

SCIENCE

VOL. 79

FRIDAY, MAY 18, 1934

No. 2055

<i>Synthesis and Degradation of Proteins in the Laboratory and in Metabolism</i> : MAX BERGMANN	439	HENRY. <i>A Simple Calibration Method</i> : JOHN E. HEARN	457
Obituary: <i>William Morris Davis</i> : PROFESSOR DOUGLAS JOHNSON	445	Special Articles: <i>Prevention of Experimental Equine Encephalomyelitis in Guinea Pigs by Means of Virus Adsorbed on Aluminum Hydroxide</i> : DR. HERALD R. COX and DR. PETER K. OLITSKY. <i>The Therapeutic Behavior of Lucilia sericata Meig. Larvae in Osteomyelitis Wounds</i> : DR. M. A. STEWART	459
Scientific Events: <i>Peat Investigations at the International Congress of Soil Science; The Rainbow Bridge-Monument Valley Expedition; The American Academy of Arts and Sciences; The Medal Meeting of the Franklin Institute</i>	449	<i>The National Academy of Sciences. III</i>	460
<i>Scientific Notes and News</i>	450	<i>Science News</i>	5
Discussion: <i>Ionized Argon in the Spectrum of Upsilon Sagittarii</i> : W. W. MORGAN. <i>The Rotation of the Earth</i> : DR. C. G. ABBOT. <i>The Isotopic Fractionation of Water by Physiological Processes</i> : DR. EDGAR R. SMITH. <i>Isotopic CO₂ and O₂ in Plants?</i> : ANDREW MOLDAVAN. <i>The Controversy Concerning the Physiological Effect of Trihydrol in Liquid Water</i> : DR. T. CUNLIFFE BARNES. <i>A Possible Explanation of the Function of Glutathione in Developmental Growth</i> : DR. FREDERICK S. HAMMETT	454	SCIENCE: A Weekly Journal devoted to the Advancement of Science, edited by J. McKEEN CATTELL and published every Friday by THE SCIENCE PRESS New York City: Grand Central Terminal Lancaster, Pa. Garrison, N. Y. Annual Subscription, \$6.00 Single Copies, 15 Cts. SCIENCE is the official organ of the American Association for the Advancement of Science. Information regarding membership in the Association may be secured from the office of the permanent secretary, in the Smithsonian Institution Building, Washington, D. C.	
Scientific Apparatus and Laboratory Methods: <i>A Method for Destroying Internal Cell Masses</i> : PROFESSOR CLARENCE W. BROWN and FRANKLIN M.			

SYNTHESIS AND DEGRADATION OF PROTEINS IN THE LABORATORY AND IN METABOLISM¹

By MAX BERGMANN

KAISER WILHELM-INSTITUT FÜR LEDERFORSCHUNG IN DRESDEN

EVER since men have interested themselves in the study of the chemistry of vital processes the proteins have exercised a peculiar fascination. Many of our most distinguished investigators have been engaged in problems associated with their chemistry and metabolism. I need mention only such names as Dakin, Levene, Osborne and van Slyke among others in order to recall to your minds the achievements of modern protein chemistry in this country. Nevertheless, we are still far from an exact knowledge of the structure of a single protein molecule.

The foundations of our modern knowledge of proteins were laid for the most part by Emil Fischer and by Albrecht Kossel. These investigators provided the methods by which we separate and recognize the indi-

vidual products resulting from the hydrolysis of proteins. To Fischer we owe the method of welding together the constituents of proteins by laboratory methods to form peptide structures resembling in character the proteins themselves. Fischer succeeded in synthesizing an octadecapeptide containing glycine and leucine. The latter striking synthetic achievement itself indicates, however, the unfortunate limitations of Fischer's methods, the application of which is confined almost exclusively to peptides containing the simplest amino-acids and the monoamino-monocarboxylic acids. Such peptides do not contain the free amino, carboxyl and guanidino groups, which are present in the natural proteins; they do not in fact contain the more complicated and therefore more interesting amino-acids.

If it is desired, therefore, to imitate the synthesis

¹ Lecture given November 17, 1933, in the Rockefeller Institute for Medical Research, New York.