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### Book review

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*Organotitanium Reagents in Organic Synthesis*; by M.T. Reetz, (*Reactivity and Structure: Concepts in Organic Chemistry, Vol. 24*), Springer Verlag, 1985, x + 236 pages, DM 168, ISBN 3-540-15784-0

The author of this monograph describes it as a progress report on the use of organotitanium reagents in organic synthesis. A quick glance at the bibliography will assure the reader that this is both true and timely: most of the references are to papers published within the last five years. This is an excellent account of this expanding field.

Carbanions are of great importance in organic synthesis but their reactions frequently proceed with low degrees of chemo-, regio- and stereo-chemistry. Titaniation of carbanions yields  $RTiX_3$ , the reactivity of which may be controlled by the steric and electronic effects of the X groups. A brief introduction outlines this area and includes reference to other uses of titanium in synthesis, particularly couplings using low valent species and enantioselective epoxidation. Chapter 2 deals with synthesis of organotitanium compounds, aryl, alkyl, and cyclopentadienyl. Their structures and physical and spectroscopic properties are given in detail and related to their reactivity.

One of the major advantages of the use of organotitanium reagents is the chemoselectivity which their reactions display. This is achieved by alteration of the ligands, X, in  $RTiX_3$ . In particular, aldehydes may react in the presence of ketones or esters, and diketones may be induced to react at only one of two or more possible sites. The account continues with discussion of kinetic data and consideration of diastereoselective and enantioselective reactions. Michael additions, nucleophilic substitution and Wittig type methylenation of carbonyl compounds are also detailed.

Organotitanium chemistry has great potential in synthetic organic chemistry, and many of the reagents are themselves of considerable interest to the organometallic chemist. Examples have been drawn from many areas, including syntheses of terpenes, steroids, carbohydrates, and molecules of theoretical importance. The book is well produced, relatively error free and well referenced into 1985. It is an appropriate time for publication of this account; organotitanium reagents are coming of age, and their versatility deserves to be more widely known.

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