

Classics in Stereoselective Synthesis; by E. M. Carreira, L. Kvaerno, Wiley-VCH: Weinheim, **2008**, XIX, softcover, 632 pp., £ 60/ € 69, ISBN: 978-3-527-29966-9

The success of the “Classics in Total Synthesis” books by K. C. Nicolaou has apparently motivated the publisher to develop the concept of these books into a series. Carreira and Kvaerno have masterfully written a “Classics in Stereoselective Synthesis” book, which covers the title subject in its entire breadth – and with amazing depth. When opening the book the reader will soon notice an important difference to the books by Nicolaou: the 18 chapters are not devoted to highlight a single contribution, but instead each describes a whole subfield of stereoselective synthesis, bearing titles such as “Chiral Carbanions” or “Sigma-tropic Rearrangements”. This has two consequences: First, the book is not an easy reading as the information content is huge; second, the book is extremely useful as it provides a rather complete view on one of the main topics of modern organic synthesis.

The reader will be pleased to notice that all chapters are coherent in style, structure, length, and of the same high quality. They can be read independently from each other as they do not build on each other and are only loosely connected. The excellent first chapter “Macrocyclic Stereocontrol” is followed by several chapters describing the most important C–C bond forming reactions in stereoselective synthesis, such as “Carbonyl Addition”, “Aldol Reactions”, or “Allylations of C=O bonds”. Other chapters are dedicated to the functionalization of olefins via reduction, oxidation, or hydroboration, respectively. In a similar way chapters describing transition-metal-catalyzed reactions and orbital-controlled cycloadditions or rearrangements are grouped together. One of the chapters which are thematically rather isolated from the others (“Amino acids”), I have found particularly interesting as it informed me about the different strategies to access enantiomerically pure amino acids.

Several aspects are impressive: First, the authors have accomplished the difficult task to squeeze 120 years of stereoselective synthesis into 600 pages. The authors made it. They report about Hoppe’s lithiation work, cover rhodium-catalyzed C–H insertion reactions, discuss in depth the different methods for auxiliary-controlled enolate alkylation, without neglecting the most recent devel-

opments in enantioselective transition-metal and organocatalysis – I could not find any major omission. Of course this comes at the price, that at several occasions I would have wished to have an additional figure depicting a catalytic cycle or get to see another transition state model for a particular reaction. But this is compensated by the excellent literature references that refer to the primary literature. Second, in my opinion the authors have shown excellent taste in picking instructive examples for a reaction principle which either highlight the underlying concept or demonstrate its synthetic power in the context of a spectacular total synthesis. In this respect the promise of the title “Classics in...” is best kept. Third, I cherish this book as an excellent entry port to the primary literature. More than 2500 references cover the literature starting from the very first papers on the subject up to the year 2007. Only on very rare occasions I have found some errors in the book, such as the discussion about the cyclic guanidine peptide as an enantioselective catalyst for the Strecker reaction on p. 331 – a report which in the meanwhile has been found to be not reproducible as described in *Eur. J. Org. Chem.* **2005**, 1497. Another nice feature of the book is the many quotations taken from classic papers or Nobel lectures by eminent chemists and placed with great care next to related scientific content of the book. I was amazed how much foresight leading figures have shown, anticipating future developments in our discipline decades before they finally have become true.

In summary, I think that “Classics in Stereoselective Synthesis” by Carreira and Kvaerno is currently the most comprehensive and timely treatise available for the title subject. It is not a textbook in classic sense as it expects already a considerable amount of background knowledge from the reader and teaches more with examples than with principles. Nevertheless, although not designed as such, it is in my opinion better than every other textbook on the market. Every organic chemist starting from the M.Sc. level up to distinguished faculty will profit from reading this book!

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