AWARD OF THE DAVY MEDAL OF THE ROYAL SOCIETY TO DR. DAKIN

AT the anniversary meeting of the Royal Society at Burlington House on December 1, the Davy Medal was presented to Dr. Henry Drysdale Dakin, of Scarsborough, New York. Sir Henry Dale in making the presentation spoke as follows:

Dakin began his researches in the field of biochemistry early in the present century. At that time, in comparison with knowledge of the end-products of metabolism, relatively little was known about the chemical activities of the living cells of the animal body. His work has made very important additions to knowledge of the intermediary changes produced by these activities, and also of the chemical structure of natural components of the tissues.

One side of Dakin's work has dealt with enzymes of the animal organs. He was the first to show that such an enzyme will attack at different rates the two optical isomers in a racemic mixture. With Kossel he discovered the enzyme arginase, with its important rôle in the production of urea from arginine. Later he discovered the enzyme glyoxalase, the wide distribution of which in the tissues must indicate some important though still undefined function in carbohydrate metabolism.

In connection with the intermediary metabolism of fatty acids, Dakin produced the first convincing evidence of oxidation at the β-carbon atom as the first stage of their utilization by the body, and showed that this type of oxidation can even be reproduced *in vitro* by the action of hydrogen peroxide.

Dakin's work on the chemistry of the proteins has included a method of partial racemization, bringing subtle differences of molecular pattern into view, which could be related to specific antigenic differences. He also introduced a method of separation which enabled new hydroxy-amino acids to be recognized, and raised much nearer to unity the proportion of a protein molecule accounted for as known amino-acids. At a wide interval of years, Dakin has made two notable contributions to the chemistry of hormones. In 1905, he was responsible for the first published artificial synthesis of a hormone, adrenaline. In 1936 he described the isolation from liver of a substance which is, at least, a principal factor in the important effect of liver extracts on pernicious anemia.

Working in France during the War of 1914–18, Dakin introduced the use of a buffered hypochlorite solution for irrigating infected wounds. Later, on a ship bringing the sick and wounded from Gallipoli, he made a similar solution by direct electrolysis of sea-water. Another war is reviving the use of such preparations to meet the same and other needs.

Though Dakin has worked in a private laboratory, with but rare collaboration and no pupils, his work has exercised a wide and powerful influence on the growth of biochemistry and on the strengthening of its links with organic chemistry.

SCIENTIFIC NOTES AND NEWS

THE Charles Reid Barnes life membership of the American Society of Plant Physiologists has been awarded to Dr. Benjamin M. Duggar, of the University of Wisconsin, "in recognition of his outstanding contributions in the field of plant physiology." The award was presented at the annual dinner held during the eighteenth annual meeting of the society at Dallas.

THE Thomas Burr Osborne Medal in cereal chemistry of the American Association of Cereal Chemists has been awarded to Dr. Ross Aiken Gortner, chief of the division of biochemistry of the University of Minnesota, "for distinguished services in conducting research and training students." The medal will be presented at the annual meeting of the association next May.

DR. G. MARSHALL KAY, assistant professor of geology, Columbia University, has been awarded the George Frederick Kunz Prize for 1941 of the New York Academy of Sciences for his paper on the "Development of the Northern Allegheny Synclinorium and Adjoining Regions." Dr. Otto H. Haas, research associate in paleontology at the American Museum of Natural History, will receive one of the A. Cressy Morrison prizes of $200 for his paper, "The Vernay Collection of Cretaceous (Albian) Ammonites from Angola."

THE Atwood award of $500 for research in physical geography was granted to Dr. George B. Cressey, chairman of the department of geology and geography at Syracuse University, at the annual meeting of the Association of American Geographers in New York City. Dr. Cressey's project calls for a study of land forms in New York State, and is the outgrowth of a National Research Council Committee working on larger aspects of the problem.

The News Edition of the American Chemical Society states that Dr. Fritz Hofmann, director of the Silesian Institute for Coal Research, has received the Goethe Medal for Arts and Sciences in recognition of research relating to production of synthetic rubber.

DR. GARY N. CALKINS, professor emeritus of protozoology at Columbia University, was recently honored by his former graduate students. A representative group, headed by Professor L. L. Woodruff, of Yale University, made a surprise visit to his Scarsdale home to present gifts and greetings. One of the gifts was a handsomely bound volume of letters containing

expressions of high regard and affection from students, associates and numerous friends.

DR. CHARLES P. OLIVIER, professor of astronomy at the University of Pennsylvania and director of the Flower Observatory, succeeds Dr. George Rosengarten as president of the Rittenhouse Astronomical Society. The address as retiring president of Dr. Rosengarten was entitled "Galileo, Scientist and Man," commemorating the three-hundredth anniversary of Galileo's death.

DR. FRANCIS O. SCHMITT, professor of biology at the Massachusetts Institute of Technology, has been appointed head of the department of biology and biological engineering. The courses in public health, hitherto given in this department, will be continued under the administration of a separate department in charge of Dr. Clair E. Turner, professor of biology and public health. Dr. Schmitt, whose appointment becomes effective next July, will succeed Dr. Samuel C. Prescott, who will retire next June.

AT the School of Biological Sciences of the University of Tennessee, Dr. Kendall B. Corbin, head of the department of microscopic anatomy, succeeds the late Dr. August H. Wittenborg as chief of the division of anatomy. Dr. Corbin continues as professor of microscopic anatomy. Dr. Arthur P. Richardson, assistant professor of pharmacology at Stanford University, has been appointed associate professor of pharmacology and head of the department of pharmacology. Dr. Samuel B. Barker, research fellow in medicine at Cornell University Medical College, has been appointed instructor in the department of physiology.

C. BERTRAND SCHULTZ, since 1927 a member of the Nebraska State Museum, University of Nebraska, and since 1938 assistant director, has been appointed director, succeeding Erwin H. Barbour.

DR. JOHN E. ANDERSON, director of the child welfare institute, University of Minnesota, has been appointed chairman of the Minnesota committee of the White House Conference on Children in a Democracy.

Museum News reports that J. Eric Thompson, of the staff of the Carnegie Institution of Washington, has been given an honorary appointment as research associate in Middle American archeology by the Field Museum of Natural History.

THE Society for Research on Meteorites has appointed Henry W. Nichols, chief curator of geology of the Field Museum, Chicago, as a member of the Committee on Legal Ownership of Meteorites and of the Committee on Terminology.

DR. MAX LEVINE, professor of bacteriology in Iowa State College and major in the Sanitary Corps, has been called to service with the second medical laboratory of the third army, at Fort Sam Houston, Texas.

DR. ANTOINE M. GAUDIN, Richards professor of mineral dressing at the Massachusetts Institute of Technology; Dr. William H. Hobbs, professor emeritus in the department of geology, University of Michigan, and Dr. Francis A. Thomson, president of the Montana School of Mines, Butte, have been appointed delegates from the Carnegie Endowment for International Peace to the first Pan American Congress of Mining Engineering and Geology, which meets at Santiago, Chile, from January 15 to 24. Dr. Hobbs is the only one of the delegates who is in attendance. The congress was organized by the Institute of Mining Engineers of Chile under official auspices by decree of the government of Chile, and the South American Union of Engineers.

PROFESSOR D. L. HOLL, of the department of mathematics of Iowa State College, gave a series of lectures at Brown University from January 6 to 8 on the energy theory of thin plates.

DEAN GEORGE F. KAY, formerly head of the department of geology of the State University of Iowa and Iowa state geologist, will deliver the Bownocker lectures of the Ohio State University on January 21 and 22. Dean Kay will give two lectures in the department of geology and one before Sigma Xi. The titles are: Ancient dust storms—the loesses, Duration of the glacial period and the Glacial period in Iowa.

DR. FRANK H. JOHNSON, professor of microbiology at Princeton University, gave on January 6 a lecture on "A Common Mechanism in the Biological Effects of Temperature, Pressure and Narcosis" before the Sigma Xi Club of North Carolina State College. For the work described in this paper, Dr. Johnson and his associates received the $1,000 award of the American Association for the Advancement of Science.

THE thirteenth spring meeting of the American Society for Testing Materials and the society's committee week will be held in Cleveland, from March 2 to 6, inclusive, with all sessions at the Hotel Cleveland.

THE annual meeting of the Federation of American Societies for Experimental Biology will be held at Boston from April 1 to 6. At the Chicago meetings, the proposal to publish a Federation Proceedings was ratified and its quarterly publication will commence in 1942. The March issue (1942) will contain the abstracts of papers for all societies and will replace the usual preprints. Two subsequent issues will be devoted to joint session and symposium papers, and the December issue will replace the present yearbook. The Control Committee consists of W. O. Fenn, *chair-*

man, Philip Bard, C. G. King, Morton McCutcheon, C. F. Schmidt, A. H. Smith and D. R. Hooker, managing editor.

THE British Association of Scientific Workers held a conference in London on January 10 and 11 on "Science and the War Effort." There were sessions on food and agriculture, building, housing and air raid protection, training of technical personnel, science in the services and industrial production. Dennis P. Riley, foreign relations officer, reports that there will be a broadcast to the United States by some of the participants in the conference on Saturday, January 17. He also states that "Science and the World Order," a Penguin volume, will be issued shortly. The book is an outgrowth of the deliberations and discussions of the British Association conference of September, 1941.

A SYMPOSIUM on Viscosity, Molecular Size and Molecular Shape will be held on February 20 under the sponsorship of the American Society of Rheology at the Polytechnic Institute of Brooklyn. M. L. Huggins, of the Eastman Kodak research department, will make an address on "Theoretical Fundaments Concerning the Connection between Viscosity, Molecular Size and Molecular Shape." This will be followed by a discussion. In the afternoon Dr. M. A. Lauffer, of the Rockefeller Institute for Medical Research, Princeton, N. J., will speak on "Experimental Methods and Facts."

THE formal celebration of the fiftieth anniversary of Drexel Institute of Technology, Philadelphia, planned for the spring of 1942, has been postponed. It has been decided to cancel further plans owing to the present war crisis.

A NEW laboratory to be used for pathology and research in ophthalmology has been opened at the University of California. Dr. Michael J. Hogan, of San Francisco, has been made director of the new unit. The laboratory was made possible by a fund of $70,000, known as the Charles Taylor Reeves Foundation, the income from which is to be used in the study of diseases of the eye. The building was made possible by a gift from Mrs. E. S. Heller.

DR. ALLEN T. NEWMAN, dean of the New York University College of Dentistry, has announced that because of the pressing need for specialists in dental reconstruction and rehabilitation, the College of Dentistry of New York University has established a comprehensive graduate program for the training of clinical and research workers.

A CARD index of x-ray diffraction data for use in the Hanawalt Method of Chemical Analysis by X-ray Diffraction has been published by the American Society for Testing Materials. The data include not only Hanawalt's original published data, with his later corrections, but also additional data that have been contributed by Hanawalt, by the Aluminum Company of America and the New Jersey Zinc Company, together with data taken from the technical literature of the English language. It has been assembled by a joint committee of the National Research Council and the American Society for Testing Materials, the personnel of which is made up of members of the Committee on X-ray and Electron Diffraction of the Division of Chemistry and Chemical Technology of the National Research Council and representatives from the Committee on Chemical Analysis of Metals and the Subcommittees on Metallography and Radiographic Testing.

BEGINNING with Volume 3, 1942, the name of the "Bibliography of Pharmacology" will be changed to the "Bibliography of Pharmacology and Chemotherapy." No change in scope is contemplated; "chemotherapy" is added only to make the title more accurately descriptive. The field of the bibliography is defined as: "A reference list of current American and foreign literature relating to the action of known chemical compounds (natural or synthetic) on animal organisms and to therapeutic use of such compounds, including clinical investigations but not including routine clinical and case reports." Requests for more information or for a specimen page may be addressed to the Hooker Scientific Library, Central College, Fayette, Mo.

Nature states that, according to the annual report for 1939 of the Public Health Commission in India, the outstanding feature in that year was the large decrease in the incidence of cholera. Whereas in 1938 deaths from the disease in the Punjab numbered 5,670, in 1939 they were only 19. Improved sanitation of the villages and towns through which pilgrims pass is the most effective method of prevention, but is a slow process, and in the meantime the best practical method is anti-cholera inoculation, its compulsory enforcement being the best practical measure. Of the annual six million deaths in India a fifth or a quarter is attributed to malaria, to outbreaks of which India is everywhere subject, except in areas 5,000 feet above sea-level and a few widely separated regions. In the large cities such as Bombay and Delhi control measures are being successfully carried out, but rural malaria is a difficult problem. The general policy of provincial authorities is to provide an adequate supply of quinine or cinchona febrifuge to popularize the use of these drugs and to provide for their distribution by traveling dispensaries. The greatest source of danger from yellow fever lies in the air-traffic passing

through infected areas in Africa. Under government rules any person who has been in a yellow fever area is forbidden to enter British India until nine days after exposure, unless he has been inoculated or is protected by a previous attack.

THE U. S. Civil Service Commission has announced examinations for "Junior Professional Assistant and Student Aid" designed to recruit college graduates and junior and senior students for positions in the government service. Optional branches include (all in the junior grade at $2,000 a year): agricultural economist, agronomist, aquatic biologist, archivist, bacteriologist, biologist, chemist, entomologist, forester, geologist, junior in household equipment, olericulturist, pomologist, public welfare assistant, range conservationist, soil scientist, State Department assistant and statistician. A four-year college course leading to a bachelor's degree is required, with major graduate or undergraduate study in the field of the optional subject. Senior or graduate students may be admitted to the examination, and may, upon attaining eligibility, receive provisional appointment, but can not enter on duty until evidence of the successful completion of the required college course is furnished. Applicants must not have passed their thirty-fifth birthday. Student aid positions pay $1,440 a year. Usually employment is during the school vacation periods; when furloughed, appointees may return to their college studies. Applicants for these positions must not have passed their thirteith birthday. Applications for both these examinations must be on file with the Washington office not later than February 3.

DISCUSSION

CONTINENTAL DRIFT AND PLANT DISTRIBUTION

NORTH AMERICA and Eurasia, which comprise the major part of the earth's land surface, lie entirely within the Northern Hemisphere, and it is evident that the two continents have always been more or less intimately connected. This is shown especially in the marked similarity of the vegetation, particularly in the higher latitudes.

There are many identical or closely related species throughout the Arctic and subarctic zones, including species of pines, spruces, firs and some other conifers, as well as some deciduous trees, and shrubs like the birches and willows. Further south, in the more temperate latitudes, such common deciduous trees as oaks, chestnuts, beech, maples, elms and others are much the same, in North America and Eurasia.

The greater part of North America is north of the Tropic of Capricorn and extends beyond the Arctic Circle. Practically the whole of the United States is within the "temperate" zone. Except for the Pacific Coast and the Gulf States the climate is a pronounced continental one, with wide range of temperature between summer and winter; and for the most part, winter is a season of almost complete cessation of active vegetation.

The southern continents, South America, Africa and Australia, are separated by the great oceans, nevertheless they have much in common in their vegetation, indicating some former land connections.

The major parts of South America and Africa lie within the Tropics. The southernmost point of South America, Cape Horn, is less than 60° S. There is nothing corresponding to the Arctic and subarctic floras of the Northern Hemisphere, and the land areas of the South Temperate zone are relatively limited in extent. The climate is more of an insular than continental type, and there is no such difference between summer and winter temperatures, as occurs in corresponding northern latitudes.

A comparison of the north and south temperate floras of the Western Hemisphere shows they have little in common except some cosmopolitan genera. The conifers and most of the dominant deciduous trees and shrubs of North America are absent from South America. The conifers of South America are austral genera, absent from North America, *e.g.*, Araucaria, Podocarpus, Fitzroya, and others, while there are many evergreen Angiosperms, *e.g.*, Myrtaceae, Proteaceae, unknown in temperate North America.

While there is thus little connection between the temperate floras of North and South America, there are many common genera and even species in Chile and New Zealand—separated by the whole Pacific Ocean; and the tropical floras of equatorial Africa and South America have also many common genera and even species. An exception to the rule of the absence of North American temperate species in South America is seen in a considerable number of common species in Central Chile and California. This is presumably a case of migration along the continuous mountain range extending along the Pacific Coast from Chile to Alaska.

FOSSIL EVIDENCE

The many investigations of the fossil floras of North