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Book Review

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Pericyclic reactions—a textbook: reactions, applications and theory

Wiley-VCH, 2005,
432 pp; price £34.95
ISBN 3-527-31439-3 (paperback)

A textbook dealing with pericyclic reactions which has a foreword by Roald Hoffmann must warrant a look inside the cover, with its stiking jacket design incorporated into the blue and white livery adopted by Wiley. The contents are a distillation of the author's teaching of this subject to graduate students for more than a decade and it is clearly aimed at such an audience. However the number and range of synthetic examples present mean that this book is also useful for more experienced practitioners and anyone who also teaches in this area to dip into from time to time—particularly those seeking that examination question with a twist.

The book presents the theory and examples of pericyclic reactions in a conventional style and follows a predictable format. It deals with the theoretical aspects of π-molecular orbitals and symmetry aspects in the first chapter and then a chapter is devoted to each of the four classes of pericyclic reaction in the order electrocyclic, cycloaddition, sigmatropic and chelotropic reactions; the latter chapter also covering group transfers and the ene reaction. The final chapter is used to tidy up the odds and ends of subjects, such as symmetry forbidden, organometallic and radical cation pericyclic reactions, which do not naturally fall within the other categories.

The textual style and monochrome diagrams are unfussy and reminiscent of the relevant section in Lowry and Richardson's classic undergraduate textbooks, making the contents amenable to the reader approaching this area for the first time, with the Woodward–Hoffmann, frontier molecular orbital and Hückel–Möbius treatments being clearly expounded. Each of the chapters dealing with the four main classes of pericyclic reaction contains a wealth of illustrative synthetic examples and is amply referenced, although there are few references to the primary literature later than 2000 and I did note some rather quaint phraseology within some of these.

As its title states, this is not a specialist monograph but a textbook aimed at those studying pericyclic reactions as part of their chemistry curriculum, and it copes admirably with the task. At under £35, this book with its more than 400 pages represents real value for money and should be within the financial reach of those students who wish to explore its contents, which are clearly and conventionally laid out, making for comfortable assimilation.

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