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Book Review

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The Way of Synthesis: Evolution of Design and Methods for Natural Products

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It is always satisfying when one opens a textbook that actually delivers what the title promises. This massive work, weighing in at over a 1000 pages and produced by the man and wife team of Hudlicky and Read, not only contains a wealth of information on a wide range of total syntheses and the usual presentation of the mechanics of retrosynthetic analysis, but each synthesis is minutely dissected, the strategy laid out and key reactions highlighted. Furthermore, this is no simple exposition of the art of organic synthesis, but is contextualised by historical association, commentary from leading synthetic chemists and personal opinion – and Hudlicky and Read do not shrink from making their viewpoints clear. Despite its length, the style is not verbose and each phrase is careful crafted to carry a message with a punch, be it a factual statement, personal recollection or assessment.

So what is contained within this book's covers? The first chapter deals with organic synthesis within a historical context, highlighting important steps forward, reactions discovered, key structure elucidations (*inter alia* morphine and glucose) and synthetic milestones. In the second chapter, strategy and tactics in retrosynthetic analysis and total synthesis are discussed. Here, alongside the considerations of ''Umpolung'' ''connectivity'' and ''chemoselectivity'' that would be expected in such a treatment are insightful musings on ''brevity'', ''efficiency'' and ''computer aided design''; some of which has previously appeared in a *Chemical Reviews* article but now appears as a complete treatise. Here, and throughout the book, key points are highlighted in blue; what a pleasure it is to see intelligent use of colour which has a real purpose, as opposed to the Technicolor fare so frequently served up in the mistaken belief that more colour makes for better impact.

The next three chapters deal respectively with analyses of syntheses of terpenes, alkaloids and ''miscellaneous compounds'', always including personal insight as well as comments from other practitioners. Obviously any selection will reflect the preferences of the authors, but all the expected targets are there - hirsutine, aphidocolin, phorbol, taxol, reserpine, morphine, strychnine and palytoxin to name but a few. The different synthetic approaches to each target structure are exquisitely detailed with each having a clear and concise synthetic flow chart showing the important steps, framed in blue and with the key strategy and tactics highlighted. This provides an immediate distillation of the synthetic route at a glance and the textual commentary provides the in-depth analysis by the authors and personal recollections from many of the chemists responsible for the work. It is this level and concentration of informed analysis contained within these three chapters that sets this work apart from others. Clearly, and concisely written, the intensity of information delivery meant that I kept dipping (and will continue to dip) into the book rather than trying to read full tracts. Like Wagner's ''Ring Cycle'', this book needs a lot of hard work to appreciate it, but the rewards fully justify the effort.

The book ends on a philosophical note when the authors take stock of what has gone before and look forward to the future of organic synthesis, once again with personal opinions solicited from practitioners of the art of total synthesis. Alongside the up-beat and optimistic predictions are salutary messages and this chapter produces much food for thought. If those thinking of becoming synthetic organic chemists in academia read any part of this book, they should read Chapter 6.

It goes without saying a work of this kind is heavily and extensively referenced; the citations at the end of each chapter provide a mine of information. Furthermore, in the Appendix there is guide to highlights within the literature, directing the reader to all the important review journals and compilation works. In total, this is a stunning piece of work, offering information, analysis and opinion at the deepest level and will be a source of information and inspiration to all who read it.

At the outset, the authors dedicate their efforts to their son Jason and to Tomas Hudlicky's father, Milos Hudlicky. Milos Hudlicky was a true giant among chemists, an expert in the area of organofluorine chemistry, who was brutally cast aside by the regime that ran Czechoslovakia in the sixties because he refused to toe the party line. When the family moved to the United States. Tomas Hudlicky followed in his father's footsteps and, with his wife, has now produced this very worthy testimonial to his father. I am sure that Milos Hudlicky would have been proud of a work that proves the family tradition of excellence in organic chemistry continues.

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