

served as chairman of the Pittsburgh Section of the American Chemical Society, as its councilor, as vice chairman of the Division of Industrial and Engineering Chemistry. He has been president of the American Institute of Chemical Engineers, as well as a director of that organization. He has been active in the Society of Chemical Industry, the Electrochemical Society, is a member of the Franklin Institute, the Faraday Society, various academies and similar organizations, including a number overseas. While for some years he has, of course, been fully engaged in matters of organization and the advance of the institute of which he is the director, he formerly had a special interest in heat insulation materials, hydrometallurgy, camphor and epinephrine. More recently his specialty has been industrial research methodology.

FRANK C. WHITMORE, 47, dean of the School of Chemistry and Physics, Pennsylvania College, since 1929. He graduated from Harvard University in 1911, took his

A.M. in 1912 and his Ph.D. in 1914. He has been a member of the faculty at Williams College, Rice Institute, the University of Minnesota and Northwestern University, where he was head of the department from 1925 until 1929. Dr. Whitmore has been active in many scientific fields. He has served as chairman of the Division of Chemistry and Chemical Technology of the National Research Council and as a member of other divisions of that organization. He was a consultant of the Bureau of Chemistry and Soils and of the Chemical Warfare Service. He has found time to assist a number of publication enterprises, including the Encyclopedia Britannica and Organic Syntheses. He was a councilor of the International Chemical Union in 1931, is a member of a number of important chemical organizations, and has been devoted to the interests of the American Chemical Society. He has served as councilor of the Chicago Section, councilor-at-large, secretary and chairman of the Division of Organic Chemistry, and is now a director of the society.

SCIENTIFIC NOTES AND NEWS

BRITISH birthday honors conferred on December 3 include knighthood on Dr. Charles Vernon Boys, physicist, the Imperial College, London; Dr. Edward Bagnall Poulton, Hope professor of zoology at the University of Oxford; Dr. John Boyd Orr, director of the Rowett Institute for Research in Animal Nutrition, Aberdeen, and Professor Walter Langdon Brown, of St. Bartholomew's Hospital, London. Sir Holburt Jacob Waring, president of the Royal College of Surgeons, is advanced to a baronetcy. Dr. John S. Plaskett, director of the Dominion Astrophysical Observatory, Victoria, B. C., is made commander of the Order of the British Empire.

At the annual meeting of the British Mathematical Association, which was held in London on January 7 and 8, under the presidency of A. W. Siddons, the following were nominated for election as honorary members: Professor E. Borel, of the University of Paris; Professor G. H. Hardy, of the University of Cambridge; Professor David Eugene Smith, of Columbia University, and Professor E. T. Whittaker, of the University of Edinburgh.

DR. A. HAMILTON RICE, professor of geographical exploration and honorary curator of South American archeology and ethnology at Harvard University and president of the French Institute in the United States, has received the cross of the Legion of Honor from the French Government in recognition of his services for France during the war and his activities in the field of science.

A PORTRAIT of Dr. Charles H. LaWall, dean of the Philadelphia College of Pharmacy and Science, was presented to the college on December 5, by the artist,

Leon A. Spielman, a graduate of the school and a practicing pharmacist.

DR. WILLIAM H. PARK, head of the Bureau of Laboratories of the New York City Health Department, observed his seventy-first birthday on December 30.

IN recognition of his work in soil science, the jubilee of Professor W. R. Williams, of the Timiriaseff Agricultural Academy at Moscow, was celebrated on December 20 by the Academy of Agricultural Science at Leningrad.

THE Karl Sudhoff medal has been awarded by the German Society of the History of Medicine, Natural Sciences and Technique to Professor T. Györy, professor of the history of medicine in the University of Budapest.

THE degree of doctor *honoris causa* of the University of Paris was recently conferred on M. C. E. Guillaume, director of the International Bureau of Weights and Measures at Sèvres.

ACCORDING to *Nature*, Sir Arthur Evans, at a meeting of friends and colleagues on December 17 held at the Society of Antiquaries, was presented with a portrait bust of himself in marble in recognition of his services to archeology, and in commemoration of the completion, in a fourth and final volume, of his work on the excavation of the Minoan site of Knossos in Crete. The bust is the work of Mr. David Evans, a former Rome scholar in sculpture. It represents Sir Arthur in academic robes and wearing the medal of the Society of Antiquaries, of which he was the first recipient. Lord Rennell presided, and Professor

R. M. Dawkins recounted the more notable achievements of Sir Arthur's career.

FRIEDRICH PASCHEN, the German spectroscopist, will celebrate his seventieth birthday on January 24. A correspondent writes: "Professor Paschen has spent most of his scientific life in Tübingen, where he became the teacher of numerous outstanding spectroscopists throughout the world. In 1925, he became president of the Physikalisch Technische Reichsanstalt. Paschen's infra-red hydrogen series, his discovery of the relativistic hyperfine structure of the hydrogen lines, his magnetic transformation effect in collaboration with Back, and his studies on the complex spectra of helium and other rare gases laid the background for the great development of the atomic theory from Niels Bohr to Sommerfeld, Landé, Goudsmit, Uhlenbeck, and others. His relativistic H-lines became one of the most convincing proofs of Einstein's theory. It may be mentioned, also, that Pauli found his exclusion principle working late one night in Tübingen after a careful study of one of Paschen's spectra. In 1933 Dr. Paschen retired from his office to devote himself to his favorite spectroscopic problems."

THE Botanical Society of America, at its twentieth annual meeting in Pittsburgh on December 27, 28 and 29, elected as corresponding members the following botanists: Sir David Prain, lately director of the Royal Botanic Gardens, Kew; Dr. G. Haberlandt, emeritus professor of botany, University of Berlin, and Dr. Alvar Palmgren, professor of botany, University of Helsinki. The following officers were elected: *President*, Dr. Aven Nelson, University of Wyoming; *Vice-president*, Dr. K. M. Wiegand, Cornell University. Other officers of the society are: *Secretary*, Loren C. Petry, Cornell University; *Treasurer*, H. A. Gleason, the New York Botanical Garden. Officers of the sections of the society, elected or announced at the same meeting, are: *Physiological Section*, *Chairman*, S. H. Eckerson, Boyce Thompson Institute; *Secretary*, E. F. Hopkins, Cornell University; *Systematic Section*, *Chairman*, J. M. Greenman, Missouri Botanical Garden.

THE American Anthropological Association at its annual meeting at Pittsburgh elected the following officers: *President*, Robert H. Lowie, University of California; *First Vice-president*, Nels C. Nelson, American Museum of Natural History; *Second Vice-president*, Matthew Stirling, Bureau of American Ethnology; *Secretary*, John M. Cooper, Catholic University of America; *Treasurer*, C. B. Osgood, Yale University; *Editor*, Leslie Spier, Yale University; *Associate Editors*, C. B. Osgood, Yale University; Frank G. Speck, University of Pennsylvania; F. H.

H. Roberts, Jr., Bureau of American Ethnology; M. J. Herskovits, Northwestern University; *Executive Committee*, W. D. Wallis, University of Minnesota; Fay-Cooper Cole, University of Chicago; Carl E. Guthe, University of Michigan.

AT the annual meeting of the Association for Research in Nervous and Mental Diseases, Dr. Edwin G. Zabriskie, of the Neurological Institute of New York, was elected president to succeed Dr. Lewellys F. Barker, of the Johns Hopkins University Hospital. Dr. Charles H. Frazier, of University Hospital, Philadelphia, was elected first vice-president; Dr. Thomas K. Davis, second vice-president; Dr. Angus M. Frantz, secretary-treasurer, and Dr. Clarence C. Hare, assistant secretary.

THE Royal Astronomical Society of Canada elected officers for 1935 at the annual meeting held at the University of Toronto on January 8. The Honorable Dr. Leonard J. Simpson, minister of education for Ontario, was elected honorary president. Dr. Lachlan Gilchrist, professor of geophysics in the University of Toronto, was returned to the president's chair for a second term. Vice-presidents elected were: Dr. Ralph E. DeLury, Dominion Observatory, Ottawa, and Dr. J. A. Pearce, Dominion Astrophysical Observatory, Victoria. R. A. Gray, Toronto, was reelected general secretary and librarian, and J. H. Horning, general treasurer.

Nature reports that Sir Isidore Salmon, chairman and managing director of Messrs. J. Lyons and Company, Ltd., has been elected president of the British Decimal Association, in succession to Lord Hirst.

DR. MACGREGOR SKENE, reader in botany at the University of Bristol, has been appointed Melville Wills professor of botany in succession to the late Professor O. V. Darbishire.

DR. HUGH C. MCPHEE, who has been in charge of investigations in genetics in the division of animal husbandry of the Bureau of Animal Industry, U. S. Department of Agriculture, for the past eight years, has been appointed chief of the division.

DR. RICHARD P. STRONG, professor of tropical medicine at the Harvard Medical School, has been named a member of the board of trustees of the Carnegie Institution of Washington.

DR. JOHN M. T. FINNEY, professor emeritus of surgery of the Johns Hopkins University School of Medicine, has been appointed a consultant to the Baltimore City Health Department.

THOMAS ROWATT has been appointed director of the Royal Scottish Museum, Edinburgh, in succession to the late E. Ward.

DR. JOHN BURDON SANDERSON HALDANE, professor of genetics in the University of London, arrived in New York on January 1. He will give series of lectures at Columbia University, at the New School for Social Research, and in Chicago. The general subject of these lectures will be "The Popularization of Human Biology."

THE fourth Harvey Lecture will be given by Dr. Alfred N. Richards, professor of pharmacology at the University of Pennsylvania, on "Processes of Urine Formation in the Amphibian Kidney" at the New York Academy of Medicine on January 17 at 8:30 P. M. The fifth lecture, on February 2, will be given by Dr. E. C. Dodds, director of the Courthauld Biochemical Laboratory of the Middlesex Hospital, London, on "Specificity in Relation to Hormone and Other Biological Reactions."

DR. CHAUNCEY D. LEAKE, professor of pharmacology of the Medical School of the University of California, delivered the annual Phi Beta Pi Lecture on November 6 at the School of Medicine of Vanderbilt University.

DR. HARLOW SHAPLEY, Paine professor of practical astronomy and director of the Harvard College Observatory, spoke at recent meetings of the Harvard Club of Lowell, the Harvard Club of Cleveland and the Harvard Club of New York City. Dr. Edwin B. Wilson, professor of vital statistics at the Harvard School of Public Health, also spoke at the Cleveland meeting. On January 12, Professor Shapley will deliver a public address in Milwaukee, under the auspices of the local Harvard Club, and on January 14 will address a meeting of the Harvard Club of Chicago.

DURING the week of December 10 Professor R. Adams Dutcher, of the department of agricultural and biological chemistry of the Pennsylvania State College, addressed sections of the American Chemical Society at Dayton and Cincinnati, Ohio; Lafayette and Indianapolis, Indiana, and Lexington, Kentucky. His lectures dealt with "Some Impressions of Biochemical Research Work in Germany and Neighboring Countries."

DR. LACHLAN GILCHRIST, professor of geophysics in the University of Toronto, will deliver the presidential address before the annual conversazione of the Royal Astronomical Society of Canada which will be held in the McLennan Physics Laboratory of the university on Tuesday evening, January 15. He will speak on "Physics in the Service of Astronomy." At the same meeting experiments demonstrating the use of physics in astronomical fields will be conducted by Dr. R. K. Young, of the Dunlap Observatory, and

members of the staff of the departments of physics and astronomy of the University of Toronto.

THE first International Congress on Gastro-Enterology is being planned for August 8, 9 and 10, at Brussels, Belgium, under the presidency of Dr. J. Schoemaker, The Hague. The secretary general is Dr. George Brohee, Rue de la Concorde, 64, Brussels. Dr. Max Einhorn, New York, is forming an American committee, of which he is chairman and Dr. DeWitt Stetten, New York, secretary.

THE tenth International Congress of the History of Medicine will be held at Madrid from September 23 to 29, under the presidency of Professor Gregor Marañon.

As previously announced, the fifteenth International Physiological Congress will take place in Leningrad and Moscow from August 9 to 17, under the presidency of Professor Ivan P. Pavlov. A reception will be held in Leningrad on the evening of August 8, to be followed by plenary and sectional meetings during the next eight days. On the night of August 16 members will travel to Moscow where, on the following day, further plenary and scientific sessions will be held and also the closing assembly of the congress. The Soviet committee in connection with Intourist Company, the travel company of the U. S. S. R., has arranged to provide transportation, meals and lodging in the Soviet Union at considerably reduced rates to members of the congress. All applicants from the United States and Canada are requested to communicate with the Arrangements Committee of the Fifteenth International Physiological Congress, in care of Intourist, Inc., 545 Fifth Avenue, New York, N. Y., for a booklet giving details of the arrangements and the various tours, costs, etc., and an application blank. All persons, other than members of the Federation of American Societies of Experimental Biology, interested in attending the congress as members, will be passed for eligibility after their applications have been submitted to the arrangements committee. Approved delegates will receive an admission card to the congress together with the Intourist travel orders. Those accepted as members of the congress will be entitled to special rates. Others wishing to attend as observers may do so by purchasing regular Intourist services, information concerning which may be obtained from local travel agents.

THE seventy-fifth anniversary of the foundation of the Liverpool Geological Society, as reported in *Nature*, was marked by a scientific conversazione, under the presidency of Dr. R. G. Wills, held on December 11 in the department of geology of the University of Liverpool. The assembly commenced with the reading of the minutes of the first ordinary meeting of the

society in 1859, after which the society's Medal was presented to Mr. Emil Montag, Swiss consul in Liverpool, for services rendered to the society during his twenty-four years' active membership, his editorship, his contributions to British and Swiss geology and his work in providing facilities for study in Switzerland. Professor H. H. Read, Herdman professor of geology in the University of Liverpool, vice-president of the society, then delivered a short lecture on earthquakes, followed by a demonstration of the university seismograph. Dr. E. Neaverson lectured on paleontological exhibits, and there was a demonstration of rock-cutting and of new maps. Amongst the exhibits was a collection of fossils, new instruments and minerals, the latter including specimens of two new British minerals recently found in Scotland; chondrodite, found in association with metamorphic limestone, and stichite, found in association with ultra-basic rocks.

LEGISLATION to enable the dairy industry of California to make and enforce marketing agreements in

the state, is to be proposed in the forthcoming session of the legislature by the Dairy Control Legislative Committee, of which W. J. Kuhrt, of Los Angeles, is chairman. To prepare the proposed laws, an advisory drafting committee has been named, with F. H. Abbott, of the dairy industry division of the University of California at the Branch of the College of Agriculture, as chairman. Other members of the committee are: A. A. Brock, director of the State Department of Agriculture; F. T. Robson, chairman of the California Farm Bureau Dairy Department; G. E. Gordon, dairy specialist of the University's Agricultural Extension Service; M. R. Benedict, acting director of the Gianini Foundation of the College of Agriculture; J. H. Kagler, of the California Milk Institute; Stewart Westover, of the Evaporated Milk Agreement, and J. W. Pauluchi, dairy producer. The bill will be prepared in two parts, one covering market milk and the second covering the various other dairy products. It will be based on consumers' areas, rather than on production.

DISCUSSION

THE NATURE OF ENZYMES

I AM obliged to Professor James B. Sumner¹ for concluding his criticism of my note on "Enzymes, Vitamins, and the Zone of Maximum Colloidalilty"² with reference to the subsequent paper of H. Theorell,³ for this is confirmation and extension of the experimental evidence (though Dr. Sumner says none exists) favoring the possibility (suggested by me but considered improbable by Dr. Sumner) that excessive kinetic activity might be a factor in reducing enzyme efficiency. Those familiar with the ultra-microscopic behavior of particles of colloidal dimensions (including enzymes) realize that when flavine/protein complexes are split, the higher particulate activity of the fragments might be a factor tending to reduction of enzymic action. This does not, of course, exclude the operation of other factors which I mentioned as basic, *e.g.*, the annihilation of, or unfavorable orientation of specific electronic areas.

Similar failure to understand physico-chemical factors appears in Dr. Sumner's attack⁴ on the carrier or *Träger* theory of Willstätter. Deprecating the analogy drawn by Waldschmidt-Leitz⁵ between "one of our best known proteins, namely hemoglobin," and catalase, Dr. Sumner states: "If the carrier acted merely as a protective colloid, then hematin suspended in almost any lyophylic colloid should possess high catalase activity; such, however, is not the case."

Here Dr. Sumner has bludgeoned a straw man and shown himself oblivious to the vital factor of molecular orientation, developed in the researches of W. B. Hardy, I. Langmuir, W. D. Harkins, N. K. Adam and many others.⁶ It is well known that many colloidal protectors inhibit catalytic action. Only such carriers can be effective as hold a prosthetic group in proper orientation, and/or serve to form or complete a specific electronic area.

Willstätter⁷ has recently proposed the term "*symplex*" for compounds where high-molecular substances are bound by residual valencies—*e.g.*, a prosthetic group and a high-molecular carrier. Symplexes are distinguished from mere mixtures by one or more of the following characteristics: (1) alteration or enhancement of specific reactivity of one component; (2) change in solubility or dispersion of one component; (3) change in optical properties; (4) change in stability; (5) change in toxicity; (6) change in reactions, *e.g.*, color reactions. Among the symplexes discussed are enzyme compounds with substrates, activators, inhibitors and adsorbents; toxin-antitoxin; hemoglobin; and O. Warburg's oxidation enzyme (which was considered by Theorell⁸ and by me.²

⁶ Early in this century Devaux (see review in Smithsonian Annual Reports, 1913) showed that if a lens of fatty acid is allowed to chill on water and is then carefully dried, the air/acid interface repels water, whereas the water/acid interface can be wetted.

⁷ Willstätter and Rohdewald, *Zeits. physiol. Chem.*, 225: 103-24, 1934. G. Bredig (*Biochem. Zeit.*, 250: 414, 1932), by adding amino groups to fibers (cellulose, wool, silk), produced catalysts which split off CO₂ from bromocamphocarboxylic acid.

¹ SCIENCE, 80: 429, 1934.

² SCIENCE, 80: 79, 1934.

³ *Biochem. Zeit.*, 272: 155, 1934.

⁴ SCIENCE, 78: 335, 1933.

⁵ SCIENCE, 78: 189, 1933.