

Part three, which makes up the bulk of the book, treats of qualitative and quantitative methods of determining characteristic atomic groups. It is here that the research worker will find hundreds of methods described, accompanied by ample references to the original literature, and well indexed, which will enable him to quickly utilize what might cost much time and labor to find scattered through the journal literature.

The work has been thoroughly revised, some 300 pages have been added containing much new and valuable material, while some errors and matter of lesser value have been eliminated. The typographical work is well done. Altogether the book is one which will be found of great value in the research laboratory of the organic chemist, and especially so to the younger workers in this field.

RICHARD S. CURTISS.

Kurzes Lehrbuch der organischen Chemie. By PROF. DR. A. BERNTHSEN. Tenth Edition. Prepared in collaboration with PROF. DR. ERNST MOHR. Braunschweig: Vieweg & Sohn. 1909. pp. xx + 640. Price, bound, 13 Mk.

The new edition of this well-known and admirable text-book is welcome. The material of former editions has been carefully revised and brought up to date. No important changes have been made in the general plan and scope of the book, or in the arrangement of its subject matter.

MARSTON TAYLOR BOGERT.

The Nature of Enzyme Action. By W. M. BAYLISS, D.Sc., F.R.S., Assistant Professor of Physiology, University College, London. London, New York, Bombay, and Calcutta: Longmans, Green & Co. 1908. pp. 90. Price, \$1.00 net.

This is one of the "Monographs on Biochemistry," edited by R. H. Aders Plimmer and F. G. Hopkins, which are intended to present in an up-to-date and authoritative way a detailed account of certain subdivisions of the science. Professor Bayliss's own work on enzymes entitles him to speak from experience; and this monograph indicates clearly the first-hand acquaintance of the author with his subject. Enzymes are tentatively defined as "the catalysts produced by living organisms," and the author proceeds to consider to what extent the assumption is justified. The discussion is confined largely to general types of reaction, specific enzymes being referred to only by way of illustration. The nature of catalysis in general is reviewed succinctly, but in a suggestive style characteristic throughout. Distinctive properties of enzymes are associated with their colloidal character and elucidated by analogies with other organic and inorganic colloids. "Certain deviations from the behavior of most inorganic catalysts are found to depend upon the colloidal nature of enzymes, so that the reactions take place in a heterogeneous medium and the various phenomena depending upon surface action come markedly into play." Professor Bayliss advocates the view that there is a combination between enzyme and substrate, "adsorption-

compounds" being formed. He properly disclaims any wide validity of so-called "laws" of enzyme concentration and action (such as the Schütz-Borissow law). "Neither the linear nor the exponential law can be practically applied except when direct experiments with corresponding relative concentrations of enzyme and substrate have shown what law holds." The reversibility of enzyme reaction and its presumable bearing on synthetic action in living organisms are advocated within the limits of our meager experimental data.

Among the other topics briefly noted are: general methods of enzyme preparation and investigation; co-enzymes and anti-enzymes; zymogens; oxidation processes and certain complex systems. The monograph (with a bibliography of nearly 200 titles appended) will form a desirable supplement to current text-books.

LAFAYETTE B. MENDEL.

Untersuchungen Ueber Kohlenhydrate und Fermente. By EMIL FISCHER. Berlin: Julius Springer. 1909. pp. iv + 912. Price (bound), 24 M.

In this volume are brought together the articles published by Fischer and his students describing their researches on the carbohydrates and related products, carried on from 1884 to 1908. One paper only ("Synthese des *d*-Glucosamins") is omitted from the list, this having been published previously in Fischer's "Untersuchungen über Aminosäuren."

The book contains five general discussions or reviews of the subject and 104 papers. Of the five discussions, three have been published in chemical journals and one in the form of a monograph. The remaining one was written especially for the book. Of the 104 papers, 92 have been published in the "*Berichte der deutschen chemischen Gesellschaft*," 10 in "*Liebigs Annalen der Chemie*," and 2 in other journals. The articles are practically exact reproductions of the original papers, the only significant change being the substitution of the mark "dl" for "i" in the designation of racemic compounds. The only additional matter is in the form of an occasional foot-note.

It is entirely superfluous for one to comment on the character of the research since it has taken its place as one of the classical investigations in the field of organic chemistry. It is certainly significant that the original papers can be reprinted to-day practically unchallenged either in regard to the experimental details or conclusions drawn.

Chemists everywhere will regret that the author probably will be unable to continue his investigations on the polysaccharides because of his extreme sensitiveness to the evil physiological effects of phenylhydrazine and its related compounds.

WILLIAM MCPHERSON.

Practical Physiological Chemistry. By P. B. HAWK. 2nd Edition, Blakiston's Son & Co. Philadelphia. Price \$2.50, reduced from \$4.

This is another of the many laboratory manuals of physiological chemistry, but this is decidedly better than most of them. It is perhaps the