR. S. B., University of New Hampshire, 1943.	Salem, N. H.	520 N. Broadway
JOHN EDWARD BALTZER. S. B., Grove City College, 1943.	Pittsburgh, Pa.	944 N. Broadway
PAUL BAXTER. University of Rochester.	Rochester, N. Y.	943 N. Broadway
LAVON D. BECHTOL. A. B., Manchester College, 1940; Ph. D., Purdue University, 1943.	W. Lafayette, Ind.	91 Stemmers Run Rd.
WILLIAM PRESCOTT BENSON, JR. College of Wooster.	Chevy Chase, Md.	1222 N. Broadway
RUSSELL REISMAN BRANDON. A. B., Johns Hopkins University, 1943.	Baltimore, Md.	6112 Smith Ave.

CHARLES RICHARD BOWERS. Princeton University.	Frederick, Md.	817 N. Broadway
WILLIAM WILSON SAMUEL BUTLER, III. Virginia Polytechnic Institute.	Roanoke, Va.	1604 Terrace Rd.
JOHN NEWTON CALLANDER. Stanford University.	San Francisco, Cal.	810 N. Broadway
MARSHALL HUGHES CARRIER, JR. Princeton University.	Keyser, W. Va.	522 N. Broadway
CHARLES BRANDON CROW, JR. A. B., Johns Hopkins University, 1943.	Birmingham, Ala.	803 N. Broadway
ANGELO STEPHEN DANIEL. A. B., Bethany College, 1943.	Wheeling, W. Va.	1005 N. Broadway
JAMES ARTHUR DOERING. A. B., Harvard University, 1943.	W. Springfield, Mass.	1030 N. Broadway
JAMES RALPH DUNN, JR. S. B., Davidson College, 1943.	Sumter, S. C.	719 N. Broadway
DONALD WAYNE EDWARDS. A. B., Wabash College, 1943.	Crawfordsville, Ind.	828 N. Broadway
CHARLES ELLIS ELLICOTT, III. Yale University.	Baltimore, Md.	2407 Ruscombe Lane
DUMONT FRELINGHUYSEN ELMENDORF, JR. Johns Hopkins University.	Baltimore, Md.	421 Southway
DEFOREST ELY. A. B., Columbia University, 1933.	Freeport, N. Y.	915 N. Broadway
RICHARD DONALD ENEY. A. B., Johns Hopkins University, 1943.	Baltimore, Md.	709 Anneslie Rd.
WILLIAM GARNER EVANS. University of Texas.	Deport, Texas	1004 N. Broadway
ROBERT JAMIESON FAULCONER. S. B., College of William and Mary, 1943.	Hilton Village, Va.	716 N. Broadway
JOSEPH CHARLES FINNERAN. Harvard University.	North Andover, Mass.	810 N. Broadway
LAY MARTIN FOX. Princeton University.	Harrisburg, Pa.	4706 Roland Ave.
JOHN RUDOLF HARTMANN. Johns Hopkins University.	Everett, Wash.	326 E. 33d St.
JOHN COLLINS HARVEY. Yale University.	Youngstown, O.	1031 N. Broadway
WOOD S. HERREN, III. A. B., University of Alabama, 1943.	Birmingham, Ala.	828 N. Broadway
JAMES LEMMON HIGGINS. Wabash College.	Petersburg, Ind.	411 N. Broadway
LEE MILTON HOWARD. Baylor University.	Bengal, India	716 N. Broadway
WALTER HUGHSON, JR. A. B., Princeton University, 1943.	Chestnut Hill, Pa.	810 N. Broadway
DUDLEY PENNINGTON JACKSON. Randolph-Macon College.	Athens, Ga.	632 N. Washington St.
BLACKBURN SMITH JOSLIN. Haverford College.	Baltimore, Md.	4400 Roland Ave.
JOHN WESTHOFEN KEARNS. Princeton University.	Milwaukee, Wis.	510 N. Broadway
WALTER MELODY KEARNS, JR. A. B., Princeton University, 1943.	Milwaukee, Wis.	510 N. Broadway
JOE ROBERT KIMMEL. A. B., DePauw University, 1943.	DuQuion, Ill.	419 N. Broadway
GLEN CLOYD KREBS. College of Idaho.	Vancouver, Wash.	939 N. Broadway
EDWARD LOUIS KUFF. A. B., Johns Hopkins University, 1943.	Baltimore, Md.	932 Brooks Lane

WALTER JAMES KUHLE, JR. Whitman College.	Portland, Ore.	518 N. Broadway
RICHARD ALLEN LOCKWOOD. Harvard University.	Cleveland, Ohio	826 N. Broadway
THAYER MILLS MACKENZIE. S. B., Harvard University, 1943.	Cooperstown, N. Y.	1034 N. Broadway
DAVID NUTTLE MARINE. Princeton University.	Yonkers, N. Y.	1222 N. Broadway
STROTHER BARTON MARSHALL. Williams College.	Baltimore, Md.	944 N. Broadway
ROBERT ALTWIG MCCLEARY. A. B., Harvard University, 1944.	Dayton, O.	411 N. Broadway
RICHARD ROBERT McDONALD. Union College.	Newton, Mass.	419 N. Broadway
ROSEMARY McDONALD. A. B., The Rice Institute, 1943.	Paris, Texas	719 N. Broadway
EDWARD NORRIS MCLEAN. Princeton University.	Oregon City, Ore.	411 N. Broadway
JOHN EDMUND JAMES MCSWEENEY. S. B., University of Notre Dame, 1943.	Baltimore, Md.	904 Ambassador Apts.
ALAN CAMERON MERMANN. A. B., Lehigh University, 1943.	Baldwin, L. I., N. Y.	520 N. Broadway
JAMES SAMUEL MITCHENER, JR. S. B., Davidson College, 1943.	Raleigh, N. C.	817 N. Broadway
MARVIN MONES. S. B., Villanova College, 1940.	Philadelphia, Pa.	Druid Park Apts.
JACK LEON PARADISE. A. B., Washington and Jefferson College, 1943.	Butler, Pa.	824 N. Broadway
CHARLES LEWIS RAST, JR. A. B., Washington and Lee University, 1943.	Swansea, S. C.	1222 N. Broadway
GOETZ WILFRED RICHTER. A. B., Williams College, 1943.	Elmhurst, Ill.	942 N. Broadway
DUDLEY ANDERSON ROBNETT, JR. University of Missouri.	Columbia, Mo.	814 N. Broadway
PAUL RICHARD ROSENBLUTH. A. B., Johns Hopkins University, 1943.	Brooklyn, N. Y.	724 N. Broadway
JOHN WILLIAM RUNYAN, JR. Washington and Lee University.	Memphis, Tenn.	1222 N. Broadway
DAVID COSTON SABISTON, JR. University of North Carolina.	Jacksonville, N. C.	817 N. Broadway
THOMAS FRANKLIN SANFORD, JR. A. B., Davidson College, 1943.	Hendersonville, N. C.	820 N. Broadway
NORMAN EUGENE SHARRER. S. B., Washington College, 1943.	Rocky Ridge, Md.	1663 Shadyside Ave.
NAHUM RAPHAEL SHULMAN. Johns Hopkins University.	Baltimore, Md.	4113 Belview Ave.
ARTHUR ALEXANDER SIEBENS. A. B., Oberlin College, 1943.	Toledo, O.	814 N. Broadway
ALFRED FRANCIS SLIVINSKI. A. B., University of Pennsylvania, 1943.	Edwardsville, Pa.	1030 N. Broadway
ROWENA SPENCER. S. B., Louisiana State University, 1943.	Pascagoula, Miss.	800 N. Broadway
WESLEY DEHAVEN STICK. Franklin and Marshall College.	Hanover, Pa.	810 N. Broadway
GEORGE EDWARD STOKES. A. B., DePauw University, 1943.	Calumet City, Ill.	101 W. Monument St.
MARTHA JANE TAYLOR. A. B., Smith College, 1944.	Altoona, Pa.	719 N. Broadway
GEORGE PETER THOMAS, IV. Johns Hopkins University.	Baltimore, Md.	200 Ridgewood Rd.



SHIRLEY MARION TOBIASON. S. B., Tufts College, 1943.	Bridgeport, Conn.	800 N. Broadway
DANIEL JAMES TORRANCE, JR. University of Washington.	Seattle, Wash.	1804 E. Monument St.
ANDREW HAROLD VELDHUIS. A. B., Hope College, 1943.	Hudsonville, Mich.	1014 N. Broadway
JOHN WATT, JR. Presbyterian College.	Thomasville, Ga.	828 N. Broadway
LAWRENCE RICHARDSON WHARTON, JR. Princeton University.	Baltimore, Md.	4504 Roland Ave.
MILTON LAMB WIGGINS. Harvard University.	Tucson, Ariz.	1013 N. Broadway
HENRY BEATTY WILSON. A. B., University of Virginia, 1943.	Baltimore, Md.	3 W. Biddle St.
LIONEL JUDAH ZHEUTLIN. A. B., Johns Hopkins University, 1944.	Jersey City, N. J.	724 N. Broadway
WILLIAM HOWARD ZINKHAM. Johns Hopkins University.	Union Bridge, Md.	422 N. Broadway

(78)

### STUDENTS IN ART AS APPLIED TO MEDICINE

BETTY JANE BROWNING. A. B., Rockford College, 1940.	Sheboygan, Wis.	800 N. Broadway
WILMA NATALIE DIETZ. Corcoran School of Art.	Washington, D. C.	731 N. Broadway
GRACE VIRGINIA ELAM. George Moreau Commercial Art School, Houston, Tex.; New Orleans, La.; Museum of Fine Arts of Houston.	Houston, Tex.	521 N. Wolfe St.
LOUISE MARGARET MARSHALL. Syracuse University.	Cape Elizabeth, Me.	721 N. Broadway
ELINOR WIDMONT. University of Cincinnati College of Medicine.	Dayton, Ohio	1014 St. Paul St.

(5)

### SUMMARY

#### MEDICAL STUDENTS:

First Year Class.....	78
Second Year Class.....	74
Third Year Class.....	81
Fourth Year Class.....	77

310

STUDENTS IN ART AS APPLIED TO MEDICINE.... 5

315

# GEOGRAPHICAL DISTRIBUTION OF STUDENTS ENROLLED AND COLLEGES ATTENDED \*

Alabama .....	6	Allegheny College.....	1
Arkansas .....	2	Amherst College.....	2
Arizona .....	1	Barnard College.....	1
California .....	9	Bates College.....	2
Connecticut .....	4	Baylor University.....	3
Delaware .....	1	Berea College.....	1
District of Columbia.....	7	Bethany College.....	1
Florida .....	9	Birmingham-Southern College...	3
Georgia .....	11	Bowdoin College.....	3
Idaho .....	1	Brown University.....	2
Illinois .....	7	Bucknell University.....	1
Indiana .....	7	California Institute of Technology .	1
Kansas .....	1	California, University of (Berkeley) .....	3
Kentucky .....	1	California, University of (Los Angeles) .....	2
Louisiana .....	1	Cambridge University.....	1
Maine .....	5	Catawba College.....	2
Maryland (Baltimore 34).....	52	Citadel .....	1
Massachusetts .....	19	Columbia University.....	2
Michigan .....	7	Concordia College.....	1
Minnesota .....	1	Cornell College.....	1
Mississippi .....	7	Cornell University.....	1
Missouri .....	4	Dartmouth College.....	1
Nebraska .....	2	Davidson College.....	9
New Hampshire.....	3	DePauw University.....	2
New Jersey.....	10	Dickinson College.....	2
New York.....	23	Duke University.....	2
North Carolina.....	12	Emory University.....	4
North Dakota.....	1	Emory and Henry College.....	1
Ohio .....	15	Erskine College.....	2
Oklahoma .....	4	Florida, University of.....	7
Oregon .....	3	Franklin College.....	1
Pennsylvania .....	23	Franklin and Marshall College..	4
Rhode Island.....	1	Geneva College.....	1
South Carolina.....	6	Georgetown University.....	2
Tennessee .....	2	George Washington University..	3
Texas .....	7	Georgia, University of.....	1
Virginia .....	14	Goucher College.....	2
Washington .....	5	Grove City College.....	1
West Virginia.....	3	Hamilton College.....	1
Wisconsin .....	5	Hampden-Sydney College.....	5
<i>Foreign</i>		Harvard University.....	22
Costa Rica.....	1	Haverford College.....	3
England .....	4	Hope College.....	2
India .....	1	Howard College.....	1
Iran .....	1	Idaho College.....	1
Venezuela .....	1	Idaho, University of.....	1
<hr/>		Johns Hopkins University.....	45
Adelbert College.....	1	Kalamazoo College.....	1
Alabama, University of.....	3		

\* Inasmuch as a student's preparation may have been received at more than one institution, this list will not check with the total number enrolled.

Kansas, University of.....	1	Presbyterian College.....	1
Kenyon College.....	1	Princeton University.....	33
Knox College.....	1	Purdue University.....	2
Lafayette College.....	2	Radcliffe College.....	1
Lehigh University.....	3	Randolph Macon College.....	1
Louisiana State University.....	1	Rice Institute.....	1
Maine, University of.....	2	Rochester, University of.....	1
Manchester College.....	2	Sarah Lawrence College.....	1
Manchester, University of.....	1	Smith College.....	2
Manhattanville College of the Sacred Heart.....	1	St. John's College.....	2
Marymount College.....	1	St. Joseph's College.....	1
Maryville College.....	1	Stanford University.....	2
Massachusetts State College....	1	Texas, University of.....	4
Miami University.....	1	Tufts College.....	3
Michigan, University of.....	3	Union College.....	1
Midland College.....	1	Vanderbilt University.....	1
Millsaps College.....	1	Vassar College.....	5
Mississippi College.....	1	Villanova College.....	1
Mississippi, University of.....	1	Virginia, University of.....	1
Missouri, University of.....	3	Virginia Polytechnic Institute...	1
Muhlenburg College.....	1	Wabash College.....	3
Nebraska, University of.....	1	Washington College.....	2
New Hampshire, University of..	2	Washington, University of.....	1
North Carolina, University of...	4	Washington and Jefferson College	3
North Carolina, Woman's College of the University of.....	1	Washington and Lee University..	7
Notre Dame, University of.....	1	Wellesley College.....	1
Notre Dame of Maryland, Col- lege of.....	1	Wesleyan University.....	2
Oberlin College.....	1	Western Reserve University....	1
Ohio State University.....	3	West Virginia University.....	1
Oklahoma, University of.....	1	Whitman College.....	1
Oregon State College.....	1	William and Mary, College of...	1
Oxford University.....	2	Williams College.....	3
Pennsylvania, University of.....	1	Wisconsin, University of.....	2
		Wittenberg College.....	1
		Wooster, College of.....	2
		Yale University.....	4

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New York City.....	James B. Murphy (1909)
Boston, Mass.....	Merrill C. Sosman (1917)
Atlanta, Ga.....	James E. Paullin (1905)
Cincinnati, O.....	Horace W. Reid (1916)
Pittsburgh, Pa.....	Frank A. Evans (1914)
Chicago, Ill.....	William P. Finney (1916)
St. Louis, Mo.....	Hugh McCulloch (1912)
Detroit, Mich.....	Roy D. McClure (1908)
Kansas City, Kan.....	Ralph H. Major (1910)
Minneapolis, Minn.....	Herbert M. Wynne (1914)
Los Angeles, Cal.....	J. Morris Slemmons (1901)
San Francisco, Cal.....	Emile F. Holman (1918)
Portland, Ore.....	Karl H. Martzloff (1917)
Fort Worth, Texas.....	Khleber H. Beall (1905)
Salt Lake City, Utah.....	Alfred J. Ridges (1908)
Butte, Mont.....	Caroline McGill (1914)
Durham, N. C.....	Frederic M. Hanes (1908)
Iowa City, Iowa.....	Philip C. Jeans (1909)
Jacksonville, Fla.....	Edward Jelks (1913)
Rochester, N. Y.....	George P. Berry (1925)
Indianapolis, Ind.....	Ko-Kuei Chen (1927)
Memphis, Tenn.....	Raphael E. Semmes (1910)
Phoenix, Ariz.....	Charles B. Palmer (1907)
Seattle, Wash.....	Edgar E. Duncan (1919)
Columbia, S. C.....	James H. Gibbes (1912)
Cleveland, O.....	Russell L. Haden (1915)
New Haven, Conn.....	Grover F. Powers (1913)
Oklahoma City, Okla.....	Tullos O. Coston (1930)
Denver, Col.....	Franklin G. Ebaugh (1919)
Bangor, Me.....	Theodore S. Moise (1917)
Rutherfordton, N. C.....	Robert H. Crawford (1914)
Raleigh, N. C.....	Charles R. Bugg (1922)
Savannah, Ga.....	Lee Howard (1913)
New Orleans, La.....	Rawley M. Penick (1924)
Birmingham, Ala.....	Marye Dabney (1912)

### COMMITTEE ON INSTRUCTION AND EXAMINATIONS FOR THE FIRST AND SECOND YEARS OF THE COURSE

This Committee consists of all Professors and Associate Professors instructing first and second year students as well as certain other teachers giving important instruction.

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 Chandler McC. Brooks  
 J. Howard Brown  
 Alan M. Chesney (Dean)  
 W. Mansfield Clark  
 Barnett Cohen  
 Chalmers L. Gemmill  
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A. Brazier Howell  
 Perrin H. Long  
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 E. Kennerly Marshall, Jr.  
 Wendell S. Muncie  
 John J. Phair  
 Arnold R. Rich  
 Adolph Schultz  
 William L. Straus, Jr.  
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 Houston S. Everett  
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 L. Emmett Holt, Jr.  
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 Lloyd W. Ketron  
 John T. King  
 Orthello R. Langworthy  
 Ferdinand C. Lee  
 Perrin H. Long  
 Warfield T. Longcope  
 Joseph Earle Moore  
 Wendell S. Muncie  
 Edwards A. Park  
 John J. Phair  
 J. William Pierson  
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 Edward H. Richardson  
 Curt P. Richter  
 William F. Rienhoff, Jr.  
 Harvey B. Stone  
 Richard W. TeLinde (Chairman)  
 Henry M. Thomas, Jr.  
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Edwards A. Park (Chairman)

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The Dean is *ex officio* member of all committees.

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"    "	JAMES BORDLEY, III.**
"    "	G. CANBY ROBINSON.
"    "	THOMAS M. BROWN.**
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Visiting Physician.....	LOUIS HAMMAN.
"    "	THOMAS R. BROWN.
"    "	CHARLES R. AUSTRIAN.
"    "	JOHN T. KING.*
"    "	LESLIE N. GAY.
"    "	HENRY M. THOMAS, JR.**
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"    "	EVELETH W. BRIDGMAN.
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"    "	CHARLES W. WAINWRIGHT.
Visit. Physician for Radium Therapy..	CURTIS F. BURNAM.
Assistant Visiting Physician.....	WALTER A. BAETJER.
"    "    "	LOUIS P. HAMBURGER.
"    "    "	SYDNEY MILLER.
"    "    "	ERNEST H. GAITHER.
"    "    "	NATHAN B. HERMAN.
"    "    "	LAY MARTIN.
"    "    "	MOSES PAULSON.
"    "    "	THOMAS C. WOLFF.
"    "    "	BENJAMIN M. BAKER, JR.**
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"    "    "	WALTER L. WINKENWERDER.**
"    "    "	HARRY WASSERMAN.
"    "    "	RALPH G. HILLS.**

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\*\* On leave in Military Service.

Assistant Visiting Physician.....	JOHN EAGER HOWARD.
" " "	E. COWLES ANDRUS.
" " "	SAMUEL WHITEHOUSE.
" " "	ALAN BERNSTEIN.
" " "	WARDE B. ALLAN.
" " "	PAUL PADGET.**
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" " "	HUGH G. WHITEHEAD.**
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" " "	ROBERT GARIS.
" " "	ERNEST S. CROSS.
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" " "	HARRY KLINEFELTER.**
" " "	LOUIS F. KRUMREIN.
" " "	SARAH BOWDITCH.**
Visiting Dermatologist.....	LOYD W. KETRON.
Assistant Visiting Dermatologist....	ISAAC R. PELS.
" " "	LEON GINSBURG.
" " "	H. HANFORD HOPKINS.
" " "	F. A. ELLIS.
" " "	MAURICE SULLIVAN.**
Visiting Neurologist.....	FRANK R. FORD.
Assistant Visiting Neurologist.....	ORTHELLO R. LANGWORTHY.
Chemist to Medical Clinic.....	MARY V. BUELL.
Resident Physician.....	ELLIOTT V. NEWMAN.
Assistant Resident Physician.....	ABRAHAM GENECIN.
" " "	JOHN R. BIRMINGHAM.
" " "	GEORGE E. CARTWRIGHT.
Resident Physician (Private Wards)..	CHARLES L. MOUNT, JR.
Assistant Resident Physician (Private Wards).....	ROSS L. McLEAN.
Surgeon-in-Chief .....	ALFRED BLALOCK.
Associate Surgeon .....	HENRY N. HARKINS.
Visiting Surgeon .....	WARFIELD M. FIROH.
" " (Neuro-Surgery)....	WALTER E. DANDY.
Visit. Surg. (Plastic Surgery).....	JOHN STAIGE DAVIS.
" " (Rectal Surgery).....	HARVEY B. STONE.
" " "	WILLIAM F. RIENHOFF, JR.
Assistant Visiting Surgeon.....	WILLIAM A. FISHER.
" " (Plastic Surg.).....	EDWARD M. HANRAHAN, JR.
Assistant Visiting Surgeon.....	JOHN M. T. FINNEY, JR.
" " "	ELLIOTT HUTCHINS.
" " "	BERTRAM BERNHEIM.
" " "(Rectal Surg.).....	THOMAS R. CHAMBERS.

\*\* On leave in Military Service.



Assistant Visiting Surgeon.....	GEORGE G. FINNEY.**
" " "	ARTHUR HEBB.†
" " "	AMOS KOONTZ.**
" " "	AUSTIN LAMONT.
" " "	I. RIDGEWAY TRIMBLE.**
" " "(Plastic Surg.)	EDWARD A. KITLOWSKI.
" " "	GRANT E. WARD.
" " "	JAMES C. OWINGS.
" " "	SAMUEL McLANAHAN, JR.
" " "	RICHARD T. SHACKELFORD.**
" " "	GEORGE A. STEWART.**
" " "	J. ARTHUR WEINBERG.**
" " "	HOWARD M. KERN.
" " "	HARRIS B. SHUMACKER, JR.**
" " "	FERDINAND C. LEE.
" " "	EDWARD S. STAFFORD.**
" " "	FRANK J. OTENASEK.
Resident Surgeon.....	HERBERT E. SLOAN, JR.
	GEORGE W. DUNCAN.
Assistant Resident Surgeon.....	GEORGE H. BUNCH, JR.
" " "	JOHN W. CHAMBERS.
" " "	HUGO RIZZOLI.
" " "	WILLIAM P. LONGMIRE, JR.
Visiting Roentgenologist-in-Charge....	J. WILLIAM PIERSON.
Assistant Visiting Roentgenologist	CHARLES A. WATERS.
Assistant in Roentgenology.....	MARCUS OSTRO.
" " "	WHITMER FIBOR.**
" " "	GEORGE FARBER.
" " "	ASA D. YOUNG.**
" " "	WEBSTER H. BROWN.**
" " "	DANIEL L. DOHERTY, JR.**
" " "	MORVYTH MCQUEEN-WILLIAMS.
Assistant Resident in Roentgenology..	THEODORE ALEXANDER.
Visiting Urologist in charge.....	J. A. CAMPBELL COLSTON.
Honorary Consultant.....	HUGH H. YOUNG.
Visiting Urologist.....	HUGH H. YOUNG.
Assistant Visiting Urologist.....	WALTER L. DENNY.
" " "	LLOYD G. LEWIS.**
" " "	HOWARD C. SMITH.
" " "	AUSTIN H. WOOD.
" " "	EDWARD STINSON, JR.
" " "	AMOS F. HUTCHINS.
" " "	HUGH J. JEWETT.
" " "	WILFORD A. COUNCILL.
Resident in Urology.....	RUSSELL B. ROTH.
Assistant Resident in Urology	JOHN R. EGAN.
Chief Gynecologist .....	RICHARD W. TELINDE.
Visiting Gynecologist.....	THOMAS S. CULLEN.
" " "	GUY L. HUNNER.
" " "	EDWARD H. RICHARDSON.
" " "	DEWITT B. CASLER.
Assistant Visiting Gynecologist.....	LAWRENCE R. WHARTON.
" " "	LEO BRADY.
" " "	CECIL W. VEST.
" " "	HOUSTON S. EVERETT.

† Died April 24, 1944.

\*\* On leave in Military Service.

Assistant Visiting Gynecologist.....	J. HERMAN LONG.**
" " "	C. BERNARD BRACK.**
" " "	J. DONALD WOODRUFF.**
Resident in Gynecology.....	ROGER B. SCOTT.
Assistant Resident in Gynecology....	GERALD A. GALVIN.
" " "	DAVID B. CHEEK.
Visiting Orthopedic Surgeon-in-charge.	GEORGE E. BENNETT.
Asst. Visiting Orthopedic Surgeon...	ROBERT W. JOHNSON, JR.
" " "	I. WILLIAM NACHLAS.**
" " "	RAYMOND E. LENHARD.
" " "	HAROLD R. BOHLMAN.
" " "	EDWIN D. WEINBERG.
" " "	MOSES GELLMAN.
" " "	H. ALVAN JONES.
" " "	GEORGE O. EATON.**
Resident Orthopedic Surgeon.....	JOHN LYFORD, III.
Asst. Resident Orthopedic Surgeon...	EDWARD E. BAUMAN.
Visiting Otolaryngologist-in-charge...	SAMUEL J. CROWE.
Assistant Visiting Otolaryngologist...	HARRY R. SLACK, JR.
" " "	JOHN W. BAYLOR.
" " "	J. JULIAN CHISOLM.
" " "	EDWIN N. BROYLES.**
" " "	LEROY M. POLVOGT.
" " "	N. FLOYD ADAMS, JR.
" " "	JOHN E. BORDLEY.**
" " "	DUDLEY C. BABB.**
" " "	E. JAMES MULLIGAN.
" " "	DONALD F. PROCTOR.
" " "	WALTER E. LOCH.
Resident in Otolaryngology.....	ARTHUR T. WARD.
Assistant Resident in Otolaryngology.	EDWARD L. WALZL.
Consulting Dental Surgeon in Charge.	H. HAYWARD STREETT.
Honorary Consultant.....	HARRY E. KELSEY.
Consulting Dental Surgeon.....	B. LUCIEN BRUN.
" " "	KYRLE PREIS.
" " "	LOUIS D. CORIELL.
" " "	WILLIAM H. BAISH.
" " "	CLYDE V. MATTHEWS.
Ophthalmologist-in-Chief .....	ALAN C. WOODS.
Associate Ophthalmologist.....	FRANK B. WALSH.
" " "	EARL L. BURKY.
" " "	JACK S. GUYTON.
" " "	ALFRED E. MAUMENEY, JR.
Assistant Ophthalmologist.....	WILLIAM F. HUGHES, JR.
" " "	ROY OTTO SCHOLZ.
Visiting Ophthalmologist.....	LEO J. GOLDBACH.
" " "	CLYDE A. CLAPP.
" " "	JONAS S. FRIEDENWALD.
" " "	ANGUS L. MACLEAN.
" " "	M. ELLIOTT RANDOLPH.**
Assistant Visiting Ophthalmologist...	CECIL H. BAGLEY.
" " "	WILLIAM M. ROWLAND.**
" " "	FRED M. REESE.**
" " "	JAMES I. MOORE.**
Resident in Ophthalmology.....	ALBERT SNELL, JR.
Assistant Resident in Ophthalmology.	WILLIAM OWENS.
" " "	PAUL E. MESSIER.

\*\* On leave in Military Service.

Obstetrician-in-Chief.....	NICHOLSON J. EASTMAN.
Associate Obstetrician.....	LOUIS M. HELLMAN.**
Assistant Obstetrician.....	ELEANOR DELFS.
"                    "	CONSTANTINO P. MANAHAN.
"                    "	JOHN RUSSELL JORDAN.
Visiting Obstetrician.....	JOHN MCF. BERGLAND.
"                    "	ALAN F. GUTTMACHER.
Assistant Visiting Obstetrician.....	JOHN G. MURRAY, JR.
"                    "	WATSON W. GRAY.
"                    "	EDMUND P. H. HARRISON, JR.
"                    "	BESSIE L. MOSES.
"                    "	JOHN M. HAWS.
"                    "	JOHN M. SPENCE, JR.**
"                    "	JOHN WHITRIDGE, JR.**
"                    "	W. DRUMMOND EATON.
"                    "	ALFRED B. DIXON.**
Medical Consultant.....	R. CARMICHAEL TILGHMAN.**
Resident Obstetrician.....	PHILIP P. SEPTOE, JR.
Assist. Res. Obstetrician.....	JAMES H. JENKINS, JR.
"                    "	MARY GRIFFITH.
Psychiatrist-in-Chief.....	JOHN C. WHITEHORN.
Honorary Consultant.....	ADOLF MEYER.
Associate Psychiatrist.....	ESTHER L. RICHARDS.
"                    "	LEO KANNER.
"                    "	NICHOLAS L. BALLICH, JR.
Assistant Psychiatrist in Charge of the Laboratory of Internal Medicine, H. P. P. C.....	RUTH LIDZ
Assistant Psychiatrist.....	BARBARA J. BETZ.
"                    "	HENRY M. FOX.**
"                    "	W. HORSLEY GANTT.
"                    "	THEODORE LIDZ.**
"                    "	JEROME D. HARTZ.
Assistant Visiting Psychiatrist.....	LESLIE B. HOHMAN.
"                    "	ROBERT V. SELIGER.
"                    "	WENDELL S. MUNCIE.
Resident in Psychiatry.....	LESTER LEE HASENBUSH.
Assistant Resident in Psychiatry.....	ORTHELLO R. LANGWORTHY.
"                    "	LUVIA S. TAYLOR.
Pediatrician-in-Chief.....	EDWARDS A. PARK.
Associate Pediatrician.....	EDWARD M. BRIDGE.
"                    "	LYDIA B. EDWARDS.
"                    "	HARRIET G. GUILD.
"                    "	L. EMMETT HOLT, JR.
"                    "	HUGH W. JOSEPHS.
"                    "	LASLO KAJDI.
"                    "	HELEN B. TAUSSIG.
"                    "	WALTER FLEISCHMANN.
Assistant Pediatrician.....	JACOB LIGHT.
"                    "	VICTOR NAJJAR.
"                    "	FRANCES E. M. READ.
"                    "	ELIZABETH B. HINCKLEY.
Visiting Pediatrician.....	WALTER BLOCK.
"                    "	T. TERRY BURGER.
"                    "	MATTHEW DEBUSKEY.**
"                    "	JOHN C. GITTINGS.
"                    "	T. CAMPBELL GOODWIN.**

\*\* On leave in Military Service.

<i>Visiting Pediatrician</i> .....	MANES S. HECHT.**
" "	HORACE HODES.**
" "	J. H. MASON KNOX, JR.
" "	CHARLES O'DONOVAN, JR.**
" "	GILBERT ROSENTHAL.
" "	ALEXANDER J. SCHAFER.**
" "	LAWSON WILKINS.
" "	BENJAMIN TAPPAN.
" "	ALMA S. ROTHOLZ.
<i>Assistant Visiting Pediatrician</i> .....	JOHN A. ASKIN.
" " "	HANS BIX.
" " "	S. BUTLER GRIMES, JR.**
" " "	BENJAMIN RUTLEDGE.**
" " "	WILLIAM C. STIFLER, JR.**
" " "	WILSON GRUBB.
" " "	CAROLINE CHANDLER.
" " "	MARY S. GOODWIN.
" " "	JEAN ROSE STIFLER.
" " "	SAMUEL LIVINGSTON.
" " "	HELEN BOWIE.
" " "	HANIA WISLICKA EHLERS.
" " "	ELLA LANGER.
" " "	ELIZABETH PEABODY TREVETT.
<i>Resident Pediatrician</i> .....	ANTONIO J. WARING, JR.
<i>Assistant Resident Pediatrician</i> .....	MERCER C. BLANCHARD.
" " "	PAUL E. WILSON.
" " "	STUART L. JOSLIN.
" " "	ROBERT KAYE.
<i>Associate Pathologist</i> .....	ARNOLD R. RICH.
" "	SAM S. BLACKMAN, JR.
<i>Assistant Pathologist</i> .....	W. B. VANDE GRIFT.**
" "	E. H. OPPENHEIMER.
" "	R. L. GRAHAM.
" "	JOHN B. FEERICH.
" "	BRIAN MURPHY.
<i>Resident in Pathology</i> .....	JOHN E. GREGORY.
<i>Assistant Resident in Pathology</i> .....	GEORGE E. MURPHY.
<i>Physician-in-Charge Physical Therapy</i> .....	THOMAS P. SPRUNT.
<i>Supervisor, Physical Therapist</i> .....	EDITH NYMAN.
<i>Physical Therapist</i> .....	MARION JOHNSON.
" "	JOHN MCGRATH.
" "	BEATRICE LAKE.
" "	JANE VAN WIE.
" "	ELOISE SCHWEYER.
<i>Physician-in-Charge Anesthesia</i> .....	AUSTIN LAMONT.
<i>Senior Anesthetist</i> .....	OLIVE L. BERGER.
<i>Anesthetist</i> .....	GRACE SMITH.
"	CLARA ARGUS.
"	FRANCES OWINGS.
"	IVA A. TURTSCHER.
"	MARY L. ESTES.

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\*\* On leave in Military Service.

## HOUSE OFFICERS

JANUARY 1, 1944 TO SEPTEMBER 30, 1944

*Medicine.*

FRANK GOODNOW MACMURRAY.  
WILLIAM T. DIXON.  
ALBERT A. KATTUS, JR.  
THOMAS S. PERRIN, JR.  
JOHN H. SISSON.  
ROBERT E. FARBER.  
HUGH DAVID VERNER.

*Private Ward—Medicine.*

JAMES MAYHEW INGRAM, JR.  
LAURIE CRAIG DICKSON, JR.  
WILLIAM GEORGE SPEED, III.  
VIRGINIA DOWNING.  
EVELYN KATZ.

*Surgery.*

JOSEPH E. BRUMBACK, JR.  
JAMES R. DADE.  
HENRY W. DODGE, JR.  
JACOB HANDELSMAN.  
R. VINCENT KRON.  
WILLIAM H. MULLER, JR.  
PHILIP M. WEST, JR.  
ALAN C. WOODS, JR.

*Ophthalmology*

WILLIAM C. KITE.  
RUSSELL T. SNIP.  
SAMUEL D. MCPHERSON, JR.

*Pediatrics.*

ELIZABETH CONRAD.  
JANET L. ECKHARDT.  
CLIFTON DANCY GOVAN, JR.  
PATRICIA JANE HARRISON.  
LEONARD JOEL KOENIG.  
JAMES U. MORRISON, JR.  
GEORGETTE GELINAS.  
HELEN HEWITT.  
LUCIUS R. LINDLEY.  
JOHN JAY OSBORN.

*Gynecology.*

ALBERT L. BANKS.  
LATIMER G. YOUNG.  
WHEDON JOHNSON.  
MERVIN H. DAVIS.

*Obstetrics.*

MASON COOKE ANDREWS.  
WILMER NEWTON LONG, JR.  
ROBERT WALLACE NOYES.  
LANDRUM BREWER SHETTLES.

*Urology.*

JESSE W. CARLL, IV.  
HUGH A. MATTHEWS.  
JOSEPH C. PRESTI.  
EDWARD DOUGLAS HORNING.

*Orthopedics.*

ROSCOE S. MOSIMAN.  
MILTON C. SMITH.  
GEO. J. HAYES.

*Röntgenology.*

ERNEST G. SMITH, JR.

*Otolaryngology.*

LORING W. PRATT.

*Dentistry.*

MORTIMER H. HOLLANDER.  
J. RICHARD MYLES.

*Psychiatry.*

NATHANIEL S. APTER.  
SARAH S. TOWER.  
EDUARD ASCHER.  
LUCILLE PRICE.  
KATHERINE K. RICE.  
ROBERT E. ARNOT.

## OUT-PATIENT DEPARTMENT

<i>Physician-in-Chief</i> .....	WARFIELD T. LONGCOPE.
<i>Surgeon-in-Chief</i> .....	ALFRED BLALOCK.
<i>Obstetrician-in-Chief</i> .....	NICHOLSON J. EASTMAN
<i>Psychiatrist-in-Chief</i> .....	JOHN C. WHITEHORN.
<i>Pediatrician-in-Chief</i> .....	EDWARDS A. PARK.
<i>Ophthalmologist-in-Chief</i> .....	ALAN C. WOODS.
<i>Chief Gynecologist</i> .....	RICHARD W. TE LINDE.
<i>Administrative Officer</i> .....	JOHN E. RANSOM.

## DEPARTMENT OF MEDICINE

<i>Director of Medical Clinics</i> .....	ALAN M. CHESNEY.
<i>Consultant-in-Chief</i> .....	LOUIS HAMMAN.
<i>Associate Consultant</i> .....	SAMUEL WOLMAN.
" "	HENRY M. THOMAS, JR.**
" "	CHARLES W. WAINWRIGHT.

## A—General Medicine:

<i>Physician-in-Charge</i> .....	EVELETH W. BRIDGMAN.
" "	BENJAMIN M. BAKER, JR.**
" "	CHARLES R. AUSTRIAN.
" "	WARDE B. ALLAN.
<i>Physician</i> .....	D. CORBIN STREETT.
"	THOMAS C. WOLFF.
"	BENJAMIN H. RUTLEDGE.**
"	A. MURRAY FISHER.
"	SAMUEL WHITEHOUSE.
"	ARCHIBALD S. CHALFANT.
"	CHARLOTTE MCCARTHY.
"	ROBERT A. P. REITER.
"	JACOB COHEN.
"	L. F. KRUMREIN.
"	M. S. SHILING.
"	WALTER WINKENWERDER.**
"	FRANCIS GLUCK.
"	RALPH G. HILLS.**
"	RICHARD FRANCE.**
"	R. CARMICHAEL TILGHMAN.**
"	S. M. GREENBERG.
"	HENRY HENSEN.
"	M. B. KRESS.
"	PALMER F. C. WILLIAMS.
"	RICHARD N. TILLMAN.
"	KATHERINE H. BORKOVICH.
<i>Assistant Physician</i> .....	N. E. NEEDLE.
" "	ROBERT GARIS.
" "	LOUIS P. HAMBURGER, JR.**
" "	HUGH G. WHITEHEAD.**
" "	HENRY MAKOVER.**
" "	M. E. LOWMAN.

\*\* On leave in Military Service.

Assistant Physician.....	LOUIS K. ALPERT.
" "	DANIEL WILFSON.
" "	IRVIN SAUBER.**
" "	SIDNEY SCHERLIS.**
" "	GORDON I. TREVETT.†
" "	HARRY KLINEFELTER.**
" "	HERBERT N. GUNDERSHEIMER.**
" "	WALTER B. BUCK.**
" "	HARVEY L. FULLER.
" "	GRACE HILLER.
" "	GEORGE MERRILL.
" "	THURSTON HARRISON.**
" "	HERBERT GOLDSTONE.
" "	RICHARD J. BING.
" "	THOMAS FARMER.
" "	ROY S. BIGHAM, JR.
" "	MARL F. WELTE.
" "	JOHN L. HOPSON.
" "	GEORGE A. STREETER.
" "	LEROY E. DUNCAN, JR.
" "	RICHARD R. OWENS.

## B—Clinical Neurology:

Physician-in-Charge .....	FRANK R. FORD.
Assistant Neurologist.....	ALBERT J. GLASS.**
" "	MAX LEVIN.**
" "	HARRY A. TEITELBAUM.**
" "	LUIS ORTEGA.

## C—Gastro-Enterology and Nutritional Diseases:

Physician-in-Charge .....	W. HALSEY BARKER.
Physician .....	ERNEST H. GAITHER.
" "	LAY MARTIN.
" "	RUDOLPH A. MICHELSON.
" "	MOSES PAULSON.
" "	ALAN BERNSTEIN.
" "	JOHN T. HOWARD.
" "	JACOB H. CONN.
" "	JOSEPH N. ZIERLER.
Assistant Physician.....	H. WILLIAM PRIMAKOFF.
" "	W. G. HERSPERGER.
" "	AUGUSTINE P. VON SCHULZ.
" "	MITCHELL H. MILLER.**
" "	CONRAD ACTON.**
" "	JORGE DIEZ-CANSECO.

## D—Syphilology:

Physician-in-Charge .....	JOSEPH EARLE MOORE.
Physician .....	HARRY M. ROBINSON.
" "	HARRY L. WASSERMAN.
" "	THOMAS B. TURNER.**
" "	FRANK R. SMITH, JR.**

† Died May 4, 1944.

\*\* On leave in Military Service.

Physician .....	CHARLES F. MOHR.
"	LAWRENCE KATZENSTEIN.**
"	PAUL PADGET.**
"	MARY S. GOODWIN.
"	E. GURNEY CLARK.
"	BOWMAN J. HOOD.
"	NELS A. NELSON.
"	FRANK W. REYNOLDS.**
"	RICHARD HAHN.
Assistant Physician.....	HYMAN WEINER.**
"	HARRY M. ROBINSON, JR.**
"	JOHN M. SPENCE.**
"	RALPH SIKES.
"	VIRGIL SCOTT.
"	PAUL SPEAR.**
"	RAYA EPHRUSSI.
"	SARAH BOWDITCH.**
"	A. S. FEISOVANYI.
"	IRA SHAMBERG.
"	NOBEL GUTHRIE.
"	ELIZABETH HARVEY.
"	HARRY B. SMITH.

## E—Dermatology:

Physician-in-Charge .....	LLOYD W. KETRON.
Dermatologist .....	ISAAC R. PELS.
"	LEON GINSBURG.
"	WILLIAM D. WOLFE.**
"	MAURICE SULLIVAN.**
"	H. HANFORD HOPKINS.
"	F. A. ELLIS.
Assistant Dermatologist.....	CHARLES FLOM.
"	HARRY M. ROBINSON, JR.**
"	FREDERIC A. GLASS.

## F—Protein Clinic:

Physician-in-Charge .....	LESLIE N. GAY.
Physician .....	NATHAN B. HERMAN.
"	WALTER L. WINKENWERDER.**
"	ARTHUR I. FINK.
"	FRANK F. FURSTENBERG.**
"	JOHN W. PARSONS.**
"	JOHN H. TRESCHER.
"	EDMUND L. KEENEY.
"	ELIZABETH ILIFF.
"	WALTER LANDAU.
"	BERNARD J. COHEN.
Assistant Physician.....	I. M. ALPHER.
"	ROBERT GARIS.
"	WILLIAM A. MYERS.**
"	WILLIAM C. STIFLER, JR.**
"	HERBERT H. DIAMOND.
"	N. S. DAVIDSON.**

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\*\* On leave in Military Service.



Assistant Physician .....	LUCILLE L. CALDWELL.
" " .....	AARON HARRIS.**
" " .....	ARTURO B. ROTOR.
" " .....	RUSSELL C. PAYNE.

## G—Diabetic Clinic:

Physician-in-Charge .....	EUGENE J. LEOPOLD.
Physician .....	JOHN EAGER HOWARD.
" .....	JOHN H. TRESCHER.
" .....	MANUEL GICHNER.**
" .....	H. E. LEVIN.
Assistant Physician .....	LEONARD ABRAMOVITZ.**
" " .....	JOHN A. LUETSCHER, JR.

## H—Food Clinic:

Dietitian .....	ELOISE RODNEY TRESCHER.
Assistant Dietitian .....	HILDA McEWEN.

## DEPARTMENT OF SURGERY

## A—General Surgery:

Surgeon-in-Charge .....	JAMES C. OWINGS.
" " " (Rectal) .....	THOMAS R. CHAMBERS.
Surgeon-in-Charge (Plastic Surgery) ..	J. STAIGE DAVIS.
Surgeon .....	EDWARD A. KITLOWSKI.
" .....	HOWARD M. KERN.
" .....	SAMUEL McLANAHAN, JR.
" .....	I. RIDGEWAY TRIMBLE.**
" .....	GEORGE G. FINNEY.**
" .....	BERTRAM M. BERNHEIM.
" .....	JOHN M. T. FINNEY, JR.
" .....	HENRY N. HARKINS.
" .....	HARRY L. HOMER.
" .....	WILLIAM F. RIENHOFF, JR.
" .....	RICHARD T. SHACKELFORD.**
" .....	ARTHUR HEBB.†
" .....	AMOS KOONTZ.**
" .....	EDWARD M. HANRAHAN, JR.
" .....	GRANT E. WARD.
" .....	J. ARTHUR WEINBERG.
" .....	R. WALTER GRAHAM, JR.**
" .....	ROBERT C. KIMBERLY.**
Surgeon (Plastic Surgery) .....	HERBERT WILGIS.
Surgeon .....	HARRIS B. SHUMACKER, JR.**
" .....	MARK E. GANN.
" .....	FERDINAND C. LEE.
" .....	EDWARD S. STAFFORD.**
" .....	DOUGLAS STONE.**
" .....	HOWARD W. JONES, JR.

† Died April 24, 1944.

\*\* On leave in Military Service.

## B—Urology:

<i>Consultant Urologist</i> .....	LLOYD G. LEWIS.**
<i>Urologist-in-Charge</i> .....	HUGH A. JEWETT.
<i>Urologist</i> .....	AUSTIN H. WOOD.
"	AMOS F. HUTCHINS.
"	WILFORD A. COUNCILL.
"	EDWARD STINSON, JR.
<i>Assistant Urologist</i> .....	JOHN F. HOGAN.
"	HARRY LINDEN.
<i>Gynecologist-in-Charge</i> .....	J. HERMAN LONG.**
<i>Gynecologist</i> .....	CECIL W. VEST.
"	HOUSTON S. EVERETT.
"	LAWRENCE R. WHARTON.
"	LEO BRADY.
"	GEORGE STICKNEY.
"	FIRMADGE KING NICHOLS.**
"	C. BERNARD BRACK.**
"	GEORGEANNA SEEGER JONES.
"	J. DONALD WOODRUFF.**
<i>Assistant Gynecologist</i> .....	J. ARTHUR YORK.
"	WILLIAM J. RYSANEK, JR.
"	ALLEN DECKERT.
"	CAROL JACKSON.
"	LOIS L. FESS.

## Cystoscopic Clinic:

<i>Consultant Gynecologist</i> .....	GUY L. HUNNER.
<i>Gynecologist-in-Charge</i> .....	HOUSTON S. EVERETT.
<i>Gynecologist</i> .....	J. HERMAN LONG.**
"	C. BERNARD BRACK.**
"	LEO BRADY.
"	J. DONALD WOODRUFF.**

## D—Otolaryngology:

<i>Laryngologist-in-Charge</i> .....	JOHN W. BAYLOR.
<i>Laryngologist</i> .....	J. JULIAN CHISOLM.
<i>Laryngologist (Bronchoscopy)</i> .....	EDWIN N. BROYLES.**
<i>Laryngologist</i> .....	LEROY M. POLVOGT.
"	JOHN E. BORDLEY.**
"	N. FLOYD ADAMS, JR.
"	DUDLEY C. BABB.**
"	WALTER E. LOCH.
"	E. JAMES MULLIGAN.
"	DONALD F. PROCTOR.

## E—Orthopedic Surgery:

<i>Surgeon-in-Charge</i> .....	RAYMOND E. LENIHARD.
<i>Surgeon</i> .....	I. WILLIAM NACHLAS.**
"	ROBERT W. JOHNSON, JR
<i>Assistant Surgeon</i> .....	CARL R. AHROON.
"	EDWIN D. WEINBERG.

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\*\* On leave in Military Service.

Assistant Surgeon.....	HAROLD BOHLMAN.
" "	MOSES GELLMAN.
" "	GEORGE O. EATON.**
" "	H. ALVAN JONES.
" "	JOHN F. HEWITT.

## F—Dentistry:

Dental Surgeon-in-Charge.....	H. HAYWARD STREETT.
Honorary Consultant.....	HARRY E. KELSEY.
Dental Surgeon.....	LOUIS D. CORIELL.
" "	KYRLE PREIS.
" "	CLYDE V. MATTHEWS.
" "	B. LUCIEN BRUN.
" "	W. H. BAISH.
Assistant Dental Surgeon.....	HERBERT JONES.**
" " "	VINCENT J. MCGRAIL.
" " "	EUGENE L. BAISH.**
" " "	ALWYN HUNDLEY, JR.**
" " "	MYRON I. PRICE.**
" " "	J. FRED EMERSON.**
" " "	GERALD EVANS.**
" " "	C. ADAM BOCK.**
" " "	H. BALDWIN STREETT.**
" " "	JOHN D. MICHAEL.**
" " "	WILBUR D. BURTON.**
" " "	J. HINTON SHACKELFORD.
" " "	JAMES E. PYOTT.
" " "	CLARENCE J. ROGERS.**
" " "	LAWRENCE G. SMYTH.**
" " "	LOREN W. GRUBER.
" " "	STUART G. BUPPERT.

## DEPARTMENT OF OPHTHALMOLOGY

Ophthalmologist-in-Charge .....	C. A. CLAPP.
" " "	FRANK B. WALSH.
" " "	CECIL H. BAGLEY.
" " "	ANGUS L. MACLEAN.
" " "	M. ELLIOTT RANDOLPH.**
" " "	JACK S. GUYTON.
" " "	ALFRED E. MAUMENEE, JR.
Ophthalmologist .....	EARL L. BURKY.
"	AARON ROBINSON.
"	FRED M. REESE.**
"	JAMES I. MOORE.**
"	WILLIAM M. ROWLAND.**
Assistant Ophthalmologist.....	CHESTER E. HURWITZ.
" "	LYMAN S. ABBOTT.
" "	HARRY E. BLOOM.
" "	WILHELM H. BUSCHKE.
" "	CHARLES F. ILIFF.
" "	JOSEPH M. HEIDELMAN.
" "	ROY O. SCHOLZ.
" "	HERMAN K. GOLDBERG.

\*\* On leave in Military Service.

## DEPARTMENT OF OBSTETRICS

<i>Obstetrician-in-Charge</i> .....	ELEANOR DELFS.
<i>Obstetrician</i> .....	ALAN F. GUTTMACHER.
<i>Obstetrician</i> .....	EDMUND P. H. HARRISON, JR.
"	JOHN M. SPENCE, JR.**
"	BESSIE L. MOSES.
"	JOHN M. HAWS.
"	LOUIS M. HELLMAN.**
"	W. DRUMMOND EATON.
"	CONSTANTINO P. MANAHAN.
"	ALFRED B. DIXON.**

## DEPARTMENT OF PEDIATRICS

<i>Pediatrician-in-Charge</i> .....	FRANCES E. M. READ.
<i>Pediatrician</i> .....	NEVA ABELSON.
"	MIRIAM BRAILLEY.
"	EDWARD M. BRIDGE.
"	T. TERRY BURGER.
"	T. CAMPBELL GOODWIN.**
"	MATTHEW DEBUSKEY.**
"	WALTER FLEISCHMANN.
"	MARY S. GOODWIN.
"	HARRIET G. GUILD.
"	JANET B. HARDY.
"	MANES S. HECHT.**
"	L. EMMETT HOLT, JR.
"	HUGH JOSEPHS.
"	LASLO KAJDI.
"	VICTOR NAJJAR.
"	CHARLES O'DONOVAN, JR.**
"	ALEXANDER J. SCHAFER.**
"	HELEN B. TAUSSIG.
"	LAWSON WILKINS.
"	JACOB LIGHT.
<i>Assistant Pediatrician</i> .....	HANS BIX.
"	S. BUTLER GRIMES, JR.**
"	SAMUEL LIVINGSTON.
"	BENJAMIN RUTLEDGE.**
"	WILSON GRUBB.
"	WILLIAM C. STIFLER, JR.**
"	JOSEPH CORDI.**
"	JEAN ROSE STIFLER.
"	DEAN W. ROBERTS.
"	INGEBORG A. SYLLM.
"	ELIZABETH P. TREVETT.
"	ALEJANDRO RODRIGUEZ DELFINO.
"	HANIA EHLERS.
"	RAYA EPHRUSSI.
"	ADELAIDE H. C. FRICK.
"	EDWIN L. KENDIG, JR.
"	ELLA LANGER.

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\*\* On leave in Military Service.

## DEPARTMENT OF PSYCHIATRY

## A—General Psychiatry:

<i>Psychiatrist-in-Charge</i> .....	ESTHER L. RICHARDS.
<i>Psychiatrist</i> .....	GRACE BAKER.
" .....	LESLIE B. HOHMAN.
" .....	JEROME HARTZ.
" .....	ROBERT V. SELIGER.
" .....	RACHEL GUNDRY.
" .....	BARBARA J. BETZ.
" .....	NICHOLAS L. BALLICH, JR.
<i>Psychiatrist (In charge of Psycho-somatic Service with Medical Out-Patients)</i> .....	JACOB H. CONN.
<i>Assistant Psychiatrist</i> .....	HUMBERTO ROTONDO-GRIMALDI.

## CHILDREN'S PSYCHIATRIC CLINIC

<i>Psychiatrist-in-Charge</i> .....	LEO KANNER.
<i>Assistant Psychiatrist</i> .....	TRUDE TIETZ.
" .....	OLIVE C. SMITH.

## STAFF OF DIAGNOSTIC CLINIC

## Advisory Committee.

CHARLES R. AUSTRIAN.	RICHARD W. TE LINDE.
JAMES BORDLEY, III.**	

## Physician-in-Charge.

PAUL W. CLOUGH.

## Assistant Physician-in-Charge.

C. HOLMES BOYD.

## Medicine.

C. HOLMES BOYD.  
 R. CARMICHAEL TILGHMAN.\*\*  
 RALPH G. HILLS.\*\*  
 T. NELSON CARY.  
 WALTER B. BUCK.\*\*  
 ALAN BERNSTEIN.  
 T. C. WOLFF  
 RICHARD TILLMAN (alternate).  
 KATHERINE H. BORKOVICH.  
 JOHN H. TRESCHER.  
 THURSTON HARRISON.\*\*

## Psychiatry.

WENDELL S. MUNCIE.  
 BARBARA J. BETZ.  
 JACOB H. CONN.

## Surgery.

AMOS KOONTZ.\*\*  
 RICHARD T. SHACKELFORD.\*\*  
 I. RIDGEWAY TRIMBLE.\*\*  
 SAMUEL McLANAHAN, JR.  
 FERDINAND C. LEE.

## Plastic Surgery.

EDWARD M. HANRAHAN, JR.

## Gastroenterology.

MOSES PAULSON.

## Gynecology.

LEO BRADY.  
 J. HERMAN LONG.\*\*  
 HOUSTON S. EVERETT.  
 C. BERNARD BRACK.\*\*  
 J. ARTHUR YORK.

## Allergy.

LESLIE N. GAY.  
 N. B. HERMAN.

## Neurology.

ORTHELLO R. LANGWORTHY  
 LUIS ORTEGA.

\*\* On leave in Military Service.

*Laryngology.*

DUDLEY C. BABB.\*\*  
 N. FLOYD ADAMS, JR.  
 STUART W. EGERTON.  
 WALTER E. LOCH.

*Orthopedics.*

RAYMOND LENHARD.  
 H. ALVAN JONES.  
 EDWIN D. WEINBERG.

*Ophthalmology.*

A. L. MACLEAN.  
 FRED M. REESE.\*\*  
 JACK S. GUYTON.

*Proctology.*

ARTHUR HEBB.†  
 THOMAS CHAMBERS.

*Neurosurgery.*

WALTER E. DANDY.

*Dentistry.*

H. HAYWARD STREETT.  
 H. BALDWIN STREETT.\*\*  
 GERALD EVANS.\*\*

*Endocrinology.*

JOHN EAGER HOWARD.

*Vascular Diseases.*

FERDINAND C. LEE.

*Roentgenology.*

J. W. PIERSON.  
 CHARLES A. WATERS.

*Dermatology.*

H. HANFORD HOPKINS.  
 MAURICE SULLIVAN.\*\*

*Urology.*

LLOYD G. LEWIS.\*\*  
 HUGH J. JEWETT.  
 EDWARD STINSON, JR.

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## BALTIMORE CITY HOSPITALS

(Controlled by the Department of Public Welfare)

*Superintendent* ..... P. J. McMILLIN.

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## MEDICAL AND SURGICAL STAFF

### GENERAL HOSPITAL

APRIL 1, 1944

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<i>Physician-in-Chief</i> .....	JOHN T. KING, JR., M. D.**
<i>Assistant Chief Physician</i> .....	C. HOLMES BOYD, M. D.
(Acting Chief Physician in absence of Dr. J. T. King, Jr.)	
<i>Resident Physician</i> .....	ROBERT A. WESTON, JR., M. D.
<i>Assistant Resident Physicians</i> .....	PAUL MATTMAN, M. D.
	EDWIN L. SEIGMAN, M. D.
	JOSEPH A. FORD, JR., M. D.
	WILLIAM KENNETH SMITH, M. D.
<i>Internes</i> .....	SHEA HALLE, M. D.
	C. EUGENE PEERY, M. D.
	GEORGE MC. PHILLIPPI, M. D.

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† Died April 24, 1944.

\*\* On leave in Military Service

<i>Surgeon-in-Chief</i> .....	THOMAS B. AYCOCK, M. D.
<i>Consulting Chief Surgeon</i> .....	ARTHUR M. SHIPLEY, M. D.
<i>Assistant Chief Surgeon</i> .....	OTTO C. BRANTEGAN, M. D.
<i>Resident Surgeon</i> .....	DONALD B. HEBB, M. D.
<i>Assistant Resident Surgeons</i> .....	ROSS Z. PIERPONT, M. D.
	EDWARD M. FARRIS, M. D.
	FRESTON R. CUTLER, M. D.
	SOMBUN PHONG AKSARA, M. D.
	HOUCK E. BOLTON, M. D.
<i>Resident Ophthalmologist</i> .....	JOSEPH M. HEIDELMAN, M. D.
<i>Resident Radiologist</i> .....	PAUL J. SCHNEIDER, M. D.
<i>Radiologist-in-Chief</i> .....	HOWARD H. ASHBURY, M. D.
<i>Obstetrician-in-Chief</i> .....	LOUIS H. DOUGLASS, M. D.
<i>Resident Physician</i> .....	T. EDGIE RUSSELL, JR., M. D.
<i>Assistant Resident Physicians</i> .....	HARRY C. DONAHOO, JR., M. D.
	WILLIAM JACK HUNT, M. D.
	HENRY B. PERRY, M. D.
<i>Pediatrician-in-Chief</i> .....	T. CAMPBELL GOODWIN, M. D.**
<i>Acting Pediatrician-in-Chief</i> .....	HUGH W. JOSEPHS, M. D.
<i>Resident Physician</i> .....	MERCER C. BLANCHARD, M. D.

## TUBERCULOSIS HOSPITAL

<i>Physician-in-Chief</i> .....	LAWRENCE M. SERRA, M. D.
<i>Assistant Visiting Physician</i> .....	WILLIAM E. GRENZER, M. D.**
	E. T. LISENSKY, M. D.**
<i>Resident Physician</i> .....	DAVID DOVE, M. D.

## PSYCHOPATHIC HOSPITAL

<i>Physician-in-Chief</i> .....	ESTHER L. RICHARDS, M. D.
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## ROTATING SERVICE

<i>Internes</i> .....	HARDY E. THOMPSON, JR., M. D.
	ELIZABETH ACTON, M. D.
	ELIZABETH WOODWARD, M. D.
	DANIEL EHRLICH, M. D.
	EARL R. KINNEY, M. D.
	GLENN L. PETERSON, M. D.
	JOHN H. WARREN, JR., M. D.
	MARCUS A. WUERSCHMIDT, M. D.
	V. RICHARD ZARLING, M. D.
	LYDIA ROMERO-SUAREZ, M. D.

## PATHOLOGY

<i>Physician-in-Chief</i> .....	FRANK B. KINDELL, M. D.
<i>Assistant Resident Pathologist</i> .....	RAYMOND V. RANGLE, M. D.
"	BERNICE TANNER, M. D.
"	
"	

\*\* On leave in Military Service.

## DENTAL SERVICE

<i>Dentist-in-Chief</i> .....	LOWELL P. HENNEBERGER, D. D. S.
<i>Visiting Dentist</i> .....	H. GLENN WARING, D. D. S.
<i>Assistant Visiting Dental Surgeons</i> ....	LAWRENCE W. BIMESTEEFER, D. D. S.
	JOSEPH B. BERKE, D. D. S.**
	NICHOLAS J. CAPONE, D. D. S.
	BOLESŁAW W. MIKSINSKI, D. D. S.**
<i>Interne</i> .....	LEONARD E. PIVEN, D. D. S.
" .....	DONALD KRAMER, D. D. S.

## CONSULTING AND VISITING STAFF

<i>Visiting Physicians</i> .....	JOHN W. PARSONS, M. D.**
	LOUIS A. M. KRAUSE, M. D.**
	EDWARD J. STIEGLITZ, M. D.
<i>Physiologist</i> .....	NATHAN W. SHOCK, PH. D.
<i>Laboratory Physician</i> .....	JULIUS M. WAGHELSTEIN, M. D.
<i>Visiting Cardiologist</i> .....	RAYMOND HUSSEY, M. D.
<i>Visiting Neurologist</i> .....	FRANK R. FORD, M. D.
<i>Assistant Visiting Neurologist</i> .....	ORTHELLO R. LANGWORTHY, M. D.
	HARRY A. TEITELBAUM, M. D.**
	LUIS ORTEGA, M. D.
<i>Visiting Ophthalmologist</i> .....	FRANK B. WALSH, M. D.
<i>Visiting Dermatologist</i> .....	ISAAC R. PELS, M. D.
<i>Visiting Surgeons</i> .....	JAMES C. OWINGS, M. D.
	HARRY C. HULL, JR.**
	SAMUEL McLANAHAN, JR., M. D.
<i>Assistant Visiting Surgeons</i> .....	LUTHER E. LITTLE, M. D.
	KENNETH E. PICKRELL, M. D.
	HARRIS B. SHUMACKER, M. D.
	FERDINAND C. LEE, M. D.
<i>Consultant in General Surgery</i> .....	I. RIDGWAY TRIMBLE, M. D.**
<i>Visiting Surgeon-Neuro Surgery</i> .....	CHARLES BAGLEY, JR., M. D.
<i>Assistant Visiting Surgeon—Neuro Surgery</i> .....	RICHARD G. COBLENTZ, M. D.
	JAMES G. ARNOLD, JR., M. D.
<i>Visiting Gynecologist</i> .....	J. MASON HUNDLEY, JR., M. D.
<i>Assistant Visiting Gynecologists</i> .....	BEVERLY COMPTON, M. D.
	JOHN C. DUMLER, M. D.**
	JOHN T. HIBBITTS, M. D.
	ERNEST I. CORNBROOKS, M. D.**
	WM. B. SETTLE, M. D.
<i>Visiting Urologist</i> .....	W. HOUSTON TOULSON, M. D.
<i>Assistant Visiting Urologist</i> .....	HUGH JEWETT, M. D.
	HOWARD B. MAYS, M. D.**
	GRANT E. WARD, M. D.
<i>Visiting Surgeon—</i> <i>Oncology-Radiotherapy</i> ..	MURRAY M. COPELAND, M. D.**
<i>Consultant in Peripheral Vascular Diseases</i> ..	GEORGE H. YEAGER, M. D.**
<i>Visiting Surgeon—Nose and Throat</i> ..	JOHN BORDLEY, M. D.**
<i>Assistant Visiting Surgeon—Nose and Throat</i> ..	DONALD F. PROCTOR, M. D.

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\*\* On leave in Military Service.



*Visiting Surgeon—*

<i>Nose, Throat and Larynx</i> .....	THOMAS R. O'ROURKE, M. D.
<i>Assistant Visiting Otologist</i> .....	J. J. BELEMER, M. D.
<i>Visiting Proctologist</i> .....	MONTE EDWARDS, M. D.**
<i>Consultant in Traumatic Surgery</i> .....	CHARLES A. REIFSCHNEIDER, M. D.
<i>Consultants in Plastic Surgery</i> .....	EDWARD M. HANRAHAN, M. D. EDWARD A. KITLOWSKI, M. D.
<i>Visiting Obstetrician</i> .....	J. MORRIS REESE, M. D.
<i>Assistant Visiting Obstetricians</i> .....	MARIUS P. JOHNSON, M. D. JOHN E. SAVAGE, M. D.** HUGH B. McNALLY, M. D. J. WILLIAM DORMAN, M. D.**
<i>Visiting Pediatricians</i> .....	WILLIAM C. STIFLER, M. D.** B. MATTHEW DEBUSKEY, M. D.**
<i>Assistant Visiting Pediatrician</i> .....	WILLIAM M. SEABOLD, M. D.

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\*\* On leave in Military Service

## HISTORY OF THE UNIVERSITY

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The Johns Hopkins University was founded by a merchant of Baltimore, Johns Hopkins (1795-1873), who bequeathed the greater part of his estate for the establishment of a university and a hospital. The University was incorporated in 1867, the Trustees organized in 1870 and the first courses of instruction were offered in October 1876. The work of the philosophical division of the University was begun in a small group of buildings on Howard Street where it continued until 1916 when the present site at Homewood was occupied. The Medical School was opened in 1893, in buildings adjacent to the Johns Hopkins Hospital. The School of Engineering, opened in 1914, forms part of the Homewood group. The School of Hygiene and Public Health was opened in 1918 in buildings on Howard Street but moved in 1925 to the present location near the Hospital.

The first President, inaugurated in February 1876, was Daniel Coit Gilman, who was followed upon his retirement in 1901 by Ira Remsen. Dr. Remsen resigned in 1912 and during a period of two years the duties of the presidential office were discharged by an Administrative Committee of the faculty, appointed by the Trustees. Dr. William H. Welch was the Chairman of the Committee. The third President was Frank Johnson Goodnow, who filled the office from 1914 until his resignation in 1929 when he was succeeded by Dr. Joseph S. Ames. Dr. Ames retired in 1935 and Dr. Isaiah Bowman was elected as the fifth President.

At the time of the organization of the Johns Hopkins University most of the institutions of higher education in this country were either colleges to which graduate schools had been added, or professional and technical schools. It was the declared intention of the trustees and president of the Johns Hopkins University to found an institution which would be characterized by academic freedom and mature scholarship, rather than by inflexible curricula designed to prepare students for a particular calling or to give them certain organized bodies of knowledge. While sharing with the traditional college the obligation of transmitting the intellectual heritage of the past, the University recognized the additional responsibility of expanding the bounds of knowledge through research.

The University community was to consist of a group of scholars, the professors being those of greater maturity whose presence would be both an inspiration and a practical help to the younger members composing the student body. In his inaugural address, Dr. Gilman declared "... while forms and methods vary, the freedom to investigate, the obligation to teach, and the careful bestowal of academic honors are always understood to be among the University functions. The pupils are supposed to be wise enough to select, and mature enough to follow the courses they pursue." Through the years, professional schools have been added, and since the

beginning the undergraduate division of the Philosophical faculty has functioned separately as a college. However, the general principles laid down at the founding have continued to be regarded as the essential characteristics of a University, and it has always been the endeavor of those to whom the academic affairs of the University were committed to render them effective in actual practice.

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## THE SCHOOL OF MEDICINE

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The School of Medicine was opened for the instruction of students in October, 1893, four years after the opening of the Johns Hopkins Hospital, with which it is in closest affiliation, the professors of the various clinical branches being the heads of the corresponding services in the Hospital.

The establishment of the School was made possible through the generosity of a number of women of Baltimore of whom Miss Mary E. Garrett was the principal donor. (For details, see Appendix.)

From the opening of the School, all instructors in the underlying scientific branches (Anatomy, Physiology, Physiological-Chemistry, Bacteriology, Pathology and Pharmacology) have devoted their entire time to their university duties. The establishment of the William H. Welch Fund for the Advancement of Clinical Teaching by the General Education Board in 1914 has made it possible to place the responsible instructors in Medicine, Surgery, Pediatrics and Obstetrics upon a similar basis. The endowment of the Henry Phipps Psychiatric Clinic has likewise permitted the University to organize the Department of Psychiatry on an identical arrangement. The fund raised for the establishment of the William Holland Wilmer Ophthalmological Institute similarly provides for the organization of the Department of Ophthalmology upon a university basis. At the same time a number of physicians who are engaged in outside practice serve as clinical teachers in the various clinical departments.

The School is organized on a departmental basis, and the heads of the fully-organized and supported departments constitute the governing body of the School which is called the Advisory Board of the Medical Faculty.

The School offers instruction leading to the degree of Doctor of Medicine, also post-graduate instruction in the medical sciences. In addition, it conducts courses in art as applied to medicine.

The location of the School is in the eastern portion of Baltimore, on ground adjacent to the Johns Hopkins Hospital. The office of the Dean is at 710 North Washington Street.

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## REQUIREMENTS FOR ADMISSION

(Suspended as of December 22, 1942, and superseded by the Wartime Program; see page 71.)

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As candidates for the degree of Doctor of Medicine the School receives a maximum of seventy-five students in each year, who must present the qualifications indicated below:

1. A collegiate degree from an institution on the list compiled and issued by the American Medical Association. This list may be obtained from the Secretary of the Council on Medical Education of the American Medical Association, 535 N. Dearborn Street, Chicago, Illinois.

2. Certification that the applicant has satisfactorily completed the following minimal requirements:

**BIOLOGY.**—One year of college work in general biology, consisting of a total of approximately 90 clock hours devoted to classroom exercises (lectures, recitations, etc.) and a total of approximately 180 clock hours devoted to laboratory work.

If the course in general biology offered by the applicant does not include a study of either the comparative anatomy of vertebrates or embryology (avian or mammalian), he is advised to pursue an additional course devoted to one or both of these subjects. Courses in bacteriology, histology or physiology may not be applied to replace the minimal requirement in biology, since these subjects are included in the medical curriculum.

**CHEMISTRY.**—Two years of college work in chemistry, including a course in organic chemistry, and consisting of a total of approximately 180 clock hours devoted to classroom exercises (lectures, recitations, etc.) and a total of approximately 240 clock hours devoted to laboratory work.

The applications of chemistry to medical subjects necessarily are concerned with complex organic compounds, with physico-chemical principles, and with quantitative analysis. In preparation it is essential that the student be well grounded in the fundamental matters upon which these applications are based. If the elements of physical chemistry and of quantitative analysis are not integral parts of the student's two years of college chemistry, he is advised to take special courses in these subjects.

**PHYSICS.**—One year of college work in physics consisting of a total of approximately 90 hours of classroom exercises (lectures, recitations, etc.) and a total of approximately 120 hours of laboratory work.

**FRENCH AND GERMAN.**—A reading knowledge is required. This presupposes two years of high school and one year of college work, or two

years of college work in each language. Students with a shorter preparation, who believe that they can read fluently, may meet the language requirements by passing a reading test at the beginning of the Medical School year; if unsuccessful, such students should do further work, and absolve the condition before entering upon the work of the second year of residence in the School.

**LATIN.**—This should include grammar and such knowledge of the language as may be acquired by reading four books of Caesar or their equivalent. Two years of high school Latin are acceptable in satisfaction of this requirement.

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In view of the increasing employment of mathematical concepts in the medical sciences, students expecting to take up the study of medicine are advised to include one year of mathematics, calculus if possible, in their college course.

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### WARTIME PROGRAM OF INSTRUCTION

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In January, 1942, the Advisory Board of the Medical Faculty adopted an accelerated program of instruction to take effect at the beginning of the academic year 1942-43. The aim of the program has been to bring about the graduation of the medical student at an earlier date without diminishing the time which he spends in residence in the School. The acceleration is effected by eliminating the greater part of the summer vacations, thus making it possible for the student to graduate in three calendar years from the time of his admission. The course of study still comprises four academic years of eight months each, divided into four quarters.

### REQUIREMENTS FOR ADMISSION

In order to conform to the provisions of the Army Specialized Training Program and the Navy College Training Program approved by the War Manpower Commission, and in accordance with the joint statement of the Secretary of War and the Secretary of the Navy dated December 12th, 1942, the requirement of a collegiate degree for admission to the School has been suspended during the period of the present emergency. Students may be admitted to the School who can present evidence that they have satisfactorily completed, in an institution on the list compiled and issued by the American Medical Association, the following minimal requirements:

**Biology.**—One college year (or equivalent) of work in general biology, consisting of a total of approximately 90 clock hours devoted to classroom exercises (lectures, recitations, etc.) and a total of approximately 180 clock hours devoted to laboratory work.

If the course in general biology offered by the applicant does not include a study of either the comparative anatomy of vertebrates or embryology (avian or mammalian) he is advised to pursue an additional course devoted to one or both of these subjects. Courses in bacteriology, histology or physiology may not be applied to replace the minimal requirements in biology, since these subjects are included in the medical curriculum.

**Chemistry.**—Two college years (or equivalent) of work in chemistry, including a course in organic chemistry, and consisting of a total of approximately 180 clock hours devoted to classroom exercises (lectures, recitations, etc.) and a total of approximately 240 clock hours devoted to laboratory work, including approximately 60 clock hours of laboratory work in organic chemistry.

The applications of chemistry to medical subjects, necessarily are concerned with complex organic compounds, with physico-chemical principles, and with quantitative analysis. In preparation it is essential that the student be well grounded in the fundamental matters upon which these applications are based. If the elements of physical chemistry and of quantitative analysis are not integral parts of the student's two years of college chemistry, he is advised to take special courses in these subjects.

**Physics.**—One college year (or equivalent) of work in physics, consisting of a total of approximately 90 hours of classroom exercises (lectures, recitations, etc.) and a total of approximately 120 hours of laboratory work.

The foregoing requirements in regard to hours are subject to change depending upon actions which may be taken by the War Manpower Commission or the Army or the Navy.

A reading knowledge of French and German is desirable and the applicant is advised to secure it if possible. In view of the increasing employment of mathematical concepts in the medical sciences, students expecting to take up the study of medicine are advised to include one year of mathematics, calculus if possible, in their college course.

Students who are not eligible to serve with the armed forces are advised to continue their collegiate studies and obtain a bachelor's degree before entering the School of Medicine.

### DATES OF ADMISSION

Classes will be admitted on the following dates which are however subject to change:

September 22, 1944

September 14, 1945

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### APPLICATION FOR ADMISSION

Owing to the fact that a portion of the places in each entering class is reserved for trainees under the Army and Navy training programs, the number of places available for civilians is strictly limited. Application forms may be obtained by writing to the Secretary of the Committee on Admission, Johns Hopkins University, School of Medicine, 710 N. Washington Street, Baltimore 5, Maryland. These applications may be submitted after the applicant has received collegiate grades in at least two of the required sciences. They will be considered in the order of receipt. Letters of appraisal from at least two science teachers in different departments are required. Such personal interview as may be necessary will be arranged with the members of the Committee on Admission, providing the applicant lives within 200 miles of Baltimore. For those living at greater distances, interviews will be arranged with representatives of the Committee on Admission. These representatives are located throughout the United States and in most cases the applicant will not be required to travel more than 200 miles for the personal interview.

Each class is limited to eighty of the most promising applicants. Only those students will be admitted who give promise of being a credit to themselves and to the institution. The applicant will be notified of the decision of the Committee on Admission as soon as possible.

A fee of \$5.00 must accompany each application. Remittance should be by check or P. O. money order made payable to the Johns Hopkins University School of Medicine. Please do not send currency. This fee is not returnable.

### ADMISSION TO ADVANCED STANDING

Each year there are a number of vacancies in the second and third years. These may be filled by students from acceptable medical schools, who present exceptional qualifications. Such applicants must furnish evidence (1) that they are eligible to the first year class; (2) that medical courses, equivalent in kind and amount to those given in this school in the year or years preceding that to which admission is desired, have been satisfactorily completed; and (3) they must be prepared to pass examinations at the beginning of the session in all subjects already pursued by the class to which admission is sought. The applicant must have studied as a matriculated medical student for a period of time at least equal to that already spent by the class which he seeks to enter.

Admission to the fourth year class is jealously guarded, and will be considered only in the case of exceptional applicants who have given evidence of unusual ability in their original school.

Persons who have already received the degree of Doctor of Medicine elsewhere, will not be admitted as candidates for that degree from this University. Should further instruction be desired, they may enter as graduate students.

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## REQUIREMENTS FOR GRADUATION

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The Degree of Doctor of Medicine is conferred upon those who, after fulfilling all the requirements for admission, have completed satisfactorily a four years' course of study.

Students who have been admitted to advanced standing, as well as those students regularly enrolled in the School who have been granted permission to pursue a part of their studies elsewhere, must spend at least the final year in this School unless given specific permission to do otherwise.

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## GENERAL PLAN OF INSTRUCTION

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While the primary aim of the School is to train practitioners of medicine, it is recognized that the medical art should rest upon a suitable preliminary education and upon a thorough training in the underlying medical sciences. The great mass of information available in each of the preclinical and clinical subjects makes it impossible to present in required courses more than a minimum of the necessary data. The entire course of instruction is therefore arranged on the basis of a skeletal curriculum of minimal obligatory courses. The required work occupies approximately two-thirds of the student's time, and the remaining third is free for courses of his own choosing or for such other work as he may desire to do.

While the course of instruction is based upon a curriculum of four years' duration, and while it is realized that most of the candidates for the degree of Doctor of Medicine will desire to pursue this minimal course leading to the degree, arrangements may be made by the individual student for prolongation of his course. The greatest liberality in making such individual arrangements will be granted the well qualified student and every opportunity for additional training in any of the subjects of instruction will be offered. In a similar way arrangements may be made by the individual student for substitution of courses taken at other medical schools for the required work in this institution.

The curriculum is based upon an academic year divided into four quarters of approximately eight weeks each.



The first two years of the course are devoted mainly to the fundamental medical sciences, the greater part of the time being spent in practical work in the laboratories, though in the second year certain introductory courses in clinical subjects are given. In the last two years, various clinical subjects are studied in the wards of the Hospital, in the Out-patient Department, and in the clinics and laboratories. The principal studies of the first year are Anatomy (comprising Gross Anatomy, Histology and Neurology), Physiology, Medical Psychology, Physiological-Chemistry and Biostatistics. In the second year the principal courses are Pharmacology, Bacteriology, Pathology, Epidemiology, Clinical Microscopy, and introductory work in Physical Diagnosis, Surgery, Obstetrics and Psychiatry.

As the third and fourth years of the curriculum are devoted to instruction in the practical work of the various clinical subjects, they cannot be taken up until the student has obtained credit for the required work in the underlying sciences. Instruction in the third and fourth years is, with the exception of general conferences, demonstrations and lectures, given to small groups. Required courses in Ophthalmology, Pediatrics, Preventive Medicine and Gynecology occupy a relatively small proportion of the student's time in the third year; the more extensive required courses of instruction are those in Medicine, Surgery, Neurology-Psychiatry and Obstetrics. Each of these four more extensive courses of study is given each of the four quarters (except Medicine); the student may elect, subject to certain limitations of number, the quarter in which he pursues this required work. In the fourth year the required work consumes almost the entire time of the student. One quarter is devoted to Medicine, one to Surgery and Ophthalmology, one to Gynecology, Preventive Medicine, Pediatrics and Psychiatry, and one to a group of courses (Venereal Diseases, Surgery, Dermatology and Communicable Diseases) that have been introduced into the curriculum because of their bearing upon the medical needs of the armed forces. This particular quarter occupies time which was formerly devoted to an elective quarter. The student may elect the quarters in which he wishes to take the required subjects.

As the required courses do not occupy all of the student's time during the four years of medical studies, each student is expected to do additional medical work of some character. This work may be in the nature of reading or additional study in the required courses of instruction, in elective courses, in special investigations (if the student be qualified), or in additional work done in other medical institutions. Those students desiring to migrate to other institutions during any quarter must make application in writing for this privilege and must receive written permission from the executive authorities of the School as well as from the heads of the departments concerned. Students migrating to other institutions and those who devote their free time to elective courses in this institution will be held responsible for the conduct of that work just as in the case of the required subjects of instruction.

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All courses in the School of Hygiene and Public Health are open to students of the School of Medicine, without payment of additional fees, if the student obtains the consent of the instructor giving the course. Such courses may be taken as elective work, or with the consent of the administrative officers of the School of Medicine, they may be substituted for required courses in the School of Medicine. The consent of the administrative officers of the School of Medicine will not be given unless the head of the appropriate department in the School of Medicine approves the substitution.

## EXAMINATIONS AND PROMOTIONS

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The final standing of students in each major subject is based upon the composite judgment of the responsible instructors in that department and not solely upon the results of written examinations. In the final estimate of the student's standing, due consideration will be given to a general evaluation of his personal fitness for the career of medicine. Inasmuch as the required courses of instruction occupy only a portion of the student's time, similar consideration will be given in the final judgment to additional work done during the medical course.

The students entering the first year class are admitted with the understanding that only those who, in the opinion of the Committees on Instruction, give promise of being a credit to themselves and the School, will be advanced. Promotion in the subsequent years will depend in a similar manner upon the judgment of the Committees on Instruction for the respective years. Any vacancies created by the action of the Committees on Instruction may be filled by admission to advanced standing of properly qualified students.

Final written examinations are given in all of the required major subjects of instruction. These major subjects for the four years of the course are:

1. Anatomy (including Histology and Neurology)
2. Physiology
3. Physiological Chemistry
4. Pharmacology
5. Pathology
6. Bacteriology
7. Medicine (including Neurology)
8. Surgery (including Urology)
9. Obstetrics
10. Psychiatry (including Medical Psychology and Mental Hygiene)
11. Pediatrics
12. Ophthalmology
13. Gynecology
14. Preventive Medicine

The examinations in the required subjects are held as follows:

At the end of the first year—Anatomy (including Histology and Neurology), Physiology, Physiological Chemistry and Medical Psychology, written.

At the end of the second year—Pathology, Bacteriology, Pharmacology, Psychiatry, and Preventive Medicine, written.

At the end of the third year—Obstetrics, Medicine, Surgery, and Psychiatry, written.

At the end of the fourth year—Medicine (including Neurology), Surgery (including Urology), Psychiatry, Pediatrics, Ophthalmology, Gynecology and Preventive Medicine, written.

Oral examinations in any of the required subjects may be given by the individual departments during the course of the year.

At the end of each academic year the records of all students will be examined by the Committee on Instruction for that year, and action will be taken which will determine the student's status. In those departments in which instruction is given over a period of more than one year, students will be required to meet the conditions of the departments concerned, in regard to the elementary courses, before going on with the more advanced courses.

At the end of the fourth year the candidate's record over the entire period of his residence in the School will be reviewed by the Committee on Instruction and Examinations for the Third and Fourth Years of the Course. Those who have satisfactory records and who, in the judgment of the committee, give evidence of personal fitness for a career in medicine, will be recommended to the Advisory Board of the Medical Faculty for the degree of Doctor of Medicine.

As the required courses of instruction occupy only a portion of the student's time, due consideration will be laid by the Committees on Instruction and Examination upon any additional work (elective courses, additional work in the required courses, special medical work of any type, research, etc.) done by the student during the period of his medical studies.

Students who have been absent on account of sickness or any other reason for four weeks or longer in any quarter, are advised to confer with the instructors giving the courses concerned, or with the Dean. Students not appearing for examinations on the specified dates or coming up for re-examination, will be required to pay a fee of \$5.00 for each examination.

### INSTRUCTION FOR GRADUATES IN MEDICINE

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The School of Medicine offers to a limited number of Graduates in Medicine opportunities for study in the various departments. Candidates desiring to avail themselves of these opportunities for instruction and study must be acceptable to the heads of the departments in which they

wish to work; qualified candidates must enroll for periods of three academic quarters of two months each as a minimum, and preferably for a complete academic year. Graduates unable to spend this minimal period of six months in attendance will not be accepted. No certificate or diploma of any kind will be furnished, but the head of the department may give the graduate student a letter stating the type of work which he has done.

For the most part, these opportunities for study by Graduates in Medicine will be in the clinical departments where the Graduates will assist in the care of out-patients, doing a certain amount of laboratory study and occasionally undertaking an investigation in the History Rooms or in the Clinics and Laboratories. These opportunities for study will be arranged to meet the individual needs of the Graduates.

A tuition charge of \$50.00 an academic quarter is established for these courses. Graduates interested in these opportunities for study should communicate with the Dean of the School of Medicine.

### SPECIAL STUDENTS

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Properly qualified persons may be admitted as special students to the regular courses given in the School of Medicine subject to the approval of the head of the department concerned, but credit will not be given for such work toward the M. D. degree in this institution. Application blanks for admission as special students may be obtained by writing to the Office of the Dean, 710 N. Washington Street, Baltimore 5, Md.

### INSTRUCTION IN ART AS APPLIED TO MEDICINE

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Courses in Art as Applied to Medicine are available for properly qualified persons. (See the departmental statement, page 87.)

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### CLINICAL OPPORTUNITIES

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Satisfactory clinical facilities for seventy-five students in each year are afforded by the Johns Hopkins Hospital and Dispensary, which occupies a site of fourteen acres immediately adjoining the grounds of the School of Medicine.

The Hospital is governed by its own Board of Trustees and has an endowment independent of that of the University and its School of Medicine, but the relations between the two institutions are most intimate, as the will of their founder directed that the Hospital should be a part of the

School of Medicine of the University. The heads of its main departments, as well as its Director, are members of the Medical Faculty; while the incumbents of the chief clinical chairs of the University are also members of the Medical Board of the Hospital. This interlocking arrangement has resulted in the greatest possible utilization of the Hospital for the instruction of students pursuing clinical work.

The Hospital is unusually well equipped; it now has a total bed capacity of 935, and is made up of a group of buildings for patients suffering from a variety of disorders. In addition to the administration building, service building and Nurses' Home, there is the Marburg building for private patients, the Osler Medical Clinic, the Halsted Surgical Clinic, the Harriet Lane Home for Invalid Children, the Henry Phipps Psychiatric Clinic, the James Buchanan Brady Urological Institute, the Woman's Clinic and the William Holland Wilmer Ophthalmological Institute. These last seven buildings are modern self-contained units for the care of patients, the instruction of students and the advancement of knowledge. They afford facilities for instruction in General Medicine (including Neurology), General Surgery (including Orthopedic Surgery and Laryngology), Pediatrics, Psychiatry, Diseases of the Genito-Urinary Tract, Obstetrics, Gynecology and Ophthalmology.

The new Out-Patient Department of the Hospital, constructed and endowed by a gift of the Carnegie Corporation made in 1923, was opened in the spring of 1927. This dispensary affords in the lower floors ample accommodation for the care of large numbers of ambulatory patients, with the necessary teaching rooms. On the fifth and sixth floors of the building are housed the laboratory for clinical microscopy and the various clinical laboratories. The two upper floors of the building are devoted to the surgical operating rooms.

Through the courtesy of the Department of Public Welfare of Baltimore, the Johns Hopkins University has the privilege of utilizing for clinical instruction the facilities of the various departments of the Baltimore City Hospitals.

## REGISTRATION

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Students will not be admitted to the regular courses until they have registered at the office of the School of Medicine and paid their fees for the first two quarters of the academic year.

Graduate students, after receiving permission from the heads of departments to enter any course under their supervision, must register at the Dean's office before beginning work. Upon payment of the requisite fee, a card will be issued stating the courses which the holder is entitled to take. This card must be presented to the instructor in charge of each course, in order that its holder may be recognized and receive due credit for his work.

## TUITION AND OTHER FEES

For students in the School of Medicine tuition is \$600.00 a year, collectible in two equal installments, one at the opening of the academic year, and one at the beginning of the third quarter. Students who fail to pay their tuition within the first two weeks after payment is due are liable to a penalty of five dollars. Upon admission to the School each student is required to make a deposit of fifty dollars. This is applied against the tuition for his first semester, but is forfeited in case he fails to matriculate.

There are extra charges for special examinations, microscopes, laboratory breakage, and certain expensive supplies. A deposit of ten dollars is required from each student at the time of enrollment. This "caution money" is not applicable against charges incurred during the First, Second, and Third Years, but is repaid at the end of the course, if there are no charges against it.

For the academic year November 29, 1943–August 18, 1944 the following Health Fees will be charged:

First Year.....	\$20.00
Second Year.....	15.00
Third Year.....	17.00
Fourth Year.....	15.00

These fees include the cost of the premium on a group insurance policy which is taken out in the name of the School of Medicine and entitles each student to indemnification for disability due to illness or bodily injury, contracted during the school year and requiring hospitalization in the Johns Hopkins Hospital prior to August 18, 1944 at the rate of \$35.00 per week during the period of such hospitalization, but not exceeding a total payment of \$350.00 on account of each confinement in hospital. Indemnification for special hospital fees, up to a maximum of \$65.00 will be paid in accordance with the following schedule:

Operating Room.....	\$15.00
Anaesthesia .....	10.00
Laboratory .....	5.00
X-Ray .....	35.00

When the service of a special nurse is required, this cost must be borne by the student, as well as the cost of any special drugs for which he may be billed by the Hospital. Admission to the Hospital is solely through the office of the Physician-in-Charge, Medical Care of Students.

Payment of a fee of \$3.00 per school year entitles a student to use the Medical School Recreation Building.

All bills are payable at the Dean's Office.

## MICROSCOPES

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The character of the work throughout the entire course requires constant use of the microscope. These must be of an approved type, equipped with 2 oculars (approximately 5x and 10x), 3 objectives (16mm., 4mm., and 2mm., oil immersion), an Abbe condenser and triple nosepiece. It is essential that all objectives yield clear images.

In the past, students have been required to furnish their own microscopes, but since the sale of these instruments has been prohibited by the War Production Board arrangements have been made to rent microscopes to the members of the entering classes. The rental charge will be \$10.00 per academic year.

Dissecting microscopes may be rented at the rate of one dollar a year.

## HOSPITAL APPOINTMENTS

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Each year certain members of the graduating class are recommended to the Trustees of the Johns Hopkins Hospital for appointment as Resident House Officers.

The selection is made as follows:

1. Each year a notice is sent to the members of the graduating class giving the number of House Officers to be appointed in each service for the following year, and requesting those desiring such appointment to present a written application in person to the Director of the Johns Hopkins Hospital, stating what service is preferred. A second or third choice may be indicated if desired. The applications will be considered at a meeting of the Medical Board of the Hospital to be held shortly afterward, formal confirmation by the Trustees of the Hospital being made later.

2. As the grading of students upon a percentage basis has been discontinued, the choice of applicants must necessarily be made in the light of whatever information is available in the hope of recommending only those who may prove a credit to themselves and the Hospital. This being the case, the personal, as well as the intellectual, fitness of the applicants will be taken into consideration.

3. One or more places on each staff may be awarded, if so desired by the heads of departments, to graduates of other schools, or to earlier graduates of this School. Those desiring such appointments should apply to the head of the respective department. A personal interview is desirable, but if that is impossible, the application should be accompanied by such letters as seem advisable, as well as by a photograph of the applicant.

At the end of one year's service a certain number of the Resident House Officers may be appointed to resident assistantships, and eventually may be promoted to be resident physicians or surgeons in the various departments of the hospital.

### MEDICAL CARE OF STUDENTS

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NATHAN B. HERMAN, Physician-in-Charge.  
LEROY E. DUNCAN, JR., Assistant Physician.

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All entering students will be given a physical examination during their first quarter at the Medical School.

The office of the Medical Adviser, Room 502, Halsted Building, the Johns Hopkins Hospital, will be open between 9 a. m. and 5 p. m. except Saturday, when the hours will be 9 a. m. to 1 p. m. Students are urged to come to the office for consultation between 11.30 a. m. and 1 p. m. except in the case of an emergency. They should telephone in advance to Dr. Herman's secretary (Wolfe 5500) for appointment. In cases of necessity, students who live within a short distance of the Hospital will be seen at their homes by Dr. Duncan; requests should be telephoned to Dr. Duncan (Wolfe 5500). Students who live at a greater distance from the Hospital will be seen by Dr. Herman; such requests should be telephoned either to Dr. Herman's secretary (Wolfe 5500), or to his office (Saratoga 3750. After 5.30 p. m., requests for Dr. Herman should be telephoned to his residence.

### LIBRARIES

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The University Library contains 689,024 bound volumes, selected with especial reference to the instruction here given. It is arranged in several collections.

The William H. Welch Medical Library, located on the grounds of the Medical School, contains the collections which formerly comprised the Hospital Library, the library of the Medical School and the library of the School of Hygiene. It was formally opened in the autumn of 1929. The Library possesses about 141,582 volumes and it receives regularly the leading medical periodicals of the world. Complete sets of the more important journals are on the shelves. The library also houses the Department of the History of Medicine. The Librarian will give a series of informal talks during the first quarter on the use of the library. (See page 90.)

The library of the Medical and Chirurgical Faculty of Maryland, 1211



Cathedral Street, contains 60,000 volumes, and is conducted in affiliation with the university facilities. Other libraries of Baltimore are the Peabody and the Enoch Pratt, with 249,598 and 805,846 volumes, respectively. These libraries are open to students of the School of Medicine without charge.

Washington is so near that its libraries and museums may be easily utilized. Among the chief institutions of interest to students are: the Smithsonian Institution and National Museum, the Library of Congress, the Library of the Surgeon-General's office, and the libraries of the various Departments and Bureaus.

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### LECTURESHIPS

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There are four endowed lectureships in the School of Medicine, as follows:

#### THE HERTER LECTURESHIP

In November, 1902, Dr. and Mrs. Christian A. Herter, of New York, offered to the Medical Department of the Johns Hopkins University the sum of \$25,000 "for the formation of a memorial lectureship designed to promote a more intimate knowledge of the researches of foreign investigators in the realm of medical science." This gift was accepted by the Trustees of the University November 3, 1902. According to the present terms of the gift, some eminent worker in the medical sciences is to be asked each year to deliver a lecture at the Johns Hopkins University upon a subject with which he has been identified. The selection of a lecturer is to be left to a committee representing the departments of pathology, physiological chemistry and clinical medicine, and if "in the judgment of the committee it should ultimately appear desirable to open the proposed lectureship to leaders in medical research in this country there should be no bar to so doing."

#### WILLIAM SYDNEY THAYER AND SUSAN READ THAYER LECTURESHIP IN CLINICAL MEDICINE

In May, 1927, the friends and admirers of Dr. William Sydney Thayer, Professor Emeritus of Medicine in the Johns Hopkins University, presented to the University a sum to endow a lectureship in memory of William Sydney Thayer and Susan Read Thayer, his wife. The lecturers are to be selected from men distinguished in clinical medicine, pediatrics, neurology or borderline branches, in accordance with the action of a committee provided for in the deed of gift.

#### HIDEYO NOGUCHI LECTURESHIP

In 1929, Dr. Emanuel Libman, of New York, generously gave the University \$10,000 for the establishment of a lectureship in the History of Medicine. In accordance with Dr. Libman's desires, the lectureship was named after the distinguished investigator, Hideyo Noguchi.

### THE DOHME LECTURESHIP

In June, 1916, the late Mrs. Charles E. Dohme of Baltimore generously offered to pay annually the sum of \$1,000 to the Trustees of the Johns Hopkins University to make it possible to offer each year a course of lectures, in memory of her deceased husband, Mr. Charles E. Dohme, a well-known pharmaceutical chemist of Baltimore. The purpose of these lectures was to promote the development of a more intimate relationship between chemistry, pharmacy and medicine.

The donations made by Mrs. Dohme for this purpose up to the time of her death in December, 1937, made it possible to offer prior to 1938, thirteen courses of lectures by distinguished scientists either from this country or abroad. Upon her death the University received from her estate a legacy amounting to the sum of \$18,500 after the payment of inheritance taxes, to be used as an endowment fund, the income of which is to be devoted to the continuation of these lectures.

The purpose of this lectureship is to promote the development of a more intimate relationship between chemistry, pharmacy and medicine. The lectureship is open to scientists from any part of the world, and the selection of the lecturer is made by a committee representing the departments of pharmacology, chemistry and medicine.

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### ALUMNI FUND FOR MEDICAL SCHOLARSHIPS

The School of Medicine possesses a sum of money, contributed by its graduates, which is available for scholarships to students who have been accepted for admission to the School. Applications for such scholarships should be made to the Secretary of the Committee on Admission on forms which will be supplied upon request. Recipients of such scholarships may apply for a renewal of them if their work in the School is satisfactory.

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### READ DRUG AND CHEMICAL COMPANY SCHOLARSHIP

The Read Drug and Chemical Company of Baltimore, Maryland, has given the sum of \$600. to the School of Medicine for a scholarship for the academic year 1944-45. Applications for this scholarship should be addressed to the Dean on forms which will be supplied upon request.

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### THE HENRY STRONG DENISON FUND FOR MEDICAL RESEARCH

By agreement dated September 23, 1937, the Johns Hopkins University received from the Henry Strong Denison Medical Foundation, Incorporated, an endowment fund of \$100,000, to be known as "The Henry Strong Denison Fund for Medical Research" in memory of Henry Strong

Denison, M. D., 1908. While the gift is made broadly for the support of medical research, the income will be used for the specific purpose of aiding "in the training for research of young people deemed by the Medical Faculty to be especially gifted for a career in medical investigation."

To fulfill the provisions of this gift the income each year may be allocated for scholarships to students of the School of Medicine considered by the Committee to give promise of achievement in research. These scholarships will be awarded on recommendation of the directors of departments and not upon direct application from the student.

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### MEDICAL SOCIETIES

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The Johns Hopkins Medical Society, of the Johns Hopkins Hospital, meets on one Monday in each month throughout the year. There are a number of departmental journal clubs. These, as well as the regular meetings of the Baltimore City Medical Society, held in the Medical and Chirurgical Faculty Building, are open to students.

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### MEDICAL HISTORY CLUB

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The Medical History Club meets on three or four evenings during the academic year alternating with the meetings of the Osler Society of the Medical and Chirurgical Faculty of Maryland and with the meetings of the Cordell Historical Society of the University of Maryland Medical School. The Club has been active since the opening of the Hospital in 1889 and medical undergraduates are cordially invited to attend the meetings.

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### PUBLICATIONS

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The Bulletin of the Johns Hopkins Hospital, issued monthly, contains articles by those connected with the School of Medicine and Hospital and the proceedings of the Medical Societies. The Johns Hopkins Hospital Reports contain the large monographs and results of researches in the Hospital and the laboratories of the School of Medicine.

The Bulletin of the History of Medicine is published monthly (except in August and September) by the Institute of the History of Medicine. It is the organ of the Institute and of the American Association of the History of Medicine.

## DEPARTMENTS AND SUBJECTS OF INSTRUCTION

The following statements are designed to exhibit the opportunities and the character of the instruction and practical work in each department.

### ANATOMY

LEWIS H. WEED, Professor of Anatomy and Director of the Department of Anatomy.

ADOLPH H. SCHULTZ, Associate Professor of Physical Anthropology.

MARION HINES, Associate Professor of Anatomy.

A. BRAZIER HOWELL, Associate Professor of Anatomy. (On leave of absence.)

WILLIAM L. STRAUS, JR., Associate Professor of Anatomy.

SARAH S. TOWER, Associate in Anatomy.

RUTH A. MILLER, Associate in Anatomy.

THOMAS R. FORBES, Instructor in Anatomy. (On leave of absence.)

HAROLD SOMERS FISH, Instructor in Anatomy.

JAMES M. SPRAGUE, Instructor in Anatomy.

### ASSOCIATED WITH THE DEPARTMENT

FERDINAND C. LEE, Associate Professor of Surgery.

WILLIAM F. RIENHOFF, JR., Associate Professor of Surgery.

Courses of instruction are provided in the various anatomical sciences—histology, organology, neurology and gross human anatomy—and opportunities are afforded for advanced work and investigation in these sciences.

Physicians and students not candidates for a medical degree may be admitted to any of the courses by special arrangement with the instructors and may undertake advanced work and original research.

### REQUIRED COURSES

1. Gross Anatomy of the Human Body. Drs. STRAUS, SCHULTZ and LEE. First quarter, daily 9-1 (Saturday, 9-12); second quarter, M., W., F., 10-1; Tu., Th., 9-1.

A systematic study of human gross anatomy, with dissection of the lateral half of the body by each student.

2. Histology and Neurology. Drs. HINES, TOWER, MILLER, FISH and SPRAGUE. Laboratory work; first quarter, M., W., F., 2-5; second quarter M., W., F., 2-5; fourth quarter, Tu., Th., 9-12 (until about July 27).

The first part of this course is designed to give the student a familiarity with the normal appearances of the tissues of the body; the second part is devoted to the study of the central nervous system.

### ELECTIVE COURSES

3. Study Room in Gross Anatomy. Dr. STRAUS and Dr. MILLER. All four quarters, daily.

4. Seminar on the Cranial Nerves. Dr. STRAUS. Hours by arrangement.
  5. Infant Anatomy. Dr. SPRAGUE. Third quarter; hours by arrangement; limited to 10 students.  
Dissection and study of the human newborn.
  6. Physical Anthropology. Dr. SCHULTZ. Third quarter, Th., 2-4.
  7. Original Investigation. All four quarters.
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## ART AS APPLIED TO MEDICINE

ELIZABETH S. CONE, Instructor in Art as Applied to Medicine.

RANICE W. BIRCH, Instructor in Art as Applied to Medicine.

### A. Courses for Medical Students.

1. A course in drawing, photography, and moulage open to students of all four years, to post-graduates and to members of the faculty for one afternoon a week throughout the year.
2. Research workers who require illustrations for their research will be given guidance upon request.

### B. Courses for Medical Art Students.

1. Special courses to medical illustrators who desire to take advanced work in a particular branch, or to specialize in drawing, photography, or moulage. Minimum fee \$25.00.
2. A regular three-year course for beginners. Instruction will continue during the entire day throughout the academic year. Applicants must have studied the premedical sciences and be graduates of an art school. The fee is \$100.00. The course consists of the following:

#### a. Drawing.

- 1) Anatomical studies of the skeleton, muscles, and viscera. Everything studied is drawn.
- 2) Studies of fresh material from autopsies and the operating room, combined with microscopic observation.
- 3) Studies of hardened specimens.
- 4) Lettering.
- 5) Consideration of diagrams and charts.
- 6) Pictorial representation of the different steps in surgical operations and various kinds of treatments as observed and sketched in the operating room.
- 7) Paralleling these studies, instruction will be given in various techniques suitable for medical illustrations intended for publication, namely:
  - a'. Half-tone drawings in carbon, and mixed mediums.
  - b'. Line drawings in pen and ink.
  - c'. Color drawings in water color, and mixed mediums.

- 8) The rules of publications as applied to medical illustrations.
- b. Photography.
  - 1) Chemical and physical principles as applied to photography.
  - 2) The study of equipment, materials, and techniques in still photography, and copy work.
  - 3) Clinical photography.
  - 4) Photomicrography.
  - 5) Cinematography.
- c. Moulage.
  - 1) The study of materials and techniques in molding and casting.
  - 2) Clinical prosthesis.

Stress will be laid on the correct attitude of the medical illustrator toward problems in medical research and toward the conception of a medical illustration, whether a drawing, photograph, or product of moulage, as an aid to medicine and also as a work of art.

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## BACTERIOLOGY

J. HOWARD BROWN, Associate Professor of Bacteriology.

ROGER D. REID, Instructor in Bacteriology. (On leave of absence, U. S. A.)

ISABELLE GILBERT SCHAUB, Instructor in Bacteriology.

RUTH WICHELHAUSEN, Instructor in Bacteriology.

LUCILLE B. ROBINSON, Assistant in Bacteriology.

### REQUIRED COURSE

1. Introductory Bacteriology. Drs. BROWN, WICHELHAUSEN, Mrs. SCHAUB and Mrs. ROBINSON. First quarter, M., W., F., 10-5, and Tu., Th., 9-1 for first three weeks; Tu., Th., 9-1 for remainder of quarter.

Except for a few introductory exercises on the making of media, methods of sterilization and the development of bacteriological technique, during which non-pathogenic bacteria are studied, the course is devoted to study of bacteria and fungi pathogenic for man. The course is intended to serve as a background for subsequent medical studies. The laboratory work is closely outlined to take full advantage of the time available and is supplemented by lectures and demonstrations. Immunology is treated in connection with the various micro-organisms studied.

### ELECTIVE COURSES \*

2. Diagnostic Bacteriology. Fourth quarter, Tu., Th., 11-1.

Material for study will be in the form of specimens of blood, urine, feces, pus, spinal fluid, throat swabs, etc. Complete records and reports will be required. Limited to fifteen students.

3. Serology. Fourth quarter, M., W., F., 2-5.

Production of antisera in animals. Study of serological procedures employed in diagnosis, treatment and research; agglutination, precipitation, complement fixation, antibacterial and antitoxic reactions. Limited to twelve students.

\* Since bacteriological work often requires daily attention, students will be expected to spend time in the laboratory out of hours when necessary.

#### 4. Individual Work and Research.

In so far as possible opportunity is offered to individuals, suitably prepared, to pursue special problems or research in accordance with their own interests. Number of students limited by available laboratory facilities and the ability of instructors to give adequate consultation.

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### GYNECOLOGY

RICHARD W. TELINDE, Professor of Gynecology and Director of the Department of Gynecology.

EDWARD H. RICHARDSON, Associate Professor of Gynecology.

HOUSTON S. EVERETT, Associate Professor of Gynecology.

DEWITT B. CASLER, Associate in Gynecology.

EMIL NOVAK, Associate in Gynecology.

LEO BRADY, Associate in Gynecology.

LAWRENCE R. WHARTON, Associate in Gynecology.

CECIL W. VEST, Instructor in Gynecology.

GEORGE L. STICKNEY, Instructor in Gynecology.

J. HERMAN LONG, Instructor in Gynecology. (On leave of absence, U. S. A.)

FIRMADGE KING NICHOLS, Instructor in Gynecology. (On leave of absence, U. S. A.)

C. BERNARD BRACK, Instructor in Gynecology. (On leave of absence, U. S. A.)

J. DONALD WOODRUFF, Instructor in Gynecology. (On leave of absence, U. S. A.)

GEORGEANNA SEEGAR JONES, Instructor in Gynecology.

ROGER B. SCOTT, Instructor in Gynecology.

GERALD A. GALVIN, Instructor in Gynecology.

LOIS F. FESS, Instructor in Gynecology.

DAVID B. CHEEK, Assistant in Gynecology.

### REQUIRED WORK

The required work in Gynecology is given in both the third and fourth years. The required courses are as follows:

#### 1. Fundamentals of Gynecology. Dr. TELINDE and staff.

A series of lectures on the fundamentals of gynecology. Third year, first, second and third quarters, alternate Mondays, 9 to 10 a. m. and the first half of the fourth quarter, alternate Mondays, 9 to 10 a. m.

#### 2. Gynecological Diagnosis. Drs. RICHARDSON and CASLER.

Practical instruction in the technique and interpretation of pelvic examinations under anesthesia; demonstration of selected operations. The work is conducted in groups composed of one-eighth of the third year class, representing one-half of the group assigned to Minor Surgery. Each group will have eight exercises. The exercises are from 10 to 11.30 a. m. on Tuesdays and Thursdays and are repeated through the four quarters.

#### 3. Female Urology. Drs. EVERETT, WHARTON and BRADY. Tu., 12-1.

The above mentioned groups of one-eighth of the third year class will be given practical and theoretical instruction in female urology following the Tuesday exercise indicated in course Number 2. The exercises will be repeated each quarter.

#### 4. Bedside Instruction, Informal Discussions, Operative and Non-operative Clinics. Dr. TELINDE. All four quarters of the fourth year. W., 9-11; F., 9-10.

5. **Ward Work.** Cases entering ward are to be worked up by fourth year students. Pelvic examinations can be arranged for with the interne.

When possible, the student is expected to be present in the operating room when his patient is operated upon.

#### ELECTIVE COURSES

6. **Gynecological Pathology.** Drs. NOVAK and CHEEK. Second and third quarters only, F., 2-4.30.

The course embraces the gross and microscopic study of all diseases of the pelvic structures. Special attention is given to the correlation of the pathological with the clinical aspects of gynecology. Open to third and fourth year students.

7. **Out-Patient Clinics.** Drs. EVERETT, VEST, WHARTON, BRADY, STICKNEY, NICHOLS and the resident staff. All four quarters, daily, 9-12.

Practical instruction in the Gynecological Dispensary, open to a limited number of students of the third and fourth years.

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### HISTORY OF MEDICINE

HENRY E. SIGERIST, William H. Welch Professor of the History of Medicine and Director of the Institute of the History of Medicine.

OWSEI TEMKIN, Associate Professor of the History of Medicine.

LUDWIG EDELSTEIN, Associate Professor of the History of Medicine.

GENEVIEVE MILLER, Assistant in the History of Medicine.

ERWIN H. ACKERKNECHT, Fellow in the History of Medicine.

JEAN C. SABINE, Fellow in the History of Medicine.

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SANFORD V. LARKEY, Lecturer in the History of Medicine. (On leave of absence, U. S. A.)

EDWARD H. HUME, Lecturer in the History of Medicine.

The Department is organized to afford opportunities for instruction, investigation and study in the history of medicine and kindred sciences.

During the academic year 1943-1944, the following elective courses will be offered:

#### INTRODUCTORY AND GENERAL COURSES

1. **Use of the Library.** Dr. SIGERIST. First quarter. Hours to be arranged.

The practical aspects of the resources of the Welch Medical Library; a brief survey of the scheme of classification; study of the various types of periodicals, indexes and other reference material. Informal talks arranged for small groups, who will be taken through the Library.

2. **Greek and Latin Terminology in Modern Medicine.** Dr. EDELSTEIN. First quarter. See special announcement.

The purpose of these lectures is to evaluate the inheritance of ancient terminology preserved in the modern scientific vocabulary, to study the laws of its coinage, and to survey the manner in which the ancient concepts were transmitted to modern medicine.



3. Outlines of the History of Medicine. Dr. TEMKIN. First quarter, Tu., Th., 4-5.

An introductory course, illustrated by lantern slides, with bibliographic demonstrations, chiefly for first year students.

4. The Historical Foundations of the Present World Conflict. Dr. SIGERIST. Third quarter, W., 5-6.

A historical analysis of the economic, social and political developments that have led to the present world war.

#### SEMINAR IN THE HISTORY OF MEDICINE

5. Medical Education and Ethics in Antiquity. Dr. EDELSTEIN. Second quarter. Hours to be arranged.

It is intended to study the various forms of ancient medical education beginning with apprenticeship and ending with university studies. Then an inquiry will be made into the different ethical systems evolved by physicians and philosophers in regard to the duties of the physician.

6. Introduction to the History of American Medicine. Miss MILLER. Second quarter. Hours to be arranged.

A lecture course, illustrated with slides and books, which will trace the development of American medicine from the early settlement of America to the present time.

7. Pathology and Surgery in the 19th Century. Dr. TEMKIN. Third quarter. Hours to be arranged.

A series of lectures for second and third year students on the development of pathology and surgery and their interrelation.

8. Pediatrics in China. Dr. HUME. Time to be announced later.

A study of Chinese monographs on pediatrics.

#### SEMINAR IN THE SOCIOLOGY OF MEDICINE

9. Introduction to the Sociology and Economics of Medicine. Dr. SIGERIST. First and second quarters. Tu., 5-6.

An analysis and study of the cost of illness, of the present structure of medicine in the United States, and of the various methods of distributing and financing medical care.

10. The Protection of Health in the Soviet Union. Dr. SIGERIST. Third and fourth quarters, Tu., 5-6.

A study of the development of medicine in the USSR and of the organization of medical services as part of a general welfare program.

#### SEMINAR IN THE PHILOSOPHY OF MEDICINE

11. Main Currents of Philosophical Thought. Dr. EDELSTEIN. Second, third and fourth quarters. Hours to be arranged.

In this course, it is proposed to survey those philosophical systems from antiquity to modern times which have decisively influenced the development of science and medicine.

12. Research Conference. Dr. SIGERIST and staff. Tu., 10-4. First Tuesday of every month.

A whole day conference at which the current researches of the Institute are discussed. See special programs.

13. **Journal Club.** Dr. SIGERIST and staff. Tu., 10-12. Third Tuesday of every month.

Discussion of new literature in the field of the history and sociology of medicine.

14. **Study Groups in the History, Sociology and Economics of Medicine.** Dr. SIGERIST and staff, throughout the academic year.

At the request of three or more students, the Department will organize special study groups to investigate and discuss definite problems of the history, sociology and economics of medicine.

THE JOHNS HOPKINS MEDICAL HISTORY CLUB is closely connected with the Institute. Three to four meetings are held each year to which the students are cordially invited. See special announcements.

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## MEDICAL JURISPRUDENCE

EUGENE O'DUNNE, Lecturer in Medical Jurisprudence.

A course of six lectures in Medical Jurisprudence is given each year for fourth year students by Justice Eugene O'Dunne. The course is elective.

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## MEDICINE

WARFIELD T. LONGCOPE, Professor of Medicine and Director of the Department of Medicine.

LOUIS HAMMAN, Associate Professor of Medicine.

ALAN M. CHESNEY, Associate Professor of Medicine.

CHARLES R. AUSTRIAN, Associate Professor of Medicine.

E. COWLES ANDRUS, Associate Professor of Medicine. (On leave of absence.)

JAMES BORDLEY, III, Associate Professor of Medicine. (On leave of absence, U. S. A.)

HENRY M. THOMAS, JR., Associate Professor of Medicine. (On leave of absence, U. S. A.)

JOHN T. KING, Associate Professor of Medicine. (On leave of absence, U. S. A.)

JOSEPH EARLE MOORE, Associate Professor of Medicine.

LOUIS P. HAMBURGER, Associate in Medicine.

WALTER A. BAETJER, Associate in Medicine.

PAUL W. CLOUGH, Associate in Medicine.

SYDNEY R. MILLER, Associate in Medicine.

EVELETH W. BRIDGMAN, Associate in Medicine.

THOMAS P. SPRUNT, Associate in Medicine.

ERNEST H. GAITHER, Associate in Medicine.

SAMUEL WOLMAN, Associate in Medicine.

MARY V. BUELL, Associate in Medicine.

LESLIE N. GAY, Associate in Medicine.

LAY MARTIN, Associate in Medicine.

CHARLES W. WAINWRIGHT, Associate in Medicine.

MOSES PAULSON, Associate in Medicine.

BENJAMIN M. BAKER, JR., Associate in Medicine. (On leave of absence, U. S. A.)

A. MURRAY FISHER, Associate in Medicine.

- WALTER L. WINKENWERDER, Associate in Medicine. (On leave of absence, U. S. A.)
- JOHN EAGER HOWARD, Associate in Medicine.
- WARDE B. ALLAN, Associate in Medicine.
- PAUL PADGET, Associate in Medicine. (On leave of absence, U. S. A.)
- C. HOLMES BOYD, Associate in Medicine.
- THOMAS MCPHERSON BROWN, Associate in Medicine. (On leave of absence, U. S. A.)
- CAROLINE BEDELL THOMAS, Associate in Medicine.
- W. HALSEY BARKER, Associate in Medicine.
- ALAN BERNSTEIN, Associate in Medicine.
- CHARLES F. MOHR, Associate in Medicine.
- RUSSELL A. NELSON, Associate in Medicine.
- NATHAN B. HERMAN, Associate in Medicine.
- HARRY M. ROBINSON, Instructor in Medicine.
- EUGENE J. LEOPOLD, Instructor in Medicine.
- JACOB COHEN, Instructor in Medicine.
- LOUIS F. KRUMREIN, Instructor in Medicine.
- HARRY WASSERMAN, Instructor in Medicine.
- DAVID C. STREETT, Instructor in Medicine.
- BENJAMIN H. RUTLEDGE, Instructor in Medicine. (On leave of absence, U. S. A.)
- SAMUEL WHITEHOUSE, Instructor in Medicine.
- THOMAS C. WOLFF, Instructor in Medicine.
- JOHN T. HOWARD, Instructor in Medicine.
- FRANK R. SMITH, JR., Instructor in Medicine. (On leave of absence, U. S. N.)
- JOHN H. TRESCHER, Instructor in Medicine.
- RALPH G. HILLS, Instructor in Medicine. (On leave of absence, U. S. A.)
- CHARLOTTE MCCARTHY, Instructor in Medicine.
- ROBERT A. REITER, Instructor in Medicine.
- ARCHIBALD S. CHALFANT, Instructor in Medicine.
- RICHARD FRANCE, Instructor in Medicine. (On leave of absence, U. S. N.)
- JOHN W. PARSONS, Instructor in Medicine. ((On leave of absence, U. S. N.)
- R. CARMICHAEL TILGHMAN, Instructor in Medicine. (On leave of absence, U. S. A.)
- HUGH G. WHITEHEAD, Instructor in Medicine. (On leave of absence, U. S. N.)
- FRANCIS W. GLUCK, Instructor in Medicine. .
- FRANK FURSTENBERG, Instructor in Medicine. (On leave of absence, U. S. P. H. S.)
- ARTHUR I. FINK, Instructor in Medicine.
- LAWRENCE KATZENSTEIN, Instructor in Medicine. (On leave of absence, U. S. A.)
- EDMUND L. KEENEY, Instructor in Medicine.
- MOSES S. SHILING, Instructor in Medicine. (On leave of absence, U. S. P. H. S.)
- LOUIS K. ALPERT, Instructor in Medicine. (On leave of absence, U. S. A.)
- MITCHELL H. MILLER, Instructor in Medicine. (On leave of absence U. S. A.)
- MILTON B. KRESS, Instructor in Medicine.
- GEORGE O. DOAK, Instructor in Medicine.
- PALMER F. C. WILLIAMS, Instructor in Medicine.
- JOHN A. LUETSCHER, JR., Instructor in Medicine.
- HOWARD K. RATHBUN, Instructor in Medicine.
- RICHARD HAHN, Instructor in Medicine.
- PALMER H. FUTCHER, Instructor in Medicine. (On leave of absence, U. S. N.)
- BOWMAN J. HOOD, Instructor in Medicine.
- RICHARD N. TILLMAN, Instructor in Medicine.
- HARRY F. KLINEFELTER, JR., Instructor in Medicine. (On leave of absence, U. S. A.)
- NOBEL W. GUTHRIE, Instructor in Medicine.
- RUDOLPH A. MICHELSON, Instructor in Medicine.

ROBERT W. GARIS, Instructor in Medicine.  
 HENRY M. HENSEN, Instructor in Medicine.  
 MILTON E. LOWMAN, Instructor in Medicine.  
 SARAH BOWDITCH, Instructor in Medicine. (On leave of absence, U. S. A.)  
 ELLIOTT VOSS NEWMAN, Instructor in Medicine.  
 RICHARD R. OWENS, Instructor in Medicine.  
 KATHERINE H. BORKOVICH, Instructor in Medicine.  
 RICHARD J. BING, Instructor in Medicine.  
 HAROLD J. MAGNUSON, Instructor in Medicine.  
 GEORGE G. MERRILL, Instructor in Medicine.  
 ROY S. BIGHAM, JR., Instructor in Medicine.  
 SAHLER M. GREENBERG, Assistant in Medicine.  
 H. EDMUND LEVIN, Assistant in Medicine.  
 JOSEPH N. ZIERLER, Assistant in Medicine.  
 MANUEL GICHNER, Assistant in Medicine. (On leave of absence, U. S. A.)  
 H. WILLIAM PRIMAKOFF, Assistant in Medicine.  
 CONRAD ACTON, Assistant in Medicine. (On leave of absence, U. S. A.)  
 HENRY B. MAKOVER, Assistant in Medicine. (On leave of absence, U. S. A.)  
 P. H. S.)  
 LEONARD ABRAMOWITZ, Assistant in Medicine. (On leave of absence, U. S. A.)  
 BERNARD J. COHEN, Assistant in Medicine.  
 W. GRAFTON HERSPERGER, Assistant in Medicine.  
 NATHAN E. NEEDLE, Assistant in Medicine.  
 HARRY M. ROBINSON, JR., Assistant in Medicine. (On leave of absence U. S. A.)  
 HARRY STEINMAN, Assistant in Medicine.  
 AARON HARRIS, Assistant in Medicine. (On leave of absence, U. S. N.)  
 IRVIN SAUBER, Assistant in Medicine. (On leave of absence, U. S. A.)  
 PAUL W. SPEAR, Assistant in Medicine. (On leave of absence, U. S. A.)  
 HYMAN A. WEINER, Assistant in Medicine. (On leave of absence, U. S. A.)  
 DANIEL WILFSON, Assistant in Medicine.  
 ELIZABETH ILIFF, Assistant in Medicine.  
 WALTER BUCK, Assistant in Medicine. (On leave of absence, U. S. A.)  
 SIDNEY SCHERLIS, Assistant in Medicine. (On leave of absence, U. S. A.)  
 MARY H. ROBBINS LOCH, Assistant in Medicine.  
 HERBERT GOLDSTONE, Assistant in Medicine.  
 LEROY E. DUNCAN, JR., Assistant in Medicine.  
 ROBERT WESTON, Assistant in Medicine.  
 DAVID DOVE, Assistant in Medicine.  
 RAYA EPHRUSSI, Assistant in Medicine.  
 VIRGIL SCOTT, Assistant in Medicine.  
 ELOISE TRESCHER, Assistant in Medicine.  
 S. WALTER LANDAU, Assistant in Medicine.  
 GEORGE E. CARTWRIGHT, Assistant in Medicine.  
 JOHN R. BIRMINGHAM, Assistant in Medicine.  
 ABRAHAM GENECIN, Assistant in Medicine.  
 THOMAS W. FARMER, John D. Archbold Fellow in Medicine.  
 ANTHONY S. FELSOVANYI, Parke Davis Fellow in Medicine.  
 JANE WINTERNITZ, John D. Archbold Fellow in Medicine.  
 JOHN L. HOPSON, John D. Archbold Fellow in Medicine.  
 GEORGE A. STREETER, John D. Archbold Fellow in Medicine.

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G. CANBY ROBINSON, Lecturer in Medicine. (On leave of absence, Red Cross)  
 THOMAS B. TURNER, Lecturer in Medicine. (On leave of absence, U. S. A.)  
 HARRY S. EAGLE, Lecturer in Medicine.  
 E. GURNEY CLARK, Lecturer in Medicine.

## DERMATOLOGY

LLOYD W. KETRON, Associate Professor of Dermatology.

ISAAC R. PELS, Associate in Dermatology.

MAURICE SULLIVAN, Associate in Dermatology. (On leave of absence, U. S. A.)

H. HANFORD HOPKINS, Associate in Dermatology.

LEON GINSBURG, Instructor in Dermatology.

FRANCIS A. ELLIS, Instructor in Dermatology.

WILLIAM D. WOLFE, Assistant in Dermatology. (On leave of absence, U. S. A.)

FREDERIC A. GLASS, Assistant in Dermatology.

## DISEASES OF THE NERVOUS SYSTEM

FRANK R. FORD, Associate Professor of Neurology.

\*ORTHELLO R. LANGWORTHY, Associate Professor of Neurology.

LUIS ORTEGA, Associate in Neurology.

ALBERT J. GLASS, Assistant in Neurology. (On leave of absence, U. S. A.)

MAX LEVIN, Assistant in Neurology. (On leave of absence, U. S. A.)

HARRY A. TEITELBAUM, Assistant in Neurology. (On leave of absence, U. S. A.)

JOSEPH FORD, Assistant in Neurology.

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A.)

## INTRODUCTION

The courses in medicine have been arranged for the student with three principal objects in view. First, he is given a training in accepted technical methods so that he may employ these fundamental procedures for the intelligent examination of patients. Secondly, he is trained in the principles of diagnosis and is given opportunities to study disease in the human being, including its treatment and prevention. Thirdly, his attention is directed to the patient as an individual problem, and he is required to study the special needs of the particular human being and his peculiar reactions to the disease from which he suffers. The work is essentially practical and the three objects are pursued simultaneously. While the student is following these courses he has an opportunity to spend his entire time in the laboratories, the dispensary, and the wards of the Medical Clinic. In addition to the practical instruction the student is expected to read textbooks and consult monographs and original articles for much of his information.

## REQUIRED WORK

The required work consists of three groups of courses. Elementary, Minor and Major Medicine, which are to be pursued in the order named.

## ELEMENTARY MEDICINE

The course is limited to 75 students and is offered once each year during the third and fourth quarters. Prerequisite for admission is a thorough training in the fundamental sciences. The work in Elementary Medicine is arranged as follows:

\* On leave to Department of Psychiatry.

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1. **Introductory Medicine.** Drs. ALLAN, GARIS and LONGCOPE. Third quarter, four hours twice a week, Tu., S., 9-1.

This course introduces the student to the general principles of medical technique with special reference to physical diagnosis. Lectures, demonstrations, conferences and practical instruction in physical diagnosis. Normal physical signs are studied.

2. **Practical Instruction in Physical Diagnosis.** Drs. AUSTRIAN, BRIDGMAN, WAINWRIGHT, FISHER, ALLAN, BARKER, GAY, GARIS and TILLMAN. Fourth quarter, twice a week, 10-1.

Each third of the group receives instruction in obtaining a history of the patient's illness and in the detection of abnormal physical signs. This instruction is given in the dispensary of the Johns Hopkins Hospital.

3. **Medical Clinics.** Physical Diagnosis and Pathological Physiology. Conferences, clinics and demonstrations. Fourth quarter, four hours a week, W., Th., F., S., 9-10. Drs. ALLAN, AUSTRIAN, BARKER, CLOUGH, EAGLE, FISHER, GAY, HOWARD, KRESS, LUETSCHER, MARTIN, MOORE, NELSON, PAULSON, and THOMAS.

This course will form the basis for course No. 7 in Minor Medicine.

4. **Laboratory Diagnosis.** Drs. CHESNEY, BUELL, CLOUGH, OWENS, TILLMAN and staff. Fourth quarter, three hours four afternoons a week, M., Tu., Th., F., 2-5.

Students are trained in the technique of examining sputa, gastric contents, urine, faeces, puncture fluids and blood. They are instructed in the recognition of animal parasites and the interpretation of laboratory data is discussed. Considerable practical work is required outside of the regular class hours.

#### MINOR MEDICINE

The course is limited to 25 students and is offered during the first, second and third quarters of the year. Under exceptional circumstances a very limited number of students may be accepted for this course during the fourth quarter. Prerequisite for admission is the course in Elementary Medicine or courses pursued elsewhere that are considered by the head of the Department of Medicine as equivalent. The work in Minor Medicine is arranged as follows:

5. **Practical Instruction in Physical Diagnosis, Clinical Medicine and Laboratory Diagnosis.**

- (a) **EXAMINATION AND TREATMENT OF PATIENTS.** Drs. AUSTRIAN, ALLAN, BRIDGMAN, FISHER, WAINWRIGHT, BARKER, GAY and staff.

Each student spends five mornings of one quarter, from 10 to 1, in the Medical Dispensary, where he receives practical instruction in the examination and treatment of patients.

- (b) **WARD WORK.** Drs. BOYD, RATHBUN and staff members. Two afternoons a week, M., Th., 2-4.30.

Each member of the group during the medical quarter spends two afternoons a week in the wards of the Baltimore City Hospitals for practical instruction in physical diagnosis, together with demonstrations and conferences.

- (c) **LABORATORY DIAGNOSIS.** Drs. CHESNEY, BARKER, OWENS, TILLMAN and staff. Two afternoons a week, Tu., F.

The entire group in the medical quarter spends two afternoons a week in the laboratories

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of Clinical Microscopy, for advanced work in laboratory diagnosis. Patients with various disorders of interest from the standpoint of laboratory diagnosis are presented and the interpretation of the findings is discussed. Two afternoons are devoted to a seminar in blood diseases. In addition, systematic exercises in parasitology and entomology as applied to medicine are given. Practical work is required outside the regular class hours.

Each student in the third year will have his own locker and desk in the Laboratory of Clinical Microscopy, where he may work in the first, second and third quarters. During the fourth quarter the laboratory will be used for instruction to the class in Elementary Medicine and will therefore be available to only a limited number of students in Minor Medicine.

## 6. Medical Clinics.

### DISPENSARY CLINICS.

Dr. HAMMAN. First, second and third quarters, one hour a week, S., 9-10.

## 7. Demonstrations and Lectures in Clinical Medicine and Therapeutics.

By various members of medical staff. One hour a week, second and fourth quarters, W., 9-10; third quarter, Th., 9-10.

These clinics and demonstrations will supplement students' reading in one or more textbooks of medicine and will be devoted to discussion and elaboration of material not available in textbooks.

## 8. Ward Rounds. Dr. BOYD. One and one-half hours a week. S., 10.30-12.

Medical wards of the Baltimore City Hospitals.

### MAJOR MEDICINE

The course in major medicine is limited to 20 students. During each quarter four students may be assigned to the medical wards at the Baltimore City Hospitals. In making application for the course in Major Medicine during any one quarter, the student is requested to state whether he desires to work at the Johns Hopkins Hospital or at the Baltimore City Hospitals. The course is repeated during each quarter of the academic year. Prerequisite for admission is a satisfactory completion of the courses in Elementary and Minor Medicine. Students from other medical schools who have not pursued these two courses must give evidence satisfactory to the head of the department that they possess a knowledge of medicine equivalent to that represented by the instruction given in these two courses.

The work in Major Medicine is arranged as follows:

## 9. Ward Work.

The members of each medical group serve for one quarter as clinical clerks in the medical wards of the Johns Hopkins Hospital or in the wards of the Baltimore City Hospitals, to which they have access from 8 a. m. to 5 p. m. A number of patients are assigned to each student, who takes the histories and makes the necessary routine examinations. Each student is under the guidance of a preceptor, who not only oversees the student's work, but also advises with him regarding his individual problems. The resident physician, assistant residents and fellows act as preceptors.

## 10. Ward Classes. Drs. ALLAN, AUSTRIAN, BARKER, CLOUGH, FISHER, FORD, HAMMAN, HOWARD, LONGCOPE, LUETSCHER, MOHR, MOORE, NELSON, THOMAS, WAINWRIGHT and staff.

Ward visits are made at 9.45 a. m. in which the students participate. Diagnostic and therapeutic problems are discussed at the bedside.

11. Medical Clinic. Dr. LONGCOPE. Th., 12-1.
12. Clinical—Pathological Conference. Drs. HAMMAN, WAINWRIGHT and RICH. Four quarters, W., 12-1.

A weekly exercise conducted in association with the Department of Pathology, in which the clinical history and pathological findings in recent well-studied cases are presented for discussion.

13. Medical Clinic. Drs. HAMBURGER, FORD and MOORE. Th., 12-1. Second, third and fourth quarters.
14. In the special quarter the following required course has been introduced. Each half of the group assigned to this quarter will spend five mornings a week, Monday through Friday, for four weeks, from 9 to 12, in Medicine I for a practical course in venereal disease control.

#### ELECTIVE COURSES

Medical clinics and exercises required for the students in Minor Medicine or Major Medicine are open to all students in their elective quarters and to those who are otherwise not occupied.

The group of courses combining either Minor Medicine or Major Medicine may be taken as elective work by properly qualified students, subject to numerical limitations.

15. Diseases of the Stomach and Intestines, Nutritional Deficiencies and Disorders of the Blood. Drs. GAITHER, MARTIN, PAULSON, BARKER, BERNSTEIN, J. T. HOWARD. Practical work in Medicine 4, four quarters, every morning.

Open to a limited number of students who have completed Minor Medicine, and who will attend a minimum of three sessions a week. The work includes fluoroscopy, proctoscopy and sigmoidoscopy, oesophagoscopy and gastroscopy as well as blood and sternal marrow examinations. Additional work in the afternoons in vitamin assay techniques and clinical investigation can be arranged.

16. Tuberculosis. Dr. AUSTRIAN and staff. Practical work in the dispensary, third quarter, two mornings a week, 10-12. Limited to two students.

17. Out-Patient Department. Practical work in the Medical Dispensary in General Medicine (Dr. CHESNEY); Protein Sensitization (Dr. GAY); Diabetes (Dr. LEOPOLD); Cardiac Diseases (Dr. THOMAS). Hours to be arranged with the instructor.

Open to students who have completed Minor Medicine.

18. Clinical Electrocardiography. Drs. THOMAS and NEWMAN. One hour a week. Time to be arranged.

Instruction in the interpretation of electrocardiograms with particular emphasis on their clinical significance. Open to students who have completed Minor Medicine.

19. Seminar in Nutritional Deficiencies. Dr. BARKER and staff. Third quarter. Th., 4-5, in Medicine 4.

A survey of current knowledge of vitamin deficiencies in man and other species with special emphasis on the preclinical states. Limited to eight students of the second, third or fourth year classes.



20. Allergy. Dr. GAY and staff. Four quarters. M., W., F., 9.30-12. Practical work in the dispensary. Limited to five students of the fourth year class.

#### GRADUATE WORK

Medicine. Clinics and Lectures. Application should be made to Dr. LONGCOPE.

A limited number of physicians may be admitted as auditors to the ward classes and clinics of the third and fourth years. They may also be admitted to elective courses, when vacancies exist. It is impossible to admit graduate students to any of the practical courses during the regular academic year.

Medicine. Advanced Work and Research.

Physicians properly trained in fundamental methods who are desirous of pursuing some definite line of investigation may be admitted to the clinic as voluntary assistants. The facilities available for this purpose comprise the medical wards of the hospital, the medical dispensary service, and the following laboratories of the clinic: the general clinical laboratory, the chemical laboratory, the biological and bacteriological laboratories, the physiological laboratory, and the laboratory for experimental syphilis.

#### DERMATOLOGY

1. Practical Dermatology. In the special quarter each half of the group assigned to this quarter will spend five afternoons a week for four weeks, Monday through Friday, from 2 to 4, for a practical course in dermatology. Dr. KETRON and staff.

The work in this subject consists of a series of practical exercises in the diagnosis and treatment of diseases of the skin and its appendages. Important fundamentals are taken up as thoroughly as possible, along with the demonstration of cases.

#### DISEASES OF THE NERVOUS SYSTEM

##### REQUIRED WORK

A knowledge of diseases of the nervous system is required for the degree of Doctor of Medicine. The required work consists of three courses; admission to courses 2 and 3 is governed by the same principles laid down for admission to Minor Medicine, page 96.

The courses are as follows:

1. Meetings. Staff. Second year, fourth quarter, Tu., 9-10.

A series of nine meetings to discuss the technique of neurological examination.

2. Practical Work. a. Staff. Two mornings a week, M., F., or Tu., W, 10-1.

Instruction in the examination and treatment of patients in the Neurological Clinic of the dispensary. This is offered to a limited number of students during any one of the four quarters. The student may elect the quarter in which he desires to follow this work but not more than twelve students can be accommodated on any one morning. By arrangement with the department of Psychiatry those taking this course are expected to take the practical work in the Psychiatric Dispensary during the same quarter and are assigned in groups.

- b. One-half of section to Baltimore City Hospitals, Tu., 2-5; and one-half of section, Th., 2-5. Drs. FORD and ORTEGA.
3. Neurological Clinic. Dr. FORD. First quarter, Th., 9-10.

#### ELECTIVE COURSES

4. Practical Work. Staff. Any of the four quarters, Th., S., 10-12.  
Instruction in the examination and treatment of patients in the Neurological Clinic of the dispensary. This is an advanced course for not more than six students who have completed the required work in courses 1, 2 and 3.
5. The Pathology of Nervous Diseases. Dr. ORTEGA. First, second and third quarters.  
Lectures and study of histological preparations of diseases of the nervous system offered to students of the third and fourth year classes. Preferably taken in conjunction with course 2 a. Th., 9-11.
6. Neurological-Pathological Conference. Dr. FORD. Presentation of clinical features and of pathological material of selected cases by students of the third and fourth year classes. Four quarters, F., 5-6.

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#### OBSTETRICS

- NICHOLSON J. EASTMAN, Professor of Obstetrics and Director of the Department of Obstetrics.
- ALAN F. GUTTMACHER, Associate Professor of Obstetrics.
- LOUIS M. HELLMAN, Associate in Obstetrics. (On leave of absence, U. S. N.)
- JOHN G. MURRAY, JR., Instructor in Obstetrics.
- EDMUND P. H. HARRISON, JR., Instructor in Obstetrics.
- JOHN M. SPENCE, JR., Instructor in Obstetrics. (On leave of absence, U. S. A.)
- BESSIE L. MOSES, Instructor in Obstetrics.
- JOHN WHITRIDGE, JR., Instructor in Obstetrics. (On leave of absence, U. S. A.)
- ELEANOR DELFS, Instructor in Obstetrics.
- CONSTANTINO P. MANAHAN, Instructor in Obstetrics.
- JOHN M. HAWS, Instructor in Obstetrics.
- W. DRUMMOND EATON, Instructor in Obstetrics.
- PHILIP P. STEPTOE, JR., Assistant in Obstetrics.
- GILBERT J. VOSBURGH, Assistant in Obstetrics. (On leave of absence.)
- MARY GRIFFITH, Assistant in Obstetrics
- ALFRED B. DIXON, Assistant in Obstetrics. (On leave of absence, U. S. A.)
- JAMES H. JENKINS, JR., Assistant in Obstetrics.
- J. RUSSELL JORDAN, Assistant in Obstetrics.

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JOHN MCF. BERGLAND, Lecturer in Obstetrics.

EDWIN F. DAILY, Lecturer in Obstetrics.

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## REQUIRED WORK

The required work in Obstetrics is arranged as follows:

1. Introduction to Obstetrics. Dr. EASTMAN. Second year class. Fourth quarter, M., 9-10.

A series of eight lectures and demonstrations on the fundamental principles of Obstetrics.

2. Practical Prenatal Care. Drs. MANAHAN, HAWS and EATON. Second year class. Fourth quarter, Tu. or Th., 10-12.

One practical exercise of two hours in the Obstetrical Dispensary. Arranged in groups of four to five students each.

3. Major Obstetrics.

- a. A series of conferences, demonstrations, ward rounds and practical exercises in the physiology and pathology of human reproduction, including the management of obstetric patients. This course is given each quarter of the third year to groups of not more than twenty students each. Dr. EASTMAN and staff. M., W., F., S., 10-1.
- b. A series of clinics and demonstrations to the entire third year class, illustrating the major clinical problems of Obstetrics. Drs. EASTMAN, GUTTMACHER and DELFS. Third year, first, second and third quarters and first half of fourth quarter, alternate Mondays, 9-10.
- c. Clinical clerkship. Groups of four students in this course are required to live in the Clinic for a period of approximately two weeks. In addition to routine ward work the student follows cases in labor and assists at their delivery.

## ELECTIVE COURSES

4. Practical Obstetrics.

Two students will be accepted each quarter and will be expected to devote their entire time to Obstetrics. During this quarter they will be provided with sleeping accommodations in the Clinic, but not with board, and will serve as clinical clerks, or supernumerary internes. Such students will be accorded abundant opportunity for practical work in the wards, in the delivery and operating rooms, and in the dispensary. Each Monday they will take part in the staff rounds and conferences. In their spare time they will be given facilities for further study in any division of the subject in which they are particularly interested.

5. Staff Rounds and Conferences. Mondays, 2 p.m. throughout the year.

The Head, or Acting Head, of the Department conducts staff rounds and afterwards considers critically the cases presented. While these exercises are conducted primarily for the instruction of the staff, they are open to all third and fourth year students.

6. Investigation.

Facilities are offered to a limited number of graduates and students taking elective work to pursue such laboratory and clinical investigation as they may be fitted for.

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## OPHTHALMOLOGY

ALAN C. WOODS, Acting Professor of Ophthalmology and Director of the Department of Ophthalmology.

LEO J. GOLDBACH, Associate Professor of Ophthalmology.

CLYDE A. CLAPP, Associate Professor of Ophthalmology.

JONAS S. FRIEDENWALD, Associate Professor of Ophthalmology.

EARL L. BURKY, Associate Professor of Ophthalmology.

FRANK B. WALSH, Associate Professor of Ophthalmology.

LOUISE L. SLOAN, Associate in Ophthalmology. (On leave of absence.)

M. ELLIOTT RANDOLPH, Associate in Ophthalmology. (On leave of absence, U. S. A.)

ANGUS L. MACLEAN, Associate in Ophthalmology.

JACK S. GUYTON, Associate in Ophthalmology.

ALFRED E. MAUMENEE, Jr., Associate in Ophthalmology.

SAMUEL A. TALBOT, Associate in Physiological Optics.

CECIL H. BAGLEY, Instructor in Ophthalmology.

AARON ROBINSON, Instructor in Ophthalmology.

CHESTER E. HURWITZ, Instructor in Ophthalmology.

FRED M. REESE, Instructor in Ophthalmology. (On leave of absence, U. S. A.)

WILLIAM M. ROWLAND, Instructor in Ophthalmology. (On leave of absence.)

JAMES I. MOORE, Instructor in Ophthalmology. (On leave of absence, U. S. A.)

HEINZ HERRMANN, Instructor in Ophthalmology.

WILHELM H. BUSCHKE, Instructor in Ophthalmology and Virginia Fair Vanderbilt Fellow in Ophthalmology.

ROY O. SCHOLZ, Instructor in Ophthalmology.

WILLIAM F. HUGHES, JR., Instructor in Ophthalmology.

ALBERT C. SNELL, JR., Instructor in Ophthalmology.

JULIA T. APTER, Instructor in Ophthalmology.

LYMAN S. ABBOTT, Assistant in Ophthalmology.

HARRY E. BLOOM, Assistant in Ophthalmology.

WILLIAM C. OWENS, Assistant in Ophthalmology.

JOSEPH M. HEIDELMAN, Assistant in Ophthalmology.

HERMAN K. GOLDBERG, Assistant in Ophthalmology.

PAUL E. MESSIER, Assistant in Ophthalmology.

CHARLES E. ILIFF, JR., Edith Strohn Copley Fellow in Ophthalmology.

## REQUIRED WORK

The required work in Ophthalmology consists of three courses which should be pursued in the order named. The first of these is given as part of the work in Surgical Diagnostic Methods under Elementary Surgery. Only students who have satisfactorily completed the required work in the preclinical sciences are eligible for admission to the remaining two courses.

1. Introductory Course. Dr. WALSH and staff. Second year, third quarter, F., 9-10.

The students are divided into groups and are given personal instruction in the technique of the examination of patients, and the use of the ophthalmoscope and perimeter.

2. Elementary Ophthalmology. Dr. WOODS and staff. Third year, fourth quarter, M. (second half quarter) and Th. (entire quarter), 9-10.

A series of twelve lectures and clinics.

### 3. Major Ophthalmology. Dr. Woods and staff. Fourth year, first quarter, Th., 12-1.

A series of eight lectures for the entire class. M., 2-3 (group instruction). A series of clinics in the Wilmer Institute. Tu., 2-4 (one-half group) and F., 2-4 (one-half group). Clinical work in the Out-Patient Department of the Wilmer Institute.

By arrangement with the Department of Surgery the group pursuing Major Surgery will take the required clinics and clinical work in the Out-Patient Department during the Surgical quarter.

#### ELECTIVE COURSES

The elective courses offered below are given primarily for the instruction of House Officers and Fellows in Ophthalmology. They are, however, open to third and fourth year students who wish more experience in clinical and medical ophthalmology (electives 4, 5, and 13), and for students who propose ultimately to become ophthalmologists. Graduates in Medicine may be accepted for the series of courses under the conditions described elsewhere in the catalogue.

### 4. Ward Rounds. Dr. Woods and staff. M., Th., and Sat. mornings.

Students will attend the regular staff rounds of the wards of the Wilmer Institute, and will have the opportunity of examining and following the progress of the patients. Limited to three students each quarter.

### 5. Dispensary Work. Four quarters, M., W., Th., 2-4.

The students will receive and examine new patients. Especially interesting cases will be demonstrated by the Ophthalmologist-in-Charge.

### 6. Refraction and Myology. Dr. Woods and staff. Jan. 2-Feb. 28, 4.30-5.30.

Didactic instruction. Principles of refraction, the use of mydriatics and cycloplegics, skiascopy, manifest and static refraction. Physiology of the ocular muscles, imbalances, and paralysis of the ocular muscles.

### 7. Refraction and Myology. Dr. ABBOTT and staff. Mar. 1-July 19, two to five mornings a week, 10-30-12.30.

Practical course. Open only to students who have taken Course 6. The course consists of practical work in the refraction clinic and examination of the muscles of Dispensary patients. The students will examine and refract patients, and their results will be checked by members of the staff. Limited to two students each quarter.

### 8. External Diseases. Dr. GUYTON. Jan. 2-Feb. 28, Tu., 4.30-5.30.

A practical course in the use of the slit lamp and in the diagnosis of common external diseases and injuries of the eye and routine therapeutics.

### 9. Routine Therapeutic Procedures and Orthoptic Training. Drs. GUYTON, MAUMENEE, and Miss HARLEY. Jan. 2-Feb. 28, Th., 4.30-5.30.

A practical course in the routine therapeutic procedure (chemo-therapy, photo-therapy, etc.) in ophthalmology and the use of instruments used in orthoptic training.

### 10. Pathology. Dr. FRIEDENWALD. Mar. 1-Apr. 30, Tu., F., 2-4.

This course consists of a practical laboratory course in pathology of the eye. Limited to eight students.

### 11. Bacteriology and Immunology. Dr. BURKY. Mar. 1-Apr. 30, Tu., 1-2.

A series of lectures and demonstrations on the special bacteriology of the eye, and the clinical manifestations of hypersensitivity and immunity reactions in ophthalmology.

**12. Neuro-Ophthalmology.** Dr. WALSH. First, second and third quarters, S., 10.

A series of lectures, clinics and demonstrations on ophthalmic neurology. This course follows the Saturday morning ward rounds.

**13. Medical Ophthalmology.** Dr. WOODS. Third quarter, Th., 4.30-5.30.

A series of lectures on the ocular manifestations of systemic diseases.

**14. Surgical Anatomy of the Eye and Orbit.** Drs. GUYTON and HUGHES. May 1-June 30, W., 4.30-5.30.

A series of lectures, demonstrations and seminars on the regional anatomy of the eye and orbit.

**15. Clinical Pathology Conference.** Dr. FRIEDENWALD. Nov. 29-Mar. 1 and May 1-July 19. Every second Tuesday, 4.30-5.30.

A demonstration of the pathological material and correlation of the clinical and pathological findings of the material accumulated during the preceding period.

**16. Advanced Physiology and Chemistry.** Dr. FRIEDENWALD. Nov. 29-Mar. 1 and May 1-July 19, alternate Tuesdays, 4.30-5.30.

A series of lectures and seminars on the advanced physiology and chemistry of the eye. This course alternates with clinical-pathological conference.

**17. Physiological Optics.** Dr. GUYTON. Fourth quarter, Th., 4.30-5.50.

A series of lectures and laboratory demonstrations on the principles of physiological optics and the application of physiological optics to clinical ophthalmology (perimetry, light sense, color sense, etc.).

## PATHOLOGY

\_\_\_\_\_, Baxley Professor of Pathology and Director of the Department of Pathology.

ARNOLD R. RICH, Associate Professor of Pathology.

SAM S. BLACKMAN, JR., Associate Professor of Pathology.

ELLA HUTZLER OPPENHEIMER, Associate in Pathology.

WILLIAM B. VANDEGRIFT, Instructor in Pathology. (On leave of absence, U. S. A.)

JOHN E. GREGORY, Instructor in Pathology.

JOHN B. FRERICHS, Instructor in Pathology.

ROBERT L. GRAHAM, Instructor in Pathology.

WILLIAM B. MCALLISTER, JR., Assistant in Pathology. (On leave of absence, U. S. N.)

GEORGE E. MURPHY, Assistant in Pathology.

BRIAN F. MURPHY, Assistant in Pathology.

The Laboratory of Pathology offers adequate facilities for teaching and investigation. Material for study is abundant and varied, and is particularly valuable because of the careful clinical records. Teaching is carried out chiefly by practical work with the material itself. Cases representing each disease or group of diseases are concentrated in separate rooms where they are studied by each group of students in turn, under an instructor. Each student is provided with a loan collection of approxi-

mately 400 microscopic slides representing the various disease processes.

The course in pathology is based upon previous studies in anatomy, physiology and chemistry and is meant to present systematically the anatomical, chemical and functional changes which occur in the commoner human diseases.

### 1. Autopsies. Dr. RICH and staff.

The greatest stress is laid upon close attendance upon autopsies. Students in small groups are assigned in order and are called upon to assist in the autopsies and to write proper protocols. The autopsies, after microscopic and bacteriological studies are completed, are reviewed in conference with the groups and thus form the basis of a plan of case teaching which supplements the general systematic course.

### 2. Pathological Anatomy and Physiology. Dr. RICH and others of the staff. First, second and third quarters, M., W., F.

The class is divided into relatively small groups, each of which is assigned to one or more instructors under whose close guidance the group works throughout the course. The groups circulate in the study rooms mentioned above, staying in each for about two weeks to work there with an instructor upon one disease or a group of diseases. Thus, all the material illustrating tuberculosis is collected in one of these rooms, and the student will have during his work there, the opportunity to study a great number of cases preserved as such, not only from the histories but from the gross material and corresponding microscopical preparations. In addition, systematic lectures, and demonstrations of gross morbid anatomy, are offered to the whole class throughout the course. While this course will form the necessary framework upon which the student will rely, no opportunity will be neglected to familiarize him with the great mass of current fresh material.

### 3. A Conference or Recitation on Monday at 12. Dr. RICH.

This conference affords an opportunity for the entire class to participate in a discussion of the fundamental principles of the various disease processes, with a view toward the clarification of individual difficulties.

### 4. Clinical-Pathological Conferences. Dr. HAMMAN and Dr. RICH. W., 12-1.

Held for the second and fourth year classes. The clinical course and differential diagnosis of recent well-studied cases are correlated with the underlying pathological lesions.

### 5. Surgical Pathology. Dr. BLACKMAN and Dr. FIROR. Third year. S., 10-1.

Systematic study of lesions which are of importance in general surgery. Clinical differential diagnosis is discussed; gross specimens are demonstrated; each student is provided with a loan collection of approximately 250 microscopic slides representing the various lesions.

### 6. Surgical Pathology. Dr. BLACKMAN and members of the surgical staff. Fourth year. W., 11-12.

Correlation of the lesions removed at operation with the clinical symptoms of patients studied by the students on the wards.

## ELECTIVE COURSES

### 7. Advanced Work and Special Research.

Opportunity is offered to those suitably trained to pursue advanced work or specialized research in pathological anatomy or experimental pathology. For these purposes there is adequate space and equipment.

## PEDIATRICS

EDWARDS A. PARK, Professor of Pediatrics and Director of the Department of Pediatrics.

L. EMMETT HOLT, JR., Associate Professor of Pediatrics.

HUGH W. JOSEPHS, Associate Professor of Pediatrics.

LAWSON WILKINS, Associate Professor of Pediatrics.

EDWARD M. BRIDGE, Associate in Pediatrics.

LASLO KAJDI, Associate in Pediatrics.

HARRIET G. GUILD, Associate in Pediatrics.

T. CAMPBELL GOODWIN, Associate in Pediatrics. (On leave of absence, U. S. A.)

ALEXANDER J. SCHAFER, Associate in Pediatrics. (On leave of absence, U. S. A.)

HELEN B. TAUSSIG, Associate in Pediatrics.

HORACE HODES, Associate in Pediatrics. (On leave of absence, U. S. N.)

MIRIAM BRAILEY, Associate in Pediatrics.

LYDIA EDWARDS, Associate in Pediatrics. (On leave of absence, U. S. P. H. S.)

WALTER FLEISCHMANN, Associate in Pediatrics.

WALTER BLOCK, Instructor in Pediatrics.

T. TERRY BURGER, Instructor in Pediatrics.

CHARLES O'DONOVAN, JR., Instructor in Pediatrics. (On leave of absence, U. S. N.)

WILLIAM C. STIFLER, Instructor in Pediatrics. (On leave of absence, U. S. A.)

MARY STEWART GOODWIN, Instructor in Pediatrics.

VICTOR NAJJAR, Instructor in Pediatrics.

HANS BIX, Instructor in Pediatrics.

JACOB LIGHT, Instructor in Pediatrics. (On leave of absence.)

SAMUEL LIVINGSTON, Instructor in Pediatrics.

ANTHONY A. ALBANESE, Instructor in Pediatrics.

SYDNEY GELLIS, Instructor in Pediatrics. (On leave of absence, U. S. A.)

FRANCES E. M. READ, Instructor in Pediatrics.

MARGARET H. D. SMITH, Instructor in Pediatrics.

ANTONIO J. WARING, JR., Instructor in Pediatrics.

JANET B. HARDY, Instructor in Pediatrics.

ELIZABETH P. TREVETT, Instructor in Pediatrics.

DEAN W. ROBERTS, Instructor in Pediatrics.

HANIA WISLICKA EHLERS, Instructor in Pediatrics.

EDWARD L. KENDIG, JR., Instructor in Pediatrics.

LOIS FRAYSER, Instructor in Pediatrics.

S. BUTLER GRIMES, JR., Assistant in Pediatrics (On leave of absence, U. S. A.)

MANES S. HECHT, Assistant in Pediatrics. (On leave of absence, U. S. A.)

MATTHEW DEBUSKEY, Assistant in Pediatrics. (On leave of absence, U. S. A.)

WILSON L. GRUBB, Assistant in Pediatrics.

JOSEPH M. CORDI, Assistant in Pediatrics. (On leave of absence, U. S. A.)

KATHERINE BORKOVICH, Assistant in Pediatrics.

FRANCIS W. HELFRICK, Assistant in Pediatrics.

STUART L. JOSLIN, Assistant in Pediatrics.

ROBERT KAYE, Assistant in Pediatrics.

MERCER C. BLANCHARD, JR., Assistant in Pediatrics.

PAUL E. WILSON, Assistant in Pediatrics.

NEVA ABELSON, Assistant in Pediatrics.

INGEBORG SYLLM, Assistant in Pediatrics.

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JOHN C. GITTINGS, Lecturer in Pediatrics.

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## REQUIRED WORK

1. **Introductory Pediatrics.** Clinics and Demonstrations to the third year class once weekly, 9-10 a. m. First quarter, Tu.; second quarter, Th.; third quarter, W.; fourth quarter, F.
2. **Pediatric Clinics.** Once weekly, S., 12-1.
3. **Contagious Disease.** The course is given at Sydenham Hospital to fourth year students assigned to the special quarter. The section will be divided into two groups. One group will report at the Sydenham Hospital from 2-5 daily, Monday to Friday inclusive, for the first four weeks. The other group will report similarly during the second four weeks.

The students will act as clinical clerks and will receive instruction in the epidemiology and treatment of contagious disease. Problems arising in the management of a communicable disease hospital will be brought out. Various methods for the prevention of cross-infections will be discussed. Students will be sent out with the ambulance to see at first-hand the problems which arise when contagious disease occurs in the home. Ample opportunity will be given for work in the bacteriological laboratory and laboratory work will be closely correlated with clinical problems.

4. **General Pediatrics.** An entire section of the fourth year class will be assigned each quarter to work in the Harriet Lane Home from Monday to Friday inclusive, from 2 until 5 p. m.

The section will be divided into two groups of nine each; one will be assigned to the wards for the first four weeks while the other works in the dispensary, and vice versa during the second four week period. The work in the dispensary will consist in the examination and care, under supervision, of ambulatory patients. The students on the wards will act as clinical clerks and in addition will be given special instruction of various kinds pertaining to the care and management of sick children.

## PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS

- E. KENNERLY MARSHALL, JR., Professor of Pharmacology and Experimental Therapeutics, and Director of the Department of Pharmacology and Experimental Therapeutics.
- MORRIS ROSENFELD, Associate in Pharmacology and Experimental Therapeutics. (On leave of absence, U. S. A.)
- A. CALVIN BRATTON, JR., Associate in Pharmacology and Experimental Therapeutics.
- EARL H. DEARBORN, Instructor in Pharmacology and Experimental Therapeutics.
- ROBERT G. SHEPHERD, Instructor in Pharmacology and Experimental Therapeutics.

EVANDER F. KELLY, Lecturer in Pharmacy.

## REQUIRED COURSES

1. **Pharmacology.**

A course of lectures covering the subject of pharmacology is given four times a week during the second quarter of the second year. It is the purpose of this course to treat the subject

in a manner adapted to the needs of the medical student. This course requires much outside reading.

A laboratory course in this subject is given two afternoons a week (to one-half of the class on one afternoon) in the second quarter of the second year. The physiological action of a selected list of drugs and poisons is made the subject of this course and the afternoon's work, performed by the student under the immediate supervision of the instructor, is preceded by brief discussion of the significance and bearing of the experiment in hand. The aim of this course is to give a clear idea of the general principles and of the more important phenomena involved in the study of pharmacology. Conferences on the laboratory work are held on Tuesday morning.

## 2. Pharmacology—Pharmacopoeial and National Formulary Preparations and Prescription Writing. Dr. KELLY. Third quarter, W., 9-10.

This course consists of a series of lectures on weights and measures, incompatibles, special points relating to prescriptions and the more important official preparations.

### ELECTIVE COURSES

## 3. Advanced Work and Research.

A limited number of students and graduates in medicine, with adequate preliminary training are offered facilities for advanced work and research.

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## PHYSIOLOGICAL CHEMISTRY

WILLIAM MANSFIELD CLARK, DeLamar. Professor of Physiological Chemistry and Director of the Department of Physiological Chemistry.  
BARNETT COHEN, Associate Professor of Physiological Chemistry.  
LESLIE HELLERMAN, Associate in Physiological Chemistry.  
J. LOGAN IRVIN, Associate in Physiological Chemistry.  
MARIE E. PERKINS, Assistant in Physiological Chemistry.

### REQUIRED COURSE

## 1. Introduction to Physiological Chemistry. The Staff.

Lectures given during the second quarter will provide the outline of topics that the students are to pursue by extensive reading.

Laboratory exercises during the third quarter will illustrate some of the more important principles that are applied in physiological chemistry. These will be discussed in conferences.

### ADVANCED COURSES

Admittance to each course is limited and is subject to approval by the instructor.

## 2. Biochemical Preparations. Dr. HELLERMAN.

A laboratory course. Time by arrangement.

## 3. Selected Topics in Enzyme and Protein Chemistry. Dr. HELLERMAN.

First quarter, time by arrangement.

## 4. Blood Analysis. Dr. IRVIN. First quarter, S., 9-5.

A laboratory course.

## 5. Research.

A limited number of properly qualified students will be given the opportunity to assist in the investigations being conducted by members of the staff, or in special cases, to pursue their own problems.

### GRADUATE STUDENTS

Candidates for the degree of Doctor of Philosophy will be received if they have had satisfactory training. Such candidates will be regarded informally by this department as of two categories:

1. In coöperation with the Department of Chemistry of the Faculty of Philosophy, the Department of Physiological Chemistry will receive students who have fulfilled all the requirements of the Department of Chemistry other than the research which is to form the basis of a dissertation and who desire to do this research in certain subjects specified by this Department to the satisfaction of the Department of Chemistry. Such candidates for the degree of Doctor of Philosophy will be regarded by this Department as students of Chemistry whose training is essentially under the direction of the Department of Chemistry.

2. Candidates for the degree of Doctor of Philosophy who intend to make physiological chemistry their major subject will be received if they have had a satisfactory training in the fundamental branches of chemistry, in elementary physics and mathematics and who otherwise fulfill the requirements of the Board of University Studies. Such students will be required to attain a satisfactory training in biological subjects contingent to physiological chemistry.

Because of the distance between the School of Medicine and the Faculty of Philosophy, where instruction is given in subjects related to physiological chemistry, students should carefully arrange the temporal distribution of courses to avoid unnecessary travel.

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## PHYSIOLOGY

PHILIP BARD, Professor of Physiology and Director of the Department of Physiology.

CHALMERS L. GEMMILL, Associate Professor of Physiology. (On leave of absence, U. S. N.)

CHANDLER McC. BROOKS, Associate Professor of Physiology.

CLINTON N. WOOLSEY, Associate in Physiology.

EVELYN HOWARD, Instructor in Physiology.

RAY S. SNIDER, Instructor in Physiology.

AVERILL STOWELL, Instructor in Physiology. (On leave of absence, U. S. A.)

### REQUIRED WORK

#### 1. Introductory Course in Physiology.

The general subject of Physiology is presented to the students of the first year in lectures given three times a week throughout the third quarter and four times a week during the fourth quarter. Laboratory work is given in the fourth quarter and consists of a number of selected experiments which are carried out by the students in groups of three each under the supervision of the teaching staff. Occasional demonstrations are given and, in connection with the practical work, conferences are held at which the validity of the methods and the significance of the findings are reviewed and discussed.

### ELECTIVE COURSES

#### 2. Physiology of the Proteins. Dr. HOWARD. First quarter, W., 9-10, or by arrangement.

Lectures on protein metabolism and biocatalysis.

### 3. Research.

A few properly qualified students may be permitted to coöperate with members of the staff in certain investigations or to begin independent work under supervision. A limited number of independent investigators may arrange for space and facilities.

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## PREVENTIVE MEDICINE

PERRIN H. LONG, Professor of Preventive Medicine and Director of the Department of Preventive Medicine. (On leave of absence, U. S. A.)

JOHN J. PHAIR, Associate in Preventive Medicine and Acting Director of the Department of Preventive Medicine.

EDWIN L. CROSBY, Associate in Preventive Medicine.

ELEANOR A. BLISS, Associate in Preventive Medicine.

LYDIA B. EDWARDS, Associate in Preventive Medicine. (On leave of absence, U. S. P. H. S.)

MARIE M. CAKRTOVA, Instructor in Preventive Medicine.

\* GORDON I. TREVETT, Instructor in Preventive Medicine.

JOHN M. McDONALD, Assistant in Preventive Medicine.

JOHN H. SHACKELFORD, Assistant in Preventive Medicine.

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G. CANBY ROBINSON, Lecturer in Preventive Medicine. (On leave of absence, Red Cross.)

HUNTINGTON WILLIAMS, Lecturer in Preventive Medicine.

JAMES S. SIMMONS, Lecturer in Preventive Medicine.

CHARLES S. STEPHENSON, Lecturer in Preventive Medicine.

MARGARET MERRELL, Lecturer in Preventive Medicine.

W. THURBER FALES, Lecturer in Preventive Medicine.

CLARK H. YEAGER, Lecturer in Preventive Medicine.

C. HOWE ELLER, Lecturer in Preventive Medicine.

E. GURNEY CLARK, Lecturer in Preventive Medicine.

Instruction in this subject will be given in the first, second, third and fourth years of the course, and in cooperation with the Faculty of the School of Hygiene and Public Health. It is designed to supplement and focus the student's interest in the sciences basic to preventive medicine and to acquaint him with procedure and practice in this field, especially as it relates to the physician.

### REQUIRED COURSES

1. Quantitative Methods in Medicine. Drs. REED, CROSBY and MERRELL. First year class. Second quarter, Tu., Th., 2-5, School of Hygiene and Public Health.

Lectures and practical exercises in the collection and analysis of data.

2. Epidemiology. Drs. MAXCY and PHAIR. Second year class. Third quarter, Tu., Th., 2-5, School of Hygiene and Public Health.

Introduction to infectious disease; methods of investigation; prevention and control.

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\* Died May 4, 1944.

3. The Control of Exotic Diseases. Dr. C. H. YEAGER. W., 2-5, during each medical quarter. Osler Clinic.

Instruction will consist of discussions concerning the epidemiology, prevention and control of exotic diseases commonly found outside the continental borders of the United States.

4. Preventive Medicine. Dr. PHAIR and staff. Fourth year class. Th., S., 9-12. All four quarters in groups of 20 each. Osler Clinic and School of Hygiene and Public Health.

During each quarter students will be assigned to the study of selected topics for seminar discussions.

## PSYCHIATRY

JOHN C. WHITEHORN, Henry Phipps Professor of Psychiatry and Director of the Department of Psychiatry.

ESTHER L. RICHARDS, Associate Professor of Psychiatry.

LEO KANNER, Associate Professor of Psychiatry.

WENDELL S. MUNCIE, Associate Professor of Psychiatry.

CURT P. RICHTER, Associate Professor of Psychobiology.

\*ORTIHELLO R. LANGWORTHY, Associate Professor of Neurology.

LESLIE B. HOHMAN, Associate in Psychiatry. (On leave of absence, U. S. N.)

W. HORSLEY GANTT, Associate in Psychiatry.

HENRY M. FOX, Associate in Psychiatry. (On leave of absence, U. S. A.)

JACOB H. CONN, Associate in Psychiatry.

NICHOLAS L. BALLICH, JR., Associate in Psychiatry.

LEWIS B. HILL, Associate in Psychiatry.

JERZY E. ROSE, Research Associate in Psychiatry. (On leave of absence, U. S. A.)

GRACE BAKER, Instructor in Psychiatry.

BERRY CARROLL MARSHALL, Instructor in Psychiatry.

WALTER JAHREISS, Instructor in Psychiatry.

PAUL V. LEMKAU, Instructor in Psychiatry. (On leave of absence, U. S. A.)

ROBERT V. SELIGER, Instructor in Psychiatry.

ROBERT E. GARDNER, Instructor in Psychiatry.

RUTH WILMANN'S LIDZ, Instructor in Psychiatry.

THEODORE LIDZ, Instructor in Psychiatry. (On leave of absence, U. S. A.).

RACHEL GUNDRY, Instructor in Psychiatry.

BARBARA J. BETZ, Instructor in Psychiatry.

JEROME D. FRANK, Instructor in Psychiatry. (On leave of absence, U. S. A.)

JEROME HARTZ, Instructor in Psychiatry.

L. LEE HASENBUSH, Instructor in Psychiatry.

LUVIA S. TAYLOR, Instructor in Psychiatry.

NATHANIEL S. APTER, Assistant in Psychiatry.

SARAH S. TOWER, Assistant in Psychiatry.

TRUDE TIETZE, Assistant in Psychiatry.

KATHERINE KEMPNER RICE, Assistant in Psychiatry.

EDUARD ASCHER, Assistant in Psychiatry.

LUCILLE PRICE, Assistant in Psychiatry.

ROBERT E. ARNOT, Assistant in Psychiatry.

CHARLOTTE H. WASKOWITZ, Assistant in Medical Psychology.

REGINA KLUG, Assistant in Psychiatry.

\* On leave to Department of Psychiatry.

## REQUIRED PRECLINICAL COURSE IN MEDICAL PSYCHOLOGY

1. First Year Course in Medical Psychology. Dr. WHITEHORN and staff. Third quarter, F., 2-4.

Eight lectures and group discussions form an obligatory orientation course given by the Department of Psychiatry as a definite part of the preclinical program, primarily concerned with the human personality and its functioning, with special emphasis upon attitudes significant for the maintenance of social integrity and emotional health. A supplementary elective course is made available in the first quarter of the second year. Students have to cover the requirements in psychology and personality study before entering upon the clinical courses. Those admitted to advanced standing who have not covered the requirements in preclinical psychology and introductory psychiatry before admission are to make arrangements for satisfying these requirements with the department of psychiatry as soon as possible after entering the school.

## REQUIRED CLINICAL COURSES IN PSYCHIATRY

2. Second Year Course in Introductory Psychiatry. Dr. WHITEHORN and staff of the Phipps Clinic. Second quarter, Th., 10-12.

Methods of psychiatric examination and biography, primarily aimed at the clinical problem of evaluating patients' attitudes and personality trends. Class-room lectures and case reports, group demonstrations and student reports.

3. Third Year Course in Psychiatry.

CLASS-ROOM presentation and discussion of selected typical patients. First quarter, W., 9-10. Dr. WHITEHORN and staff of the Phipps Clinic.

OUT-PATIENT WORK in groups alternating with Neurology, each group meeting twice a week for one quarter, M., F.; or Tu., W., 10-1. Dr. RICHARDS, Dr. KANNER and staff of the Phipps Out-Patient Department.

*Special Case Discussions*, combined Neurology-Psychiatry group. Phipps Out-Patient Department. Dr. RICHARDS, M., 3-5.

4. Fourth Year Course in Psychiatry.

SECTION WORK. Dr. BALLICH or Dr. BETZ. Tu. or F., 10-12.

Each quarter 19 students will be assigned for this course by the Dean's office. Elective Course 8 conducted by Dr. Ballich will be accepted as an alternative. This work may not be undertaken until Course 3 has been completed. Patients in the Phipps wards are assigned to students for examination and report and discussion.

CLINICAL PRESENTATIONS AND DISCUSSIONS. Dr. WHITEHORN and staff. Third and fourth quarters. M., 12-1.

## ELECTIVE COURSES

5. Discussion of Topics of Personality Study and Medical Psychology. Dr. WHITEHORN and Dr. BETZ. First quarter, M., 9-10.

For students of the second year.

6. Practical Clinical Examinations. Dr. BETZ and Dr. GARDNER. Fourth quarter, W., 2-5.

A continuation of the work of the second year, consisting of examination of patients and group discussions. Open to second and third year students. Arrangements should be made two weeks before the quarter begins.

7. **Out-Patient Work.** Dr. RICHARDS. Daily except Th. and S., 10-12. Open to third and fourth year students.

Each student has the opportunity of examining personally and treating under supervision cases of ambulant mental disorder. At the end of the morning session there is a presentation of one or two of the most instructive cases, or a review of the day's material so that each student will profit by the whole of the material available.

8. **Psychiatric Considerations in Medical Care.** Examination and treatment of psychiatric problems of patients with medical diseases. Drs. BALLICH and NEWMAN. To be given in the third quarter on the medical wards. One hour a week.

Open to students in the fourth year medical quarter and fourth year psychiatry quarter. Apply to Dr. Ballich or Dr. Newman.

9. **Ward Work.** Dr. BALLICH.

During each quarter four fourth year students can be assigned to work on ward cases, each student to serve five mornings a week for one month. Students electing this work will be excused from the study of cases required during the fourth year.

10. **Pathology and Therapy in Psychiatry.** Dr. MUNCIE. First quarter, W., 4-5.

11. **Special Laboratory Work.** Dr. GANTT.

Work in psychopathology. Elective for second, third and fourth year students.

12. **Experimental Psychopathology.** Dr. GANTT. Second and third quarters, Th., 4-5.

The principles underlying the experimental approach to psychopathology, both animal and clinical, with laboratory demonstrations.

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## SURGERY

ALFRED BIALOCK, Professor of Surgery and Director of the Department of Surgery.

WALTER E. DANDY, Adjunct Professor of Neurological Surgery.

RICHARD H. FOLLIS, Associate Professor of Surgery.

J. STAIGE DAVIS, Associate Professor of Surgery.

WARFIELD M. FIROH, Associate Professor of Surgery.

HARVEY B. STONE, Associate Professor of Surgery.

CURTIS F. BURNAM, Associate Professor of Surgery.

BERTRAM M. BERNHEIM, Associate Professor of Surgery.

J. WILLIAM PIERSON, Associate Professor of Roentgenology.

WILLIAM F. RIENHOFF, JR., Associate Professor of Surgery.

FERDINAND C. LEE, Associate Professor of Surgery.

HENRY N. HARKINS, Associate Professor of Surgery.

WILLIAM A. FISHER, Associate in Surgery.

HARRY L. HOMER, Associate in Surgery.

CHARLES A. WATERS, Associate in Roentgenology.

ELLIOTT H. HUTCHINS, Associate in Surgery.

JOHN M. T. FINNEY, JR., Associate in Surgery.

AMOS KOONTZ, Associate in Surgery. (On leave of absence, U. S. A.)

GEORGE A. STEWART, Associate in Surgery. (On leave of absence, U. S. A.)

EDWARD M. HANRAHAN, JR., Associate in Surgery.

- THOMAS R. CHAMBERS, Associate in Surgery.  
 EDWARD A. KITLOWSKI, Associate in Surgery.  
 I. RIDGEWAY TRIMBLE, Associate in Surgery. (On leave of absence, U. S. A.)  
 GRANT E. WARD, Associate in Surgery.  
 GEORGE G. FINNEY, Associate in Surgery. (On leave of absence, U. S. A.)  
 EDWARD S. STAFFORD, Associate in Surgery. (On leave of absence, U. S. A.)  
 RICHARD T. SHACKELFORD, Associate in Surgery. (On leave of absence, U. S. A.)  
 HARRIS B. SHUMACKER, JR., Associate in Surgery. (On leave of absence, U. S. A.)  
 JAMES C. OWINGS, Associate in Surgery.  
 SAMUEL McLANAHAN, JR., Associate in Surgery.  
 AUSTIN LAMONT, Associate in Surgery. (In charge of Anesthesia.)  
 \* ARTHUR HEBB, Instructor in Surgery.  
 LOUIS SACHS, Instructor in Surgery.  
 HOWARD M. KERN, Instructor in Surgery.  
 WHITMER B. FIBOR, Instructor in Roentgenology. (On leave of absence, U. S. A.)  
 MARCUS OSTRO, Instructor in Roentgenology.  
 WILLIAM NEILL, JR., Instructor in Surgery.  
 GEORGE O. GEY, Instructor in Surgery.  
 R. WALTER GRAHAM, JR., Instructor in Surgery. (On leave of absence, U. S. A.)  
 MURRAY M. COPELAND, Instructor in Surgery. (On leave of absence, U. S. A.)  
 J. ARTHUR WEINBERG, Instructor in Surgery. (On leave of absence, U. S. A.)  
 GEORGE FARBER, Instructor in Roentgenology.  
 ROBERT C. KIMBERLY, Instructor in Surgery. (On leave of absence, U. S. A.)  
 MARCUS M. RAVITCH, Instructor in Surgery. (On leave of absence, U. S. A.)  
 WEBSTER H. BROWN, Instructor in Roentgenology. (On leave of absence, U. S. A.)  
 FRANK J. OTENASEK, Instructor in Surgery.  
 DANIEL L. DOHERTY, JR., Instructor in Roentgenology. (On leave of absence, U. S. A.)  
 ASA D. YOUNG, Instructor in Roentgenology. (On leave of absence, U. S. A.)  
 WILLIAM P. LONGMIRE, JR., Instructor in Surgery.  
 GEORGE W. DUNCAN, Instructor in Surgery.  
 HERBERT E. SLOAN, JR., Instructor in Surgery.  
 MORVYTH McQUEEN-WILLIAMS, Instructor in Roentgenology.  
 HERBERT E. WILGIS, Assistant in Surgery.  
 ROBERT N. COOLEY, Assistant in Roentgenology. (On leave of absence, U. S. N.)  
 DOUGLAS STONE, Assistant in Surgery. (On leave of absence, U. S. A.)  
 HUGO V. RIZZOLI, Assistant in Surgery.  
 THEODORE ALEXANDER, Assistant in Roentgenology.  
 LOUIS REULING, Assistant in Roentgenology.  
 HOWARD W. JONES, JR., Assistant in Surgery. (On leave of absence, U. S. A.)  
 CHARLES A. WAGNER, Assistant in Roentgenology. (On leave of absence, U. S. A.)  
 GEORGE H. BUNCH, JR., Assistant in Surgery.  
 JOHN W. CHAMBERS, Assistant in Surgery.  
 GEORGE A. HANNA, JR., Assistant in Roentgenology.  
 FRANK K. INUI, Fellow in Surgery.  
 JAMES J. RAGAN, JR., William Stewart Halsted Fellow in Surgery.

#### UROLOGY

- J. A. CAMPBELL COLSTON, Associate Professor of Urology.  
 JUSTINA H. HILL, Associate in Urology.  
 WALTER L. DENNY, Associate in Urology.

\* Died April 24, 1944.



LLOYD G. LEWIS, Associate in Urology. (On leave of absence, U. S. A.)  
 AUSTIN H. WOOD, Associate in Urology.  
 HUGH J. JEWETT, Associate in Urology.  
 AMOS F. HUTCHINS, Associate in Urology.  
 EDWARD STINSON, JR., Instructor in Urology.  
 HOWARD C. SMITH, Instructor in Urology.  
 WILFORD A. H. COUNCILL, Instructor in Urology.  
 MARY ELLIS TURNER, Instructor in Urology.  
 ELIZABETH G. FRAME, Instructor in Chemical Urology.  
 RUSSELL B. ROTH, Instructor in Urology.  
 JOHN R. EGAN, Assistant in Urology.

#### ORTHOPEDIC SURGERY

GEORGE E. BENNETT, Adjunct Professor of Orthopedic Surgery.  
 ROBERT W. JOHNSON, JR., Associate in Orthopedic Surgery.  
 ISRAEL W. NACHLAS, Associate in Orthopedic Surgery. (On leave of absence, U. S. A.)  
 RAYMOND E. LENHARD, Associate in Orthopedic Surgery.  
 EDWIN D. WEINBERG, Instructor in Orthopedic Surgery.  
 HAROLD R. BOHLMAN, Instructor in Orthopedic Surgery.  
 MOSES GELLMAN, Instructor in Orthopedic Surgery.  
 H. ALVAN JONES, Instructor in Orthopedic Surgery.  
 GEORGE O. EATON, Instructor in Orthopedic Surgery. (On leave of absence, U. S. A.)  
 JOHN LYFORD III, Instructor in Orthopedic Surgery.  
 JOHN F. HEWITT, Assistant in Orthopedic Surgery.

#### LARYNGOLOGY AND OTOTOLOGY

SAMUEL J. CROWE, Adjunct Professor of Laryngology and Otology.  
 STACY R. GUILD, Associate Professor of Otology, and Director of the Otological Research Laboratory.  
 LEROY M. POLVOGT, Associate Professor of Laryngology and Otology.  
 JOHN W. BAYLOR, Associate Professor of Laryngology and Otology.  
 EDWIN N. BROYLES, Associate Professor of Laryngology and Otology. (On leave of absence, U. S. N.)  
 JOHN E. BORDLEY, Associate Professor of Laryngology and Otology. (On leave of absence, U. S. A.)  
 HARRY R. SLACK, JR., Associate in Laryngology and Otology.  
 J. JULIAN CHISOLM, Associate in Laryngology and Otology.  
 N. FLOYD ADAMS, JR., Associate in Laryngology and Otology.  
 EDWARD M. WALZL, Associate in Laryngology and Otology.  
 DUDLEY C. BABE, Associate in Laryngology and Otology. (On leave of absence, U. S. A.)  
 E. JAMES MULLIGAN, Associate in Laryngology and Otology.  
 DONALD F. PROCTOR, Associate in Laryngology and Otology.  
 HENRY L. HAINES, Instructor in Laryngology and Otology.  
 ARTHUR T. WARD, JR., Instructor in Laryngology and Otology.  
 WALTER E. LOCH, Instructor in Laryngology and Otology.

#### REQUIRED COURSES

The required courses in Surgery have been arranged in three groups with the purpose of acquainting students with the basic principles of diagnosis and treatment of surgical conditions. Instruction in the various surgical specialties is largely elective, although in the required introductory courses the particular technique of examination utilized in these

specialties is taught. Particular emphasis is placed throughout upon practical work.

The three groups of courses comprising the required work are designated Surgery for Second, Third and Fourth Year students and are to be pursued in the order named.

#### SURGERY FOR SECOND YEAR STUDENTS

Instruction in Surgery is offered in the third quarter of the second year. Prerequisite for admission is a thorough training in the fundamental sciences. The work is arranged as follows:

1. **Surgical Physical Diagnostic Methods.** Drs. BLALOCK, HARKINS and LEE. Th., 9-11.

In this course routine methods of physical examination as generally employed in surgical practice will be described and demonstrated upon patients.

#### SURGERY FOR THIRD YEAR STUDENTS

Only those students who have satisfactorily completed the course for second year students (or similar courses elsewhere), and who can give evidence of having received a thorough training in the fundamental pre-clinical sciences, such as is deemed requisite for receiving the degree of Doctor of Medicine in this school, will be admitted to this group of courses. The entire class will attend the course designated as Survey of Surgery throughout the year. Dispensary instruction will be given all four quarters, but not more than twenty students will be admitted during any quarter.

2. **Survey of Surgery.** Drs. BLALOCK, BENNETT, COLSTON and staff. Second, third and fourth quarters, Tu., 9-10. First, second and third quarters, F., 9-10. Fourth quarter, S., 9-10.

A systematic presentation of the diagnosis and treatment of surgical conditions will be given by means of lectures and demonstrations.

3. **Minor Surgery.** Dr. OWINGS, Dr. HARKINS and staff. Fifteen hours weekly, 10-1.

This course consists entirely of dispensary work. The students are divided into small groups, each group having a period of fifteen hours weekly in the surgical dispensary, where each student takes an active part in the routine work.

4. **Ward Rounds.** Drs. LEE, OWINGS and McLANAHAN. Six hours weekly, M., F., 2-5. Ward rounds at the Baltimore City Hospitals.

5. **Surgical Pathology.** Drs. FIROR, BLACKMAN and staff. S., 10-1.

Course given each quarter for the surgical group.

#### SURGERY FOR FOURTH YEAR STUDENTS

In this group of courses instruction is devoted largely to the presentation of major surgical conditions, while work in the various surgical specialties is also offered. Almost the entire time of one quarter of the fourth year is consumed in this instruction and during this time the student

takes an active part in the routine of the wards and operating rooms. By arrangement with the Department of Ophthalmology the required advanced instruction in that subject is given during the same quarter to the students pursuing Fourth Year Surgery.

Any student who has satisfactorily completed the courses comprising Third Year Surgery, or who can demonstrate that he possesses a knowledge of surgery equivalent to that represented by the instruction given in those courses, may be admitted to Fourth Year Surgery. Not more than twenty students will be accepted during any one quarter. Instruction in Fourth Year Surgery will be given in the first, second, third and fourth quarters.

The courses comprising Fourth Year Surgery are as follows:

6. Ward Classes. Drs. BLALOCK, DANDY, FIROR and STONE. M., W., Th., S., 9-10. Ward rounds are made with the surgical group. The instruction is clinical and based upon the cases under treatment at the time.

#### 7. Ward Work

The student spends about two hours daily in the wards, where there is provided training in history taking, general and special physical examination, post-operative care, and surgical dressings.

8. Clinics. Drs. BLALOCK, STONE and staff. Four quarters, one hour weekly, F., 12-1.

The common surgical diseases are reviewed by presentation and discussion of illustrative cases.

#### 9. Operating Room Instruction.

The operating rooms are open to the students for observation. Students are especially requested to participate in the operations performed on the patients assigned to them on the wards.

10. Orthopedic Surgery. Dr. BENNETT and staff. M., 12-1. (For details, see page 118.)

11. Laryngology. Dr. CROWE and staff. (For details, see page 119.)

12. Urology. Dr. COLSTON and staff. (For details, see page 119.)

13. Chest Surgical Diagnosis. Dr. RIENHOFF and staff. Four quarters, Th., 10-11.

14. Surgical Pathology. Drs. BLACKMAN and INUI. W., 11-12.

The surgical group will be expected to attend. Fresh material will be demonstrated.

15. Anesthesia. Dr. LAMONT. Tu., 11-12. The surgical group will be expected to attend.

#### ELLECTIVE COURSES

16. Plastic Surgery. Dr. DAVIS and staff. Tu., Th., mornings.

The principles of plastic surgery will be outlined and demonstrated upon dispensary patients and in the operating room. This work will be limited to two students each quarter.

17. Rectal Surgery. Dr. CHAMBERS and staff. M., F., mornings.

Methods of examination, diagnosis and treatment employed in the division of rectal surgery will be shown in the dispensary.

18. Operative Surgery. Drs. LEE, OWINGS, FINKELSTEIN and staff.

First, second and third quarters. Tu., Th., 2-5. Limited to 24 students.

This course provides practical experience in surgical technique. The work is carried on in the Hunterian Laboratory, each student acting in turn as family physician, anaesthetist, nurse, first assistant, and surgeon.

19. Neurological Surgery. Dr. DANDY and staff. Four quarters, five hours weekly, Tu., Th., 2-4 and F., 4-5. Limited to four fourth year students.

This is intended to be an intensive course in diagnosis and treatment of lesions of the central nervous system, particularly those requiring operative treatment.

20. Anesthesia. Dr. LAMONT and Miss BERGER. Four quarters, W., 2-4. For third year students.

This course includes practical and theoretical studies in anesthesia.

21. Surgical Pathological Conference. Drs. FIROR and BLACKMAN. S., 10-11. Open to fourth year students.

22. Clinical Anesthesia. Dr. LAMONT and staff. Mornings for four weeks. Free half of Special Quarter. Limited to fourth year students.

Practical work in anesthesia.

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## ORTHOPEDIC SURGERY

### REQUIRED WORK

#### *Fourth Year*

1. Ward Rounds. Dr. BENNETT. Tu., 9-10, for each group.
2. Orthopedic Demonstration. Dr. BENNETT and staff. First and second quarters, M., 12-1.

### ELECTIVE COURSES

#### *Fourth Year*

3. Major Course in Orthopedic Surgery. M., Tu., W., Th., F., 2-4. Orthopedic Dispensary.
  4. Minor Course in Orthopedic Surgery. M., W., F.; or Tu., Th., 2-4. Orthopedic Dispensary.
  5. General Operating Room. Dr. BENNETT and staff. M., Th., 8-12.
  6. Special work may be arranged upon application to Dr. BENNETT.
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## UROLOGY

## REQUIRED WORK

*Fourth Year*

The required work in Urology forms part of the course designated Major Surgery. Students pursuing that course attend ward rounds once weekly in the Brady Urological Institute. F., 9-10. Dr. COLSTON and staff.

1. Principles of Urology. Drs. COLSTON, JEWETT, WOOD and STINSON. All four quarters. M., F., 11-12.

## ELECTIVE COURSES

2. Practical Course. Dr. JEWETT and Dispensary staff. Practical work in the dispensary, all four quarters.
3. Pathology, Bacteriology and Chemistry of the Genito-Urinary Tract. Dr. JEWETT, Dr. HILL and Mrs. TURNER. All four quarters, W., 2-4.

## LARYNGOLOGY AND OTOTOLOGY

## REQUIRED WORK

The required work in Laryngology and Otology forms part of the required work in Surgery. It is given in two courses:

1. Introductory Course (Third Year). Dr. CROWE and staff. Th., 11-12.

This course consists of a series of exercises in which the students receive individual instruction in the anatomy of the upper air passages and the use of the various diagnostic instruments. They report in groups, and, under supervision, are required to examine the nasal cavities, ears, throat, and vocal cords on each other. Each student spends six hours in such instruction, which is carried out in all four quarters.

2. Minor Course. Dr. CROWE. This work forms part of the course in Fourth Year Surgery and students pursuing that course are assigned to the Laryngological Dispensary, W., 3-4.

A series of exercises in the clinical diagnosis of disorders of the upper air passages, together with demonstrations of the pathological anatomy of the middle and inner ear.

## ELECTIVE COURSES

3. Dispensary Course. Dr. CROWE and staff. Three days a week, 2-5.

This includes attendance at the staff conference at which one or more of the most interesting cases visiting the dispensary on that day are examined and discussed.

4. Major Course. Dr. CROWE and staff. Work in the dispensary or operating room, daily.

In the dispensary work each instructor is assigned two students.

### 5. Bronchoscopic Course. Drs. BROYLES and ADAMS.

The student first becomes familiar with the appearance of the normal trachea and bronchi and the localization of foreign bodies in the air passages by work in the Hunterian Laboratory on anaesthetized dogs. These students will be given an opportunity to observe the bronchoscopic and oesophagoscopic examinations of patients on two days a week.

### 6. Anatomy and Pathology of the Ear. Dr. GUILD and staff. Two afternoons a week in the second quarter.

This laboratory course is open to both undergraduate and graduate students who are interested in having a good foundation for further work in otology, whether clinical or laboratory. This course will start with very careful dissections of all parts of the ear in both the adult and the infant. After becoming well oriented thus, serial sections of the normal human temporal bone will be studied until familiarity has been acquired with the histologic structure and with the location of the several parts of the middle ear and labyrinth in both horizontal and vertical sections. The study of pathologic conditions will be adapted to the particular interests of each student; the collection of the Otological Research Laboratory includes abundant material of all the more common diseases of the middle and internal ears.

### 7. Research in Otology. Dr. GUILD and staff.

The facilities of the Otological Research Laboratory are available at all times for original investigations by properly qualified students, graduate or undergraduate.

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## ROENTGENOLOGY

### REQUIRED WORK

The required instruction in Roentgenology forms part of the work both in Fourth Year Surgery and in Fourth Year Medicine. It is arranged as follows:

#### 1. Roentgenological Diagnosis. Drs. PIERSON and WATERS. Two hours a week for the group in Fourth Year Surgery. Tu., F., 10-11.

This course consists of lectures and demonstrations on injuries and diseases of bones and joints, and the pathological conditions of the thoracic and abdominal viscera. The object of this course is to give the students the principles of roentgenologic interpretation and their application to the patient.

#### 2. Medical Roentgenological Conference. Dr. PIERSON. One hour a week for the group in Fourth Year Medicine. Th., 10.30.

A demonstration of medical cases both from the clinical and roentgenological aspects.

### ELECTIVE COURSES

#### 3. Roentgenology and Pulmonary Tuberculosis. Open to a limited number of advanced students. One hour weekly.

This consists of a demonstration and discussion of the various aspects of pulmonary tuberculosis from the clinical and roentgenological aspects.

#### 4. General Roentgenological Diagnosis. Clinic on general roentgenological diagnosis, five hours a week. Open to advanced and graduate students.

5. Lectures and Demonstrations in the Fundamental Concepts of Roentgen Diagnosis. One hour a week, M., 12-1. Open to the group in third year surgery.
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SUMMARY OF SURGICAL TIME FOR FOURTH YEAR. Monday: General Surgery, 9-11; Urology, 11-12; Orthopedics, 12-1; General Surgery, 4-5. Tuesday Orthopedics, 9-10; Roentgenology, 10-11; General Surgery, 11-12; General Surgery, 4-5. Wednesday: General Surgery, 9-11; Surgical Pathology, 11-12; General Surgery, 2-3; Laryngology, 3-4; General Surgery, 4-5. Thursday: General Surgery, 9-10; Chest Surgical Diagnosis, 10-11; General Surgery, 11-12. Friday: Urology, 9-10; Roentgenology, 10-11; Urology, 11-12; Surgical Clinic, 12-1; General Surgery, 4-5. Saturday: General Surgery, 9-12.

# FIRST YEAR

First Quarter—November 29, 1943 to February 1, 1944							Second Quarter—February 7 to April 1, 1944					
	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
9-10	Anatomy	Anatomy	Anatomy	Anatomy	Anatomy	Anatomy	Physiol. Chemistry Lecture	Anatomy	Physiol. Chemistry Lecture	Anatomy	Physiol. Chemistry Lecture	FREE
10-11	"	"	"	"	"	"	Anatomy	"	Anatomy	"	Anatomy	"
11-12	"	"	"	"	"	"	"	"	"	"	"	"
12-1	"	"	"	"	"	FREE	"	"	"	"	"	"
2-3	Histology-Neurology	FREE	Histology-Neurology	Surgery	Histology-Neurology	"	Histology-Neurology	Prevent. Med.	Histology-Neurology	Prevent. Med.	Histology-Neurology	"
3-4	"	"	"	FREE	"	"	"	"	"	"	"	"
4-5	"	"	"	"	"	"	"	"	"	"	"	"

Third Quarter—April 10 to June 3, 1944							Fourth Quarter—June 8 to August 4, 1944					
	Physiol. Chemistry	Physiol. Chemistry	Physiol. Chemistry	Physiol. Chemistry	Physiol. Chemistry	Physiology	Physiology	* Histology-Neurology	Physiology	* Histology-Neurology	Physiology	Physiology
9-10	Physiol. Chemistry	Physiol. Chemistry	Physiol. Chemistry	Physiol. Chemistry	Physiol. Chemistry	Physiology	Physiology	* Histology-Neurology	Physiology	* Histology-Neurology	Physiology	Physiology
10-11	"	"	"	"	"	FREE	"	"	"	"	"	"
11-12	"	"	"	"	"	"	"	"	"	"	"	"
12-1	"	Physiology	"	Physiology	"	"	"	FREE	"	FREE	"	"
2-3	"	FREE	"	FREE	Medical Psychology	"	"	"	"	"	"	FREE
3-4	"	"	"	"	"	"	"	"	"	"	"	"
4-5	"	"	"	"	FREE	"	"	"	"	"	"	"

\* This course will end about July 27.

# SECOND YEAR



## SECOND YEAR

First Quarter—November 29, 1943 to February 1, 1944

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
9-10	FREE	Bact.*	FREE	Bact.*	FREE	FREE
10-11	Path. or Bact.*	"	Path. or Bact.*	"	Path. or Bact.*	"
11-12	"	"	"	"	"	"
12-1	"	"	"	"	"	"
2-3	"	FREE	"	FREE	"	"
3-4	"	"	"	"	"	"
4-5	"	"	"	"	"	"

Second Quarter—February 7 to April 1, 1944

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
Pharmacology	Pharmacology	Pharmacology	FREE	Pharmacology	FREE
Pathology	"	Pathology	Psychiatry	Pathology	"
"	"	"	"	"	"
"	FREE	"	FREE	"	"
"	Pharmacology (½ class)	"	Pharmacology (½ class)	"	"
"	"	"	"	"	"
"	"	"	"	"	"

Third Quarter—April 10 to June 3, 1944

	Pathology	Physical Diagnosis	Pharmacology	Surgical Diagnosis	Ophthalmology	Physical Diagnosis
9-10	Pathology	Physical Diagnosis	Pharmacology	Surgical Diagnosis	Ophthalmology	Physical Diagnosis
10-11	"	"	Pathology	"	Pathology	"
11-12	"	"	"	FREE	"	"
12-1	"	"	"	"	"	"
2-3	"	Preventive Medicine	"	Preventive Medicine	"	FREE
3-4	"	"	"	"	"	"
4-5	"	"	"	"	"	"

Fourth Quarter—June 8 to August 4, 1944

Obstetrics**	Neurology	Medicine	Medicine	Medicine	Medicine
Students devote two mornings per week to Physical Diagnosis. Groups by assignment.					FREE
"	"	"	"	"	"
Clinical Microscopy	Clinical Microscopy	FREE	Clinical Microscopy	Clinical Microscopy	FREE
"	"	"	"	"	"
"	"	"	"	"	"

All instruction, except for laboratory exercises in Pharmacology in the second quarter, and Physical Diagnosis in the fourth quarter is for the whole class.

\* Bacteriology: Daily Monday through Friday for first three weeks; Tuesday and Thursday only thereafter.

\*\* In addition to this exercise in Obstetrics, each student will spend two hours one morning in the Prenatal Clinic, from 10 a. m. to 12 noon, during this quarter, assignments to be made in groups by the Dean's Office (Tu., or Th.).

# THIRD YEAR

First Quarter—November 29, 1943 to February 1, 1944

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
9-10	Obst. & Gyn.	Pediatrics	Psychiatry	Neurology	Surgery	Medicine
10-11	Medicine	Medicine	Medicine	Medicine	Medicine	Medicine B. C. H.*
11-12	"	"	"	"	"	"
12-1	"	"	"	"	"	"
2-3	Medicine	Medicine	Prev. Med.	Medicine	Medicine	FREE
3-4	"	"	"	"	"	"
4-5	"	"	"	"	"	"

Second Quarter—February 7 to April 1, 1944

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
Obst. & Gyn.	Surgery	Medicine	Pediatrics	Surgery	Medicine
Surgery	Surg. ½ Gr. Gyn. ½ Gr.	Surgery	Surg. ½ Gr. Gyn. ½ Gr.	"	Surgery
"	"	"	"	"	"
"	"	"	"	"	"
Surgery B. C. H.*	FREE	FREE	FREE	Surgery B. C. H.*	FREE
"	"	"	"	"	"
"	"	"	"	"	"

Third Quarter—April 10 to June 3, 1944

	Obst. & Gyn.	Surgery	Pediatrics	Medicine	Surgery	Medicine
9-10	Obst. & Gyn.	Surgery	Pediatrics	Medicine	Surgery	Medicine
10-11	Psych. Disp. ½ Gr. Neurol. Disp. ½ Gr.	Psych. Disp. ½ Gr. Neurol. Disp. ½ Gr.	Psych. Disp. ½ Gr. Neurol. Disp. ½ Gr.	FREE	Psych. Disp. ½ Gr. Neurol. Disp. ½ Gr.	FREE
11-12	"	"	"	Laryngology	"	"
12-1	"	"	"	FREE	"	"
2-3	FREE	Neurology B. C. H.* ½ Gr.	FREE	Neurology B. C. H.* ½ Gr.	FREE	FREE
3-4	Psychiatry	"	"	"	"	"
4-5	"	"	"	"	"	"

Fourth Quarter—June 8 to August 4, 1944

Obst. & Gyn. 1st half Oph. 2nd half	Surgery	Medicine	Ophthal.	Pediatrics	Surgery
Obst.	FREE	Obst.	FREE	Obst.	Obst.
"	"	"	"	"	"
"	"	"	"	"	"
FREE	FREE	FREE	FREE	FREE	FREE
"	"	"	"	"	"
"	"	"	"	"	"

In the third year, the required instruction in Surgery, Neurology, Psychiatry, Gynecology and Obstetrics will be offered in each of the four quarters. Instruction in Medicine will be offered in the first, second and third quarters. Students may elect the quarters in which they study these subjects but not more than 25 students will be accepted in any one quarter. This schedule merely illustrates the program for one group.  
\*The exercises scheduled from 9 to 10 A. M., are given for the whole class.  
\*B. C. H.—Baltimore City Hospitals.

In the third year, the required instruction in Surgery, Neurology-Psychiatry, Gynecology and Obstetrics will be offered in each of the four quarters. Instruction in Medicine will be offered in the first, second and third quarters. Students may elect the quarters in which they study these subjects but not more than 25 students will be accepted in any one quarter. This schedule merely illustrates the program for one group. The exercises scheduled from 8 to 10 A. M. are given for the whole class. P. O. R.—Baltimore City Hospitals.

## FOURTH YEAR

First Quarter—November 29, 1943 to February 1, 1944							Second Quarter—February 7 to April 1, 1944					
	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
9-10	Medicine	Medicine	Medicine	Medicine	Medicine	Medicine	Surgery	Surgery	Surgery	Surgery	Surgery	Surgery
10-11	"	"	"	"	"	"	"	"	"	"	"	"
11-12	"	"	"	"	"	"	"	"	"	"	"	"
12-1	Surgical Clinic	Medicine	Clin.-Path. Conference	Ophthalmology	Surgical Clinic	Pediatric Clinic	Surgical Clinic	Medical Clinic	Clin.-Path. Conference	Medical Clinic	Surgical Clinic	Pediatric Clinic
2-3	Medicine	Medicine	Medicine	Medicine	Medicine	FREE	Ophthalmology	Ophthal. ½ Gr.	Surgery	FREE	Ophthal. ½ Gr.	FREE
3-4	"	"	"	"	"	"	FREE	"	Laryngology	"	"	"
4-5	"	"	"	"	"	"	Surgery	Surgery	Surgery	"	Surgery	"
Third Quarter—April 10 to June 3, 1944							Fourth Quarter—June 8 to August 4, 1944					
9-10	FREE	FREE	Gynecology	Preventive Medicine	Gynecology	Preventive Medicine	Medicine (V. D.) ½ Group for four weeks					FREE
10-11	"	Psych. ½ Gr.	"	"	Psych. ½ Gr.	"	Free ½ Group for four weeks					"
11-12	"	"	FREE	"	"	"						"
12-1	Psych. Clinic	Medical Clinic	Clin.-Path. Conference	Medical Clinic	Surgical Clinic	Pediatric Clinic	Psych. Clinic	Medical Clinic	Clin.-Path. Conference	Medical Clinic	Surgical Clinic	Pediatric Clinic
2-3	Pediatrics	Pediatrics	Pediatrics	Pediatrics	Pediatrics	FREE	Pediatrics—Sydenham Hospital ½ Group for four weeks					FREE
3-4	"	"	"	"	"	"	Dermatology—½ Group for four weeks					"
4-5	"	"	"	"	"	"						"

In the fourth year, the required instruction in Medicine, Surgery, Ophthalmology, Gynecology, Preventive Medicine, Pediatrics, and Psychiatry will be offered in each of the four quarters. Students may elect the quarters in which they study these subjects, but not more than 20 students will be accepted in any one quarter. This schedule merely illustrates the program for one group. The 12-1 exercises are required of students during their Medical and Surgical quarters, and are available as electives during the other two quarters.

## APPENDIX

The original endowment which made possible the opening of the School of Medicine in 1893 was raised largely through the efforts of a group of women who were interested in seeing that adequate facilities should be made available for the instruction of women in medicine. The circumstances attending the acceptance of this fund were as follows:

At a meeting of the Board of Trustees of the University, October 28, 1890, the following letter was presented:

"The committee formed for the purpose of raising a fund to procure the most advanced medical education for women can now place at your disposal the sum of one hundred thousand dollars for the use of your Medical School, if you will, by resolution, agree that women whose previous training has been equivalent to your preliminary medical course, shall be admitted to the school, when it shall open, upon the same terms which may be prescribed for men. There can be no doubt that women ought to be trained to act as nurses for sick women. There is as little doubt that a sufficient number of women ought to be educated and trained in such manner as to be fully able to care for sick women who may wish or ought to be treated by women. We have devoted ourselves to the furtherance of this object. We have reason to hope that a university which proposes to found a medical school intended to teach advanced methods in the treatment of those diseases which affect mankind, will not refuse to women the opportunity of learning such methods. There is now a general interest in our movement. In order that this interest may be sustained, we ask you to consider our offer at the earliest possible period.

"NANCY MORRIS DAVIS,

*"Chairman of the Baltimore Committee."*

The following minute was adopted by the Trustees:

"The President and Board of Trustees of the Johns Hopkins University have received from Mrs. Nancy Morris Davis, chairman of one of the committees formed for the purpose of raising a fund to procure the most advanced medical education for women, the gratifying intelligence that \$100,000 has been raised for the use of their intended Medical School, and is at their disposal, if they will, by resolution, agree to the terms upon which the money was contributed by its donors.

The terms are that this Board, if it accepts the funds thus raised, shall agree, by resolution, that, when its Medical School shall be opened, women whose training has been equivalent to the preliminary medical course prescribed for men, shall be admitted in such school upon the same terms as may be prescribed for men.

The offer to this University of the particular fund is the free, voluntary act of women residing in this State and in other States, made without the suggestion or solicitation of this Board, and we accept it under and subject to the terms which are made a part of the gift, with the understanding and declaration, however, that such preliminary training in all its parts be obtained in some other institution of learning devoted, in whole or in part, to the education of women, or by private tuition.

The fund so contributed shall be invested and known as "The Women's Medical School Fund," and that fund, and all interest to accrue thereon and all additions made thereto for the same purpose, shall remain invested for the purpose of increase only until, with its aid as a foundation, a general

fund has been accumulated amounting to not less than \$500,000, and sufficient for the establishment and maintenance of a Medical School worthy of the reputation of this University, and fully sufficient as a means of complete medical education. Then, and not until then, will a Medical School be opened by this University; and then, and not until then, will the gift now offered be used by this University; and then, and not until then, will the terms attached thereto be operative.

The utility of a training school for women nurses has been demonstrated by the experience and practice of the Johns Hopkins Hospital, and by the necessities of home life among our people.

This Board is satisfied that in hospital practice among women, in penal institutions in which women are prisoners, in charitable institutions in which women are cared for, and in private life, when women are to be attended, there are a need and place for learned and capable women physicians; and that it is the business and duty of this Board, when it is supplied with the necessary means for opening its proposed Medical School, to make provision for the training and full qualification of such women for the abundant work which awaits them in these wide fields of usefulness.

Nothing contained in this minute shall be construed as abridging, in any manner, the right of the Board of Trustees of the Johns Hopkins University to make such rules and regulations as they may deem necessary for the government of the School of Medicine, when it is organized; and in making such rules and regulations the terms of this minute shall always be respected and observed."

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Miss Mary Elizabeth Garrett, in order to make up the sum of \$500,000, which the Board of Trustees required should be secured as an endowment before the Medical School of the University was opened, contributed to that fund the sum of \$306,977, upon the following terms, which were agreed to by the Board of Trustees:

1. That women shall enjoy all the advantages of the Medical School of the Johns Hopkins University on the same terms as men, and shall be admitted on the same terms as men to all the prizes, dignities or honors that are awarded by competition, examination, or regarded as rewards of merit.
2. That not more than \$50,000 of the original endowment of \$500,000 shall be expended on a building or buildings; and that in memory of the contributions of the Committees of the Women's Medical School Fund, this building, if there be but one, or the chief building, if there be more than one, shall be known as the Women's Fund Memorial Building.
3. That the Medical School of the University shall be exclusively a graduate school as hereinafter explained, that is to say: That the Medical School of the Johns Hopkins University shall form an integral part of the Johns Hopkins University, and like other departments of the University, shall be under the management and control of the Trustees of the said University, that it shall provide a four years' course, leading to the degree of Doctor of Medicine; that there shall be admitted to the school those students only who, by examination or by other tests equally satisfactory to the Faculty of the Medical School (no distinction being made in these tests or examinations between men and women), have proved that they have completed the studies included in the Preliminary Medical Course (Group Three, Chemical-Biological Course), as laid down in the University Register (but this condition is not meant to restrict the Trustees from receiving as hearers, but not as candidates for the degree of Doctor of Medicine, those who have received the degree of Doctor of Medicine, or its equivalent, in some school of good repute); and that the degree of Doctor of Medicine of the Johns Hopkins University shall

be given to no Doctor of Medicine who has not proved by examination or by other tests equally satisfactory to the Faculty of the Medical School that he has completed the studies included in the Preliminary Courses, besides completing the course of instruction of the Medical School of the Johns Hopkins University.

The foregoing provision shall not be construed as restricting the liberty of the University to make such changes in the requirements for the admission to the Medical School of the Johns Hopkins University or to accept such equivalents for the studies required for admission to this school as shall not lower the standard of admission specified in this clause; provided that the requirements in modern languages other than English shall not be diminished, and provided also that the requirements in non-medical scientific studies shall include at least as much knowledge of natural science as is imparted in the three minor courses in science now laid down in its University Register, the subjects and arrangements of these scientific studies being subject to such modifications as may from time to time seem wise to its Board and to the Faculty of the Medical School, but being at all times the same for all candidates for admission. (For such requirements always see University Register.)

4. That the terms of this gift and the resolutions of October 28, 1890, by which the Trustees accepted the gift of the Women's Medical School Fund, shall be printed each year in whatever annual calendars may be issued announcing the courses of the Medical School. (See appended resolutions.)

5. That there shall be created a committee of six women to whom the women studying in the Medical School may apply for advice concerning lodging and other practical matters, and that all questions concerning the personal character of women applying for admission to the School and all non-academic questions of discipline affecting the women studying in the Medical School shall be referred to this committee, and by them be in writing reported for action to the authorities of the University; that the members of this committee shall be members for life; that the committee, when once formed, shall be self-nominating, its nominations of new members to fill such vacancies as may occur being subject always to the approval of the Board of Trustees of the University.

6. That in the event of any violation of any or all of the aforesaid stipulations, the said sum of \$306,977 shall revert to her, or such person or persons, institution or institutions, as she by testament or otherwise may hereafter appoint.

It will be observed that by the tenor of the foregoing terms no university course will be in any way modified by any conditions attached to her gift. These conditions relate exclusively to preparation for the Medical School, and have received, in the shape in which they are now presented, the unanimous approval of the Medical Faculty of the University.

The terms of admission to the Medical School of the University, as formulated and interpreted by the Medical Faculty of the University, February 4, 1893, and here subjoined, are therefore in entire accordance with the terms of her gift.

(Signed) MARY E. GARRETT.

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REQUIREMENTS FOR ADMISSION TO THE MEDICAL SCHOOL OF THE JOHNS HOPKINS UNIVERSITY, UNANIMOUSLY APPROVED BY THE MEDICAL FACULTY, FEBRUARY 4, 1893.

A course of four years' instruction will be provided leading to the degree of Doctor of Medicine.

To this course there will be admitted as candidates for the degree:

1. Those who have satisfactorily completed the Chemical-Biological course which leads to the A. B. degree in the University.

2. Graduates of approved colleges or scientific schools who can furnish evidence: (a) That they have a good reading knowledge of French and German; (b) That they have such knowledge of physics, chemistry and biology as is imparted by the regular minor courses given in these subjects in this University.

3. Those who give evidence by examination that they possess the general education implied by a degree in arts or in science from an approved college or scientific school, and the knowledge of French, German, physics, chemistry and biology already indicated.

By approved colleges and scientific schools are meant those whose standard for graduation shall be considered by this University as essentially equivalent to its standard for graduation in the undergraduate department.

It is to be understood that at least one year's study in the Chemical and Biological Sciences in their intermediate relation to medicine shall be required from students after their entrance to the Medical School.

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WOMENS ADVISORY COMMITTEE OF THE JOHNS HOPKINS SCHOOL OF MEDICINE

MRS. WARFIELD T. LONGCOPE (*Chairman*),  
MRS. ADOLF MEYER,  
MRS. DONALD HOOKER,  
MRS. J. HALL PLEASANTS,  
MRS. GAYLORD LEE CLARK.  
MRS. HENRY M. THOMAS, JR.

Their duties are stated in paragraph 5 of the letter printed above.

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# ALPHABETICAL INDEX OF NAMES

	PAGE		PAGE
Abbott, Lyman S.....	25, 61, 102	Bennett, George E.....	8, 47, 52, 115
Abelson, Neva.....	29, 62, 106	Benson, William Prescott, Jr.....	40
Abramovitz, Leonard.....	25, 59, 94	Benton, John Joseph.....	35
Ackerknecht, Erwin H.....	30, 90	Benua, Richard Squier.....	38
Acton, Conrad.....	25, 57, 94	Berger, Fredericka Bart.....	35
Acton, Elizabeth.....	65	Berger, Olive L.....	54
Adams, N. Floyd, Jr.....	12, 52, 60, 63, 115	Bergh, Marcus Bernard.....	35
Ahroon, Carl R.....	60	Bergland, John McF.....	29, 53, 100
Aksara, Sombun Phong.....	65	Berke, Joseph B.....	66
Albanese, Anthony August.....	21, 106	Bernheim, Bertram M.....	10, 47, 50, 59, 113
Alexander, Theodore.....	27, 51, 114	Bernstein, Alan.....	15, 50, 57, 63, 93
Alford, Theodore Crandall, Jr.....	40	Berntsen, Carl Alfred, Jr.....	35
Allan, Warde B.....	14, 50, 56, 93	Berry, George P.....	46
Alpert, Louis K.....	20, 57, 93	Bethea, Ralph Chambers.....	32
Alpher, I. M.....	58	Betz, Barbara J.....	21, 53, 63, 111
Andrews, Mason Cooke.....	55	Bigham, Roy Stinson, Jr.....	24, 57, 94
Andrews, William Cooke.....	40	Bimestefer, Lawrence W.....	66
Andrus, E. Cowles.....	9, 47, 50, 92	Bing, Richard J.....	24, 57, 94
Andrus, Stephen Bourne.....	32	Birch, Ranice.....	24, 87
Angell, John Hamilton.....	40	Birmingham, John R.....	28, 50, 94
Apter, Julia Tutelman.....	24, 102	Bix, Hans.....	21, 54, 62, 106
Apter, Nathaniel S.....	27, 55, 111	Blackman, Sam S., Jr.....	10, 47, 54, 104
Arena, Joseph Aloysius, Jr.....	40	Blair, Claudia Barton.....	82
Argus, Clara.....	54	Blanchard, Alfred.....	8, 45, 47, 48, 50, 56, 113
Arnold, James G., Jr.....	66	Blanchard, Mercer C.....	28, 54, 65, 106
Arnot, Robert E.....	28, 55, 111	Bliss, Eleanor Albert.....	14, 110
Ascher, Eduard.....	28, 55, 111	Block, Walter.....	18, 53, 106
Ashbury, Howard H.....	65	Bloom, Harry E.....	25, 61, 102
Ashley, William Whitley.....	35	Blueble, Lewis William, Jr.....	38
Askin, John A.....	54	Bock, C. Adam.....	61
Aull, Keith.....	32	Bohlman, Harold R.....	18, 52, 61, 115
Austrian, Charles R.,		Bolton, Houck E.....	65
9, 47, 48, 49, 56, 63,	92	Bond, Vernard Franklin, Jr.....	35
Axilrod, Herbert David.....	32	Bordley, James, III.....	10, 47, 49, 63, 92
Aycock, Thomas B.....	65	Bordley, John.....	66
		Bordley, John E.....	11, 47, 52, 60, 115
Babb, Dudley C.....	15, 52, 60, 64, 115	Borkovic, George William.....	32
Baer, Alfred.....	35	Borkovich, Katherine H.,	
Baetjer, Charles H.....	5	23, 56, 63, 94, 106	
Baetjer, Edwin G.....	5	Bowditch, Sarah.....	23, 50, 58, 94
Baetjer, Walter A.....	11, 49, 92	Bowers, Charles Haskell.....	35
Bagley, Cecil H.....	17, 52, 61, 66, 102	Bowers, Charles Richard.....	41
Baish, Eugene L.....	52, 61	Bowie, Helen.....	54
Baish, William H.....	61	Bowman, Isaiah (President).....	5, 6, 7, 45
Baker, Benjamin M., Jr.....	13, 49, 56, 92	Boyd, C. Holmes.....	14, 49, 63, 64, 93
Baker, Grace.....	17, 63, 111	Brack, C. Bernard.....	18, 52, 60, 63, 89
Baker, Henry S.....	5, 6	Brady, Leo.....	13, 51, 60, 63, 88
Ballich, Nicholas L., Jr.....	16, 53, 63, 111	Bradon, Richard Alton.....	38
Baltzer, John Edward.....	40	Brailey, Miriam Esther.....	14, 62, 106
Bang, Edgar Philip.....	32	Brandon, Russell Reisman.....	65
Banks, Albert L.....	55	Brantegan, Otto C.....	15, 107
Bard, Philip.....	7, 45, 47, 109	Bratton, A. Calvin, Jr.....	15, 107
Barker, W. Halsey,		Bridge, Edward M.....	12, 53, 62, 106
6, 15, 46, 47, 50, 57,	93	Bridgman, Eveleth W.....	11, 47, 49, 56, 92
Barton, Carlyle.....	5	Brooks, Chandler McCuskey.....	11, 47, 109
Bass, Lee Weil.....	38	Brooks, Rodney J.....	5
Bauman, Edward E.....	52	Brooks, Theodora F.....	49
Baxter, Paul.....	40	Brown, Donaldson.....	5
Baylor, John W.....	11, 47, 52, 60, 115	Brown, Ernest Claiborne, Jr.....	38
Bays, Claud Miller.....	35	Brown, J. Howard.....	9, 47, 88
Beall, Khleber H.....	46	Brown, Thomas McPherson.....	15, 49, 93
Bechtol, Lavon D.....	40	Brown, Thomas R.....	5, 11, 49
Belemer, J. J.....	67	Brown, Webster H.....	22, 51, 114
Bell, Alan Eddy.....	35	Browning, Betty Jane.....	43
Bennet, Eben Thorpe.....	35	Broyles, Edwin N.....	11, 47, 52, 60, 115



	PAGE
Brumback, Joseph E., Jr.	55
Brun, B. Lucien	52, 61
Buchanan, Gibson Packer	32
Buchanan, Myron Isaac	38
Buck, Walter B.	26, 57, 63, 94
Buell, Mary V.	12, 50, 92
Bugz, Charles R.	46
Bunch, George H., Jr.	28, 51, 114
Buppert, Stuart G.	61
Burgan, Harry C.	6, 48
Burger, T. Terry	17, 53, 62, 106
Burklund, Charles Wilhelm	32
Burky, Earl L.	10, 47, 52, 61, 102
Burnam, Curtis F.	9, 49, 113
Burton, Wilbur D.	61
Busby, Trent	38
Buschke, Wilhelm H.	21, 61, 102
Bush, Alberta E.	6
Bush, Stewart William	38
Bush, Vannevar	5
Butler, John Lowe	38
Butler, Thomas B.	5
Butler, William Wilson Samuel, III	41
Butterfield, William John Hughes	32
Cakrtova, Marie M.	20, 110
Caldwell, Lucille L.	59
Callander, John Newton	41
Cantrell, James Randall	38
Capone, Nicholas J.	66
Carey, T. Nelson	63
Carll, Jesse W., IV	55
Carrier, Marshall Hughes, Jr.	41
Cartwright, George E.	28, 50, 94
Casler, DeWitt B.	12, 51, 89
Cason, James Freeman	38
Chalfant, Archibald S.	18, 56, 93
Chambers, Doris Elizabeth	35
Chambers, John W.	28, 51, 114
Chambers, Thomas R.	13, 50, 59, 64, 114
Chandler, Caroline	54
Chapman, William Harold	32
Chassin, Jameson Lewis	32
Chen, David B.	27, 52, 89
Chen, Ko-Kuei	46
Chesney, Alan M. (Dean)	6, 9, 45, 47, 48, 49, 56, 92
Chisolm, J. Julian	12, 52, 60, 115
Chisolm, James Julian, Jr.	38
Clapp, Clyde A.	9, 47, 52, 61, 102
Clark, Mrs. Gaylord Lee	129
Clark, E. Gurney	30, 58, 94, 110
Clark, William Mansfield	7, 45, 47, 48, 108
Close, Claude C.	5
Clough, Paul Wiswall	11, 47, 49, 63, 92
Coblentz, Richard G.	66
Cohen, Barnett	9, 47, 108
Cohen, Bernard J.	25, 58, 94
Cohen, Jacob	17, 50, 56, 93
Cole, Norman B.	49
Colston, John Archibald Campbell	10, 47, 51, 114
Compton, Beverly	66
Cone, Elizabeth	24, 87
Conn, Jacob H.	15, 57, 68, 111
Conrad, Elizabeth	55
Cooley, Denton Arthur	32
Cooley, Robert Nelson	26, 114
Cooper, J. Crossan	5
Cope, Clyde Brewer, Jr.	35
Copeland, Murray M.	19, 66, 114
Cordi, Joseph Michael	27, 62, 106
Coriell, Louis D.	52, 61
Cornbrooks, Ernest I.	66

	PAGE
Cerner, George Washington	8, 48
Corwin, Alson	48
Coston, Tullio O.	46
Council, Wilford A.	19, 51, 60, 115
Cousar, James English, III	35
Coxe, Joseph Wentworth, III	38
Crane, Paul Shields	32
Crawford, Robert H.	46
Crosby, Edwin L.	14, 49, 110
Cross, Ernest S.	50
Crow, Charles Brandon, Jr.	41
Crowe, Samuel J.	8, 47, 52, 115
Croxatto, Oscar C.	31
Cullen, Thomas S.	8, 51
Cummins, Alvin Joseph	32
Cutler, Preston R.	65
Dabney, Marye	46
Dade, James R.	32
Daily, Edwin Francis	30, 100
Dana, Edward Runkle	32
Dandy, Walter E.	8, 47, 50, 64, 113
Daniel, Angelo Stephen	41
Darden, Mary Cobb	38
Davidson, N. S.	58
Davis, Irene M.	6
Davis, James Edward	32
Davis, John Staige	9, 47, 50, 59, 113
Davis, Marvin H.	55
Davis, Nancy Morris	126
Dawe, Clyde Johnson	85
Day, Lewis Robbins	38
Dearborn, Earl H.	24, 107
DeBusk, Franklin Lafayette	38
Debuskey, Matthew	25, 53, 62, 67, 106
Deckert, Allen	60
Delfino, Rodriguez	31, 62
Delfs, Eleanor	20, 58, 62, 100
deMoss, Ernest Valiant	88
Denny, Walter L.	14, 51, 114
deSaussure, Charlton	35
Diamond, Herbert H.	58
Dick, Francis Marion	38
Dickson, Laurie Craig, Jr.	55
Dietz, Wilma Natalie	43
Diez, Jorge Canseco	57
Dittus, Christian W.	6
Dixon, Alfred B.	28, 53, 62, 100
Dixon, William T.	55
Doak, George O.	21, 93
Dodge, Henry W., Jr.	55
Doering, James Arthur	41
Doherty, Daniel L., Jr.	22, 51, 114
Donahoo, Harry C.	65
Dorkin, Jerome Richard	32
Dorman, J. William	67
Douglas, Gordon Watkins	35
Douglass, Louis H.	65
Dove, David	28, 65, 94
Downey, R. A. Rayner	49
Downing, Virginia	55
Drucker, William Richard	38
Dubois, Edmund Lawrence	38
Dugger, Gordon Shelton	35
Dumler, John C.	66
Duncan, Alexander E.	5
Duncan, Edgar E.	46
Duncan, George W.	24, 51, 114
Duncan, Leroy E., Jr.	27, 57, 82, 94
Dunn, James Ralph, Jr.	41
Dykema, Mary	38
Dyrd, Jarl Edvard	35
Eagle, Harry	29, 94
Eastman, Nicholson J.	7, 45, 47, 48, 53, 56, 100

	PAGE
Eaton, George O.....	20, 52, 61, 115
Eaton, W. Drummmond.....	22, 53, 62, 100
Ebaugh, Franklin G.....	46
Eckhardt, Janet L.....	55
Edelstein, Ludwig.....	11, 90
Edgerton, Milton Thomas, Jr.....	32
Edwards, Donald Wayne.....	41
Edwards, Lydia B.....	15, 53, 106, 110
Edwards, Monte.....	67
Egan, John R.....	29, 51, 115
Egerton, Stuart W.....	64
Ehlers, Hania Wislicka.....	24, 54, 62, 106
Ehrlich, Daniel.....	65
Eichenlaub, John Ellis.....	35
Elam, Grace Virginia.....	43
Elam, James Otis.....	35
Elder, John David, Jr.....	35
Eller, Charles Howe.....	30, 110
Ellicott, Charles Ellis, III.....	41
Ellis, F. A.....	20, 50, 58, 95
Elmendorf, DuMont Frelinghuysen, Jr.....	41
Ely, DeForest.....	41
Emerson, J. Fred.....	61
Eney, Richard Donald.....	41
Engle, Ralph Landis, Jr.....	35
English, Mary Allen.....	35
Ephrussi, Raya.....	28, 58, 62, 94
Estes, Mary L.....	54
Evans, Frank A.....	46
Evans, Gerald.....	61, 64
Evans, William Garner.....	41
Everett, Houston S., 11, 47, 51, 60, 63, 89	
Facio, Hernán José.....	88
Fales, W. Thurber.....	30, 110
Farber, George.....	20, 51, 114
Farber, Robert E.....	55
Farmer, Thomas W.....	30, 57, 94
Farris, Edward M.....	65
Faulconer, Robert Jamieson.....	41
Felsovaryi, A. S.....	30, 58, 94
Fess, Lois L.....	24, 60, 89
Fink, Arthur I.....	20, 58, 93
Finneran, Joseph Charles.....	41
Finney, George G.....	14, 51, 59, 114
Finney, John M. T., Jr.....	13, 50, 59, 113
Finney, William P.....	46
Finor, Warfield Monroe.....	9, 47, 50, 113
Finor, Whitmer Bennett.....	19, 51, 114
Fish, Harold Somers.....	23, 48, 86
Fisher, A. Murray.....	13, 49, 56, 92
Fisher, Mary A.....	49
Fisher, William A.....	11, 50, 113
Fleischmann, Walter.....	16, 53, 62, 106
Fleri, Eugénie Antoinette.....	38
Flom, Charles.....	58
Flowers, Charles Ely, Jr.....	33
Follis, Richard Holden.....	9, 47, 113
Forbes, Thomas R.....	19, 86
Ford, Frank R.....	10, 47, 50, 57, 66, 95
Ford, Joseph A.....	28, 64, 95
Fountain, Edmund McAshan.....	86
Fox, Henry M.....	15, 53, 111
Fox, Lay Martin.....	41
Frame, Elizabeth G.....	23, 115
France, Richard.....	18, 50, 56, 93
Frank, Eli.....	5
Frank, Jerome D.....	22, 111
Frantz, Robert Herman.....	38
Frayser, Lois.....	25, 106
Frerichs, John B.....	22, 54, 104
Frick, Adelaide H. C.....	62
Friedenwald, Jonas Stein.....	9, 47, 52, 102
Friese, Frederick.....	5
Fuller, Harvey L.....	57

	PAGE
Furstenberg, Frank.....	20, 58, 93
Futcher, Palmer Howard.....	21, 93
Gayley, Herman Anderson, Jr.....	38
Gaither, Ernest H.....	12, 49, 57, 92
Galvin, Gerald A.....	22, 52, 89
Gann, Mark E.....	59
Gannon, Joan.....	38
Gantt, W. Horsley.....	12, 53, 111
Gardella, Joseph Warren.....	83
Gardner, Robert Edward.....	20, 111
Garis, Robert.....	23, 50, 56, 58, 94
Garrett, Mary Elizabeth.....	127
Gay, Leslie N.....	12, 49, 58, 63, 92
Gelinas, Georgette.....	55
Gellis, Sydney.....	21, 106
Gellman, Moses.....	18, 52, 61, 115
Gemmell, Chalmers Laughlin.....	11, 47, 109
Genecin, Abraham.....	28, 50, 94
Germuth, Frederick George, Jr.....	36
Gey, George Otto.....	19, 114
Gibbes, James H.....	46
Gibbs, John S., Jr.....	5
Gichner, Manuel.....	25, 59, 94
Gifford, Walter S.....	6
Gilger, William Grant, II.....	33
Gilliece, John H.....	6
Ginsburg, Leon.....	17, 50, 58, 95
Gittings, John C.....	30, 53, 106
Glass, Albert J.....	25, 57, 95
Glass, Frederick A.....	28, 58, 95
Gleitsman, Gladys M.....	49
Gluck, Francis.....	19, 56, 93
Goldbach, Leo J.....	9, 47, 52, 102
Goldberg, Herman K.....	27, 61, 102
Goldstone, Herbert.....	27, 57, 94
Goodman, Howard Charles.....	83
Goodwin, Mary S.....	19, 54, 58, 62, 106
Goodwin, T. Campbell.....	13, 53, 62, 65, 106
Gorens, Sherwood Warren.....	36
Govan, Clifton Dancy, Jr.....	55
Graham, Albert D.....	5
Graham, R. Walter, Jr.....	19, 59, 114
Graham, Robert Lee.....	22, 54, 104
Gray, Watson W.....	53
Green, John Summerfield, III.....	36
Greenberg, S. M.....	25, 56, 94
Gregory, John E.....	22, 54, 104
Grenzer, William E.....	65
Griffith, Mary.....	27, 53, 100
Grimes, S. Butler.....	25, 54, 62, 106
Griswold, B. Howell, Jr.....	6
Grubb, Wilson Lyon.....	26, 54, 62, 106
Gruber, Loren W.....	61
Gude, Albert Valdemar.....	38
Guild, Harriet G.....	13, 53, 62, 106
Guild, Stacy Rufus.....	9, 115
Gundersheimer, Herbert N.....	57
Gundry, Rachel.....	21, 63, 111
Guthrie, Nobel.....	23, 58, 93
Gutmacher, Alan F.....	11, 47, 53, 62, 100
Guyton, Jack S.....	16, 52, 61, 64, 102
Haden, Russell L.....	46
Hagan, Robert Cameron.....	86
Hahn, Richard.....	21, 58, 93
Haines, Henry Lippincott.....	23, 115
Halle, Shea.....	64
Halvorson, Homer.....	6
Hamburger, Louis P.....	11, 49, 92
Hamburger, Louis P., Jr.....	36
Hamilton, Herman Nelson.....	92
Hamman, Louis.....	8, 47, 49, 56, 93
Hammond, Margaret Mary.....	33
Hampson, John Lawrence.....	38

AGE

AGE		PAGE
93	Handelsman, Jacob.....	55
93	Hanes, Frederic M.....	46
	Hanna, George A., Jr.....	29, 114
38	Hanrahan, Edward M., Jr.,	
92	13, 50, 59, 63, 67, 113	
89	Hanson, Peggy Ann.....	33
59	Hanson, Virgil.....	36
38	Hardy, Janet B.....	24, 62, 106
111	Harkins, Henry N.....	11, 47, 50, 59, 113
33	Harris, Aaron.....	26, 59, 94
111	Harris, Anderson Page.....	39
94	Harrison, Clinton Rabbe.....	39
127	Harrison, Edmund P. H., Jr.,	
92	17, 53, 62, 100	
55	Harrison, Patricia Jane.....	55
106	Harrison, Thurston.....	50, 57, 63
115	Hartmann, John Rudolf.....	41
109	Hartmann, Robert Carl.....	33
94	Hartz, Jerome D.....	23, 53, 63, 111
36	Harvey, Elizabeth.....	58
114	Harvey, John Collins.....	41
46	Hasenbush, Lester Lee.....	23, 53, 111
5	Hawkins, John Frederick, Jr.....	33
94	Haws, John M.....	21, 53, 62, 100
5	Hayes, Geo. J.....	55
33	Hebb, Arthur.....	17, 51, 59, 64, 114
6	Hebb, Donald B.....	65
95	Hecht, Manes S.....	25, 54, 62, 106
106	Heidelman, Joseph M.....	27, 61, 65, 102
95	Helfrick, Francis.....	28, 106
95	Helfrick, Sylvia Merrill.....	33
49	Hellerman, Leslie.....	12, 108
93	Hellman, Louis M.....	15, 53, 62, 100
102	Henneberger, Lowell F.....	66
102	Henninger, William Henry.....	33
94	Hensen, Henry.....	23, 56, 94
33	Herbert, Carl Morse, Jr.....	39
106	Herman, Nathan B.,	
106	16, 49, 58, 63, 82, 93	
36	Herrmann, Heinz.....	19, 102
55	Herren, Wood S, III.....	41
5	Hersperger, W. G.....	26, 57, 94
114	Hewitt, Helen.....	55
104	Hewitt, John F.....	25, 61, 115
53	Hibbitts, John T.....	66
36	Higgins, James Lemmon.....	41
94	Hill, Justina Hamilton.....	13, 114
104	Hill, Lewis Brown.....	16, 111
65	Hiller, Grace.....	57
100	Hillman, John William.....	36
100	Hills, Ralph G.....	18, 49, 56, 63, 93
5	Hinckley, Elizabeth B.....	53
106	Hines, Marion.....	9, 47, 48, 86
61	Hinman, Alanson.....	39
33	Hodes, Horace.....	14, 54, 106
106	Hofmann, Karl Emil, Jr.....	39
115	Hoffman, Elmer.....	33
67	Hogan, John F.....	60
111	Hohman, Leslie B.....	12, 53, 63, 111
93	Hollman, Emile F.....	46
100	Hollander, Mortimer H.....	55
102	Holt, L. Emmett, Jr.....	9, 47, 53, 62, 106
46	Homer, Harry L.....	12, 59, 113
93	Hood, Bowman J.....	22, 50, 58, 93
115	Hooker, Mrs. Donald.....	129
6	Hopkins, D. Luke.....	5
92	Hopkins, H. Hanford.....	16, 50, 58, 64, 95
93	Hopson, John L.....	30, 57, 94
36	Horn, Ann McAvoy.....	33
92	Horning, Edward Douglas.....	55
96	Horsley, Thomas Martin.....	36
36	Howard, Evelyn.....	18, 109
3, 33	Howard, John Eager.....	13, 50, 59, 64, 93
38	Howard, John T.....	18, 49, 57, 93
	Howard, Lee.....	46

PAGE

Howard, Lee Milton.....	41
Howell, A. Brazier.....	9, 47, 86
Howland, Anna Marie.....	39
Howland, Jonathan.....	33
Hughes, William F.....	23, 52, 102
Hughson, Walter, Jr.....	41
Hull, Harry C., Jr.....	66
Hull, John Greulich.....	36
Hume, Edward Hicks.....	29, 90
Hundley, Alwyn, Jr.....	61
Hundley, J. Mason, Jr.....	66
Hunner, Guy L.....	8, 51, 60
Hunt, William Jack.....	65
Hurwitz, Chester E.....	17, 61, 102
Hussey, Raymond.....	66
Hutchins, Amos F.....	16, 51, 60, 115
Hutchins, Elliott H.....	12, 50, 113
Hyde, Robert Andrew.....	36
Iiff, Charles E.....	30, 61, 102
Iiff, Elizabeth.....	26, 50, 53, 94
Ingram, James Mayhew, Jr.....	55
Inui, Frank Kazuo.....	30, 114
Irvin, J. Logan.....	16, 108
Jackson, Carol.....	60
Jackson, Dudley Pennington.....	41
Jackson, Laurence Stuart.....	39
Jacobus, Wayne Niles.....	39
Jahreiss, Walter.....	19, 111
Jambor, James John.....	39
Jeans, Philip C.....	46
Jelks, Edward.....	46
Jenkins, James H., Jr.....	29, 53, 100
Jewett, Hugh J.....	14, 51, 60, 64, 66, 115
Johns, Thomas Nelson Page.....	39
Johnson, Andrew Beaumont, II.....	36
Johnson, John Triplett Haxall.....	39
Johnson, Marion.....	54
Johnson, Marius P.....	67
Johnson, Moulton Kinsinger.....	39
Johnson, Robert W., Jr.....	12, 52, 60, 115
Johnson, Robert Wilkinson, III.....	33
Johnson, Whedon.....	55
Johnston, J. Edward.....	5
Jones, Georgeanna Seegar.....	21, 60, 89
Jones, H. Alvan.....	20, 52, 61, 64, 115
Jones, Herbert.....	61
Jones, Howard W., Jr.....	27, 59, 114
Jordan, John Russell.....	29, 53, 100
Josephs, Hugh W.....	10, 47, 53, 62, 65, 106
Joslin, Blackburn Smith.....	41, 54
Joslin, Stuart L.....	29, 106
Kajdi, Laslo.....	13, 53, 62, 106
Kanner, Leo.....	10, 53, 63, 111
Kattus, Albert A., Jr.....	55
Katz, David Theodore.....	33
Katz, Evelyn.....	55
Katzenstein, Lawrence.....	20, 58, 93
Kaye, Robert.....	29, 54, 106
Kearns, John Westhofen.....	41
Kearns, Walter Melody, Jr.....	41
Kee, John Lester, Jr.....	36
Keeney, Edmund L.....	20, 50, 58, 93
Kehne, Wilmer Deaver.....	36
Kelly, Evander Francis.....	29, 107
Kelsey, Harry E.....	52, 61
Kendig, Edwin L., Jr.....	24, 62, 106
Kern, Howard M.....	17, 51, 59, 114
Ketron, Lloyd W.....	9, 47, 50, 58, 95
Kieffer, Richard Fulton, Jr.....	33
Kimberly, Robert C.....	20, 59, 114
Kimmel, Joe Robert.....	41
Kindell, Frank B.....	65

	PAGE
King, John T.....	10, 47, 49, 64, 92
King, Joseph Dill Baker.....	33
Kinnev, Earl R.....	65
Kite, William C.....	55
Kitlowski, Edward A.....	13, 51, 59, 67, 114
Klinefelter, Harry F.....	22, 60, 57, 93
Klug, Regina.....	23, 111
Knox, J. H. Mason, Jr.....	16, 54
Koenig, Leonard Joel.....	55
Koontz, Amos.....	13, 51, 59, 63, 113
Korsch, Barbara Maria.....	33
Koster, Henry Frank.....	39
Krause, Louis A. M.....	66
Kramer, Donald.....	66
Krebs, Glen Cloyd.....	41
Kress, M. B.....	20, 56, 93
Kristan, Joseph John.....	36
Kron, R. Vincent.....	55
Krumrein, Louis F.....	17, 60, 56, 93
Kuff, Edward Louis.....	41
Kuhl, Walter James, Jr.....	42
Kulka, Johannes Peter.....	33
Kunkel, William Minster, Jr.....	39
Lake, Beatrice.....	54
Lamont, Austin.....	16, 51, 54, 114
Lanahan, W. Wallace.....	5
Landau, Walter.....	28, 58, 94
Langer, Ella.....	54, 62
Langworthy, Orthello R., 10, 47, 50, 53, 63, 66, 95, 111	
Larkey, Sanford Vincent.....	6, 29, 90
Larmore, Ernest Marcellus, Jr.....	36
Latta, Julia Mae Nye.....	39
Lee, Ferdinand C., 10, 47, 51, 59, 63, 64, 66, 86, 113	
Lemkau, Paul Victor.....	19, 111
Lemmer, Richard Allen.....	33
Lenhard, Raymond E.....	15, 52, 60, 64, 115
Leopold, Eugene J.....	16, 49, 59, 93
Levin, H. E.....	25, 59, 94
Levin, Max.....	26, 57, 95
Levine, Milton Dmitri.....	36
Lewis, Evan Larson.....	36
Lewis, John Llewellyn, Jr.....	33
Lewis, Lloyd G.....	13, 51, 60, 64, 115
Lewis, Sophie Madler.....	33
Lewisohn, Marjorie Greta.....	33
Lidz, Ruth.....	20, 53, 111
Lidz, Theodore.....	20, 53, 111
Light, Jacob.....	22, 53, 62, 106
Linden, Harry.....	60
Lindley, Lucius R.....	55
Lippitt, Theodora Finney.....	33
Little, Luther E.....	66
Lisensky, E. T.....	65
Livingston, Samuel.....	22, 54, 62, 106
Loch, Mary Hyde Robbins.....	27, 94
Loch, Walter E.....	24, 52, 60, 64, 115
Lockwood, Richard Allen.....	42
Logan, Frank Hicks.....	39
Long, J. Herman.....	18, 52, 60, 63, 89
Long, Perrin H.....	8, 45, 47, 48, 49, 110
Long, Wilmer Newton, Jr.....	55
Longcope, Warfield T., 7, 45, 47, 48, 49, 56, 92	
Longcope, Mrs. Warfield T.....	129
Longmire, William P., Jr.....	23, 51, 114
Lowman, M. E.....	23, 56, 94
Lown, Bernard.....	36
Luckett, Alfred Edgar.....	36
Lutscher, John A., Jr.....	21, 59, 93
Lyford, John III.....	24, 52, 115
Macaulay, P. Stewart.....	6

	PAGE
MacCallum, William George.....	8
MacCarthy, John Donald, Jr.....	39
Macht, Martin Benzyl.....	36
Mackenzie, Thayer Mills.....	42
MacLean, Angus L.....	15, 52, 61, 64, 102
MacMurray, Frank Goodnow.....	55
Magnuson, Harold Joseph.....	24, 94
Major, Ralph H.....	46
Makover, Henry Benedict.....	25, 56, 94
Manahan, Constantino P.....	21, 53, 62, 100
Mann, George V.....	36
Marback, Heitor.....	31
Marburg, F. Grainger.....	5
Marburg, Theodore.....	5
Marine, David Nuttle.....	42
Margules, Geraldine May.....	39
Marshall, Berry Carroll.....	17, 111
Marshall, E. Kennerly, Jr., 7, 45, 47, 48, 106	
Marshall, Louise Margaret.....	43
Marshall, Strother Barton.....	42
Martin, James Sloane.....	39
Martin, Lay.....	12, 49, 57, 92
Martziuff, Karl H.....	46
Mattern, Johannes.....	6
Matthews, Clyde V.....	52, 61
Matthews, Hugh A.....	55
Mattman, Paul.....	64
Maumenee, Alfred E., Jr.....	16, 52, 61, 102
May, Stephen Graham.....	39
Mays, Howard B.....	66
McAdams, George Brockenbrough.....	36
McAllister, William Barris.....	26, 104
McCarthy, Charlotte.....	18, 50, 56, 93
McCleary, Robert Altwig.....	42
McClure, Roy D.....	46
McClure, Roy Donaldson, Jr.....	36
McCulloch, Hugh.....	46
McDonald, John M.....	27, 110
McDonald, Richard Hobert.....	41
McDonald, Rosemary.....	41
McEvoy, Charles Dillon, Jr.....	33
McEwen, Hilda.....	59
McGee, John.....	83
McGee, Marjorie LaMont.....	33
McGill, Caroline.....	46
McGrail, Vincent J.....	61
McGrath, John.....	54
McKechnie, Franklin Bowman.....	36
McKusick, Victor Almon.....	39
McLanahan, Samuel, Jr., 15, 51, 59, 63, 66, 114	
McLean, Edward Norris.....	41
McLean, Ross L.....	50
McMillan, William.....	5
McMillin, P. J.....	64
McNally, Hugh B.....	67
McPherson, Samuel D., Jr.....	55
McQueen-Williams, Morvyth.....	24, 51, 114
McSweeney, John Edmund James.....	42
McVay, James Robert, Jr.....	33
Meacham, Gordon Campbell.....	36
Meek, Edward Colton, Jr.....	34
Mellors, Robert Charles.....	34
Mermann, Alan Cameron.....	42
Merrill, George.....	22, 57, 94
Merrell, Margaret.....	30, 110
Messier, Paul E.....	20, 52, 102
Meyer, Adolph.....	8, 53
Meyer, Mrs. Adolph.....	129
Michael, John D.....	61
Michell, Leon George, II.....	34
Michelson, Rudolph A.....	23, 57, 93
Miklinski, Boleslaw W.....	66
Milan, Edward F.....	50

	PAGE		PAGE
Miller, Genevieve.....	27, 90	Paulson, Moses.....	13, 49, 57, 63, 92
Miller, John Harold.....	36	Payne, Russell C.....	59
Miller, Mitchell H.....	20, 57, 93	Peck, Helen Anita.....	34
Miller, Ruth A.....	16, 86	Peery, C. Eugene.....	64
Miller, Sydney Robotham.....	11, 49, 92	Pels, Isaac R.....	12, 50, 58, 66, 95
Minnor, William Robert, Jr.....	34	Penick, Rawley M.....	46
Mitchener, James Samuel, Jr.....	42	Penton, Robert Simeon Beauregard.....	34
Mohr, Charles F.....	15, 50, 58, 93	Perkins, Marie E.....	25, 108
Moise, Theodore S.....	46	Perkins, Walter F.....	5
Mones, Marvin.....	42	Perrin, Thomas S., Jr.....	55
Montgomery, Daniel Cameron, Jr.....	36	Perry, Henry B.....	65
Moore, Horace Greeley, Jr.....	36	Persky, Lester.....	34
Moore, James I.....	20, 52, 61, 102	Peterson, Glenn L.....	65
Moore, Joseph Earle.....	11, 47, 49, 57, 92	Phair, John Joseph.....	15, 47, 110
Morris, John Thomas, Jr.....	37	Phillippi, George Mc.....	64
Morrison, James U., Jr.....	55	Pickrell, Kenneth.....	66
Morrow, Andrew Glenn.....	39	Pierpont, Ross Z.....	65
Moses, Bessie L.....	18, 53, 62, 100	Pierson, J. William.....	10, 47, 51, 64, 113
Mosiman, Roscoe S.....	55	Piven, Leonard E.....	66
Moore, Kirk.....	34	Pleasants, J. Hall.....	5
Moulton, George Allen, Jr.....	39	Pleasants, Mrs. J. Hall.....	129
Mount, Charles L., Jr.....	50	Polvogt, LeRoy M.....	10, 47, 52, 60, 115
Mowry, Robert Wilbur.....	39	Pope, Russell Horton.....	37
Muller, William H., Jr.....	55	Powers, Grover F.....	46
Mulligan, E. James.....	15, 52, 60, 115	Pratt, John Lee.....	5
Muncie, Wendell S.....	10, 47, 53, 63, 111	Pratt, Loring W.....	55
Murphy, Brian.....	29, 54, 104	Pratt, Philip Chase.....	34
Murphy, George E.....	29, 54, 104	Preis, Kyrle.....	52, 61
Murphy, James B.....	46	Presti, Joseph C.....	55
Murphy, James Slater.....	37	Price, Lucille.....	28, 55, 111
Murray, John G., Jr.....	16, 53, 100	Price, Myron I.....	61
Murray, William A.....	58	Primakoff, H. William.....	25, 94
Myles, J. Richard.....	55	Proctor, Donald F.....	16, 52, 60, 66, 115
		Pyott, James E.....	61
Nachlas, I. William.....	12, 52, 60, 115		
Najjar, Victor.....	20, 53, 62, 106	Ragan, James Jackson.....	30, 114
Needle, N. E.....	26, 56, 94	Ralston, Richard Marion.....	34
Neill, William, Jr.....	19, 114	Randall, Peter.....	39
Nelson, John M., Jr.....	5	Randolph, M. Elliott.....	14, 52, 61, 102
Nelson, Nels A.....	58	Rangle, Raymond V.....	65
Nelson, Russell A.....	15, 93	Ransom, John E.....	49, 56
Nelson, S. Page.....	5	Rast, Charles Lewis, Jr.....	42
Newman, Elliot V.....	23, 50, 94	Rathbun, Howard Kemp.....	21, 93
Newman, Harold Hastings, Jr.....	37	Ravitch, Marcus M.....	21, 114
Nichols, Firmadeg King.....	18, 60, 89	Rawson, Freeman Leigh, Jr.....	89
Nimmons, Rufus Kay, Jr.....	37	Read, Frances E. M.....	23, 53, 62, 106
Novak, Emil.....	12, 89	Redfearn, Joseph William Thorpe.....	34
Noyes, Robert Wallace.....	55	Reese, Fred M.....	18, 52, 61, 64, 102
Nyman, Edith.....	54	Reese, J. Morris.....	67
		Régnier, Edmé.....	34
O'Donovan, Charles, Jr.....	18, 54, 62, 106	Reid, Horace W.....	46
O'Dunne, Eugene.....	29, 92	Reid, Roger D.....	19, 88
Oppenheimer, E. H.....	14, 54, 104	Reifschneider, Charles A.....	67
O'Rourke, Thomas R.....	67	Reiter, Robert A. P.....	18, 56, 93
Ortega, Luis.....	16, 57, 63, 66, 95	Reuling, Louis.....	27, 114
Osborn, John Jay.....	55	Reynolds, Frank W.....	58
Ostro, Marcus.....	19, 51, 114	Rice, Katherine K.....	27, 55, 111
Otenasek, Francis Joseph.....	22, 51, 114	Rich, Arnold R.....	9, 47, 54, 104
Owens, Richard R.....	23, 57, 94	Richards, Esther L.....	9, 47, 53, 63, 65, 111
Owens, William C.....	27, 52, 102	Richardson, Edward H.....	10, 47, 51, 89
Owings, Frances.....	54	Richter, Curt P.....	10, 47, 111
Owings, James C.....	15, 51, 59, 66, 114	Richter, Goetz, Wilfred.....	42
		Ridges, Alfred J.....	46
Padgett, Paul.....	14, 50, 58, 93	Rienhoff, William F., Jr.....	10, 47, 50, 59, 86, 113
Padgett, Vernon Morse.....	34	Rizzoli, Hugo Victor.....	27, 51, 114
Palmer, Charles B.....	46	Roberts, Dean W.....	24, 62, 106
Palmer, Gaines Kenneth.....	39	Roberts, W. Frank.....	5
Paradise, Jack Leon.....	42	Robinson, Aaron.....	17, 61, 102
Park, Edwards A.....	7, 45, 47, 48, 53, 56, 106	Robinson, G. Canby.....	29, 49, 94, 110
Parker, Robert Tarbert.....	34	Robinson, Harry M.....	16, 57, 93
Parks, Alan Guyatt.....	39	Robinson, Harry M., Jr.....	26, 58, 94
Parsons, John W.....	18, 50, 58, 66, 93	Robinson, Howard Thomas, Jr.....	34
Paul, J. Gilman D'Arcy.....	5	Robinson, Lucille Beadenkopf.....	27, 88
Paulin, James E.....	46	Robnett, Dudley Anderson, Jr.....	42

	PAGE		PAGE
Rocha, Marcel.....	37	Smith, Grace.....	54
Rogers, Clarence J.....	61	Smith, Harry B.....	58
Romero-Suarez, Lydia.....	65	Smith, Howard C.....	19, 51, 115
Rose, Jerzy Edwin.....	14, 111	Smith, Margaret Hamilton Donald.....	23, 106
Rosenbluth, Paul Richard.....	42	Smith, Milton C.....	55
Rosenfeld, Morris.....	14, 107	Smith, Olive C.....	63
Rosenthal, Gilbert.....	54	Smith, Robert Henry.....	40
Rosenthal, Lessing.....	6	Smith, William Kenneth.....	64
Rosenzweig, Leonard Francis.....	39	Smith, Winford H.....	5, 7, 45, 48, 49
Roth, Russell B.....	25, 51, 115	Smyth, Lawrence G.....	61
Rothholz, Alma S.....	54	Snell, Albert, Jr.....	24, 52, 102
Rotondo-Grimaldi, Humberto.....	31, 63	Snider, Ray S.....	21, 109
Rotor, Arturo B.....	59	Snip, Russell T.....	55
Rowland, William M.....	19, 52, 61, 102	Snyder, Charles David.....	8
Runyan, John William, Jr.....	42	Sosman, John Leland.....	40
Russell, T. Edgie.....	65	Sosman, Merrill C.....	46
Russell, Edward Kinzel.....	34	Spear, Paul William.....	26, 58, 94
Rutherford, Emily T.....	49	Speed, William George, III.....	55
Rutledge, Benjamin H.,		Spence, George David.....	87
17, 49, 54, 56, 61,	93	Spence, John M., Jr.....	18, 53, 58, 62, 100
Rysanek, William J., Jr.....	60	Spencer, Harrison Clark.....	37
		Spencer, Rowena.....	42
Sabine, Jean C.....	30, 90	Spencer, William Albert.....	40
Sabiston, David Coston, Jr.....	42	Spencer, William Gear, Jr.....	34
Sachs, Louis.....	17, 114	Spragins, Melchijah.....	34
Sanders, Howard Earl.....	34	Sprague, James M.....	23, 86
Sanford, Thomas Franklin, Jr.....	42	Sprunt, Katherine.....	37
Sauber, Irvin.....	26, 57, 94	Sprunt, Thomas P.....	12, 49, 54, 92
Savage, John E.....	67	Stafford, Edward S.....	14, 51, 59, 114
Schaffer, Alexander Jonas.....	13, 54, 62, 106	Stein, Harold Jacob.....	37
Schaub, Isabelle Gilbert.....	21, 88	Steinman, Harry.....	26, 94
Scherlis, Leonard.....	37, 57	Stephenson, Charles S.....	30, 110
Scherlis, Sidney.....	26, 94	Steptoe, Philip P., Jr.....	26, 53, 100
Schneider, Paul J.....	65	Stewart, George A.....	13, 51, 113
Scholz, Roy Otto.....	22, 52, 61, 102	Stick, Wesley deHaven.....	42
Schultz, Adolph Hans.....	9, 47, 86	Stickney, George.....	17, 60, 89
Schweyer, Eloise.....	54	Stieglitz, Edward J.....	66
Scott, Marriion Upshur.....	40	Stifler, Jean Rose.....	54, 62
Scott, Roger B.....	22, 52, 89	Stifler, William C., Jr.,	19, 54, 58, 62, 67, 106
Scott, Virgil.....	28, 58, 94	Stinson, Edward, Jr.....	19, 51, 60, 64, 115
Seabold, William M.....	67	Stokes, George Edward.....	42
Seidel, Henry Murray.....	40	Stone, Douglas.....	26, 59, 114
Seigman, Edwin L.....	64	Stone, Harvey B.....	9, 47, 50, 113
Seliger, Robert V.....	17, 53, 63, 111	Stowell, Averill.....	22, 109
Semmes, Raphael E.....	46	Straus, William L., Jr.....	11, 47, 86
Serra, Lawrence M.....	65	Streett, D. Corbin.....	17, 49, 56, 93
Settle, Wm. B.....	66	Streett, H. Baldwin.....	61, 64
Shackelford, J. Hinton.....	26, 61, 110	Streett, H. Hayward.....	52, 61, 64
Shackelford, Richard T.....	14, 51, 59, 63, 114	Streeter, George A.....	30, 57, 94
Shamberg, Ira.....	58	Streeter, Mary Raymond.....	6
Sharrer, Norman Eugene.....	42	Sullivan, Maurice.....	16, 50, 58, 64, 95
Shepard, Richard Hance.....	40	Supplee, James Franklin, III.....	34
Shumacker, Harris B., Jr.,		Sweeney, John Easter.....	40
15, 51, 59, 66, 114		Syllm, Ingeborg A.....	29, 62, 106
Shepherd, Robert Gordon.....	23, 107		
Sherman, Charles Daniel, Jr.....	87	Talbot, Samuel A.....	16, 102
Sherman, Jean Riebling.....	37	Tanner, Bernice.....	65
Shettles, Landrum Brewer.....	55	Tappan, Benjamin.....	54
Shiling, M. S.....	20, 56, 93	Taussig, Helen B.....	13, 53, 62, 106
Shipley, Arthur M.....	65	Taylor, John Clarence, Jr.....	37
Shock, Nathan W.....	66	Taylor, Luvia S.....	24, 53, 111
Shulman, Nahum Raphael.....	42	Taylor, Martha Jane.....	42
Siebens, Arthur Alexander.....	42	Taylor, Wesley A.....	6
Sigerist, Henry E.....	7, 45, 48, 90	Teitelbaum, Harry A.....	26, 57, 66, 89
Sikes, Ralph.....	58	TeLinde, Richard W.,	8, 47, 48, 51, 58, 63, 90
Simmons, James Stevens.....	30, 110	Temkin, Owsei.....	10, 93
Sisson, John H.....	55	Thomas, Caroline B.....	15, 50, 42
Slack, Harry R., Jr.....	11, 52, 115	Thomas, George Peter, IV.....	92
Slemmons, J. Morris.....	46	Thomas, Henry M., Jr.....	10, 47, 49, 56, 92
Slivinski, Alfred Francis.....	42	Thomas, Mrs. Henry M.....	129
Sloan, Herbert E., Jr.....	24, 51, 114	Thompson, Hardy E., Jr.....	65
Sloan, Louise Littitz.....	14, 102	Thompson, Ollie Hammond, Jr.....	40
Smith, Amaziah Parker.....	37	Tietze, Trude.....	27, 63, 111
Smith, Ernest G., Jr.....	55		
Smith, Frank R., Jr.....	18, 49, 57, 93		

	PAGE		PAGE
Tilghman, R. Carmichael,		Whitener, Donald Leonard.....	40
19, 50, 53, 56, 63,	93	Whitridge, John, Jr.....	19, 53, 100
Tillman, Richard N.....	22, 56, 63, 93	Whittlesey, Philip.....	34
Tobiason, Shirley Marion.....	43	Whittlesey, Robert Hargreaves.....	40
Torrance, Daniel James, Jr.....	46	Wichelhausen, Ruth.....	21
Toulson, W. Houston.....	66	Wick, Homer Chapin, Jr.....	37
Tower, Sarah S.....	12, 55, 86, 111	Widmont, Elinor.....	43
Trescher, Eloise Rodney.....	28, 59, 94	Wiggins, Milton Lamb.....	43
Trescher, John H.....	81, 50, 58, 59, 63, 93	Wilfson, Daniel.....	26, 57, 94
Trevett, Elizabeth Peabody.	24, 54, 62, 106	Wilgis, Herbert Elijah.....	25, 59, 114
Trevett, Gordon Ira.....	21, 57, 110	Wilkins, John Hubble.....	37
Trimble, I. Ridgeway,		Wilkins, Lawson.....	11, 47, 54, 62, 106
14, 51, 59, 63, 66, 114		Wilkins, Walter Jeter, Jr.....	34
Turner, Mary Ellis.....	22, 115	Williams, Huntington.....	30, 110
Turner, Thomas B.....	29, 57, 94	Williams, Palmer F. C.....	21, 50, 56, 93
Turtscher, Iva A.....	54	Williams, Robert W.....	5
Ulshafer, Chloe Bolgiano.....	34	Wilson, James Knox Van Arsdale.....	40
Ulshafer, Thomas Richard.....	34	Wilmer, John Grant.....	37
Valle, Eugenio.....	31	Wilson, Henry Beatty.....	43
VandeGrift, W. B.....	22, 54, 104	Wilson, Jesse Rodman, Jr.....	40
Van Wie, Jane.....	54	Wilson, Paul E.....	29, 54, 106
Veldhuis, Andrew Harold.....	43	Wilson, Robert Stringer.....	34
Verner, Hugh David.....	55	Winkenwerder, Walter L.,	
Vest, Cecil W.....	17, 51, 60, 89	13, 49, 56, 58, 93	
von Schulz, Augustine P.....	57	Winternitz, Jane.....	30, 94
Voorhees, William Delano, Jr.....	37	Winternitz, William Welch.....	37
Vosburgh, Gilbert Jay.....	27, 100	Witham, Abner Calhoun.....	37
Waghelstein, Julius M.....	66	Wolfe, William D.....	26, 58, 95
Wagner, Charles A.....	28, 114	Wolff, Thomas C.....	17, 49, 56, 63, 93
Wainwright, Charles W.....	13, 49, 56, 92	Wolman, Samuel.....	12, 49, 56, 92
Walsh, Frank B.....	10, 47, 52, 61, 66, 102	Wood, Austin H.....	14, 51, 60, 115
Walz, Edward McColgan.....	14, 52, 115	Woodruff, J. Donald.....	21, 52, 60, 89
Ward, Arthur T.....	23, 52, 115	Woods, Alan C.,	
Ward, Grant E.....	14, 51, 59, 60, 114	7, 45, 46, 47, 48, 52, 56, 102	
Waring, Antonio J., Jr.....	24, 54, 106	Woods, Alan C., Jr.....	55
Waring, H. Glenn.....	66	Woodward, Elizabeth.....	65
Warren, John H., Jr.....	65	Woody, Edgar, Jr.....	34
Waskowitz, Charlotte H.....	28, 111	Woody, William H.....	49
Wasserman, Harry L.....	17, 49, 57, 93	Woolsey, Clinton Nathan.....	15, 108
Waters, Charles A.....	12, 51, 64, 113	Wuerschmidt, Marcus A.....	65
Watt, Charles Hansell, Jr.....	37	Wyatt, Claire Jackson, Jr.....	34
Watt, John, Jr.....	43	Wyatt, Norman Francis.....	40
Waugh, Richey Laughlin, Jr.....	40	Wynne, Herbert M.....	46
Webb, Watts Rankin.....	37	Yeager, Clark Harvey.....	30, 110
Weed, Lewis H.....	7, 45, 47, 48, 86	Yenger, George H.....	66
Weil, Marvin Lee.....	40	York, J. Arthur.....	60, 63
Weinberg, Edwin D.....	18, 52, 60, 64, 115	Young, Asa D.....	22, 51, 114
Weinberg, J. Arthur.....	20, 51, 59, 114	Young, Barbara.....	37
Weiner, Hyman.....	26, 58, 94	Young, Hugh H.....	8, 51
Welte, Marl F.....	57	Young, Irving.....	40
West, Philip M., Jr.....	55	Young, James Henry.....	37
Weston, Robert.....	27, 64, 94	Young, Joseph Marvin.....	37
Wharton, Lawrence R.....	3, 51, 60, 89	Young, Latimer G.....	55
Wharton, Lawrence Richardson, Jr.....	43	Young, Robert William.....	35
White, Ess Albert, Jr.....	37	Young, Theodore Everette.....	40
White, Francis.....	5	Zarling, V. Richard.....	65
White, Roy B.....	5	Zheutlin, Bertram.....	35
Whitehead, Hugh G.....	19, 50, 56, 93	Zheutlin, Lionel Judah.....	43
Whitehorn, John C.,		Zierler, Joseph N.....	25, 57, 94
8, 45, 47, 48, 53, 56, 111		Zinkham, William Howard.....	43
Whitehouse, Samuel.....	17, 50, 56, 93	Zoeckler, Frances Louise.....	37

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Twenty-Seventh Academic Year

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1944

August 7	Monday—Summer quarter begins.
September 27-29	Registration of students for regular session.
October 2	Monday—First quarter of regular session begins.
November 27	Monday—Second quarter begins.
November 30	Thursday—Thanksgiving Day (classes suspended).
December 23	Saturday—Christmas recess begins (1 p. m.).

1945

January 2	Tuesday—Instruction resumed (9 a. m.).
February 5	Monday—Third quarter begins.
March 29	Thursday—Easter recess begins (5 p. m.).
April 2	Monday—Instruction resumed (9 a. m.).
April 4	Wednesday—Fourth quarter begins.
May 29	Tuesday—Fourth quarter ends.

QUARTERS

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Summer 1944, August 7 to September 30 (see page 23)

Regular session 1944-1945

First Quarter—October 2 to November 25  
Second Quarter—November 27 to January 30  
Third Quarter—February 5 to April 3  
Fourth Quarter—April 4 to May 29

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# CONTENTS

	PAGE
CALENDAR .....	cover
QUARTERS .....	cover
TRUSTEES OF THE JOHNS HOPKINS UNIVERSITY.....	4
OFFICERS OF ADMINISTRATION.....	4
FACULTY 1944-1945 .....	5
ADVISORY BOARD.....	9
EXECUTIVE COMMITTEE.....	9
COMMITTEE ON POLICY.....	9
COMMITTEE ON APPLICATIONS AND CURRICULUM.....	9
COMMITTEE ON THE EASTERN HEALTH DISTRICT.....	10
EDITORIAL BOARD AMERICAN JOURNAL OF HYGIENE.....	10
WELCH MEDICAL LIBRARY REPRESENTATIVES.....	10
STUDENTS 1943-1944:	
Candidates for the degree of Doctor of Public Health.....	11
" " " " " Master of Public Health.....	11
" " " " " Doctor of Science in Hygiene.....	12
" " " " " Master of Science in Hygiene.....	12
Special Students.....	11-13
Fellows Rockefeller Foundation, 1943-1944.....	11-13
Summary of Students.....	14
Geographical Distribution of Students.....	14
HISTORY OF THE UNIVERSITY.....	15
HISTORY OF SCHOOL OF HYGIENE AND PUBLIC HEALTH.....	17
REQUIREMENTS FOR ADMISSION AND GRADUATION.....	18
COURSES AND DEGREES:	
Master of Public Health.....	18
Doctor of Public Health.....	19
Master of Science in Hygiene.....	20
Doctor of Science in Hygiene.....	20
Special Opportunities for Graduate Training.....	21
English Orientation for Latin-American Students.....	23
Summer Session.....	23
Special Students.....	24
Schedule .....	42-43
GENERAL INFORMATION.....	25
Registration .....	25
Fees .....	25
Scholarships .....	25
Loan Fund.....	26
Medical Service for Students.....	26
Eastern Health District.....	10, 26
William H. Welch Medical Library.....	10, 27
Publications .....	27
De Lamar Lectures in Hygiene.....	28
Society of Hygiene.....	28
Cable Address.....	28
INSTRUCTION:	
Bacteriology .....	29
Biochemistry .....	30
Biostatistics .....	31
Epidemiology .....	33
Immunology .....	34
Industrial Hygiene.....	22, 36
Mental Hygiene .....	22, 34
Parasitology .....	37
Pathology .....	23
Physiological Hygiene.....	36
Public Health Administration.....	37
Sanitary Engineering .....	22, 39
Venereal Diseases .....	21, 40
SCHEDULE OF COURSES FOR THE SESSION OF 1944-1945.....	42, 43
DEGREES CONFERRED, 1944 .....	44
ALPHABETICAL INDEX OF NAMES.....	46

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[1935] \*\*

WILLIAM HENRY HOWELL, PH. D., M. D., SC. D., LL. D., *Director Emeritus and  
Professor Emeritus of Physiology*  
[1931; 1884]

---

### PROFESSORS

ALLEN WEIR FREEMAN, M. D., *Professor of Public Health Administration*  
[1923; 1921]

WILLIAM WALTER COET, PH. D., *Professor of Parasitology*  
[1925; 1919]

LOWELL JACOB REED, PH. D., SC. D., *Professor of Biostatistics and Dean*  
[1925; 1918]

KENNETH FULLER MAXCY, M. D., DR. P. H., *Professor of Epidemiology*  
[1937]

ABEL WOLMAN, DR. ENG., *Professor of Sanitary Engineering*  
[1937]

THOMAS BOURNE TURNER, M. D., *Professor of Bacteriology* †  
[1939; 1936]

ELMER VERNER MCCOLLUM, PH. D., SC. D., *Research Professor of Biochemistry*  
[1944; 1917]

---

### ADJUNCT PROFESSOR

JOSEPH EARLE MOORE, M. D., *Adjunct Professor of Public Health Administration in Charge of Venereal Diseases*  
[1942; 1919]

### ASSOCIATE PROFESSORS

GARLAND HOWARD BAILEY, M. D., DR. P. H., *Associate Professor of Immunology*  
[1926; 1925]

---

\* The names in the several groups are arranged in the order of appointment, and are corrected up to June 30, 1944.

\*\* A date in brackets indicates year of current appointment to present rank; a second date means year of original appointment, if differing from the former.

† On leave.

OLAF SELMER RASK, PH. D., *Associate Professor of Biochemistry*  
[1928; 1923]

CHARLES HOWE ELLER, M. D., DR. P. H., *Associate Professor of Public Health Administration*  
[1940; 1937]

HOWARD ATKINSON HOWE, M. D., *Associate Professor of Epidemiology*  
[1942; 1929]

MARGARET MERRELL, SC. D., *Associate Professor of Biostatistics*  
[1942; 1925]

GILBERT FRED OTTO, SC. D., *Associate Professor of Parasitology and Assistant Dean*  
[1942; 1927]

EDWIN GURNEY CLARK, M. D., DR. P. H., *Associate Professor of Venereal Diseases*  
[1943; 1940]

MARTIN FROBISHER, JR., SC. D., *Associate Professor of Bacteriology*  
[1943; 1925]

JOHN JOSEPH PHAIR, M. D., DR. P. H., *Associate Professor of Epidemiology*  
[1943; 1936]

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#### LECTURERS

DONALD RUSSELL HOOKER, M. D., *Lecturer in Physiology*  
[1926; 1906]

ROBERT HICKMAN RILEY, M. D., DR. P. H., *Lecturer in Public Health Administration*  
[1928]

HUNTINGTON WILLIAMS, M. D., DR. P. H., *Lecturer in Public Health Administration*  
[1932]

WILLIAM THURBER FALES, C. P. H., SC. D., *Lecturer in Biostatistics*  
[1936]

ARTHUR WILLIAM HEDRICH, C. P. H., SC. D., *Lecturer in Biostatistics*  
[1936; 1926]

WILLIAM HORACE FRANKLIN WARTHEN, M. D., M. P. H., *Lecturer in Public Health Administration*  
[1938; 1937]

WILLIAM JOSEPH FRENCH, M. D., *Lecturer in Public Health Administration*  
[1939]

HARRY EAGLE, M. D., *Lecturer in Venereal Diseases* †  
[1940; 1936]

---

† Assigned for duty at School of Hygiene and Public Health by U. S. Public Health Service.

- MIRIAM ESTHER BRAILEY, M. D., DR. P. H., *Lecturer in Epidemiology*  
[1941; 1932]
- JAMES HALL MASON KNOX, JR., *Lecturer Emeritus in Public Health Administration*  
[1942; 1902]
- MYRON EZRA WEGMAN, M. D., M. P. H., *Lecturer in Public Health Administration*  
[1943; 1939]
- JAMES M. MACKINTOSH, M. D., *Lecturer*  
[1943] \*
- M. ALEXANDER NOVEY, M. D., *Lecturer in Public Health Administration*  
[1943; 1936]
- 

## ASSOCIATES

- ANNA MEDORA BAETJER, SC. D., *Associate in Physiology*  
[1926; 1923]
- JULIA ERNESTINE BECKER, A. M., *Associate in Biochemistry*  
[1931; 1921]
- EDWIN LORENZO CROSBY, M. D., DR. P. H., *Associate in Biostatistics*  
[1938; 1936]
- GEORGE FRANKLIN BADGER, M. P. H., M. D., *Associate in Biostatistics* \*\*  
[1938]
- LOYD EUGENE ROZEBOOM, SC. D., *Associate in Parasitology* \*\*  
[1939]
- PAUL VICTOR LEMKAU, M. D., *Associate in Public Health Administration* \*\*  
[1940]
- ALFRED HOCKING FLETCHER, M. S., *Associate in Sanitary Engineering*  
[1940]
- FRUMA WOLFSON, SC. D., *Research Associate in Parasitology*  
[1941; 1937]
- MARCELINO PASCUA, M. D., *Associate in Biostatistics*  
[1941; 1939]
- DAVID BODIAN, M. D., *Associate in Epidemiology*  
[1942]
- NELS ALBIN NELSON, M. D., M. P. H., *Associate in Venereal Diseases*  
[1942]
- ISABEL M. MORGAN, PH. D., *Associate in Epidemiology*  
[1944]
- 

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\*\* On leave.



## INSTRUCTORS

CHARLES FRANKLIN MOHR, M. D., *Instructor in Venereal Diseases*  
[1941]

CORNELIUS ALFRED PERRY, SC. D., *Instructor in Bacteriology*  
[1942; 1930]

WINIFRED NEWBERRY, S. M., R. N., *Instructor in Public Health Administration*  
[1942]

VIRGINIA JOHN EVANS, SC. D., *Instructor in Biochemistry*  
[1943]

VIRGIL COLE SCOTT, M. D., *Instructor in Venereal Diseases*  
[1943]

HAROLD J. MAGNUSON, M. D., M. P. H., *Instructor in Venereal Diseases* †  
[1943]

## ASSISTANTS

ELIZABETH INGERSOLL PARSONS, SC. D., *Research Assistant in Biochemistry*  
[1940; 1936]

ELAINE L. UPDYKE, M. S., *Research Assistant in Bacteriology*  
[1943]

THOMAS FARMER, M. D., *Research Assistant in Epidemiology*  
[1943]

EVELYN ALLEN, A. B., *Assistant in Parasitology*  
[1944]

MARY C. CUMBERLAND, SC. D., *Research Assistant in Epidemiology*  
[1944]

EDITH M. DARROW, S. B., *Assistant in Parasitology*  
[1944]

FRANCES H. GICHNER, SC. D., *Research Assistant in Epidemiology*  
[1944]

CHARLOTTE M. ROOT, SC. M., *Research Assistant in Epidemiology*  
[1944]

## FELLOWS

HERBERT A. WENNER, *Fellow by Courtesy in Department of Epidemiology* \*

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† Assigned for duty at the School of Hygiene by the U. S. Public Health Service.

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EMILIO BUDNIK BORODA, B. S., M. D.	Santiago, Chile
GONZALO CÁRDENAS PORTILLA, M. D.	Quito, Ecuador
NUNZIO JOSEPH CARROZZO, B. S., M. D.*	Atlanta, Georgia
ORLANDO RODRIGUES DA COSTA, B. SC. E. LETT., M. D.	Monte-Alegre, Para, Brazil
RAFAEL DARRICARRERE TORBALAY, M. D.*	Santiago, Chile
HORACIO EYZAGUIRRE HUICI, B. S., M. D.	Recreo, Chile
MARTHA EVELYN FINNEY, C. P. H. N.*	Florence, Alabama
FRANCIS EUGENE GARTRELL, B. S., M. S.*	Paris, Tennessee
JAMES ANTHONY GILLET, M. R. C. S., L. R. C. P., D. T. M. & H.*	Belize, British Honduras
OPAL CAMERON HARTLINE, S. B., S. M., PH. D.	Ashley, Illinois
WILLIAM DERREL HAZLEHURST, A. B., M. D.*	Macon, Georgia
ALFONSO HERRERA, S. B., C. E.*	Santiago, Chile
ABRAHAM HORWITZ B., B. EN HUM., M. D.*	Santiago, Chile
CLARENCE KOOIKER, B. S., B. M., M. D.*	Bethesda, Maryland
JUAN LARA ZEPEDA, B. A., B. S., M. D.	Tegucigalpa, Honduras, C. A.
JOHN LUTHER LINCOLN, B. S., M. D.*	Bemus Point, New York
MILTON LÓPEZ HENRIQUEZ, M. D.*	Caracas, Venezuela
JESSIE ISABEL LOUCKS, R. N., B. A. SC. (Nursing)	Regina, Saskatchewan, Canada
ESPARTACO ORÁA DOMINGUEZ, M. D.*	Caracas, Venezuela
ENRIQUE PEREDA OVIEDO, M. D.*	Santiago, Chile
JOSÉ PERRONI B., B. EN HUM., M. D.	Santiago, Chile
JOHN DONALDSON PORTERFIELD III, B. S., M. D.*	Washington, D. C.
ROBERT TIPPETT POTTER, B. S., M. B., M. D.*	Oakland, California
ELLA PENDLETON TOMPKINS ROBESON, B. S., M. D.	Middletown, New York
HERNÁN SAN MARTIN, M. D.*	Curico, Chile

\* Rockefeller Foundation Fellow.

† On leave.

MILTON TERRIS, A. B., M. D.	New York City, N. Y.
JAMES CLAUDE THOMSON, B. S., M. S., M. A., PH. D.	Princeton, New Jersey
DANIEL URIGÜEN BRAVO, B. SC. E LETT., M. D.*	Guayaquil, Ecuador
JAIME VELARDE THOMÉ, M. D.	Tacubaya, D. F., Mexico
CARLTON H. WATERS, M. D.*	Medina, New York
JORGE ERNESTO ZEPEDA, B. SC. E LETT., PHARM. D., SC. M.	Tegucigalpa, Honduras, C. A.

(33)

## CANDIDATES FOR THE DEGREE OF DOCTOR OF SCIENCE IN HYGIENE

JUDITH ABARBANEL, S. B. Bacteriology	Tel Aviv, Palestine
MARY CATHERINE CUMBERLAND, A. B. Bacteriology	Englewood, N. J.
EDITH MARY DARROW, S. B. Parasitology	Bowie, Md.
GEOFFREY MARRON JEFFERY, A. B., A. M. Parasitology	Milford, Conn.
JAMES JOSEPH REGAN, A. B. Parasitology	Dubuque, Iowa
ROBERT CARLISLE RENDTORFF, A. B., S. M.† Parasitology	Pullman, Michigan
MYRON LEE SIMPSON, A. B. Parasitology	Cumberland, Md.
ELAINE LOUISE UPDYKE, S. B., S. M. Bacteriology	Woodcliff-on-Hudson, N. J.

(8)

## CANDIDATES FOR THE DEGREE OF MASTER OF SCIENCE IN HYGIENE

SUI-FONG CHEN, A. B., A. M. Parasitology	Rockville Center, N. Y.
ELIZABETH CONROY, S. B. Bacteriology	Lansing, Mich.
JANET OAKLEY SCHOONMAKER, A. B. Biochemistry	Poughkeepsie, N. Y.
RUTH GRAESER WITTNER, A. B. Filterable Viruses	Baltimore, Md.

(4)

## SPECIAL STUDENTS

MARTHA LIPSCOMB ADAMS, A. B.	Danville, Va.
MARIO ALESSANDRI, M. D.	Santiago, Chile
EVELYN ALLEN, A. B.	Baltimore, Md.
JUSTINO ALMIRÓN, DR. BIOCHEM. AND PHARM.	Asuncion, Paraguay
DAVID BEAULIEU, M. D., D. P. H.	St. Eustache, Quebec, Can.

\* Rockefeller Foundation Fellow.

† On leave.

ALFONSO BONILLA NAAR, M. D.  
 FELISA J. BRACKEN, S. B., A. M.  
 MARIE CAKRTOVA, M. D., M. P. H.  
 HERALD REA COX, A. B., SC. D.  
 ROBERT CREMIEUX, M. D.  
 OSCAR CELESTINO CROXATTO, M. D.  
 LESTER WIGGINS DAY, PH. B., M. D.  
 JORGE DIEZ CANSECO, B. S., B. M., M. D.  
 MARTHA CHURCHILL EATON, A. B.  
 VICENTE F. ESPINOLA, D. D. S.  
 PHILIP S. FRANCIS  
 MARCELO GALLARDO CÉSPEDES, S. B., S. M.  
 LUIS GÓMEZ LINCE, M. D.\*  
 ELIZABETH CLARK GOODWIN, A. B.  
 JEANNE GOSSELIN  
 RAFAEL INOCENCIO GUTIERREZ, A. B.  
 THEODOOR HIEMCKE, M. D.  
 FRANCIS JOSEPH JANUSZESKI, S. B., M. D.  
 LOUIS FRANK KLIMES, M. D.  
 LOUIS THEODORE LAVY, M. D.  
 MARIO LEON UGARTE, M. D.  
 FIRMINO DE OLIVEIRA LIMA, M. D.  
 EMILIO ABRAHAM LOPEZ VIDAL, M. D.  
 JOSÉ MARTÍNEZ ORDOÑEZ, S. B., M. D.  
  
 LUIS F. NAVARRO VIDAL, M. D.  
 F. REESE NEVIN, A. B., A. M., PH. D.  
 MARY ELLEN PATNO, S. B.  
 SIGMAR PIROSH, M. D.  
 KATHERINE ELIZABETH REED, A. B.  
 WILLIAM FRANKLIN REINDOLLAR, PH. G., S. B.  
     S. M., SC. D.  
 ERMA CARTER RICHARDSON, B. N.  
 DEAN WINN ROBERTS, A. B., M. D.  
 RIMMA SKLAREVSKI, S. B.  
 MANOEL ISNARD DE SOUZA TEIXEIRA, M. D.  
 EUGENE WEISS TORREY, M. D.  
 JOSÉ M. UGARTE, M. D.  
 RENÉ VALLE OSORIO, M. D.  
 GRACE A. WARD, S. B.  
 HERBERT ALLAN WENNER, S. B., M. D.  
 A. E. WOLFF, M. D.

Bogotá, Colombia  
 Baltimore, Md.  
 Prague, Bohemia  
 Suffern, N. Y.  
 Baltimore, Md.  
 Buenos Aires, Argentina  
 Baltimore, Md.  
 Lima, Peru  
 Berkeley, Calif.  
 Asuncion, Paraguay  
 Baltimore, Md.  
 Panama City, Panama  
 Quayaquil, Ecuador  
 Baltimore, Md.  
 Montreal, Quebec, Can.  
 Managua, Nicaragua  
 Paramaribo, Dutch Guiana  
 Baltimore, Md.  
 Baltimore, Md.  
 Baltimore, Md.  
 Lima, Peru  
 São Paulo, Brazil  
 Lima, Peru  
 San Pedro Sula,  
     Honduras, C. A.  
 Lima, Peru  
 Ithaca, N. Y.  
 Salda, Col.  
 Baltimore, Md.  
 Baltimore, Md.  
  
 Baltimore, Md.  
 Baltimore, Md.  
 Baltimore, Md.  
 Baltimore, Md.  
 Fortaleza Ceara, Brazil  
 Perry Point, Md.  
 Santiago, Chile  
 Santiago, Chile  
 Baltimore, Md.  
 Drums, Pa.  
 Paramaribo, Dutch Guiana  
 (45)

\* Rockefeller Foundation Fellow.

STUDENTS PRIMARILY REGISTERED IN THE SCHOOL OF MEDICINE  
TAKING SPECIAL COURSES

GUILLERMO GUILLÉN, M. D.	Sn. Jacinto, El Salvador, C.A.
ALEJANDRO RODRÍGUEZ DEFINO, M. D.	Caracas, Venezuela

(2)

STUDENT PRIMARILY REGISTERED IN THE FACULTY OF PHILOSOPHY  
TAKING SPECIAL COURSES

LEO A. SCHMID, A. B., A. M., S. M.	Sublimity, Ore.
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(1)

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SUMMARY

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Candidates for the Doctor of Public Health.....	4
Candidates for the Master of Public Health.....	33
Candidates for the Doctor of Science in Hygiene.....	8
Candidates for the Master of Science in Hygiene.....	4
Special Students .....	45
Students registered in the School of Medicine taking special courses....	2
Student registered in the Faculty of Philosophy taking special courses..	1
	<hr/> 97

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GEOGRAPHICAL DISTRIBUTION OF STUDENTS

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<i>United States</i>		<i>Foreign</i>	
Alabama .....	1	Argentina .....	1
Arkansas .....	1	Bohemia .....	1
California .....	2	Brazil .....	4
Colorado .....	1	British Honduras.....	1
Connecticut .....	1	British West Indies.....	1
District of Columbia .....	1	Canada .....	3
Georgia .....	2	Chile .....	12
Iowa .....	1	Colombia .....	1
Illinois .....	1	Dutch Guiana .....	2
Maryland .....	22	Ecuador .....	3
Michigan .....	2	El Salvador .....	1
New Jersey .....	3	Honduras .....	3
New York .....	8	Mexico .....	1
Pennsylvania .....	1	Nicaragua .....	1
Tennessee .....	1	Palestine .....	1
Virginia .....	1	Panama .....	1
	<hr/> 49	Paraguay .....	2
		Peru .....	4
		Venezuela .....	2
			<hr/> 45

Exclusive of students registered primarily in other schools of the University.

## HISTORY OF THE UNIVERSITY

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The Johns Hopkins University was founded by a merchant of Baltimore, Johns Hopkins (1795-1873) who bequeathed the greater part of his estate for the establishment of a university and a hospital. The University was incorporated in 1867, the Trustees organized in 1870 and the first courses of instruction were offered in October 1876. The work of the philosophical division of the University was begun in a small group of buildings on Howard Street where it continued until 1916 when the present site at Homewood was occupied. The Medical School was opened in 1893, in buildings adjacent to The Johns Hopkins Hospital. The School of Engineering, opened in 1914, forms part of the Homewood group. The School of Hygiene and Public Health was opened in 1918 in buildings on Howard Street but moved in 1925 to the present location near the Hospital.

The first President, inaugurated in February 1876, was Daniel Coit Gilman, who was followed upon his retirement in 1901 by Ira Remsen. Dr. Remsen resigned in 1912 and during a period of two years the duties of the presidential office were discharged by an Administrative Committee of the faculty, appointed by the Trustees. Dr. William H. Welch was the Chairman of the Committee. The third President was Frank Johnson Goodnow, who filled the office from 1914 until his resignation in 1929 when he was succeeded by Dr. Joseph S. Ames. Dr. Ames retired in 1935 and Dr. Isaiah Bowman was elected as the fifth President.

At the time of the organization of The Johns Hopkins University most of the institutions of higher education in this country were either colleges to which graduate schools had been added, or professional and technical schools. It was the declared intention of the trustees and president of The Johns Hopkins University to found an institution which would be characterized by academic freedom and mature scholarship, rather than by inflexible curricula designed to prepare students for a particular calling or to give them certain organized bodies of knowledge. While sharing with the traditional college the obligation of transmitting the intellectual heritage of the past, the University recognized the additional responsibility of expanding the bounds of knowledge through research.

The University community was to consist of a group of scholars, the professors being those of greater maturity whose presence would be both an inspiration and a practical help to the younger members composing the student body. In his inaugural address, Dr. Gilman declared "... while forms and methods vary, the freedom to investigate, the obligation to teach, and the careful bestowal of academic honors are always understood to be among the University functions. The pupils are supposed to be wise enough to select, and mature enough to follow the courses they pursue." Through the years, professional schools have been added, and since the beginning the undergraduate division of the Philosophical faculty has func-



tioned separately as a college. However, the general principles laid down at the founding have continued to be regarded as the essential characteristics of a University, and it has always been the endeavor of those to whom the academic affairs of the University were committed to render them effective in actual practice.

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## THE SCHOOL OF HYGIENE AND PUBLIC HEALTH

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The School of Hygiene and Public Health was established in 1916 under an endowment from the Rockefeller Foundation "for the advancement of knowledge and the training of investigators, teachers, officials and other workers" in the general field of hygiene and public health. The history of events leading up to establishment of the School is, in brief, as follows: In October, 1914, the General Education Board, recognizing the need of better facilities in this country for training and investigation in public health, called a conference of the leading authorities in this field to discuss the subject. At this conference, Dr. William H. Welch and Mr. Wickliffe Rose were requested to draw up a plan for an institute of public health and hygiene. Their report, outlining in essential features the plan which has been followed in the development of this School, was presented to the General Education Board in May, 1915. The Board then appointed a committee to determine where such an institution could be located most advantageously, and, acting upon the information gathered by this committee, the Rockefeller Foundation decided upon The Johns Hopkins University "largely by reason of the facilities, organization and ideals of its Medical School."

The offer of the Foundation to provide support for such a school was accepted by the Trustees of the University in June, 1916. At that time Dr. William H. Welch was appointed Director and Dr. William H. Howell was asked to assist in the work of organizing the institution, which was opened in October, 1918. Additional grants have been made since that time by the Rockefeller Foundation for the establishment, in 1932, of the Eastern Health District, organized as a field study and training area in cooperation with the City Health Department, and other agencies actively engaged in public health work.

At present the work of the School is organized under the following departments: Bacteriology, Biochemistry, Biostatistics, Epidemiology, Immunology, Parasitology, Physiology, Public Health Administration, Sanitary Engineering and Venereal Diseases, with provision also for instruction in Mental Hygiene and Industrial Hygiene. Facilities for field work are provided through cooperation with the State and City Departments of Health and various unofficial public health organizations, more especially through the Eastern Health District of the City Health Department, which comprises the area surrounding the School.

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## REQUIREMENTS FOR ADMISSION AND GRADUATION

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### GENERAL

The Advisory Board reserves the right to refuse admission to any student who is, in its judgment, not qualified to profit by work in the school, to limit the number of students admitted to any course, and to drop from the roll any student whose work it deems unsatisfactory for any reason. All applicants for admission will be assumed to have assented to these conditions.

#### I. Course leading to the degree of Master of Public Health.\*

This course is intended to meet the needs of students who desire to prepare themselves for careers in public health. While designed primarily for graduates in medicine, the course is appropriate for workers in other fields in public health who possess the necessary scientific background. Properly qualified public health engineers, statisticians and nurses may be admitted on the same terms as are physicians. It comprises required laboratory courses, lectures and field demonstrations in certain essential subjects, and supplementary courses which may be either diversified or concentrated in a special field. The class is limited to seventy students.

Admission—The following groups of students will be accepted in this course:

- a. Graduates of approved medical schools.
- b. Graduates in engineering, nursing, arts or sciences, with experience or previous training in the field of public health. Such students must furnish credentials of adequate training in physics, chemistry, biology and the basic medical sciences; or specialized training in some allied field.

Graduation—A full academic year in residence and the satisfactory completion of an approved schedule of studies, which must include the required courses (see general schedule, p. 43) in bacteriology, biostatistics, epidemiology, sanitary engineering and public health administration. These occupy approximately one-half of the student's time. The additional courses needed to complete a satisfactory schedule may be selected from any of the subjects offered in the school. Students desiring exemption from any of the required courses, on the basis of work done elsewhere, are required to present official credentials for the work offered or to pass satisfactory examinations. In special cases substitutions in the required courses are permitted by the Advisory Board.

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\* This degree replaces the Certificate in Public Health, which prior to 1939 was awarded for the satisfactory completion of this course.

## II. Course leading to the degree of Doctor of Public Health.

The purpose of this course is to add to the basic education, represented by a degree in medicine and the degree of Master of Public Health, a more intimate knowledge of some subject in the field of public health, with training in methods of investigation.

Admission—In addition to fulfillment of the formal requirements stated below, the applicant for this degree must be recommended by the head of the department in which he proposes to do his major work, as an acceptable candidate qualified to pursue advanced studies in the subject selected. Students not personally known will be accepted only provisionally as candidates for this degree, final acceptance being conditioned upon the character of the work done. Subject to these reservations, the following groups of students will be accepted as candidates:

- a. Graduates of approved medical schools who have completed the course leading to the degree of Master of Public Health or its equivalent.
- b. Students who fulfill the requirements as to a liberal education and who have satisfactorily completed three years of the course in an approved medical school, may be admitted to advanced standing which will permit them to complete the requirements for the degree (Dr. P. II.) in one year after graduation in medicine, provided they have arranged to include in their medical course a sufficient number of courses which may be credited toward the degree of Master of Public Health; provided, also, that they are prepared, on admission, to enter upon advanced work in a selected major subject. During their year of residence, such students, in addition to work in their major subjects, will be expected to take such of the courses leading to the degree of Master of Public Health as have not been absolved.

Students who contemplate applying for advanced standing under this arrangement are advised to communicate with the Dean of the School before entering upon the final year of their course in medicine.

Graduation—The course is arranged to occupy two academic years for those who enter without advanced credits. It includes the following specific requirements:

1. Completion of the course leading to the degree of Master of Public Health or an equivalent.
2. An additional full academic year in residence, devoted to advanced work in one subject or a group of related subjects under the direction of the head of a department specified by the candidate.
3. The preparation of a thesis, acceptable to the Advisory Board, presenting an individual study of some subject in public health or hygiene.

4. Credentials for at least three months of practical work in a public health organization approved by the Advisory Board.

### III. Courses leading to the degree of Master of Science in Hygiene.

These courses are designed for students who wish to prepare themselves for teaching or for work of a special character in some branch of hygiene. No set schedule is followed. Each candidate must arrange his courses in consultation with the head of the department in which his principal work is to be done, in accordance with the specific regulations given below. The combination of courses selected must be approved by the Advisory Board.

Admission—To be accepted as a candidate the following requirements must be fulfilled:

- a. A degree in arts or science, or in medicine, from an approved school.\*
- b. Certificates of the completion of adequate courses in physics, chemistry and biology.

Graduation—The following requirements must be absolved:

1. Completion of two academic years of graduate work devoted to the general field in which the student selects his principal subject, of which at least one year must be spent in residence.
2. In addition to the principal subject, one or more subordinate subjects must be selected. The required work in each of the subordinate subjects shall be the completion of at least a full quarterly course or its equivalent.
3. Presentation of a satisfactory thesis in the principal subject.
4. A final written examination in the principal subject.

### IV. Courses leading to the degree of Doctor of Science in Hygiene.

The underlying object in the arrangement of these courses is to train specialists in the various subjects represented in the organization of the School, and to afford an opportunity for those not graduated in medicine to pursue advanced studies in hygiene. The candidate is expected to absolve certain courses of a basic character, but for the most part his time is devoted to advanced work in some one department. This work must include a special investigation of some problem the results of which are to be presented in the form of a dissertation.

Admission—For provisional acceptance as a candidate for this degree the following requirements must be fulfilled:

- a. A degree in arts or science, or in medicine, with a reading knowledge of French and German.\*

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\* In exceptional circumstances, students without a college degree may, by special action of the Advisory Board, be accepted as candidates for the degree of Master of Science, or Doctor of Science, provided they furnish satisfactory evidence of preparation fully equivalent to that usually represented by an academic degree, and of unusual accomplishment.

- b. Certificates of the satisfactory completion of adequate courses in physics, chemistry, and biology.
- c. Certificates of the satisfactory completion of adequate courses in anatomy (including histology), physiology, and pathology.
- d. In exceptional cases, on the recommendation of the head of a department, a candidate may be accepted who offers in place of (c) satisfactory evidence of special training of an advanced character in subjects fundamental to his main field of work.

Final acceptance—Not more than one year after entrance to the course the candidate will be required to pass an oral examination before a committee of the faculty. Final acceptance as a candidate for the degree will be conditioned upon favorable recommendation by this committee.

Graduation—The following requirements must be absolved before the candidate may be presented for the degree:

1. Completion of three academic years of graduate work devoted to the general field in which the student selects his principal subject, of which at least one year must be spent in residence.
2. Completion of a satisfactory research in the principal subject, and its presentation in the form of a dissertation.
3. Final written examinations in the principal and two subordinate subjects.
4. Final oral examination of the candidate before a committee of the faculty.

## V. Special Opportunities for Graduate Training.

### VENEREAL DISEASES

Through a cooperative arrangement with The Johns Hopkins Medical School and The Johns Hopkins Hospital, facilities have been developed for postgraduate work in syphilis and the other venereal diseases. This course of study is designed primarily for physicians interested in the public health aspects of the subject. Candidates for either the M. P. H. or the Dr. P. H. degree may elect venereal diseases as a major field of interest, but not more than 16 such students will be accepted in any one year. Students taking this special work must spend 11 months in residence, the additional time preferably being spent during the summer months preceding the academic year. (See Venereal Diseases 8.)

Students in this special group who are candidates for the M. P. H. degree devote approximately half-time during the academic year to certain required courses which are regarded as important in the basic training of a public health officer. The remainder of the time is available for work

in syphilis and related subjects. Adequate preparation in the clinical aspects of the venereal diseases is regarded as an important feature of this special training, and to that end the student devotes a considerable portion of his time to the study of patients in the clinics of The Johns Hopkins Hospital. With this work as a basis, additional courses are offered in the serological, epidemiological and administrative aspects of the venereal diseases, with special emphasis on syphilis. See pp. 40, 41.

#### MENTAL HYGIENE

This graduate course is designed to prepare the student for extramural Mental Hygiene work as a member of the health department of a state, city, or county. Candidates for the Master of Public Health degree specializing in this field should spend 11 months in training. Such a student is required to take the basic courses in Public Health during the academic year, these courses occupying about half of his time. The time remaining in the academic year and the summer months following are spent in clinical work in child psychiatry and mental hygiene, including work in allied fields. Prerequisites for the course include a medical degree and satisfactory training and experience in adult psychiatry. See p. 34.

#### INDUSTRIAL HYGIENE

Opportunity is offered in the School for specialized training in the field of industrial hygiene and occupational health. The courses, which consist of lectures, conferences, laboratory work, and field trips, cover the physiological, medical, administrative and other practical phases of the subject. Advanced field and clinical work is arranged as available. Physicians, engineers, and others who are candidates for the M. P. H., Dr. P. H. or Sc. D. degree may spend their elective hours in this field. If space permits, a limited number of qualified persons who are not candidates for degrees may be admitted to these courses. See pp. 36, 37.

#### SANITARY ENGINEERING

Sanitary engineers are admitted either as candidates for the M. P. H. degree or as special students. Effort is made to provide the student with training in not only the technical engineering subjects, but in public health subjects necessary to meet his specific needs. Accordingly, with rare exceptions the student takes the same required courses as physicians, which occupy about half of his time. Additional courses needed to complete a balanced educational background in sanitary engineering training may be selected from other subjects offered in the School, or with approval of the Dean, from subjects offered in the School of Engineering. See p. 39.

## ENGLISH ORIENTATION FOR LATIN-AMERICAN STUDENTS

Many persons to whom English is a foreign language may have acquired a reading and speaking knowledge of this language without having acquired the custom of depending on it as the principal medium of communication. Such persons perforce require a period of orientation upon entering a North American University. For such students coming from Latin American countries the School has organized a special two-months Course in the summer quarter, just preceding the regular session, to facilitate this adjustment. The course will consist of instruction in English grammar and pronunciation, English usage, and discussions by Spanish-English speaking instructors of lectures delivered in English on various phases of Public Health. The seminar discussions in English usage and Spanish-English orientation will be directed by Dr. Marcelino Pascua. It must be emphasized that this course cannot be considered as an adequate substitute for a previous knowledge of English, and is recommended only for those Spanish (or Portuguese) speaking students who already have some knowledge of English. This course will run from August 7 to September 30, 1944; tuition will be the same as that for any quarter of the regular session.

## PATHOLOGY

Since most of the Sc. D. candidates have not had pathology previous to admission, the School has arranged for Dr. A. R. Rich, Associate Professor of Pathology, School of Medicine, The Johns Hopkins University, to offer a suitable course. This course covers the essential principles of pathology and their application to the structural and functional disturbances encountered in the commoner human diseases. On the morphological side, especial attention is devoted to the histological alterations in disease, and this study is supplemented by demonstrations of the gross lesions in the conditions under consideration. Each student is provided with a comprehensive loan collection of slides.

The hours are 10 to 5 on Tuesdays and Thursdays, with Saturday mornings when necessary. Preliminary work in histology and physiology is required.

This course is not part of the regular curriculum, but whenever there is a sufficient number of students to form a class, an attempt will be made to provide the course in either the first or fourth quarter, at a charge of \$50 per student. [Not to be offered in 1944-45.]

## VI. Summer Session.

This School does not offer courses of the regular curriculum during the summer. However, two specialized types of programs are available, as follows:

- a. Organized programs are available in the summer to supplement the work of the regular school year in certain courses of study such as



Venereal Diseases, Mental Hygiene, and certain of the laboratory specialties. Such programs are restricted to students in residence during the regular session and may not be taken as independent summer courses.

- b. A special two-months course in English Orientation for Latin-American students is offered in the summer quarter just preceding the regular session (see p. 23).

## VII. Special Students.

Public health officers and other qualified persons who may wish to pursue one or more courses without applying for a degree, may be admitted as special students when space is available.

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## GENERAL INFORMATION

### REGISTRATION

All students upon entering must report at the office of the Dean of the School for registration and payment of fees.

Since instruction is arranged on a quarterly basis, it is possible for special students or candidates for degrees to enter the School at the beginning of any quarter, and to graduate at the end of any quarter. Formal bestowal of degrees takes place in June.

### FEES

The charge for tuition for the regular session is \$400 per annum, payable at the office of the School in four instalments, one at the beginning of each quarter.

In the case of special students, not registered for full time work, the following fee schedule will hold for individual courses:

For any course not in excess of three hours per week \$10.00.

For any course totaling four to six hours per week \$25.00.

For any course totaling seven to twelve hours per week \$50.00.

For any course totaling more than twelve hours per week \$75.00.

The charge for special courses will be arranged on application.

Calculating machines are rented to students at the rate of \$2.50 for each quarter, microscopes \$2.50, mechanical stages \$.50 and camera lucidas \$.50 for each quarter.

For special examinations in connection with any of the courses a charge of \$5.00 will be made.

In certain courses charges are made for laboratory directions and for breakage and special supplies.

Fees for the courses taken in any quarter must be paid at the time of registration. Any student failing to register and pay the necessary fees will not be allowed to continue in any course after the end of the first week.

## SCHOLARSHIPS AND LOAN FUND

### SCHOOL OF HYGIENE SCHOLARSHIPS

Twelve scholarships carrying free tuition may be awarded annually by the President of the University upon the recommendation of the Faculty. The scholarships are granted for one year, but may be renewed for a second year. Applications for these scholarships will be acted upon in April of each session, and candidates should apply to the Dean of the School before April 1st.

### KELLOGG SCHOLARSHIPS

The W. K. Kellogg Foundation has provided funds for the support of a number of scholarships to be awarded by the President of the University upon the recommendation of the Faculty. These scholarships range from \$400.00 (sufficient to cover tuition) to a maximum of \$800.00 per year. Applications should be made to the Dean of the School.

### KELLOGG LOAN FUND

The W. K. Kellogg Foundation has provided the money to establish a student loan fund to be administered by the Executive Committee of the School (the President of the University and the Dean of the School). Deserving students may borrow from this fund to supplement other resources. No interest will be charged while the recipient is a student in this School but interest at the rate of two per cent per annum will be charged from the date of graduation or withdrawal from the School; interest payments will be added to the loan fund. Applications for loans should be made to the Dean of the School.

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### MEDICAL SERVICE FOR STUDENTS

NATHAN B. HERMAN, M. D., Physician in Charge  
ABRAHAM GENECIN, M. D., Assistant Physician

By arrangement with the School of Medicine of the University a common medical service is provided for students in both schools, under the direction of Dr. Nathan B. Herman of the medical staff of The Johns Hopkins Hospital. The office is located at Room 502, Halstead Building, and the telephone is Wolfe 5500, Extension 97. There will be a secretary in attendance from 9.00 to 5.00 daily and from 9.00 to 1.00 on Saturday. Students are urged to come to the office for consultation between 11.30 a. m. and 1 p. m. except in the case of an emergency. In case of necessity, students who live within a short distance of the hospital will be seen at their homes by Dr. Genecin; requests should be telephoned to Dr. Genecin (Wolfe 5500). Students who live at a greater distance from the hospital will be seen by Dr. Herman; such requests should be telephoned either to Dr. Herman's secretary, or to his office (Saratoga 3750). After 5.30 p. m. requests for Dr. Herman should be telephoned to his residence (Tuxedo 1222).

### EASTERN HEALTH DISTRICT

C. HOWE ELLER, M. D., Dr. P. H., Associate Professor of Public Health Administration; District Health Officer.  
WINIFRED NEWBERRY, S. M., Instructor in Public Health Administration.

A generous grant from the International Health Division of the Rockefeller

efeller Foundation made possible the establishment, in 1932, of the Eastern Health District, a special unit of the Baltimore City Health Department. This district now serves a population of about 108,000 in the area immediately surrounding the School of Hygiene and Public Health. The district organization, under the immediate direction of the district health officer, includes personnel assigned from the City Health Department, and is responsible, within the district, for the work of this agency. The staff of the district is in active collaboration with various departments of the School of Hygiene and Public Health in field investigations and also comes into close relation to The Johns Hopkins and Sinai Hospitals through their outpatient services.

The offices of the district are located at 1921-1929 East Monument Street, within a block of the School of Hygiene and Public Health. Students are thus afforded the opportunity to become familiar with, and to some extent to participate in, the actual conduct of quite diversified public health work, both administrative and investigative.

#### THE WILLIAM H. WELCH MEDICAL LIBRARY

Through the generosity of the General Education Board and gifts from a friend of The Johns Hopkins University, the William H. Welch Medical Library was presented to the University during the session of 1927-1928, to serve the needs of The Johns Hopkins Hospital, School of Medicine, and School of Hygiene and Public Health. The Library was completed in December 1928 and occupies a plot of land on the grounds of the School of Medicine, opposite the School of Hygiene and Public Health. In this Library are housed the collections of books and periodicals from the Hospital about 40,000 in number, from the School of Medicine about 26,000, and from the School of Hygiene and Public Health about 11,000, a total of 77,000 volumes. In addition there are a considerable number of special collections, presented to the University and Hospital from time to time during the past few years. A valuable collection of books dealing with the history of medicine as well as with the history of hygiene and public health, about 20,000 in number, has been assembled, and has been placed on the third floor of the Library in which is located the Institute of the History of Medicine. The Library receives currently nearly 600 periodicals covering the fields of medicine, hygiene and public health. The books and periodicals now total about 140,000.

The Library is open for readers from 9 a. m. until 10 p. m. Monday through Friday, and from 9 a. m. until 4 p. m. on Saturday, and its facilities are available for the faculty and students of the School of Hygiene and Public Health.

#### PUBLICATIONS

The annual circular and announcement is issued as the June number of *The Johns Hopkins University Circular*.

The *American Journal of Hygiene*, supported by an appropriation from

the De Lamar bequest, is published under the auspices of the School of Hygiene and Public Health. It is conducted by an Editorial Board appointed by the Advisory Board of the School. Two volumes, each consisting of three numbers, are issued per year. The journal is now in its thirty-ninth volume.

In Volumes 17 to 28, one number of each volume was issued as an Epidemiological Number, containing material especially pertaining to epidemiology and demography. In Volumes 29 to 34, this plan was modified and extended so that the journal issued, both separately and bound together, on each publication date, four different sections, as follows: Section A, Epidemiology, Biostatistics, and General; Section B, Bacteriology, Immunology, and Viruses; Section C, Protozoology and Malariology; and Section D, Helminthology. With Volume 35 the journal reverted to its original form with no separation into sections.

From time to time the journal has also issued monographs on appropriate subjects as separate publications uniform with the style of the journal. Beginning with Monograph No. 13 (1939) these have appeared in the form of cloth bound books, 6 x 9 inches, with gold title and seal. In all seventeen monographs have appeared.

### THE DE LAMAR LECTURES IN HYGIENE

A series of popular lectures in personal and public hygiene is arranged each session. The object of these lectures is to bring before the public the general facts and points of view of modern hygiene, with the hope that in this way the School may serve as a center for the distribution of useful knowledge in all matters pertaining to sanitation and preventive medicine. These lectures are supported from the fund bequeathed to the Medical School by Joseph R. De Lamar, in accordance with the wish expressed in his will "to give to the people of the United States generally the benefits of increased knowledge concerning the prevention of sickness and disease and also concerning the conservation of health by proper food and diet."

### SOCIETY OF HYGIENE

This officially sponsored society was organized in 1919 in order to present the aims and results of current investigations in the several departments of the School, and to foster discussion of these researches. Toward this end, the officers arrange each year a series of presentations by staff members and advanced students. All students and staff members are considered members of the society.

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For further information address the Dean of the School of Hygiene and Public Health, The Johns Hopkins University, 615 N. Wolfe Street, Baltimore 5, Md.

Cable address: *PUB-HYG.*

SCHOOL OF HYGIENE AND PUBLIC HEALTH  
THE JOHNS HOPKINS UNIVERSITY

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DEPARTMENTS OF INSTRUCTION, 1944-1945

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BACTERIOLOGY

THOMAS B. TURNER, M. D., Professor \*  
MARTIN FROBISHER, JR., Sc. D., Associate Professor  
ELIZABETH I. PARSONS, Sc. D., Research Associate  
CORNELIUS A. PERRY, Sc. D., Instructor  
ELAINE L. UPDYKE, M. S., Research Assistant

**Bacteriology 1. Biological Activities of Bacteria.** Three mornings a week, first quarter. Dr. FROBISHER and staff.

This course is designed primarily to provide basic instruction for the science or special student. It deals with fundamentals and includes studies of morphology and growth manifestations, methods of pure culture isolation and bacterial enumeration, population curves, nutritive requirements, metabolism and resultant growth products, chemical and physical factors inhibiting and stimulating growth, and the use of these characteristics in identification and classification. This course and Bacteriology 3 will be accepted as a subordinate subject for the degrees of Doctor of Science and Master of Science in Hygiene.

**Bacteriology 2. Bacteriology of Environmental Sanitation.** Two afternoons a week, first quarter. Dr. FROBISHER and staff.

This course deals with the practical application of bacteriological methods to the sanitary control of environment. It affords opportunity to become familiar with the methods currently used in the bacteriological examination of air, water, milk and other foods, the principles upon which they depend, and the interpretation of results. A course in general or medical bacteriology is prerequisite.

**Bacteriology 3. Bacteriology of Infectious Diseases.** Three mornings a week, second quarter. Dr. FROBISHER and staff.

This course deals principally with the bacteriological aspects of epidemiology and preventive medicine. Opportunity is afforded in the laboratory to become familiar with the bacteria and other infectious agents commonly implicated in human infections and intoxications, and with the technical procedures currently used in the study of these microorganisms. The lectures are devoted to a discussion of distribution, relationships to man and animals and maintenance in nature, parasitic mechanisms of offense and host mechanisms of defense, and the application of this knowledge to recognition and control of infectious disease in the individual and the community. The course is designed to implement the prospective health officer in a practical grasp of bacteriology as applied to the field of public health. Science and special students are also admitted after completion of Bacteriology 1 or its equivalent. This course and Bacteriology 1 will be accepted as a subordinate subject for the degrees of Doctor of Science and Master of Science in Hygiene.

**Bacteriology 6. Public Health Laboratory Practice.** Three mornings a week, any quarter. Dr. PERRY.

This course is given in the Baltimore laboratory of the Bureau of Bacteriology of the Maryland State Department of Health. The course affords students an opportunity to take part in the

\* On leave.

routine work of a public health bacteriological laboratory. Training will be offered in bacteriological and serological diagnosis, the preparation of reports, the filing of records, and general laboratory management. Limited to four students. Prerequisite, Bacteriology 3. A small number of students can also be accepted for similar work during the summer months.

### **Bacteriology 7. Special Studies.**

Opportunity is offered to properly qualified students to work on special problems under supervision of some member of the staff.

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## **BIOCHEMISTRY**

ELMER V. MCCOLLUM, Ph. D., Sc. D., Research Professor

OLAF S. RASK, Ph. D., Associate Professor

J. ERNESTINE BECKER, A. M., Associate

VIRGINIA J. EVANS, Sc. D., Instructor

ELIZABETH I. PARSONS, Sc. D., Research Assistant

### **Biochemistry 1. Food Chemistry, Production and Distribution. Three mornings a week, first quarter. Dr. RASK and Assistant.**

Lectures, conferences and laboratory work upon the subject of sanitary production, and handling of important articles of food, such as milk, ice-cream, bottled beverages, meats, baker's products, canned vegetables, etc., followed in each case by visits to manufacturing plants, warehouses and retail shops. The food and drug act, the meat inspection acts, federal, state and municipal regulations, federal definitions and standards for foods, and labeling rules, are studied. The laboratory exercises are devoted to the detection of food adulterants. This course and Biochemistry 2 will be accepted as a subordinate subject for the degrees of Doctor of Science and Master of Science in Hygiene.

### **Biochemistry 2. Chemistry of Metabolism. Three mornings a week, fourth quarter. Dr. RASK and Assistant.**

Lectures supplemented by laboratory exercises in the analysis of blood and urine.

### **Biochemistry 3. Essentials of Nutrition. Three afternoon lectures a week, first quarter. Dr. MCCOLLUM and staff.**

This course comprises a series of lectures dealing with all the known dietary essentials, their distribution, their chemical natures, and the deficiency diseases resulting from their deprivation. The special dietary properties of natural food products come under discussion. Evidence of the relation between diet and health, as well as its implications for preventive medicine, is presented. The results of animal experimentation are correlated with human experience.

### **Biochemistry 4. Experimental Methods. Two afternoons a week, third quarter. Miss BECKER.**

This course provides an opportunity for students who expect to become investigators of nutritional problems to become familiar with the experimental methods used in this and other laboratories. The effects of specific faults in the diet on the nutrition of the rat as exhibited in retardation of growth, disturbed reproduction and the development of a deficiency disease, and other criteria by means of which one can interpret the effects of malnutrition are demonstrated. Each student conducts special animal experiments.

### **Biochemistry 5. Nutrition in Health and Disease. Miss BECKER.**

For the student nurses of the Johns Hopkins Hospital. This course comprises a series of 30 lectures on the fundamentals of nutrition and their application. Special consideration is given to the analysis and construction of adequate diets. The second half of the course is

devoted to the study of diet as related to disease and a study is made of the necessary modifications of the normal diet in the treatment of disease. (See circular of the School for Nurses of the Johns Hopkins Hospital.)

**Biochemistry 6. Nutrition Seminar. Miss BECKER.**

For the student dietitians of the Johns Hopkins Hospital. This class meets once weekly from January to May for two hour discussions on assigned readings relating to the most important literature in the field of nutrition.

**Biochemistry 8. Public Health Nutrition Problems. One afternoon a week, second quarter. Miss BECKER.**

A completion of Biochemistry 3, or its equivalent, is a prerequisite. The course will be conducted as a seminar. It will consider methods of appraising human nutritional status, distribution of dietary essentials in food products and the use of tabulated material on food composition in the evaluation of dietaries and appraisal of menus, food budgets, factors in the inculcation of desirable dietary practices and exploitation of the public by dietary panaceas and "health foods." Essential reference and outlined material will be furnished in mimeographed form.

**Biochemistry 9. Research. Dr. McCOLLUM, Dr. RASK, and Miss BECKER.**

Those who have the necessary preliminary training and who desire to do work of a special nature will be received at any time during the academic year.

**Seminar. Dr. McCOLLUM.**

The staff of the Department of Biochemistry and advanced students meet once each week during the school year to hear reports on assigned readings relating to the most important literature in the field of biochemistry.

Biochemistry 3 is the course designed and recommended for candidates for the degree of Doctor of Public Health, and special students. Students whose major subject is biochemistry must complete courses 3 and 4 during the first year of their residence, unless special arrangements are made.

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## BIOSTATISTICS

LOWELL J. REED, Ph. D., Sc. D., Professor

MARGARET MERRELL, Sc. D., Associate Professor

ARTHUR W. HEDRICH, C. P. H., Sc. D., Lecturer

W. THURBER FALES, C. P. H., Sc. D., Lecturer

EDWIN L. CROSBY, M. D., Dr. P. H., Associate

GEORGE F. BADGER, M. P. H., M. D., Associate \*

MARCELINO PASCUA, M. D., Associate

**Biostatistics 1. Introduction to Vital Statistics. Three mornings a week, first quarter. Dr. REED and staff.**

The lectures in this course consider the collection, tabulation, and elementary analysis of vital statistics, including the treatment of rates, distribution of variates, and sampling variation. Laboratory work furnishes the student an opportunity to put into application the statistical methods presented in the lectures. This course and Biostatistics 2 will be accepted as a subordinate subject for the degrees of Doctor of Science and Master of Science in Hygiene.

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\* On leave.



**Biostatistics 2. Elements of Statistical Analysis.** Three afternoons a week, third quarter. Dr. REED and Dr. MERRELL.

A completion of Course 1, or its equivalent, is a prerequisite. This course is designed to meet the needs of research workers who are using quantitative method. It includes treatment of discrete and continuous distributions of a single variable, general methods of dealing with the relationship between two or more variables, and consideration of sampling and the theory of errors.

**Biostatistics 3. Elements of Statistical Analysis.** Two afternoons a week, fourth quarter. Dr. MERRELL. [Not offered in 1944-1945.]

This course extends the methods introduced in Course 2 to more advanced problems of analysis.

**Biostatistics 4. Public Health Statistics.** Two afternoons a week, second quarter. Dr. HEDRICH and Dr. FALES.

This course aims to acquaint the health administrator and the vital statistician with the practical problems associated with the collection and use of vital statistics. The subjects covered include sources of raw data, nosology, accuracy, methods of correction, time trends, cycles and demographic factors influencing morbidity and mortality rates.

**Biostatistics 6. Rates and Ratios.** Two afternoons a week, first quarter. Dr. MERRELL.

This course deals with the methods of treating rates, with special reference to those usually encountered in the field of vital statistics. It develops methods of graduating rates, including the theory and practice of life table construction.

**Biostatistics 7. Statistical Methods in Medicine.** Two afternoons a week, third quarter. Dr. CROSBY.

This course deals with statistical methods as applied to the records of medical institutions. Consideration will be given to the collection, maintenance and care of records, nomenclature and classification of disease, use of tabulating equipment, and use of records for study and research.

**Biostatistics 8. Dynamics of Population Growth.** Three afternoons a week, fourth quarter. Dr. REED and Dr. MERRELL.

This course will present in the form of seminars and collateral reading a systematic treatment of the dynamics of population problems.

**Biostatistics 9. Statistical Methods in Epidemiology.** Three mornings a week, third quarter. Dr. REED, Dr. MERRELL, and Dr. PASCUA.

Given jointly with the Department of Epidemiology. See Epidemiology 2.

**Biostatistics 10. Special Studies.**

Properly qualified students may undertake special statistical problems under the guidance of some member of the staff.

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## EPIDEMIOLOGY

KENNETH F. MAXCY, M. D., DR. P. H., Professor  
HOWARD A. HOWE, M. D., Associate Professor  
JOHN J. PHAIR, M. D., DR. P. H., Associate Professor  
MIRIAM E. BRAILEY, M. D., DR. P. H., Lecturer  
DAVID BODIAN, M. D., Associate  
ISABEL M. MORGAN, Ph. D., Associate  
MARCELINO PASCUA, M. D., Instructor  
THOMAS FARMER, M. D., Research Assistant  
MARY C. CUMBERLAND, Sc. D., Research Assistant  
FRANCES H. GICHNER, Sc. D., Research Assistant  
CHARLOTTE M. ROOT, Sc. M., Research Assistant

**Epidemiology 1. Principles and Methods of Epidemiological Investigation.** Three mornings a week, second quarter. Dr. MAXCY, Dr. PHAIR, Dr. HOWE, and Dr. PASCUA.

Requirements for admission are completion of adequate courses in Bacteriology and of Biostatistics 1 or its equivalent. The course comprises lectures presenting principles and methods of epidemiological investigation, with illustrative applications; laboratory work in assembling and analyzing crude data exemplifying typical problems, and collateral reading.

**Epidemiology 2. Statistical Methods in Epidemiology.** Three mornings a week, third quarter. Dr. MAXCY, Dr. HOWE, and Dr. BRAILEY.

Given jointly with the Department of Biostatistics (see Biostatistics 9). A continuation of course 1, dealing with the organization of work and the development of appropriate statistical methods in systematic field investigations of epidemic and endemic diseases. A substantial part of the course is devoted to the consideration of tuberculosis and other chronic diseases. Open to students who have completed Biostatistics 1 and Epidemiology 1.

**Epidemiology 3. Differential Diagnosis of Communicable Diseases.** One afternoon a week, second quarter. [Not offered in 1944-45.]

Ward rounds and clinics conducted by the Staff of Sydenham Hospital, Baltimore City Health Department. Course limited to 12 students, graduates in medicine.

**Epidemiology 4. Seminar.** Three mornings a week, fourth quarter. Dr. MAXCY, Dr. HOWE, Dr. PHAIR, and Dr. BODIAN.

Critical reviews and discussions of applications of the epidemiological method to the study of communicable disease, with particular reference to virus infections.

**Epidemiology 6. Special Investigations.**

Opportunity is offered to candidates for advanced degrees and other properly qualified individuals to undertake special investigations under the supervision of the staff.

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## IMMUNOLOGY

G. HOWARD BAILEY, M. D., Dr. P. H., Associate Professor

### Immunology I. The Principles Underlying the Phenomenon of Immunity. Three mornings a week, third quarter. Dr. BAILEY.

This course deals primarily with the principles involved in serological reactions as an index to the normal and immune states. It is designed especially for those who have not had previous training in this field. Twelve hours a week are devoted to laboratory work, lectures, demonstrations and conferences. The laboratory work is designed to give practical training in the production and standardization of the reagents concerned in the various serological reactions. The student prepares the necessary reagents for all reactions by the appropriate immunization of animals. Emphasis will be placed on the various principles in their application to public health measures. The course will be accepted as a subordinate subject for the degrees of Doctor of Science and Master of Science in Hygiene. Limited to 24 students.

### Filterable Viruses 1. A Study of a Representative Group of Virus Diseases. Three mornings a week, fourth quarter. [Not offered in 1944-45.]

This course introduces the student to the behavior of a number of ultramicroscopic agents responsible for some of the most destructive diseases of man, lower animals and plants. The course will be covered by laboratory work, demonstrations and lectures. In the laboratory the technical aspects of the subject will be taken up in detail, including a study of the methods which have been found useful in the search for the various viruses and the determination of their properties. Considerable attention is given to the pathological and cytological changes which they produce in the host. The lectures will deal with various principles which have come to light from a study of representative types. This course is offered to students who are well grounded in pathology and have successfully completed courses in bacteriology and immunology or their equivalents. This course will be accepted as a subordinate subject for the degrees of Doctor of Science and Master of Science in Hygiene.

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## MENTAL HYGIENE

PAUL V. LEMKAU, M. D., Associate \*

### Mental Hygiene 1. Mental Hygiene Administration. Three hours a week, third quarter. Dr. LEMKAU. [Not offered in 1944-45.]

Lectures and field trips illustrating the methods of handling personality problems in the community. The use of these agencies by the public health officer.

### Mental Hygiene 2. Personality Structure and Psychodynamics. Three hours a week, second quarter. Dr. LEMKAU. [Not offered in 1944-45.]

The normal personality development will be studied in detail with emphasis on special periods and situations leading to pathological states. Prophylactic and treatment opportunities open to development under public health auspices will be discussed.

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\* On leave.

## PARASITOLOGY

WILLIAM W. CORT, Ph. D., Professor  
GILBERT F. OTTO, Sc. D., Associate Professor  
LLOYD E. ROZEBOOM, Sc. D., Associate \*  
FRUMA WOLFSON, Sc. D., Research Associate  
EVELYN ALLEN, A. B., Assistant  
EDITH DARROW, B. S., Assistant

**Parasitology 1. Parasitic Diseases of the United States.** Three mornings week, first quarter. Dr. OTTO, Dr. CORT, Dr. ROZEBOOM, Miss DARROW, and Miss ALLEN.

This course covers from the public health viewpoint the protozoa, helminths and arthropods that are most important in relation to human disease in the United States. The life cycles of the parasites and the geographical distribution, epidemiology, and treatment of the diseases that they cause will be stressed as a basis for control measures in various parts of the world. Special emphasis will be given to methods of laboratory diagnosis, the study of living material, and the carrying through of life cycles in experimental animals. This course is planned to meet the needs of the Master of Public Health students and to serve as the introductory course for those who wish to take major or minor work in parasitology. This and one other course will fulfill the minor requirement for the degrees of Doctor of Science and Master of Science in Hygiene.

**Parasitology 2. Exotic Parasitic Diseases.** Three afternoons a week, fourth quarter. Dr. CORT, Dr. OTTO, and Miss ALLEN.

This course will deal with the protozoan and helminth diseases of man not covered in Parasitology 1 and 4. It is designed especially to supplement these courses for students who expect to work in tropical and oriental countries.

**Parasitology 3. Medical Entomology.** Three afternoons a week, third quarter. Dr. ROZEBOOM. [Not offered in 1944-45.]

This course is devoted to a study of the arthropods which transmit bacteria, protozoa, worms and filterable viruses that cause disease in man. Those that cause human disease directly are also included. Methods of identification of medically important insects and arachnids are studied in the laboratory.

**Parasitology 4. Malariology.** Three mornings a week, fourth quarter. Dr. ROZEBOOM, Dr. OTTO, Miss DARROW, and Miss ALLEN.

This course deals with the epidemiology and control of malaria. It includes studies on the malarial parasites in man; the symptomatology, pathology and chemotherapy of the disease they cause; and the identification, biology, and control of the anopheline vectors.

**Parasitology 5. Host-parasite Relations.** Three hours a week, second quarter. Prerequisite, Parasitology 1. Dr. CORT, Dr. OTTO, and Dr. ROZEBOOM. [Not offered in 1944-45.]

This course is planned for students especially interested in parasitology. It deals with the immunological and pathological reactions of the host to parasites. It will be conducted as a seminar.

**Parasitology 10. Advanced Studies or Research in Parasitology.** Dr. CORT, Dr. OTTO, and Dr. ROZEBOOM.

Special topics or research problems can be undertaken by advanced students who have the necessary qualifications.

\* On leave.

Research Club. Staff members and students interested in parasitology will meet once each week for the presentation and discussion of original investigations.

## PHYSIOLOGICAL HYGIENE

ABEL WOLMAN, Dr. Eng., Professor of Sanitary Engineering,  
In charge

DONALD R. HOOKER, M. D., Lecturer

ANNA M. BAETJER, Sc. D., Associate

### Physiological Hygiene 1. Environmental and Industrial Hygiene.

Three afternoon lectures a week, second quarter. Dr. BAETJER.

The course is designed to give the public health student a knowledge of the effects of the various environmental factors on health, comfort, and work; their relation to diseases such as tuberculosis, cancer, pneumonia, and to general mortality and morbidity rates. The lectures discuss the effects of temperature, humidity and air movement, including ventilation and air conditioning; radiant energy and illumination; noise; barometric pressure as related to high altitude and caisson work; the effects of dusts, gases, fumes, smoke, etc., with protective procedures; and effects of exercise and physical work. The subjects are considered in relation to the problems of industrial, school, and personal hygiene. The function and organization of health departments in the field of environmental and industrial hygiene are discussed.

### Physiological Hygiene 2. Industrial Health. Three morning lectures a week, third quarter. Dr. BAETJER.

The completion of Physiological Hygiene 1 is a prerequisite. The lectures cover 1) the industrial poisons, the occupational diseases, the occupational dermatoses and the methods of their prevention; 2) industrial fatigue, length of the working day, methods and conditions of work, and the effects of posture, strain, and stress; 3) tuberculosis and syphilis programs for industry, industrial psychiatric problems, health problems associated with the employment of women, etc.; 4) administrative phases of industrial health including the organization, administrative procedures and legal problems of industrial hygiene divisions in public health departments and of industrial medical departments. Demonstrations and discussions of clinical cases of occupational diseases and occupational dermatoses will be given as available.

### Physiological Hygiene 3. Industrial Hygiene. Three afternoons a week, third quarter. Dr. BAETJER.

Given jointly with the Department of Sanitary Engineering (see Sanitary Engineering 4). Physiological Hygiene 1 and 2 are prerequisite. The course covers the procedures, methods and instruments used in the study of hygienic conditions in industry. This includes procedures for making industrial surveys and medical studies of employee groups; laboratory methods for detecting the excessive absorption of harmful chemical substances; methods and techniques for determining the composition and concentration of dusts, gases, vapors and fumes in the air, together with the methods for their control; methods of measuring ventilation, air flow and illumination; etc. The laboratory and class work are designed not only to acquaint the student with the techniques and instruments available but to evaluate the results thus obtained and to apply them to practical problems. Field visits are made to a number of local industries.

### Physiology 4. General Principles of Physiology. Three days a week, fourth quarter. Dr. BAETJER. Given alternate years. [Not offered in 1944-45.]

The completion of adequate courses in anatomy and chemistry is a prerequisite. The course consists of class discussions, which are held three hours per week, and laboratory work, which

are designed to familiarize the student with the general principles and experimental methods of animal and human physiology. Students taking this course are expected to attend the lectures in Physiology 1 at the School of Medicine.

### Physiological Hygiene 5. Industrial Health—Advanced Work. Third and fourth quarters.

Students whose principal interest is in industrial health may elect the following types of work when opportunities for these are available: 1) field work in industrial hygiene and industrial medicine; 2) clinical work in occupational diseases and dermatoses; 3) attendance at the hearings of the Medical Board for Occupational Disease Compensation; 4) special studies in industrial hygiene with reading assignments and reports; 5) research work in industrial hygiene.

### Physiological Hygiene 6. Research.

Candidates for advanced degrees and other properly qualified students will be assigned research problems in physiology, environmental or industrial hygiene.

### Physiological Hygiene 7. Industrial Health for Physicians and Surgeons. First quarter, hours to be arranged. Dr. BAETJER and visiting clinical lecturers.

This course is designed for physicians and surgeons who wish to become acquainted with the current ideas concerning industrial medical problems and industrial hygiene. The lectures will include a general discussion of the health status of industrial workers; the occupational diseases and dermatoses, their treatment and prevention; traumatic injuries and their clinical management; the relation of the various physical factors in the industrial environment to health, such as temperature, radiant energy, etc.; problems concerned with tuberculosis, cardiac conditions, syphilis, etc. in industrial employees; health problems arising from the employment of women; industrial psychiatric problems; industrial fatigue and hours of work; the organization of medical services for industries; industrial sickness records; physical examinations of employees; and administrative and legal problems in industrial medicine.

NOTE.—Physiological Hygiene 1, 2, and 3 are also open to practicing physicians and surgeons as special students.

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## PUBLIC HEALTH ADMINISTRATION

ALLEN W. FREEMAN, M. D., Professor  
 JOSEPH EARLE MOORE, M. D., Adjunct Professor  
 C. HOWE ELLER, M. D., Dr. P. H., Associate Professor  
 ROBERT H. RILEY, M. D., Dr. P. H., Lecturer  
 HUNTINGTON WILLIAMS, M. D., Dr. P. H., Lecturer  
 WILLIAM H. F. WARTHEN, M. D., M. P. H., Lecturer  
 WILLIAM J. FRENCH, M. D., Lecturer  
 MYRON E. WEGMAN, M. D., M. P. H., Lecturer  
 M. ALEXANDER NOVEY, M. D., Lecturer  
 PAUL V. LEMKAU, M. D., Associate \*  
 WINIFRED NEWBERRY, S. M., R. N., Instructor

### Public Health Administration 1. Public Health Organization. Three afternoon lectures a week, second quarter. Dr. FREEMAN.

A study of the history and present status of the health organizations of the federal government, of the states, and of the cities and rural areas.

\* On leave.

**Public Health Administration 2. Public Health Problems.** Six hours a week, third quarter. Dr. FREEMAN and Dr. ELLER.

Conferences on the practical application of sanitary science to the problems of public health. At these conferences the methods of operation of the various types of health organization will be taken up and studied in detail. Each student is assigned a topic and prepares an outline for the discussion. This outline is mimeographed and distributed to the class at the time of discussion of the topic. If necessary the class will be divided into sections.

**Public Health Administration 3. Maternal and Child Hygiene.** The course includes lectures, seminars and field trips organized as a unit, covering the second and third quarters. However, the work of either quarter or both quarters may be elected. Dr. NOVEY and Dr. WEGMAN.

3 A. Four hours a week, second quarter. The factors influencing the health of mothers and new born infants and the procedures of maternal hygiene.

3 B. Six hours a week, third quarter. The health problems of infants and young children and the organization and administration of maternal and child health programs.

**Public Health Administration 4. Field Studies.**

4 A. Three mornings a week, fourth quarter. Field studies in the Eastern Health District. Dr. ELLER. Limited to twelve students.

4 B. Two days a week, fourth quarter. Field studies in the Anne Arundel County Health Department. Dr. FRENCH. Limited to eight students.

**Public Health Administration 8. Health Education.** Two three-hour conferences a week, fourth quarter. Dr. WARTHEN.

A discussion of the methods and media of health education. Available material in the field will be presented and discussed and exercises in the preparation of new material will be assigned the class.

**Public Health Administration 9. Special Studies.**

A limited number of students with special preparation will be accepted for special work in the department.

**Public Health Administration 10. Public Health Nursing.** Two hours a week, third quarter. Miss NEWBERRY.

The principles of public health nursing and the organization and administration of nursing programs.

**Public Health Administration 11. Seminar in The Organization of Medical Care.** Two two-hour periods a week, fourth quarter. Dr. FREEMAN and staff.

The discussions in this seminar will be devoted to existing systems of medical care in the United States and in certain foreign countries, and to proposals for its organization.

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## SANITARY ENGINEERING

ABEL WOLMAN, Dr. Eng., Professor

ALFRED H. FLETCHER, S. M., Associate

### Sanitary Engineering 1. Three mornings a week, fourth quarter. Dr. WOLMAN and staff.

The course is divided into lectures, conferences, problems and field work, supplemented by reading, and is designed to assist a student in obtaining a comprehensive general view of modern sanitary engineering practice and its relationship to the broad public health program. The fundamental considerations involved in developing a sound program of adjustment and control of the environment to prevent the transference of infection and disease and to promote health are explored. In addition to the main topics of water supply, sewerage and the disposal of sewage and other municipal wastes, the subjects of milk and food supply, insect and rodent control, swimming pools, plumbing, housing, and illumination and ventilation in schools and industrial plants, with special reference to their engineering phases, are presented. A major portion of the time is allotted to the solution of a few specific problems by the students. These problems are designed to bring into perspective the general principles upon which environmental control programs rest. Photographs, lantern slides, and working drawings are used in the study and discussion of existing sanitary works. The field trips include inspections of typical water treatment, sewage treatment, milk pasteurization, slum areas, public housing, and other sanitary works.

### Sanitary Engineering 2. Special Studies.

A limited number of students with satisfactory preparation will be accepted for special work in the department.

The attention of students in the field of sanitary engineering, who propose to pursue graduate work, is called to the allied courses offered in the School of Engineering and the College of Arts and Sciences. The catalogues of those schools should be reviewed for a list of such cognate courses in sanitation, hydraulics and collateral fields.

### Sanitary Engineering 3. Ecology of Housing. Two afternoons a week, second quarter. Mr. FLETCHER.

Lectures, seminars and field trips designed to assist the student in orienting himself with respect to the problem of housing and its relationship to the public health program. The health, social and economic implications, together with efforts now under way in the fields of welfare and relief, enforcement, rehabilitation, government subsidy, slum clearance, surveys and city planning, and the coordination of these efforts are presented. The course is designed especially for the public health administrator, and engineering training is not a prerequisite.

### Sanitary Engineering 4. Industrial Hygiene. Three afternoons a week, third quarter. Mr. FLETCHER.

Given jointly with the Department of Physiological Hygiene (see Physiological Hygiene 3). Physiological Hygiene 1 and 2 are prerequisites. The course is designed, through lectures, laboratory exercises and field trips to present the basic principles for studying, evaluating and correcting hygienic conditions in industry, including the methods and techniques use today in industrial hygiene work. The students are given an opportunity to use modern instruments for measuring air flow and illumination and for making qualitative and quantitative determinations of harmful dusts, gases and fumes. Field visits are made to a number of local industries.

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## VENEREAL DISEASES

JOSEPH EARLE MOORE, M. D., Adjunct Professor  
E. GURNEY CLARK, M. D., Dr. P. H., Associate Professor  
HARRY EAGLE, M. D., Lecturer  
NELS A. NELSON, M. D., M. P. H., Associate  
CHARLES F. MOHR, M. D., Instructor  
VIRGIL C. SCOTT, M. D., Instructor  
HAROLD J. MAGNUSON, M. D., M. P. H., Instructor

**Venereal Diseases 1. Advanced Clinical Work in Venereal Disease.**  
Three afternoons a week throughout the academic year. Dr. MOORE,  
Dr. NELSON, and staff.

All of the facilities of the afternoon Venereal Disease Clinic of The Johns Hopkins Hospital are available for the clinical study of patients and for practical work in contact investigation. Students electing venereal diseases as their major field of interest spend three afternoons a week throughout the academic year in this course. Limited to special venereal disease students.

**Venereal Diseases 2. Serology.** Three mornings a week, first quarter.  
Dr. EAGLE and staff.

Theoretical and practical aspects of the serologic diagnosis of syphilis. Limited to special venereal disease students.

**Venereal Diseases 3. Lectures in Venereal Diseases.** One morning a week, third quarter. Dr. MOORE and staff.

A review of the clinical, therapeutic and epidemiological aspects of syphilis, gonorrhea, and other venereal diseases, and a discussion of control measures as applied in the field. Open to entire class.

**Venereal Diseases 5. Seminar.** One morning conference a week, third quarter. Dr. NELSON.

Critical reviews and discussions of selected topics related to the clinical and public health aspects of venereal disease control. Limited to 16 students. Obligatory for special venereal disease students. Elective for other physicians.

**Venereal Diseases 6. Special Studies.**

A limited number of students may undertake the study of some special problem in venereal disease, under the supervision of a member of the staff. Time to be arranged.

**Venereal Diseases 7. Clinical Aspects of Venereal Disease.** Three afternoons a week, fourth quarter. Dr. SCOTT and staff.

This course is planned, primarily, for students who are not spending a major portion of their time in the study of venereal disease. It consists of a series of conferences, lectures, and clinical demonstrations. Will not be offered to less than 12 students.

**Venereal Diseases 8. Venereal Disease Control.** Six days a week during the summer. Dr. MOORE and staff.

This course comprises, in addition to the clinical study of venereal disease at The Johns Hopkins Hospital, field work in contact investigation, conferences and lectures on the control of syphilis, gonorrhea, and the other venereal diseases. All these courses supplement those given during the academic year and afford students an opportunity to pursue individual problems in both control and clinic management of venereal diseases.

Students are urged, if possible, to take this work during the summer *preceding* the academic year.

The course is limited to special venereal disease students.

**Venereal Diseases 9. Principles of Venereal Disease Control. Development and Administration of a Control Program. One morning conference a week, third quarter. Dr. NELSON.**

Lectures and class discussion in which consideration is given those factors which facilitate, and those procedures which tend to check, the spread of venereal disease. The principles upon which a control program may be developed are thus evolved. The program is then developed and its administration discussed. Obligatory for special venereal disease students. Open to entire class.

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## SCHEDULE OF COURSES FOR THE SESSION OF 1944-1945

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### GENERAL STATEMENT OF COURSES

A detailed description of the character of each course will be found under the section, Departments of Instruction, pp. 29 to 41.

Candidates for the degree of Master of Public Health are required to complete the courses designated in the schedule (pp. 18, 43) as requisite for the degree, and to select, in each quarter, sufficient additional courses to complete a satisfactory schedule.

Prospective candidates for the degree of Doctor of Public Health should, in their first year, complete the course leading to the Degree of Master of Public Health. The arrangement of courses for the second year will be made in consultation with the head of the department in which the candidate elects to do his major work, the schedule, as arranged for each quarter, to be reported to the office of the School for registration. The summer months intervening between the first and second years should be utilized to absolve the requirement for field work (see p. 20) unless this has already been fulfilled.

The candidate for the degree of Doctor of Science in Hygiene or Master of Science in Hygiene will arrange his courses for each quarter by consultation with the head of the department directing his principal work, the courses decided upon being reported to the office of the school for registration.

Special students may select their courses from the schedule as listed in any combination that they desire, except that in some cases certain sequences must be followed. For example, Epidemiology 1 should be preceded by Biostatistics 1, and advanced courses in any subject presuppose a preliminary course in the same subject.

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# SCHOOL OF HYGIENE AND PUBLIC HEALTH

## SCHEDULE OF COURSES, 1944-1945

	First Quarter Oct. 2 to Nov. 25	Second Quarter Nov. 27 to Jan. 30	Third Quarter Feb. 5 to Apr. 3	Fourth Quarter Apr. 4 to May 29
<b>MORNINGS</b>				
9-1 { Monday Wednesday Friday	Biostatistics 1 * Bacteriology 1	Bacteriology 3 *	P. H. Adm. 2 * (9-11) Physiol. Hygiene 2 (11-12) Venereal Diseases 9 (M. 11-1) Venereal Diseases 5 (W. 11-1) Venereal Diseases 3 (F. 11-1)	Sanitary Engineering 1 * Biochemistry 2
9-1 { Tuesday Thursday Saturday	Biochemistry 1 Parasitology 1 Venereal Diseases 2	Epidemiology 1 *	Biostatistics 9 & Epidem. 2 Immunology 1	Epidemiology 4 (9-11) Parasitology 4 P. H. Adm. 4A P. H. Adm. 4B (T. Th. 9-5) P. H. Adm. 11 (T., Th. 11-1)
<b>AFTERNOONS</b>				
2-5 { Monday Wednesday Friday	Biochemistry 3 (2-3) Biostatistics 6 (M. W. 3-5)	P. H. Adm. 1 * (2-3) Physiol. Hygiene 1 (3-4)	Biostatistics 2 Physiol. Hyg. 3 & Sanit. Eng. 4 P. H. Adm. 3B (2-4)	Biostatistics 8 Parasitology 2 Venereal Dis. 7 (3.30-5)
2-5 { Tuesday Thursday	Bacteriology 2 *	Biostatistics 4 P. H. Adm. 3A (2-4) Biochemistry 8 (Th. 3-5) Sanitary Eng. 3 (2-4)	Biochemistry 4 Biostatistics 7 P. H. Adm. 10 (2-3)	P. H. Adm. 8 P. H. Adm. 4B (9-5)

Bacteriology 6—Any three mornings a week in any quarter.

Venereal Diseases 1—Elective work in the venereal disease clinic may be taken two or three afternoons a week in any quarter.

\* Required for the Master of Public Health.

## DEGREES CONFERRED, 1944

### DOCTOR OF PUBLIC HEALTH

Antunes, Paulo Cesar de Azevedo—B. Sc. e Lett. Ginasio do Estado de São Paulo 1919; M. D. Faculdade de Medicina de São Paulo, 1926; M. P. H. Johns Hopkins 1942—Inst. in Hygiene, São Paulo, Brazil. *Public Health Administration*

Clark, Edwin Gurney—A. B. Vanderbilt 1927. M. D. 1931; C. P. H. Johns Hop-

kins 1936. M. P. H. 1939—Assoc. Prof. Venereal Diseases, J. H. U., 615 N. Wolfe St., Baltimore 5, Md. *Biostatistics*  
Guthrie, Nobel W.—A. B. Hendrix 1931; M. D. Tennessee 1934; M. P. H. Johns Hopkins 1940—P. A. Surgeon, U. S. P. H. S., c/o Surgeon General, Washington, D. C. *Venereal Diseases* (3)

### MASTER OF PUBLIC HEALTH

Aguilar Rivas, Alberto—M. D. Univ. El Salvador 1941—Chief, Health Center, Santa Tecla, El Salvador

Boyd, Philip Irving—M. R. C. S. (Eng.), L. R. C. P. (London) 1935; M. B., B. S. Univ. London 1935, M. D. 1937—Med. Officer, Leeward Islands, Montserrat, B. W. I.

Budnik Boroda, Emilio—M. D. Univ. Chile 1940—Asst. Gen. Inspector, Ministry of Public Health., Santiago, Chile

Cárdenas Portilla, Gonzalo—M. D. Central Univ. Quito 1941—Dir. Hosp. Dunhan, Quito, Ecuador

Carrozzo, Nunzio Joseph—B. S. New York Univ. 1932; M. D. Long Island Col. Med. 1936—P. A. Surgeon, U. S. P. H. S., c/o Surgeon General, Washington, D. C.

Darricarrere Torbalay, Rafael—M. D. Univ. Chile 1938—Dir. Tbc. Lab., Institute of Bacteriology, Santiago, Chile

Eyzaguirre Huici, Horacio—M. D. Univ. Chile 1942—Recreo, Chile

Finney, Martha Evelyn—C. P. H. N. Vanderbilt 1935—Head Nurse, Tennessee Valley Authority, Wilson Dam, Ala.

Gartrell, Francis Eugene—B. S. Miss. State Coll. 1933; M. S. Harvard 1935—Sanitary Engineer, Tennessee Valley Authority, Paris, Tenn.

Gillett, James Anthony—M. R. C. S. (Eng.), L. R. C. P. (London) 1941; D. T. M. and H. Edinburgh 1942—Med. Off. Colonial Medical Service, Belize, Brit. Honduras

Hartline, Opal Cameron—B. S. McKendree Col. 1925; M. S. Univ. Ill. 1932, Ph. D. 1935—Asst. Prof. Biology, Ill. State Normal Univ., Normal, Ill.

Hazlehurst, William Derrel—A. B. Vanderbilt 1935, M. D. 1933—Asst. Surg., U. S. P. H. S., c/o Surgeon General, Washington, D. C.

Herrera, Alfonso—B. S. Colegio San Ignacio 1925; C. E. Catholic Univ. Santiago 1933—Asst. Sanitary Engineer, Ministry of Public Health, Santiago, Chile

Horwitz B., Abraham—M. D. Univ. Chile 1935—Prof. Communicable Diseases, Univ. of Chile, Santiago, Chile

Kooiker, Clarence—B. S., B. M. Univ. Minn. 1936; M. D. 1937—Asst. Surgeon, U. S.

P. H. S., c/o Surgeon General, Washington, D. C.

Lara Zepeda, Juan—B. A., B. S. José Trinidad Reyes Col. 1930; M. D. Universidad Central de Honduras 1942—Hlth. Off., Public Hlth. Dept. of Honduras, Tegucigalpa, D. C., Honduras

Lincoln, John Luther—B. S. Bethany Col. 1935; M. D. Univ. Buffalo 1939—P. A. Surgeon, U. S. P. H. S., c/o Surgeon General, Washington, D. C.

López Henriquez, Milton—M. D. Central Univ. Venezuela 1939—Chief Hlth. Off. Cumaná, Caracas, Venezuela

Loucks, Jessie Isabel—R. N. Vancouver Gen. Hosp. 1939; B. A. Sc. (Nursing) Univ. of British Columbia 1940—Pub. Hlth. Nurse, Provincial Bd. of Hlth. of British Columbia, Regina, Saskatchewan, Can.

Oría Domínguez, Espartaco—M. D. Univ. of Caracas 1936—Govt. Hlth. Officer at Villa de Cura, Caracas, Venezuela

Pareda Oviedo, Enrique—M. D. Univ. Chile 1930—Physician, Sanatorio El Peral, Santiago, Chile

Perroni B., José—M. D. Univ. Chile 1938—Physician, Ramon Barros Luco Hospital, Santiago, Chile

Porterfield, John Donaldson III—B. S. Univ. Notre Dame 1934; M. D. Rush Medical Col. 1938—P. A. Surgeon, U. S. P. H. S., c/o Surgeon General, Washington, D. C.

Potter, Robert Tippet—B. A. Univ. Minnesota 1936, M. B. 1939, M. D. 1940—Asst. Surg., U. S. P. H. S., c/o Surgeon General, Washington, D. C.

Robeson, Ella Pendleton Tompkins—B. S. Univ. Virginia 1930; M. D. Syracuse Univ. 1936—Epidemiologist-in-Training, State Dept. of Health, Albany, N. Y.

San Martín, Hernán—M. D. Univ. of Chile 1941—Chief, Prov. Hlth. Unit of Antofagasta, Curico, Chile

Terris, Milton—A. B. Columbia 1935; M. D. New York Univ. 1939—Epidemiologist-in-Training, State Dept. of Health, Albany, N. Y.

Thomson, James Claude—B. Sc. Rutgers 1910, M. Sc., 1911; M. A. Columbia 1916, Ph. D. 1933—Prof. of Chemistry, Univ. of Nanking, China

Uriquén Bravo, Daniel—B. Sc. e Lett. Colegio Vicente Rocafuerte 1936; M. D. Univ. of Guayaquil 1943—Head of Plague Lab., National Inst. Hyg., Guayaquil, Ecuador  
 Velarde Thomé, Jaime—M. D. Univ. of Mexico, 1933—Supervisor of Venereal Disease Clinics on Mexican Border. Tacubaya, D. F. Mexico  
 Waters, Carlton H.—M. D. Univ. of Buffalo

1939—Asst. Surg., U. S. P. H. S., c/o Surgeon General, Washington, D. C.  
 Zepeda, Jorge Ernesto—B. Sc. e Lett., Instituto Nacional 1932; Pharm. D. Univ. of Honduras 1937; M. Sc. Philadelphia Col. of Pharm. and Science 1939—Chief, Biol. Inst., Honduras Pub. Hlth. Dept. Tegucigalpa, Honduras  
 (32)

## DOCTOR OF SCIENCE IN HYGIENE

Cumberland, Mary Catherine—B. A. Occidental Col. 1941—Res. Asst. J. H. U., 615 N. Wolfe St., Baltimore 5, Md. *Bacteriology*  
 Jeffery, Geoffrey Marron—B. A. Hobart Col. 1940; M. A. Syracuse Univ. 1941—190 North St., Milford, Conn. *Parasitology*

Rendtorff, Robert Carlisle—A. B. Univ. Illinois 1937, M. S. 1939—Instructor, Dept. Epidemiology, Sch. Public Hlth., Univ. of Michigan, Ann Arbor, Mich. *Parasitology*  
 (3)

## MASTER OF SCIENCE IN HYGIENE

Chen, Sul-fong—A. B. George Washington Univ. 1936, A. M. 1938—China Institute in America, 119 W. 57th St., New York City. *Parasitology*  
 Schoonmaker, Janet Oakley—A. B. Smith College 1942—17 Grand Ave., Poughkeepsie, N. Y. *Biochemistry*

Wittler, Ruth Graesser—A. B. Oberlin College 1940—Dept. Hygiene and Bacteriology, Western Reserve, Cincinnati, Ohio. *Fulterable Viruses*  
 (3)

# ALPHABETICAL INDEX OF NAMES

	PAGE		PAGE
Abarbanel, J.	12	Genecin, A.	26
Adams, M. L.	12	Gibbs, J. S., Jr.	4
Aguilar Rivas, A.	11, 44	Giehner, F. H.	8, 33
Alessandri, M.	12	Gifford, W. S.	4
Allen, E.	8, 12, 35	Gillett, J. A.	11, 44
Almirón, J.	12	Gilliece, J. H.	4
Ames, J. S.	15	Gilman, D. C.	15
Antunes, P. C. de A.	11, 44	Gómez Lince, L.	13
Badger, G. F.	7, 31	Goodnow, F. J.	15
Baetjer, A. M.	7, 36, 37	Goodwin, E. C.	13
Baetjer, E. G.	4	Gosselin, J.	13
Bailey, G. H.	5, 34	Griswold, B. H., Jr.	4
Baker, H. S.	4	Guillén, G.	14
Barton, C.	4	Guthrie, N. W.	11, 44
Beaulieu, D.	12	Gutierrez, R. I.	13
Becker, J. E.	7, 30, 31	Halvorson, H.	4
Bodian, D.	7, 33	Hartline, O. C.	11, 44
Bonilla Naar, A.	13	Hazlehurst, W. D.	11, 44
Bowman, I.	4, 5, 9, 15	Hedrich, A. W.	6, 31, 32
Boyd, P. I.	11, 44	Herman, N. B.	26
Bracken, F. J.	13	Herrera, A.	11, 44
Braille, M. E.	7, 33	Hiemcke, T.	13
Brooks, R. J.	4	Hooker, D. R.	6, 36
Brown, D.	4	Hopkins, D. L.	4
Brown, T. R.	4	Hopkins, J.	15
Budnik Boroda, E.	11, 44	Horwitz B., A.	11, 44
Bush, V.	4	Howe, H. A.	6, 33
Butler, T. B.	4	Howell, W. H.	5, 17
Cakrtova, M.	13	Januszewski, F. J.	13
Cárdenas Portilla, G.	11, 44	Jeffery, G. M.	12, 45
Carozzo, N. J.	11, 44	Klimes, L. F.	13
Chen, S.-f.	12, 45	Knox, J. H. M., Jr.	7
Clark, E. G.	6, 11, 40, 44	Kooiker, C.	11, 44
Conroy, E.	12	Kueth, J. L.	4
Cort, W. W.	5, 9, 10, 35	Lara Zepeda, J.	11, 44
Cox, H. R.	13	Larkey, S. V.	4
Cremieux, R.	13	Lavy, L. T.	13
Crosby, E. L.	7, 31, 32	Lenikau, P. V.	7, 34, 37
Croxatto, O. C.	13	Leon Ugarte, M.	13
Cumberland, M. C.	8, 12, 33, 45	Lima, F. de O.	13
da Costa, O. R.	11	Lincoln, J. L.	5, 11, 44
Darricarrere Torbalay, R.	11, 44	López Henriquez, M.	11, 44
Darrow, E. M.	8, 12, 35	Lopez Vidal, E. A.	13
Davis, I. M.	4	Loucks, J. I.	11, 44
Day, L. W.	13	Maceaulay, P. S.	4
De Lamar, J. R.	28	Mackintosh, J. M.	7
Diez Canseco, J.	13	Magnuson, H. J.	8, 40
Dittus, C. W.	4	Marburg, T.	4
Dresser, J. W.	4	Martinez Ordoñez, J.	13
Eagle, H.	6, 40	Mattern, J.	4
Eaton, M. C.	13	Maxey, K. F.	5, 9, 10, 33
Eller, C. H.	6, 10, 26, 37, 38	McCullum, E. V.	5, 30, 31
Espinola, V. F.	13	Merrell, M.	6, 10, 31, 32
Evans, V. J.	8, 30	Mohr, C. F.	8, 40
Eyzaguirre Huici, H.	11, 44	Moore, J. E.	5, 37, 33
Fales, W. T.	6, 31, 32	Morgan, I. M.	7
Farmer, T.	8, 33	Navarro Vidal, L. F.	13
Finney, M. E.	11, 44	Nelson, J. M., Jr.	4
Fletcher, A. H.	7, 39	Nelson, N. A.	7, 40, 41
Francis, P. S.	13	Nelson, S. P.	4
Frank, E.	4	Nevin, F. R.	13
Freeman, A. W.	5, 9, 10, 37, 38	Newberry, W.	8, 26, 37, 38
French, W. J.	6, 37, 38	Novey, M. A.	7, 37, 38
Frobisher, M., Jr.	6, 9, 10, 29	Orúa Dominguez, E.	11, 44
Gallardo Céspedes, M.	13	Otto, G. F.	4, 6, 9, 35
Gartrell, F. E.	11, 44		

	PAGE
Parsons, E. I.....	8, 29, 30
Pascua, M.....	7, 23, 31, 32, 33
Patno, M. E.....	13
Paul, J. G. D'A.....	4
Pereda Oviedo, E.....	11, 44
Perroni B., J.....	11, 44
Perry, C. A.....	8, 29
Phair, J. J.....	6, 33
Pirosh, S.....	13
Pleasants, J. H.....	4
Porterfield, J. D., III.....	11, 44
Potter, R. T.....	11, 44
Pratt, J. L.....	4
Rask, O. S.....	6, 30, 31
Reed, K. E.....	13
Reed, L. J.....	4, 5, 9, 10, 31, 32
Regan, J. J.....	12
Reindollar, W. F.....	13
Remsen, I.....	15
Rendtorff, R. C.....	12, 45
Rich, A. R.....	23
Richardson, E. C.....	13
Riley, R. H.....	6, 37
Roberts, D. W.....	13
Robeson, E. P. T.....	11, 44
Rodriguez Defino, A.....	14
Root, C. M.....	8, 33
Rose, W.....	17
Rosenthal, L.....	4
Rozeboom, L. E.....	7, 10, 35
San Martin, H.....	11, 44
Schmid, L. A.....	14
Schoonmaker, J. O.....	12, 45

	PAGE
Scott, V. C.....	8, 40
Simpson, M. L.....	12
Sklarevski, R.....	13
Taylor, W. A.....	4
Teixeira, M. I. de S.....	13
Terris, M.....	12, 44
Thomson, J. C.....	12, 44
Torrey, E. W.....	13
Turner, T. B.....	5, 9, 10, 29
Ugarte, J. M.....	13
Updyke, E. L.....	8, 12, 29
Uriguen Bravo, D.....	12, 45
Valle Osorio, R.....	13
Velarde Thomé, J.....	12, 45
Viel, B.....	11
Ward, G. A.....	13
Warthen, W. H. F.....	6, 37, 38
Waters, C. H.....	12, 45
Wegman, M. E.....	7, 37, 38
Welch, W. H.....	15, 17
Wenner, H. A.....	8, 13
White, F.....	4
White, R. B.....	4
Williams, H.....	6, 10, 37
Williams, R. W.....	4
Wittler, R. G.....	12, 45
Wolff, A. E.....	13
Wolfson, F.....	7, 35
Wolman, A.....	5, 9, 10, 36, 39
Zepeda, J. E.....	12, 45



# THE JOHNS HOPKINS UNIVERSITY

BALTIMORE

FOUNDED 1876

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THE  
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JULY, 1944

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COLLEGE FOR TEACHERS

CATALOGUE NUMBER

1944-1945

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BALTIMORE 18, MARYLAND  
PUBLISHED BY THE UNIVERSITY  
JULY, 1944

## CALENDAR, 1944-45

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### 1944

October 9            Monday—Instruction begins in the College for Teachers.  
November 23-26    Thursday—Sunday—Thanksgiving Vacation.  
December 24        Sunday—Christmas recess begins (8.30 a. m.).

### 1945

January 3           Wednesday—Instruction is resumed.  
January 29        Monday—College for Teachers mid-year examinations begin.  
February 5        Monday—Beginning of February term.  
March 30-April 1   Friday—Sunday—Easter Vacation.  
May 28            Monday—College for Teachers examinations begin.  
June 2            Saturday—Instruction in the College for Teachers ends.

## REGISTRATION

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Persons interested in pursuing courses in the College for Teachers should obtain Course Approval blanks from the Registrar's Office. These should be filled in and mailed or presented in person before October 2 to the Director. All blanks should be filed in the Registrar's Office with the registration card.

Blank forms of application for admission to the College for Teachers and registration cards may be obtained from the Registrar of the Johns Hopkins University, and are to be filled in and returned to the Registrar's Office on or before October 9, 1944.

Opportunity is provided for students to register on Thursday, September 28, from 7.30-9.30 p. m. in Latrobe Hall.

For regulations concerning registration, payment of fees, and admission to classes, see expenses, p. 23.

Before registration all students excepting those registered in other divisions of the University must have the written approval of the Director on the courses to be taken.

Students in the College for Teachers who have achieved senior ranking (that is, the attainment of ninety points toward the B. S. degree) are required to consult with the Director in Gilman Hall 218, before registration in order to have their programs of study outlined.

The Director will be in Room 218, Gilman Hall, Homewood, daily from October 2 to October 7 (3-5 p. m., Monday to Friday; 10 a. m. to 12 m. Saturday).

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### THE JOHNS HOPKINS UNIVERSITY CIRCULAR

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JOHNS HOPKINS  
UNIVERSITY CIRCULAR

JULY, 1944

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COLLEGE FOR TEACHERS

CATALOGUE NUMBER

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\* Members of a sub-committee on evaluation of nursing credits, of which Miss K. Virginia Betzold is chairman.

## HISTORY OF THE COLLEGE FOR TEACHERS

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At the time of the organization of the Johns Hopkins University most of the institutions of higher education in this country were either colleges to which graduate schools had been added, or professional and technical schools. It was the declared intention of the first Board of Trustees and the first President of the Johns Hopkins University to found an institution which would be characterized by academic freedom and mature scholarship, rather than by inflexible curricula designed to prepare students for a particular calling or to give them certain organized bodies of knowledge. While sharing with the traditional college the obligation of transmitting the intellectual heritage of the past, the University recognized the additional responsibility of expanding the bounds of knowledge through research.

The first President, inaugurated in February 1876, was Daniel Coit Gilman, who was followed upon his retirement in 1901 by Ira Remsen. Dr. Remsen resigned in 1912 and during a period of two years the duties of the presidential office were discharged by an Administrative Committee of the faculty, appointed by the Trustees. Dr. William H. Welch was the Chairman of the Committee. The third President was Frank Johnson Goodnow, who filled the office from 1914 until his resignation in 1929 when he was succeeded by Joseph Sweetman Ames, who retired in 1935. The fifth President is Dr. Isaiah Bowman, who assumed the duties of the office in July, 1935.

From its beginning in 1876 the Johns Hopkins University has endeavored to widen its usefulness by offering from time to time extended and systematic courses of public lectures. These included a great variety of subjects and have followed different methods of treatment. Almost continuously since 1890 special courses of class lectures or "lesson courses" were given from year to year, and many teachers and other persons in Baltimore and vicinity availed themselves of these opportunities for systematic instruction in the subjects selected. Many teachers completed one or more of these courses of public educational lectures at the University and received certificates upon passing the required examinations. All this work was done without any reference to credit toward an academic degree.

Beginning in 1909, in cooperation with Goucher College, the University extended this form of public service by offering courses of instruction of collegiate grade to teachers.

"College Courses for Teachers" was the original designation of this division of the University. By action of the Board of Trustees on December 2, 1924, the title was changed to "College for Teachers."

The purpose of the College for Teachers is to provide instruction not only to those groups solely interested in academic work but also to give

academic and professional training to those interested in teaching and in advancement in the teaching profession. This work is arranged in systematic fashion paralleling a liberal arts college, and candidates successfully completing the requirements receive the Bachelor of Science degree.

The college permits special students to register for such courses as will meet their special cultural and professional needs without reference to a degree.

Special students are admitted to courses given in the School of Higher Studies of the Faculty of Philosophy provided they can satisfy the instructor concerned that they are qualified to pursue the work. For regulations governing registration and tuition see page 27 of the Circular of the School of Higher Studies of the Faculty of Philosophy.

### THE PLAN OF INSTRUCTION OF THE COLLEGE FOR TEACHERS

The College for Teachers is organized to meet the needs of several classes of students: Those who desire a liberal education leading to the Bachelor of Science degree; those who wish pre-professional training and are planning to enter the School of Higher Studies of the Faculty of Philosophy or the School of Medicine, those who wish pre-professional training for teaching or nursing; and those who wish advanced professional training in education and nursing education.

The curriculum for the first two years is arranged on a junior college basis with a view to giving the student the general education necessary for either a liberal education or a professional career.

At the completion of the equivalent of two years' work a student may apply as a candidate for the degree of Doctor of Philosophy or Doctor of Education in the School of Higher Studies of the Faculty of Philosophy.

The curriculum for the third and fourth years in the College is arranged in groups of related subjects. These are (a) Science (Biology, Chemistry, Geology, Mathematics, Physics, Psychology); (b) Social Science and Education (History, Political Economy, Political Science, History of Philosophy, Education, Nursing Education, Physical Education, Geography); (c) Literature and Language (English, French, German, Italian, Spanish, Latin, Greek); (d) Music and Fine Arts. The student elects a subject in one of these groups upon which to concentrate, and a member of the department, usually the instructor of his principal subject, serves as his adviser.

### RELATIONS WITH OTHER DEPARTMENTS

**The School of Higher Studies of the Faculty of Philosophy:** A student who wishes to enter the School of Higher Studies at the end of his second year as a candidate for the degree of Master of Arts or Master of Education or Doctor of Philosophy or Doctor of Education must apply to the professor of the Department in which he expects to study. Each department sets its own requirements for admission and is the sole

judge of the student's fitness, but it must be emphasized that only those students who show promise of ability are considered. At a later date, if the student's work is satisfactory, he may apply to the Board of University Studies for acceptance as a candidate for the degree of Master of Arts or Doctor of Philosophy, or if he desires the degree of Master of Education or Doctor of Education his application must be forwarded to the Committee on the Degrees of Master of Education and Doctor of Education. In addition to two years of college work, three years is the minimum residence requirement for the M. A. and M. Ed., and four years for the Ph. D. and Ed. D.

The transition from the College to the School of Higher Studies is not a mere routine matter. Students desiring admission make application on the regulation form which is secured from the Registrar. The professor of the department concerned indicates approval of the student's admission by signing this formal application.

**College of Arts and Sciences:** Upon the advice of the Director of the College for Teachers, the consent of the instructor in the course, and the approval of the Dean of the College of Arts and Sciences, candidates for the Bachelor of Science degree may register for one or two courses—two being the maximum—in the College of Arts and Sciences under the following conditions: If there is an unavoidable conflict in the student's program of studies, or, if the required courses are not offered in the College for Teachers.

#### ARMED FORCES INSTITUTE

Civilian students of the University who are called to military duty before the completion of their degree program are encouraged to enroll for courses approved by the Armed Forces Institute. The Director of the College for Teachers will guide the students in the selection of courses.

#### EDUCATION OF VETERANS

Any man or woman who has had active service since September 15, 1940, and has been honorably discharged is eligible if his or her education has been interfered with by reasons of military service and has served 90 days or more in the Army or the Navy exclusive of any period of study like the Army Specialized Training Program or Navy College Training Program. The candidate must enroll not later than two years after discharge or the termination of the war, whichever is later. Education must be completed within seven years after the termination of the war.

Any eligible person is entitled to one year's training, or equivalent in continued part-time study. Upon satisfactory completion of a year's training he is entitled to an additional period or periods of training not to exceed the time such person was in active service after September 16, 1940, and before termination of the war. In no case shall the total period of education exceed four years. The work must continue satisfactory

throughout the period according to the prescribed standards and practices of the institution in which the candidate is enrolled.

Additional information may be obtained from the Registrar.

### REQUIREMENTS FOR ADMISSION

Students who wish to pursue the work for a degree should apply at the Registrar's office for an application blank for matriculation for the degree of Bachelor of Science. Certain information should be filled in by the applicant. He should then forward it to the principal of the high school from which he was graduated. The principal records on this blank the high school marks and forwards it directly to the Registrar.

At the time this blank is mailed to the principal of the high school, the applicant should forward to the Registrar the fee of \$5 for matriculation. If matriculation is not granted this fee is returned to the applicant.

To be accepted as a candidate for the degree of Bachelor of Science the student must have met the requirements of graduation of a high school approved by one of the regional Associations of Colleges and Secondary Schools or he must pass examinations which indicate he has the equivalent of a standard four year high school course.

To certain students whose transcripts show marks slightly below those required for matriculation, a probationary period is granted during which they may register for some of the academic courses listed in Group A on page 13. After these students have demonstrated their ability to carry a specific number of these courses without a single failure and with grades of C or better, they may request the Registrar to review their high school records with a view to determining eligibility for matriculation.

Students whose transcripts show a grade lower than the standard for certification required by their schools are required to take the entrance examinations in the particular subjects. These may be the examinations of the College Entrance Examination Board, or of other approved examining boards.

In case of sufficient demand, entrance examinations are given at the beginning of each term of the College of Arts and Sciences. Information concerning these examinations can be obtained from the Registrar.

### TABLE OF MATRICULATION UNITS

Fifteen units of secondary instruction are required for matriculation of which nine are prescribed and six are elective.

#### *Prescribed Subjects*

##### Mathematics:

Algebra (1 unit)

(C.E.E.B.,\* Math. A1)

Plane Geometry (1 unit)

(C.E.E. B., Math. C)

English (3 units, requiring 4 years)

(C.E.E.B., English 1-2, or Cp.)

History (1 unit)

(C.E.E.B., History, A, B, C, or D)

\* The abbreviation C.E.E.B. refers to the College Entrance Examination Board. Descriptive

Modern Foreign Language (2 units in one of the following languages):

French	} (C.E.E.B., Cp. 2)
German	
Spanish	
Italian	

Science (1 unit)

(C.E.E.B., Equivalent)

### *Elective Subjects*

Sufficient electives chosen from among the following subjects to make 15 units in all:

{ Domestic Science (1 unit)	} (C.E.E.B. Equivalents)
{ or Manual Training (1 unit)	
Drawing (1 unit)	
History (1 or 2 units additional)	
Latin (2, 3, or 4 units)	
Algebra (1 or ½ units additional)	
Solid Geometry (½ unit)	
Trigonometry (½ unit)	
Modern Foreign Language (2, 3, or 4 units additional)	
Science (1 or 2 units additional)	
Bookkeeping (1 unit)	
Commercial Arithmetic (1 unit)	
Commercial Geography (1 unit)	}
Commercial Law (1 unit)	
Music (1 or 2 units)	Peabody certificate, Preparatory Department

### ADVANCED STANDING

A Committee on Advanced Standing has been appointed to consider transcripts sent in by applicants who have completed work at approved colleges, scientific schools, normal schools, training schools, or technical schools in advance of high school graduation. If these transcripts show a scholarship grade of 70 or C or better, this Committee assigns the number of points credit to be allowed for this work.

Students may be given an opportunity to absolve some of the required courses by examination. If the examination is successful, the student upon payment of the fee for such a course, receives credit for it.

No advanced standing is granted for correspondence courses and for extension courses which are conducted off the campus of the institution offering them. However, special consideration will be given to certain types of specialized training work done in the armed forces during the present War.

Arrangements have been made whereby advanced standing, not to exceed thirty points credit, is allowed to graduates of accredited hospital schools for nurses upon the recommendation of a committee\* of which

circulars may be secured by writing to the Secretary of the College Entrance Examination Board, 431 West 117th Street, New York City 26.

\* See page 6.

Miss Anna D. Wolf, Director of The School of Nursing and of The Nursing Service of The Johns Hopkins Hospital is an active member.

Arrangements have also been made for the granting of the Bachelor of Science degree with a major in nursing education. For details, see page 18.

### *Music*

In cooperation with the Peabody Conservatory of Music \* of Baltimore, candidates for the Bachelor of Science degree may offer a major in music by completing sixty points in music at the Conservatory under the guidance of the Director. The remaining sixty points must include those academic courses listed under Group A (see p. 13) together with such additional professional courses in the Department of Education as are specified by the student's adviser. Students interested in this program should consult with the Director of the College for Teachers.

Students who registered under the old plan for a major in music should consult with the Director of the College for Teachers.

The requirements for the degree of Bachelor of Music instituted by the Conservatory include a number of courses in the College for Teachers.

### *Fine Arts*

In cooperation with the Maryland Institute of Baltimore provision has been made whereby candidates for the Bachelor of Science degree may offer a major in art by completing the following courses at the Maryland Institute: first year, Freehand Drawing and Modeling, six points; second year, Design and Marionettes or Crafts, six points; third year, Design and Lettering, six points; and fourth year, Figure Sketching and Costume Designing, six points. The remaining points must include those academic courses listed under Group A (see p. 13) together with the courses specified under an art major (see p. 17). Students interested in this program should consult with the Director of the College for Teachers.

The Maryland Institute \*\* announces a special Normal Art Course for the training of teachers and supervisors of art in public schools. Certain courses in education at the University form a part of this special course.

## THE BACHELOR OF SCIENCE DEGREE IN THE COLLEGE FOR TEACHERS

### FORMAL REQUIREMENTS

**Matriculation:** All students must be officially accepted as candidates for the degree of Bachelor of Science. This is called matriculation and the requirements for admission are stated on page 10.

\* Students interested should apply to the Peabody Conservatory of Music, Mt. Vernon Place, Baltimore 2, for the program of courses.

\*\* Students interested should apply to the Maryland Institute, 1300 Mt. Royal Avenue, Baltimore 17, for the program of courses.

After matriculation the candidate must take courses sufficient to earn one hundred twenty points. Some of these: (a) may be absolved by special examination; (b) may be absolved by one or more reading courses; (c) with the approval of the Director, may be taken in the summer at other universities.

### COURSES OF STUDY

The College for Teachers provides several curricula leading to the B. S. degree to meet the needs of the following groups of students:

1. The group interested in liberal arts education.
2. The group interested in teaching as a profession.
3. The group interested in nursing education.
4. The group interested in pre-medical work.

All students must complete satisfactorily the following courses.

#### GROUP A

Prose Writing

English Literature

History (2 courses, one of which must be in American history and the other in world history)

Biology or Geology or Chemistry or Botany or Physics

Mathematics or Sociology or Political Economy or Political Science or History of Philosophy or Introductory Psychology\* or Anthropology

Foreign languages (Two standard courses beyond the elements in an approved foreign language, ancient or modern, or one standard course beyond elements in French and another in German.\*\* Candidates for the degree who have graduated from normal schools prior to June 1942 and who receive advanced standing equivalent to two or three years' work, and who are teachers or prospective teachers in the field of elementary education in city or state school systems, may select for substitutes for the foreign language requirement two courses in one of the following subjects: Political Economy, Political Science, History of Philosophy, Introductory Psychology,\* Anthropology, Genetics, or Archaeology.

#### ACADEMIC GROUP

In addition to courses in Group A, the students interested in academic work *only* will choose a field in which to concentrate from among the following groups. This choice is not made until the junior year.

#### PROFESSIONAL GROUP

In addition to the courses in Group A, the students interested in preparing to teach must take the subject matter courses listed under the various groups, Fundamentals of Speech, and the following courses in the field of Education. These courses given below are not to be undertaken until the junior year.

Philosophy of Education

\* Not accepted for students majoring in Education because of overlapping with Educational Psychology.

\*\* Elements may be credited as electives only provided they have not been offered for matriculation.



Educational Psychology  
 History of Education  
 Survey course in a given field, such as  
 junior high school, etc.  
 Tests and Measurements  
 Observation, Participation, and Prac-  
 tice Teaching  
 Health and Physical Education

## B. SOCIAL SCIENCE GROUP

All students majoring in the social sciences must complete satisfactorily the following courses:

Ancient and Mediaeval History  
 Europe from the End of the Middle Ages to 1870  
 Europe, 1870 to the Present  
 American Colonial History  
 Two additional courses in American History  
 Specialized course of advanced nature  
 American Government  
 Foreign Governments  
 Political Economy  
 Sociology

### *Education*

All students offering social sciences as their teaching subject *must* in addition to the courses listed on the left under Social Science Group take one or the other of the professional courses listed on the right. This is to be selected in accordance with the field of teaching:

Social Studies in the Elementary School Curriculum  
*or*  
 Methods of Teaching the Social Studies in the Secondary Schools

Electives chosen from among the following fields announced in the Circulars of the College for Teachers and Evening Courses in Business Economics under the following headings:

Art  
 Business Economics Courses  
 Education  
 English  
 Geography  
 History (not listed under minimum requirements for the group)

Labor Relations  
 Mathematics and Statistics  
 Music  
 Philosophy  
 Political Economy  
 Political Science  
 Sociology

## C. NATURAL AND PHYSICAL SCIENCES \*

### 1. *Biology*

All students majoring in Biology must complete satisfactorily the following courses:

General Biology  
 General Botany  
 Genetics and Evolution  
 General Histology

*or*  
 Physiology  
 General Inorganic Chemistry  
 Physics (2 courses)  
 College Algebra and Trigonometry  
 For advanced work in Genetics, advanced Mathematics is required.

### *Education*

All students offering Biology, Chemistry, Geology, or Physics as their teaching subject *must*, in addition to the courses listed on the left under the particular subject, take one or the other of the professional courses listed on the right. This is to be selected in accordance with the field of teaching:

Science in the Elementary School

*or*  
 Methods of Teaching Science in the Secondary School.

\* Permission may be granted properly qualified students to attend courses in the College of Arts and Sciences. For regulations governing registration in these courses, see page 9.

## 2. Chemistry

All students majoring in Chemistry must complete satisfactorily the following courses:

Inorganic Chemistry  
Qualitative Analysis  
Quantitative Analysis  
Organic Chemistry  
Physical Chemistry  
Physics (2 courses)  
Trigonometry and Analytic Geometry

Students electing Chemistry should select Biology I T for their required laboratory science in Group A. It is advised that they select German for their modern foreign language.

## 3. Geology

All students majoring in Geology must complete satisfactorily the following courses:

Physical Geology  
Historical Geology  
Mineralogy  
Physical Geography  
Human Geography

Students electing Geology should include Biology, Physics, and Methods of Teaching Geography among their elective courses.

## 4. Physics

All students majoring in Physics must complete satisfactorily the following courses:

Mechanics, Properties of Matter,  
Heat, and Sound  
Magnetism, Electricity, and Light  
Wave Motion, Sound, and Light  
Modern Physics

or

Modern Chemistry  
General Inorganic Chemistry  
Trigonometry and Analytic Geometry  
Calculus

All students selecting Physics should elect Chemistry for their required laboratory science course under Group A.

## 5. Mathematics

All students majoring in Mathematics must complete satisfactorily the following courses:

### Education

All students offering Mathematics as their teaching subject must in addition to the courses listed on the

Trigonometry and College Algebra  
 Analytic Geometry  
 Differential and Integral Calculus  
 Advanced Calculus and Differential  
 Equations  
 Statistics

left under this subject take the follow-  
 ing professional courses listed below:  
 Teaching of Mathematics in the Sec-  
 ondary Schools  
 Modern Developments in Mathematics  
 of Importance for Teachers at the  
 Elementary and Secondary School  
 Levels

Electives chosen from among the following fields announced in  
 the Circulars of the College for Teachers and Night Courses  
 in Technology:

Astronomy  
 Botany  
 Chemistry  
 Education  
 Engineering  
 Geography

Geology  
 Hygiene  
 Mathematics and Statistics  
 Physics  
 Sociology

#### D. LITERATURE AND LANGUAGE GROUP

##### 1. *English*

All students majoring in English  
 must complete satisfactorily the fol-  
 lowing courses:

Advanced English Writing  
 Survey of English Literature  
 Shakespeare  
 Fundamentals of Speech  
 Current Spoken English  
 or  
 Current Written English  
 Contemporary American and British  
 Poetry  
 American Literature  
 Children's Literature  
 History of England (Not offered in  
 1944-45)  
 Philosophy  
 French or German or Spanish or  
 Italian Literature

##### 2. *Modern Foreign Language*

All students majoring in a modern  
 foreign language must complete satis-  
 factorily the following courses:

Four courses in one modern foreign  
 language  
 Reading course in another foreign  
 language  
 World Drama or Contemporary Brit-  
 ish and American Drama  
 Seventeenth Century Poetry (English)  
 History of Philosophy

##### *Education*

All students offering English as  
 their teaching subject *must* in addi-  
 tion to the courses listed on the left  
 under English take one or the other  
 of the professional courses listed on  
 the right. This is to be selected in  
 accordance with the field of teaching:

Language Arts in the Elementary  
 School  
 or  
 Methods of Teaching English in the  
 Secondary Schools

##### *Education*

All students offering modern foreign  
 language as their teaching subject  
*must* in addition to the courses listed  
 on the left take the following pro-  
 fessional course:

Methods of Teaching Modern Lan-  
 guages in the Secondary Schools.

Electives chosen from the following fields announced in the Circular of the College for Teachers:

Art	Italian
Education	Latin
English	Mathematics
French	Music
German	Oriental Seminary
Greek	Philosophy
History	

### E. FINE ARTS

By a plan of cooperation with the Maryland Institute of Baltimore provision has been made whereby candidates for the Bachelor of Science degree may offer a major in art by completing the following courses at the Maryland Institute:

First year: Freehand Drawing and Modeling	six points
Second Year: Design and Mar- ionettes or Crafts	six points
Third Year: Design and Letter- ing	six points
Fourth Year: Figure Sketching and Costume Designing	six points

All students majoring in fine arts must complete satisfactorily the following courses:

Philosophy of Aesthetics  
History of Art  
Art Appreciation  
Children's Literature  
Play Production

#### *Education*

All students offering fine arts as their teaching subject must in addition to the courses listed on the left take the following professional courses:

Audio-Visual Education  
The Teaching of Art in the Elementary School or The Teaching of Art in the Secondary School  
Problems of Art Instruction

Electives chosen from the following fields announced in the Circular of the College for Teachers:

Art	Italian
Education	Latin
English	Mathematics
French	Music
German	Oriental Seminary
Greek	Philosophy
History	

### F. HEALTH AND PHYSICAL EDUCATION

The course of study for a major in health and physical education is as follows:

<i>First Year</i>	<i>Second Year</i>
English Writing	Bacteriology
Fundamentals of Speech	Modern Foreign Language (second course)
English Literature	

Science—Biology  
 Modern Foreign Language  
 History of World Civilization  
 Theory and Practice of Physical Education I

Anatomy and Vertebrate Zoology  
 Sociology or Social Psychology  
 Psychology (with four hours laboratory)  
 Theory and Practice of Physical Education II  
 Trigonometry and College Algebra

### *Third Year*

Physiology  
 Psychology of Education  
 General Principles of Education  
 Tests and Measurements  
 Abnormal Psychology  
 History of Physical Education  
 Theory and Practice of Physical Education III  
 Observation of Teaching  
 Special Methods of Teaching Physical Education

### *Fourth Year*

Philosophy of Education  
 Health Education  
 Special Methods in Hygiene and Health Education  
 Child Guidance and Behavior Problems  
 Mental Hygiene  
 Advanced Biology  
 Practice Teaching (nine weeks—four and a half weeks in gymnasium practice and four and a half weeks in health)  
 Political Science or Political Economy  
 Elective

## G. NURSING EDUCATION

The following program leading to the degree of Bachelor of Science in Nursing Education has been set up for registered nurses who have graduated from approved schools of nursing and desire special preparation in the fields of administration, supervision or teaching in schools of nursing, or in public health nursing.

Registered nurses who have completed in other colleges or universities, courses comparable to individual courses in our program may be allowed advanced standing. In addition to the credits received for the training at The Johns Hopkins Hospital School of Nursing a minimum of thirty points must be taken in The Johns Hopkins University to complete the requirements for the degree.

Requirements for the Bachelor of Science degree for nurses:

### I. General academic courses:

English Writing  
 English Literature  
 World History  
 United States History  
 Science—Chemistry preferred  
 Speech  
 Mathematics  
 Electives—Two courses in foreign language in advance of elements.\*

34 points total

### II. Additional required courses:

Sociology  
 Educational Psychology

\* For nurses preparing for administrative, supervisory, or teaching positions in schools of nursing, the language courses must be included in their programs.

History of Education  
 Philosophy of Education  
 History of Nursing  
 Biology

A second science course—Physics preferred.

32 points total

III. Course in Nursing at an approved nursing school subject to evaluation by the Committee—maximum amount of credit 30 points.

30 points total

IV. The following fields of specialization are available:

- A. Public Health
- B. Principles and Techniques of Teaching
- C. Administration
- D. Supervision.

The candidate should elect a field for specialization, and then select from among the courses listed below, those which fall within his field of specialization.

Courses offered in 1944-45:

30 points total

Nutrition

Management and Teaching in the Hospital Nursing Unit

Mental Hygiene Applied to Nursing

Public Health Aspects of Venereal Disease

Introduction to Public Health Nursing

Maternity, Infant, and Child Care

#### PRE-MEDICAL GROUP \*

Students who intend to prepare themselves for entrance into a medical school should major in the Pre-medical Group.

In addition to the courses listed under Group A, the following subjects must be passed: General Biology, Comparative Anatomy of Vertebrates, Genetics, and Embryology; Chemical Fundamentals, Introductory Organic Chemistry, Quantitative Analysis, Elements of Physical Chemistry, Qualitative Analysis; Trigonometry, Analytic Geometry, Calculus; General Physics including Mechanics, Heat, Sound, Light, Electricity and Magnetism; and Introductory Psychology. Two or three additional courses should be taken. It is recommended that these be chosen from the following: General Botany, Organic Evolution; Elements of Geology; Elementary Latin; Scientific Method, Logic, and History of Ancient and Modern Philosophy; and American National Government.

Courses in German Reading and French Reading, usually taken during the first two years, are required for a major in the Pre-medical Group.

#### REQUIREMENTS FOR NORMAL SCHOOL GRADUATES

Students interested in professional training who have submitted to the Committee on Advanced Standing credentials from an approved two- or

\* Permission may be granted properly qualified students to attend courses in the College of Arts and Sciences. For regulations governing registration in these courses, see page 9.

three-year normal school or teachers college and have been allowed credit for such work, must include in their programs the courses listed under Group A together with such courses as are required for the major and cognate subjects they elect.

Those students who have been granted advanced standing for the completion of a three-year normal school or teachers college *must complete in this University* all the requirements specified under Group A and those courses set up for the major and the cognate which have been selected by the student.

1. A major in Education consists of two parts:
  - (a) The following courses in Education:
    - History of Education
    - Educational Psychology
    - Philosophy of Education
    - A survey course in Education which must include work in tests and measurements.
  - (b) A total of five courses in any teaching field such as history, English, reading, vocational education, or special education. Courses in Group A may be included.
2. A major in other subjects consists of: three courses in one subject and two courses in one or two cognate subjects:
  - (a) Students electing education as a cognate subject must take Educational Psychology and the Philosophy of Education.

### CREDIT ALLOWED FOR COURSES

The credit for the completion of any course is expressed in points. The credit for a standard two-hour lecture course for one academic year of thirty-two weeks is four points. Two hours or more of laboratory work for one academic year are the equivalent of one hour of lecture, for which the student receives two points credit. For a laboratory period of less than two hours throughout the academic year, one point credit is assigned. Credits for all other courses are assigned on this basis. A total of one hundred twenty points must be obtained to meet the requirements for the Bachelor of Science degree.

*Students giving evidence of superior ability in the regular collegiate courses* may earn honor credit of not more than two points in connection with a standard course. *Only with the written approval* of the instructor and the adviser may the work for honor credit be undertaken. This honor credit may be obtained in the following manner: by completing a paper upon a topic assigned by the instructor; by passing a special examination; or, by completing additional work in the laboratory upon a special topic assigned by the instructor.

Certain students giving evidence of superior ability may be permitted to pursue individual reading courses independent of class instruction. The following conditions, however, must be met. After receiving the permission of the Director they must fulfill all registration requirements; the instruc-

tor in charge must prepare a list of the required readings with dates for several oral interviews for checking upon the student's ability to master this material, and specified dates for required examinations; this list of topics and dates must be approved by the Director. Upon the successful completion of the reading course the instructor forwards to the Director a report of the work with a recommendation of the amount of credit to be assigned. This report is forwarded to the Registrar's office for recording.

Candidates for the Bachelor of Science degree must complete a minimum of thirty points in the College for Teachers, Evening Courses in Business Economics, Night Courses in Technology, and/or the Summer Session. The maximum credit allowed a student in one summer session is nine points. The term "course" is applied to any unit of instruction which requires two or more lecture hours weekly throughout two terms of sixteen weeks each in the academic year. A summer course is equivalent to a one term course unless otherwise specified in the circular.

#### ADVISERS

Advisers are assigned to aid students in planning their programs of studies. Students should seek this advice before registering and should consult with the adviser several times during the year.

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## GENERAL INFORMATION

### EXAMINATIONS

**Mid-Year and Final Examinations:** Examinations of all classes are held the week of January 29 and the week of May 28. The students have decided that the honor system prevails for all examinations.

**Absence from Examinations:** A student who is absent from the Mid-Year or Final Examination in any course must report to the Director as soon as the circumstances which caused the absence permit. If the absence was justifiable, permission for a deferred examination will be given, subject to the usual fee.

**Fee for Special Examinations:** A fee of \$5 is charged for every special examination. One fee, however, will cover all deferred examinations due to the same cause.

**Permit required for Special Examinations:** A student who is to take any special examination must obtain a written permit from the Registrar's Office and a receipt from the Treasurer's Office showing that the fee has been paid. *No instructor may admit a student to such an examination except on the presentation of the permit and the Treasurer's receipt.*

### REPORTS AND MARKS

**Official Reports:** At the close of each examination period each instructor files with the Registrar official reports of the grades of his students. These grades are based both upon the regular exercises of the term and upon the examinations, and are expressed in the prescribed system of marks.

**Marks:** The scale of marks for official reports is A, B, C, D, and F. There is no conditional failure.

In case an instructor is not prepared to give a definite mark for the term, in view either of sickness of the student or of some justifiable delay in the completion of certain work, he may report a symbol "I" meaning incomplete. "I" is not a conditional mark and instructors do not give it under any conditions except those stated above. If the student's work is incomplete or unsatisfactory for reasons other than those so stated, this mark of "I" does not apply. A month is the time allotted to complete this work, when a definite mark for the term should be sent to the Registrar's Office. If the instructor fails to report a mark to replace the "I" within the allotted time, a grade of failure will automatically replace the "I," unless special arrangements are made with the Director.

Students who do not wish credit for courses register as auditors.

**Absolving a Failure:** A student who has failed the first term of a course may remain in the course during the second term if the instructor permits. If the student makes a passing grade in the work of the second term and if the nature of the course is such as to warrant it, the mark at the end of the year may be considered the mark for the year, and the "F" will be removed from the record of the first term.

A failure for a term or for the year can be absolved only by repeating the course except as noted above.

Wherever a failure is absolved by repeating the course, this fact shows on the record but the new mark does not erase the "F."

**Change of Marks:** No mark on an official report may be changed except:

- (a) To correct a clerical error.
- (b) To replace an "Incomplete," under conditions stated above.
- (c) To replace an "F" as provided above.

## FEES

### TUITION AND ENROLLMENT FEES

An enrollment fee of \$3 is payable annually.

The charge for instruction is \$18 a year for each hour per week.\* A course continues through the academic year, October 9 to June 2, except as otherwise stated. Laboratory fees are additional. The fee charged for two to three hours of laboratory work is the same as that of one hour of recitation or lecture. Advanced standing granted upon examination is subject to the payment of the tuition fees for the courses thus absolved.

With official approval, students paying full tuition or on scholarship appointment in the College of Arts and Sciences, the School of Engineering, and the School of Business Economics may register in courses in the College for Teachers without additional tuition fees. They are, however, subject to the regular laboratory fees.

Students in the School of Higher Studies in the Faculty of Philosophy may register in courses in the College for Teachers other than the elements of French, German, and Spanish, without additional tuition fees. They will, however, be subject to the regular laboratory fees.

*Payment of fees at the office of the Treasurer is part of the registration obligation and must be made before attendance on classes as follows:* on or before October 14, for the October term, \$12 per hour; on or before February 10, for the February term, \$6 per hour; students registering on or before October 14, for courses arranged in distinct parts for each term, \$9 per hour; students registering on or before February 10, for courses

\* Except as otherwise stated in individual courses.

announced for the February term *only*, \$9 per hour. All laboratory and deposit fees are payable in advance, before October 14, with the exception of the laboratory fee in Biology 1 T, which is payable, \$5 before October 14, and \$5 before February 10. Students unable to pay their fees on the stated days must make arrangements *in advance* with the Treasurer. *As payment of fees is a part of registration, no bills are sent to students. No one is permitted to attend classes until all fees are paid or satisfactory arrangements for payment are made with the Treasurer.* No reduction in fees is made for withdrawal from courses after *October 21*, for the October term and after *February 10*, for the February term, except under exceptional circumstances and then only after formal application to the Registrar.

#### LIBRARY FEES

A deposit of \$20 permits students the privilege of borrowing books (non-reserved) from the library for the usual period of two weeks. This amount is returned at the end of the session if there are no charges incurred in the meanwhile.

#### TUITION FOR READING COURSES

Tuition for reading courses is assigned on the basis of the amount of credit to be earned by the student and is payable in advance. The enrollment fee of \$3 is payable by those students who are not registered in any other courses in the University.

#### MATRICULATION FEE

The matriculation fee for the degree of Bachelor of Science is \$5. This must be forwarded to the Registrar at the same time the application for matriculation is forwarded to the principal of the high school. If the student is not accepted the \$5 will be refunded.

#### GRADUATION FEE

The graduation fee for the Bachelor of Science degree is \$5, payable before the degree is conferred.

#### TRANSCRIPT FEE

The fee for a duplicate copy of a student's record is \$1, payable in advance. One copy is furnished free of charge.

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## SCHOLARSHIPS

### JUMBLE-INN SCHOLARSHIPS

The Jumble-Inn Scholarships were established in 1920 by the gift of a fund to the University from the Jumble-Inn Committee, Mrs. Sumner A. Parker, Mrs. Walter Wickes, Mrs. W. W. Keith, Mrs. James H. Preston, Mrs. Julian Ridgley, Mrs. William McMillan, and Miss Sarah Fischer. The income of the fund is to be used for the benefit of women teachers in the elementary public schools of Baltimore who are residents of the city, and who are pursuing instruction in the College for Teachers as candidates for the degree of Bachelor of Science. Preference in every award is to be given to those in need of financial assistance in completing a college course. Application should be made to the President of the University.

### FLORENCE E. BAMBERGER SCHOLARSHIP

The Florence E. Bamberger Scholarship was established by Chi Chapter of Pi Lambda Theta of the Johns Hopkins University. This scholarship of one hundred dollars, to be applied toward tuition, is available to a woman majoring in education who is entering the fall term with senior status. She shall have completed a year's residence at this University and shall possess the highest qualities in scholarship and leadership. The award will be made by a committee under the direction of the Department of Education of the University. Application should be made to the President of the University.

### FLORENCE R. BONN SCHOLARSHIP

A group of retired public school teachers of Baltimore have contributed, through Miss Florence R. Bonn, the sum of one hundred dollars to be applied toward the tuition of a Baltimore public school teacher who is a candidate for the degree of Bachelor of Science and wishes to pursue instruction in the College for Teachers during 1944-45. Application should be made to the President of the University.

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### ACADEMIC YEAR

The academic year begins Monday, October 9, 1944, and ends on Saturday, June 2, 1945. This is divided into two terms of sixteen weeks each, October and February. The October term ends at the close of the examination period, Saturday, February 3, 1945. The February term begins immediately after the examinations, on Monday, February 5, 1945, and ends at the close of the final examinations on Saturday, June 2, 1945.

Each course includes instruction for thirty-two weeks, except as otherwise noted. Classroom and laboratory exercises are scheduled in the afternoon and evening from Monday to Friday and on Saturday forenoon except on the announced University recesses at Thanksgiving, Christmas, and Easter.

#### SCHEDULE OF HOURS

Classes meet in the University buildings at Homewood and in certain public schools buildings in the city. Periods for afternoon and evening courses are generally scheduled as follows: 4.10-5.50 p. m., 6.30-8.10 p. m., and 8.15-9.55 p. m.

The complete schedule of hours cannot be arranged prior to the opening of the courses on October 9, 1944. Changes in the hours indicated may be made after the opening in order to meet the needs of students. Where days and hours are omitted, the convenience of students is considered in arranging the schedule.

The Board of School Commissioners of Baltimore having extended the privilege of using certain of the public school buildings for classes in the College for Teachers, the University undertakes, within the limits of the schedule of the faculty, to organize classes at centers convenient for students who find Homewood too remote.

Through the cooperation of the Administrative Committee of the Baltimore Museum of Art, some of the classes in art are held in the Baltimore Museum of Art.

#### UNIVERSITY EXTENSION CENTERS

Under a regulation adopted by the Advisory Committee on the Degree of Bachelor of Science in September, 1917, non-laboratory courses announced in the program, for which arrangements for instruction can be made, may be conducted at centers throughout the State of Maryland. The satisfactory completion of courses so conducted is credited toward the degree of Bachelor of Science, and, also, will be accepted by the State Superintendent of Schools toward advancing the grade of teachers' certificates.

The general conditions, under which classes are organized at University Extension Centers, call for a minimum registration of twenty-five students, and provision by the local class of place of meeting and the incidental expenses of the visiting instructor. Class exercises are to be held weekly during the regular session, from October to June. The conditions of admission and tuition expenses are described on pages 10 and 23.

#### GILMAN LOUNGE

An attractive room on the ground floor of Gilman Hall has been furnished for the use of women students.

## COURSES OF INSTRUCTION

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Any course for which there are fewer than fifteen applicants may be withdrawn. In case there is a sufficient demand on the part of properly qualified persons for courses in advance of, or other than, those mentioned below, an effort will be made to arrange for such instruction.

Credit in number of points is recorded only for the completion of full-year courses, except in case of those courses which are announced in two term sections, when credit is recorded for the completion of either term. Credit is also given for courses taken in the Evening Courses in Business Economics and Night Courses in Technology, a list of which is appended.

### ART

Professor ROBINSON

Mrs. BRESKIN

1 T. History of Art from the Pyramids to Picasso. Professor ROBINSON. Tu., 8.15-9.55 p.m. Gilman Hall 109.

(a) Ancient Art.

A general outline is made of ancient architecture, sculpture, and painting with some attention to the minor arts and to drawing as seen on vases. The development of the different branches of ancient art from prehistoric times is systematically considered and their influence on later art emphasized. Lectures are illustrated by slides, photographs, casts, original antiquities and works of art, and by visits to museums in Baltimore, Washington and elsewhere. Books recommended: Helen Gardner, *Art through the Ages*; Fowler-Wheeler, *Greek Archaeology*.

(b) Mediaeval, Renaissance, and Modern Art.

History of the development of Mediaeval, Renaissance, and Modern Architecture, Sculpture, and Painting is given. Textbook: Helen Gardner, *Art through the Ages*.

The course on the History of Art is part of the requirement of the major in art.

4 T.A. Appreciation of Art. Mrs. BRESKIN. Two hours a week. October term. Not offered in 1944-45.

4 T.B. Appreciation of Modern Art. Mrs. BRESKIN. Th., 8.15-9.55 p.m. October term. Baltimore Museum of Art.

Study is made of the development of the various channels of contemporary art with emphasis on the influence of the French School of the 19th and 20th centuries upon American art of today. Original works in the Cone, May, and the Museum's permanent collection are used to illustrate the course.

5 T. Appreciation of Graphic Arts. Mrs. BRESKIN. Th., 8.15-9.55 p.m. February term. Baltimore Museum of Art.

A survey is made of five centuries of printmaking illustrated by original works chosen from the extensive group of over 50,000 original prints in the Museum's permanent collection. The graphic processes, such as, woodcut, engraving, etching, and lithography are explained, and demonstrated, so that the intrinsic quality of the varied media may be recognized.

## ASTRONOMY

Miss SWOMLEY

### 1 T. Astronomy. Miss SWOMLEY. Th., 7.30-9.10 p. m. Rowland Hall 104.

The course covers the astronomy of the solar system with an introduction to the study of the physical nature of the stars, nebulae, and star clusters. Naked eye studies of the constellations as well as regular observations with the nine-inch telescope on the campus are made. The history of astronomy is treated briefly. The course does not deal with the mathematical aspects of the subject but is intended for those who wish to have some knowledge of the planets and stars.

A trip to the Philadelphia planetarium is planned.

Laboratory fee: \$1.

## BIOLOGY

Associate Professor EPHRUSSI

Associate Professor MOMENT

Associate Professor GUTTMACHER

Dr. KIMBALL

### 1 T. General Biology. Associate Professor MOMENT. Lecture, S., 8.30-10.10 a. m.; laboratory, 10.10-1.10 p. m. Mergenthaler Hall 200.

An introduction is given to the principles of biology both as a source of general culture and as a background necessary for all advanced work in the biological and medical sciences.

All students must supply their own dissecting sets, slides, and cover glasses on entrance to the course.

Laboratory fee: \$10; deposit fee: \$5.

### 2 T. General Botany. Not offered in 1944-45.

### 4 T. Genetics. Associate Professor EPHRUSSI and Dr. KIMBALL. Three hours weekly, hours to be arranged. February or Spring term depending upon the demand.

A presentation of the principles of heredity and their bearing on the problems of evolution and development is made.

Prerequisite: Biology 1 T or equivalent.

Laboratory fee: \$3.

### 9 T. Human Biology. Associate Professor GUTTMACHER. F., 4.10-5.50 p. m. October to April. Mergenthaler Hall 200.

This course surveys the social, legal, economic, and medical aspects of human biology. In it there is developed an attitude toward the problem of sex hygiene which will prove helpful to the teacher and nurse. It carries three points credit.

Open to women students only.

Prerequisite: Biology 1 T.

This course will be given only if there is an enrollment of fifteen.

## BUSINESS ECONOMICS

For full information concerning the courses in Business Economics and Political Economy, see the Circular of the Evening Courses in Business Economics.

## CHEMISTRY

NOTE: Full information concerning the following courses in Chemistry is contained in the Circular of the Night Courses in Technology.

- 475 N. General Chemistry Principles. Lecture, M., 6.30-8.10 p. m.; laboratory, W., 6.30-10.00 p. m. Remsen Hall 101.
- 476 N. General Chemistry: Descriptive Inorganic Chemistry, Qualitative Analysis, and Chemical Calculations. Lecture, F., 6.30-8.10 p. m.; laboratory, Tu., 6.30-10.00 p. m. Remsen Hall 101.
- 477 N. Quantitative Analysis: General Inorganic and Technical Analysis.\* Tu. and W., 6.30-10.00 p. m. Remsen Hall 103.
- 478 N. Organic Chemistry. Lecture, M., 6.30-8.10 p. m.; laboratory, Tu., 6.30-10.00 p. m. Remsen Hall 221.
- 479 N. Physical Chemistry.\* Tu. and F., 8.20-10.00 p. m. Remsen Hall 221.
- 480 N. Advanced Inorganic Chemistry.\* Tu., 8.20-10.00 p. m. Remsen Hall 221.
- 481 N. Advanced Organic Chemistry.\* Th., 8.20-10.00 p. m. Remsen Hall 221.
- 482 N. Analytical Organic Chemistry.\* Th., 6.30-10.00 p. m. Remsen Hall 221.
- 484 N. Advanced Physical Chemistry.\* W., 8.20-10.00 p. m. Remsen Hall 304.

## EDUCATION

Professor BAMBERGER  
Professor SHAFFER  
Associate Professor WEGLEIN  
Dr. RIGGS  
Mr. THURSFIELD  
Dr. McMAHON  
Miss ADAMS  
Mrs. BLACKISTON  
Mrs. BOWEN  
Miss BUCHWALD  
Dr. BURNETT

Dr. DAVIS  
Dr. DICE  
Miss GERSTMYER  
Miss GLACE  
Dr. HARTLEY  
Mr. PACKARD  
Mrs. PARK  
Mrs. RUMNEY  
Miss SMUCK  
Dr. TAYLOR  
Miss WALKER

Miss ZOUCK

The numbering system for the courses in Education is as follows:

General Courses, 1 T-20 T.

\* These courses will be offered only if there is sufficient demand.



- Elementary Education (Primary and Intermediate inclusive), 21 T-50 T.
- Primary Education only, 51 T-70 T.
- Intermediate Education only, 71 T-90 T.
- Secondary Education, 91 T-150 T.
- Junior High Education.
- Senior High Education.
- Special Education, 151 T-160 T.
- Vocational Education, 161 T-170 T.
- Physical Education, 171 T-.

NOTE: For advanced courses in Education: such as, administration, supervision, educational psychology, statistics, history, comparative education, and philosophy, see Circular of the School of Higher Studies of the Faculty of Philosophy.

For additional course in administration see Political Science 10 T and 11 T.

**1 T. Educational Psychology: Introductory Course.\* Dr. DICE. W., 6.30-8.10 p. m. Rowland Hall 101.**

This course emphasizes the characteristics of the learner and the nature of the learning process. Conditions of adjustment and their relation to the educative process as well as to personal development are given proper attention.

**2 T. Philosophy of Education.\* Professor BAMBERGER. M., 4.10-5.50 p. m. Gilman Hall 216.**

This introductory course stresses the philosophical background of some of the major developments of American education as well as some of the problems of modern significance.

**3 T. The History of Education.\* Mr. THURSFIELD. Th., 4.10-5.50 p. m. Mergenthaler Hall 200.**

Consideration is given to the educational demands of changing political, economic, and social conditions; the rise and decline of educational institutions; the importance of informal agencies; changing curricula and educational methods; educational leadership and the emergence of a teaching group.

**9 T.B. Problems of Adolescent Adjustment. Dr. RIGGS. W., 6.30-8.10 p. m. Gilman Hall 108.**

An examination of areas and problems of adjustment facing modern adolescents is conducted with a view to arriving at a better understanding of the factors involved and the means of securing better adjustments.

**12 T. Educational Tests and Measurements: Introductory Course. Dr. McMAHON. W., 4.10-5.50 p. m. October term. Mergenthaler Hall 313.**

A number of intelligence, achievement, and personality tests are given, scored, and analyzed both for instructional purposes and to secure data for the personnel records of individual students. Practice is given in the necessary elementary statistics involved.

NOTE: Education 12 T combined with 112 T or 91 T or 21 TA or B fulfills the requirement of a survey course in Education for the Bachelor of Science degree.

\* These courses meet the requirements for both teachers and nurses.

- 6 T. Personality and Character in Education. Dr. McMAHON. W.,  
4.10-5.50 p.m. February term. Room to be assigned.

An analysis and evaluation of the principles involved in character and personality measurements are made and surveys of recent experimentation in the field of character education are examined.

- 7 T. Child Guidance and Behavior Problems. Dr. McMAHON. Th.,  
6.30-8.10 p.m. Gilman Hall 216.

A. In the Elementary School. October term.

B. The Delinquent Child. February term.

The factors influencing behavior and methods of diagnosis and treatment are studied, and illustrative cases are presented for discussion.

- 11 T. Clinical Methods in Education. Not offered in 1944-45.

- 13 T.D. Education Faces the Future: General Patterns of Education.  
Th., 4.10-5.50 p.m. Mergenthaler Hall 313.

This course presents an overview of the many educational problems confronting postwar planning.

Sociological Background for Education. Professor IVAN E. McDOUGLE.  
October 12.

School Legislation. Mr. HARRY F. FRANK. October 19.

Financing the Public Schools. Miss BESSIE STERN. October 26.

General Patterns of Education. ———. November 2.

Public and Professional Relations. Mrs. STANLEY G. COOK. November 9.

The Senior High School: Its Function and Curriculum. Dr. DAVID E.  
WEGLEIN. November 16.

The Junior High School: Its Function and Curriculum. Dr. J. CAREY  
TAYLOR. November 30.

The Elementary School. Miss MARY A. ADAMS. December 7.

The Nursery School. Mrs. AGNES B. PARK. December 14.

Education of the Teacher for Higher Education. Professor FLORENCE  
E. BAMBERGER. December 21.

Education of the Teacher for Secondary Education. Dr. EARLE T.  
HAWKINS. January 4.

Education of the Teacher for Elementary Education. Dr. M. THERESA  
WIEDEFELD. January 11.

Physical Education for Public Schools. Dean G. WILSON SHAFFER.  
January 18.

Health Education for Public Schools. Dr. LOUIS R. BURNETT. January  
25.

Music Education for Public Schools. Dr. ERNEST G. HESSER. Febru-  
ary 8.

Dramatics and Their Place in the Schools. Miss HELEN CHAMBERS.  
February 15.

Mental Hygiene. Associate Professor LEO KANNER. February 22.

Vocational Guidance and Education. Miss LEONA C. BUCHWALD.  
March 1.

Development of Personality and Character as a Function of Public Education. Dr. CLARA P. McMAHON. March 8.

Education of the Physically Handicapped. Dr. OLIVE A. WHILDIN. March 15.

Education of the Mentally Handicapped. Dr. HARRY F. LATSHAW. March 22.

The School Plant and Its Extended Use. Dr. CHESTER H. KATENKAMP. March 29.

Adult Education. Mr. THOMAS A. VAN SANT. April 5.

Recreational Centers in Relation to Public Education. Mr. HAROLD S. CALLOWHILL. April 12.

The Public Library in Relation to Public Education. Mr. JOSEPH L. WHEELER. April 19.

The Museum in Relation to Public Education. Miss BELLE BOAS. April 26.

Education of the Returned Soldier. —————. May 3.

Intercultural Education. Mr. ALVIN J. MILLER. May 10.

The Schools and Technology. Mr. MILLARD C. KENT. May 17.

15 T. Reading Clinic. Dr. DICE. Tu., 6.30-8.10 p.m. October term. Gilman Hall 12.

The incidence of reading disability, its causes and theories are presented. Methods of remedial treatment as determined by the results of diagnosis are studied. Each student is responsible for carrying on an actual case study under the guidance of the instructor.

The Harvard Films for the Improvement of Reading are demonstrated and applied to certain cases.

This clinic course is open to teachers of the elementary, junior and senior high school grades. Laboratory fee: \$1.50.

17 T. Audio-Visual Aids to Instruction. Dr. HARTLEY. M., 4.10-5.50 p.m. October term. Gilman Hall 12.

Methods for vitalizing the various school subjects through the use of pictures, slides, film-strips, maps, charts, school journeys, realia, motion pictures, radio, records and transcriptions are discussed, together with practical applications. Experience is afforded in the location of materials, operation of apparatus, preparation of pupil and teacher-made aids, and actual presentation of concrete materials. Individual assignments in relation to unique problems are arranged.

25 T. Children's Literature. Professor BAMBERGER. W., 4.10-5.50 p.m. Gilman Hall 216.

#### A. A HISTORY OF CHILDREN'S LITERATURE.

An examination is undertaken of the literature materials, both in prose and poetry, from early historical periods to the latest modern types available for children's use.

#### B. DEVELOPMENT OF LITERARY APPRECIATION.

Criteria of selection and methods of presentation are critically examined. Certain valuable techniques in reading, in story-telling, and in dramatization are discussed.

16 T. Drama for School and Community.\* Mrs. BOWEN. Tu., 4.10-5.50 p.m. Maryland Hall 114.

This course concerns itself with the production of plays for children. Persons concerned with children's dramatics are aided through classroom discussion and laboratory experience. Among the topics discussed are: a short history of the children's theater movement; writing and

\* For a course in Play Production, see English 12 T.

judging of play material for children; directing, costuming, and staging of plays in schools, camps, recreation centers, and children's theaters. Students may earn one extra point credit by engaging in a project in the Children's Educational Theater.

### **The Children's Educational Theater.\***

A group of children, between the ages of eight and sixteen, meet in the Playshop once a week throughout the year for participation in planning and producing performances. Their workshop offers interesting material for observation and laboratory study in dramatization and puppetry to the teachers enrolled in Education 16 T. Membership in the children's group is limited to sixty (divided into groups of twenty each). The enrollment fee covers laboratory and production expenses: \$10 per year or \$5 per term. An additional \$1 per term is charged to those children who undertake marionette projects.

### **ELEMENTARY EDUCATION**

#### **22 T. Newer Instructional Practices in the Elementary School. Dr.**

McMAHON. Th., 4.10-5.50 p.m. October term. Gilman Hall 216.

A critical study of recent trends and newer practices in elementary education is undertaken with the view of examining the modern trends in methodology with their underlying philosophies and psychological principles.

#### **23 T. Recent Research Studies in Elementary Education. Dr.**

McMAHON. Th., 4.10-5.50 p.m. February term. Gilman Hall 216.

Reviews important investigations and research on the elementary school level. Analyses of their contributions to and implications for education are made.

#### **21 T. Survey of Elementary Education. Miss ADAMS. F., 4.10-5.50**

p.m. Baltimore Polytechnic Institute 120.

##### **A. Trends in the Development of the Fundamental Learning Skills.**

October term.

Psychological principles of learning and the more recent results of experimentation are specifically applied to the teaching of reading, language arts, and arithmetic.

##### **B. Trends in the Development of Social Studies and Creative Expression. February term.**

This course deals with the problems involved in planning and organizing the social studies curriculum. Such topics as aims and goals; methods of instruction; and kind and use of instructional materials are presented. Suggested means for developing creative work are discussed.

NOTE: See Education 12 T.

#### **26 T. Elementary School Curriculum: The Social Studies.**

A. In the Primary Grades. Miss GERSTMYER. W., 4.10-5.50 p.m. October term. Baltimore Polytechnic Institute 136.

B. In the Intermediate Grades. Miss WALKER. W., 4.10-5.50 p.m. February term. Baltimore Polytechnic Institute 128.

A study is made of the aims and objectives underlying the teaching of the social studies, the criteria for the selection of materials of content, the organization and development of these materials and their presentation to the class.

#### **27 T. The Elementary School Curriculum: Language Arts. Not offered in 1944-45.**

\* For a course in Play Production, see English 12 T.

**28 T. The Elementary School Curriculum: Arithmetic.**

A. In the Intermediate Grades. Miss WALKER. W., 4.10-5.50 p. m. October term. Baltimore Polytechnic Institute 128.

B. In the Primary Grades. Miss GERSTMYER. W., 4.10-5.50 p. m. February term. Baltimore Polytechnic Institute 136.

Recent studies and modern trends in the teaching of arithmetic are discussed. Emphasis is placed upon procedures for presenting the various skills developed in the grades, and upon individual and group remedial work. Attention is also given to aids in the solution of arithmetic problems.

**33 T. Practice Teaching in Elementary Grades. Dr. McMAHON. Hours arranged to meet the individual needs of students. Gilman Hall 5.**

Arrangements for individual conferences and practice work are made. This course carries two points credit. Wherever possible opportunities are provided for internship in local schools.

**34 T. Art Education. Miss GLACE. M., 4.10-5.50 p. m. Mergenthaler Hall 313.**

Planned to consider the problems of art instruction on the secondary and elementary levels, the work of the course is based upon the individual needs of the students. Special attention is given to working with materials.

**51 T. Critical Appraisal of the New Primary Procedures. Miss GERSTMYER. Not offered in 1944-45.****61 T. Growth and Development of Pre-School Children through Nursery School and Parental Education. Mrs. PARK. W., 4.10-5.50 p. m. Gilman Hall 312.**

This course examines the physical and psychological growth of the pre-school child, and presents the theory and practice of nursery school education with special emphasis on parental education in this connection. The necessity for War Nurseries and the probable effect on the future of nursery school education is also discussed.

**SECONDARY EDUCATION****91 T. The Theory of the Junior High School. ————. Tu., 4.10-5.50 p. m. October term. Mergenthaler Hall 313.**

This course surveys junior high school theory and practice in regard to its historical development, aims and special functions, pupil personnel, curriculum, guidance services, articulation with other school units, extra-curriculum, and general teaching methods.

Note: See Education 12 T.

**96 T. Methods of Teaching General Science in the Junior High School. ————. M., 5.10-6.00 p. m. Maryland Hall 114.**

This course is designed for teachers and prospective teachers of general science in the junior and senior high school. There is consideration of accepted aims and purposes, methods of selection and organization of curriculum materials, techniques of instruction, equipment, apparatus, procedures for testing and evaluation, and teacher preparation. Guidance is given in planning of lessons. Students may review or develop chosen areas of science content.

**93 T. Methods of Teaching History in Secondary Schools. Mr. THURSFIELD. Tu., 5.10-6.00 p. m. Gilman Hall 108.**

A. The Junior High School. B. The Senior High School.

These practical courses emphasize teaching organization and materials on the respective grade levels. They trace the development and consider the aims, present tendencies, and suggested

programs of the social sciences in relation to the general aims of instruction. They provide opportunities for teachers to examine such material as textbooks, collateral readings, and visual aids, and to familiarize themselves with standards reference works, professional periodicals, and other literature in their field. Assignments in construction of lesson plans, objective tests, and in evaluation of textbooks are arranged with special reference to individual interests.

**95 T. Methods of Teaching English in Secondary Schools. Dr. TAYLOR. W., 4.10-5.00 p. m. Maryland Hall 117.**

**A. The Junior High School. B. The Senior High School.**

These courses acquaint students with the recognized methods of teaching the various phases of English in the secondary schools. A study is also made of the selection of materials for the teaching of literature and composition; the methods of providing for individual differences, interests, and capacities; and the responsibility of the secondary school in developing proper habits of reading and study. Assignments in construction of lesson plans, objective tests, and in evaluation of textbooks are arranged with special reference to individual interests.

**98 T. Methods of Teaching Modern Languages in Secondary Schools. Miss ZOUCK. M., 5.10-6.00 p. m. Maryland Hall 119.**

**A. The Junior High School. B. The Senior High School.**

These courses are designed for teachers and for those preparing to teach French, Spanish, etc., in the junior and senior high schools. They aim to develop some basic psychological principles upon which rest the better methods of teaching. Practical assistance is given in the solution of individual classroom problems at each level.

**100 T. Methods of Teaching Mathematics in Secondary Schools. Mrs. BLACKISTON. Th., 5.10-6.00 p. m. Baltimore Polytechnic Institute 137.**

**A. The Junior High School. B. The Senior High School.**

Intended for teachers and prospective teachers of mathematics in the junior and senior high schools, these courses survey desirable modern methods in the teaching of mathematics. The objectives, content and methods of presenting the basic topics in arithmetic, algebra, geometry, and trigonometry are presented at each level. Some discussion of typical curricula, procedures for testing and evaluation, and aids in the cultivation of desirable work habits is also provided. Assignments are arranged with special reference to the interest levels of the individual students.

**102 T. Methods of Teaching Geography in Secondary Schools. Miss SMUCK. Th., 4.10-5.00 p. m. Baltimore Polytechnic Institute 136.**

**A. The Junior High School. B. The Senior High School.**

A critical evaluation is made of the selection, organization, and teaching techniques of geography in the modern secondary school program to meet new conditions caused by the war. A comparative study is made of the structure of typical geography units as they have been worked out in representative secondary school systems. Considerable attention is given to the presentation of geographic materials through visual aids and sensory techniques. Assignments in construction of lesson plans, objective tests, and in evaluation of text books are arranged with special reference to individual interests.

**122 T. The Teaching of Latin in Secondary Schools. Mrs. RUMNEY. Th., 4.10-5.00 p. m. Maryland Hall 104.**

**A. The Junior High School. B. The Senior High School.**

These courses are designed for teachers and those preparing to teach Latin in the junior and senior high schools. It considers the objectives and recent developments of instruction in Latin at each level. Recognized techniques in language teaching are discussed, and practice is afforded in planning, and evaluating illustrative lessons. The aims of the course are to give practical assistance in solving problems in the teaching of comprehension, vocabulary, forms, and translation, and to provide actual material for next year's teaching.

- 112 T. The Secondary School: The Curriculum and Instruction.** Associate Professor WEGLEIN. F., 4.10-5.00 p.m. Baltimore Polytechnic Institute 136.

Consideration is given to the general problems connected with the program of studies, curricula, and courses of study. Attention is also given to types of learning and methods of instruction.

NOTE: See Education 12 T.

- 113 T. The Secondary School: Organization and Classroom Management.** Associate Professor WEGLEIN. One hour a week. 1945-46.

- 120 T. Problems of Secondary School Principals.** Professor BAMBERGER. A one term course. Not offered in 1944-45.

- 117 T. Historical Literature and History Teaching.** Mr. THURSFIELD. W., 4.10-5.50 p.m. October term. Gilman Hall 100.

This advanced course for history teachers presents through lectures and readings the results of recent scholarship and interpretations in world history; approximately one-third of the time is devoted to American history. Bibliographical materials are supplied for continuing professional growth.

- 118 T. Group Activities in Secondary Schools.** Dr. RIGGS. Tu., 4.10-5.50 p.m. Gilman Hall 313.

The theory and practice of the program of extra-curricular activities in secondary schools are examined. Principles of group work as well as content and techniques for carrying on activities are considered. Students are given an opportunity to investigate and to make detailed plans for an activity which is of special interest.

- 115 T. Observation and Participation in Secondary Schools.** Mrs. BLACKISTON. M., 7.10-8.00 p.m., Gilman Hall 9; and W., 9.30-12.30 a.m., City Schools.

This course, required of all students preparing for teaching, provides observation, participation, and individual conferences.

- 114 T. Teaching in the Secondary Schools: Theory, Observation, and Practice.** ———. Three hours per week. Regular class hour, Tu., 2.10-3.30 p.m., Gilman Hall 216, and additional hours arranged in individual schedules between 9.30 a.m. and 3.00 p.m., Monday to Friday.

Successful completion of this course fulfills the requirement for practice teaching of the Maryland State Department of Education. Students must take it within one year of graduation. It consists of two main divisions: (1) Principles of Secondary School Teaching, for which a credit of two points is given; and (2) Observation and Practice Teaching, for which a credit of four points is given. A series of observation periods are required together with a certain number of hours of successful practice teaching under careful supervision. In addition to the regular class hour mentioned above, an average of four hours per week through the year is required. Before arranging schedules for the year, students should confer with Professor Bamberger.

Prerequisite courses: Educational psychology and philosophy of education, a survey course in the field of secondary education, and two introductory academic courses in each subject for which practice teaching assignment in junior high school is made. For senior high school, the subject matter requirement is two hundred and forty hours in each of two subjects. A course in demonstration is required. (See Education 115 T.)

Concurrent courses: History of education and a course in special methods in the subject the student desires to teach.

Assignment to Baltimore public junior and senior high schools is made possible through the cooperation of the Board of School Commissioners of Baltimore, and to the private high

schools through that of the School Committee of the Friends School and of the Board of Trustees of the Park School of Baltimore. Wherever possible opportunities for internship in local schools are arranged.

NOTE: For a course in Methods of Teaching Art, see Education 34 T.

### SPECIAL EDUCATION

NOTE: Attention is called to the following courses which are required of students majoring in special education: Education 11 T, Clinical Methods in Education, and Hygiene 2 T.A., Mental Hygiene.

151 T. A Survey of Curricula for Physically and Mentally Handicapped Children. Two hours a week for one term. Not offered in 1944-45.

154 T. Applications of Psychology to the Education of the Abnormal School Child. Two hours a week for one term. Not offered in 1944-45.

158 T. The Education of the Hard-of-Hearing Child. Two hours weekly. Not offered in 1944-45.

NOTE: In case of sufficient demand, the above courses may be given.

### VOCATIONAL GUIDANCE

161 T. A. Principles and Practice of Educational and Vocational Guidance. Miss BUCHWALD. M., 4.10-5.50 p. m. October term. Baltimore Polytechnic Institute 137.

This course is designed for those interested or engaged in educational and vocational guidance in the various units of a school system, in social agencies, or other organizations dealing with this problem. It surveys the guidance movement, guidance programs, and guidance techniques. It includes a study of methods of guidance and of counseling; the use of objective tests in guidance; guidance measures and records; individual adjustment, placement, and follow-up.

161 T.B. Counseling and the Organization of Educational and Vocational Guidance. Miss BUCHWALD. M., 4.10-5.50 p.m. February term. Baltimore Polytechnic Institute 137.

This is an advanced course, especially designed to meet the needs of educational and vocational counselors, advisers, and teachers interested in the problems of the individual. It deals with the application of education and psychological measurements to problems of pupil adjustment and guidance; methods of providing for different types of pupils; methods used in individual guidance; the personal interview; organization and administration of a guidance program in a school and in a school system. A study is made of typical cases and opportunity is given to make case studies. Provision is made for students to observe case work techniques in various agencies.

161 T.C. Occupational Information and Group Guidance. Miss BUCHWALD. Two hours a week. February term. 1946-47.

161 T.E. Problems in Educational and Vocational Guidance. Miss BUCHWALD. Two hours a week. February term. 1945-46.

162 T. The Role of the Teacher in Personnel Work. Dr. RIGGS. Th., 6.30-8.10 p.m. Gilman Hall 108.

Designed for teachers and other non-specialists in personnel work, this course offers a survey



of the pupil personnel field with special reference to the information needed by teachers in applying individual and group guidance techniques to the classroom situation. It aims at an understanding of the nature, aims, and functions of various pupil personnel services from the teacher's point of view.

**163 T. Aptitudes and Aptitude Testing. Mr. PACKARD. M., 6.30-8.10 p. m. Gilman Hall 108.**

This course deals with the scientific study of the individual, with the situation in which he is to function, and with the techniques for integrating the two. It is designed for teachers, counselors, principals, personnel administrators, and others who are interested in the development and evaluation of the various instruments for educational adjustment, vocational selection, and industrial placement. Emphasis is placed upon the process of test selection, construction, administration, interpretation, and validation.

**NOTE:** For courses in Administration, see Political Science 10 T and 11 T.

### PHYSICAL EDUCATION

**171 T. Health Education. Professor SHAFFER. F., 6.30-8.10 p. m. Gilman Hall 108.**

The course makes a study of the factors influencing physical and mental health of the individual. Consideration is given to the influence of environmental and social regulation upon personal and community health. Emphasis is placed upon the role of recreation in health.

**172 T.A. Theory and Practice of Physical Education. One hour of lecture and two hours of activities. Not offered in 1944-45.**

The theories, characteristics, values, methods, and factors controlling the expression of play are considered. Recognition is given to individual differences, and the planning of programs for elementary and secondary school levels, and the problems of playground and community are included.

The activities course includes mass drills, marching tactics and games, simple gymnastics, and rhythmic.

**172 T.B. Theory and Practice of Physical Education. Dr. BURNETT. Lectures, S., 9.30-10.20; activities, 10.30-12.10 p. m. Baltimore Polytechnic Institute Gymnasium.**

The course includes the study of the history of physical education and its relations to the general field of education.

The activities will be those of individual participation.

**172 T.C. Theory and Practice of Physical Education. One hour of lecture and two hours of activities. Not offered in 1944-45.**

The course includes the discussion of the more advanced problems of administration of physical education in addition to schedule making, officiating and coaching, the construction and care of plant, and the purchase and care of equipment.

**173 T.A. Content and Methods of Health Education for the Elementary School. Two hours a week. 1945-46.**

This course seeks to develop a background of scientific health information essential to effective health teaching. Methods of teaching are considered concurrently with the subject matter and are developed for different grade levels. Emphasis is placed on the practical outcomes of health education.

**173 T.B. Content and Methods of Health Education for Secondary Schools. Dr. DAVIS. M., 6.30-8.10 p. m. Gilman Hall 205.**

This course is designed for teachers and prospective teachers of health in the junior and senior high schools. It seeks to develop a background of scientific health information necessary for

effective health teaching. It considers the selection and organization of curriculum materials, the development of teaching units, and the preparation of basic lesson plans.

174 T. **Methods of Teaching Physical Education.** Two hours a week. Not offered in 1944-45.

175 T. **Corrective Physical Education.** Two hours a week. Not offered in 1944-45.

### EDUCATIONAL CONSULTATION

As an aid to elementary school teachers, the Department of Education offers the opportunity of case study of pupils in the Educational Clinic. Teachers desiring assistance in meeting the difficulties presented by individual pupils will first secure appointment by communicating with Professor Florence E. Bamberger.

Parents and social agencies desiring the benefits of examination of children and educational consultation may secure them through the above procedure.

This service is subject to a fee of \$5.

### NURSING EDUCATION \*

Miss BECKER

Dr. NELSON

Dr. SCOTT

Miss BUCK

Miss FISK

Miss GRAINGER

Miss HARMAN

Mrs. WELLS

1 T. **Principles and Methods of Teaching in Nursing.** Not offered in 1944-45.

4 T. **Nutrition.** Miss BECKER. W., 6.30-8.10 p. m. October term. Gilman Hall 117.

The course deals with the fundamental principles of nutrition and the composition, digestion, absorption, and metabolism of food. The food requirements of the normal healthy individual is the basis of all teaching and discussion. Recent discoveries in nutrition are presented. Consideration is given to the distribution of the dietary essentials in foods; the use of tabulated materials on food composition in the evaluation of dietaries; appraisal of menus and food budgets; and factors in the inculcation and appraisal of desirable dietary practices.

5 T.A. **Industrial Nursing.** A one term course. Not offered in 1944-45.

5 T.B. **Special Problems in Industrial Nursing.** A one term course. Not offered in 1944-45.

7 T. **Management and Teaching in the Hospital Nursing Unit.** Miss GRAINGER. Th., 6.30-8.10 p. m. The Johns Hopkins Hospital.

A. October Term: The work of this term deals with the organization and administration problems of the junior executive and teaching staff in the Ward Unit. It also includes principles of management, supervision of personnel, cooperative relations with other services, etc.

\* For courses in Educational Psychology, Philosophy of Education, and History of Education, see Education 1 T, 2 T, and 3 T, respectively.

B. February term: This deals with the planning and assigning of clinical experience in the head nurse unit and with the teaching and supervision of students, ward personnel and patients, and evaluation of results.

**8 T. Mental Hygiene Applied to Nursing.** ———. W., 6.30-8.10 p.m. February term. Room to be assigned.

This course reviews the development of the mental hygiene movement and its present emphasis. Consideration is given to the major and minor deviations from the normal; and the problems of adjustment in the young child, the adolescent, and the adult. The role of the nurse in relation to these problems is discussed. Opportunities for observation in nursery school are given. The course carries three points credit.

NOTE: For a general course in Mental Hygiene, see Hygiene 2 T. A.

**9 T. Public Health Aspects of Venereal Disease Nursing.** Dr. NELSON, Dr. SCOTT, Miss BUCK, and Mrs. WELLS. M., 6.30-8.10 p. m. October term. Gilman Hall 216.

The first part of the course consists of a discussion of the clinical features of the venereal diseases. This is followed by more detailed information concerning the epidemiological and control factors. All of this serves as a background to the discussion of the nurses part in the program.

**11 T. Introduction to Public Health Nursing.** Miss HARMAN. F., 6.30-8.10 p.m. October term. Gilman Hall 117.

A brief survey is made of the development and trends of public health nursing discussed historically and in the light of present day developments. Consideration is given to the relationships of public health nursing groups to other community groups and the adaptation of the nurse to individual family and community needs.

**12 T. Maternity, Infant, and Child Care.** Miss FISK. F., 6.30-8.10 p.m. February term. Room to be assigned.

The course is offered for nurses who wish special preparation in the field of maternal and child care. It includes the principles and practices of nursing in obstetrics, and infant and child care with special emphasis on community organization for maternal and child care.

## ENGLISH

Professor MALONE

Associate Professor ALLEN

Associate Professor ANDERSON

Dr. FAGIN

Mr. PEARCE

Miss BAUER

**A T. English Writing.**

Section A: Miss BAUER. M., 4.10-5.50 p.m., and F., 4.10-5.00 p.m. Maryland Hall 117.

Section B: Miss BAUER. Tu., 6.30-8.10 p.m., and Th., 6.30-7.20 p.m. Maryland Hall 114.

This course meets the college requirement in prose composition. It includes a review of the essentials of usage, the study of principles of structure and style, and frequent practice in writing.

NOTE: Students who are majoring in engineering in the Night Courses in Technology may take the two hours of Section B, Tu., 6.30-8.10 p.m., to absolve the requirement in English composition for the degree.

**2 T. Advanced English Writing.** Miss BAUER. W., 6.30-8.10 p.m. Maryland Hall 104.

The October term is devoted to a discussion of general problems of expository writing; the

February term is concerned with the writing of the magazine article. Parallel, reading, with the writing of reviews, is a part of this course.

Prerequisite: English AT or its equivalent.

**3 T.A. Creative Writing: Playwriting.** Dr. FAGIN. Two hours a week. 1945-46.

**3 T.B. Creative Writing: Short Story Writing.** Dr. FAGIN. Tu., 6.30-8.10 p. m. Gilman Hall 9.

A study is made of the technique of the short story. Representative short stories are read and written assignments receive detailed criticism.

NOTE: Instruction in writing of dramatic criticism is offered students through critical review of the productions of the Playshop and the Children's Educational Theater. An extra credit may be earned in this way.

**22 T. Fundamentals of Speech.** Mr. PEARCE. Tu., 4.10-5.50 p. m. Gilman Hall 211.

Practical training in public speaking and in oral interpretation of literature is given with special attention to individual problems. The Presto Recorder is used for diagnostic and remedial purposes.

**4 T.A. Current Spoken English.** Professor MALONE. S., 10.00-11.40 a. m. Gilman Hall 211.

A study is made of current usage in pronunciation and in the conversational style of writing (letter-writing, the informal essay, etc.).

Texts: Kemp Malone, *The Phonemes of Current English*; J. S. Kenyon, *American Pronunciation*.

**4 T.B. Current Written English.** Professor MALONE. Two hours a week. 1945-46.

**6 T. Survey of English Literature.** Dr. FAGIN.

Section A: Tu., 4.10-5.50 p. m. and F., 4.10-5.00 p. m. Gilman Hall 314.

Section B: M., 6.30-8.10 p. m. and W., 5.10-6.00 p. m. Mergenthaler Hall 200.

This course surveys the literature of England from the Anglo-Saxon period to the end of the nineteenth century, with emphasis on the emergence and development of dominant literary movements.

NOTE: Students who are majoring in engineering in the Night Courses in Technology may take the two hours of Section B, Monday, 6.30-8.10 p. m., to absolve the requirement in English literature for the degree.

**7 T. Shakespeare.** Two hours a week. Not offered in 1944-45.

**16 T. Seventeenth Century Lyric Poetry.** Two hours a week. October term. 1945-46.

**17 T. Contemporary American and British Poetry.** Two hours a week. February term. 1945-46.

**19 T. The Romantic Poets.** Associate Professor ALLEN. Tu., 4.10-5.50 p. m. October term. Gilman Hall 305.

A study is made of the major English Romantic Poets: Wordsworth, Byron, Shelley, and Keats; and includes lectures and readings in an anthology.

20 T. Victorian Poetry. Associate Professor ANDERSON. Tu., 4.10-5.50 p. m. February term. Room to be assigned.

An intensive study is made of Tennyson, Browning, Arnold, Swinburne, the Pre-Raphaelites, and minor poets.

10 T.A. World Drama: Non-English. Dr. FAGIN. Two hours a week. 1945-46.

10 T.B. World Drama: British and American. Dr. FAGIN. W., 6.30-8.10 p. m. Gilman Hall 211.

October term: A study is made of the development of British drama from the earliest times to the present day.

February term: A similar study is made of American drama.

12 T. Play Production. Dr. FAGIN. Lecture, F., 6.30-7.20 p. m.; laboratory, 7.30-9.10 p. m. Gilman Hall 9.

This course includes a study of the history of the theater and of the problem of theater arts: staging, lighting, directing, and acting. A certain amount of practical work is required of each student.

NOTE: An extra credit may be earned each term by doing practical work in either the Playshop or the Children's Educational Theater.

Laboratory fee: \$3.

13 T. Survey of American Literature. Dr. FAGIN. M., 4.10-5.50 p. m., and F., 4.10-5.00 p. m. Rowland Hall 100.

This course aims to acquaint the student with the works of the major writers in American literature.

NOTE: For a course in Children's Literature, see Education 25 T.

For courses in Methods of Teaching English, see Education 95 T.

## FRENCH

Dr. HATCHER

Mrs. ROSENBLATT

Associate Professor SEIBERT (Goucher College)

Associate Professor ROSSELET

(Goucher College)

### A T. French Elements.

Section A: Associate Professor SEIBERT. Tu. and Th., 4.30-5.45 p. m. Maryland Hall 220.

Section B: Dr. HATCHER. M. and Th., 6.30-7.45 p. m. Maryland Hall 119.

This course is planned for students beginning the study of French and aims to impart a good foundation of the language. It includes grammar, pronunciation, composition, and translation.

A T.R. Review of Elements. Dr. HATCHER. F., 8.15-9.55 p. m. October term. Gilman Hall 205.

This course is primarily to be taken in conjunction with French 1 T by those students who, in the opinion of the instructor, require an intensive review.

No college credit is given for this course.

In case of sufficient demand, a section of this course may be offered in the morning.

- 1 T. French Reading. Associate Professor SEIBERT. Tu. and Th., 6.30-7.45 p. m. Gilman Hall 205.

This course in French reading, grammar, composition, and conversation is for students who have had the equivalent of French A T. The texts are chosen from modern authors.

- 2 T. Advanced Course in French Reading. Dr. HATCHER. W., 6.30-8.10 p. m. Gilman Hall 205.

This course includes translation and outside reading and is intended for students who wish to complete the second required course in a foreign language or for those majoring in French.

- 3 T.A. French Pronunciation and Phonetics. Mrs. ROSENBLATT. Th., 4.10-5.50 p. m. October term. Maryland Hall 119.

This course gives intensive training in French pronunciation based on phonetics. It is intended for students who have never attacked the problem of their own pronunciation in a scientific manner. Intensive oral and ear training is given and the Presto Recorder is used for diagnostic and remedial purposes.

- 3 T.B. French Diction and Intonation. Mrs. ROSENBLATT. Th., 4.10-5.50 p. m. February term. Maryland Hall 119.

This course is a continuation of French 3 T.A and includes studies in French pronunciation, intonation and rhythm based on texts chosen from masterpieces of French prose and poetry. Phonograph records are used to supplement the work of the course.

- 4 T. French Literature of the Seventeenth and Eighteenth Centuries. Associate Professor ROSSELET. W., 4.10-5.50 p. m. Gilman Hall 313.

Particular emphasis is placed on the authors of the classical period and of the Enlightenment.

- 5 T. French Literature of the Nineteenth Century. Two hours a week. Not offered in 1944-45.

- 6 T. French Literary Movements of the Twentieth Century. Two hours a week. Not offered in 1944-45.

NOTE: For a course in Methods of Teaching French, see Education 98 T.

## GEOGRAPHY

Dr. CARTER

Mr. GOTTMANN

- 5 T. Regional Geography of the Caribbean. Dr. CARTER. October term. M., 4.10-5.50 p. m. Gilman Hall 8.

The countries and colonies of the Caribbean, excluding the United States, are studied individually in terms of their natural features (land forms, climate, soil, vegetation) and human occupation (people, economy, settlement).

- 6 T. Regional Geography of the Mediterranean. Mr. GOTTMAN. February term. M., 4.10-5.50 p. m. Gilman Hall 8.

The course covers the main features of the Mediterranean world as a whole and then studies its regional aspects in Spain, southern France, Italy, the Balkans, Turkey, Syria, Palestine, Egypt, Libya, and French North Africa.

- 1 T. Physical Geography. Two hours of lecture and two hours of laboratory. Not offered in 1944-45.

- 2 T. Human Geography. Two hours a week. Not offered in 1944-45.

3 T. Regional Geography of Southeastern Asia. Two hours a week. February term. Not offered in 1944-45.

4 T. Introduction to Anthropology. Two hours a week. Not offered in 1944-45.

NOTE: For a course in Methods of Teaching Geography, see Education 102 T.

## GEOLOGY

Dr. ANDERSON

1 T. Physical Geology. 1946-47.

2 T. Historical Geology. 1945-46.

3 T.A. Elements of Crystallography and Mineralogy. Dr. ANDERSON. Lecture, S., 9.10-10.30 a. m.; laboratory, 10.30-1.00 p. m. October term. Latrobe Hall 5.

The fundamentals of crystallography supplemented by a study of crystal models is followed by a description of the more common and more important minerals supplemented by their identification and determination.

Some knowledge of chemistry is a prerequisite.

Laboratory fee: \$1.50.

3 T.B. Elements of Lithology. Dr. ANDERSON. Lecture, S., 9.10-10.30 a. m.; laboratory, 10.30-1.00 p. m. February term. Latrobe Hall 5.

This course discusses rocks and their geologic and economic importance. It includes the following topics: the rock-forming minerals, the nature of rocks and their origin and history, the role of rocks in the development of land forms, soils, and mineral deposits, the relation of rocks to engineering problems such as water supply, reservoir and dam construction, building stones, and road materials and foundations.

Some knowledge of chemistry is a prerequisite.

Laboratory fee: \$1.50.

## GERMAN

Professor FEISE

Dr. VON SCHÜCHING

### AT. German Elements.

Section A: Tu., 4.10-5.50 p. m., and F., 4.10-5.00 p. m. Gilman Hall 312.

Section B: M. and Th., 6.30-7.45 p. m. Gilman Hall 312.

This course is intended for those who have no previous knowledge of German, or who wish to take it for purposes of review. A thorough foundation in grammar is given, with extensive reading practice and prose composition.

1 T. Intermediate German. M. and Th., 4.30-5.45 p. m. Gilman Hall 313.

This course consists of class readings, private assignments, and practical exercises.

Prerequisite: German Elements.

**2 T. Advanced German Reading.** M., 6.30-8.10 p. m. Gilman Hall 305.  
(Hour may be changed.)

This course includes reading and interpretation of classical, modern, or scientific texts according to previous agreement, outside reading, and reports.

Prerequisite: German 1 T or equivalent.

**3 T. Scientific German.** W., 6.30-8.10 p. m. Gilman Hall 312.

For candidates for the A. B. degree, German 1 C is a prerequisite; for candidates for the B. S., German 1 T.

NOTE: For a course on Methods of Teaching Foreign Language, see Education 98 T.

## HISTORY

Professor ALBRIGHT

Professor GAMBRILL

Professor ROBINSON

Associate Professor PAINTER

Mr. THURSFIELD

Miss COLL

Dr. HANUNIAN

Dr. HOYT

Mr. MCCLEARY

Dr. SHELBY

Professor GALLAGHER (Goucher College)

**1 T. World History: Ancient and Mediaeval Civilization.** Th., 4.10-5.50 p. m. Gilman Hall 312.

A. Ancient Civilization. Professor ALBRIGHT. October term.

A brief description is given of the ancient world as the forerunner of the mediaeval and modern world.

B. Mediaeval Civilization. Associate Professor PAINTER. February term.

A survey is made of mediaeval civilization with emphasis on its non-political aspects.

**2 T. World History: Europe from the End of the Middle Ages to 1870.** Mr. MCCLEARY. M., 6.30-8.10 p. m. Gilman Hall 311.

A study is made of the transformation of Western civilization: the growth of nations, the commercial and industrial revolutions, the rise of liberal and democratic movements in the nineteenth century.

**3 T. European History, 1870 to the Present.** Professor GALLAGHER. Tu., 4.10-5.50 p. m. Gilman Hall 311.

A study is made of the transformation of Western civilization: the growth of nations, the commercial and industrial revolutions, the rise of liberal and democratic movements in the nineteenth century.

**6 T. Recent United States History: 1865 to the Present.** Professor GALLAGHER. Th., 4.10-5.50 p. m. Gilman Hall 311.

This course covers the periods from the Civil War to the present. Special emphasis is laid upon economic developments and their bearing upon domestic policies.

**7 T.A. Political and Social History of the United States, 1783-1873.** Miss COLL. Th., 8.15-9.55 p. m. October term. Gilman Hall 312.

This course surveys the organization of the federal government, the growth of nationalism, westward expansion, the rise of sectionalism, the development of democracy, the industrial revolution, the humanitarian and social reform movements, the American cultural advance, and the War between the States.



- 7 T.B. History of the American West. Mr. THURSFIELD. Th., 8.15-9.55 p.m. February term. Gilman Hall 312.

The westward expansion of the American people from colonial times to 1890 is considered in relation to its impact upon American life. Among the topics studied are western pioneers, exploration and settlement, the demands of the West, transportation, the West of song and story, and the unique contributions of the frontier.

- 8 T. Foreign Relations of the United States, 1783 to the Present. Professor GALLAGHER. Two hours a week. 1945-46.

- 9 T.A. American Colonial History. Dr. HOYT. Th., 6.30-8.10 p.m. October term. Gilman Hall 311.

A general survey is made of the history of the American colonies to the formation of the Federal Government, with special emphasis on social and economic phases.

- 9 T.B. History of Maryland and Baltimore. Dr. HOYT. Th., 6.30-8.10 p.m. February term. Gilman Hall 311.

A study is made of the development of the State and City, with consideration of social, cultural, economic, and political factors.

- 10 T. The History of England from the Earliest Time to the End of the Tudor Period. Two hours a week. 1945-46.

- 11 T. The History of England from the Rise of the Stuarts to the Present Time. Not offered in 1944-45.

- 12 T. The History of Greece: Archaeological, Literary, Religious, Intellectual, Cultural. Professor ROBINSON. F., 8.15-9.55 p.m. Gilman Hall 109.

This course emphasizes the social, artistic, mental and moral sides of the history of one of the two greatest peoples of antiquity. Hellenic ideals, as transmitted and transmuted by the spread of Hellenistic and Roman power, are interpreted in the light of translated ancient sources, of new evidence from the many fields of archaeological research, of comparative philology, mythology, philosophy, and art. The equipment of both student and teacher is increased by the reading of and reports upon modern books and journal contributions; maps, charts, and lantern-slides are used to clarify and illumine the reading; the Archaeological Museum of the University is at hand, with many fine original relics of antiquity, for practical exercises; and particular stress is laid upon the influence of ancient life and manners on present day culture.

Reference texts: Laistner, *Greek History*; D. M. Robinson, *A Short History of Greece* (Huxley House, New York); Botsford-Robinson, *Hellenistic History*; Stobart, *The Glory that was Greece*, and *The Grandeur that was Rome*; Poland, Reisinger, Wagner, *The Culture of Ancient Greece and Rome*; Weller, *Athens*; Platner, *Rome*; Mahaffy, Davis, Murray, Duff, Dill, Lanciani, Fowler.

NOTE: This course is the first half of a two-year course in Ancient History.

- 13 T. The History of Hellenistic Greece and Rome: Archaeological, Literary, Religious, Intellectual, Cultural. Professor ROBINSON. Two hours a week. 1945-46.

- 14 T. History of Latin America. Dr. SHELBY. W., 6.30-8.10 p.m. Gilman Hall 311.

The first term covers the history of South and Central America from the time of discovery to the close of the revolutionary period. The second term is devoted to a discussion of Latin America in the nineteenth and twentieth centuries and attempts to describe and explain the prevailing economic, political, and cultural trends of today.

- 15 T. History of Russian Civilization. Dr. HANUNIAN. Tu., 6.30-8.10 p. m. Gilman Hall 311.

A survey of Russian history is followed by a more detailed study of Russia since 1905.

- 6 C.P. Studies in the History of American Civilization. Professor GAMBRILL. A three term course. Fall, Winter, and Spring. Two hours a week.

### Advanced Study in European History.

See Circular of the School of Higher Studies of the Faculty of Philosophy for advanced courses in European History.

NOTE: For a course in American Economic History, see Economics 3 BE. in the Circular of the Evening Courses in Business Economics.

For a course in Methods of Teaching History in the Secondary Schools, see Education 93 T.

## HYGIENE

Associate Professor RICHARDS

- 1 T. Hygiene. Not offered in 1944-45.

- 2 T. A. Mental Hygiene. Associate Professor RICHARDS. F., 4.10-5.50 p. m. Phipps Psychiatric Clinic, Basement Lecture Hall.

This course is designed to give the teacher of several years' experience an opportunity to correlate his academic training and practical classroom work with the broad field of health. The course is limited to teachers who have taught at least three years in any department of a public or private school system. The scope of this work includes common intellectual, biological, temperamental, and social strains which lie behind the poor mental health of childhood.

Students, by special arrangement with Dr. Richards, may attend morning dispensary reviews on designated days.

## ITALIAN

Associate Professor SINGLETON

- 1 C. Elements. A three term course. Fall, Winter, and Spring. Three hours weekly.

Hours are arranged to suit the majority of students. Students should report to Professor Singleton, 207 Gilman Hall, during registration. There are no special requirements for admission to this course.

- 2 C. Readings. A three term course. Fall, Winter, and Spring. Three hours weekly.

Prerequisite: Italian Elements or equivalent.

## MATHEMATICS

Professor MURNAGHAN

Associate Professor JACOBSON

Dr. MORRILL

- 1 T. Plane Trigonometry. ————. M., 6.30-8.10 p. m. October term. Rowland Hall 101.

Prerequisite: Elementary algebra.

- 2 T. College Algebra. ————. M., 6.30-8.10 p. m. February term. Rowland Hall 101.
- 3 T. Modern Developments in Mathematics of Importance for Teachers at the Elementary and Secondary School Levels. Professor MURNAGHAN. Two hours a week. Not offered in 1944-45.
- 4 T. Elementary Probability and Statistics. Professor MURNAGHAN. Two hours a week. Hours and room to be assigned.  
In case of sufficient demand this course will be given.

NOTE: The following courses are offered in the Night Courses in Technology. Students desiring to take them should register in that division of the University.

- 775 N. Trigonometry and Analytic Geometry. Dr. MORRILL and Assistants. Two Sections. M. and Th., 6.30-8.10 p. m. Maryland Hall 220. Tu. and F., 6.30-8.10 p. m. Maryland Hall 220.  
In case of sufficient demand, a section for students who have had Trigonometry will be organized in Analytic Geometry and Elements of Calculus.

- 776 N. Differential and Integral Calculus. ————. M. and Th., 6.30-8.10 p. m. Maryland Hall 117.

- 777 N. Differential Equations and Advanced Calculus. Associate Professor JACOBSON. M. and Th., 6.30-8.10 p. m. Maryland Hall 202.

NOTE: For a course in Methods of Teaching Mathematics, see Education 100 T.

## MUSIC

Dr. KEEFER

- 1 T. History of Music. Dr. KEEFER. M., 6.30-8.10 p. m. Gilman Hall 12.  
A survey is made of music from the ancient Greek to the present with emphasis on the age-old impulse to translate words into corresponding sound-patterns, with an explanation of the purely musical grammar and syntax: pitch, timbre, chords, cadences, punctuation, melody, counterpoint, and instruments.

This introductory course requires no technical foundation.

- 4 T. The Rise of Instrumental Music: Concerto, Quartet, Symphony. Dr. KEEFER. Th., 6.30-8.10 p. m. Gilman Hall 12.

The history of instruments, forms, ideas, and texture from the time of Haydn to the present is studied in relation to the aesthetic current of the time. Study is supplemented by an extensive collection of recordings and by occasional attendance at concerts.

NOTE: In case of sufficient demand a course in Audio Aids in Music Appreciation will be offered.

## ORIENTAL SEMINARY

Professor ALBRIGHT

- 1 T. Biblical History and Literature I (Old Testament). Professor ALBRIGHT. One hour a week. 1945-46.
- 2 T. Biblical History and Literature II (Apocrypha and New Testament). Professor ALBRIGHT. M., 6.30-7.20 p.m. Gilman Hall 117.

## PHILOSOPHY

Dr. HAMMOND

Dr. GAUSS

- 1 T. History of Philosophy. Dr. HAMMOND. Th., 6.30-8.10 p.m. Gilman Hall 211.

October term: This deals chiefly with Greek philosophy and the problems and ideas basic in European thought.

February term: This considers philosophy since the sixteenth century, its logic, and the development of modern acceptances and outlooks. The interests of the class determine the treatment of specific topics; as for example, Plato, the age of the Reformation, the principle of relativity.

- 2 T. American Philosophy. Dr. GAUSS. Tu., 6.30-8.10 p.m. Gilman Hall 305.

This course gives a general history of philosophy in the United States, its various schools as a modification of foreign traditions assimilated by American thought, and its influence on politics, social life, education, literature, etc.

## PHYSICS

Mr. DRUMMETER and Assistants

NOTE: Full information concerning the following courses in Physics is contained in the Circular of the Night Courses in Technology.

- 675 N. Mechanics, Properties of Matter, Heat, and Sound. Mr. DRUMMETER and ————. Lecture, M., 8.20-10.00 p.m. Rowland Hall 58. Laboratory, Th., 7.00-10.00 p.m. Rowland Hall 204.

- 676 N. Magnetism, Electricity, and Light. Mr. DRUMMETER and ————. Lecture, Th., 8.20-10.00 p.m. Rowland Hall 58. Laboratory, M., 7.00-10.00 p.m. Rowland Hall 204.

## POLITICAL SCIENCE

Associate Professor MATTERN

Dr. MOOS

- 1 T. American Government: National and State. Two hours a week. Not offered in 1944-45.

- 2 T. A. American Government: Political Parties in Wartime. Dr. Moos. Tu., 8.15-9.55 p. m. October term. Gilman Hall 305.

The course opens with a brief analysis of the origins and development of American political parties. It continues thereafter with an intensive survey of current presidential nominating conventions and current presidential campaigns.

- 3 T. The Constitution of the United States. Two hours a week. Not offered in 1944-45.

- 8 T. Social Thinking and Action outside of the United States. Associate Professor MATTERN. Th., 6.30-8.10 p. m. Gilman Hall 305.

The course offers a study of social reform movements and of actual reforms by way of legislation, cooperative enterprise, and revolutionary processes.

- 10 T. Introduction to Public Administration. Dr. Moos. Tu., 8.15-9.55 p. m. February term. Gilman Hall 305.

A study is made of the problems of organization in public administration, administrative controls, and the administrative application of public policy. Problems of financial administration are examined and personnel administration receives special emphasis.

- 11 T. Personnel Administration: Principles and Practices. ———. M., 6.30-8.10 p. m. Gilman Hall 8.

Principles and practices in personnel administration are studied with special emphasis on the employee-employer relationship, employee morale, and the planning of personnel policies. The course is designed both for persons engaged in the personnel field and students of public and private management. Teachers in the field of educational and vocational guidance should find this course of value.

## PSYCHOLOGY

- 1 T. Introduction to General Psychology. ———. W., 6.30-8.10 p. m. Mergenthaler Hall 111.

This course in the mental and behavioral activities of the human organism introduces the following topics: perceiving, action, learning, thinking, and emotion, with emphasis on relations to the individual's environment, his response mechanism, and his personality.

NOTE: For a course in Education Psychology, see Education 1 T.

## RUSSIAN

Dr. KEEFER

- 1 T. Russian. Dr. KEEFER. Th., 8.15-9.55 p. m. Maryland Hall 117.

The nature of this course depends largely upon the preparation of the students who enroll. It may be either an elementary or an intermediate course according to the demand.

NOTE: An advanced course in Russian will be arranged on request.

NOTE: For a course in the History of Russian Civilization, see History 15 T.

## SOCIOLOGY

Professor McDougLE (Goucher College)

### 1 T. Introductory Sociology. Professor McDougLE.

Section A: M., 8.15-9.55 p. m. Mergenthaler Hall 200.

Section B: Tu., 6.30-8.10 p. m. Mergenthaler Hall 200.

An introduction is made to the scientific study of the origin, development, organization, and function of group life. Special attention is given to the biological, racial, ecological, and cultural backgrounds of the social order. A brief study of religion, the family, and the state is made in terms of the principles, theories, and facts developed.

### 2 T. Problems of Sociology. Professor McDougLE. W., 6.30-8.10 p. m. Mergenthaler Hall 200.

A. PUBLIC AND PRIVATE HOUSING. October term.

A study is made of the sociological aspects of modern housing and includes statistical and ecological studies of 1940 census material for Baltimore; operation of the U. S. Housing Act of 1937; war housing and its administration; the role of private enterprise; housing in the post-war era.

B. CRIME, THE CRIMINAL AND SOCIETY. February term.

A study is made of social disorganization and crime; the forms of crime; the search for causes; the police and the courts; the principal trends in punishment; probation; parole.

### 3 T. Social Disorganization. Professor McDougLE. Not offered in 1944-45.

## SPANISH

Mr. ANDRIAN

Mr. SANTANA

Dr. JUDD

Professor CROOKS (Goucher College)

### AT. Spanish Elements. Dr. JUDD. M. and Th., 6.30-7.45 p. m. Maryland Hall 104.

This course is intended for beginners. Upon successful completion the student receives credit for one elective course, provided it was not needed for matriculation. It may be offered to absolve the matriculation requirement.

### 1 T. Practical Spanish.

Section A: Dr. JUDD. M. and W., 4.30-5.45 p. m. Gilman Hall 311.

Section B: Reading. Mr. ANDRIAN. M., 6.30-8.10 p. m. Conversation.

Mr. SANTANA. Tu., 5.10-6.00 p. m. Maryland Hall 217.

A practical course for students who have had the elements and are desirous of obtaining knowledge of the literature and a facility in speaking and writing Spanish.

### 2 T. Spanish Literature. Mr. ANDRIAN. Tu., 6.30-8.10 p. m. Maryland Hall 117.

The content of the course is arranged to meet the needs and interests of the students.

**3 T. Spanish-American Readings. Professor Crooks. W., 4.10-5.50 p.m. Maryland Hall 119.**

The material to be read is selected with a view to giving students some acquaintance with Spanish-American civilization.

Prerequisite: Spanish 1 T or the equivalent.

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**ATTENDANTS ON COLLEGE FOR TEACHERS**

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1943-44.....	1086
1942-43.....	1092
1941-42.....	1373
1940-41.....	1361
1939-40.....	1581

The Evening Courses in Business Economics and the Night Courses in Technology listed below are also conducted by the University and may be credited toward the B. S. degree in the College for Teachers. Circulars describing these courses in detail may be obtained upon application to the Registrar.

## EVENING COURSES IN BUSINESS ECONOMICS, 1944-45

### ECONOMICS

- 1 BE. Economic Problems. Professor Evans. F., 8.15-9.55 p. m.
- 2 BE. Political Economy. Associate Professor Devine. F., 6.30-8.10 p. m.
- 3 BE. American Economic History. Dr. Loftus. M., 6.30-8.10 p. m.
- 4 BE. Money and Banking. Associate Professor Weyforth. Tu., 8.15-9.55 p. m.
- 5 BE. Corporation Finance. Dr. Stevens. M., 6.30-8.10 p. m.
- 9 BE. Elements of Business Administration. Mr. Huberman. W., 8.15-9.55 p. m.
- 10 BE. Business Statistics. Dr. Paradiso. W., 6.30-8.10 p. m.
- 18 BE. Industrial Management. Mr. Huberman. Th., 6.30-8.10 p. m.
- 19 BE. Labor Relations. Mr. Killingsworth. W., 6.30-8.10 p. m.
- 20 BE. Personnel Administration. Associate Professor Reynolds. Tu., 8.15-9.55 p. m.

### ACCOUNTING

- 1 BE. Accounting Principles. Dr. Bryan. M. and Th., 8.15-9.55 p. m.
- 2 BE. Advanced Accounting Principles. Associate Professor Devine. W., 8.15-9.55 p. m.
- 3 BE. Cost Accounting. Mr. McCord. F., 8.15-9.55 p. m.
- 5 BE. Advanced Accounting Problems. Mr. McCord. F., 6.30-8.10 p. m.
- 6 BE. Auditing Principles and Accountant's Working Papers. Mr. Stegman and Mr. Byrne. M., 8.15-9.55 p. m.
- 7 BE. Specialized Accounting. Mr. McKewen. W., 8.15-9.55 p. m.
- 8 BE. Federal and State Tax Accounting. Mr. Baker. M., 6.30-8.10 p. m.
- 9 BE. Controllorship Practice. Mr. Reuwer. Th., 8.15-9.55 p. m.

### LAW

- 1 BE. Commercial Law. Mr. Lowe. Tu., 8.15-9.55 p. m.
- 2 BE. Advanced Commercial Law. Dr. Watkins. Tu., 6.30-8.10 p. m.

### PSYCHOLOGY

- 1 BE. Business Psychology. Dr. Scheidt. Th., 8.15-9.55 p. m.

### ENGLISH

- 2 BE. Business English. Mr. Conzelmann. Tu., 6.30-8.10 p. m.
- 3 BE. Public Speaking. Mr. Pearce. Th., 6.30-8.10 p. m.



## NIGHT COURSES IN TECHNOLOGY, 1944-1945

### CHEMICAL ENGINEERING

- 976 N. Unit Operations-Theory.\* Associate Professor Bonilla. M., 8.20-10.00 p. m.; Th., 6.30-7.20 p. m. Maryland Hall 114.  
 977 N. Unit Operations-Laboratory.\* Associate Professor Bonilla. Th., 7.30-10.00 p. m. Maryland Hall 29.  
 982 N. Fluid Mechanics.\* Associate Professor Bonilla. M., Th., 8.20-10.00 p. m. Maryland Hall 114.

### CIVIL ENGINEERING

- 189 N. Engineering Drawing and Descriptive Geometry. Mr. Fahm. Tu., F., 7.00-10.00 p. m. Latrobe Hall 214.  
 175 N. Applied Mechanics. Mr. Hubbard. M., Th., 8.20-10.00 p. m. Latrobe Hall 210.  
 179 N. Strength of Materials. Associate Professor Comber. Tu., F., 6.30-8.10 p. m. Latrobe Hall 307.  
 177 N. Structural Design. ————. Tu., F., 8.20-10.00 p. m. Latrobe Hall 115.  
 185 N. Elementary and Advanced Surveying. Mr. Medaugh. Tu., F., 8.20-10.00 p. m. Latrobe Hall 114.

### ELECTRICAL ENGINEERING

- 275 N. Continuous Current Theory and Machinery. ————. Tu., F., 8.20-10.00 p. m. Maryland Hall 104 and 110.  
 276 N. Alternating Current Theory. ————. M., Th., 8.20-10.00 p. m. Maryland Hall 104 and 110.  
 278 N. Advanced Alternating Current Theory. Dr. Miller. M., Th., 8.20-10.00 p. m. Maryland Hall 202.

### GAS ENGINEERING

- 576 N. Gas and Fuel Analysis. Associate Professor Witt. W., 6.30-10.00 p. m. Lecture, Maryland Hall 114 and laboratory, Maryland Hall 122.

### MECHANICAL ENGINEERING

- 375 N. Elementary Heat Engines. Mr. Potter. Tu., F., 6.20-8.10 p. m. Maryland Hall 117.  
 376 N. Advanced Heat Engines. ————. Tu., F., 8.20-10.00 p. m. Maryland Hall 202.  
 380 N. Engineering Materials and Metallography. Mr. Woodburn. Tu., F., 8.20-10.00 p. m. Maryland Hall 109.  
 385 N. Machine Design. Mr. Bilyk. Tu., F., 6.30-8.10 p. m. Maryland Hall 119.

### AERONAUTICAL ENGINEERING

- 875 N. Airplane Stress Analysis. I. Mr. Gordon and Mr. Mangurian. Tu., F., 8.20-10.00 p. m. Maryland Hall 114.  
 878 N. Aerodynamics. I. Mr. Phillips. M., Th., 8.20-10.00 p. m. Maryland Hall 119.  
 879 N. Aerodynamics. II.\* Mr. Goddard. W., 8.20-10.00 p. m. Maryland Hall 217.  
 881 N. Airplane Design. II. Mr. Floyd. W., 8.20-10.00 p. m. Maryland Hall 119.  
 885 N. Aircraft Landing Gear. Mr. Stewart. F., 8.20-10.00 p. m. Maryland Hall 119.

\* This course will be offered only in case there is a sufficient demand.

# THE JOHNS HOPKINS UNIVERSITY

BALTIMORE

FOUNDED 1876

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Issues of the Johns Hopkins University Circular are published  
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SCHOOL OF HIGHER STUDIES  
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DEGREE M. D.  
(Open to Men and Women)

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SCHOOL OF HYGIENE AND PUBLIC HEALTH  
DEGREES DR. P. H., M. P. H., SC. D. IN HYG. AND SC. M. IN HYG.  
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CATALOGUE NUMBER OF  
THE COLLEGE OF ARTS AND SCIENCES  
THE SCHOOL OF ENGINEERING  
THE SCHOOL OF BUSINESS ECONOMICS  
DEGREES A. B., B. E., B. S. IN ECON.  
(Engineering open to Men and Women,  
others open to Men only, except in Summer)

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SUMMER SESSION  
COLLEGE FOR TEACHERS  
TOWARDS A. M., ED. M., A. B., AND B. S. DEGREES  
(Open to Men and Women)

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COLLEGE FOR TEACHERS  
DEGREE B. S.  
(Open to Men and Women)

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REPORT OF THE PRESIDENT

New Series, 1944  
No. 7

Whole Number 553

THE  
JOHNS HOPKINS  
UNIVERSITY CIRCULAR

NOVEMBER, 1944

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REPORT OF THE PRESIDENT OF  
THE UNIVERSITY  
1943-1944

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BALTIMORE 18, MARYLAND  
PUBLISHED BY THE UNIVERSITY  
NOVEMBER, 1944

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# THE JOHNS HOPKINS UNIVERSITY CIRCULAR

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New Series, 1944, No. 7

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## ANNUAL REPORT OF THE PRESIDENT

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TO THE BOARD OF TRUSTEES OF THE JOHNS HOPKINS UNIVERSITY:

*Gentlemen:*

The end of the academic year marked the beginning of public discussion of a proposed policy of universal military service for able-bodied young men in the interest of post-war peace and security. Because the men so designated are of college age and because we have a special responsibility for education, as well as a general responsibility shared by all citizens for national security, we are participating in the discussion and contributing our experience and our opinion.

The first requirement is to bring the emotions under control and the second is to avoid mistaking the foreground for the background. It is easier to float on a powerful wave of public sentiment about a situation, especially in war-time, than it is to analyze the situation. "It is easier to cry 'Onward' than to say whither."

In previous reports we have emphasized the state of readiness of members of pre-war ROTC units, our own included, for advanced services in the new Army of the United States, and the statistics now available amply confirm the fact. We must make sure that new plans provide an equally ready supply of acceptable

officer candidates in the future. ROTC worked: it should not be replaced or altered on the theory that it did not work. Whatever takes its place must work better.

The universal obligation of able-bodied young men to defend the country in time of war is as vital in a democracy as liberty itself. High prosperity without essential national virility only invites war. Willingness to defend one's country is not enough: there must be readiness to defend it. Air power and technological warfare have raised the meaning of readiness beyond anything hitherto imagined. How can we make ourselves ready power-wise and not worship or misuse the organizational machine that power and readiness require?

We can do this by keeping to the ideal that the American soldier cannot be a good soldier unless he is first a good citizen. No good citizen wishes to fight for the sake of fighting. He is an ignorant or a brutal citizen who thinks that might makes right. He is a socially untrained citizen who does not see the necessity for national unity. If unity is forced upon a people by a dictator the saddest effect is not the immediate suppression of national will but the negation of any and all provisions for future leadership. To stifle discussion is to sterilize the sources of leadership and inhibit progress. There is much more to it, but at least this much must be said if we are to understand the role of the colleges in a peace-time program of military training and readiness.

It is precisely the special role of the colleges in military training to give meaning to such training not in terms of technical equipment for war, whether material or psychological, but in terms of national ideals. If *all* able-bodied young men, year after year, must have military training (which inevitably includes indoctrination) *all* should have supplementary exercises in citizenship, or the crown of education for all those who do not go on to college will be a year in a military camp. Where are such exercises to be given? By whom shall they be conducted? What shall be their content? These become vital questions alike for those who do not go to college and for college students, indeed for all who place citizenship above power.



For the first or military stage of his education, the inducted man in a universal training scheme would either have general education by the military authorities (with federal control of substance and method) or he would have none at all. One is almost as bad as the other if a year's service comes to be required. A military staff is not competent to devise or administer a program of general education, and in saying this we desire to add that we believe we have the most intelligent general staff in the world. They know their business. Equally emphatically we know ours. The two kinds of business are not the same. Where our two purposes overlap we should be most alert to our responsibilities.

What is well taught by a military man is military discipline. Its marked beneficial effect alone makes military drill and maneuvers, in my view, an essential part of every man's education. To learn to stand, to coordinate in rhythmic action, to feel responsible to and for the man beside you, to take care of yourself and your equipment,—these accomplishments have had such positive manly effects that their advantages cannot be denied. But manliness and citizenship are not equivalent things. Citizenship implies an understanding of America and of one's duty to it. That is a job for which a dozen disciplines and professions are responsible. It is not a job for a military staff only. It has been urged that instead of a training period of a whole year, the services conduct training in the interval of a summer vacation or two, and that the country has facilities and environment (Alaska to Florida) for training in different categories of both summer and winter combat during the so-called summer months. I am not sure that the mixture will give us what we need in a military way and its administration may prove impracticable. What is needed, however, is an analysis of the situation by army, navy, and air corps specialists and a thorough study by college and university faculties in the months immediately ahead.

For the officer or advanced groups, and for technical specialists, a modified ROTC seems essential. The recent discussion respecting new training centers for military and naval specialists, duplicating West Point and Annapolis, forecasts a responsibility for

the universities far greater than before. Either these new centers will be in, or organically related to, the larger academic institutions or they will make demands upon such institutions for specialized training by categories of need for a people's army when, as, and if called into being by political exigency. Unofficially, if not officially, we shall find ourselves required to gear at least parts of our institutional programs to national military policy.

If such be the case, the need for more than a military education is surely greater than in the past. As a democracy we can never allow ourselves to become militaristic. In an emergency, a hastily improvised citizen's army is not enough. To have national political policy determined by a military caste is too much. Every argument brings us back to the need for a balanced program, indeed a balanced national mind about it, for it is no less than a great social experiment that is in view. We can only attain balance by having the main elements of education widely known and adopted. Among the elements, citizenship is foremost in importance though not in time. Training in it is a general not a specialized process and achievement. Though begun in school it is never ended: it includes military service but is far larger than that. For every young man the acquisition of specialized skills, reflecting personal tastes, and economic and social opportunities come next. Adult education, for both enjoyment and use, is a relatively new generic term for a maturing process that is later still. Only by analysing the new proposals for a year of military service in the light of such a total educational process can we have a solid foundation laid for both a militarily prepared citizen's army and a sound democracy.

### *The Past Year*

During the past year the University has been occupied to the limits of its capacity, with war training programs and research projects making great demands upon the time and energies of faculty members and officers of the Institution. From the point of view of numbers the Army Specialized Training Program reached its peak and then began a rapid decline, reflecting the

changed policy of the War Department. While the maximum ASTP enrollment in the Homewood schools was approximately 500, we enter the new academic year with approximately 87 army students in the pre-professional curriculum and 161 in the Army Specialized Training Reserve Program, which was set up for young men not yet of draft age.

The program of scientific research sponsored by governmental agencies continued without diminution during the year. Most of the projects were sponsored by the Office of Scientific Research and Development, but the University also was engaged in special work for the War and Navy Departments, the War Production Board, and a number of other governmental agencies. The volume of these projects was such as to occupy a substantial part of the time of the members of the several science and engineering departments at Homewood, and heavy demands were made also upon the faculties of the School of Medicine and the School of Hygiene and Public Health.

### *The Immediate Future*

It is apparent that there will be marked changes in the University's war activities during the next twelve months. We have been advised of further reductions in the AST Program and it is anticipated that the training of army personnel at the undergraduate level will be discontinued at Hopkins about January 1, leaving the Army and Navy units in the School of Medicine as the only members of the armed forces under instruction at the University. We may also anticipate a reduction in the research activities directed to wartime objectives. Certain investigations undoubtedly will be discontinued and new projects are likely to be fewer in number.

With Selective Service still affecting young men as they reach 18 years of age and with the withdrawal of army trainees, it is likely that the enrollment in the undergraduate schools from now until the end of the war will be only about a quarter of the normal enrollment. That fraction, too, will be limited to young men who have not yet reached their eighteenth birthday or to those

who, for physical reasons, have been disqualified for military service. The graduate school, of course, has been affected even more seriously by wartime conditions and registration in Afternoon and Evening courses shows a decline due, no doubt, to the fact that persons normally taking those courses are working overtime in industry.

We look forward to a reduction in the overall demands upon the University without misgivings for two reasons: first, the period of minimum activity is likely to be relatively short; and second we shall require, and plan to use, this breathing spell as a period of preparation for the heavy enrollments which are almost certain to come immediately at the end of the war.

In my last Annual Report I referred to the formation of two committees, one to make plans for the reception of returning members of the armed forces and another to examine the curricula and objectives of the School of Higher Studies and the College of Arts and Sciences in terms of the new conditions we are likely to face in the future. Since then other committees have been set up to study the special problems of the School of Engineering and the School of Business Economics. I have appointed also a committee on organization and policy in the School of Medicine whose membership includes representatives of that School, of the Hospital and of the School of Hygiene and Public Health. The work of these three groups will be completed during the winter and their findings will be referred to in detail in my next annual report.

### *Returning Veterans*

The character and scope of the problem of handling returned veterans became apparent only with the passage of the so-called "GI Bill of Rights," which provides governmental support for practically all members of the armed forces whose education was interrupted by the war. Sampling surveys made by a number of agencies indicate that a substantial number of eligibles will take advantage of the generous provisions of this Act and that the colleges and universities of the country will find it difficult to

take care of applicants who, for a brief period at least, will run to totals far in excess of the pre-war normal college and university enrollment. The problem of numbers will be further complicated by the fact that many returned veterans will have been away from school or studies of any kind for long periods of time. Still another difficulty will arise from the fact that many applicants will present credentials which, from the point of view of normal academic procedures, will be difficult to evaluate.

The Committee on Veteran Education has recommended a policy which is liberal with respect to interruptions and irregularities in training, but conservative from the point of view of objectives. The veteran who applies for admission or advanced standing will be expected first to demonstrate that he is capable of doing college work. When that fact has been established necessarily by criteria less conventional than those applied to civilian students every effort will be made to fit him into the Hopkins program and to give him credit for those subjects in which he has the required proficiency, even though the proficiency may have been gained through correspondence courses, special training programs, or other irregular sources. To take care of the young man who has grown rusty, refresher courses or special tutoring will be employed. The whole objective, however, will be to bring him up to the level from which he can proceed as rapidly as possible on a regular degree curriculum.

In an institution such as Hopkins, where older graduate students and younger undergraduates customarily mingle to their mutual advantage, it is believed undesirable to attempt to segregate veterans from other students, except insofar as such segregation may be necessary in refresher courses. The veteran will enter into the regular life of the University as soon as he can and will proceed along with others on a curriculum leading to the degree which he has chosen.

### *Long-range Plans*

When the Committee on Post-War Policy was appointed in June, 1942, my invitation to it was as follows:

I wish to set up a Committee to report eventually to the Academic Council on any revisions that should be made in our course of study in the College and any changes in the structure of the Faculty of Philosophy that may be suitable for the post-war period. It is obvious that our experience during the war will result in some change of views on our part as to what an education consists of at this place, with such advantages and limitations as we may recognize. There will be uncertain factors of income and student attendance. There ought to be no uncertainty as to our views respecting the main questions of policy when we reach the end of our studies and actually face the conditions of the post-war world.

The Committee will be directing its attention toward fundamental questions of policy. The intensity of the thinking, the breadth of the exploration that is to be conducted, and the sound judgment that the report of the Committee should reflect, make this Committee one of the most significant ever appointed here.

The first chairman of the Committee was Professor Hazelton Spencer of the English Department. Professor Spencer carried on the work with great enthusiasm and enterprise until poor health required him to resign the chairmanship. His death at the age of 51 years was a deplorable loss to the Committee, to his department, and to the University. Professor Carl B. Swisher was good enough to carry on as chairman and with the help of his colleagues and a special editorial sub-committee a first-class report was produced.

This report represents current thinking with the widest faculty participation. The men who prepared it will implement it. A spirit of analysis and challenge prevailed at the Committee's meetings rather than a spirit of mere amiability. The report represents, therefore, the most substantial policy statement ever produced by the Faculty of Philosophy.

Addressing itself first to the School of Higher Studies, the Committee urged the retention of practices which have characterized graduate work at Hopkins from the beginning. It emphasized the importance of limited enrollments and high standards of admission in the several graduate departments. If we hold to rigid standards in selecting students, the Committee pointed out,

we shall not be tempted to substitute course and credit requirements for the more valuable informal association between professor and student.

While approving the basic structure of the graduate school, the Committee pointed to a number of areas in which improvements should be made. Because of our limited size, for example, it was recognized that not all specialties in the several fields can be represented in our departments. To provide the breadth required for graduate study in the light of this limitation, the Committee recommended the further development of interdepartmental programs, which would permit the graduate student to come into contact with a number of faculty members not in his own department. The use of visiting professors and lecturers and of exchange professorships was recommended to augment the resources of the resident faculty. To supplement the academic training of men in the science departments, it was suggested that internships be arranged in specialized industrial laboratories and for the same reason it was urged that the University consider the establishment of a Research Institute in which problems having direct applications may be attacked under University auspices. There will be a further reference to this Research Institute later on in this Report.

### *The College*

I refer only briefly to that portion of the Committee's report which relates to the School of Higher Studies. No single radical change was suggested in the basic structure and the recommendations in general are of the sort which will be developed over a period of years and which will be referred to, inevitably, in subsequent communications to the Trustees. When it turned to the problems of the College, however, the Committee's report called for immediate action and a number of somewhat radical departures from present practices.

It was gratifying to learn that the Committee unanimously recognized first, that the College is a vital unit in the University organization and, second, that we have an opportunity to develop the Hopkins environment a College of Arts and Sciences which

will be in many respects unique. I shall review the findings of the Committee in some detail because the changes in the College along the lines indicated by the Committee will have a prior claim to our attention in the immediate future.

The Committee began chronologically with a discussion of the relations between the College and secondary schools. Like practically all institutions, we have been disturbed by the irregularities which exist in the training of high school graduates. Some come to us with a substantial background in the subjects which are essential as college preparation; in other cases the background is spotty or inadequate. Yet students who are mentally equipped to do college work of high caliber come from both groups of schools and the problem is how to make good the deficiencies of preparation. How shall we bridge the gap between inadequate high school training and a program of study that is really collegiate in character?

In discussions of the Committee it developed that most applicants are weak in two basic subjects—English and mathematics—and that a large proportion of freshmen who fail in their first year do so because they are unable to maintain the pace in these two subjects. A smaller number of applicants are deficient in other important subjects, but no matter where the deficiency may be the young man finds it difficult to catch up and at the same time to keep up with his classmates.

To meet this situation the Committee has proposed a rather unusual experiment. It advocates that all entering students be required to report to the University approximately four weeks before the beginning of the regular academic year. At the beginning of this four-week period each student will be given placement examinations. He will then be assigned to a program of intensified study in the one or two subjects in which he is weakest. Aside from the formal instruction which he will receive during this period, the young man will have an opportunity to familiarize himself with the campus and to become adjusted to the University environment, which usually is quite different from that of the high school from which he has graduated. He will be intro-



duced to libraries and laboratories and will be urged to participate in extracurricular activities. Since freshmen only will be in residence during this period faculty members can concentrate upon their needs to the exclusion of other interests.

This pre-matriculation program is admittedly experimental but in advocating its adoption the Committee expressed the hope that it will help to make up for some of the irregularities in preparation and will enable the faculty to set up the collegiate program with better knowledge of the state of preparation of the students. It is clearly unfair to penalize a freshman for the deficiencies of his school, and clearly wasteful to the college to spend time on a student who is bound to fail in mid-year examinations. The new plan gives the entering student a lift at the most critical point in his college course.

So-called liberal arts education has undergone many changes in this country since its beginning. It has swung all the way from the rigidly classical prescribed curriculum to the free elective system under which the student studies only what he pleases. In recent years the trend has been toward a balanced group of required subjects as a foundation for later specialization in which electives play a part. Hopkins has employed this pattern for a number of years, admitting students to a two-year general basic course and at the end of two years requiring them to qualify for specialized study in a group of related fields with emphasis in one department.

The Committee on Post-War Policy has recommended a further and, I believe, significant broadening of the base of general education which every student will be required to take. It begins with the assumption that no man is truly educated who does not have some familiarity with each of the major areas of learning. It has prescribed a program, therefore, in which underclassmen, regardless of their later specialization, will acquire some knowledge of the physical and biological sciences; of history, economics, government, and philosophy; and of the literature of their own language and, preferably, of a foreign language as well.

To implement this program the Committee recommended the

creation of new courses in a number of these fields—courses aimed at the cultural development of the student rather than at preparation for a profession or vocation. The courses are to be broad in concept, but every effort will be made to avoid the danger of superficiality.

To organize and to administer the freshman-sophomore program, the Committee suggested the establishment of a special organization within the college faculty comparable to the "group committees" which at present administer the curricula of juniors and seniors. Such an interdepartmental group, the Committee felt, is necessary in order to focus attention upon this important part of the college curriculum and to provide the diversified counseling which the younger student requires.

Obviously the success of the program outlined for the College depends upon the quality and character of the student body. In recognizing this fact the Committee recommended closer attention to the problem of selecting students. It advocated a proper balance in the College among students in the several fields of learning and pointed to the tendency at Hopkins to attract science majors rather than students interested in the social sciences and humanities. A conscious effort should be made, the Committee believes, to develop student interest in the latter two fields and also to encourage the enrollment of a larger proportion of students from outside the State of Maryland.

The findings of the Committee on Post-War Policy will be presented to the Academic Council and later, presumably, to the operating boards and committees in the School of Higher Studies and the College of Arts and Sciences. It is my hope that we shall be prepared to introduce most of the changes recommended by the time the student enrollment returns to normal after the war.

### *Improvements to Plant*

Concurrently with our efforts to improve the curricula of the several schools, we are forced to consider some very pressing needs for additions to our physical plant. For many years we have felt keenly the lack of an appropriate place of assembly,

available to alumni and the public on special University occasions as well as to students in the University. Under the will of the late Alfred Jenkins Shriver the University has received a sum of money sufficient to provide a lecture hall which should meet all of our requirements. With the appointment of Laurence Hall Fowler as special architectural advisor to the Board of Trustees a first and important step has been taken toward the erection of this building. It is expected that plans will be ready by the time construction is possible.

If we are to carry out our general plans for strengthening the undergraduate schools of the University certain other additions to plant should be made in the very near future. Our present dormitory is less than adequate in terms of our normal pre-war student enrollment; the deficiency will be even more pronounced in the post-war period. I propose that consideration be given at once to the construction of an additional dormitory unit comparable in size to the present one. I propose further that in planning for this unit a careful study be made of the total housing problem of the University, including fraternity houses and other off-campus quarters at present used by students.

On several occasions I have referred in my annual Reports to the Hopkins program of physical education. The program has been tested for a number of years and its value has been demonstrated over and over again. If we are to obtain the full benefit of this unique system, however, we must provide additional facilities for physical education. Funds already have been allocated for the construction of a swimming pool, for additional locker room and shower facilities, and for space which can be used for indoor sports. Construction will be started on these improvements as soon as possible. In order to round out our physical education resources we shall need also to add one or more outdoor playing fields to those already existing. There is adequate space on the campus for such expansion and the fields can be provided at relatively small cost.

In attempting to anticipate future needs in terms of physical plant it is apparent that additional space will have to be provided for the School of Engineering. Even before the war our

engineering facilities were crowded beyond their capacity due to increased enrollments and to the necessity for introducing new fields of engineering study. Moreover, modern engineering training requires complicated laboratory equipment for which space must be provided. The likelihood of an increased interest in technological training after the war leads to the conviction that additional classroom and laboratory facilities must be provided immediately if the School is to meet the demands which will be made upon it.

Since the School of Engineering was established by legislative enactment and since the first buildings were erected with State funds, we plan to ask the State to provide the additional money necessary for new construction. The request which we propose to make to the Governor and the General Assembly is for two buildings, one to provide additional classroom and laboratory space, the other to house a laboratory for industrial research which is an entirely new project in Maryland and in the School of Engineering.

The need for the first building has been explained in part above. It would be used primarily to provide adequate space and facilities for chemical engineering, a specialty which has grown tremendously in the last few years. It will also permit us to develop aeronautical engineering and other specialties in order that we may keep abreast of the demands of local industry for trained men.

#### *Industrial Research*

The laboratory for industrial research is a project which, as I have mentioned above, was recommended by the Committee on Post-War Policy. The creation of such a laboratory was also recommended by a special committee representing both the Faculty of Philosophy and the School of Engineering. Its main function would be to provide facilities for research available principally to Maryland industries on a cost basis. In organizing the project we should simply be extending to private industry the type of service which the University now is providing for the Government under the Office of Scientific Research and Develop-

ment. Some of the resources of the University devoted to war-time research can readily and profitably be diverted to industrial projects and both the University and industry will gain.

The creation of an industrial research laboratory is of the utmost importance as an immediate post-war project. To create new jobs and to stabilize employment in the post-war period will require a constant flow of new ideas and new products. Many small industries and some larger ones cannot afford to establish their own research agencies, which are necessary if new products are to be developed. Few industries, large or small, provide the diversity of background and training which the University affords. To make these resources available to industry is more than a service to an individual company. It is a genuine contribution to the social welfare of the State and nation.

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A special note of gratitude should be included in this Report for the unfailing and devoted services of the faculties of our several schools. The accelerated programs have meant great responsibilities as well as heavy burdens for most faculty members. Neither corresponding adjustments of salary nor vacations could be considered. We shall return to the two-semester system on February 1, 1945, with the firm knowledge that "acceleration" is no substitute for an education in which maturity as well as effort plays a part. The truth is inescapable that it takes time to think. The so-called leisure of college students and faculty is a myth.

Trustees, as well as faculty, have borne the heat and burden of the day. The work of the members of the Finance Committee and the Executive Committee is especially praiseworthy. With little or no public recognition the officers and members of a Board of Trustees in these times serve with a degree of unselfish devotion to social and institutional needs that should not go unnoticed in this summary of intensive work in one of our most critical war years.

Respectfully yours,

ISAIAH BOWMAN.

## THE FACULTY OF PHILOSOPHY

### DEPARTMENTAL ACTIVITIES AND PUBLICATIONS

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**ARCHAEOLOGY AND ART**—The Department has functioned as in peace times, more than the usual number of hours of courses being given. For the Association of American Colleges Professor Robinson spent three weeks in February as visiting professor at five colleges in Kentucky and Tennessee. The Archaeological Seminary, consisting of seven advanced students, devoted itself to original problems mostly in Roman art and archaeology. In the other courses there were more than fifty different students. This year only one student received the degree of Ph. D. and one the degree of A. M. The manuscript for Volume XII of the Olynthus publication, a large volume devoted to the houses and public buildings, is nearly finished, and more than three hundred plates of illustrations have already been made. Miss Hazel Palmer and Miss Laura Voelkel have devoted much attention to research in Roman archaeology, each having received a grant of five hundred dollars for that purpose from the American Academy in Rome.

**BIOLOGY**—Owing to the accelerated program of undergraduate teaching and a decrease in number of graduate students, the research activities have been much less than normal. Nevertheless, some progress has been made. Professor Willier and associates, Dr. Rawles and Dr. Nickerson, have continued their investigations on the mechanisms whereby feather color patterns are produced. By appropriate grafting techniques it has been established that (1) pigment cells which are set aside early in the embryo play the primary role in forming the color pattern of the feather as it arises from a complicated organ of the skin, known as the feather germ, (2) genetic constitution provides the pigment cells with specific modes of expression, and (3) after hatching pigment cells exhibit remarkable powers for migration into skin grafts which are deprived of their normal supply of pigment cells.

With the aid of a grant from the American Philosophical Society, Associate Professor Ephrussi has continued his study of the mechanism of gene action as revealed in the development of eye pigments in the fruit-fly, *Drosophila*. New evidence was obtained indicating that the formation of the red and brown pigments involves a common step occurring in early development. An analysis of the pigments contained in the eyes of mutant flies belonging to one series of multiple alleles has shown that they may represent a continuously varying series of molecular structures of different

degrees of complexity, all derived from identical building blocks. Dr. Sutton has shown for *Drosophila* that when the Y-chromosome is broken and the two pieces become attached to parts of other chromosomes it is ineffective in modifying gene activity in the expression of a phenotypic character. Dr. Kimball has made progress in his attack on the problem of the effects of genes concerned in the production of substances which induce the mating reaction in a ciliate protozoan. Dr. Ris has under investigation the effect of pH on spindle and chromosome movement in the living spermatocytes of the grasshopper.

Associate Professor Skoog has made progress in determining the specific nutritional and other factors involved in the control of organ formation in plants. By growing undifferentiated callus tissues of the tobacco plants *in vitro* it has been established that organ formation is determined, at least in part, by the balance between the inorganic components and auxin. Experiments have been carried out to test whether the action of these substances is related to their effect on respiratory enzyme systems. Preliminary studies of organic acid nutrition have been carried out under his supervision. A histological study of the tobacco callus tissues under varying cultural conditions has been made by Dr. Boke.

Professor Andrews has been actively engaged in a study of the mechanisms used in getting and ingesting food by the protozoans, folliculinids and stentors. The investigations of Professor Mast have dealt with food requirements, digestion and synthesis of vitamins in protozoans. Substantial progress has been made by Professor Cowles in the preparation of a history of biology at Hopkins.

**CHEMISTRY**—The activities of the members of the Chemistry staff during the past year have been almost exclusively confined to war research and undergraduate instruction. The graduate research and instruction of pre-war days are now practically nonexistent. The graduate students in attendance at the University are serving as full-time instructors in connection with the Army and civilian programs of undergraduate instruction.

Only six faculty members were able to render reports on research which are not restricted by security regulations. Due to the pressure of war activities, these reports are very limited in extent. Dr. Corwin and his students have been studying reactions of certain organo-metallic compounds. Dr. Wiselogle has directed a limited program of research aimed at synthesizing new substances which may be of chemo-therapeutic interest. Dr. Brunings records encouraging progress in the study of the nature of the critical bond between hemin and globin in hemoglobin. Dr. Webb has been investigating compounds of heavy metals with a variety of organic substances. Dr. Lieben has pursued further his studies on the formation of protein complexes of heavy metals, including particularly silver. Dr. Rossi has been engaged in the construction of a new high-

voltage electrostatic machine. He has also been investigating the friction of the knife-edge bearings of precision balances.

During the year, Associate Professor E. R. Blanchard resigned to accept a full-time war research appointment elsewhere. Professor D. H. Andrews requested in May that he be relieved of administrative duties to devote full time to war research. Accordingly Dr. A. H. Corwin was appointed Acting Chairman of the Chemistry Department and Acting Director of the Chemical Laboratory.

Due to the fact that the University operated on a quarter system for the first time this year, three new entering classes were accepted. This caused the department to schedule the repetition of an unusually large number of courses. In addition, special courses were organized for the Army Specialized Training Program. These changes resulted in unusual activity in undergraduate instruction in spite of the fact that the total number of students involved was less than normal.

**EDUCATION**—The continued absence of Dr. Stephens and of Dr. Lichtenstein hampered the Department considerably. However, the lectures were adequately given in educational psychology by L. Kathryn Dice who had obtained her doctor's degree in June 1941 under Dr. Stephen's guidance. The instructor in clinical methods in education was Dr. Olive A. Whildin who received her degree in June 1934. The withdrawal of Mr. Thursfield from the Department for the year for instruction in the Army Specialized Training Program was an additional handicap. The history of education, however, was very well handled by Dr. Beulah B. Tatum who received her Ph.D. degree in 1943 and had done research in this field.

Thirty-two students registered in the Department; nine for full time and twenty-three for part time study.

The general topic for the Journal Club discussions was Education Adapts Itself to the War. The first topic, Federal Aid to the Public Schools of the Several States, was presented by Dr. Theodore L. Reller, Associate Professor of Education, University of Pennsylvania, who gave a history of federal aid to state education in the past, and presented cogent reasons why, today, the government should meet the responsibility of equalizing educational opportunities for all the children of the nation. A second topic, The War Brings Educational Problems to the Eastern Shore, was presented by Rev. William R. Phipps, Ed.D. '38, who at one time was Supervisor of Education of Talbot County. Following this a talk on the Impact of War on Student Teaching was presented by Dr. William H. Hartley and Miss Kathryn Schnorrenberg of the State Teachers College, Towson, Maryland.

**ENGLISH**—Despite the uncertainties and great changes which the loss of civilian students and the coming of the soldiers involved, the work of



the Department has gone on smoothly, and, we believe, profitably. We were able to expand and later to contract our staff without lowering standards or inflicting hardship on any of the teachers. The report of the Army on its examinations for the last term put the work of our students in composition at very nearly the top of the whole country. The chairman of the department took over general supervision of the English work for the army, and each of the professors and associate professors taught a section of the soldiers for several weeks in the fall and winter terms. Each likewise taught two or more undergraduate literature courses and lectured several times in the general sophomore literature course. The enrollment in this last-mentioned course and in several others was, like the number of our graduate students (20), larger than we had reason to expect. The spirit shown and the quality of work done by both graduates and undergraduates have been quite up to peace-time standards. Dr. Norris, who has general charge of the sophomore literature course and, together with the chairman of the department, of the many sections of the freshman composition course, has been made an associate. Considerable time has been devoted to keeping in touch with our alumni, particularly those in the service.

During the year Professor Malone was elected to the presidency of the Linguistic Society of America. He is also President of the American Dialect Society. Other members of the department, including Professors Havens, Anderson and Allen, and Dr. Fagin, delivered a number of public addresses. Dr. Fagin was elected to the presidency of the Poe Society of Maryland.

**GEOLOGY**—Members of the staff were engaged in the following investigations: the geology of the proposed aqueduct for the Bureau of Water Supply of Baltimore City and various geologic problems in Maryland as director of the Department of Geology, Mines and Water Resources by Professor Singewald; the preparation of a memoir and annotated bibliography on lineation by Professor Cloos; the mineralogy of the Tertiary sediments of northwestern Peru, the correlation between deformation planes and crystallographic directions in the vein quartz of the Antietam quartzite in Maryland, and the field relationships of crystalline rocks of the Maryland piedmont by Dr. Anderson; the stratigraphy and paleontology of the Upper Ordovician formations of Virginia by Dr. Secrist; the areal geology and stratigraphy of the Coal Measures of Western Maryland and participation in the preparation of a Silurian monograph for the National Research Council by Emeritus Professor Swartz. Two students were awarded the master's degree, one with an essay on Montana granites. Seven students who have fulfilled the residence requirements for the doctor's degree are completing their dissertations *in absentia*.

GERMAN—Only one graduate course was given in the Department during the year. The courses in the College of Arts and Sciences were conducted by Professors Feise and Roulston and Dr. von Schüching; courses in the College for Teachers by Professor Roulston. The Area and Language Courses in German of the Army Specialized Training Program were conducted and supervised by Professor Feise and Mr. von Schüching, with the assistance of Professors Cloos, Edelstein, Mattern, and Pelzer, Mrs. Bang, Mrs. Feise, Mrs. Kern, and Mrs. Veith. Professor Kurrelmeyer retired in September, 1943, and his portrait, painted by Mr. Waldemar F. Dieterich, was presented to the University by his friends in city, faculty and student body. He retained his Editorship of *Hesperia* and his Co-editorship of *Modern Language Notes*. Professor Feise conducted the Middlebury College School of German in Bristol, Vermont.

GREEK AND LATIN—In the Department of Greek Dr. Robinson offered a reading course in Plato's Republic. Dr. Haywood offered a two-hour course in the Greek Orators. Professor Meritt offered a course in Attic Epigraphy.

In the Department of Latin a seminary was offered in the Fragments of Early Latin Authors, Plautus and Terence. A reading course was offered in Historical Literature of the Republic.

HISTORY—Since history has been on the curriculum for each group of students in uniform on the campus, all the members of the staff have given much of their time to preparing and teaching the various courses indicated by the Army directives. When the pressure was heaviest, members of the departments of Political Science, Political Economy, and Education did a share of the work of teaching American History and Institutions. Professor Swisher gave lectures for one of the A. S. T. courses, another large course was planned and taught by Mr. Thursfield, and other members of the co-operating departments handled sections. Their co-operation was of great assistance and is much appreciated by the history department. In addition to the instruction given to students in the basic curricula of the A. S. T. P., courses in quite modern German history, Italian history, and French history, and in general European history were taught in the advanced Area and Language curricula. Civilian undergraduates in their first, second, or third terms were offered courses paralleling those offered in the A. S. T. P. basic curriculum; more advanced instruction was offered undergraduates by admitting them to courses open also to graduate students.

A new center of interest in graduate studies has emerged fostered by local records and by Visiting Professor Gambrell's interest in social and cultural history. Under his guidance the possibilities discovered in local records have been brought to bear on questions of far more than local interest—on aspects of immigration and public charities, for example,

important in the nation's history. The number of graduate students has been well maintained, justifying a full program of courses and permitting a revival of the Seminar.

Associate Professor Lane has been elected editor of *The Journal of Economic History* and appointed a member of the Committee on Economic History of the Social Science Research Council.

**INDOLOGY**—In the Sanskrit Seminary Professor Dumont devoted the three terms of the academic year to the interpretation of the following texts: 1. the *Kāthaka-Upaniṣad*; 2. the *Arthāśāstra* of Kauṭilya (I, 8-21; II, 1-3; III, 1-2; III, 5-7); 3. the *Mānava Dharmaśāstra* with the commentary of Kullūka (IX, 103-200); 4. the first, second and fifth acts of Kālidāsa's *Śakuntalā*; 5. Somadeva's *Kathāsaritsāgara* (I, 2-5). Because of war conditions, for the first time since 1929, the courses in Comparative Philology and Elementary Sanskrit were not given. Professor Dumont is now engaged in the study of the Agnicayana (piling of the fire altar, in the Vedic ritual) according to the *Taittirīya-Brāhmaṇa*.

**MATHEMATICS**—Graduate instruction in the Department of Mathematics was less than normal due to the increased instruction in the A. S. T. Program. Four graduate students who took part in this Program took graduate work until April 1, 1944, at which time they left for Langley Field. The mathematical seminar met only occasionally. The American Journal of Mathematics is now in its sixty-sixth volume and will contain about 600 pages. Volume 65 contained 736 pages. Professor Murnaghan delivered the W. L. Putnam Memorial Lecture at Harvard University April 6, 1944. He also delivered a series of lectures during the Winter and Spring Terms at the School of Mechanics, Brown University. Professor Zariski was elected to membership in the National Academy of Sciences. Professor Jacobson was elected to membership in the Council of the American Mathematical Society.

**ORIENTAL SEMINARY**—One member of the Oriental Seminary received his Ph. D. and another his M. A. Ten students, resident and non-resident, are working on their dissertations, the completion of several being postponed until after the war. Six men have gone from the Seminary into army and navy chaplaincies since 1942; one has been commissioned a captain in army intelligence; two have been commissioned ensigns in the navy and assigned to intensive study of Japanese (both have now completed their courses satisfactorily). Eighteen courses were given in the Seminary; Professor Albright also taught elementary courses in the Department of Geography for two terms. In the early summer he taught Arabic in the Linguistic Institute of the University of Wisconsin, and in the late winter and spring he gave graduate courses one day a week in the Dropsie College,

Philadelphia. During the year he delivered over forty lectures and addresses in different parts of the country, including six lectures on the Haskell Foundation at Oberlin. He is now working on two books, *The Excavation of Bethel* and *Canaanite Religious Literature and the Bible*, both of which should be ready for publication this year or next. Professor Blake is actively continuing his linguistic studies; several papers are about to appear and others are in preparation. Dr. Rosenblatt is at work on his critical edition of Averroes' commentary on Aristotle's *De anima* for the Mediaeval Academy of America.

PHYSICS—Professor Bearden, Dr. Inglis and Dr. Shaw continue to be away on leave, probably for the duration. Whereas the instructional activities of the staff have proceeded normally, the research activities have, in general, been devoted to the war effort.

Professor R. W. Wood has continued, with conspicuous success, the supervision of the ruling of diffraction gratings. In addition he has been doing research on "New Effects Produced by High Explosives" at Aberdeen and elsewhere.

During the year the undergraduate work in connection with the teaching of Army students reached its peak, the largest number of sections in General Physics being 26. In addition to supervising this work, and giving the lectures in some of the courses, Professor Hubbard has been engaged for part time on certain war projects. Mr. S. S. Hanna has been working on the characteristics of sound fields emitted by quartz crystals and their dependence upon crystal structure, and Miss Ellen Swomley has been studying the acoustic properties of hydrogen. Mr. J. Woodburn, of the Department of Mechanical Engineering, is engaged in part under Professor Hubbard's direction on the acoustical study of steam.

Professor Dieke, in addition to his regular university duties, was engaged in research for several government war agencies. He visited a number of industrial plants in the East and Middle West in order to keep in touch with certain phases of the industrial war program. He conducted several courses in industrial spectrographic analysis of materials. He acted as special master in a patent suit in the U. S. District Court of Baltimore.

During the past year Dr. R. T. Cox has, as time allowed, continued research in bioelectricity. Professor A. H. Pfund delivered a public lecture before the Delaware Section of the American Chemical Society in Wilmington, Delaware, on April 19. The subject was "The Aging of Glass Surfaces."

POLITICAL ECONOMY—The small enrollment of students majoring in Political Economy, a condition which may be expected to continue until there is some lessening of the intensity of the war effort, was a major factor in determining the instruction offered by the Department. On the

graduate level the program of courses was adjusted to meet best the needs of the students of all of the departments in the Social Sciences. The Graduate Seminary and the Journal Club continued to meet, though the sessions were relatively few and were held at irregular intervals.

Throughout a large portion of the year Professor Evans served as Director of the Army's Foreign Area and Language Training Program on the campus. Dr. Weyforth was granted a leave of absence in August, 1943, to become Chief of the Division of Reports and Analysis of the Maryland Office of the War Manpower Commission. While some of his courses had to be suspended, the work of the Department was later strengthened by the return of Dr. Reynolds to full-time work at the University. In December, 1943, he gave up his position with the War Food Administration.

The members of the Department took part in various types of public service. Professor Evans continued to serve as a member of the Committee on Governmental Efficiency and Economy of Baltimore. Dr. Reynolds was one of four United States representatives on a joint Committee on Food Consumption Levels in the United States, the United Kingdom, and Canada. Meetings of this body were held in Ottawa and Washington during November and December, 1943. Dr. Reynolds also served as chairman and public member of a number of War Labor Board panels for dispute cases. As part of his work for that Board, he was chairman of the fact-finding panel appointed to survey wages in the cotton textile industry.

Mr. Killingsworth likewise served as chairman and public member on War Labor Board panels.

The preparation of an index, bibliography, and guide to the use of trade union publications, a project which has been under the direction of Dr. Reynolds and Mr. Killingsworth, is nearing completion. The three volumes resulting from this work are in press. The Hutzler Collection of Economic Tracts was enlarged by a number of purchases during the course of the year. One addition was a run of 78 volumes of the *Board of Trade Journal*, which almost completed the Library's file of this important British Periodical. Some interesting early American economic items were also acquired. The Lessing Rosenthal Fund for Economic Research was used to provide Professor Evans with a part-time assistant for his study of the incorporation of business enterprises in this country. The Fund also paid the expenses incurred by a graduate student while she was making a study of a local labor market.

Toward the end of the academic year Dr. William M. Leiserson was appointed Visiting Professor of Political Economy. The Rockefeller Foundation has provided funds that will enable him to make a comprehensive study of trade union government. Immediately prior to joining the faculty, Professor Leiserson was chairman of both the National Mediation Board and the National Railway Labor Panel.

POLITICAL SCIENCE—In addition to offering the normal course load to reduced numbers of students during the past year, the resident members of the staff, Messrs. Mattern, Moos, and Swisher, aided in varying degrees with special courses for Army students. Each of them has continued with professional research within the limits of the time available. During part of the year, Professor Swisher served as Chairman and Dr. Moos as Secretary of the University Committee on Post-War Planning. That experience has been fruitful in connection with the thought of the department as to its own program for the post-war years. Professor Swisher has served as a member of the Committee on Research of the American Political Science Association and of a special committee on Civil Liberties which is sponsored by the Social Science Research Council. Professor Key has continued on leave with the Bureau of the Budget in Washington and has continued to function as a member of the Executive Council of the American Political Science Association.

ROMANCE LANGUAGES—Professor Salinas left for the University of Porto Rico in August, 1943, and expects to continue teaching there until June, 1945. The rest of the Romance faculty has continued to give courses as announced, except in a few cases where the number of students was not large enough to justify them. Members of the department have carried on editorial work in connection with *Modern Language Notes*, of which eight numbers appeared during the year, and of the Johns Hopkins Studies in Romance Literatures and Languages, to which two volumes have been added since the last report. A major part of the work of the department between June, 1943, and the end of March, 1944, was devoted to instructing in the ASTP program. French and Italian were the languages taught. The cadets devoted seventeen hours a week for nine months to language classes. The professors in the department taught from ten to twelve hours a week during most of this period in addition to their regular program. As the number of cadets in each section was limited to ten, there had to be many sections. Consequently a number of persons, some of them natives of France or Italy, were added to the staff of instructors. Various methods were employed, but the main factors in the success of the undertaking were the small size of the sections and the large amount of time devoted to speaking the languages concerned and to hearing them spoken.

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

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### TO THE PRESIDENT OF THE UNIVERSITY:

The acceptance of a large number of students in the Army Specialized Training Program, who were assigned by the government to four twelve-week terms of instruction in the calendar year, necessitated the adoption of the quarter system for the college, and we have now completed one full year on this plan. The college received during the year 781 army students, distributed as follows: 325 entered in July, 237 in October, 136 in January, and 83 in April. Most of these students were enrolled in the basic Army Specialized Training Program, taking courses in physics, chemistry, mathematics, English, geography, and history, to prepare them for the study of engineering. Since most of our civilian students were taking the same subjects, a very heavy burden was placed on the departments named above.

As a result of academic failures and army withdrawals, a large number of these students left the University before completing the three basic terms of instruction. Fifty-seven, however, completed the course and were awarded special certificates, and another eighty-seven are to remain at the University until they have completed five terms of pre-medical studies. Seventy-five of the students who entered in July were assigned to Area and Language study and were trained by a special group of the faculty under the direction of Professor Evans. The unit was divided into three sections studying French, German, and Italian. Each group gave 17 hours weekly to intensive study of the language and in addition was given appropriate instruction in geography, history, and economic, political, and social problems related to the areas for which they were being trained. For this instruction the regular faculty was augmented by a number of special lecturers. Some of the students were withdrawn from the group at times when the army was in need of their special abilities, but 50 of them remained to complete the course of instruction in April.

The civilian student body remained small throughout the year. Entering students were accepted in July, October, and April, and as a result of the fact that classes are now held throughout the year, students were graduated at four times during the year:

October 1943 .....	24
January 1944 .....	9
April 1944 .....	9
July 1944 .....	11

—  
Total ..... 53

The most recent selective service ruling, eliminating the deferment of pre-medical students who have passed their eighteenth birthday, has made it possible for us to make some revision in the course of study for pre-medical students, but we have deemed it advisable to continue in the first six terms to give a more heavily weighted science program than is ordinarily desirable.

The effects of the war upon the life of the college become more manifest as time goes on. There has been a steady depletion of faculty personnel due to the demands of the armed forces and the need of specialists for war research. The decision to abolish all types of deferment has left us with a student body composed of boys under eighteen years of age, augmented by a small number who are unable to pass the medical tests of the military service. In spite of difficulties, the students

have attempted to keep their extra curricular activities, both athletic and non-athletic, in operation. The debating team distinguished itself by winning the southern championship; the *News-Letter* has continued to be published; and the small June graduating class published a year book as a permanent record of the activities of the class. Most of the other activities have continued to function with modified programs, and some part of the intercollegiate athletic schedule has been kept in operation. The conferences on student-faculty relationships have continued with considerable success.

The Barton Cup was awarded twice during the calendar year, being presented to Henley L. Guild in October and to Kenneth H. Grim in June.

G. WILSON SHAFFER,  
*Dean.*

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## REPORT OF THE DEAN OF THE MEDICAL FACULTY

TO THE PRESIDENT OF THE UNIVERSITY:

I have the honor to submit the following report of the activities of the School of Medicine for the year 1943-44.

### ADMISSION AND ENROLLMENT OF STUDENTS

One new class was admitted to the School during the year, enrolling on November 26, 1943. There were 74 men and 7 women in that class. All of these individuals were selected by the Committee on Admission since the assignment of students to the School by the Army and Navy will not go into effect until 1945 in the case of the Army and September 1944 in the case of the Navy. Three of the women students subsequently withdrew, making a net total of 78 students in the present first year class. Thirty-nine, or exactly one-half of its members, have the bachelor's degree.

As of June 30, 1944, 310 students were enrolled in the School as candidates for the M. D. degree, distributed in the following categories:

Army Specialized Training Program.....	168
Navy Collegiate Training Program.....	85
Army Reserves (inactive).....	8
Navy Reserve (inactive).....	1
Women .....	31
Others .....	17
Total.....	319

Sixty-nine students were awarded the degree of M. D. on November 25, 1943, one on January 24, 1944, three on February 1, 1944, and one on February 28, 1944.

There were 5 post-graduate students enrolled during the year, distributed among the departments as follows: Anatomy, 1; Gynecology, 1; Medicine, 1; Pediatrics, 2.

### DR. LEWELLYS F. BARKER

The many friends of Dr. Lewellys F. Barker, Emeritus Professor of Medicine, were greatly saddened by the news of his death on July 13, 1943, at the age of 75. Like his predecessor in the chair of Medicine, Dr. Osler, he was born in the province of Ontario, Canada, where he received his early education. Graduating in medicine from the University of Toronto in 1890, he served as an interne in the Toronto General Hospital and while so engaged made up his mind to continue his medical education in the Johns Hopkins Hospital. He came to Baltimore in 1891 and was appointed Assistant Resident Physician on Dr. Osler's staff, later transferring to the Department of Pathology and serving as Resident Pathologist to the Hospital. After the opening of the School of Medicine he became a member of the Department of Anatomy, in which he taught histology for several years, and was then called to the University of Chicago to be Professor of Anatomy. When Dr. Osler resigned as Professor of Medicine Dr. Barker was appointed his successor and for the following nine years served in that capacity. During his tenure as Professor of Medicine he established laboratories in the Department of Medicine for research in chemistry, physiology and bacteriology, a new departure for departments of medicine in this country. When the Department of Medicine was placed upon a full-time



basis in 1914 Dr. Barker was offered the chair under the new conditions but was unable to accept it. He remained an active member of the faculty as Professor of Clinical Medicine from 1914 to 1921, at which time he retired with the title of Professor Emeritus, although he continued to give clinics to fourth year students almost until the day of his death.

Dr. Barker was always a very intensive student and an omnivorous reader. He wrote extensively on a number of subjects and was a very stimulating teacher. He enjoyed a national reputation, was a member of many medical and scientific societies, and took a lively interest in the affairs of the medical profession, of which he was such a distinguished member. He left an indelible impression upon the School and Hospital and he will be greatly missed.

#### DR. WILLIAM G. MACCALLUM

In my report last year I mentioned the fact that Dr. William G. MacCallum had been forced to retire as Professor of Pathology because of illness. Unhappily, Dr. MacCallum never recovered his health and he died on February 3, 1944 after a long period of invalidism. With his death there passed from the scene one of the most eminent pathologists in the country. Born in Canada in 1874, he entered the University of Toronto, from which he received the B. A. degree in 1894, and then transferred to this School, entering as an advanced student in the first class to be admitted to the institution and graduating in 1897. From that time until his retirement in 1943, except for an interval of eight years during which he was Professor of Pathology at the College of Physicians and Surgeons of Columbia University (1909-1917), he was a member of the Medical Faculty and identified with the Department of Pathology. He was Professor and head of the department from 1917 to 1943.

While Dr. MacCallum's interests covered a wide variety of subjects his most notable contributions, perhaps, were those relating to malaria and the function of the parathyroid gland. He traveled extensively and widened his knowledge of pathological anatomy by the observations which he made in foreign lands. He wrote an excellent text book of pathology which has gone through several editions, and he was always a most stimulating teacher. Possessed of a keen sense of humor, he was a delightful companion to his intimate associates, even if to the outside world he appeared somewhat aloof at times. Few of our graduates have attained greater distinction than Dr. MacCallum.

#### OTHER DEATHS IN THE FACULTY

It is with regret that I report the death of Dr. Arthur Hebb, Instructor in Surgery and a member of that department since 1924, on April 24, 1944, and of Dr. Gordon I. Trevett, Instructor in Preventive Medicine, on May 4, 1944.

#### THE ARMY AND NAVY TRAINING PROGRAMS

The Army Specialized Training Program and the Navy Collegiate Training Program went into effect as far as this School is concerned on July 1, 1943. Under the provisions of the contracts with the War and Navy Departments, the trainees of the two services follow the regular curriculum of the School on the accelerated basis and there will be no curtailment in the time devoted to the medical course. The trainees are subject to military discipline and receive instruction in military and naval matters in addition to their regular medical work. They receive the same pay and allowances as enlisted personnel in other branches of the two services and in addition are provided with uniforms, books and certain instruments and supplies. They do not live in barracks, as none are available for them.

The Army trainees in the School constitute Company B of the 3312th Service Training Unit, which is the designation of the Hopkins A. S. T. P. unit, and is

under the command of Colonel Harry Gwynn, U. S. A. Captain Kenneth Cameron has been in immediate command of Company B, with headquarters in the Welch Medical Library.

The Navy trainees are under the command of Lieutenant R. D. Matthews, who is in charge of the Naval Training Unit at Mount St. Mary's College, Emmitsburg, Maryland.

Relations with the officers of both services have been most cordial and their sincere efforts to cooperate have helped to ease a situation which might have given rise to many difficulties. Unquestionably the fact that the trainees of both services do not have to live in barracks and can make their own arrangements in regard to board and lodging has made the program much more successful than it would have been otherwise. My impression is that the general morale of the students has been elevated by virtue of the fact that they are in uniform and know that they are preparing to serve ultimately in an important branch of the armed forces. I have not seen any evidence that they are taking their studies less seriously than before the program was instituted, nor has there been any evidence that their health has been affected. It is true that there was an increased incidence of respiratory diseases and of measles in the student body during the past winter, and an epidemic of mumps, but these visitations could not, of course, be attributed to the program. No cases of tuberculosis developed in the student body, I am glad to report.

One development in connection with the Army program is giving the officers of the School major concern since it has a bearing upon the future enrollment in the institution. The original contract with the War Department gave the Army the right to assign Army trainees up to 55% of the places in the classes entering after January 1, 1945. When the Army program was drastically curtailed in February 1944, we were notified that the contract would be re-negotiated in such a way that the percentage of trainees assigned by the Army to the entering classes after January 1, 1945 would be reduced from 55 to 28. Shortly afterward the Director of Selective Service issued a new regulation to the effect that no deferments would be granted to pre-medical students after July 1, 1944. Fortunately no changes were made in the Navy's quota (25%) of students to be assigned to the entering class. The net effect of the reduction in the Army program and of the change in Selective Service regulations makes it seem likely that the only civilian students who will be eligible for admission to the School in 1945 will be women, men physically unable to join the armed forces, men discharged from the Army or Navy, and males under the age of 18. Since the civilian quota of students in the 1945 entering class will amount to 47%, or 38 persons, it is doubtful if we shall find a sufficient supply of acceptable candidates in the three categories mentioned above.

The ruling of the Director of Selective Service that no pre-medical students could be deferred after July 1, 1944, made it necessary for the School to arrange to enroll, on June 30th, all of the male civilian students who had been admitted to the class entering in September, and to arrange a special curriculum for them until they could begin the regular medical course in the autumn. The course consisted of lectures in human embryology by Drs. George D. Streeter and George W. Corner of the Department of Embryology of the Carnegie Institution, exercises in osteology conducted by Dr. William L. Straus of the Department of Anatomy, and lectures in the history of medicine and in the use of the library by Dr. Henry E. Sigerist and his associates. The School is under great obligation to these gentlemen for arranging this special curriculum, and it seems unfortunate, to say the least, that the Director of Selective Service did not see fit to make the date of his ruling coincide with the date of admission of medical students in 1944. Had he done so the civilian students affected by his ruling would have been spared considerable expense and inconvenience.

One change has been made in the admission of students which will doubtless be of interest to the graduates of the School. From now on new classes will be

enrolled every twelve months, in the autumn, instead of every nine months, as has been the practice since the accelerated program was put into effect. The School will continue on the accelerated program as before, and the new classes will continue to be graduated in three calendar years, but they will enter at yearly intervals hereafter. This arrangement will ease the burden of teaching to some extent, especially in the pre-clinical years. It was adopted on the recommendation of the Executive Council of the Association of American Medical Colleges.

#### FIFTIETH ANNIVERSARY

The fiftieth anniversary of the opening of the School of Medicine occurred on October 1943. In view of the war it was thought inadvisable to arrange a celebration but instead an illustrated booklet was published and distributed to the graduates and friends of the institution. This booklet contained a brief account of the origin of the School, its growth and achievements during the fifty years of its existence, its present organization and its hopes for the future. No one who reads the record of the past fifty years can fail to be impressed with the contributions made by the School to medical education and medical research, and those who are now connected with the institution realize the tremendous responsibility which has been thrust upon them not only to maintain the ideals of the institution but also to see to it that the School continues to advance during the next fifty years in a manner befitting its past performance.

#### WAR-TIME ACTIVITIES

The research activities of the members of the Medical Faculty continue to be devoted largely to projects which have a bearing upon the war effort. During the past year eighteen contracts were in force between the Office of Scientific Research and Development of the Federal Government and the University for the carrying out of research projects in the School of Medicine. It would be of interest to describe these projects but that obviously is out of the question for the time being. Many of the members of the Faculty are serving on special committees in Washington and are thus giving to the governmental agencies involved the benefit of their special experience. The drain upon our staff by the armed forces continues, although it is less than it was, for the staff has just about reached its minimum if the departments are to continue to function satisfactorily.

#### ART AS APPLIED TO MEDICINE

Following the resignation of Mr. James F. Didusch as Associate Professor of Medicine at the end of the last academic year the question of the reorganization of the work in art as applied to medicine was referred to the committee originally appointed to select a successor to Mr. Broedel. This committee recommended that the conduct of the department be entrusted to Miss Elizabeth S. Cone and Miss Ranice W. Birch, both of whom were appointed Instructors in Art as Applied to Medicine. Under the guidance of these ladies the course has been expanded to include instruction in photography and in making moulages, at the same time retaining instruction in drawing. Miss Cone has been in charge of the photography and moulage work, while Miss Birch has conducted the instruction in drawing. This arrangement has worked out very satisfactorily and will be continued another year.

#### U. S. MARINE HOSPITAL

Through the initiative of Dr. Bridgman and the kindness of the authorities of the United States Public Health Service the facilities of the Marine Hospital in Baltimore have been made available for the instruction of our fourth year students. Special clinics in tropical diseases, venereal diseases and other communicable infections have been held on Saturday mornings for the fourth year students in the group in Medicine, and the School is under great obligation to the officers of the Marine

Hospital, especially Dr. W. S. Bean, medical director, and Dr. Luther L. Terry, chief of the medical service, for making it possible for our students to enjoy this very valuable opportunity.

#### RADIOLOGY

An important step was taken by the Advisory Board of the Medical Faculty during the past year when it recommended to the Trustees that Radiology be organized as an independent department on a full-time basis. Up to the present it has functioned as a sub-department of the Department of Surgery. The step was made possible through the willingness of the Hospital authorities to assume the major part of the expense entailed in the undertaking.

There exists in the Hopkins institutions a unique opportunity for the development of a worth while undertaking in this field for there is now under construction and nearing completion on the campus at Homewood an electrostatic generator which will be capable not only of rendering substances radio-active but also of generating x-rays of very high voltage. Moreover, through the foresight of the University authorities, it will be possible to admit patients to the specially constructed building in which this generator is located, thus making possible a co-operative undertaking by the members of the Department of Radiology on the one hand and those of the Department of Chemistry on the other. It is hoped that plans will go forward rapidly as soon as the head of the proposed department is appointed.

#### LECTURES

The fourteenth course of lectures under the auspices of the William Sydney Thayer and Susan Read Thayer Lectureship in Clinical Medicine was given by Dr. Richard E. Shope, member of the Rockefeller Institute for Medical Research, on March 16th and 17th, 1944. The title was as follows: "Old, Intermediate and Contemporary Contributions to Our Knowledge of Pandemic Influenza."

The Nu Sigma Nu Lecture was delivered by Dr. Ralph H. Major, Professor of Medicine and Lecturer in the History of Medicine of the University of Kansas School of Medicine, on October 20, 1943. The title of the lecture was "The Diagnosis of Disease Without the Use of Instruments of Precision."

#### GIFTS TO THE SCHOOL

A number of gifts have been received since my last report, and it is a pleasure to acknowledge the Faculty's appreciation of them. The Read Drug and Chemical Company gave \$600 for a scholarship for the year 1944-1945 and Dr. Sarah H. Hardwicke contributed \$2 for the Building Fund of the School. From the Beta Beta Chapter of Nu Sigma Nu Fraternity the sum of \$50 was received to provide an honorarium for the Nu Sigma Nu Lecturer.

A bequest of \$118,000 was received from the late Mr. E. Bayard Halsted for investigation into the nature, cause, means of prevention and cure of disease. This sum, on recommendation of the Advisory Board of the Medical Faculty, has been set aside as the nucleus of a fund to be applied to the establishment of a professorship of Bacteriology in the School of Medicine.

#### Anatomy

Dr. Miley B. Wesson renewed his gift of \$100 for the Franklin P. Mall Scholarship in Anatomy, both for 1943-44 and 1944-45, and the National Research Council continued its contribution of \$6000 as a means of relieving the University of the total salary payments made to Dr. Weed.

#### Gynecology

The following sums were received for the support of research in the Department of Gynecology: \$600 from the Lucy Wortham James Research Fund, \$100 from Mrs. Ann E. D. Hamilton, and \$40 from Dr. Karl H. Martzloff.

## HISTORY OF MEDICINE

Mrs. Theresa W. Lindau gave \$1,200 for the editing of a manuscript and anonymous donors contributed \$318.22 for the department. As a means of relieving the University of the total salary payments made to Dr. Temkin, the National Research Council contributed \$2000.

*Medicine*

The following donors gave the sums indicated for research in the department: Dr. Charles R. Austrian, \$150; Mrs. Charles F. Mohr, \$100; Mrs. Ann E. D. Hamilton, \$200; Lt. Colonel Ernest T. Trice, \$50; Mr. Henry J. Conant, \$25; Mr. Arthur Truesdell, \$10; Mrs. Louis Natale, \$5; anonymous, \$1000. Gifts for the support of research by Dr. Charles W. Wainwright were received as follows: From the Odlum-Cochran Foundation, \$500; from Mr. Floyd B. Odlum, \$50; from Mr. George William Brown, 25. The United States Public Health Service through the Maryland State Department of Health renewed its contribution of \$23,100 for the continuation of the training program in venereal disease control, and anonymous donors contributed a total of \$3,975 for research in syphilis. The Commonwealth Fund made a grant of \$4,640 for the continuation of a clinical study of hypertension.

*Ophthalmology*

The John and Mary R. Markle Foundation renewed two grants, one for \$6,100 for the support, over a two-year period, of investigations of the physiology of intra-ocular secretion, the other for \$4,200 over a two-year period for the support of Dr. Woods' studies on sensitivity and immunity in ocular tuberculosis.

*Otology*

Gifts for research in the sub-department of Otology were received as follows: Mr. Harry G. Haskell, \$500; Mr. Percy B. Eckhart, \$300.

*Pediatrics*

Gifts and grants for the support of research by Dr. Holt were received as follows: John and Mary R. Markle Foundation (over a two-year period), \$5,000; Research Corporation, \$6,500; Evaporated Milk Association, \$1000; Mead Johnson and Company, \$6,000; Nutrition Foundation, \$4000; Rockefeller Foundation, \$22,500 (over a three-year period). The Commonwealth Fund gave \$14,500 for the continuation of a study of tuberculosis in childhood over a two and one-half years' period, and \$29,000 for the continuation of Dr. Lawson Wilkins' study of endocrine disorders over a two-year period. The John and Mary R. Markle Foundation gave \$4000 for the support of a study of epidemic diarrhea in infants.

*Psychiatry*

The Rockefeller Foundation made a grant of \$190,000 for the support of research in psychiatry over a five-year period and the Commonwealth Fund made a grant of \$15,000 for fellowships in psychiatry over a two-year period. The following gifts were received for the support of researches by Dr. Richter: National Research Council, \$3000; Corn Industries Research Foundation, \$6000; John and Mary R. Markle Foundation, \$4,500. The National Committee for Mental Hygiene, Inc., gave \$2000 for research in dementia praecox and Dr. Henry Levington gave \$100 for use in the department.

*Surgery*

The following gifts and grants were received for the support of researches in the division of cellular pathology under the supervision of Dr. Firor: Josiah Macy Jr. Foundation, \$3,200; Sharp and Dohme, Inc., \$3000; Mr. James H. Levi, \$2000; Lederle Laboratories, Inc., \$1,500; Mr. Bernon S. Prentice, \$1000; Mr. and Mrs. Charles E. Brandt, \$1,000; Mr. and Mrs. John D. Elder, \$500; Mr. Samuel I.

Schaefer, \$25; Mr. Henry C. Miller, \$20. The following donors gave the sums indicated for research in the department: Dr. Walter E. Dandy, \$5,000; Miss Josephine E. Brown, \$1,000; Mr. Albert Warner, \$250; Mr. J. R. Gerow, \$250; Miss Clara Hachler, \$25. The David, Josephine and Winfield Baird Foundation, Inc., gave \$3000 for research by Dr. Rienhoff and the Odlum-Cochran Foundation also gave \$3000 for the same purpose.

### *Urology*

The following donations were received for the support of work in urology: Hynson, Westcott and Dunning, \$1000; the H. A. B. Dunning Foundation, Inc., \$1000; Mr. Philip J. Wickser, \$1000; Dr. Frank R. Lillie, \$500; Mr. Eli A. White, \$12.50.

### PROMOTIONS

Jack S. Guyton, from Associate in Ophthalmology to Associate Professor in Ophthalmology.

William F. Hughes, Jr., from Instructor in Ophthalmology to Associate in Ophthalmology.

John A. Luetscher, Jr., from Instructor in Medicine to Associate in Medicine.

Victor A. Najjar, from Instructor in Pediatrics to Associate in Pediatrics.

Anthony A. Albanese, from Instructor in Pediatrics to Associate in Pediatrics.

George W. Duncan, from Assistant in Surgery to Instructor in Surgery.

Herbert E. Sloan, from Assistant in Surgery to Instructor in Surgery.

Curtis Prout, from Assistant in Medicine to Instructor in Medicine.

Albert C. Snell, from Assistant in Ophthalmology to Instructor in Ophthalmology.

Antonio J. Waring, from Assistant in Pediatrics to Instructor in Pediatrics.

Morvyth McQueen Williams, from Assistant in Roentgenology to Instructor in Roentgenology.

Janet Hardy, from Assistant in Pediatrics to Instructor in Pediatrics.

Luvia Taylor, from Assistant in Psychiatry to Instructor in Psychiatry.

Russell Roth, from Assistant in Urology to Instructor in Urology.

David B. Check, from Assistant in Gynecology to Instructor in Gynecology.

Abraham Genecin, from Assistant in Medicine to Instructor in Medicine (Assistant Physician-in-charge Medical Care of Students and Employees).

S. Walter Landau, from Assistant in Medicine to Instructor in Medicine.

Virgil Scott, from Assistant in Medicine to Instructor in Medicine.

Mary Griffith, from Assistant in Obstetrics to Instructor in Obstetrics.

Philip P. Steptoe, Jr., from Assistant in Obstetrics to Instructor in Obstetrics.

Wilson L. Grubb, from Assistant in Pediatrics to Instructor in Pediatrics.

Robert Kaye, from Assistant in Pediatrics to Instructor in Pediatrics.

Paul E. Wilson, from Assistant in Pediatrics to Instructor in Pediatrics.

Trude Tietze, from Assistant in Psychiatry to Instructor in Psychiatry.

Sarah S. Tower, from Assistant in Psychiatry to Instructor in Psychiatry.

W. Grafton Hersperger, from Assistant in Medicine to Instructor in Medicine.

Charles E. Iliff, Jr., from Harkness Fellow in Ophthalmology to Instructor in Ophthalmology.

### RESIGNATIONS

A. Brazier Howell, Associate Professor of Anatomy.

Maxwell M. Wintrobe, Associate in Medicine.

Guy S. Hayes, Associate in Medicine.

Edward M. Bridge, Associate in Pediatrics.

John T. Litchfield, Jr., Associate in Pharmacology and Experimental Therapeutics.

George Strong, Associate in Urology.

Edward L. Suarez-Murias, Instructor in Gynecology.

Robert C. Austrian, Instructor in Medicine.

Norman B. Cole, Instructor in Medicine.

Nobel W. Guthrie, Instructor in Medicine.

Richard R. Owens, Instructor in Medicine.  
 Robert A. Reiter, Instructor in Medicine.  
 William T. Moore, Instructor in Obstetrics.  
 John B. Frerichs, Instructor in Pathology.  
 Lois Frayser, Instructor in Pediatrics.  
 Frances E. M. Reed, Instructor in Pediatrics.  
 Elizabeth P. Trevett, Instructor in Pediatrics.  
 Dean Roberts, Instructor in Pediatrics.  
 Robert G. Shephard, Instructor in Pharmacology and Experimental Therapeutics.  
 Colman Longan, Instructor in Psychiatry.  
 George W. Duncan, Instructor in Surgery.  
 Herbert E. Sloan, Jr., Instructor in Surgery.  
 Kenneth L. Pickrell, Instructor in Surgery.  
 Harold Finkelstein, Instructor in Surgery.  
 John S. Haines, Instructor in Urology.  
 Russell Roth, Instructor in Urology.  
 Elizabeth G. Frame, Instructor in Chemical Urology.  
 Thurston Harrison, Assistant in Medicine.  
 Douglas Carroll, Assistant in Medicine.  
 Curtis Prout, Assistant in Medicine.  
 David Dove, Assistant in Medicine.  
 Leroy W. Duncan, Assistant in Medicine.  
 Mary H. Robbins Loch, Assistant in Medicine.  
 Robert Weston, Assistant in Medicine.  
 Joseph Ford, Assistant in Neurology.  
 Landrum B. Shettles, Assistant in Obstetrics.  
 Hung Wen Wang, Assistant in Obstetrics.  
 H. F. Graff, Assistant in Ophthalmology.  
 William Marr, Assistant in Ophthalmology.  
 Dorothy B. Holmes, Assistant in Ophthalmology.  
 Katherine Borkovich, Assistant in Pediatrics.  
 Ingeborg Syllm, Assistant in Pediatrics.  
 John H. Shackelford, Assistant in Preventive Medicine.  
 Gene M. Klug, Assistant in Psychiatry.  
 John F. Hewitt, Assistant in Orthopedic Surgery.  
 Hugh Bickerstaff, Lecturer in Preventive Medicine.  
 J. William Littler, William Steward Halsted Fellow in Surgery.  
 B. Val Jager, John D. Archbold Fellow in Medicine.  
 William B. Leftwich, Emanuel Libman Fellow in Medicine.  
 Harold Zheutlin, Emanuel Libman Fellow in Medicine.  
 Anthony S. Felsovanyi, Parke Davis Fellow in Medicine.  
 Jane Winternitz, John D. Archbold Fellow in Medicine.  
 William J. G. Davis, Fellow in Ophthalmology.

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ALAN M. CHESNEY,  
*Dean.*

## REPORT OF THE DEAN OF THE SCHOOL OF ENGINEERING

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### TO THE PRESIDENT OF THE UNIVERSITY:

During the academic year 1943-1944 the war has continued to make heavy demands upon our staff and laboratories. We have maintained, however, our programs of graduate and undergraduate instruction; and regular classes were conducted throughout four terms, each twelve weeks in length. The School of Engineering has now been in continuous operation under the accelerated program since October, 1941. Two classes have completed their programs of undergraduate study during the year: the class of 1944 in September of this year and the class of 1945 in June. The members of the latter class have been in residence continuously for two years and nine months. The number of men recommended for the Bachelor of Engineering degree was 96.

*Staff.* Professor J. T. Thompson of the Department of Civil Engineering, at the beginning of the year, resigned his position as Director of the Highway Traffic Advisory Committee of the War Department and returned to the University. Professor Paul H. Emmett, Chemical Engineering, was granted leave of absence on August 15, 1943 in order that he might devote his full time to an investigation being conducted at Columbia University for the armed services. Associate Professor C. F. Bonilla was appointed acting head of the Department of Chemical Engineering. Associate Professor F. Hamburger, Jr., Electrical Engineering, has continued his part-time work as Chief Test Manager for the Bendix Radio Division of the Bendix Aviation Corporation. Mr. Thorstein Larsen, Electrical Engineering, was granted leave of absence on August 15, 1943 and is overseas in an advisory capacity in the war effort.

Dr. John C. Geyer, Civil Engineering, has been on leave of absence throughout the year, first as Assistant Chief Engineer of the Office of the Co-ordinator of Inter-American Affairs. More recently he was commissioned Lieut. U. S. N. R., and assigned to the Bureau of Medicine and Surgery, Washington, D. C. In Dr. Geyer's absence Mr. C. E. Keefer, Assistant Engineer, Bureau of Sewers, Baltimore City, has served as special instructor in Sanitary Engineering.

The members of the teaching staff have served cheerfully and faithfully and have borne the heavy instructional and research load without complaint. There is evidence, however, that the health of several of them is being undermined by the continuous strain of the accelerated program. Professor Comber was incapacitated by illness from November until April but happily recovered and returned to duty early in April. Steps are being taken to reduce teaching loads wherever possible.

*Equipment.* Noteworthy contributions and loans of equipment for research and laboratory instruction have been received from:

- The Glenn L. Martin Company
- Westinghouse Electric & Manufacturing Company
- General Electric Company
- American Welding Society
- Consolidated Gas, Electric Light & Power Company
- Bendix Aviation, Ltd.
- Weston Electrical Instrument Company
- Allen B. DuMont Laboratories, Inc.
- T. Shriver & Company
- Foreign Economic Administration

*Student Enrollment.* During the year, a number of changes were made in Selective Service Regulations which markedly affected the student body. There occurred a steady withdrawal of men of 18 years and over, and the number of graduate students was sharply reduced. The total student enrollment during the year by terms was as follows:

June, 1943 term	259 including 8 graduate students
October, 1943 term	231 including 30 graduate students
January, 1944 term	217 including 35 graduate students
April, 1944 term	162 including 18 graduate students

#### EXPERIMENTAL RESEARCH AND THE ACTIVITIES OF THE STAFF

The several departments have continued to offer graduate instruction throughout the year. Professor Christie conducted a graduate course on Steam and Gas Turbine Design at night. This course was attended not only by our own students, but also by officers from the Naval Experimental Station at Annapolis, The Aberdeen Proving Ground, and by engineers of the Bethlehem Steel Company and the Bureau of Aeronautics.

The activities of the several departments in the field of research and the professional activities of their staffs during the year were as follows:

*Civil Engineering*—Professor J. T. Thompson, who organized the Advisory Committee on Motor Vehicle Brake Research in 1939 at the request of the Public Roads Administration and the Automotive Industry, has represented the former and been in charge of the Committee activities since that time. Following the publication of its first report in February, 1944, the work of the Committee has been suspended due to the war. He has also served on a Committee of Examiners for the City Service Commission.

Dr. Abel Wolman is serving as Chairman of the following:

- Maryland State Planning Commission
- Advisory Committee on Sanitary Engineering, Division of Medical Sciences, National Research Council, Washington, D. C.
- Permanent Sanitary Engineering Committee, Pan American Sanitary Bureau
- Advisory Committee on Water Supply, Sewerage and Pollution Abatement, National Resources Planning Board
- National Water Policy Committee, American Water Works Association
- Committee on Water and Sewerage Works Development, American Water Works Association
- Maryland Commission on Post-War Reconstruction and Development

Dr. Wolman is also a member of the Directing Board of the Procurement and Assignment Service of the War Manpower Commission; of the Committee on Sanitation of the Environment, Office of Foreign Relief; of the Committee on Post-War Planning, Baltimore; Federal member of the Potomac River Commission; Advisor, U. S. Geologic Survey, Department of the Interior, Washington, D. C.; and of the Vital Area Board in Baltimore Area, Federal Works Agency. He is special consultant to the Director, Office of War Utilities, War Production Board, and Consultant to the U. S. Corps of Engineers, to the Surgeon General of the U. S. Public Health Service, to the Tennessee Valley Authority, to the War Production Board, and honorary consultant to the United States Navy. Dr. Wolman is a member of the Interdepartmental Board for Sanitary Control and Protection of Public Water Supply in New York City. He is also consulting engineer to the City of Seattle, Washington, on water supply. Dr. Wolman is at present on a war assignment in Great Britain.

Mr. F. W. Medaugh made a property and topographic survey of four hundred acres of timber and mineral land along New River in Virginia, and a survey of two square miles of quarry property near Martinsburg, West Virginia.

Mr. Thomas Hubbard has served as consulting engineer to the Maryland State Planning Commission and to the Post-War Planning Commission. He has also served as a member of the Examining Board of the City Service Commission and as Assistant Supervisor of the ESMWT Courses at the University.

*Chemical Engineering*—The National Defense Research Committee project continued to operate throughout the year 1943-44, with the assistance of Prof. P. H. Emmett, Dr. James Holmes, Dr. Robert Anderson, Mr. Carville V. Mace, and Mr. Joseph Jenkins. Mr. Mace is also completing his study of high pressure catalytic hydrogenation.

Under Dr. Charles F. Bonilla's direction, the Rubber Reserve Company project has continued to study the heat transfer problems that occur in the manufacture of synthetic rubber, particularly GR-S (Buna-S). Messrs. Mario T. Cichelli, David A. Edwards, Arthur A. Eisenberg, and Harold N. Taylor have been associated with this work. Work by the latter three on this project is to be offered as the research requirement for the Master's Degree, whereas Mr. Cichelli is completing his study of the boiling of liquids up to their critical pressures for his dissertation.

Dr. Bonilla has continued as principal consultant to the Foreign Economic Administration. He has also carried out a study of gas distribution in public housing projects and desirable safety measures for the Housing Authority of Baltimore City. He was appointed to the Executive Committee of the Maryland Section of the American Chemical Society and continued as a member of the Executive Committee of the Maryland Section of the American Institute of Chemical Engineers and of the National Chemical Engineering Education Projects Committee. Dr. Bonilla was the author of a chapter on American Chemical Engineering Facilities for a survey to be published by the latter committee for Russian engineers. Dr. Bonilla has also acted as consultant on the dehydration of molasses, the recovery and utilization of sugar cane wax, the theory of dry mixing, and the operation of the thickener press.

The National Electric Manufacturer's Association plastic project, which is discussed in a separate section of this report, is under the direction of Dr. Ralph K. Witt.

*Electrical Engineering*—Dr. J. B. Whitehead, Professor Emeritus of Electrical Engineering, is acting as consultant for the Ordnance Department of the United States Navy in connection with war problems. Dr. Whitehead has continued his studies of the properties of high voltage impregnated paper insulation. This investigation is sponsored by the American Institute of Electrical Engineers, the funds having been provided by the Engineering Foundation, and has been continued through the past eight years.

Dr. John M. Kopper, in collaboration with Dr. Whitehead, has completed an investigation on the effect of paper density on the life of oil impregnated paper at constant high alternating electric stress. He has also made a study of the course of the destructive effect of gaseous ionization on this same insulation at high voltages with the aid of the "ionization recorder," an instrument developed in the Electrical Engineering laboratory for this purpose.

Dr. W. B. Kouwenhoven has continued his studies in the field of electric shock and is reviewing detailed reports of electrical accidents that are submitted by the Edison Electrical Institute. In addition he is acting as consultant engineer for the Dresser Manufacturing Company in connection with the welding of pipe lines, consultant to the Maryland Drydock Company, and is in charge of a project for the Ordnance Department of the U. S. Army. He is also a member of the University

Research Committee of the American Welding Society, a member of the Committees on Magnetic Properties and Electrical Insulating Materials of the American Society for Testing Materials, and a member of the following committees of the American Institute of Electrical Engineers: Executive Committee of Maryland Section, Committee on Electrochemistry and Electrometallurgy, Safety Committee, Standards Committee, and Subcommittee on Use of Silver as a Substitute for Copper. Dr. Kouwenhoven also served as Chairman of the Edison Medal Committee of the A. I. E. E. and officiated in the presentation of the Edison Medal to Dr. Vannevar Bush, a Trustee of the University. The citation read:

"For his contribution to the advancement of electrical engineering, particularly through the development of new applications of mathematics to engineering problems, and for his eminent service to the Nation in guiding the war research program."

In addition to his duties as chief test engineer at Bendix Radio, Dr. F. Hamburger, Jr., is serving as consultant on a U. S. Army Ordnance project.

Dr. C. Frank Miller has designed new control equipment for operation on high altitude planes under conditions of severe vibration for Naval Ordnance. In addition he has carried on tests for the Locke Insulator Company on radio tower insulators at high voltage and high frequency.

Mr. M. W. Pullen has served as Chairman of the Maryland Section of the A. I. E. E. and as a member of the Engineering Advisory Committee for Post-war Planning.

Members of the departmental staff have taken a prominent part in the work of the American Institute of Electrical Engineers, the Institute of Radio Engineers, the Illuminating Engineering Society, and the Conference of Electrical Insulation of the National Research Council.

*Mechanical Engineering*—Professor A. G. Christie served as advisory engineer to Baker & Spencer, New York City, on post-war plans for a group of Wisconsin paper mills. He also served as consultant to the Connecticut Light & Power Co., on proposals for the rehabilitation of their Devon Steam Station. He has been a member of the special committee of the American Society of Mechanical Engineers on the Standardization of Large Steam Turbines. He is also vice-chairman of the Power Test Code Committee of that society. During the year, Professor Christie was elected a member of the Engineering Institute of Canada.

Professor J. C. Smallwood has continued as a member of the Subcommittee on Definitions and Values of the Power Test Code Committee of the American Society of Mechanical Engineers.

Mr. J. H. Potter, under the supervision of Dean Kouwenhoven, has continued the preliminary phases of the research project on the flow of heat between metals in contact. Mr. Potter is currently acting as vice-chairman of the Baltimore Section of the American Society of Mechanical Engineers.

Mr. James Woodburn is making a study by a new method of ultrasonics in vapors and gases.

Mr. T. M. Smoot has completed the development for the Army and Navy of heating equipment for high altitude airplanes and some of this is now in production.

Capt. Walter Finch is carrying out a special research for the Government.

#### PLASTICS PROJECT OF THE NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION

Approximately one year ago the National Electrical Manufacturers Association decided to install a plastics project at an independent laboratory. The purpose of



this study was to determine the properties of plastics and to make the information available to the Army, the Navy and industry. A committee was appointed by the Association and this committee visited numerous universities with the purpose of investigating the personnel and the available equipment. The School of Engineering of this University was chosen by the committee for the project, which has continued to expand during the year under Dr. Ralph K. Witt's direction.

Initially the program involved physical tests on the various types of fabric base phenolic laminates. Equipment was installed, tests conducted, and the results were made available to the Army, the Navy, and the Association. As a result of the data already obtained, the National Electrical Manufacturers Association has decided to enlarge the project to include electrical tests. When all the necessary equipment is installed, it will make the Plastics Laboratory of the School of Engineering one of the most complete plastics testing installations in the country. Further plans have been made for the studying of the properties of new materials which are at present only in the development stage.

#### SCHOLARSHIPS

*State Scholarships*—The State Scholarships have been awarded during all four terms of the academic year. Vacancies were advertised and scholarship examinations held in accordance with the requirements of the Scholarship Bill. The number of regular State Scholarship awards, the number of Trustee awards, and the total number of men aided are listed below by terms. Trustee Scholarships are awarded by the Trustees to especially deserving students, residents of the State who, for various reasons, were unable to secure a regular award. The students holding the Trustee scholarships conform to the requirements for the regular scholarships.

Term	Regular Scholarship	Trustee Scholarship	Total Number of Men Aided
June, 1943.....	89	21½	128
October, 1943.....	74	14¼	97
January, 1944.....	75	22½	109
April, 1944.....	54½	23½	94

*Graduate Scholarships*—During the academic year 1943-44 graduate scholarships were awarded as follows:

Chemical Engineering	of \$50.00 (\$25.00 for Jan. and Apr. terms, each)	
Charles E. Thompson.....	½	
Arthur A. Eisenberg.....	½	
Civil and Sanitary Engineering		
W. C. Boyer.....	½	
W. W. Ewell.....	1	
Alfred Machis ½ (summer term)		
Alfred Machis 1 (fall, winter and spring terms)		
Arthur W. Tayman Special Grant		
Electrical Engineering		
Gilbert Renoff.....	½	
Robert Roush.....	½	
Keats Pullen.....	2/3	
George Thaler.....	½	
Frederick Whelan.....	½	
Mechanical Engineering		
W. McDaniel.....	1	

#### PUBLIC LECTURES

Owing to transportation difficulties, the number of public lectures and technical meetings held in the Engineering Building was small. The members of the staff, however, gave a number of addresses before organizations and technical societies during the year.

## STUDENT SOCIETIES

Student branches of the American Society of Civil Engineering, the American Institute of Electrical Engineers, the American Society of Mechanical Engineers, and the American Institute of Chemical Engineers have been active during the year. The programs of their meetings include addresses by visiting engineers as well as papers by the student members.

On April 21, Johns Hopkins was host to a Student Convention of the American Society of Mechanical Engineers. A total of 114 delegates participated, representing Duke, Maryland, George Washington, and the Catholic Universities. Seven papers were presented.

## PROFESSIONAL SERVICES

During the past year, the members of our staff have rendered important services throughout the University and the Medical School in connection with the demands that the war has made upon our heating, lighting, and power systems.

Professional services have also been furnished outside the University to Government and to many organizations by our teaching staff.

## URGENT NEEDS OF THE SCHOOL OF ENGINEERING

The most pressing needs of the School of Engineering are (a) an increased staff, and (b) new buildings. The buildings should house the Department of Chemical Engineering and also laboratories for research and the development of new materials and products. Baltimore has become an industrial center with eighty-five per cent of the industries of Maryland concentrated in the Baltimore Metropolitan Area. It is of interest to note that the State of Maryland ranked twelfth among the states of the Union in the award of war contracts. If the School of Engineering is to take its rightful place as the center of this industrial development, it will need a well-staffed and equipped laboratory for research. It will then be in a position to be of maximum service to Maryland's industries and citizens' in post-war development, and also in providing advanced training for young people.

Another need of the School is for staff and facilities to provide advanced training in the field of Aeronautical Engineering. Maryland has assumed an important place in aeronautics, and the School should be in a position to train men for this important phase of engineering work.

## THE ENGINEERING, SCIENCE, MANAGEMENT WAR TRAINING PROGRAM

During the past year the School of Engineering continued its service to the industries in and about Baltimore through the Engineering, Science, Management War Training program. This program, under the general direction of the U. S. Department of Education has two purposes: the preparation of men and women to enter war industries; and the up-grading of those already employed. The courses offered in 1943-44 were designed to serve one or the other of these two needs. The trend from pre-employment to in-service training noted last year has continued. Of the seventy-seven courses offered only five, with an initial enrollment of one hundred thirty-seven students, were full time pre-employment courses.

The stabilizing effect of the War Manpower Board on labor supply; the passing of the peak demands in production; and the induction of the younger men in the armed forces have decreased the number of students taking training. As a result seventy-seven courses were completed in 1943-44 as compared with eighty-six courses given in the preceding year. Similarly, the number of students in the past year, some twenty-seven hundred, is a marked decrease from the thirty-six hundred of the year before. Many students have been prevented from completing courses due

to induction into the armed services. In view of this and of the high standards set for these courses, the fact that fifty-five per cent of the enrollees received certificates of successful completion is very gratifying.

The direction of the training program at The Hopkins has been under Dr. W. B. Kouwenhoven, Dean of the Engineering School, who served as Supervisor and Mr. Thomas F. Hubbard, Assistant Supervisor. The cooperation given by the members of the staff has been most gratifying. Twelve members of the faculty representing several of the schools have served as supervisors in one or more of the seventy-seven courses. Forty-two members of the faculty have given instruction in the courses. Forty-nine others employed in industry, eight of whom received their professional training at the University, taught courses for which they were particularly qualified.

The number of times some of the courses have been repeated, the hearty cooperation extended by industry, and the written commendation and appreciation from employers and employees indicate clearly that the E. S. M. W. T. courses at the University have been a valuable factor in increasing the effectiveness of workers and a contribution to the war effort.

#### PUBLICATIONS

- Bonilla, C. F.; Dehydration of Blackstrap Molasses, published by the Foreign Economic Administration, Engineering Division, Washington, D. C.
- Christie, A. G.; Post War Planning of Boiler Plants, Part 1, Industrial Power, June 1944.
- ; The Spinning Turbine on Power Systems, Power Plant Engineering, January 1944.
- Emmett, P. H.; Catalytic Hydrogenation of Ethylene, Propylene, and Butylene over Iron Catalysts, Journal of the American Chemical Society, July 1944. Joint paper with Dr. Joseph B. Gray.
- Kouwenhoven, W. B.; Look Well to Your Electrical Equipment, Safety, Vol. 30, No. 2, p. 186, July, 1943.
- ; Study of Artificial Respiration on Anesthetized Men, Transactions, AIEE, p. 1, Vol. 63, January 1944 (with Drs. Hooker and York).
- Thompson, J. T.; Brake Performance of Motor Vehicles Selected from the Everyday Traffic, published by the Public Roads Administration in February, 1944.
- Wolman, A.; The Post-war Role of the Sanitary Engineer, published in the Sewerage Works Journal, Vol. XV, No. 3, pages 445-452, May, 1943.
- ; Planning the Post-war Water Supply Program, published in American Water Works Association Journal, Vol. 35, No. 7, July, 1943.
- ; Post-war Water Works to Cost \$200,000,000, published in Water Works Engineering, Vol. 96, No. 14, p. 790, July 14, 1943.
- ; Favorable and Adverse Developments in the School Environment, American Public Health Association Journal, Vol. 34, No. 5, p. 484, May, 1944.

W. B. KOUWENHOVEN, *Dean.*

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## REPORT OF THE DEAN OF THE SCHOOL OF HYGIENE AND PUBLIC HEALTH

TO THE PRESIDENT OF THE UNIVERSITY:

I have the honor to submit the following report of the activities of the School of Hygiene and Public Health for the year 1943-1944.

### STUDENT ENROLMENT AND INSTRUCTION

Although the enrolment of the School is slightly smaller than that of the preceding year, it has maintained a remarkably high level considering the demands for trained personnel arising from the activities related to the war. The two important groups of students in the School are those taking public health degrees and the science degrees in hygiene. Examination of the table presenting the registration of the School shows that the number of students in these categories was but eight less than that of the previous year. The geographical distribution of students remained much the same as that for 1942-1943. The accompanying table shows that we had a reasonable scatter of students from the States within this country together with a group of foreign students representing a large number of the countries in this hemisphere.

Type of Registration	1942-43	1943-44
Doctor of Public Health.....	9	4
Master of Public Health.....	32	33
Doctor of Science in Hygiene.....	13	8
Master of Science in Hygiene.....	3	4
Total candidates for degrees.....	57	49
Special Students.....	48	45
Students from other Schools of the University..	2	3
Total, All Courses.....	107	97

### GEOGRAPHICAL DISTRIBUTION OF STUDENTS \*

<i>United States</i>		<i>Foreign</i>	
Alabama .....	1	Argentina .....	1
Arkansas .....	1	Bohemia .....	1
California .....	2	Brazil .....	4
Colorado .....	1	British Honduras.....	1
Connecticut .....	1	British West Indies.....	1
District of Columbia.....	1	Canada .....	3
Georgia .....	2	Chile .....	12
Iowa .....	1	Colombia .....	2
Illinois .....	1	Dutch Guiana.....	2
Maryland .....	22	Ecuador .....	3
Michigan .....	2	El Salvador.....	1
New Jersey.....	3	Honduras .....	3
New York .....	8	Mexico .....	1
Pennsylvania .....	1	Nicaragua .....	1
Tennessee .....	1	Palestine .....	1
Virginia .....	1	Panama .....	2
	49	Paraguay .....	45

\* Exclusive of students registered primarily in other schools of the University.

Instruction within the School has followed in general the pattern of past years. The important additions to our educational program were as follows: (1) A number of the members of the staff have taken part in the training programs conducted during the year under the Committee on Military Medicine, which was established as a joint committee of the School of Medicine and the School of Hygiene and Public Health to administer training programs related to the war activities. (2) The course in English which was presented last year on an experimental basis, to enable Latin-American students to enter the work of the School without serious language handicap, was expanded within the present year and proved to be very successful. (3) The broad aspects of hospitalization and medical care programs for the population were presented more extensively than heretofore by means of two series of seminars, one in the second quarter on hospital administration in relation to public health and social medicine, led by Dr. James M. Mackintosh, Professor of Preventive Medicine at the University of Glasgow, and the other in the fourth quarter on medical care, conducted by Dr. Dean Clark, Senior Surgeon, U. S. Public Health Service. These seminars were very successful additions to the instructional opportunities within the School.

#### ROSCOE RAYMOND HYDE

The sudden death on September 15, 1943, of Dr. Roscoe R. Hyde, Professor of Immunology, was a great shock to his colleagues. Dr. Hyde had been associated with the School from its beginning as Fellow, Associate, and Associate Professor in Immunology from 1918 to 1928, as Associate Professor in Filterable Viruses from 1928 to 1932, and since 1932 as Professor of Immunology. Trained as an experimental biologist in the field of genetics under Dr. T. H. Morgan, Dr. Hyde's primary interest was in research, and he contributed numerous papers on fundamental problems both in immunology and in filterable viruses. His many students and the staff of the School are indebted to him for his unfailing interest in developing both teaching and investigation in his field within the School.

#### RETIREMENT OF DR. MCCOLLUM

This year marks the retirement of Dr. E. V. McCollum, who was appointed as Professor of Biochemistry in 1917, the year the School opened. Dr. McCollum's contributions to knowledge in the fundamental chemistry of nutrition have won him world-wide recognition. He has received innumerable honors which attest to his scientific standing, the most recent of these being his election as Foreign Member of the Swedish Academy of Sciences.

Through his scientific publications, his textbooks and lectures, and through the graduate students he has trained here at the School, Dr. McCollum's influence in his field has been great. It has meant a great deal to the School to have within it the type of work and thinking which he represents. The affection and respect which we all have for him, have made it a privilege to work with him all these years. It is with regret that we see Dr. McCollum's period of service at the School come to an end, but we know that in the years ahead he will continue to find satisfactions in pursuing his many ideas.

#### WAR ACTIVITIES OF THE STAFF

We have continued to lose members of the staff to various branches of the Armed Forces. Those who have entered the Services, in addition to the ones listed in my previous reports are:

Lloyd Eugene Rozeboom, Associate in Parasitology—Lieutenant, U. S. Naval Reserve

George F. Badger, Associate in Biostatistics—Captain (MC) U. S. Army

Christopher Tietze, Research Associate in Mental Hygiene—1st Lt. (MC) U. S. Army

Paul R. David, Research Associate in Biostatistics—U. S. Army

Robert Mellors, Research Assistant in Epidemiology—Lt. (jg) U. S. Naval Reserve

Sarah H. Bowditch, Instructor in Venereal Diseases—Captain (MC) U. S. Army

All of the remaining members of the Staff have been even more completely drawn in to war activities than was the case at the time of my last report. Some of the more special assignments were: the three months spent by Dr. Maxcy in the South Pacific doing organizational and research work on the problem of scrub typhus; the trip of Dr. Reed to Mexico City as head of the delegation sent by the United States to the Inter-American Demographic Congress called by the Government of Mexico; the eight weeks period spent in South America by Dr. Phair on public health problems associated with the activities of the Office of the Coordinator of Inter-American Affairs; the trip to England by Dr. Crosby in connection with problems arising out of reorganization of the medical statistics of the Army.

The general character of the research work of the School which is not confidential in nature is indicated by the list of publications appended to this report.

#### CHANGES IN STAFF

##### *Resignations:*

Raymond Erl Gardner, Associate in Immunology  
 Ross Laurier Gauld, Associate in Epidemiology  
 Christopher Tietze, Research Associate in Mental Hygiene  
 Hugh Jennings Bickerstaff, Associate in Public Health Administration  
 Paul Rembert David, Research Associate in Biostatistics  
 Marion M. Brooke, Associate in Parasitology  
 Julia Buzz Mackenzie, Associate in Biochemistry  
 Frances Decker Nicolls, Instructor in Biostatistics  
 Nobel W. Guthrie, Instructor in Venereal Diseases  
 Frank Walker Reynolds, Instructor in Venereal Diseases  
 Ts'un T'ung, Instructor in Bacteriology  
 Robert Mellors, Research Assistant in Epidemiology

##### *Appointments:*

James M. Mackintosh, Lecturer  
 Russell Andrew Nelson, Lecturer in Epidemiology  
 Myron Ezra Wegman, Lecturer in Public Health Administration  
 M. Alexander Novey, Lecturer in Public Health Administration  
 Virgil Cole Scott, Instructor in Venereal Diseases  
 Virginia John Evans, Instructor in Biochemistry  
 Harold J. Magnuson, Instructor in Venereal Diseases  
 Elaine Updyke, Research Assistant in Bacteriology  
 Evelyn Allen, Assistant in Parasitology  
 Edith M. Darrow, Assistant in Parasitology  
 Mary Catherine Cumberland, Research Assistant in Epidemiology  
 Frances H. Gichner, Research Assistant in Epidemiology  
 Charlotte M. Root, Research Assistant in Epidemiology  
 Thomas Farmer, Research Assistant in Epidemiology

##### *Changes in Title:*

Edwin Gurney Clark, from Associate to Associate Professor in Venereal Diseases  
 Martin Frobisher, Jr., from Associate to Associate Professor in Bacteriology  
 John Joseph Phair, from Associate to Associate Professor in Epidemiology  
 Julia Buzz Mackenzie, from Instructor to Associate in Biochemistry

Marion Murphy Brooke, from Instructor to Associate in Parasitology  
Elizabeth I. Parsons, from Research Assistant to Research Associate in Bacteriology  
Ts'un T'ung, from Research Assistant to Instructor in Bacteriology

#### GIFTS TO THE SCHOOL

The School received during the year two gifts from the International Health Division of the Rockefeller Foundation that were of great importance from the point of view of the operation of our School as a teaching institution. These were a grant of \$137,500 to be used during the next five years to strengthen the teaching personnel of the School within the grades of Associate and Associate Professor, and the other a grant of \$60,420 to be used over a five-year period for the support of the work in the Eastern Health District. In addition to this grant for the Eastern Health District beginning September 1, 1944, the Rockefeller Foundation made a grant of \$12,500 to cover the support of the District for the period September 1, 1943 to September 1, 1944. The work of the District has contributed greatly to the field research possibilities not only of the School of Hygiene but of the entire medical environment, and it is the support of these gifts which has made it possible.

Gifts for the support of special research programs are classified in the following list by the department responsible for the activity:

##### *Bacteriology:*

International Health Division of the Rockefeller Foundation,—\$3500 for syphilis studies for the period July 1, 1943 to June 30, 1944.

International Health Division of the Rockefeller Foundation,—\$4000 for investigative work in diphtheria, July 1 1944 to June 30, 1946.

##### *Biochemistry:*

Knox Gelatine Company,—\$4300 for research in the biochemistry of amino acids and proteins.

##### *Biostatistics:*

Milbank Memorial Fund,—\$2400 for statistical assistance in the family studies in the Eastern Health District, January 1, 1944 to December 31, 1944.

Milbank Memorial Fund,—\$1800 for a Fellowship, July 1, 1943 to June 30, 1944.

##### *Epidemiology:*

National Research Council,—\$262.50 for laboratory expenses in connection with "Fellowships in Virus Studies and Orthopedics 1941-42" for the period October 1, 1943 to June 30, 1944.

##### *Parasitology:*

International Health Division of the Rockefeller Foundation,—\$4000 for research on hookworm diseases, especially in relation to specific acquired immunity, January 1, 1944 to December 31, 1944.

##### *Public Health Administration:*

International Health Division of the Rockefeller Foundation,—\$5485 for the study of mental hygiene in the Eastern Health District, July 1, 1943 to June 30, 1944.

#### SOCIETY OF HYGIENE

The Society of Hygiene, with Dr. G. Howard Bailey as President and Dr. Olaf S. Rask as Secretary, held four meetings during the year. The following papers which represent scientific work in progress at the School, were presented:

1. Dr. John J. Phair, Captain Emanuel B. Schoenbach—Meningococcus carrier studies.
2. Dr. Lloyd E. Rozeboom—The relation of aquatic vegetation to the breeding of *Anopheles quadrimaculatus*.
1. Lieutenant Colonel Raymond Hussey—The organization and operation of the Army Industrial Hygiene Laboratory.
2. Staff members, Army Industrial Hygiene Laboratory—Discussion of specific substances in accordance with War Department regulations.
1. Dr. Marion M. Brooke—Effect of dietary changes upon Avian Malaria.
2. Mr. Henry C. Waterman—Some experiments on microscopic illumination methods.
1. Dr. Mary C. Cumberland—The classification of *C. diphtheriae* and related forms.
2. Dr. Margaret Merrell and Dr. Alfred Gellhorn—Transcapillary exchange of sodium in normal and shocked dogs.

## PUBLICATIONS

## BACTERIOLOGY

- Frobisher, Martin, Jr.; The etiology of malignant diphtheria. *Am. J. Pub. Health*, 33, p. 1244, 1943.
- ; Training personnel for public health laboratories (abstract). *J. Bact.*, 47, p. 479, 1944.
- Parsons, Elizabeth I. and Martin Frobisher, Jr.; The effect of dietary carbohydrates on the dental flora of the rat. *J. Bact.*, 47, p. 477, 1944.
- Tung, Ts'un; Concentration and preservation of crude penicillin. *Proc. Soc. Exper. Biol. and Med.*, 54, p. 103, 1943.
- Turner, Thomas B.; Immediate wartime outlook and indicated post-war conditions with respect to the control of the venereal diseases. *Am. J. Pub. Health*, 33, p. 1309, 1943.
- , and W. A. Brumfield, Jr.; The control of venereal disease in the army. *Am. J. Syph., Gonorr. and Ven. Dis.*, 28, p. 133, 1944.
- , and T. H. Sternberg; Management of the venereal diseases in the army. *J. A. M. A.*, 124, p. 133, 1944.
- Updyke, Elaine and Martin Frobisher, Jr.; Group B streptococci and malignant diphtheria. *J. Bact.*, 47, p. 474, 1944.

## BIOCHEMISTRY

- Mackenzie, Julia B. and Cosmo G. Mackenzie; Production of pulmonary edema by thiourea in the rat, and its relation to age. *Proc. Soc. Exper. Biol. and Med.*, 43, p. 34, 1943.
- , and ———; Effect of prolonged and intermittent sulfonamide feeding on the basal metabolic rate, thyroid and pituitary. *Bull. Johns Hopkins Hosp.*, 74, p. 85, 1944.
- Rask, O. S.; A graphic representation of intermediary metabolism. *J. Chem. Educ.*, 20, p. 373, 1943.
- Reed, Miriam; A technique for differentiating the cells of the pituitary of the rat. *Science*, 98, p. 500, 1943.
- Shils, Maurice E. and E. V. McCollum; Further studies on the symptoms of manganese deficiency in the rat and mouse. *J. Nutrition*, 26, p. 1, 1944.

## BIOSTATISTICS

- Councell, Clara E.; Past hospital experience of a survivor population, Eastern Health District, Baltimore, 1926-1935. *Am. J. Hyg.*, 38, p. 8, 1943.
- Merrell, Margaret, Alfred Gellhorn and L. Flexner; Studies on rates of exchange of substances between the blood and extravascular fluid. II. The exchange of sodium in the guinea pig. *J. Biol. Chem.*, 153, p. 83, 1944.



## EPIDEMIOLOGY

- Bodian, D. and R. C. Mellors; Phosphatase activity in chromatolytic nerve cells. *Proc. Soc. Exp. Biol. and Med.*, 55, p. 243, 1944.
- Gersh, I. and David Bodian; Some chemical mechanisms in chromatolysis. *J. Cell. and Comp. Physiol.*, 21, p. 253, 1943.
- and —; Histochemical analysis of changes in rhesus motoneurons after root section. *Biol. Sympos.*, X, p. 163, 1943.
- Maxcy, Kenneth F. and Howard A. Howe; The significance of the finding of the virus of infantile paralysis in sewage. A review. *Sewage Works J.*, 15, p. 1101, 1943.
- Phair, John J., E. B. Schoenbach and Charlotte M. Root; Meningococcal carrier studies. *Am. J. Pub. Health*, 34, p. 148, 1944.
- Schoenbach, E. B.; The meningococcal carrier state. *M. Ann. District of Columbia*, 12, p. 417, 1943.

## PARASITOLOGY

- Cort, W. W. and D. J. Ameel; Further studies on the development of the sporocyst stages of plagiorchiid trematodes. *J. Parasit.*, 30, p. 37, 1944.
- , D. J. Ameel and Louis Olivier; An experimental study of the development of *Schistosomium douthitti* (Cort, 1914) in its intermediate host. *J. Parasit.*, 30, p. 1, 1944.
- , and Louis Olivier; The development of the sporocysts of a schistosome, *Cercaria stagnicolae* Talbot, 1936. *J. Parasit.*, 29, p. 164, 1943.
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LOWELL J. REED,  
Dean.

## REPORT OF THE LIBRARIAN

### TO THE PRESIDENT OF THE UNIVERSITY:

I have the honor to submit the following brief report of the Library for the year ending June 30, 1944.

Upon the retirement of Dr. John C. French, who had served the University as Librarian since 1927, the undersigned assumed the duties of the office on September 1, 1943.

Still more acutely than before, the war has been a serious handicap to the efficient operation of the University Library, not only making inroads on our personnel but also preventing us from getting equipment needed even prior to the war. Except for a relatively few purchases from England we have received virtually no publications from Europe, though our collections have been increased somewhat by the acquisition of materials from Latin America. In spite of the dearth of material coming from abroad, however, the library has maintained its growth, while the provision of space and the adequate care of books remain continuing and ever-mounting problems. During the year the net increase of the library amounted to 14,888 volumes to give us a new total of 703,912 volumes in all libraries of the University. The total library expenditures, exclusive of maintenance, heat, and light, amounted to \$93,211.16 of which \$63,156.93 was spent for salaries and \$30,054.23 for books, binding, and supplies.

The Welch Medical Library now numbers 143,997 volumes with a somewhat reduced growth of 2,415 during the past year. The total expenditures for this library amounted to \$21,756.15, of which \$16,113.42 was spent for salaries and \$5,642.73 for books. As usual a detailed report of the Welch Medical Library is submitted elsewhere by the Acting Librarian, Dr. Henry E. Sigerist. The remainder of this report is devoted to the activities at Homewood.

The recorded growth of the libraries at Homewood now amounts to 559,915 volumes, net additions for the year being 12,473 bound volumes. Expenditures for the year amounted to \$71,455.01, of which \$47,043.51 was spent for salaries and \$24,411.50 for books, bindings, and supplies.

From its many friends the Library has continued to receive numerous gifts of both money and books. The most outstanding single gift this past year has been the Laurence Hall Fowler Collection of early books on architecture, numbering some 425 bound volumes. Mr. Fowler, Class of '98, not only gave this magnificent collection, probably unique in this country, but also furnished a room in Gilman Hall for its housing. Vitruvius, Alberti, Scamozzi, Grapaldus, Serlio, Vignola—to mention only a few names—are virtually complete in all editions from 1496 on; and in addition there are the architectural works of French, German, Dutch, and English authors.

Another significant gift is that of the personal library of Mr. Charles Morris Howard, '84, consisting of over 2,100 volumes of literature and belles lettres. Many of these volumes are valuable and most of them are handsomely bound.

Another large gift of books came from the estate of Henry H. Wiegand, '85, consisting of almost 1,300 miscellaneous volumes, many of which were not represented in the University's collections. From Dr. Raymond Dexter Havens, Caroline Donovan Professor of English Literature, the Library has received a generous gift of some 350 volumes carefully selected in the field of English literature. Two other gifts worthy of special note were those of the Reverend Herschel Halbert, Class of '38, and of Mrs. John R. Dorsey; in addition, Mrs. Dorsey also gave us a beautiful bronze copy of a Greek statue of Diana of the Chase.

Mrs. T. B. Futcher continued her gifts of books and also contributed five framed etchings of Giovanni Battista Piranesi, all in the first state. From Miss Elisabeth Gilman the library received two Russian paintings on tin which her father acquired while he was in the diplomatic service in St. Petersburg in the 1850's. Another gift of nine engravings was received from Mrs. Horace McElderry.

From the Baltimore and Ohio Railroad Company the library has received a thirty-inch globe which has been placed in the Main Reading Room. This globe was the property of the late Mr. Daniel Willard, President of the Board of Trustees.

Besides those specifically mentioned above the following group have contributed generously to the upbuilding of the University Library. A comparison of this list with previous lists shows that a majority of our donors have been faithful benefactors over a long period of time. It is indeed encouraging to know that the library has so many friends who stand by it regularly.

Dr. William F. Albright, Dr. Don C. Allen, Dr. Nicholas Bacon, Dr. Florence E. Bamberger, Miss Stella H. Bamberger, Dr. John F. Baxter, Miss Mary A. Benjamin, Miss Beatrice Blakslee, Prof. S. R. Boggs, Dr. Charles F. Bonilla, Mrs. Thomas H. Bowles, President Isaiah Bowman, Dr. Richard C. Boys, Charles E. Brambel, Henry Breckinridge, Wilmon Brewer, Mrs. Max Broedel, Prof. F. Tucker Brooke, Mrs. E. F. Buchner, Dr. & Mrs. Wm. H. Buckler, Prof. J. N. Douglas Bush, Miss Blanche Coll, W. Barry Cassell, Prof. A. G. Christie, The Misses Clark, Mr. & Mrs. Colin Clements, Mrs. John Candler Cobb, Dr. Abraham Cohen, Prof. Edwin Grant Conklin, Edward S. Cornell, Jr., Pfc. William Kenneth Cornell, Costas G. Gotzias, Dr. Richard T. Cox, J. B. Crow, John E. Davis, Grosvenor Dawe, Dr. G. H. Dicke, Christian W. Dittus, John Foster Dulles, Charles G. Dunn, Dr. Stefan Einarsson, Dr. P. H. Emmett, Henry Ridgely Evans, Harry Kelso Eversull, Dr. N. Bryllion Fagin, Miss Margareta Faissler, Dr. Isaac M. Fein, Dr. Ernst Feise, Mrs. C. E. Ferree, Dr. Theodore E. Field, Mrs. D. K. Este Fisher, George E. Folk, Laurence Hall Fowler, William F. Fowler, J. Frankford, Dr. J. C. W. Frazer, Dr. and Mrs. John C. French, Dr. Harry Friedenwald, John H. Gerould, Arthur Graham Glasgow, John M. Glenn, Mrs. John H. Gregory, Albert E. Grimshaw, Jr., Armin Rudolph Grob, Fritz Gross, Mrs. Eleanor Wilson Grub, Dr. E. W. Gudger, Francis B. Harrison, Mrs. Roy Heffner, Dr. Richard V. Heinzelman, Bernard Heringman, William Emil Herrman, James Hogan, Mrs. Albert Horstmeier and Miss Ella Horstmeier, Dr. Arthur D. Holmes, Miss Ethel Hubbard, Mrs. Oliver Huckel, Mrs. Albert D. Hutzler, Clarence S. Jarvis, Severance Johnson, Miss Olga Kelly, Dr. W. B. Kouwenhoven, J. Louis Kuethe, Dr. W. B. Kurrelmeire, Dr. H. C. Lancaster, Walter D. Lantz, Prof. Owen Lattimore, Mrs. Cassie Moncure Lyne, Dr. Thomas O. Mabbott, W. L. McAtee, P. Stewart Macaulay, Dr. E. V. McCollum, Miss Margaret C. McCulloch, Thomas Machen, Folger McKinsey, The Honorable J. V. A. MacMurray, Dr. and Mrs. Kemp Malone, William Milnes Maloy, The Honorable Theodore Marburg, Wm. L. Marbury, Jr., Wm. B. Marye, Dr. E. B. Matthews, Dr. Johannes Mattern, F. W. Medaugh, Dr. C. Frank Miller, Miss Nancy Mitchell, Dr. George T. Moody, Dr. Malcolm C. Moos, Mrs. E. Boyd Morrow, M. Nalley, Ciro Nava, Estate of the late Simon A. Neuhausen, Emory H. Niles, Adolph S. Oko, Victor Oppenheim, Dr. H. Orlinsky, Mrs. James R. Paine, Miss Doris M. Paine, Dr. Sidney Painter, John Peach, Dr. Walter Thomson Peirce, Rev. Edgar L. Pennington, Dr. C. E. Peters, Dr. J. Hall Pleasants, Dr. Daniel A. Poling, Albert Post, Miss Rebekah Protzman, Myrick Whiting Pullen, Dr. Lowell J. Reed, Miss Elizabeth C. Remmert, Donald R. Richberg, Dr. Edward L. Richa, Francisco Romero, Albert J. Rosenberg, Mrs. R. B. Roulston, Mrs. George D. Rowe, Mr. Robert H. Roy, Dr. Karl F. Sandberg, Miss Emily C. Schilpp, F. Schmid, Miss Martha Hale Shackford, Charles Thomas Shaffer, Miss Sylvia C. Shipley, King-fang Siao, Dr. Joseph T. Singewald, Jr., Fred J. Singley, Lt. Com. Fred J. Singley, Jr., Prof. J. C. Smallwood, Prof. Henry Powell Spring, Miss Amy L. Steiner, Dr. Carl B. Swisher, Dr. Helen H. Tanzer, Miss Frieda C. Thies, C. E. Thompson, Prof. J. T. Thompson, Mrs. Emilie L. Torsch, Raymond Walters, John Ryan Washburn, E. C. Watson, Joseph A. Weingarten, Richard Welling, Miss Helen Wheeler, Dr. John B. Whitehead, Dr. Helene Wieruszowski, Dr. F. Y. Wiselogle, Prof. Harry A. Wolfson, Dr. Abel Wolman, Mrs. Henry L. Wriston, A. Zimmerman, Ramón de Zubirla.

The Friends of the Library have continued their loyal support and have contributed \$3,445.00, which is being kept in reserve pending the opportunity to make worth-while purchases of materials not otherwise provided for in the budget. This past year we have made numerous small purchases and have paid for the partial cataloging of the Hauer Chinese Collection with money from this source. During the year the Friends have met for tea on three occasions: December 9, when the new Librarian spoke on "The University Library in the Post-War World." At this meeting the library received the original manuscript of Sidney Lanier's *Cantata: Columbia's Centennial Song* from Dr. Francis Harvey Green, Headmaster of the Pennington School, Pennington, New Jersey. This gift further strengthens our unique collection of materials on Sidney Lanier. The next meeting was held February 17, when the Laurence Hall Fowler Collection of early books on architecture was presented to the Library. Mr. Fowler gave a splendid address on "Early Architectural Books" and, after the meeting, showed the treasures of his collection to the group. The third meeting was held in the Gilman Room of the Library on April 20, when Miss Freya Stark gave an illustrated lecture entitled "War-Time in Arabia." All meetings were held in the afternoon and were well attended in spite of the difficulties and restrictions of transportation. Miss Mary C. Goodwillie graciously consented to remain as President of the organization. The publication of *Ex Libris* has been temporarily suspended but it is hoped that it will be resumed in the near future. I should like to take this opportunity to express our sincere gratitude to the Friends of the Library for their loyal and continuing support, and to Miss Goodwillie we owe a special debt of gratitude for continuing her good work in these times.

The regular work of the Library has been carried on under the handicap of a partially depleted staff; though on the whole our losses in personnel have been few compared with the losses of personnel in other institutions. This is due largely to the loyalty of the professional group who have preferred to remain in spite of opportunities to go elsewhere at considerable increases in salary. In October the library lost its oldest staff member, Mr. August C. Munzner, head of the Binding Department, who had been with the University for fifty-two years. In March Miss Mary Alvey, a member of the Catalog Department since 1921, was transferred to the Geology Library where there had been no one in charge since the first of October. Mr. Walter W. Wright joined the library staff as General Assistant. Upon the death of Mr. Munzner the work of the Binding Department was taken over by Mr. J. Louis Kuethe, Assistant Librarian. His report shows that there has been no diminution in the activities of this department. In the Serials Section of the Order Department, we have set up a visible record for checking in periodicals, but due to the scarcity of equipment we have been able only to include periodicals published in the United States. The work of the Order Department has continued undiminished with a total of 19,634 pieces, exclusive of current periodicals, received this past year. These came into the Library in the following manner: by purchase, 6,781; by gift, 10,391; and by exchange, 2,462. The Catalog Department, suffering not only from a reduction in the professional staff but also from a serious loss in the clerical staff, has been able, nevertheless, to produce an amount of work comparable to that of other years. Their total output was 11,903 volumes, pamphlets, maps, and films; of individual titles cataloged this represents 6,930 as compared with 6,984 last year, while the total number of cards made for the various catalogs was 61,664. With a progressively diminishing staff in this department, inevitable arrearages have been built up and it will take some time and considerable effort to make the thousands of uncataloged volumes relatively accessible to the users of the Library. I am happy to report, however, that a beginning, though ever so slight, has been made in the reduction of these arrearages, and with some reorganization of the work and perhaps expansion of the staff we hope to be able to make definite progress in this area.

During this my first year at Johns Hopkins I have found the staff most cooperative and willing to help in any way they can. The faculty and the administration have been cordial and, what is truly encouraging, genuinely interested in the welfare of the University Library.

HOMER HALVORSON,  
Librarian.

## REPORT OF THE LIBRARIAN OF THE WILLIAM H. WELCH MEDICAL LIBRARY

### TO THE PRESIDENT OF THE UNIVERSITY:

On behalf of the Library Committee I have the honor to submit the following report for the fiscal year ending June 30, 1944.

The library continued to operate on the regular schedule throughout the year. In July 1943 a large room on the first floor was made available for the headquarters of the army and navy units, and in February 1944 the Great Hall was turned over to the Survey of Antimalarial Drugs.

Dr. Homer Halvorson addressed the library staff at a meeting held on December 10, 1943, and Miss Katherine Kosmak of the Enoch Pratt Free Library addressed the staff at a meeting on June 23, 1944.

The mimeographed *Bulletin of the William H. Welch Medical Library* was issued every month, listing new accessions of the Welch Library and affiliated libraries of the School of Medicine.

### EXHIBITS

The Institute of the History of Medicine arranged a series of monthly exhibits in the Reading Room lobby illustrating the part played in medicine by areas that were in the news (Sicily, Salerno, Montecassino, etc.). A Book of the Week was exhibited in a special case at the entrance to the Reading Room. An exhibit illustrating the life and work of Andreas Vesalius was displayed in the Exhibition Hall of the Institute in commemoration of the 400th anniversary of the publication of the *Fabrica*.

### GIFTS

The Library gratefully acknowledges the receipt of a great many books, pamphlets, and periodicals presented by the following individuals and institutions:

Dr. Andrew J. Akelaitis, Rochester, New York, 18; Mr. Thomas d'Alesandro, Jr., 1; Dr. Lewis A. Alesen, Los Angeles, 2; American Association of Genito-Urinary Surgeons, 1; American College of Dentists, St. Louis, 1; American College of Hospital Administration, Chicago, 1; American College of Surgeons, Chicago, 2; American Heart Association, Inc., 1; American Journal of Hygiene, 185; American Medical Association, 4; American Museum of Health, New York, 1; American Museum of Natural History, New York, 2; American Neurological Association, 1; American Proctologic Society, 1; American Surgical Association, 1; American Therapeutic Society, 2; American Urological Association, 1; Dr. Edwin Cowles Andrus, 421; Anonymous, 86; Armour Laboratories, 2; Eduardo D. De Arteaga, Uruguay, 1; Association of Casualty and Surety Executives, 3; Association of Life Insurance Presidents, 1; Austenal Laboratories, Inc., New York, 6; Dr. Anna M. Baetjer, 2; Dr. William Seaman Bainbridge, New York, 27; Baltimore City Health Department, 16; Estate of Dr. Lewellys F. Barker, 454; Major Arthur J. Barsky, M. C., Thomasville, Georgia, 1; Baruch Committee on Physical Medicine, New York, 3; Dr. Walter Baumgarten, St. Louis, 1; Dr. Harvey G. Beck, 1; Dr. Elmer Belt, Los Angeles, 4; Mr. Morris J. Bernstein, New York, 1; Lieut. H. E. Billig, Jr., MC-V(S) USNR, Pasadena, 3; The Blakiston Company, Philadelphia, 1; Dr. Alfred Blalock, 24; Dr. Harold Blumberg, 56; Dr. Samuel W. Boorstein, New York, 1; Dr. Sarah H. Bowditch, 59; Dr. Leo Brady, 83; Brenthurst Red Cross Military Hospital,

Johannesburg, South Africa, 1; British Empire Cancer Campaign, London, 1; Lieut. L. H. Bronstein, 8; Bulletin of the Johns Hopkins Hospital, 36 (including 10 review books); Mr. Francis W. Buschman, 1; Butler Hospital, Providence, 3; Calgary Association Clinic, Calgary, Canada, 2; California Physicians' Service, San Francisco, 1; Dr. Meredith F. Campbell, New York, 4; Canadian Department of Agriculture, 1; Dr. Anton J. Carlson, Chicago, 1; Carnegie Institution of Washington, 6; Dr. H. J. Carper, Denver, 1; Central Society for Clinical Research, St. Louis, 1; Dr. Alan M. Chesney, 120; Major Abraham G. Cohen, M. C., New Orleans, 1; Dr. Barnett Cohen, 59; Dr. George H. Coleman, Chicago, 1; Columbia University, 1; The Commonwealth Fund, New York, 1; Commonwealth of Australia, Department of Labour and National Service, Melbourne, 2; Commonwealth of Massachusetts, Springfield, 1; Connecticut Public Welfare Council, Hartford, 2; Mrs. Nathalie Jerrold Kelly Cook, 1; Dr. George W. Corner, 85; Mrs. George W. Crile, Cleveland, 183; Dr. Edwin L. Crosby, 2; Dr. Samuel J. Crowe, 86; Dr. Thomas S. Cullen, 336; Dr. Walter E. Dandy, 1; Dr. Paul R. David, 10; Dr. J. Staige Davis, 12; Dr. Neal Davis, Lowell, Indiana, 2; Dr. Lewis R. Day, 99; Mr. Daniel Doherty, 7; Department of Anatomy, 98; Department of Biochemistry, 1; Department of Medicine, 112; Department of Pediatrics, 44; Department of Pharmacology and Experimental Therapeutics, 268; Department of Preventive Medicine, 29; Department of Surgery, 596; Douglas Smith Foundation for Medical Research of the University of Chicago, 1; Dr. Harry S. Eagle, 130; Dr. Nicholson J. Eastman, 87; Dr. Lydia B. Edwards, 131; Dr. Anfin Egdahl, Rockford, Illinois, 1; Escola Medico-Cirurgica de Nova Goa, 3; Evans Memorial Hospital, Boston, 26; Evanston, Illinois, Department of Health, 1; Evaporated Milk Association, Chicago, 1; Dr. Gertrude R. Ferree, New York, 3; Dr. A. Murray Fisher, 145; Franklin Hospital, San Francisco, 1; Dr. Felix Fuchs, New York, 1; Georgetown University Medical School Library, 8; Georgia Warm Springs Foundation, New York, 1; Dr. James R. Gladden, Washington, 2; Glasgow Royal Maternity and Women's Hospital, 1; Dr. Leo J. Goldbach, 4; Dr. Charles Goodman, New York, 1; Gt. Brit. Medical Research Council, 4; Miss Hermine Grimm, 3; Dr. Franz M. Groedel, New York, 3; Dr. Martin Gross, Crownsville, Maryland, 87; Dr. Henri Groulx, Quebec, 1; Dr. D. D. Grubbs, Carmel, Indiana, 1; Dr. E. W. Gudger, New York, 3; Dr. Janet Hardy, 4; Hartford Hospital, Connecticut, 1; Hartford (Connecticut) Welfare Council, 2; The Houghton Library, Cambridge, Massachusetts, 1; The Heine-man Foundation, Charlotte, North Carolina, 1; Dr. Lewis M. Hellman, 7; Henry E. Huntington Library and Art Gallery, San Marino, California, 1; Miss Justina Hill, 1; Dr. Julius D. Holly, 1; Dr. L. Emmett Holt, Jr., 275; Hospital for Joint Diseases, New York, 1; Hospital of the Good Samaritan, Los Angeles, 2; Dr. Guy L. Hunner, 6; Dr. Elizabeth Iliff, 23; Institute for Psychoanalysis, Chicago, 1; Institute of Medical and Veterinary Science, Adelaide, South Australia, 1; Institute of the History of Medicine, 13; Instituto de Medicina Experimental, Venezuela, 5; Instituto Nacional de Sanidad, Madrid, 7; International Cancer Research Foundation, Philadelphia, 4; Dr. Rogue A. Izzo, 1; Jefferson Medical College, Philadelphia, 1; John and Mary R. Markle Foundation, 2; Johnck & Seeger, Printers, San Francisco, 2; Johns Hopkins Hospital, 474; Johns Hopkins Press, 2; Johns Hopkins University, 534; Johns Hopkins University, Carnegie Institution, Department of Embryology, 41; Dr. Robert W. Johnson, 3; Dr. Morris Joseph, Passaic, New Jersey, 1; Josiah Macy, Jr. Foundation, New York, 2; Dr. Solomon R. Kagan, Springfield, Massachusetts, 1; Dr. Harold M. Kaplan, Cambridge, Massachusetts, 1; Dr. Samson Kardimon, New York, 2; Dr. Karl John Karnaky, Houston, Texas, 12; Dr. William Kaufman, Bridgeport, Connecticut, 1; Dr. Varastad H. Kazanjian, Boston, 4; Dr. Thomas J. Kirwin, New York, 1; Lieut. Col. R. A. Kocher, New York, 1; Dr. Louis Kronman, New York, 1; Lane Medical Library, San Francisco, 2; Dr. Sanford V. Larkey, 2; Laryngoscope (The), St. Louis, 1; Mrs. Dean Lewis, 1; Major E. F. Lewison, Edgewood Arsenal, 1; Dr. Lucille Liberles, 109; The Lifwynn Foundation, New York, 4; Lilly Research Laboratories, Indianapolis, 45; Lincoln Memorial University, Harrogate, Tennessee, 1; London School of Hygiene and Tropical Medi-

cine, 1; Louisiana Department of Conservation, New Orleans, 1; Louisville and Jefferson County Health Department, 1; Lying-in Hospital, New York, 1; Dr. Vincent Lyon, Philadelphia, 19; Dr. Hugh McCulloch, St. Louis, 1; Dr. Thomas H. McGavack, New York, 1; Dr. Charles C. Macklin, London, Canada, 2; Dr. E. Kennerly Marshall, Jr., 7; Maryland Historical Society, 1; Maryland State Department of Health, 278; Maryland State Weather Service, 2; Maryland Unemployment Compensation Board, Baltimore, 1; Dr. Kenneth F. Maxcy, 26; Medical Society of the County of Kings, New York, 1; Medicina Cirurgia Pharmacia, Rio de Janeiro, 24; Memorial Hospital, New York, 3; Mental Hygiene Study, 1; Merck & Co., Inc., Rahway, New Jersey, 2; Metropolitan Life Insurance Company, 1; Michigan State College, East Lansing, 9; Milbank Memorial Fund, 2; Miss Alice E. Miller, Port Deposit, 1; Dr. Charles F. Mohr, 12; Dr. J. Earle Moore, 478; Dr. Merrill Moore, Boston, 3; Municipal Court of Chicago, 1; Museo Argentino de Ciencias Naturales, Buenos Aires, 1; Dr. Aubrey T. Mussen, Strasburg, Virginia, 529; National Board of Medical Examiners, Philadelphia, 1; National Committee on Maternal Health, Inc., Menasha, Wisconsin, 1; National Council for the Social Studies, 1; National Foundation for Infantile Paralysis, 5; National Research Council, 7; National Tuberculosis Association, 4; Navy Medical School, Bethesda, 2; Dr. Nels A. Nelson, 64; New Mexico State Department of Public Health, Santa Fe, 1; New York City Department of Health, 2; New York Orthopaedic Dispensary and Hospital, 1; New York Post-Graduate Medical School and Hospital, 1; New York State Association of Public Health Laboratories, Albany, 2; New York State Department of Health, Albany, 2; New York State Department of Mental Hygiene, Albany, 2; Newark Department of Health, 1; Dr. N. Philip Norman, New York, 2; Northwestern University Medical School, Chicago, 1; Ohio Public Health Association, Columbus, 1; Ohio State Bureau of Unemployment Compensation, Columbus, 1; Dr. Ella H. Oppenheimer, 47; Dr. Winnett Orr, Lincoln, Nebraska, 1; Pacific Coast Society of Obstetrics and Gynecology, 1; Dr. Earl C. Padgett, Kansas City, 1; Pan American Sanitary Bureau, 2; Panama Canal Department of Health, 1; Dr. Edwards A. Park, 13; Peabody Institute Library, 1; Philosophical Library, Inc., New York, 1; Physiologisches Institut der Universität, Zürich, 1; Dr. Claude C. Pierce, New York, 1; Province of British Columbia, Victoria, 1; Puerto Rico Journal of Public Health and Tropical Medicine, San Juan, 7; Racine City Health Department, 1; Mr. John E. Ransom, 8; Dr. Lowell J. Reed, 117; Lieut. Frank W. Reynolds, M. C., 2; Dr. Eurico Branco Ribeiro, Sao Paulo, 1; Dr. Curt P. Richter, 23; Dr. John F. Ritter, Maquoketa, Iowa, 1; Estate of Mrs. Eretus Rivers, Atlanta, Georgia, 1; Rockefeller Foundation, 32; Rockefeller Institute for Medical Research, 5; Dr. Alma S. Rothholz, 392; Royal Cancer Hospital, London, 1; Royal College of Surgeons of England, 1; St. Francis Sanatorium, Roslyn, Long Island, 1; Sandoz Chemical Works, Inc., New York, 1; Saratoga Springs Authority, New York, 21; Mr. F. A. Scales, Mount Vernon, New York, 1; Schieffelin & Co., New York, 1; School of Hygiene, 94; School of Medicine, 81; School of Tropical Medicine, San Juan, 27; Benno Schwabe & Co., Basel, Switzerland, 1; Dr. Frances L. Seymour, New York, 4; Dr. William Sharpe, New York, 2; Dr. Herman Sheffield, New York, 1; Dr. Henry E. Sigerist, 9; Mrs. Aura G. Smiley, 6; Dr. Elmer A. Smith, Chicago, 1; Dr. Margaret H. Smith, 754; Dr. Winford H. Smith, 22; Smithsonian Institution, 11; Sociedad Peruana de Historia de la Medicina, 1; South African Institute for Medical Research, Johannesburg, 23; Squibb Institute for Medical Research, New Brunswick, New Jersey, 1; Standard Oil Company (New Jersey), 1; State Institute for the Study of Malignant Diseases, Buffalo, 1; Miss Gertrude Steenken, 1; Dr. Philip P. Steptoe, Jr., 1; Dr. Holland N. Stevenson, New Rochelle, 3; Dr. George W. Stewart, Iowa City, 1; Sydenham Hospital Library, 2; Dr. Helen B. Taussig, 11; Dr. Richard W. TeLinde, 13; Dr. Owsei Temkin, 1; Dr. Christopher Tietze, 18; U. S. Army Medical Library, 1; U. S. Department of Agriculture, 4; U. S. Department of Commerce, 12; U. S. Department of Labor, 24; U. S. Department of State, 1; U. S. Employment Service in Ohio, 2; U. S. Federal Security Agency, Office of the Administration, 1; U. S. Library of Congress,



2; U. S. Maritime Commission, New York, 1; U. S. Office of Civilian Defense, 13; U. S. Office of Education, 1; U. S. Office of Emergency Management, Selective Service System, 1; U. S. Public Health Service, 279; U. S. Selective Service System, National Headquarters, 4; U. S. Social Security Board, 1; U. S. War Department, 6; U. S. War Department, Medical Field Service School, 2; Universidad de Santo Domingo, 7; Universidad Nacional de Buenos Aires, 61; Universidad Nacional de la Plata, 4; University of California, San Francisco, 3; University of California, Institute of Experimental Biology, Berkeley, 28; University of Missouri, College of Agriculture, Columbia, 3; University of Kansas School of Medicine, Lawrence, 1; University of Pennsylvania Library, Philadelphia, 2; University of Pittsburgh, 12; University of Queensland, Australia, 1; University of the Witwatersrand Medical Graduate Association, Johannesburg, 48; Virginia State Department of Health, Richmond, 1; Dr. Marie Pichel Warner, New York, 1; Mr. C. E. Watson, St. Petersburg, Florida, 1; Dr. Miley B. Wesson, San Francisco, 1; Dr. Harold Willard, 17; Wilmer Ophthalmological Institute Library, 489; Winthrop Chemical Company, Inc., New York, 2; Dr. Maxwell M. Wintrobe, 29; Wisconsin State Board of Health, Madison, 1; Miss Anna D. Wolf, 3; Dr. Alan C. Woods, 9; The Woods Schools, Langhorne, Pennsylvania, 3; Dr. Hugh H. Young, 518.

#### STATISTICS

In the past year the Library accessioned 2,415 volumes, including 607 by purchase, 1,275 as gifts, and 533 periodicals bound. This includes purchases by and gifts to the Institute of the History of Medicine. In addition, the Library received 232 medical dissertations, and gifts of 6,994 unbound serials, 657 pamphlets, and 1,670 reprints. The total number of volumes now in the Welch Library is 143,997. The Library regularly received 484 periodicals, including 34 second sets.

The Cataloging Department, under the direction of Miss Williams, cataloged 2,399 volumes. In this work 15,911 cards were produced and 1,040 titles were classified.

The Reading Room, Miss Frush in charge, served 22,242 readers and gave out 20,919 volumes.

Miss Wheeler, in charge of interlibrary loans, borrowed 449 volumes from other libraries and loaned 542 volumes to other libraries. 57 volumes were located in other libraries accessible to readers, and 38 microfilm or photostatic copies of articles were obtained in lieu of interlibrary loan.

The acting librarian wishes to express his thanks to the staff of the Library for their loyal cooperation during the past year.

HENRY E. SIGERIST, M. D.,  
*Acting Librarian.*

## REPORT OF THE JOHNS HOPKINS PRESS

### TO THE PRESIDENT OF THE UNIVERSITY:

I have the honor to submit an abstract of the report of The Johns Hopkins Press for the year 1943-44:

American Journal of Mathematics. Published under the joint auspices of The Johns Hopkins University and The American Mathematical Society. Edited by Professors G. D. Birkhoff, Harvard University; F. D. Murnaghan, The Johns Hopkins University; H. Weyl, The Institute for Advanced Study; H. Witney, Harvard University; A. Wintner, The Johns Hopkins University. Four numbers were published.

American Journal of Philology. Edited by Professors Benjamin D. Meritt, Harold F. Cherniss, Richard M. Haywood, Kemp Malone, Henry T. Rowell, and David Moore Robinson, honorary editor. Four numbers were published.

Bulletin of the History of Medicine. Organ of The American Association of the History of Medicine and The Johns Hopkins Institute of the History of Medicine. Edited by Doctor Henry E. Sigerist. Ten numbers were published.

Bulletin of the Johns Hopkins Hospital. Edited by Doctors L. Emmett Holt, Jr., Managing Editor, John A. Luetscher, Jr., Associate Managing Editor, with an editorial board composed of Doctors E. Cowles Andrus, Charles R. Austrian, W. Halsey Barker, James Bordley, III, Chalmers L. Gemmill, and Arnold R. Rich. Ten numbers were published.

E.L.H., A Journal of English Literary History. Edited by Doctors Edward T. Norris, Managing Editor, Don Cameron Allen, Leon Howard, Clifford P. Lyons, Thomas Pyles, and Earl Wasserman. It is published on behalf of the Tudor and Stuart Club of The Johns Hopkins University. Four numbers were issued.

Human Biology. Edited by Doctor Lowell J. Reed in association with Doctors A. W. Freeman, H. S. Jennings, Adolf Meyer, Curt P. Richter, and Adolph H. Schultz with Maude DeWitt Pearl as managing editor. Four numbers were issued.

Johns Hopkins Studies in Romance Literatures and Languages. Two volumes were published during the year. They are: volume xlv, *Ystoire de la Passion*, B. N. MS fr. 821 by Edith Armstrong Wright, 78 pages; extra volume xx, *The Genres of Parnassian Poetry, A Study of the Parnassian Minors* by Aaron Schaffer, 427 pages.

Johns Hopkins University Circular. Eight numbers were published during the year. They are: School of Hygiene and Public Health, 1943-1944; School of Higher Studies of the Faculty of Philosophy, 1943-1944; College for Teachers, 1943-1944; School of Medicine, March 1, 1943-November 25, 1943; Report of the President of the University, 1942-1943; School of Higher Studies of the Faculty of Philosophy, 1944-1945; College of Arts and Sciences, The School of Engineering, The School of Business Economics, 1944; Summer Session, College for Teachers, 1944.

Johns Hopkins University Studies in Education. Edited by Professor Florence E. Bamberger. There was published number 33, *The Teachability of Certain Concepts in Modern European History in the Secondary School* by Sister Justa McNamara, 186 pages, 13 tables, 4 charts.

Johns Hopkins University Studies in Historical and Political Science. Edited by the Department of History, Political Economy, and Political Science. There were

published three numbers of Series lxi. They are: number two, Charles J. Bonaparte, Patrician Reformer, his earlier career by Eric F. Goldman, 150 pages; number three, Studies in the History of the English Feudal Barony by Sidney Painter, 211 pages; number four, The Economic Thought of Woodrow Wilson by William Diamond, 210 pages.

Modern Language Notes. Edited by Professor H. Carrington Lancaster with Professors William Kurrelmeyer, Raymond D. Havens, Kemp Malone, Hazelton Spencer, C. S. Singleton, Charles R. Anderson and Don Cameron Allen. Eight numbers were published.

Terrestrial Magnetism and Atmospheric Electricity. Conducted by Doctor J. A. Fleming with the co-operation of eminent investigators. Five numbers appeared.

Institute of the History of Medicine. There are several series of Monographs, Texts and Documents, Lectures and Reprints under the editorial supervision of Professor Henry E. Sigerist. There appeared: The Jews and Medicine by Doctor Harry Friedenwald in two volumes, 841 pages, 40 illustrations; On the Influence of Trades, Professions, and Occupations in the United States, in the Production of Disease by Benjamin D. McCready, 1837, Introductory Essay by Miss Genevieve Miller, 136 pages; Maurice Arthus' Philosophy of Scientific Investigation, Preface to *De l'Anaphylaxie à l'Immunité*, Paris 1921, translated from the French, with an introduction by Professor Henry E. Sigerist, foreword by Doctor Warfield T. Longcope, 26 pages; Supplements to the Bulletin of the History of Medicine, number i, The Hippocratic Oath, Text, Translation and Interpretation by Ludwig Edelstein 71 pages; number ii, The Religious and Philosophical Aspects of van Helmont's Science and Medicine by Walter Pagel, 53 pages.

Johns Hopkins University Studies in Archaeology. Edited by Professor David M. Robinson. Volume 35, The Horse in Greek Art by Sidney David Markman, 223 pages and 62 figures on plates, was published on October 11, 1943.

International Bearings on American Policy by Albert Shaw, 502 pages, appeared on November 12, 1943.

The Johns Hopkins Hospital and The Johns Hopkins University School of Medicine, A Chronicle, Volume i, Early Years, 1867-1893 by Alan M. Chesney, foreword by William H. Howell, 336 pages, 37 illustrations, was published December 3, 1943.

The Owles Almanack edited with an introduction by Don Cameron Allen, 110 pages, published December 14, 1943.

Hazlitt in the Workshop, The Manuscript of the Fight, transcribed with collation, notes and commentary by Stewart C. Wilcox, 101 pages, appeared December 2, 1943.

Canaanite Parallels in the Book of Psalms by John Hastings Patton, 77 pages, appeared May 25, 1944.

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#### FORTHCOMING PUBLICATIONS

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Blanchard, Rae; Tracts and Pamphlets by John Steele, edited with notes and commentary.

Castiglioni, Arturo; Essays in the History of Medicine Presented to Professor Arturo Castiglioni on the occasion of his seventieth birthday, April 10, 1944.

Cherniss, Harold; Aristotle's Criticism of Plato and the Academy.

Edelstein, Emma and Ludwig Edelstein; Asclepius: A Collection and Interpretation of the Testimonies.

Judson, Alexander Corbin; The Life of Edmund Spenser.

Kirschbaum, Leo; The True Text of King Lear.

- Lane, Frederic C.; Andrea Barbarigo: Merchant of Venice, 1418-1449.  
 Robinson, David M.; Excavations at Olynthus. xii. Domestic and Public Architecture, The Johns Hopkins University Studies in Archaeology, Number 36.  
 Spenser, Edmund; The Works of: The Minor Poems, Volume Two edited by Charles Grosvenor Osgood.  
 Temkin, Owsei; The Falling Sickness: A history of epilepsy from the Greeks to the beginning of Modern Neurology.  
 Trade Union Publications: The Official Journals, Convention Proceedings, and Constitutions of International Unions and Federations, 1850-1941. Edited by Lloyd G. Reynolds and Charles C. Killingsworth.  
 Urban Planning Conferences, Report of the, Under the Auspices of The Johns Hopkins University.

### DISSERTATIONS

Following is a list of published dissertations received during the year:

- Almand, J. M.; see Marks, E. M. and J. M. Almand.  
 Breuling, Henry Latham; A Thermodynamic Study of Monomolecular Films.  
 Brighton, K. W.; Several Alkyl-beta thioethylamines and the Corresponding Ureas, Sulfoxides and Sulfones.  
 Brown, Frances Campbell; The Diffusion of Dyes in Ethylene Glycol Gels.  
 Damerel, Charlotte I.; Carbamic Acid Peptides. A New Type of Peptide and a New Possible Source of Ammonia from Proteins.  
 Diamond, William; The Economic Thought of Woodrow Wilson.  
 Eisner, Elmer; Interpretation of the Angular Distribution of Alphas from  $Li^{10}(\rho; \alpha)\alpha$ .  
 Fellows, Robert E.; Recrystallization and Flowage in Appalachian Quartzite.  
 Foulks, James Grigsby; An Analysis of the Sources of Melanophores in Regenerating Feathers.  
 Goldman, Eric F.; Charles J. Bonaparte: Patrician Reformer, his earlier Career.  
 Hall, William P.; The Preparation and Properties of alpha-omega Aliphatic Dimercaptans.  
 Kline, Albert P.; The Nitrogen Compounds Necessary for Growth in Colpidium Striatum Stokes, with special reference to the Amino Acids.  
 McNamara, Sister Justa; The Teachability of Certain Concepts in Modern European History in the Secondary School.  
 Marks, E. M. and J. M. Almand; The Ethylation of Benzene, The Course of the Reaction.  
 Nickerson, Mark; An Experimental Analysis of Barred Pattern Formation in Feathers.  
 Parsons, Arthur Wellesley; Klepsydra and the Paved Court of the Pythion.  
 Patton, John Hastings; Canaanite Parallels in the Book of Psalms.  
 Peltz, Catherine Walsh; The Neo-Classic Lyric 1660-1725. A Portion of The Neo-Classic Lyric.  
 Powers, Edward Lawrence, Jr.; The Mating Types of Double Animals in Euplotes patella.  
 Rossi, Harald Hermann; The Angular Distribution of Alphas from Lithium Bombarded by Protons.  
 Skau, Nis H.; The Catalytic Hydrogenation of Benzene and the Balandin Hypothesis.  
 Smith, Henry Clay; Age Differences in Color Discrimination.  
 Swartz, Charles Dana; The Angular Distribution of Alphas from  $F^{19}$  Bombarded by Protons.

C. W. DITTUS,  
 Manager.

## 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, 1944.

The war time program of year-round instruction, which began in 1942 with the addition of a summer semester to the calendar of the School of Medicine, the undergraduate day schools and several departments of the Faculty of Philosophy, was continued in 1943. The School of Medicine made no change, but the three undergraduate schools adopted a four quarter system in order to keep civilian instruction parallel with instruction in the Army Specialized Training Program. Terms of 12 weeks each began in July 1943, October 1943, January 1944 and April 1944. All departments of the School of Engineering and of the School of Higher Studies of the Faculty of Philosophy, except Education, adopted the quarter plan, though only Physics, Chemistry and Engineering offered instruction during the summer. The Department of Education, the College for Teachers, the Night Courses in Technology and the Evening Courses in Business Economics continued on the two semester plan. The College for Teachers also offered a six weeks summer session.

The first undergraduate unit of Army trainees enrolled in July 1943, one group for basic studies, one for Area and Language studies in three fields—French, German and Italian. On our own initiative we reviewed the previous academic records of the trainees assigned for basic studies and made a classification in accordance with our usual requirements for matriculation in the School of Engineering. A comparison was then made with scores on the Army General Classification Test, the scores on a Scholastic Aptitude Test of the American Council on Education and with grades at the end of the summer term. We recognized this as an opportunity to compare the results in college of two classes of students—those who would have been admitted and those who would not have been admitted. Those whom we classified in the upper quarter on the basis of high school performance, had an average score on the American Council test of 123.5; the middle half had an average score of 114.7; the lowest quarter, 106.5. (The lowest quarter did not meet our entrance requirements.) The average scores on the Army test were: upper quarter 129.2, middle half 124.5, lowest quarter 123.7. By giving a numerical value to our letter grades and by weighting the grades according to the course hours, we found that the average college performance of these groups in mathematics and science courses was in the relationship of 72 to 57 to 44; in non-scientific courses 39 to 33 to 32. The number of cases studied does not justify acceptance of the findings as proof of any general statement. The study simply adds a little additional support to our policy of relying heavily upon secondary school records in reaching decisions on applications for admission. It also suggests that further study of the Army records may produce information of value in shaping future policy, particularly with respect to the use of standardized test scores in conjunction with school grades.

In the early spring of 1944 Selective Service Headquarters announced that student deferments would be sharply curtailed immediately and would be discontinued entirely on July 1. Our undergraduate enrollment, which had been dropping steadily, reached the low figure of 262 during the April quarter. Young students, men physically disqualified for military service, a small group deferred until July graduation and a few veterans composed the group. The number of veterans is likely to increase sharply during the coming months, as the government's program

of subsidies for education goes into effect. We are planning to issue a booklet of information for service men and it will be sent to all Hopkins students who joined the armed forces before completing the requirements for a bachelor's degree. These men now number almost one thousand.

Two programs for graduating students were arranged during the year. The one in October 1944 was a reception in Gilman Hall for young men receiving the bachelor's degree and their parents. The occasion was informal and no degrees were conferred. On July 3, regular commencement exercises were held for Homewood students. The School of Hygiene and Public Health closed in May and the School of Medicine in August, so a general University program could not be arranged. The exercises were held outdoors, with Gilman Hall as a very effective background. This may have been the beginning of a new Hopkins custom.

The Registrar was one of the University delegates to the Representative Assembly of the Maryland State Teachers Association held at the Baltimore Polytechnic Institute on October 22 and 23, 1943. She also attended the 31st Convention of the American Association of Collegiate Registrars at Chicago on April 25, 26 and 27, 1944. The main subject for discussion was the adjustment of returning service men and women to colleges and universities. Notes on the meeting were made available to the University Post-War Planning Committee and to the various committees on advanced standing. The Registrar continued to serve on the Maryland State Committee of the Middle States Association of Colleges and Secondary Schools.

#### BUREAU OF APPOINTMENTS

During the past year 118 part time positions were filled by the Bureau. Of these, 31 were Clerical Assistant appointments in the following departments of the University: Library 23, Department of Education 4, Bookstore 1, Playshop 1, Registrar's Office 2. The amount of tuition credit earned was \$2,547.48. Forty of the appointments were tutoring positions. Due to the shortage of available tutors many requests could not be filled. The total registration for part time employment was 156.

The registration for full time employment was 219. Of this number 105 applicants registered before June 30, 1943, while 114 were new registrations. Eighty-five per cent of the new registrations were persons seeking employment in the University. Each year there has been an increasingly large number of such persons registering with the Bureau. During the past year 91 applicants were interviewed and replies sent to 14 inquiries by mail. Through the direct recommendation of the Bureau 15 secretarial and clerical positions in the University were filled.

Twenty-seven sets of confidential papers of candidates applying for teaching appointments were sent to college officials or other employers upon their request or that of the applicant.

#### REGISTRATION OF STUDENTS

During the past year there were enrolled in the various divisions of the University 2,912 persons. In the School of Higher Studies of the Faculty of Philosophy there were 219; in the School of Medicine 89 candidates for degrees, 5 students in Art as Applied to Medicine; in the School of Hygiene and Public Health 49 candidates for the degree and 48 special students; in the School of Engineering 289 candidates for the bachelor's degree, 40 advanced students and 13 special students; in the College of Arts and Sciences 256 candidates for the bachelor's degree and 43 special students; in the School of Business Economics 12 candidates for the bachelor's degree and 2 special students; in the afternoon and evening courses, including the College for Teachers, Evening Courses in Business Economics and the Night Courses in Technology 1627. In the Summer Courses of 1943 there were 220. Sixty-five students registered in more than one division.

There were three Fellows by Courtesy and five Doctors of the University in the School of Higher Studies of the Faculty of Philosophy and four post graduate students in the School of Medicine. The students came from 43 states, the District of Columbia, Puerto Rico, Canal Zone, Virgin Islands, Canada and 24 other countries.

Students enrolled in the Army Specialized Training program numbered 75 in area and language studies, 744 in basic and pre-professional curricula and 192 in medicine. Naval reservists in medicine numbered 95.

#### DEGREES CONFERRED \*

Degrees in course were granted to 354 persons (51 women); Bachelor of Arts 53; Bachelor of Engineering 96; Bachelor of Science in Engineering 3; Bachelor of Science in Economics 10; Bachelor of Science 42 (28 women); Master of Sanitary Engineering 1; Master of Science in Hygiene 3 (2 women); Master of Public Health 32 (4 women); Master of Arts 19 (5 women); Doctor of Engineering 3; Doctor of Science in Hygiene 3 (1 woman); Doctor of Public Health 3; Doctor of Medicine 74 (9 women); Doctor of Philosophy 12 (2 women).

#### SUMMARY OF THE FACULTY AND OFFICERS OF ADMINISTRATION

1943-1944

President and Professors . . . . .	60
Professors Emeriti . . . . .	27
Adjunct Professors . . . . .	3
Associate Professors . . . . .	89
Assistant Professors . . . . .	3
Associates . . . . .	146
Instructors . . . . .	205
Assistants . . . . .	104
Lecturers . . . . .	29
Additional Instructors in the Afternoon and Evening Courses and in the Summer Courses . . . . .	65
Members of Staff engaged primarily in Administrative Work . . . . .	11
Medical Fellows . . . . .	10
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	752

IRENE M. DAVIS,  
*Registrar.*

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\* A complete list of degree recipients appears on page 89.

## REPORT OF THE NIGHT COURSES IN TECHNOLOGY

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TO THE PRESIDENT OF THE UNIVERSITY:

The draft, overtime employment of technical staff and gasoline restrictions preventing automobile travel to evening classes, combined to further reduce attendance in the Night Courses in Technology. In 1943-1944 there were 653 students in 24 courses. While these operations resulted in a financial deficit, it was deemed expedient to offer the University's facilities to those serious students who were in attendance. At the end of the year 11 students graduated with a Bachelor of Science degree, one with honors, while 3 other students obtained the Bachelor of Science degree in one of the several Departments of Engineering.

A. G. CHRISTIE,  
*Director.*

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## REPORT OF THE DIRECTOR OF THE COLLEGE FOR TEACHERS

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### TO THE PRESIDENT OF THE UNIVERSITY:

The year 1943-44 was a satisfactory one. It is gratifying to report fine attendance in the courses designed for nurses who are graduates of accredited hospital training schools. A number of these students are well on their way toward the Bachelor of Science degree with a major in Nursing Education.

The activities of the Children's Educational Theater were expanded to include a workshop for producing marionette plays. Six dramatic performances were given by the children, one in the auditorium of the Baltimore Museum of Art. Fifty-five children were registered for the year's course.

The College for Teachers maintained approximately the same enrollment as that of the previous year. The personnel of the student body was as follows:

Of the 1086 registrants:

- 211 were teachers in public schools of the city and county.
- 20 were teachers in private schools
- 179 were members of the nursing profession
- 126 were students from other schools in the University, of which
  - 78 were students in the College of Arts and Sciences
  - 16 were in the School of Engineering
  - 3 were in the School of Business Economics
  - 24 were in the School of Higher Studies of the Faculty of Philosophy
  - 2 were in the School of Medicine
  - 1 was in the School of Hygiene and Public Health
  - 2 were graduate students in the School of Engineering
- 103 were students in the College for Teachers carrying full programs
- 66 were registered at other institutions of higher learning: (Peabody Conservatory, Maryland Institute, University of Maryland, Goucher College, etc.)
- 381 were representatives of a variety of occupations

Forty-two students were graduated receiving the degree of Bachelor of Science. The major subjects were as follows: engineering—10; English and music—7 each; education—6; mathematics—3; biology and history—2 each; business economics, chemistry, French, psychology, and sociology—1 each. Three students were graduated with honor: Melvin Seeman, Grace M. Williams, and Robert N. Youtz.

During the summer session of 1943, June 21-July 31, 243 students were enrolled. Fifty-seven of these were men and one hundred eighty-six women. The students enrolled were from eleven states, District of Columbia, Puerto Rico, in addition to Maryland and Baltimore city.

One of the most important phases of the summer session is the Demonstration School which offers bright children of Baltimore city an opportunity to take accelerated work and serves as a demonstration school for the students in the University. The school, because of the crowded conditions on the campus, was removed to Public School No. 44, the Montebello School, at Harford Road and Thirty-second Street.

FLORENCE E. BAMBERGER,  
*Director.*

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## REPORT OF THE DIRECTOR OF PHYSICAL EDUCATION

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### TO THE PRESIDENT OF THE UNIVERSITY:

The Department of Health and Physical Education has presented this year a varied program of activities to both civilian and army students. The program consisted of required classes in physical education, intramural and intercollegiate athletics, instruction in hygiene, health, and first aid, and dispensary and infirmary service. In the required physical education classes, the students were given some opportunity for a choice of activities, but by careful supervision of the choice, the staff prevented the selection of any program that was not varied and vigorous. The combination of the heavy program required of all students and our limited facilities necessitated the formation of large classes and made impossible the degree of individual attention considered ideal by the staff.

Both civilian and army students participated in intramural sports programs of an extensive nature. However, since the army students were prevented by government order from participating in intercollegiate sports and the civilian student body was considerably reduced in numbers, the intercollegiate program was not so large as in former years. In spite of these handicaps, full intercollegiate basketball and tennis schedules were carried through, and modified intercollegiate programs in soccer, cross country running, lacrosse, baseball, track, and golf were completed.

The students were heartened by the announcement that recreational facilities will be increased as soon as building is again possible.

The health of the student body remained good throughout the year, and athletic injuries were few. The student body as a whole, and the members of the athletic teams in particular, showed increasing willingness to seek medical, health, and hygienic advice, and we are continuing to offer dispensary services of a comprehensive nature.

G. WILSON SHAFFER,

*Director.*

## REPORT OF MILITARY SCIENCES AND TACTICS

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TO THE PRESIDENT OF THE UNIVERSITY:

The following is a report of the Department of Military Science and Tactics for the year 1943-1944:

In spite of a decrease in enrollment due to increased demands of the armed forces, the Reserve Officers' Training Corps had a very successful year and received a rating of Excellent following the annual War Department inspection on June 10, 1944.

Enrollment in the course at the end of the four (4) terms of the year was as follows:

<i>Date</i>	<i>Engineers</i>	<i>Infantry</i>
June 21-September 11, 1943.....	70	26
October 11-December 31, 1943.....	59	27
January 10-April 1, 1944.....	17	7
April 10-July 1, 1944.....	8	9

During the current year students qualified as follows for Officer Candidate Schools:

Armored Force.....	3
Chemical Warfare Service.....	3
Corps of Engineers.....	17
Infantry .....	27
Ordnance Department.....	1
Signal Corps.....	1
Tank Destroyer Command.....	1

To date the following appointments as Second Lieutenant have been made by the War Department to the above classes, with some classes still to graduate:

Army of the United States.....	1
Chemical Warfare Reserve.....	3
Corps of Engineers Reserve.....	4
Infantry Reserve.....	11
Signal Corps Reserve.....	1

Members of the First Year Advanced ROTC Course were ordered to active duty June 17, 1943, reporting to Fort Meade, Maryland. Upon completion of their basic training they were returned to this University and followed the curricula outlined by the War Department until the opening of their appropriate Officer Candidate Schools in February and March of 1944.

Changes affecting personnel during the year were as follows:

Lieutenant Colonel Harry M. Gwynn, Infantry, was promoted to the rank of Colonel in October of 1943.

Major Charles C. Reeder, Corps of Engineers (Hopkins '30) and Major Charles R. Pfeffer (Hopkins '31) were assigned to duty at Fort Belvoir, Virginia on February 15, 1944 and April 20, 1944, respectively. First Lieutenant Hollis B. Farnum, Infantry, reported for duty on April 10, 1944. Second Lieutenant John E. Glover, Infantry, reported for duty on July 3, 1943, relieved September 15, 1943. First Lieutenant William F. Harper reported for duty on September 15, 1943, relieved April 17, 1944. First Lieutenant Paul R. Batchelor, Infantry, assigned from Novem-

ber 1943 to April 1944 as combat instructor for the First Year Advanced Course ROTC Students. First Lieutenant Norman T. Woods, Infantry, assigned from December 1943 to April 1944.

Sergeant Charles E. Thrasher, Jr. was assigned to duty at The Johns Hopkins Medical School, relieved July 7, 1943. Private John M. Sturgis assigned July 7, 1943, relieved November 10, 1943. Corporal Edward H. O'Donnoghue promoted to the grade of sergeant November 6, 1943 and to staff sergeant January 25, 1944, Sergeant O'Donnoghue was transferred April 19, 1944. Corporal Sylvan Hack assigned April 10, 1944. Private Carroll W. Burruss promoted to the grade of sergeant January 25, 1944 and to staff sergeant June 1, 1944.

HARRY M. GWYNN,

*Colonel, Infantry,*

*Professor of Military Science and Tactics.*

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## REPORT ON THE SCHOOL OF BUSINESS ECONOMICS AND EVENING COURSES IN BUSINESS ECONOMICS

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### TO THE PRESIDENT OF THE UNIVERSITY:

With the bulk of the student body in the armed forces, the School of Business Economics has operated on a reduced scale during the year. Since the report a year ago, 10 students have received the degree B. S. in Economics.

On February 9, 1944, a committee was appointed to make a study of the School of Business Economics. This committee has met from time to time and its labors will continue for a considerable period. It is contemplated that, when its work is finished, every aspect of the School will have been examined carefully and that certain changes, designed better to enable the School to meet post-war needs, will be recommended.

Dr. James D. Scott is on leave, having taken a commission in the Navy. Dr. Carl T. Devine has been promoted to the rank of Associate Professor.

### EVENING COURSES IN BUSINESS ECONOMICS

For the past several years registration in the Evening Courses in Business Economics has declined due to demands of the military service and long working hours in war industry. The drop seems to be stabilized now, however, and an increase should be noted soon.

During the year 20 courses were offered; 250 students registered in single courses; 76 were registered in 2 courses; 43 were registered in 3 courses; and 7 were registered in more than 3 courses. There were 376 students in these courses; 274 of whom were men and 102 women.

Students came from 112 companies in and about Baltimore; from 18 agencies of the Federal Government and a number of state and city agencies.

HOWARD E. COOPER,

*Acting Director of the School of Business Economics,  
Director of the Evening Courses in Business Economics.*

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## REPORT OF THE JOHNS HOPKINS UNIVERSITY YOUNG MEN'S CHRISTIAN ASSOCIATION

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### TO THE PRESIDENT OF THE UNIVERSITY:

Business has not been "as usual" at the University Young Men's Christian Association during the year. The withdrawal of civilian student and faculty members to enter military service and the coming of the Army Specialized Training Unit completely changed our approach.

Levering Hall was put to hard use. One half of the Army unit used the former YMCA Cafeteria for messing facilities for nine months. Three to four dances were held each month for the soldiers. Jewish, Catholic and Protestant groups conducted 81 meetings. The Secretary and pastoral consultants met with 1424 individuals during the year. Ten free movies were provided the cadets by the YMCA. A Post Exchange called the servishop was set up to minister to the basic requirements of military life at wholesale prices. The cadets helped the planning of their own program through an elected ASTU Council. Over 60% of the soldiers were active members in the YMCA.

Civilian student activities continued under the guidance of an elected student Cabinet. Vesper services, dances, discussion groups, and other events were conducted. The library and other rooms were renovated because of the heavy use during the year. Books were made available in addition to the magazines in the library. The fountain shop served over 150,000 meals during the year as the only facility in Levering Hall, the Cafeteria having been closed to civilians. Over 1,050 different individuals were members of the YMCA during the year. Student activities continued their offices in Levering Hall. Forty-two different campus and YMCA groups met in the building.

Because of changed program and the instability of membership, the financial program of the YMCA has not been as stable as usual. However, with the help of the University and the Metropolitan YMCA, the program has continued to expand without undue financial hazards.

C. UMHAU WOLF,  
*Executive Secretary.*

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## DEGREES CONFERRED, JUNE 1943-JUNE 1944

### DEGREES IN COURSE

#### BACHELORS OF ARTS

Marvin Joseph Adelson, of New York.	Seymour Manuel Panitz, of Maryland.
John Hamilton Angell, of Maryland.	Stanley Panitz, of Maryland.
Charles Edward Beachley, Jr., of New Jersey.	David Lee Phillips, of Maryland.
Alfred Bishop Beers, III, of Connecticut.	Calvin Richard Putnam, of Maryland.
James Randall Cantrell, of Maryland.	E. Edmund Reutter, Jr., of Maryland.
John William Chambliss, of Maryland.	William Henry Robinson, of Maryland.
Robert William Chesney, of Maryland.	George Leon Rogosa, of Massachusetts.
Calvin M. Class, of Maryland.	Paul Richard Rosenbluth, of New York.
Irvin Cohen, of Maryland.	Leonard Francis Rosenzweig, of New York.
Leslie Cohen, of Maryland.	Leonard Milton Rothstein, of Maryland.
Charles Brandon Crow, Jr., of Alabama	Alvin David Rudo, of Maryland.
John Sebastian Derr, Jr., of Maryland.	Melvin Herman Sandler, of Maryland.
Russell Hilliard Dinerstein, of New York.	Henry Silberman, of Maryland.
Fitz Dodson, of Maryland.	Walton Eugene Stevens, of Maryland.
Richard Donald Eney, of Maryland.	Charles Wilbur Stewart, Jr., of Maryland.
Charles Feldman, of Maryland.	George William Sullivan, of Maryland.
Nathan Gerber, of Maryland.	Benson Ross Sundheim, of Maryland.
Abraham Goetz, of Maryland.	Harold Sussman, of Maryland.
Manfred E. Goldberg, of Maryland.	John Easter Sweeney, of Illinois.
Bernard Samuel Heringman, of Maryland.	Richard Foreman Tishman, of New York.
Harold Smith Kolmer, Jr., of Maryland.	Earl Usdin, of New York.
Edward Louis Kuff, of Maryland.	Oliver Parry Winslow, Jr., of Maryland.
Joseph David Lichtenberg, of Maryland.	James Reaney Wolfe, Jr., of Maryland.
Melville Gerson Magida, of New York.	John Thomas Wood, Jr., of Maryland.
James Everett Moxom, of Maryland.	Herbert Cecil Zafren, of Maryland.
John Patrick O'Ferrall, of Maryland.	Hyman Lee Zebest, of Maryland.
Lionel Judah Zheutlin, of New Jersey	(53)

#### GRADUATING WITH HONOR

Charles Edward Beachley, Jr.	Edward Louis Kuff
Fitz Dodson	E. Edmund Reutter, Jr.
	John Easter Sweeney

#### BACHELORS OF ENGINEERING

Sterling Augustus Alban, of Maryland.	James Russell Bosworth, of Maryland.
Robert Francis Awalt, of Maryland.	John Henry Buddemeyer, of Maryland.
Robert Joseph Bachman, of Maryland.	Leon Carton, of Maryland.
Seymour Baron, of Maryland.	Smedley Lee Craig, of Maryland.
Wilfred Edmund Baker, of Maryland.	James Bevans Crownover, of Maryland.
Robert William Beery, of Maryland.	Floyd LeRoy Culler, Jr., of Maryland.
Werner Wolf Beyth, of Maryland.	Delbert Maurice Davis, Jr., of Maryland.
Donald Lloyd Bix, of Maryland.	Robert Arthur Dodge, of Maryland.
John Revell Boone, of Maryland.	Herbert Evan Duquette, Jr., of Maryland.

Robert William Eby, of Maryland.  
Thomas Spicer Eichelberger, of Maryland.

Alan George Eisenberg, of Maryland.  
Arthur Abraham Eisenberg, of Maryland.  
William Walter Eitel, Jr., of Maryland.  
Vernon Robert Evans, of Maryland.  
Wayne Egbert Evans, of Maryland.  
John Marshall Farrier, of Virginia.  
John Henry Feldmann, Jr., of Maryland.  
Mannes Herman Fishel, of Maryland.  
Spencer Flournoy, of Connecticut.  
Robert Walter Gelinas, of Maryland.  
Mitchell Leon Gerber, of Maryland.  
Morris H. Geser, of Maryland.  
Irvin Glassman, of Maryland.  
Charles Herbert Grauling, Jr., of Maryland.

Alan Lee Greenblatt, of Maryland.  
Kenneth Holmes Grim, of Maryland.  
John Henry Gross, of Maryland.  
Thomas Archer Hays, V, of Maryland.  
Herman Carl Henschen, of Maryland.  
John Brooks Hildebrandt, of Maryland.  
Herbert William Hoffman, of Maryland.  
Gordon Monroe Holland, of Maryland.  
George Sims Jenkins, of Maryland.  
John Gilbert Kaisler, of Maryland.  
Joseph Patrick Kearns, Jr., of Maryland.  
James William Keenan, of Maryland.  
Earl William Keller, of Pennsylvania.  
Donald Edward Kelley, of Maryland.  
Keith Austin Kelly, of Maryland.  
William Henry Kirby, Jr., of Maryland.  
Jacob Klein, of Maryland.  
Harry Franklin Kohne, Jr., of Maryland.  
William Gerrit Kouwenhoven, of Maryland.  
Howard S. Kuehn, of Maryland.  
Harrison Ray Lambert, of Maryland.  
Richard Arthur Leonard, of Maryland.  
Seymour Arthur Levin, of New York.

Charles Jefferson Murphy, of Maryland.  
Morton Joseph Macks, of Maryland.  
Michael Nicholas Mallis, of Maryland.  
Joseph Charles Maloney, of Maryland.  
John Mattern, of Maryland.  
Albert James McCubbin, of Maryland.  
Lawrence Charles Middlekamp, of Maryland.

Francis James Moran, of Maryland.  
Charles Jefferson Murphy, of Maryland.  
Alton Bayne Neild, Jr., of Maryland.  
David Hyman Nelson, of Maryland.  
Johannes Saemundur Newton, of Iceland.  
Charles Stephen Perry, Jr., of Maryland.  
John Milton Price, of Maryland.  
John Walter Rach, of Maryland.  
Martin Henry Raila, of Maryland.  
Truman Charles Richard, of Maryland.  
John Carroll Roop, of Maryland.  
Leslie Irvin Royston, of Maryland.  
James Leroy Schad, of Maryland.  
Harold Bernard Schapiro, of Maryland.  
Chester Ralph Seese, of Maryland.  
Frank Shanty, of Maryland.  
Clarence Oscar Smeak, Jr., of Maryland.  
William Biser Smith, of Maryland.  
Joseph Thomas Stegmaier, of Maryland.  
John George Strauch, of Maryland.  
Edwin M. Talbott, Jr., of Maryland.  
Salvatore Leo Valenziano, of Maryland.  
Herman Block Wagner, of Maryland.  
Stafford Ray Wallace, Jr., of Maryland.  
George Carl Wiedersum, Jr., of Maryland.

Charles Wertz Wilhide, of Maryland.  
William Randall Wilson, of Maryland.  
John Henry Wolfe, Jr., of Maryland.  
Paul Dillon Wolfe, of Maryland.  
Lee Marc Gordon Wolman, of Maryland.  
Irvin Wolock, of Maryland.  
Marlin Ulrich Zimmerman, Jr., of Maryland.

(96)

## GRADUATING WITH HONOR

Robert William Beery  
Robert Walter Gelinas.  
Mitchell Leon Gerber.  
Charles Herbert Grauling, Jr.  
John Gilbert Kaisler.

William Gerrit Kouwenhoven.  
Herman Block Wagner.  
Paul Dillon Wolfe.  
Lee Marc Gordon Wolman  
Marlin Ulrich Zimmerman, Jr.

## BACHELORS OF SCIENCE IN ECONOMICS

Warren Thomas Alonso, of Maryland.  
Morton Hack, of Maryland.  
Charles John Hanzlik, Jr., of Maryland.  
David Abraham Ivry, of New York.  
Harry Baker Leopold, Jr., of Maryland.

Orlando Charles Miglioretti, of Maryland.  
Albert Gray Mitchell, Jr., of Maryland.  
Jacob Robert Schlenger, of Maryland.  
Joseph Ephraim Simon, of Maryland.  
Charles A. Wilson, Jr., of Maryland.

(10)



## BACHELORS OF SCIENCE

- Henry John Barten, of Maryland.  
 Shirley Gloria Berkowich, of Maryland.  
 Martha Virginia Carper, of Maryland.  
 Claudia Bellinger Didier, of Maryland.  
 Frank John Fico, of Maryland.  
 Hilda Mary Fowler, of Maryland.  
 Margaret Sophia Gareis, of Maryland.  
 Marie Louise Grove, of Maryland.  
 Thomas Marion Harrison, of Maryland.  
 Joseph John Heindl, Jr., of Maryland.  
 Estelle Hershberg, of Maryland.  
 Marie Louise Hoornbeek, of Maryland.  
 Henrietta Van Den Berg Hoffman, of Maryland.  
 Theresa Cecilia Jira, of Maryland.  
 Kathaleen Virginia Kennedy, of Maryland.  
 Frank George Koerber, of Maryland.  
 Miriam Esther Lederer, of Maryland.  
 Ruth Lester, of Maryland.  
 Sylvia Lichter, of Maryland.  
 Catherine Anne Logan, of Maryland.  
 James Willis Merritt, of Maryland.  
 Paul Phillip Miller, of Maryland.  
 Mary Elizabeth Murray, of Maryland.
- Anna Margaret Nagler, of Maryland.  
 George Lawrence Nastvogel, of Maryland.  
 Charlotte Audrey Schramm, of Maryland.  
 Iris Roberta Schroder, of West Virginia.  
 Melvin Seeman, of Maryland.  
 Mary Jean Sheppard, of Maryland.  
 Josephine Felter Shyers, of Maryland.  
 Marguerite Browning Smith, of Maryland.  
 Ferdinand Charles Strible, Jr., of Maryland.  
 Irvin Anthony Stricker, of Maryland.  
 Katherine Angela Templeton, of Maryland.  
 Harry Clifton Watts, Jr., of Maryland.  
 M. Genevieve Waters, of Maryland.  
 Mildred Hament Waxman, of Maryland.  
 Dorothy Justin Wells, of Maryland.  
 Herman John Wiesner, Jr., of Maryland.  
 Grace Marion Williams, of Maryland.  
 Elsa Violette Young, of Maryland.  
 Robert Newcomer Youtz, of Maryland.

(42)

## GRADUATING WITH HONOR

Melvin Seeman

Robert Newcomer Youtz

Grace Marion Williams

## BACHELORS OF SCIENCE IN ENGINEERING

- Charles Essig, Jr., of Maryland.  
 Robert Culbert Linthicum, of Maryland.  
 Arthur Walton Taylor, of Maryland

(3)

## MASTER OF SANITARY ENGINEERING

*With Title of Essay*

- Albert B. Kaltenbach, of Maryland, B. S., State College of New Mexico, 1939. The Effect of sewage treatment on Maryland streams.

(1)

## DOCTORS OF ENGINEERING

*With Titles of Dissertations*

- John Charles Geyer, of Maryland, B. S. in C. E., University of Michigan, 1931; M. S. in C. E., Harvard University, 1933. Sanitary Engineering. Ground water in the Baltimore industrial area.  
 John Matthias Kopper, of New Jersey, B. E., The Johns Hopkins University, 1933. Electrical Engineering. The electric strength of oil-impregnated paper.  
 Alfred Machis, of Maryland, B. E., The Johns Hopkins University, 1941. Civil Engineering. Grouting sands and gravels.

(3)

## MASTERS OF SCIENCE IN HYGIENE

*With Titles of Theses*

- Sui-fong Chen, of New York, B. A., George Washington University, 1936; M. A., 1938. Parasitology. Experimental Studies of Intercurrent Infections with *Nippostrongylus Muris* (Yokogawa 1920) *Strongyloides Hatti* Sandground 1925 and *Hymenolepsis Nana* Van, *Fraterna* Stiles, 1906.
- Janet Oakley Schoonmaker, of New York, A. B., Smith College, 1942. Biochemistry. Concerning the Possibilities of Separating Amino Acids by the Solvent Action of N-butyl Sulfonic Acid in 95% Acetone.
- Ruth Graeser Wittler, of Maryland, A. B., Oberlin College, 1940. Filterable Viruses. The Behavior of a Filterable Pneumotropic Agent Isolated from a Case of Type X Pneumonia.

(3)

## DOCTORS OF SCIENCE IN HYGIENE

*With Titles of Dissertations*

- Mary Catherine Cumberland, of New Jersey, B. A., Occidental College, 1941. Bacteriology. A Classification of the Actinomycetes and Related Branching Bacteria.
- Geoffrey Marron Jeffery, of Connecticut, B. A., Hobart College, 1940; M. A., Syracuse University, 1941. Parasitology. Investigation of the Factors Influencing the Mosquito Transmission of *Plasmodium Lophurae*.
- Robert Carlisle Rendtorff, of Michigan, A. B., University of Illinois, 1937; M. S., 1939. Parasitology. The Early Development of *Plasmodium Cathemerium*.

(3)

## MASTERS OF PUBLIC HEALTH

- Alberto Aguilar-Rivas, of El Salvador, B. en C. C. y L. L., Liceo San Luis, 1932; M. D., University of El Salvador, 1941.
- Philip Irving Boyd, of British West Indies, M. R. C. S. (Eng.), L. R. C. P. (London), 1935; M. B., B. S., University of London, 1935; M. D., University of London, 1937.
- Emilio Budnik-Boroda, of Chile, M. D., University of Chile, 1940.
- Gonzalo Cárdenas-Portilla, of Ecuador, M. D., Central University (Quito), 1941.
- Nunzio Joseph Carrozzo, of the District of Columbia, B. S., New York University, 1932; M. D., Long Island College of Medicine, 1936.
- Rafael Darricarrere Torbalay, of Chile, M. D., University of Chile, 1938.
- Horacio Eyzaguirre Iruici, of Chile, M. D., University of Chile, 1942.
- Martha Evelyn Finney, of Alabama, C. P. H. N., Vanderbilt University, 1935.
- Francis Eugene Gartrell, of Tennessee, B. S., Mississippi State College, 1933; M. S., Harvard University, 1935.
- James Anthony Gillett, of British Honduras, M. R. C. S. (Eng.), L. R. C. P. (London), 1941; D. T. M. and H., Edinburgh, 1942.
- Opal Cameron Hartline, of Illinois, B. S., McKendree College, 1925; M. S., University of Illinois, 1932; Ph. D., 1935.
- William Derrel Hazlehurst, of the District of Columbia, A. B., Vanderbilt University, 1935; M. D., 1938.
- Alfonso Herrera, of Chile, B. S., Colegio San Ignacio, 1925; C. E., Catholic University (Santiago), 1933.
- Abraham Horwitz B., of Chile, M. D., University of Chile, 1935.
- Clarence Kooiker, of the District of Columbia, B. S., B. M., University of Minnesota, 1936; M. D., 1937.
- Juan Lara Zepeda, of Honduras, B. A., B. S., José Trinidad Reyes College, 1930; M. D., Universidad Central de Honduras, 1942.
- John Luther Lincoln, of the District of Columbia, B. S., Bethany College, 1935; M. D., University of Buffalo, 1939.
- Milton López Henriquez, of Venezuela, M. D., Central University of Venezuela, 1939.
- Jessie Isabel Loucks, of Canada, R. N., Vancouver General Hospital, 1939;

- B. A. Sc. (Nursing), University of British Columbia, 1940.  
 Espartaco Oráa Domínguez, of Venezuela, M. D., University of Caracas, 1936.  
 Enrique Pereda Oviedo, of Chile, M. D., University of Chile, 1930.  
 Jose Perroni B., of Chile, M. D., University of Chile, 1938.  
 John Donaldson Porterfield, III, of the District of Columbia, B. S., University of Notre Dame, 1934; M. D., Rush Medical College, 1938.  
 Robert Tippet Potter, of the District of Columbia, B. A., University of Minnesota, 1936; M. B., 1939; M. D., 1940.  
 Ella Pendleton Tompkins Robeson, of New York, B. S., University of Virginia, 1930; M. D., Syracuse University, 1936.  
 Hernán San Martín, of Chile, M. D., University of Chile, 1941.  
 Milton Terris, of New York, A. B., Columbia University, 1935; M. D., New York University, 1939.  
 James Claude Thomson, of China, B. Sc., Rutgers University, 1910; M. Sc., 1911; M. A., Columbia University, 1916; Ph. D., 1933.  
 Daniel Urigüen Bravo, of Ecuador, B. Sc. e Lett., Colegio Vicente Rocafuerte, 1936; M. D., University of Guayaquil, 1943.  
 Jaime Velarde Thomé, of Mexico, M. D., University of Mexico, 1933.  
 Carlton H. Waters, of the District of Columbia, M. D., University of Buffalo, 1939.  
 Jorge Ernesto Zepeda, of Honduras, B. Sc. e Lett., Instituto Nacional, 1932; Pharm. D., University of Honduras, 1937; M. Sc., Philadelphia College of Pharmacy and Science, 1939.  
 (32)

## DOCTORS OF PUBLIC HEALTH

*With Titles of Theses*

- Paulo Cesar de Azevedo Antunes, of Brazil, B. Sc. e Lett., Sao Paulo Gymnasium, 1919; M. D., University of Sao Paulo, 1926; M. P. H., The Johns Hopkins University, 1942. Public Health Administration. Tuberculosis in the Eastern Health District during the Decade 1933-42. A mortality and morbidity study.  
 Edwin Gurney Clark, of Maryland, A. B., Vanderbilt University, 1927; M. D., 1931; C. P. H., The Johns Hopkins University, 1936. Biostatistics. Prevalence of Syphilis in the Eastern Health District in 1939.  
 Nobel W. Guthrie, of the District of Columbia, A. B., Hendrix College, 1931; M. D., University of Tennessee, 1934; M. P. H., The Johns Hopkins University, 1940. Venereal Diseases. Contact Investigation in Gonorrhea.  
 (3)

## DOCTORS OF MEDICINE

- Mason Cooke Andrews, of Virginia, A. B., Princeton University, 1940.  
 David Ballantine, of Massachusetts, A. B., Pomona College, 1940.  
 Annie Martha Bestebreurtje, of New York.  
 Ralph Chambers Bethea, of Mississippi, A. B., Mississippi College, 1940.  
 Samuel Paul West Black, of Tennessee, S. B., Yale University, 1940.  
 John Charles Bonnett, of Pennsylvania, S. B., Pennsylvania State College, 1940.  
 Joseph Edward Brumback, Jr., of Maryland, A. B., The Johns Hopkins University, 1940.  
 Jack Mehl Burnett, of Kansas, A. B., Kansas State Teachers College, 1935; M. S., 1936.  
 Thomas Laughlin Chiffelle, of Rhode Island, A. B., Brown University, 1940.  
 Elizabeth Conrad, of the District of Columbia, A. B., Duke University, 1940.  
 Armando Ralph Coppola, of New Jersey, A. B., Drew University, 1940.  
 Sally Louise Cornell, of New York, S. B., The Johns Hopkins University, 1940.  
 Marvin Hersch Davis, of Maryland, A. B., The Johns Hopkins University, 1940.  
 Laurie Craig Dickson, Jr., of North Carolina, A. B., The Johns Hopkins University, 1940.

- Robert Hugh Dion, of Montana, S. B., Harvard University, 1940.
- William Thomas Dixon, of Maryland, A. B., Princeton University, 1940.
- Reaumur Stearnes Donnally, of the District of Columbia, A. B., Harvard University, 1940.
- Robert Douglas Doty, of Tennessee, S. B., Davidson College, 1940.
- Averon Harold Eisenstein, of Illinois, A. B., University of Illinois, 1940.
- Robert Ennis Farber, of Maryland, A. B., Princeton University, 1940.
- Ellis Feer, of the District of Columbia, A. B., George Washington University, 1942.
- Eugenio Fernandez of Puerto Rico, S. B., University of Chicago, 1940.
- Cornelius Paul Frey, of New York, S. B., Columbia University, 1940.
- Bertram Ronald Girdany, of New York, A. B., Columbia University, 1939.
- Clifton Dancy Govan, Jr., of Oklahoma, A. B., University of Oklahoma, 1940.
- Glenn Pershing Grove, of Pennsylvania, A. B., The Johns Hopkins University, 1940.
- Hugh Johnson Hagan, Jr., of Virginia, S. B., Hampden-Sydney College, 1940.
- Jacob Charles Handelsman, of New Jersey, A. B., The Johns Hopkins University, 1940.
- Patricia Jane Harrison, of Maryland, A. B., Goucher College, 1940.
- Thomas Lees Hartman, of Texas, S. B., Muhlenberg College, 1936; M. A., University of Texas, 1938.
- George Joseph Hayes, of the District of Columbia, S. B., Catholic University of America, 1940.
- William Collier Helms, of Georgia, A. B., Emory University, 1940.
- Harry Vance Hendrick, of North Carolina, S. B., Davidson College, 1940.
- Lalla Iverson, of Florida, S. B., The Johns Hopkins University, 1940.
- Whedon Johnson, of Maryland, A. B., Harvard University, 1940.
- Benjamin Katzin, of Connecticut, S. B., Yale University, 1934; Ph. D., 1939.
- Thomas James Kennedy, Jr., of the District of Columbia, S. B., Catholic University of America, 1940.
- William Casper Kite, Jr., of Oklahoma, A. B., University of Oklahoma, 1941.
- Leonard Joel Koenig, of New York, A. B., The Johns Hopkins University, 1940.
- Harrison Latta, of California, A. B., University of California at Los Angeles, 1940.
- Marjorie Greta Lewisohn, of New York, A. B., University of Michigan, 1940.
- Lucius Rash Lindley, of Texas, A. B., University of Texas, 1940.
- Theodora Finney Lippitt, of Illinois, A. B., Vassar College, 1939.
- William Henry Lippitt, of North Carolina, A. B., Princeton University, 1939.
- Wilmer Newton Long, Jr., of Maryland, S. B., Juniata College, 1940.
- William Dawson Lynn, of Maryland, A. B., Princeton University, 1940.
- Samuel Dace McPherson, Jr., of North Carolina, A. B., University of North Carolina, 1940.
- Robert Charles Mellors, of Ohio, A. B., Western Reserve University, 1937; M. A., 1938; Ph. D., 1940.
- Robert Francis Minkus, of Delaware, A. B., The Johns Hopkins University, 1940.
- Roscoe Searls Mosiman, of Washington, A. B., Princeton University, 1940.
- J. Martin Myers, Jr., of Pennsylvania, A. B., Princeton University, 1940.
- Marvin Morton Nachlas, of Maryland, A. B., The Johns Hopkins University, 1940.
- John Jay Osborn, of New York, A. B., Princeton University, 1939.
- Elihu Paul O'Sullivan, of New Jersey, S. B., Mount Saint Mary's College, 1940.
- Genieann Parker Patton, of New York, A. B., Bryn Mawr College, 1940.
- James Mackay Paul, of Pennsylvania, S. B., Harvard University, 1940.
- Thomas Samuel Perrin, Jr., of South Carolina, S. B., Davidson College, 1940.
- Loring Whithee Pratt, of New Jersey, A. B., Middlebury College, 1940.
- Joseph Charles Presti, of Maryland, A. B., The Johns Hopkins University, 1940.
- Landrum Brewer Shettles, of Maryland, A. B., Mississippi College, 1933; M. S., University of New Mexico, 1934; Ph. D., The Johns Hopkins University, 1937.
- Thomas William Simpson, of Maryland, S. B., Southwestern College, 1940.
- John Heffron Sisson, of Massachusetts, A. B., Harvard University, 1940.
- Ernest Griggs Smith, Jr., of Massachusetts, A. B., Harvard University, 1940.

- Russell Thorn Snip, of Illinois, A. B., Kalamazoo College, 1940.
- William George Speed, III, of Maryland, S. B., Trinity College, 1940.
- Kenneth Sterling, of New York, A. B., Harvard University, 1940.
- Leland Douglas Stoddard, of Illinois, A. B., De Pauw University, 1940.
- William Marcellus Straight, of Florida, S. B., University of Florida, 1940.
- Mary Raymond Streeter, of Maryland, A. B., Vassar College, 1940.
- Hugh David Verner, of North Carolina, S. B., Davidson College, 1940.
- George Wingate Waring, Jr., of South Carolina, S. B., University of South Carolina, 1940.
- Alan Churchill Woods, Jr., of Maryland, A. B., Princeton University, 1940.
- Latimer Gorsuch Young, of Maryland, A. B., Washington and Lee University, 1940.
- Joseph James Zavertnik, of New Jersey, A. B., The Johns Hopkins University, 1940.

(74)

## MASTERS OF ARTS

*With Titles of Essays*

- Samuel G. Bourne, of New Jersey, B. S., Rutgers University, 1938. Mathematics. Anti-linear transformations in Hilbert Space.
- Emmett Loren Buble, of Illinois, A. B., The Johns Hopkins University, 1941. Chemistry.
- James Russell DeVore, of Pennsylvania, A. B., Pennsylvania State College, 1937. Physics. Measurements of the index of refraction of solid dielectrics.
- Jaime Fernandez-Concha, of Peru. Geology. The Geology and mercury deposits of the Terlingua District, Texas.
- Bryant Eugene Harrell, Jr., of Virginia, B. S., Randolph-Macon College, 1943. Chemistry.
- Edith G. Kern, of the District of Columbia, A. B., University of Maryland, 1941. Romance Languages. The Rojas Zorilla in French drama (1643-1702).
- Virginia Leslie Kyner, of Michigan, A. B., Smith College, 1942. Political Economy. Labor mobility and wage determination in a local labor market.
- Ellis Ridgeway Lippincott, Jr., of New Jersey, A. B., Earlham College, 1943. Chemistry.
- Annarie Jane Peters, of Ohio, A. B., College of Wooster, 1941. Archaeology and Art. Pre-Hellenic and Archaic Greek Propylaea.
- John David Reinheimer, of Ohio, A. B., Kenyon College, 1942. Chemistry.
- Mary Beck Sabine, of Maryland, B. S., The Johns Hopkins University, 1928. Education. Factors related to the withdrawal of non-failing pupils from the Forest Park High School 1942-43, Baltimore, Maryland.
- Sidney Joseph Socolar, of Maryland, A. B., The Johns Hopkins University, 1943. Chemistry.
- George Martin Sowers, of Connecticut, A. B., Wesleyan College, 1942. Geology. Structure and petrology of the Pre-Cambrian granites near Red Lodge, Montana.
- Cullen I. K. Story, of Texas. Oriental Seminary. The Book of Proverbs and northwest Semitic literature.
- Howard Pitner Thomas, Jr., of Pennsylvania, B. S. in Chem., Haverford College, 1939. Chemistry. Studies in physiology with radioactive iron—A Review.
- Ilza Veith, of Maryland. History. Englishman or Samurai: The Story of Will Adams.
- Aaron Wexler, of New York, B. S. in Chem., Polytechnic Institute of Brooklyn, 1942. Chemistry.
- Robert Walter Wynn, of Pennsylvania, A. B., Gettysburg College, 1943. Chemistry.
- Solomon Zwerdling, of New Jersey, A. B., Drew University, 1943. Chemistry.

(19)

## DOCTORS OF PHILOSOPHY

*With Titles of Dissertations*

- Raymond Tilton Davis, Jr., of New Jersey, B. S., Virginia Polytechnic Institute, 1940; M. S., 1941. Chemical Engineering. Activated adsorption of nitrogen on finely divided tungsten powder.
- Elmer Eisner, of New York, B. S., Brooklyn College, 1939. Physics. The optical evidence of physical changes in solids.
- Jefferson Merritt Hamilton, Jr., of Maryland, A. B., The Johns Hopkins University, 1940. Chemistry.
- Robert Mitchell Milton, of Michigan, A. B., Oberlin College, 1941; M. A., The Johns Hopkins University, 1943. Chemistry.
- Mark Nickerson, of Oregon, A. B., Linfield College, 1939; M. Sc., Brown University, 1941. Biology. The production of color pattern in plumage.
- George Russell Norman, of Indiana, A. B., Wabash College, 1940. Chemistry. Synthetic studies in the field of purine glycosides.
- Hazel Palmer, of Massachusetts, A. B., Radcliffe College, 1941; M. A., The Johns Hopkins University, 1943. Archaeology and Art. Italo-Corinthian pottery.
- John Hastings Patton, of Ohio, B. S., Muskingum College, 1934; B. D., Presbyterian Theological Seminary, 1941. Oriental Seminary. Canaanite parallels in the Book of Psalms.
- Elizabeth Marie Pope, of the District of Columbia, A. B., Bryn Mawr College, 1940. English. Paradise Regained: The Tradition and the poem.
- Sumner Barnes Twiss, of Connecticut, B. S., Trinity College, 1939. Chemistry. The polymerization of isoprene with alkali metallo-organic compounds.
- Melvin Ray Watson, of Virginia, A. B., University of Virginia, 1935; M. A., Louisiana State University, 1939. English. The Essay tradition and the magazine serials (1731-1820).
- Clifford E. Weber, of California, B. S., University of California, 1941. Chemistry.

(12)

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## CONTENTS

	PAGE
BOARD OF TRUSTEES	
COMMITTEES OF THE BOARD } .....Facing page	1
REPORT OF THE PRESIDENT.....	1
THE FACULTY OF PHILOSOPHY.....	16
Departmental Activities.....	16
Publications .....	25
REPORT OF THE DEAN OF THE COLLEGE OF ARTS AND SCIENCES.....	32
REPORT OF THE DEAN OF THE MEDICAL FACULTY.....	34
REPORT OF THE DEAN OF THE SCHOOL OF ENGINEERING.....	55
REPORT OF THE DEAN OF THE SCHOOL OF HYGIENE AND PUBLIC HEALTH	62
REPORT OF THE LIBRARIAN.....	69
REPORT OF THE LIBRARIAN OF THE WILLIAM H. WELCH MEDICAL LIBRARY	72
REPORT OF THE JOHNS HOPKINS PRESS.....	76
REPORT OF THE REGISTRAR.....	79
REPORT OF THE NIGHT COURSES IN TECHNOLOGY.....	82
REPORT OF THE DIRECTOR OF THE COLLEGE FOR TEACHERS.....	83
REPORT OF THE DIRECTOR OF PHYSICAL EDUCATION.....	84
REPORT OF MILITARY SCIENCE AND TACTICS.....	85
REPORT ON THE SCHOOL OF BUSINESS ECONOMICS AND EVENING COURSES IN BUSINESS ECONOMICS.....	87
REPORT OF THE JOHNS HOPKINS UNIVERSITY Y. M. C. A.....	88
DEGREES CONFERRED.....	89

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