

Book reviews

Stereoselectivity in synthesis

T.-L. Ho

Wiley-Interscience, New York, 1999

xv + 333 pages. £61.50

ISBN 0-471-32922-3

Professor Ho, a writer of several reviews and books, has supplemented his output with this text on the important topic of stereoselectivity in organic synthesis.

The book begins with a rather breathless presentation of 'Some fundamental concepts', which do not subsequently feature greatly, and the tempo relents only slightly in the other eight chapters. In these subsequent chapters the topics dealt with include 1,2- and 1,3- and more remote stereinduction, group-directed reactions, and the effects of chelation, conformation, topography and templates. The book finishes with two chapters on steric, electrostatic and stereoelectronic effects, and thermodynamic control and kinetic trapping.

At the start of Chapter 2 (1,2-stereinduction) the author writes, in respect of diastereoisomeric transition states, '... the reaction will proceed from the one with the lower activation energy, with the product distribution profile depending on the energy difference'. Now, the reaction does not proceed *from* a transition state but *via* a transition state. Any preference for one product or the other in a kinetically controlled reaction is introduced on the pathway to the transition states from starting material. Further, it is not stated whether the energy difference referred to relates to transition states or products, although from the context of the chapter, one takes it to be the former.

The book contains an impressive collation of material and seems to be essentially free of errors. The diagrams are lucid.

Although it is not entirely clear, one surmises that the target readership would be research workers who are academically inclined. It is difficult to feel that this book will be a self-contained text from which to learn about stereoselective synthesis. In several instances, apprentices in the subject will be left scratching their heads as explanations of reactions are not given in their entirety. To quote a couple of examples: the treatment of Enders' powerful and well-used RAMP and SAMP reagents (page 96) is perfunctory. In respect of the asymmetric aldol reaction (page 29), a condensed survey that is probably insufficiently detailed finishes with: 'The results agree with the Zimmerman–Traxler transition state model quite well'. The Z–T model, however, is neither explained nor referenced.

Fortunately, the text is generally well referenced with a list of over 1050 references, although few are later than

1995. These references will provide a valuable conduit to the original literature.

By this Herculean collation of reactions, Professor Ho has provided a signal service and research workers in this field will either wish to purchase this book or to have ready access to a copy.

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Synthetic methods of organometallic and inorganic chemistry: Transition metals Part 3

Wolfgang A. Herrmann (ed.)

Georg Thieme Verlag, Stuttgart, 2000

221 pages. DM 198

ISBN 3-13-115141-2

This book, volume 9 in a ten volume series, and the third volume to be devoted to the transition metals, contains detailed procedures for the preparation of a wide selection of organometallic compounds of importance to homogeneous catalysis. The present volume concentrates largely on developments that have been made in the last 10 years and topics such as water-soluble transition metal complexes containing the sulfonated triphenylphosphine ligand (TPPTS) are prominent. The team of contributors assembled by the editor provide a wide coverage of the subject matter and an enormous range of chemistry is briefly touched on. As a consequence, all organometallic chemists working at the bench are likely to find something of interest in these pages.

The book is organized into seven chapters, with the most substantial being the first on alkenyl, allyl and dienyl complexes. In addition to describing the detailed preparation of individual transition metal complexes, this chapter also provides a brief overview of the synthetic strategies that can be applied to their syntheses, and describes methods for the synthesis of the main group organometallic precursors used in the preparation of the transition metal derivatives. The second chapter deals with complexes of π -bound heterocyclic ligands, and