

*Vitamins and Hormones, Advances in Research and Applications*, Volume XII, Edited by R. S. HARRIS, G. F. MARRIAN AND K. V. THIMANN. Academic Press Inc., New York, 1954, 275 pages + author and subject index, \$ 7.50.

Another volume in this well-known series has appeared and it is hardly necessary to mention that a number of interesting reviews has become available. This time more space than normal is occupied by papers on vitamins, and especially the vitamins B<sub>12</sub> and A are well treated in this volume.

K. FOLKERS AND D. E. WOLF give an excellent survey on *The Chemistry of Vitamin B<sub>12</sub>*. This chapter not only summarizes our knowledge about the normal cobalamins, but the related substances, like the pseudocobalamins and the factors A-H, are also mentioned in great detail (because many interesting papers about the structure and the purification of cobalamins have appeared since this review was written, it would perhaps have been advisable to mention in the introduction which period was covered). In the second chapter on *The Intestinal Synthesis of Vitamins in the Ruminant*, written by S. K. KON AND J. W. G. PORTER, vitamin B<sub>12</sub> and the related factors are among the vitamins discussed.

Two chapters concerned with vitamin A are *The Biochemistry and Pathology of Hypervitaminosis A* by C. NIEMAN AND H. J. KLEIN OBBINK, and *Vitamin A Requirements of Animal Species* by S. H. RUBIN AND E. DE RITTER. The first article summarizes critically the effect of interaction of excess vitamin A with several vitamins and other nutrients, while the second paper contains 13 tables with data about the daily requirements of vitamin A or carotene in animals and man, together with information about factors that can change these requirements.

The question could be raised as to whether the interesting article of C. S. DAVIDSON on *Disturbances in Nutrition Relating to Liver Disease in Man* falls in the scope of *Vitamins and Hormones*.

J. HAMMOND JR. deserves credit for the excellent way in which he has compiled the enormous amount of data on *Light Regulation of Hormone Secretion*. When reading this paper it becomes evident that we are only at the beginning of the understanding of the effects resulting from photoperiodicity. Another almost unexplored field is treated by R. B. BRADBURY AND D. E. WHITE in *Estrogens and Related Substances in Plants*.

This volume ends with a very competently written review by F. W. LORENTZ on *Effects of Estrogens on Domestic Fowl and Applications in the Poultry Industry*.

Quality of paper and printing is excellent, as could be expected; only one error in print was observed: on page 31 the ring system of the figure should have been a benzimidazole ring.

H. G. WIJMEGA (Oss, The Netherlands)

*Nature and Structure of Collagen*, edited by J. T. RANDALL F.R.S., assisted by SYLVIA FITTON JACKSON, London, Butterworth's Scientific Publications Ltd., 1953, 269 pages, 142 illustrations, price \$ 2.2.0d.

More than a year ago I was asked to comment on RANDALL's book "*Nature and Structure of Collagen*". Is there any sense in discussion at this stage? Science advances fast; nearly 2 years have passed since the symposium, the important contributions to which have been so well edited by RANDALL. His book is only a snapshot of scientific development. Is such a snapshot still of value at this time?

I have no hesitation in giving an affirmative answer to this question. Some of the matters discussed at the symposium have indeed been placed in a different light by the discovery of new facts but, notwithstanding this, the general survey offered by RANDALL's book is so clear, so balanced and at the same time comprehensive, that it is still—and will probably remain so for some years to come—a reliable starting point for anyone who is interested in the study of collagen and all that adheres—in literal and figurative sense—to it: the mucopolysaccharides and the ground substance, "the evasive and pervasive material".

Admirable in itself is the arrangement of the many-sided problems and the diversity of techniques employed. There are contributions from biologists, histologists, chemists and physicists. Electron microscopy, X-ray spectrography, infra-red spectrography, electrophoresis and paper chromatography are all represented and combined in magnificent team-work. The whole is so masterly that one hesitates to criticize. It seems to me that after RANDALL's introduction, from which I have quoted, one would expect a sharper formulation of the question: what is collagen? Is it a protein or is it a complex of a protein with a mucopolysaccharide? In several previous discussions this question was actually raised; first in JACOBSON's histological survey and in

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.

G. C. HERINGA (Amsterdam)

*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.

E. P. SLEYN-PARVÉ (Utrecht)