

dioxide, sulphuric anhydride, ammonia and organic matter. The air-dried specimen contained 29.79 per cent. of water.

An examination of this analysis suggests immediately the great similarity between the composition of this deposit and bog manganese, or "Wad," which, it is stated, is a mixture of different oxides, and not entitled to the dignity of being called a distinct mineral. As the specimens reported contain copper, lead, barium and cobalt, it is perhaps not strange to find quite an appreciable quantity of zinc in this specimen, though the locality is more than a hundred miles from any known zinc region.

The water that is carried in the pipes at the present time contains only 0.0014 gram of manganese sesquioxide per liter. It is evident that this artificial "Wad," as we call it, is made by a process of concentration in the pipes, and it suggests the method to which we owe the formation of many other minerals in the underground channels of the earth. E. H. S. BAILEY.

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NEW BOOKS.

BIOCHEMICAL RESEARCHES. COLLECTED REPRINTS OF PUBLICATIONS FROM THE LABORATORY OF PHYSIOLOGICAL CHEMISTRY OF COLUMBIA UNIVERSITY, TOGETHER WITH CONTRIBUTIONS FROM SIMILAR LABORATORIES IN OTHER INSTITUTIONS. By WILLIAM J. GIES and collaborators. Volume I. Edited and issued by WILLIAM J. GIES, Columbia University. July, 1903. Price, \$5.00.

Bound together in this volume are reprints, forty in number, of the published research work done by Professor Gies individually and by him in collaboration with his instructors and pupils, and also work done under his supervision. A large part of the work was done in the Laboratory of Physiological Chemistry of Columbia University at the College of Physicians in New York, while the remaining part was done in laboratories at other institutions. It comprises a record of work in which Professor Gies was either directly or indirectly concerned during the period from 1896 to 1903, and is splendid evidence of the true research spirit and indefatigable industry possessed by him. The generous fairness displayed by Professor Gies in placing the name of the collab-

orator, who has done a large part of the actual work of a research, before his own name at the head of a paper is refreshing evidence that doing justly by others in such matters is not entirely a lost trait among scientific men.

This volume is to be considered as the first volume of a series of biochemical studies to appear at times when the accumulated material justifies. The work covers a wide field of biochemical research and includes chemical investigations of animal tissues and tissue constituents; pathological and toxicological investigations; miscellaneous researches on biochemical subjects; and chemical investigations in plant physiology. J. M.

IMMUNE SERA. By PROFESSOR A. WASSERMAN. Translated by CHARLES BALDUAN. New York: John Wiley and Sons. 77 pp. Price, \$1.00.

The questions of acquired immunity have attracted more attention of the investigators than any other subject in modern medicine. The laboratory experiments on immunity have been quite fruitful in practical results, of which the discovery of diphtheria and tetanus antitoxins is sufficient proof. However, there are two distinct classes of infectious diseases. To one belong those where the morbid process is caused chiefly by the toxins manufactured by micro-organisms; to the other class, diseases caused chiefly by the organism of certain bacteria.

The diseases of the first order are cured successfully by antitoxins (like diphtheria and tetanus), those of the second group by bactericidal sera. The efforts of workers of recent years have been directed principally to the study of the properties and of the mode of production of sera of the second class. The experiments were facilitated to a degree by the discovery that toxic sera can be produced, not only to bacteria, but also to cells of higher animals. Thus, if an animal A is injected with the red cells of an animal B, the serum of the animal A turns toxic to the red cells of the animal B. It was found that a toxic serum owes its activity to two substances—one very little resistant to heat, the other more so. Progress in the knowledge of the nature of the active sera was achieved principally through the efforts of Metchnikoff in Paris and Ehrlich in Germany. Wasserman was at one time associated with Ehrlich and contributed, himself, very considerably to our knowledge of immunity. The book of this author that has just appeared in a translation by Balduan is devoted to a re-