tion and it comes through in every chapter. Let us hope that he is still going strong when this excellent book itself gets out of date and a new edition is required.

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Synthesis of Organometallic Compounds A Practical Guide, S. Komiya (Ed), Wiley, Chichester, 1997, pp. 442, £65 hbk, ISBN 0471 97070 0, £29.95 pbk, ISBN 0471 97195 2

This book consists of four introductory chapters by the editor covering the fundamentals of organometallic compounds, ligands, and the manipulation of air-sensitive compounds, and 13 chapters by other Japanese authors on the organometallic compounds of groups 3-12, 1, 2, 13 and 14 of the Periodic Table. The chapters on specific groups have a common pattern consisting of a general account of the synthesis of organometallic compounds followed by procedures and practical details for the syntheses of individual compounds.

The preface states that 'This textbook is intended for undergraduate students starting organometallic chemistry and researchers who want to use organometallic compounds, but are not professionals in organometallic chemistry'. It may be that the teaching of chemistry at university level is structured differently in Japan but I am not sure that this book, which undoubtedly contains a lot of useful information, fits very well into the pattern in many European or North American universities. The introductory chapters describe some of the jargon of organometallic chemistry, e.g. the 18-electron rule, agostic interactions, *trans*-effect and -influence, fluxionality, oxidative addition, reductive elimination and insertion, in an admirably concise way but with a breathlessness that could overwhelm many undergraduates. A wide knowledge of general chemistry (e.g. HSAB, Taft σ^*, stability constants) together with a good grounding in inorganic chemistry and an even stronger one in organic chemistry, are assumed. The chapter on experimental methods is illustrated with simple diagrams but I am not sure that the techniques described could be made to work with really air- and moisture-sensitive materials without a good deal of further help from practitioners or more detailed texts. Similar points can be made about the group-by-group chapters. The summaries of the organometallic chemistry of the groups are fine, but are the syntheses of individual compounds, many of them quite tricky to manipulate, really adequate? The details of techniques are fuller than those commonly given in research papers but they are not as comprehensive as those in *Inorganic Syntheses* and there are no diagrams in these chapters. The references seem to be reasonably complete. The transition metal groups have been covered in greater detail than the main groups but in both sections the selection of individual compounds seems rather arbitrary. Are they intended to be the most important (with greatest potential for development by researchers), examples for students (which work reliably in inexperienced hands) or simply those with which the authors are most familiar?

Perhaps the readers most likely to find this book useful are those with first hand research experience, especially in organic chemistry, who wish to use organometallic compounds as synthons. They will find the detailed accounts of the reactions of organometallic compounds with organic substrates useful and have the laboratory experience and skills to benefit from the sections covering experimental methods.

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Molecular Symmetry and Group Theory, R.L. Carter, John Wiley, New York, 1998, pp. 299 + x, £17.99 (paperback), ISBN O 471 14955 1

For all the power of symmetry arguments, how best to introduce molecular symmetry and group theory is still a teasing problem to which no universal answer has been found. Many chemical texts now include group theory, but usually so briefly as to be of little help to the novice. Primers specifically devoted to group theory certainly exist—Cotton's *Chemical Applications of Group Theory* is an admirable example—but, whether for reasons of logical development, mathematical satisfaction or over-elaboration, presentation, or scope, none seems to this reviewer to provide the ideal treatment.

Now comes a new challenger. In a clearly written style Robert Carter aims to show the evolution of the ideas underpinning symmetry and group theory and to demonstrate the pivotal role of these ideas in relation to chemical problems of structure, bonding and spectroscopy. The core of the subject matter is presented in the first four chapters entitled, respectively, Fundamental Concepts, Representations of Groups, Techniques and Relationships for Chemical Applications, and Symmetry and Chemical Bonding; these span nearly half