

*Modern NMR Techniques for Chemistry Research*; by A.E. Derome, Pergamon Press, Oxford, etc., 1987, xvii + 280 pages, £47.50, US \$70.00 (Hard cover) ISBN 0-08-032514-9. "Flexicover" version £23.50, US \$35.00 ISBN 0-08-032513-0.

This book appears as Volume 6 in the Pergamon Organic Chemistry series but its contents will be of interest to all organometallic chemists who wish to record more than the simplest of NMR spectra. The author assumes (not unreasonably) that the reader will be familiar with simple proton and  $^{13}\text{C}$  spectra and as a consequence the fundamental aspects of chemical shifts and coupling constants are not discussed and there are no tables of such data. What the book concentrates on is the acquisition and manipulation of NMR data using Fourier transform techniques. The mathematics involved is kept to a minimum, and all the experiments are well illustrated with real spectra and clearly drawn figures.

The ten chapters have titles as follows: "What This Book Is About"; "Why Bother With Pulse NMR"; "Basic Experimental Methods"; "Describing Pulse NMR"; "The Nuclear Overhauser Effect"; "Polarisation Transfer and Spectrum Editing"; "Further Experimental Methods"; "Homonuclear Shift Correlation"; "Heteronuclear Shift Correlation"; "Spin Echoes and *J*-Spectroscopy".

As can be seen from the chapter titles the reader is taken from the fundamentals of Fourier transform NMR spectroscopy through to modern pulse sequences used to solve complicated problems. There are a wealth of helpful hints to be found throughout the book, from preparing samples properly (particularly important at high operating frequencies) to determining whether a 2D shift-correlation experiment will achieve adequate sensitivity. The uses and effects of pulse sequences such as COSY-90, COSY-45, DEPT, INEPT, INADEQUATE, WALTZ-16 etc. are all well described and illustrated, mostly from organic but with some examples from organometallic chemistry.

This book is both well written and free from errors. A second colour (red) has been used to clarify some of the more complicated spectra reproduced. Although the text has been reproduced from camera-ready copy the author has phototypeset the material himself to give a very clear and professional final appearance to a book that will be useful to anyone wanting to know how to use modern NMR techniques to solve chemical problems.

*School of Chemistry and Molecular Sciences,  
University of Sussex, Brighton BN1 9QJ (Great Britain)*

**Paul D. Lickiss**

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*Organometallic Chemistry Reviews: Annual Surveys: Transition Metals in Organic Synthesis. Organic Reactions of Selected  $\pi$ -Complexes*, edited by R.B. King and J.P. Oliver, Journal of Organometallic Chemistry Library, Volume 19, Elsevier, 1987, 590 pages, US\$200.00, Dfl 450.-, ISBN 0-444-42757-0 (Volume 19) 0-444-41445-2 (Series)

This book is composed of three annual surveys of the Journal of Organometallic Chemistry, all covering the year 1985. The first by Louis S. Hegedus, describes Transition Metals in Organic Synthesis. In view of the vast literature in this area the author wisely limits himself to describing either procedures which engender good

yields or unique transformations which cannot be otherwise readily achieved. He describes his review as "non-critical" and this is indeed the case; reactions are presented in rather bald terms and their generality is not usually discussed.

The second section, by Laszló Markó, considers other uses of transition metals in organic synthesis, detailing hydroformylation, reduction, and oxidation reactions. Again this is an excellent review, and provides both a useful list of abbreviations, a "metal index" and a review of reviews, as well as the customary bibliography. The final chapter details organic reactions of selected  $\pi$ -complexes by George Marr and Bernard W. Rockett. Again this is a useful contribution and essential reading for anyone working in this area.

This volume has been produced from camera-ready manuscripts, with all their attendant advantages and disadvantages. When one considers the rate of arrival of journals in most libraries, the production has been commendably speedy. There are typographical errors, but these are not so numerous as to be obtrusive. I could not really see the purpose of providing only an author index; a subject or compound index would have been much more useful. The predecessors of these articles have been published in the *Journal of Organometallic Chemistry* (*J. Organomet. Chem.*, 298 (1986) 207; 305 (1986) 199, 333). I would hope that this change of format will not result in these excellent articles being less widely available to the chemical community.

In the USA and Canada the book is available from Elsevier Science Publishing Co. Inc., P.O. Box 1663, Grand Central Station, New York, NY 10163.

*School of Chemistry and Molecular Sciences,  
University of Sussex, Brighton BN1 9QJ (Great Britain)*

**Penny A. Chaloner**

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*Catalytic Polymerization of Olefins (Studies in Surface Science and Catalysis, Volume 25)*; edited by T. Keii and K. Soga, Elsevier, 1986, xiv + 489 pages, Dfl 340.00, US \$165.75, ISBN 0-444-99518-8.

This volume contains the papers presented at a symposium on "Future Aspects of Olefin Polymerization", held in Tokyo in July 1985. The prospective purchaser should be aware of this, since this is most definitely not a text book, nor even a series of reviews covering most aspects of the subject described in the title. Almost the whole book is devoted to papers on Ziegler-Natta catalysis and related systems; ionic and radical routes to polymers are essentially not discussed at all, nor are metathesis based routes to polymers.

Given these limitations, however, there are a number of rather interesting papers presented. In the twenty-five years since the discovering of the Ziegler-Natta catalyst some 15,000 papers and patents have appeared and there is still no abatement of interest in the field. The articles here cover a fairly wide range of topics ranging from reaction engineering aspects, through heterogeneous and supported catalysts to modern homogeneous systems. It is the last of these areas that the organometallic chemist will probably find most interesting. I found Keim's discussion of catalysis by chelate complexes of nickel and Fink's work on soluble nickel hydride and  $\text{Cp}_2\text{TiMeCl}/\text{AlMe}_n\text{Cl}_n$  based catalysts particularly valuable. New metallocene catalysts reported both by Ewen and Kaminsky provide, almost