# BOOK REVIEW

## BIOCHEMISTRY

## ENZYME KINETICS

### P.C. ENGEL

*Chapman and Hall, London, 1977, pp. 96, ISBN 0-470-99097-X, £ 1.75*

Belonging to the series "Outline Studies in Biology", this little book is a very readable introduction to steady-state kinetics of enzyme action. It is written by an expert in the subject and aimed at "the 90% or so of biochemistry students, and indeed of practising biochemists, who place enzyme kinetics in the same category as Latin and cold showers, character-building perhaps, but otherwise to be forgotten as quickly as possible". This aim is accomplished with a sacrifice of some rigorous mathematical derivations of kinetic parameters for simplified explanations. For example, the distinction between uncompetitive and non-competitive inhibition is made from the "pulling" effect of inhibitor only on ES in the former case, and on both E and ES equally in the latter; hence $K_m$ which "is essentially a measure of how hard you have to push with substrate" to get ES from E is lowered in uncompetitive but unaffected in non-competitive inhibition. Yet the use of simple language by no means lures the reader into developing oversimplified concepts, and caution is given whenever appropriate.

The book is divided into seven chapters. After a short Introduction, One-Substrate Kinetics is discussed using both Michaelis-Menten and Briggs-Haldane treatment. Argument is given for the use of the Lineweaver-Burk plot, as against the Eadie-Hofstee or the Hanes plot: after much recent preaching in classrooms and other textbooks to the contrary, this argument must be refreshing to the conservatives (who still dominate much of the literature anyway). The following two chapters are on Inhibitors, Activators and Inactivators, and pH Effects. In the fifth chapter, More than One Substrate, preference is given for the use of Dalziel parameters to Alberty parameters, no mention being made at all of the Cleland parameters. This commitment is understandable provided the background of the author, but one wishes more guidance is given to deal with various systems of nomenclature in

use in the literature. The short, sixth chapter on the King and Altman Procedure is followed by the last chapter on Non-linear Kinetics and the Concept of Allosteric Interaction. Explanation is lucidly given in this last chapter on the distinction between the Monod-Wyman-Changeaux model and the Koshland-Nemethy-Filmer model and their relation to the 'parent model' later given by Wyman. Questions which would naturally be raised by an intelligent novice to this field, such as "Does non-linear kinetics necessarily imply allosteric interaction?" or "Does allosteric interaction require a multisubunit protein?" are answered briefly but clearly. This brings to the end a book which is well worth the reading of any student of biology and biochemistry, no matter how weak a background in mathematics or chemistry he might have.

*Yongyuth Yuthavong*