AWARD OF THE WILLARD GIBBS MEDAL TO DR. VAN SLYKE

THE Willard Gibbs Medal of the Chicago Section of the American Chemical Society has been awarded for 1939 to Dr. Donald Dexter Van Slyke, research chemist of the Rockefeller Institute for Medical Research, New York City, in recognition of his work on the chemistry of proteins, enzyme action blood chemistry and the metabolic conditions of diabetes and nephritis. In announcing the award the jury gave the following summary of the work for which it was made:

By showing that fatal diabetic coma is preceded by a falling off in the bicarbonate content of blood plasma, Dr. Van Slyke made it possible to anticipate and prevent the sudden onset of coma. Such bicarbonate determination is now in general application in hospitals.

In Bright's disease and renal physiology, he has worked out methods of measurement of renal function, established the relation of renal function to renal disease, and found some explanation for chemical changes in the blood and in metabolism.

The mystery surrounding the mechanism of enzyme action he solved by showing that enzymes act by forming with substrates the substances acted upon by enzymes, definite compounds in which the substrate becomes unstable and undergoes decomposition. In the physical chemistry of gases and electrolytes of the blood he showed the law governing the solubility of the blood gases—oxygen, carbon dioxide, nitrogen, carbon monoxide and hydrogen—in blood fluid and cells.

In the physiology of amino acids, Dr. Van Slyke has followed through the animal body the course of such acids from digesting proteins, proving that they pass into the blood and thence into all tissues, but chiefly into the liver, and that the change to urea nitrogen occurs chiefly in the liver.

In the chemistry of amino acids he has developed methods for quantitative separation, methods for determining aliphatic primary amino nitrogen and analysis which have become standard, and analysis of proteins by determining the characteristic chemical groups of amino acids resulting from hydrolysis.

The speed and accuracy of gasometric micro methods of analysis worked out by Dr. Van Slyke have led to their introduction into general analytical microchemistry. These methods are in routine use for ammonia, organic nitrogen, organic carbon, calcium, iodate, chloride, ferricyanide and reducing sugars.

Determination of proteins combined with alkali in the cells and in the fluid of the blood showed that the differences in non-diffusible protein ions combined with alkali within and without the cells were such as to clear up, under the Gibbs-Donnan theory for heterogeneous equilibria, the puzzling situation which arose from the fact that the concentration of certain chemicals is not the same in blood fluid and blood cells. These differences were found to vary regularly with increasing pH and with increasing oxygenation of the hemoglobin.

Dr. Van Slyke introduced a unit now generally adopted for expressing quantitatively the power of "buffers," substances which can loosely combine with alkali and surrender it to strong acids, to set free in their place only acids that are relatively weak and innocuous. By this unit, the activity of the buffer solution is related to pH and the dissociation constant of the buffer acid or base.

The award was determined by a national jury of scientific men, of which Professor Charles D. Hurd, of Northwestern University, was chairman. Dr. Robert R. Williams, of New York, discoverer of the chemical structure of vitamin B, was the medalist in 1938. Other medalists were: Svante Arrhenius, of Sweden; Mme. Marie Curie, of France; Sir James Irvine, of Scotland; Dr. Richard Willstaetter, of Munich. Among American scientific men have been Theodore W. Richards, Leo H. Baekeland, Ira Remsen, Arthur A. Noyes, Willis R. Whitney, Edward W. Morley, William H. Burton, William A. Noyes, F. G. Cottrell, Julius Stieglitz, Gilbert N. Lewis, Moses Gomberg, John Jacob Abel, William D. Harkins, Claude S. Hudson, Irving Langmuir, Phoebus A. Levene, Edward C. Franklin, Harold C. Urey, Charles A. Kraus, Roger Adams and Herbert N. McCoy.

SCIENTIFIC NOTES AND NEWS

DANIEL W. MEAD, consulting engineer of New York City, a former president of the American Society of Civil Engineers, was presented with the Washington Award for 1939 of the Western Society of Engineers at a dinner held in Chicago on February 20.

DR. ALEXANDER WETMORE, assistant secretary of the Smithsonian Institution, has been elected an honorary member of the Sociedád Cubana de Historia Natural Felipe Poey.

DR. FRANK SCHLESINGER, director of the Observatory of Yale University, has been elected a member of the Royal Society of Sciences of Upsala.

DR. ALFRED HARKER, fellow of St. John's College and reader in petrology emeritus in the University of Cambridge, celebrated his eightieth birthday on February 9.

SIR HENRY HALLETT DALE, director of the National Institute for Medical Research, and Dr. Arthur Lyon Bowley, emeritus professor of statistics in the University of London, have been elected honorary fellows of Trinity College, Cambridge.

THE University of Oxford will confer the degree of doctor of science on Dr. Pio del Rio Hortega, director of the National Institute of Cancer and of the Lab-