

BIOCHEMISTRY TO-DAY

An Introduction to Biochemistry

By Dr. William Robert Fearon. Second edition. Pp. xii+475. (London: William Heinemann (Medical Books) Ltd., 1940.) 17s. 6d. net.

THE new edition of Dr. Fearon's book is very welcome, for, since the first edition in 1934, much that is of profound significance in biochemistry has taken place, and the new edition shows every evidence of careful and up-to-date revision. Some of the chapters might almost be described as miniature monographs, so admirably does the author summarize the essential facts of his subjects. It is perhaps a little invidious to single out individual chapters for special mention, when all are of uniformly high quality, but those on enzymes, hormones and proteins are particularly informative. The book contains little that is non-essential, and the usual discussion of the elementary principles of physical and organic chemistry is fortunately omitted. On the other hand, there is a great deal in the book that one might not have expected to find in a so-called "Introduction", material that up to the present has only been available in the original literature or in occasional reviews.

The book is unorthodox in many ways. For example, the second chapter discusses the "Biological Elements", and the third "Inorganic Compounds", subjects that are usually and quite improperly ignored. The justification for beginning with the inorganic constituents of living matter—the "shovelful of clay"—is doubtless contained in the apt quotation from George Russell which heads Chapter 2. In later chapters, the substances with which the dry bones are clothed—the carbohydrates, proteins, lipides, and other essential constituents of the body—are discussed, together with their functions.

The quotations with which the book is seasoned form another unorthodox feature. These range from Swinburne to Chesterton, from Shaw to Tobit, the last being a particularly apposite reference. The biochemists of Dublin seem to share in the literary atmosphere of that city!

The chapter on hormones is also unconventional, first, by reason of the fact that the old name 'autocoids' has been resurrected and, secondly, because a wider range of factors than usual comes in for consideration by reason of the extended definition. Though Dr. Fearon has perhaps not quite played the game in adopting this artifice, one is glad he has done so, for the result is one of the best chapters in the book.

Unfortunately, the book is not entirely free from errors, mostly small and unimportant, though a

few are of more moment. Thus the formula given for α -carotene on p. 202 is erroneous; as to a less extent is that of *isalloxazine* on p. 206; the statement on p. 246 that vitamin D is found in the leafy part of most plants is clearly wrong, and is in fact corrected on the next page but one; and surely the identity of the vitamin D of fish liver oils with that produced by irradiation of 7-dehydrocholesterol, as established by the brilliant work of Brockmann and his colleagues, is of sufficient importance to deserve mention. A major error, or series of errors, occurs in the list of references on p. 265, where "J. Nutrition" should read "Nutrition Abstracts and Reviews" in all three instances. Another unfortunate but understandable mistake is the inclusion on p. 136 of Kögl and Erxleben's claim to have found *d*-glutamic acid in tumour tissue protein. It is to be hoped that this statement, recently proved wrong by several groups of workers, will be deleted in the next edition. Slips such as these can readily be excused when one considers the wide field that the author has covered, and the heroic struggle he must have had to bring each subject up to date.

All chemists, biologists and clinical workers will profit by a study of this book, and those whose work lies in the biochemical field will find much that is stimulating. Here we are enabled to obtain a comprehensive picture of the rapid expansion that has occurred within recent years, and those with imagination will see hints of the problems that remain to be investigated. What, for example, happens to the energy produced in the brain, "silent and motionless", by the consumption of 0.14 ml. of oxygen per gram of tissue per minute? Does the theory of energy-levels recently advanced by Szent-Györgyi supply the answer? Why does the *in vivo* oxidation of fatty acids occur at the α -carbon atom, when every organic chemist knows that the β -carbon atom is the more reactive? Is the recent observation of Kharasch that the β -carbon atom is more reactive than the α -atom in presence of peroxide or light relevant to these facts? What, if any, is the significance of the occurrence of β -alanine in pantothenic acid on one hand, and in carnosine and anserine on the other? These and like questions that spring to mind will doubtless be answered in due course. In the meantime, we are probably on the eve of further striking developments, and we must hope that the new knowledge thus gained will find its place in the next edition of Dr. Fearon's admirable volume.

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