

point of view. Living organisms are considered as chemical machines consisting essentially of colloid material endowed with the functions just referred to. Accordingly some of the distinctive features and reactions of colloids are examined in the light of more recent knowledge. The special opportunity for this is afforded in chapters on the general physical constitution of living matter and some physical manifestations of life. The significance and actions of enzymes is touched upon rather briefly; but the chapter on oxidations and oxidases is presented in an unusually suggestive way. In discussing the rôle of electrolytes in animals and plants, the author has had an opportunity to summarize many of his own important experimental contributions; and while the deductions from the data available may at times seem somewhat too general, the critique which they arouse serves no useless end. Professor Loeb remarks: "It is neither our intention nor is it possible for us to give an exhaustive analysis, and we shall only go far enough to satisfy ourselves that no variables are found in the chemical dynamics of living matter which cannot be found also in the chemistry of inanimate nature."

In the chapters on tropisms the author expands his well known views involving the different behavior of symmetrical and asymmetrical structures towards external forces. Many of the so-called "instincts" of animals are resolved into various tropisms which can be analyzed from physical and chemico-physical points of view instead of metaphysical considerations. Additional chapters are devoted to Fertilization, Heredity and Regeneration, with particular reference to the part which chemical reactions in the cell play in connection with fundamental facts.

It is a distinct merit of these lectures, originally delivered at Columbia University in 1902, that they indicate some of the problems as well as the facts of experimental biology. They cannot fail to renew the interest which this field of science has awakened in recent years.

LAFAYETTE B. MENDEL.

CASEIN : ITS PREPARATION AND TECHNICAL UTILIZATION. BY ROBERT SCHERER.
Translated by Chas. Salter, New York. D. Van Nostrand Co., 1906. 15 + 163 pp.

This book is extremely interesting to those who have not kept informed about the use of casein in the arts because it is a revelation in what a marvellous variety of forms casein is utilized. The chapter on the "Composition and Properties of Casein" is a distinct disappointment to any one looking for a thorough treatment of the subject; perhaps no more could be expected in a book intended to treat of the technical uses of casein.

The general character of the information given is well indicated by the chapter headings: Casein paints, technics of casein paintings, casein adhesives and putties, the preparation of plastic masses from casein, uses

of casein in the textile industry, casein food stuffs, miscellaneous applications.

One of the most interesting products mentioned is "galalith," an insoluble compound formed by the action of formaldehyde on casein. It forms a perfect substitute for ivory, ebony, horn, tortoise-shell, celluloid, coral, imitation marble, etc. "Galalith" is inodorous and does not burn easily. It can be dyed, and the crude article, while warm, can be bent blocked and stamped, retaining its form perfectly when it cools. It does not attack metals, and is one of the best insulating materials known.

Among miscellaneous uses of casein, the following are mentioned to show the great variety: In paper industry for water-proofing, sizing, etc., water-proof and fire-proof asbestos paper and board, washable drawing and writing paper, paint remover, shoe polish, photographic plates, ointments, soap making, etc.

L. L. VANSLYKE.

A MANUAL OF BACTERIOLOGY. H. U. WILLIAMS. 4th edition, revised by B. M. Bolton. P. Blakiston's Son & Co., Philadelphia.

This is an excellent edition of a well known and widely used brief text in bacteriology. The present edition has the same scope and purpose as the former editions but a considerable number of changes and enlargements have been made to bring the subject down to date. The book is well written and serves as a good digest of the subject. In the hands of a beginner it would seem that it might be found too much condensed. It is written from the standpoint of the medical man and for the use of medical students or practitioners it can be safely recommended where a brief text is desired. The typography and cuts are good and the index is excellent.

W. D. FROST.

HANDBUCH DER SPRENGARBEIT. BY OSCAR GUTTMANN. 2nd ed. Druck und Verlag von Friedrich Vieweg und Sohn, Braunschweig. 1906. pp. 99.

The first thirty-five pages of this handbook are devoted to brief accounts of the history of blasting, the composition and characteristics of the more important of the different classes of explosives used, and the devices employed for exploding them. The remaining pages are given over to blasting as applied in mining and quarrying, with descriptions of the manual and mechanical methods of preparing blasts, the methods of estimating charges and determining how they should be placed and fired. The book contains 146 illustrations in the text, and five folding plates, besides two folding tables devoted to safety explosives. These latter give the names and composition of upwards of 110 explosives, most of which have been proposed for use in the fourteen years that have elapsed since the first edition of this work appeared, and it is in connection with