Book Reviews

Enzymes in Synthetic Organic Chemistry. By C.-H. Wong and G. M. Whitesides. Pergamon: Oxford, 1994, 370 pp., hardback £ 55. ISBN 0-080-35942-6. Paperback £ 25. ISBN 0-080-35941-8.

This authoritative text describes the present state of the art of biotransformations, a rapidly expanding area of organic synthesis. The first Chapter deals with the fundamentals of enzyme-catalysed reactions and includes information on kinetics, enzyme-modification, cofactor recycling techniques and solvent effects. This section is written with the non-specialist in mind and is a valuable introduction to the subject.

The different transformations are dealt with in the usual fashion. First a comprehensive review of hydrolase enzyme illustrates the synthetically useful hydrolysis, esterification and interesterification reactions that can be accomplished using enzymes. The examples are well-chosen and the references (361 in this section alone), while not totally comprehensive, give an excellent overview of the current position. The next Chapter deals with oxidoreductase enzymes and describes what can be achieved with whole cells and isolated enzymes in changing the oxidation state of carbon centres and heteroatoms. The problems in dealing with cofactor recycling when using isolated, partially purified protein, are cogently discussed. The ensuing Chapter on C-C bond formation is mainly concerned with aldol reactions catalysed by aldolases and ketolases. This accurately reflects the state of play in this area: more esoteric but synthetically less useful transformations, such as those catalysed by Vitamin B_{12}, command only a small amount of footage. The fifty pages devoted to the synthesis of glycoside bonds is a highlight of the book. This intriguing area of science is lucidly and succinctly reviewed. The final Chapter is the "miscellaneous" section and deals with the less popular transformations. In a way this section is the most thought-provoking especially for those already working in this field.

The book contains a useful subject index; an author index is not included and might be a possible appendix to a second edition.

In summary this is an important text book written by two persons with outstanding reputations in the field. For a scientist working in the area it is like a good novel - having started to read it you cannot put it down. However, perhaps more importantly, it will serve as an excellent introduction for those persons wishing to get the flavour of the various techniques. The number of articles cited in the text (*ca.* 1000, including 1993 citations) allow the reader to follow up particular aspects of interest in the relevant learned Journals. The book has been a long time coming (it was first advertised in 1988/9) but it has been well worth waiting for!

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Book reviews are generally by invitation. Publishers should send books to Dr Ray J. Boucher, Book Review Editor, Synthesis Editorial Office, Georg Thieme Verlag, Rüdigerstrasse 14, D-70469 Stuttgart, Germany.