

Aspects of Biochemistry

Biochemistry. The Molecular Basis of Cell Structure and Function. By Albert L. Lehninger. Pp. xiii+833. (Worth: New York, 1970.) n.p.

THIS book by a distinguished scientist and teacher should prove an admirable text for a three year honours course in biochemistry. But I seriously question the claim made in the preface that each chapter corresponds in content to one lecture or discussion period. The students to whom this book will be of most value will surely be already committed to a thorough going course in the subject, and so some parts of the elementary introduction are perhaps unnecessary.

Some of the topics under the heading "The Molecular Components of Cells" receive rather brief treatment. The student must accept the Svedberg equation rather uncritically, but, on the other hand, deductions of kinetic equations are well set out. Some of the illustrations of space-filling models serve a decorative rather than a useful purpose. The oppor-

tunity is lost of showing the difference between all-*trans*-retinal and 11-*cis*-retinal (wrongly named all-*cis*-retinal on page 206) which is so decisive in the formation of rhodopsin. The model of cholesterol would have served a better purpose if that of a 5- α -steroid such as cholic acid had been included. As I would expect from Professor Lehninger, the discussion of catabolism and the generation of phosphate-bond energy is excellent. The proper use of the term "high energy phosphate compound" and the frequent and improper use of the term "high energy bond" are so clearly discussed that it is surprising to find the traditional curly bonds retained in the chemical formulae.

The various topics are, in general, successfully integrated and so present biochemistry as a closely knit subject. Part three of the book, however, deals not only with various aspects of biosynthesis but with contractile and motile systems, and with active transport. Although I cannot deny that from the point of view of energetics these topics have something in

common, the last two chapters of part three might better have formed part of a section illustrating the relevance of biochemical events to whole organisms. The book very properly approaches biochemistry from the point of view of the molecular basis of cell structure and function. On the other hand, where justified by the present state of knowledge, an attempt to link the underlying molecular events to the physiology of the whole organism makes the subject seem less of a series of specialized topics. This is the chief justification for the publication of a single book covering all the aspects of biochemistry appropriate to an undergraduate course. Few other sciences lend themselves to this approach, and this book may be among the last of the line for there are few individual authors who could improve on it either in breadth or depth of treatment. The multi-volume textbook may well be inevitable, but the hardest task will still be to write the volume which achieves the synthesis of all the specialized topics within a single subject.

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