

## Book Reviews

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**Comprehensive Organic Functional Group Transformations.** Edited by A. R. Katritzky, O. Meth-Cohn, and C. W. Rees. Pergamon Press (Elsevier Science Ltd.), Tarrytown, NY. 1995. 7 vols., 19.5 × 28 cm. vol. 1, xix + 1420 pp; vol. 2, xix + 1441 pp; vol. 3, xix + 941 pp; vol. 4, xix + 1352 pp; vol. 5, xix + 1442 pp; vol. 6, xix + 933 pp; vol. 7, xvii + 1251 pp. ISBN 0-08-042-322-1; 0-08-042-323-X; 0-08-042-324-8; 0-08-042-325-6; 0-08-042-326-4; 0-08-042-704-9; 0-08-042-705-7. \$4310 (set).

Composition of an adequate critique of this massive compendium presents a similar challenge to the direction, "Write all about the Vietnam War in 100 words or less". The goal of the volumes is to present the vast subject of synthetic organic chemistry in terms of introduction and interconversion of functional groups. To this end, the editors have assembled a large number of authors, mostly from the United Kingdom and Ireland, but with a modest number from Europe, the Americas, and the Far East. Volume 1 deals with bonding at carbon atoms which are left with no attached heteroatoms; volume 2 deals with syntheses that result in carbon atoms attached to one heteroatom by a single bond; volume 3 deals with syntheses that result in carbon atoms attached to one heteroatom by a double or triple bond; volume 4 deals with syntheses that result in carbon atoms attached to two heteroatoms, each by a single bond; volume 5 deals with syntheses of carbon atoms attached to two heteroatoms by one single and one double bond, or by two double bonds, or by one single and one triple bond; volume 6 deals with syntheses which result in carbon atoms attached to three or four heteroatoms; and volume 7 comprises cumulative author and subject indices. Additionally, each of the first six volumes contains a subject index and literature references for that volume. The set does not address heterocyclic chemistry.

This work was written by synthetic organic chemists for synthetic organic chemists; it reflects the skill of the editors in their planning and organizing and subdividing the vast amount and variety of chemical information covered. This aspect is at least as important as the assembly and presentation of factual material. As might be anticipated, productive, efficient utilization of this massive compendium of information requires that the reader familiarize him/herself with the details of organization employed by the editors. These are adequately explained in the Introduction to each volume. Additionally, literature references in the text are indicated by a space-saving, abbreviated system that the reader can rapidly master. Subject indices in the individual volumes and the cumulative subject index in volume 7 are comprehensive and complete. This reviewer had little difficulty in locating specific topics,

retrieving specific information, and identifying literature citations. Chapter authors have included useful relevant historical background material and discussions of mechanistic aspects of the functional group chemistry being addressed. This chemistry is thoroughly and comprehensively explored in all of the chapters. The narratives reflect the contemporary state of chemical knowledge; the authors have done well in providing information which should serve as a stimulus for developing new ideas for solutions to synthetic challenges, for both beginners and experienced chemists. It seems inadequate to state that the editors and authors have assembled a gold mine of chemical information.

As is perhaps inevitable with a multiauthored work of this size, the writing style varies from chapter to chapter, and is not uniformly good. A few chapters exhibit poor writing, faulty and confusing syntax, and inappropriate or inaccurate choice of words. Examples: "...synthesis of ketenes that *bare* chiral substituents..."; "...the interested reader is therefore directed to the excellent *monologues* by Ward...". While these writing errors represent annoyances rather than fatal flaws, it is to be hoped that they do not reflect similar carelessness in reporting and describing the chemistry. Throughout the series, chemical structures and equations seem carefully and accurately presented. However, in a few instances it was noted that the chemical equations were not completely consistent with the narrative. In one example, the text stated that "a phenyl group may interfere with the reaction...", but the accompanying equation showed a structure bearing several "R" groups, without indicating which (or all) of the "R's" represent the position of an undesirable phenyl group.

Overall, this seven volume set is a well-done, comprehensive exposition of functional group chemistry applicable to use by synthetic organic chemists. This work is an excellent compilation of information on the chemistry of specific functional groups as well as a source of ideas for planning multistep synthetic sequences.

The price precludes the customary recommendation that these volumes should be on every chemist's bookshelf. However, they would be an asset in the industrial and academic library, and this reviewer would anticipate that these books would be used continually and constantly.

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