

Since the rate at which biochemistry develops continues alarmingly, each edition of a general text-book needs substantial revision, and the new edition of this standard work has been widely revised. In particular, the chapters on nucleoproteins and the various phases of intermediary metabolism have been rewritten, and the previous one on photosynthesis replaced by sections in the chapters on carbohydrate chemistry and on carbohydrate metabolism. It is a reflexion of the coherence of growing knowledge that changes of this sort now are almost inevitable. The former two chapters on digestion and adsorption have been incorporated into one, while that with the title "Detoxication" has been quite properly replaced by one called "Metabolism of Organic Chemicals".

With the immense growth of knowledge of which account is taken it is surprising, but welcome, that this edition should be a little smaller than the previous one. The pages of text, numbering more than 500, are still eminently readable, and although some sections naturally are less up to date than others, on the whole the authors keep surprisingly well abreast of current knowledge. They are to be congratulated on maintaining a standard text-book in such a uniformly good state.

F. G. YOUNG

General Biochemistry

By Prof. Joseph S. Fruton and Prof. Sofia Simmonds. Second edition. Pp. xii+1077. (New York: John Wiley and Sons, Inc.; London: Chapman and Hall, Ltd., 1958.) 144s. net.

THIS book gives a very complete and readable account of the chemistry, physical chemistry and intermediate metabolism of the important chemical constituents of the living organism. The chemical chapters on proteins are extensive and provide a most detailed and informed survey. A chapter on elementary thermodynamics with a useful introduction to the second law and the concept of free energy is also included.

The whole of the subject-matter is introduced and developed as an experimental science, and sufficient experimental details are given for a proper appreciation of the theoretical discussions and generalizations. In many cases the experimental methods are described and explained in some detail, and this is especially true of the more recent methods of chromatography and isotopic tracer techniques.

All the usual metabolic sequences and interconversions of biological syntheses and degradation are ably discussed, and generally the most recent views and enzymic steps are included. These metabolic surveys are mainly concerned with animal biochemistry, although there is a very good chapter on photosynthesis by green plants.

The book is thus an excellent and comprehensive introduction to the subject, and since it is well documented it may well serve for a few years as a reference book to some parts of biochemistry. However, as a text-book for use by students in Great Britain it has two disadvantages. One of these is its very high price and the other is the level at which it is written. For use in most elementary courses the book is too detailed, especially for those students who do not wish to specialize in the subject; while the advanced student, although finding the book very useful, must have access to the many adequate reviews and whenever possible direct reference to the important original papers.

D. H. NORTHCOTE

Metals and Enzyme Activity

Biochemical Society Symposium No. 15 held at the University of Leeds on 13 July 1956. Organized and edited by E. M. Crook. Pp. v+102. (Cambridge: At the University Press, 1958.) 21s. net cloth bound; 15s. net paper bound.

IN the Biochemical Society symposium held at the University of Leeds, in 1956, inorganic chemists and biochemists joined in discussing aspects of the functions of metals in enzyme systems. This book contains the papers that were presented at that meeting, together with the discussions which followed.

The symposium opened with a short introductory paper by R. S. Nyholm describing recent work on metal ligand bonds, a topic which was developed further in a paper by L. E. Orgel on the solution chemistry and structural chemistry of some metals important in enzyme activity. Some suggestions on the mode of action of metals in the catalytic hydrolysis of peptide bonds were made by B. R. Rabin, who gave a short account of conflicting views on the nature of the enzyme-metal-substrate complex. Later in the session, F. C. Happold and R. B. Beechey considered the univalent metal ions as non-specific activators of enzymes and attempted to explain their function. The role of metals in metallo-flavoproteins was summarized by F. Bergel and B. C. Bray, who discussed the involvement of the metals in electron-transfer reactions. The symposium ended with a paper by E. C. Slater describing briefly and conveniently the classification and properties of the cytochromes.

This meeting of chemists and biochemists has made a valuable contribution to this fascinating problem, and it is unfortunate that more than two years have passed before the papers appeared in print.

O. T. G. JONES

Electronic Theory and Chemical Reactions

An Elementary Treatment. By R. W. Stott. Fourth edition. Pp. viii+112. (London and New York: Longmans, Green and Co., Ltd., 1958.) 12s. net.

THE author was one of the first to attempt a simplified account of the theories of reaction mechanism and his success may be measured by the fact that this is a fourth edition of a book which first appeared a little more than fifteen years ago. This edition retains the very simple treatment which characterized the earlier editions, together with additions and emendations. The bibliography which accompanies each chapter has also been extended and is now, in some cases, of considerable proportions.

The content of any book is largely a matter for the author, and his success in this case suggests that he caters very satisfactorily for his intended readers. Nevertheless, I feel that some change of balance in the material might be made in a future edition. There is, for example, no discussion of hydrogen-bonding, while about four pages are devoted to a demonstration of the equivalence of the hydrogen atoms in benzene. This latter, formal demonstration might be curtailed or even eliminated by mentioning the Raman and infra-red spectral evidence that this molecule is planar and centro-symmetrical. The X-ray evidence upon hexamethylbenzene, or benzene itself, may be quoted instead. Inclusion of the former topic would do much to remove the difficulty that not all covalently bonded compounds are of a high volatility, 100 per cent sulphuric acid being a particular example.