

Book review

Advances in Asymmetric Synthesis, Vol. 1, Alfred Hassner (ed.), JAI Press, Greenwich, CT, 1995, 320 pp., ISBN 1 55938 1, US \$97.50, UK £62.50

This volume is part of the recent JAI series in chemistry and is the first in the series *Advances in Asymmetric Synthesis* edited by Alfred Hassner. It contains six chapters, each of which is written by an acknowledged expert in the field and focuses largely on that author's own work.

Two of the chapters are of particular relevance to organometallic chemists. The first of these, by K. Mikami, deals with asymmetric carbonyl-ene reactions promoted by Lewis acid catalysts. It is well written and deals with regioselection, olefinic stereoselection, asymmetric induction and asymmetric catalysis. The second is yet another review by H.C. Brown, the pioneer in the use of organoboranes as reagents in organic synthesis. He and P.V. Ramachandran discuss the use of chiral organoboranes based on α -pinene in the asymmetric synthesis of alcohols, α -chiral aldehydes, acids, amines, olefins, acetylenes, β -chiral esters and ketones as well as in enantioselective reductions and allylboration.

There are two chapters concerning the asymmetric synthesis of amino acids, a subject of considerable current interest. The first of these chapters by R.M. Williams concentrates on the use of now commercially available homochiral 1,4-oxazines as chiral glycine templates in asymmetric synthesis. The conversion of these (a) to electrophiles which react with a variety of nucleophilic reagents in the presence of Zn^{2+} and other catalysts, (b) enolates which react with nucleophiles, and (c)

to 1,3-dipolarophiles which take part in cycloaddition reactions is discussed, and the rigid geometry of the six-membered glycinat templates has allowed for both diastereocontrolled reactions and convenient analysis of the stereochemistry of the products. A second chapter by I. Ojima reports on the use of chiral β -lactam synthons to prepare amino acids and peptides in extremely high stereoselectivity.

A chapter by K. Mori on enantioselective synthesis in the field of insect chemistry, although necessarily selective, is useful. The title of the final chapter by Hudlicky and Reed implies that it will cover microbial oxidations of aromatic compounds, but in fact it is a review of some of the work which has been accomplished using cyclohexane-*cis*-diols as starting materials in enantioselective synthesis. Notwithstanding the brief reference to transition metal mediated transformations in the latter chapter, the organometallic chemistry content of these two chapters is slight. This is a useful compilation, the editor having gathered contributions from an impressive array of authors. It will be of value to all chemists with an interest in asymmetric synthesis, and specialist organometallic chemists will find the chapters by Mikami and by Brown of particular relevance. I await Volume 2 with interest.

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