

Book Reviews

Organic Synthesis: Strategy and Control. By Paul Wyatt and Stuart Warren. John Wiley & Sons, Ltd., Chichester, U.K. 2007. vi + 909 pp. 19 × 25 cm. ISBN 04719296381. \$90.00.

Stuart Warren is familiar to many organic chemists as the author of a 1982 workbook on retrosynthetic disconnection. *Organic Synthesis: Strategy and Control*, while also focused on organic synthesis, is a much more complete text, combining a strategic analysis of synthetic constructions with extensively referenced discussions of the merits of individual reagents or transformations.

The book is divided into five major sections: an introduction, which is followed by a discussion of chemo-, regio-, and stereoselectivity in synthetic transformations; sequential sections on methods for construction of carbon–carbon single and double bonds; a section on identification and control of stereochemistry; and a final section illustrating the principles of strategic synthesis, approaches to selected functional groups, and the application of tandem reaction sequences. Each section is further subdivided into chapters, 36 in all; for example, the section focusing on carbon–carbon single bonds includes chapters on ortho metalation/functionalization of arenes, reactions of σ complexes of metals, the Michael reaction, enol equivalents, extended enolates, allyl anions, homoenolates, and acyl anions. The early chapters, which place a strong emphasis on strategy, are drawn extensively from the classic synthetic literature with references, on average, dating from the mid-to-late 1970s. These chapters may be surprisingly appealing to experienced chemists wanting a refresher on traditional approaches to synthetic problems. The middle and later sections of the book place a much greater emphasis on asymmetric and/or catalytic reactions and processes, with references coming on average from the mid-1980s through the mid-1990s. The last seven chapters include a strategic look at stereochemical induction and asymmetric synthesis, as well as examples related to functionalization of pyridine, oxidation of aromatics and enols, approaches to nitrogen heterocycles, and tandem organic reactions.

Most sequences are illustrated with literature examples of the forward reaction. Overall, there are more than 1500 references, with a significant number through 2003–2004 and a handful from 2005 or 2006. In addition, common references shared by multiple chapters are listed in a single set of endnotes. Two particularly attractive features are the inclusion of examples from process chemistry, as well as the tendency to “nest” featured reactions within a larger synthetic scheme. Graphics are ample

and clearly drawn, although the numbering system can be occasionally confusing in terms of whether the text is referring to a compound or a reaction.

Any text attempting to span the field of synthesis faces choices in terms of breadth vs depth of coverage. Overall, this book strikes a useful balance in this regard, although there are inconsistencies between the extensive coverage given selected topics (directed metalations and resolutions, for example) relative to areas or reactions where even a brief elaboration would provide value for inexperienced readers (1,2- vs 1,4-selectivity in LiAlH_4 reductions; limitations on transferred alkyl groups during carbozirconations). The demands of organization sometimes require separation of synthetically related topics (enamines vs metallated hydrazones or oxidation of enol ethers with PhSeCl vs Pd^{2+}), and more extensive internal annotation would be useful to inexperienced readers. The informal tone of the text can be refreshing (“and there’s the problem”, referring to the challenge of obtaining functionalized silanes), but sometimes obscures the opportunity for useful elaboration, as when modified conditions for Horner–Emmons reactions of epimerization-sensitive aldehydes are simply described as “slightly odd”. The book also includes a number of explicit referrals to the 1982 workbook. In this reviewer’s opinion, these cross references are not sufficiently important to justify a formal tie, which, in any event, should have been disclosed on the cover or in the forward.

This book will not, by itself, end the classic dilemma facing the instructor seeking an all-purpose text for a course in organic reactions or organic synthesis. However, it is a well-written text that, when paired with primary literature or a more mechanism-based text, would be an attractive core for a course on organic reactions. *Organic Synthesis: Strategy and Control* could also be quite useful for a course on synthesis, particularly as a complement to a book on classic synthesis or as a scaffold on which to add content from the primary literature. This book will also be of interest to the experienced practitioner looking to broaden (or reawaken) awareness of the remarkable diversity of available synthetic transformations.

Patrick H. Dussault

*Department of Chemistry, University of Nebraska-Lincoln,
Lincoln, Nebraska 68588*

JM701340G

10.1021/jm701340g