

F. E. SIMON, reader in thermodynamics in the University of Oxford; distinguished for the development of new methods of liquefying helium and for his studies of phenomena at the lowest temperatures yet attained.

H. G. THORNTON, head of the bacteriology department, Rothamsted Experimental Station; distinguished for his investigations in soil bacteriology and on the relations existing between nodule-forming bacteria and their leguminous hosts.

R. A. WATSON WATT, scientific adviser on telecommuni-

cations, Ministry of Aircraft Production, formerly superintendent, Radio Department, National Physical Laboratory; distinguished for his contributions to radio engineering, particularly in relation to aerial and marine navigation.

P. BRUCE WHITE, member of the scientific staff of the National Institute for Medical Research, Hampstead; distinguished for his fundamental studies of bacterial immunology, in particular of the antigenic constituents of members of the *Salmonella* group.

## SCIENTIFIC NOTES AND NEWS

DR. JAMES BRYANT CONANT, president of Harvard University, returned on April 15 after two months in England as head of the mission sent by President Roosevelt to make "first-hand observations of recent English scientific research and experience." While in England, he received the degree of doctor of science from the University of Oxford and was entertained at a luncheon given at Burlington House by the president and fellows of the Royal Society.

LAZARUS WHITE, president of Spencer, White and Prentiss, construction engineers of New York City, was presented with the 1941 Egleston Medal of the Columbia University Engineering Alumni Association at the seventieth annual dinner of the association held on April 17 at the Columbia University Club. The medal, "for distinguished engineering achievement," was presented by Felix E. Wormser, president of the association.

WILLIAM LOREN BATT, Philadelphia engineer, has been presented with the 1940 Henry Laurence Gantt Memorial Gold Medal for "distinguished and liberal-minded leadership in the art, science and philosophy of industrial management in both private and public affairs." The presentation was made at a dinner of the American Society of Mechanical Engineers, which was held on April 22 at the Engineers' Club of Philadelphia in conjunction with the two-day Management Conference on National Defense, sponsored jointly by the Management Division and the Philadelphia Section of the society. Dr. L. P. Alford, chairman of the Gantt Medal Board of Award, introduced Mr. Batt, and Dr. William A. Hanley, president of the American Society of Mechanical Engineers, made the presentation.

WASHINGTON UNIVERSITY, St. Louis, at a special convocation on April 9, commemorating the seventy-fifth anniversary of its Dental School, conferred the doctorate of science on Brigadier General L. C. Fairbank, Dental Corps, U. S. Army; Dr. Hermann Prinz, professor of materia medica and therapeutics, School of Dentistry, University of Pennsylvania; Dr. Isaac Schour, College of Dentistry, University of

Illinois; Dr. Philip Jay, School of Dentistry of the University of Michigan; Dr. Paul C. Kitchin, College of Dentistry of the Ohio State University; Dr. Alfred P. Rogers, Dental School, Harvard University, and Dr. Raymond C. Willett, of Peoria, Ill.

RAYMOND R. RIDGWAY, Niagara Falls, N. Y., has been elected president of the Electrochemical Society. The society has awarded the thirteenth Weston Fellowship of \$1,000 to Rodney E. Black, of Pawhuska, Okla., who is investigating the plating of molybdenum and tungsten alloys at the University of Wisconsin.

PROFESSOR GARDNER MURPHY, chairman of the department of psychology at the College of the City of New York, was elected president of the Eastern Psychological Association at the recent annual meeting held at Brooklyn College on April 18 and 19. He succeeds Dr. Walter S. Hunter, of Brown University.

DR. NATHAN SMITH DAVIS, III, was reelected president of the Chicago Academy of Sciences at the eighty-fourth annual meeting on April 14. Other officers were elected as follows: Tappan Gregory, *first vice-president*; Dr. Verne O. Graham, *second vice-president*, and Alton S. Windsor, *secretary*. John Nash Ott, Jr., was elected a *member of the Board of Trustees*; Dr. Charles A. Shull, of the University of Chicago, and Dr. L. Hanford Tiffany, of Northwestern University, were elected to the *Board of Scientific Governors*. The speaker of the evening, Dr. A. C. Ivy, professor of physiology and pharmacology at Northwestern University Medical School, was elected an honorary member of the academy. Dr. Ivy's address was entitled, "The Gastrointestinal Hormones and Their Uses."

OFFICERS of the Wildlife Society elected for 1941 are: *President*, Richard Gerstell, chief of the Division of Propagation and Research of the Pennsylvania Game Commission, Harrisburg; *Vice-president*, Walter P. Taylor, leader of the Texas Cooperative Wildlife Research Unit, College Station, Texas; *Treasurer*, Lee E. Yeager, of the Illinois Natural History Survey, and *Secretary* (reelected), Frank C. Edminster, chief

of the Regional Biology Division of the Soil Conservation Service, Upper Darby, Pa.

At a recent meeting of the Vermont Club of the Society of the Sigma Xi, Professor Paul A. Moody, of the department of zoology of the University of Vermont, was elected president; Professor H. B. Pierce, of the department of biochemistry of the College of Medicine, was elected vice-president, and Professor H. G. Millington, of the College of Engineering, secretary-treasurer.

THE centenary of the Chemical Society, London, occurred on March 30. The hundredth annual general meeting was held on April 3, when Professor J. C. Philip was elected president. The address of Sir Robert Robinson, the retiring president, was on the mechanism of the benzidine rearrangement.

DR. ALEXANDER KLEMIN has been appointed Guggenheim research professor of aeronautics at New York University, and Charles H. Colvin, acting chief of the instruments division of the U. S. Weather Bureau, director of the Daniel Guggenheim School of Aeronautics in the College of Engineering. Dr. Klemmin, who has been in charge of the Guggenheim School since its founding in 1925, was appointed to the newly established professorship at his own request so that he might devote his time to research and teaching rather than to administrative affairs. He will direct research in aeronautics in the fields of theoretical analysis and synthesis.

DR. ELLEN C. POTTER, medical director of the New Jersey Department of Institutions and formerly Pennsylvania State Secretary of Welfare, has been elected to succeed Dr. Chevalier Jackson as president of the Woman's Medical College of Pennsylvania.

DR. LEE R. DICE, director of the Laboratory of Vertebrate Genetics of the University of Michigan, has been made head of the newly established department of human heredity. This department will conduct in the University Hospital a clinic on heredity, the first to be established in America.

IN the issue of April 11 Dr. Charles H. Behre, Jr., is referred to as chairman of the department of geology and geography of Northwestern University. Professor J. T. Stark succeeded him as chairman in 1937.

DR. J. M. YOFFEY, lecturer in anatomy at the University College of South Wales and Monmouthshire, has been appointed to the chair of anatomy in the University of Bristol in succession to Professor S. E. Whitnall, who retires at the end of the current session.

DR. J. H. GRAY, since 1937 senior demonstrator in anatomy at University College, London, has been appointed, from May 1, to the chair of anatomy tenable

at St. Mary's Hospital Medical School at the University of London.

DR. ROBERT E. DOHERTY, president and previously dean of the School of Engineering of the Carnegie Institute of Technology, has assumed office as chairman of the Production Planning Board of the Office of Production Management of which he has been a member, to succeed Samuel R. Fuller, Jr., who recently has been made chief of the Materials Branch of the Office of Production Management.

THE *News Edition* of the American Chemical Society states that Dr. Ralph H. Manley has resigned his position as assistant director of the Armour Research Foundation, Chicago, to become senior chemist in the oil and protein division at the Northern Regional Research Laboratory of the Department of Agriculture at Peoria, Ill.

J. ROBERT COFFMAN, research associate in biochemistry at the University of Chicago, has joined the staff of the Division of Chemistry of the Armour Research Foundation at Chicago, to conduct research on industrial utilization of grain proteins.

ACCORDING to *Popular Astronomy*, Dr. Y. C. Chang, who took his doctor's degree at the University of Chicago in 1929 for work done at the Yerkes Observatory, has been appointed director of the Institute of Astronomy, Academia Sinica, Kunming (Yunnan), China, to succeed Dr. C. S. Yu.

DR. ALBERT W. C. T. HERRE, of the Museum of Natural History of Stanford University, has returned after an absence of eleven months spent in studying the fisheries and collecting cold-blooded vertebrates in the Philippines, Malaya and India.

DR. GEORGE W. CORNER, director of the department of embryology of the Carnegie Institution of Washington, returned to his laboratory in Baltimore on April 7 from South America. Besides participating in the Second Pan-American Congress of Endocrinology, held at Montevideo, Uruguay, from March 5 to 8, he lectured at Montevideo; at Buenos Aires, Rosario and Cordoba, Argentina, and at São Paulo, Brazil.

THE Rice Institute lectures of Professor Edwin G. Conklin, of Princeton University, originally scheduled for March 5, 6 and 7, will be delivered on May 6, 7 and 8, under the auspices of the Sharp Foundation of the institute. Dr. Conklin's general subject is "What is Man?" and the subjects of the several lectures are "The Human Species," "The Development of the Individual" and "The Real and the Ideal."

DR. PERRIN H. LONG, of the Johns Hopkins University, delivered on March 29 a lecture before the Utah Chapter of the Sigma Xi on "Recent Advances

in Bacterial Chemotherapy with Special Reference to the Mode of Action of Sulfanilamide and Its Derivatives." This was the fourth in a series of lectures delivered before the Utah Chapter during the present year. The other speakers and their subjects were: "Europe on the Nazi Forge," by Dr. Ralph V. Chamberlin, head of the department of biology of the University of Utah; "Significance of the Human Blood Groups," by Professor R. Ruggles Gates, of the University of London, and "Industrial Fatigue," by Dr. Winifred C. Cullis, professor of physiology, University of London.

PROFESSOR R. RUGGLES GATES delivered a Schiff Foundation lecture at Cornell University on April 9, his subject being "Some Recent Aspects of Human Genetics." On April 10 he spoke before the seminar in cytology on "The Phylogenetic Significance of Satellite Chromosomes and Nucleoli."

DR. ERNST TH. VON BRUECKE, formerly professor of physiology in the University of Innsbruck, was the guest of the University of Oregon during the week of April 4 to 11. He lectured before the Sigma Xi on "Fatigue and Recovery in Peripheral Nerves" and before the faculty on "Physiological Tendencies to Stabilize the Appearance of the Environment."

THE position of assistant curator of mammals at a salary of \$3,200 a year is open in the United States National Museum, a part of the Smithsonian Institution. The United States Civil Service Commission has announced an examination to fill this and other similar positions. Competitors will not have to take a written test but will be rated on their education and experience. Applications must be filed at the Washington office of the commission not later than May 14.

THE American Association for the Study of Allergy will hold its annual meeting on June 2 and 3 at the Hotel Cleveland, Cleveland, Ohio.

THE American Association of Museums meets at Columbus, Ohio, on May 15 and 16. There will be luncheons, an excursion and a full program. On the second day the meeting will be held at the Ohio State Museum, closing with the thirty-sixth annual dinner.

THE New York Branch of the American Association of Scientific Workers will hold a symposium on "Scientific Method and Its Social Relations" on Wednesday, May 7, at 8 P.M., at Columbia University. The symposium will present the results of studies made by the committee on the social functions of science, of which Dr. Alexander Sandow, of New York University, is chairman.

THE annual meeting of the North Eastern District of the American Institute of Electrical Engineers will be held at Rochester, N. Y., from April 30 to May 2,

with headquarters at the Sagamore Hotel. There will be technical sessions, inspection trips, entertainment and special features. Four sessions will be devoted to the presentation of technical papers; the fifth session will include addresses by well-known speakers. In two other sessions, papers will be presented by students. An informal banquet will be held on the evening of May 1 at the Rochester Club. Addresses will be made by R. W. Sorensen, president of the institute, and Dr. Alan Valentine, president of the University of Rochester. Everett S. Lee, vice-president of the North Eastern District, will act as toastmaster.

THE sixteenth annual meeting of the Eastern Section of the Seismological Society of America will be held jointly with the Section of Seismology of the American Geophysical Union on May 1 and 2. The session of May 1 will be in the National Academy and Research Council Building, Washington, D. C., and that of May 2 at Georgetown University. The program will include a symposium on "The Vertical Seismograph" and discussions of "The Strong Motion Work of the U. S. Coast and Geodetic Survey," "Local Earthquakes" and "Interpretation of Records of Earthquakes at Epicentral Distances of about Twenty Degrees." Further information may be obtained from the secretary, William A. Lynch, Fordham University.

THE Conference on Methods in Philosophy and the Sciences will hold its regular spring symposium this year on Sunday, April 27, at the New School for Social Research, New York City. The subject of the conference will be "The Personal, Social and Scientific Significance of Differences in Philosophical Method." The participants include Professor Brand Blanshard, Swarthmore College; Professor Irwin Edman, Columbia University; Dr. Max Horkheimer, Institute of Social Research, and Professor Jacques Maritain, Paris Catholic Institute.

CEREMONIES for the dedication of the new library building of the School of Medicine of Yale University will be held on the afternoon of Sunday, June 15. The exercises will take place in the building itself, with addresses by distinguished practitioners and scholars in medicine. The committee in charge of the dedication ceremonies consists of Dean Francis G. Blake; Dr. S. Bayne-Jones, formerly dean of the school; Dr. John F. Fulton, Sterling professor of physiology, and Dr. George H. Smith, research associate in anatomy. Funds for the construction of the new library were made available from the estate of John W. Sterling, graduate of Yale in the class of 1864. The building, constructed as an extension to the Sterling Hall of Medicine, is designed in the shape of a Y, with one wing devoted to the general medical library and one wing devoted to the historical library.

THE New York Academy of Sciences has announced prize contests for 1941. The A. Cressy Morrison Prizes in Natural Science of \$200 each will be awarded to a member of the academy or one of the affiliated societies, for the two most acceptable papers in a field of science covered by the academy or an affiliated society. In accordance with the terms of a bequest made by the late George Frederick Kunz, the accumulated annual income of the sum of \$1,000 is offered at intervals by the council of the academy for a paper

by a member of the academy in the field of geology and mineralogy. The prize, amounting to \$200, is now offered for the first time. These prizes will be presented at the annual dinner in December.

ACCORDING to the *British Medical Journal* the Rockefeller Foundation has agreed to continue until the end of 1941 its grant of £1,200 a year for research in cellular physiology at the Molteno Institute under the direction of Professor David Keilin, Quick professor of biology at the University of Cambridge.

## DISCUSSION

### PHYSICISTS NEEDED FOR NATIONAL DEFENSE WORK

#### MATHEMATICS, THE BOTTLENECK FOR PHYSICISTS

THE U. S. Civil Service Commission<sup>1</sup> recently called attention to the fact that we haven't in this country a sufficient number of trained physicists to carry on with our defense program and at the same time keep our educational institutions and industrial research laboratories going with proper personnel.

We are asking ourselves why more men are not going on into advanced work in physics after completing their college course. Many of our graduates are capable of doing advanced work if they cared to do so.

After 35 years of teaching I am personally convinced that the outstanding restraint to a larger election of physics as a life work is due to the fact that for the average undergraduate no practical and fruitful results follow from a study of mathematics and physics. Mathematics (the sine qua non for physics) and physics too are exacting beyond all compromise. "They involve a degree of coercion and constraint which is beyond the power of any teacher to fully mitigate," unless the student feels that he is getting something practical and worth while. If in the technique of mathematics and physics a student sees the tools wherewith he can tackle unknown problems (the research method<sup>2</sup>) he will go to any length to master the same. The subjects will then become challenging to an individual with red corpuscles and the intestinal stamina to work.

Let us examine this common ground between mathematics and physics and which will be presently true of chemistry and eventually of biology. In the teaching of first-year college physics I am confronted year after year with the inability of my students to do the simplest kinds of ordinary algebraic transformations. Ordinary proportions appear to them to have nothing to do with chemistry and physics. If shown the expression:

<sup>1</sup> *Jour. Applied Physics*, 12: 127, 1941.

<sup>2</sup> S. R. Williams, *School Science and Mathematics*, 29: October, 1929.

$$a : b = c : d$$

they would say it was a proportion and would say with a little prodding that

$$\frac{a}{a+b} = \frac{c}{c+d}$$

was a case of proportion transformed by composition. Suppose, however, we give these students the following problem:

Two spheres are charged with a combined charge of 15 esu. If the radii of the two spheres are 10 and 20 centimeters, respectively, what is the charge on each sphere when put to a common potential by touching one sphere to the other? If they have studied the basic equation for static electricity,  $C = Q/V$ , they would go so far as to say that at the common potential,  $V$ , the two spheres would have the relation:

$$V = \frac{Q_1}{C_1} = \frac{Q_2}{C_2}$$

and

$$\frac{Q_1}{Q_2} = \frac{C_1}{C_2}$$

or since the capacitance of a sphere is numerically equal to the radius of the sphere we may write

$$\frac{Q_1}{Q_2} = \frac{r_1}{r_2}$$

There they would stick. They might suggest that they had two simultaneous equations:

$$\frac{Q_1}{Q_2} = \frac{1}{2}$$

and

$$Q_1 + Q_2 = 15$$

It would seldom occur to the average student of physics that

$$\frac{Q_1}{Q_1 + Q_2} = \frac{r_1}{r_1 + r_2} = \frac{10}{30} = \frac{Q_1}{15}$$

and, therefore,  $Q_1 = 5$  esu, while  $Q_2 = 10$  esu.

Students will tell you that

$$y = mx$$

is the equation for a straight line, but seldom can they tell you what sort of a curve the velocity of a falling body would give when plotted against time of falling, as in the equation,  $v = at$ .