

KRAMER AND LITTLE's discussion of reticulin, in which one of the statements that attract attention is that collagenase abolishes the periodic acid-Schiff positivity of reticulin and liberates mucopolysaccharides from collagen (p. 22). The relationship of protein to mucopolysaccharide is explicitly considered in the publication of FITTON, JACKSON AND RANDALL, in which the participation of mucopolysaccharide in the formation of collagen *in vivo* is mentioned (p. 177), and in that of JACKSON on the significance of chondroitinsulphuric acid for the strength of tendons (p. 181).

The last chapter, "Discussion on the structure of collagen", ends with the optimistic remark of CRICK that "the structure of collagen is likely to be worked out in a short period". This seems to mean that at the end of the discussion the standpoint is shifted back to the field of pure protein chemistry. Although this termination leaves the histologists with a rather unsatisfied feeling, we have nevertheless every reason to be grateful for the first-rate scientific work presented to us by RANDALL and his co-participants in the symposium.

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*Principles of Biochemistry*, by ABRAHAM WHITE, PHILIP HANDLER, EMIL SMITH AND DE WITT STETTEN, Jr., McGraw-Hill Book Company, Inc., New York-Toronto-London, 1954, xiii + 1117 pages, many illus., \$ 15.—.

The extremely rapid development of biochemistry paves the way for the production of a steadily increasing number of text-books, designed to acquaint the student with the body of the information acquired up-to-date. Each textbook becomes outdated so soon after its appearance that a new publication is hailed with enthusiasm because it may be expected to embody the latest developments in a comprehensive form.

The book under review is one of the recent issues, created by close co-operation of four biochemists with teaching experience. As a fount of present-day knowledge it can certainly be warmly welcomed. It is commendably up-to-date. It departs somewhat from the conventional pattern in its set-up, comprising seven main parts, entitled: Chemical Composition of Cells, Catalysis, Metabolism, Body Fluids, Biochemistry of Specialized Tissues, Biochemistry of the Endocrine Glands, and Nutrition. The treatment is comprehensive and well-balanced, and the subject-matter is clarified by a liberal use of structural formulae, diagrams and graphs. Due attention has been paid to subjects which sometimes tend to be slightly neglected, such as hormones, electrolyte and acid-base balance. As a happy result of the participation of several authors the work is remarkably free from errors. The only slip which caught my eye upon perusal is the statement on page 1019 that thiamine would catalyse the formation of acetoin from pyruvic acid and acetaldehyde in the absence of apoenzyme.

Still, I wonder if the time has not come to ask ourselves whether we are proceeding in the right direction with this and other modern text-books. This book, which professes to present the "principles" of biochemistry to beginning medical students, and which gives an "integrated presentation of fundamentals" according to the paper cover, needs over 1100 pages in which to do so. Need we burden our medical students with all this detailed knowledge, which is of little use to the prospective practitioner, quite apart from the expense it entails? Maybe heavier demands are imposed upon medical students in America than in Europe, but I sincerely believe that for the latter this is carrying things too far.

Much would already be gained by omitting from biochemical text-books the many hundreds of pages devoted to matters of physical, inorganic and organic chemistry, all subjects which have been treated in the pre-medical curriculum. To take an example from the present work, why elaborate upon such subjects as molecular asymmetry or the relationship between melting point and chain length of the homologous normal saturated fatty acids, when it is assumed in the introduction that the student will have completed a fundamental course in organic chemistry?

But the more biochemical chapters could also do with some pruning. Besides the main facts they contain a wealth of interesting information on matters of secondary importance to the young medical students; all so many additional trees that tend to obscure his vision of the wood.

The medical student needs a concise, clear exposition of the present-day status of biochemistry, but I hesitate to tell him to look for it in a modern textbook of over 1.7 kg. which has grown into a handbook. However, I think teachers will be happy to use the book under review for refreshing their memories, and it can certainly be warmly recommended to research students.

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