

sideration to the existing situation through its Local Boards. In making their decisions as to deferment, the Local Boards should inquire whether the students who are matriculated in approved medical schools and the interns who are receiving training for a period not exceeding two years in approved hospitals are pursuing occupations which are essential to "the health, safety, or interest of the nation." In other words, as group deferment of medical students and interns is contrary to the spirit of the Selective Training and Service Act, the decision in each case should be weighed by consideration of national expediency, and for that the Local Boards have the necessary authority and responsibility under the law.

THE AMERICAN PHILOSOPHICAL SOCIETY

At the annual general meeting of the American Philosophical Society held in the Hall of the Society in Philadelphia on April 18, 19 and 20, officers re-elected were: *President*, Roland S. Morris; *Vice-presidents*, Edwin G. Conklin, William E. Lingelbach; *Secretary*, W. F. G. Swann, and *Curator*, Albert P. Brubaker; *Treasurer*, Fidelity-Philadelphia Trust Company. Dr. Frank Aydelotte, president of the Institute for Advanced Study at Princeton, was elected a vice-president and Dr. Benjamin D. Merritt, of the university, was elected one of the secretaries. Members elected to the council to serve for three years were: *Class I*, Herbert E. Ives; *Class II*, Ross G. Harrison; *Class III*, Joseph H. Willits, and *Class IV*, William Bell Dinsmoor.

The following thirty resident and eight foreign members were elected:

Mathematical and Physical Sciences—Class I: Griffith Conrad Evans, professor of mathematics, University of California; Henry Eyring, professor of chemistry, Princeton University; Louis Frederick Fieser, professor of organic chemistry, Harvard University; John Robert Kline, professor of mathematics, University of Pennsylvania; Isidor Isaac Rabi, professor of physics, Columbia University; John Torrence Tate, professor of physics, University of Minnesota; Theodor von Kármán, professor of aeronautics, California Institute of Technology.

Geological and Biological Sciences—Class II: Fay-Cooper Cole, professor of anthropology, University of Chicago; Evarts Ambrose Graham, professor of surgery,

School of Medicine of Washington University; Albert Baird Hastings, Hamilton Kuhn professor of biological chemistry, Harvard Medical School; Walter Samuel Hunter, professor of psychology, Brown University; Charles William Metz, professor of zoology, University of Pennsylvania; William Jacob Robbins, director of the New York Botanical Garden and professor of botany, Columbia University; Lewis John Stadler, professor of field crops, University of Missouri; William Hay Taliaferro, Eliakim H. Moore distinguished service professor of parasitology, University of Chicago.

Social Sciences—Class III: Robert Treat Crane, executive director, Social Science Research Council; Manley Ottmer Hudson, Bemis professor of international law, Harvard University; Lindsay Rogers, Burgess professor of public law, Columbia University; Arthur Meier Schlesinger, Francis Lee Higginson professor of history, Harvard University; Thomas Jefferson Wertenbaker, Edwards professor of American history, Princeton University; Leo Wolman, professor of economics, Columbia University.

Humanities—Class IV: Carl William Blegen, professor of classical archeology, University of Cincinnati; Howard Mumford Jones, professor of English, Harvard University; Alfred Louis Kroeber, professor of anthropology, University of California; Lewis Mumford, America, N. Y.; Marjorie Hope Nicolson, professor of English, Columbia University; Arthur Darby Nock, Frothingham professor of the history of religion, Harvard University; Ephraim Avigdor Speiser, professor of Semitics, University of Pennsylvania.

Council Nominees: Andrew Ellicott Douglass, director of the Steward Observatory, University of Arizona; George William McClelland, provost of the University of Pennsylvania.

Foreign: Ronald Aylmer Fisher, Galton professor of eugenics, University College, London; Ejnar Hertzsprung, director, Leiden Observatory; Theodor Svedberg, professor of physical chemistry, University of Uppsala; August Krogh, professor of zoophysiology, of the University of Copenhagen; Sir D'Arcy Wentworth Thompson, professor of natural history, University of St. Andrews; William E. Rappard, professor of political science, University of Geneva; Harold Idris Bell, honorary reader in papyrology, the University of Oxford; Arnold Joseph Toynbee, research professor of international history, University of London.

SCIENTIFIC NOTES AND NEWS

A BRONZE bust of Dr. Ernest E. Tyzzer, George Fabian professor of comparative pathology and professor of tropical medicine at the Harvard Medical School, was recently presented to Dr. Tyzzer to be placed in his department in recognition of his long service to the university. Dr. Cecil K. Drinker made the presentation at a luncheon given in his honor.

THE John Scott Medal and the sum of \$1,000, given by the City of Philadelphia for "outstanding

achievement in medical science," has been awarded to Dr. Owen H. Wangensteen, professor of surgery and head of the department of the Medical School of the University of Minnesota, in recognition of his work in the development of a suction siphonage treatment of acute intestinal obstruction.

At the recent meeting in Chicago of the American Institute of Nutrition, the Mead, Johnson and Company prize of \$1,000 for work on the vitamin B com-

plex was awarded to Dr. Roger J. Williams, professor of chemistry at the University of Texas, for his "outstanding work on the isolation and identification of pantothenic acid."

DURING his visit to England Dr. James Bryant Conant, president of Harvard University, was made freeman of Southwark, where John Harvard, founder of the university, was born, in recognition "of his eminent work as president of Harvard; his leadership in the United States of America in the cause of liberty and justice, and the invaluable assistance rendered by him to the British Empire while engaged in defending the cause of freedom."

DR. JAMES EDGAR PAULLIN, professor of clinical medicine at the School of Medicine of Emory University, was chosen president-elect of the American College of Physicians at the recent Boston meeting. He will succeed as president next year Dr. Roger I. Lee, who was inducted into office at Boston.

OFFICERS of the Michigan Academy of Arts and Letters have been elected as follows: *President*, Dr. Irving D. Scott; *Secretary*, Dr. Harry W. Hann; *Treasurer*, Dr. Mischa Titiev; *Editor*, Dr. William C. Steere; *Librarian*, Dr. W. W. Bishop, all of the University of Michigan. Professor Edward C. Prophet, of Michigan State College, has been elected *vice-president*.

THE following officers have been elected by the Royal Astronomical Society, London: *President*, Dr. Sydney Chapman, professor of mathematics at the Imperial College, South Kensington; *Vice-presidents*, Dr. David Brunt, professor of meteorology at the Imperial College; Sir James Jeans, professor of astronomy in the Royal Institution; The Rev. T. E. R. Phillips; Henry C. Plummer, professor of mathematics in the Military College of Science, Woolwich; *Treasurer*, J. H. Reynolds, ex-president of the society; *Secretaries*, D. H. Sadler, Dr. A. D. Thackeray; *Foreign Secretary*, Sir Arthur Eddington, Plumian professor of astronomy at the University of Cambridge.

THE retirement from active service is announced of Dr. Horace S. Uhler, professor of physics at Yale University, who has been connected with the university for thirty-four years.

ASSOCIATE PROFESSOR ERNEST GLEN WEAVER has been promoted to a full professorship of psychology at Princeton University.

DR. HARRY S. N. GREENE, of the Rockefeller Institute for Medical Research at Princeton, N. J., has been appointed professor of pathology and surgery at Yale University.

DR. ROBERT D. VOLD, Bristol-Myers post-doctorate

research fellow at Stanford University, has been appointed assistant professor of chemistry at the University of Southern California.

ANTIOCH COLLEGE announces the following changes in the department of chemistry for next year: Professor Austin M. Patterson, having reached the retirement age of sixty-five years, will become professor emeritus, retaining an informal connection with the college; Professor W. A. Hammond is giving up his course in industrial chemistry to devote his time to the manufacture of drierite; Professor C. S. Adams will resume the revolving chairmanship of the department; Dr. Robert N. Boyd is promoted to an assistant professorship, and Calvin Vander Werf, who is about to receive his doctor's degree from the Ohio State University, will become instructor.

THE title of professor of human and comparative anatomy was conferred upon Dr. A. J. E. Cave at a recent meeting of the Royal College of Surgeons, London.

SIR LAWRENCE BRAGG, Cavendish professor of experimental physics at the University of Cambridge, and Dr. Charles Darwin, director of the British National Physical Laboratory, recently left England for Canada. Sir Lawrence will work in Ottawa at the National Research Buildings in cooperation with Professor Fowler as liaison officer with Canadian scientific men. Dr. Darwin will work in Washington.

DR. D. MURRAY ANGEVINE, assistant professor of pathology at the School of Medicine of Cornell University, became on May 1 bacteriologist and pathologist at the Alfred I. du Pont Institute of the Nemours Foundation at Wilmington, Del. Other appointments that have been made recently include Dr. Lee E. Farr, associate in medicine at the Hospital of the Rockefeller Institute for Medical Research, New York City, as director of research and pediatrician-in-chief. He became at the same time visiting associate professor of pediatrics of the School of Medicine of the University of Pennsylvania. Dr. Douglas A. MacFadyen, associate in chemistry, also of the Rockefeller Hospital, was appointed chief of biochemistry, and has become associated with the University of Pennsylvania as visiting assistant professor of pediatrics.

DR. JACQUES ERRERA, Belgian chemist, formerly professor of physical chemistry at the University of Brussels, has been appointed manager of the Research and Control Division of Sidney Blumenthal and Company at Shelton, Conn.

DR. WILLIAM M. GERMAN, pathologist at the Good Samaritan Hospital, Cincinnati, sailed from New York on April 11 to conduct a three months' course in pathology at the University of Bogota, Colombia.

PROFESSOR L. G. ALLBAUGH, of the department of economics of Iowa State College, has been granted leave of absence for fifteen months. During this period he will be chief of the Section of Farm Management of the Farm Security Administration at Washington.

THE Christian A. Herter Lectures of the New York University College of Medicine were delivered on April 22 and 23 by Dr. Michael Heidelberger, associate professor of biochemistry at the College of Physicians and Surgeons, Columbia University. The subject of the lectures was: "Immunochemistry."

THE Edgar Fahs Smith Memorial Lecture of the department of chemistry and chemical engineering of the University of Pennsylvania will be delivered on the evening of May 23 by Dr. Arthur A. Blanchard, professor of inorganic chemistry at the Massachusetts Institute of Technology. He will speak on "The Metal Carbonyls."

DR. H. I. SCHLESINGER, professor of chemistry at the University of Chicago, will deliver on May 9 the John Howard Appleton lecture at Brown University on "New Developments in the Chemistry of the Hydrides of Boron." This is the second lecture in the series for the year 1940-41.

DR. OSCAR RIDDLE, of the department of genetics at Cold Spring Harbor, N. Y., of the Carnegie Institution of Washington, lectured on April 24 at the New York Academy of Medicine. His lecture was entitled "The Promise of Endocrinology."

THE Honors Day address of the New York State Veterinary College at Cornell University was given on the evening of March 17 by Dr. Thomas M. Rivers, director of the hospital of the Rockefeller Institute for Medical Research, New York City, who spoke on "The Romance of Viruses." This address was given at the annual dinner of the Cornell Junior Chapter of the American Veterinary Medical Association, an undergraduate organization. The prizes for the year which had been awarded by the faculty of the college were presented by the dean of the university faculty, Dr. Cornelius Betten.

DR. HAROLD G. MOULTON, president of the Brookings Institution, Washington, D. C., will give the Graduate School Convocation address at Brown University on June 14. His subject will be "Changing Economic Conditions."

A SYMPOSIUM of invited papers on nuclear energy sources in stars will be held on May 3 at the Washington meeting of the American Physical Society, under the sponsorship of Dr. George Gamow, professor of theoretical physics at the George Washington University, who will open and close the discussion. Other

speakers will be Drs. Hans A. Bethe, Edward Teller, R. E. Marshak and C. L. Critchfield.

BECAUSE of the urgent need for qualified persons to fill engineering positions in the National Defense program, the Civil Service Commission has found it necessary to announce a new engineer examination which includes all fields of engineering except chemical, metallurgical, marine and naval architecture. It is important that engineers know of the modified requirements of the new examination. The principal change from previous engineer examinations is the allowing of complete substitution of qualifying experience for the education lacking. Also, the age limit has been raised to sixty years.

THE eighth annual Metal Mining Convention and Exposition will be held at the Fairmont Hotel, San Francisco, from September 29 to October 2. A statement made by Julian D. Conover, secretary of the congress, reads: "This convention is of greater importance than ever before, coming, as it does, in the midst of the mining industry's strenuous effort to supply the basic sinews of national defense. The meeting will afford an opportunity to discuss the many new problems which have arisen in this critical period, to co-ordinate efforts for efficient maximum production, and to work out further plans for full cooperation in the defense program. Of special significance will be the manufacturers' exhibits of the latest developments in machinery and equipment to aid in present-day production problems."

At the three hundred and fifth meeting of the Washington Academy of Sciences on April 17 there was given a series of illustrated reports on various phases of the 1940 South American eclipse expedition sponsored by the National Geographic Society and the National Bureau of Standards. They were as follows: "The 1940 National Geographic Society—National Bureau of Standards Eclipse Expedition," by Irvine C. Gardner, National Bureau of Standards; "A Photographic Determination of the Time of Contact during a Total Solar Eclipse," by Paul A. McNally, S.J., Georgetown University; "The 1940 Flash Spectrum," by Carl C. Kiess, National Bureau of Standards; "Sky Brightness at Patos, Brazil, 1940," by Edward O. Hulburt, U. S. Naval Research Laboratory, and "Ionosphere Observations at the 1940 Eclipse," by Theodore R. Gilliland, National Bureau of Standards.

THE Zoological Society of San Diego announces that the trustees of the Ellen B. Scripps Foundation have allocated funds for the renewal of the two research fellowships initiated at the Biological Research Institute. The fellowships pay \$1,000 per annum for the pursuit of research on a full-time basis on some phase of animal biology. Since the Biological Re-

search Institute is not directly affiliated with any university, it is desirable that a recipient of a fellowship work under the department from which he applies. Only the thesis or dissertation requirements or parts thereof can be fulfilled at the Biological Research Institute. Preference will be given to advanced graduate students or those already having the degree of doctor of philosophy. Applications should be addressed to Dr. Charles R. Schroeder, Biological Research Institute, Balboa Park, San Diego, California, before May 15, 1941.

THE greater part of the Agricultural Engineering Building at Iowa State College was destroyed by fire on March 31. Much equipment was lost, but most of the records were saved. The Iowa General Assembly has appropriated \$125,000 for the replacement of the building.

ALPHA EPSILON DELTA, the national honorary pre-medical fraternity, installed its thirty-second chapter at the University of Detroit on March 8, when the Iota chapter of the Omega Beta Pi fraternity became the Michigan Alpha chapter with the induction of twenty students and two faculty members. Honorary members of the charter group are Professor Leo E. Buss, department of biology, and Dr. Robert C. Page, assistant medical director of the Standard Oil Company of New Jersey, who was formerly the national secretary of Omega Beta Pi. The installation dinner was held at the Webster Hall Hotel, with Dr. Maurice L. Moore, of the Medical Research Division of Sharp and Dohme, who is national secretary of the fraternity, as the installing officer. Following the dinner, Father John F. Quinn, dean of the College of Arts and Sciences of the University of Detroit, welcomed Alpha Epsilon Delta to the university and spoke on the problems of pre-medical education.

AT the request of the editors of *Nutrition Ab-*

tracts and Reviews, the American Institute of Nutrition has agreed to assume responsible leadership in the direction of continuing unbroken the service rendered by the journal. This involves the abstracting of pertinent material in European and other scientific journals which are not available in Great Britain at the present time. The list includes more than two hundred technological and scientific periodicals. Dr. Arthur H. Smith, of the College of Medicine of Wayne University, will act as the American editor and members of the American Institute of Nutrition, as well as others who are interested, will be asked to assist in preparing the abstracts.

THE centenary of the Royal Botanic Gardens, Kew, as a government institution occurred on April 1. The first director, Sir William Hooker, took office on April 1, 1841. The gardens had previously been the private property of the royal family. To mark the centenary the present director, Sir Arthur Hill, read a paper before the Linnean Society on April 3, giving an account of the work of the gardens during the last century.

ACCORDING to *Nature*, the Advisory Research Council of the British Chemical Society, in collaboration with the Association of British Chemical Manufacturers, is putting into operation a scheme for organizing the preparation of fine chemicals in Great Britain by part-time volunteer workers in the laboratories of universities, technical colleges and other institutions. Compounds so prepared must be required for work of national importance and be not available commercially, and the manufacturers of fine chemicals are themselves unable, or do not find it convenient, to meet the demands. It is intended that preparations should be carried out on a cost-price basis, which would include charges for materials, gas, electricity, etc., but not for the workers' services. No profits of any kind will be permitted.

DISCUSSION

THE RATE OF PERFORMANCE OF OSMOTIC WORK ON THE CHLORIDE ION DURING ACTIVE INTESTINAL ABSORPTION

THE rate of performance of osmotic work on the chloride ion during active intestinal absorption of chloride is given approximately by the equation,

$$dW/dt = (dn/dt)RT \ln(C_p/C), \quad (1)$$

where dW/dt is the rate of osmotic work, dn/dt the number of mols of chloride transferred from the intestinal lumen to the blood in unit time, R the gas constant, T the absolute temperature, C_p the plasma chloride concentration in M./l., and C the concentration of chloride in the intestinal lumen in M./l. If V is the volume of fluid in the intestine, $dn/dt = -d(CV)/dt$ and

$$dW/dt = -[d(CV)/dt]RT \ln(C_p/C). \quad (2)$$

Using the equations of Peters and Visscher¹ empirically to describe the course of active absorption under their conditions, we have

$$CV = C_0 V_0 (V/V_0)^{R_0/D}, \quad (3)$$

$$\text{and } V = V_0 - Dt, \quad (4)$$

where C_0 and V_0 are original values for concentration and volume, t time, and R_0 and D constants. From equations (3) and (4),

$$d(CV)/dt = -CR_0. \quad (5)$$

¹ H. C. Peters and M. B. Visscher, *Jour. Cell. and Comp. Physiol.*, 13: 51, 1939.