

The strength of the book is that it gives details of practical procedures and the advantages and limitations of specific methods are discussed.

Individual chapters deal successively with oxidation of alkanes and alkyl groups, alkenes, alkynes and arenes. Organometallic reagents and catalysts are generally rather lightly treated. However, vicinal hydroxylation of alkenes in the presence of osmium complexes is well considered, as are hydroperoxide-mediated oxidations in the presence of molybdenum, vanadium and titanium complexes. Treatment of the oxidation of alkenes to ketones is more disappointing. Rhodium catalysed reactions are essentially absent, and palladium catalysed processes considered very briefly, with only one reference after 1980 despite much recent exploitation of this method. Phenol oxidative coupling in the presence of metal complexes receives detailed discussion, but few other organometallic routes for arene oxidation are reviewed.

Literature references are highly selective; whilst some up to 1983 have been included, they have been chosen to illustrate practical procedures rather than for their topicality. The book is interesting but its emphasis is distinctly towards classical organic chemical routes for transformations, and 1980's reagents, particularly organometallic ones, are considered somewhat briefly. The high price of the volume will largely preclude individual purchase, and although the book is nicely organised and presented, most of the information in it (and in some cases much more) could be as readily acquired from a perusal of a set of Fieser and Fieser.

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

PENNY A. CHALONER

---

*Houben—Weyl Methoden der Organischen Chemie, Organische Schwefel-Verbindungen*, 4th edition, *Volume E11, parts 1 and 2*, edited by D. Klamann, Georg Thieme Verlag, 1985, xxiv + 1821 pages, DM 1950.

The last Houben—Weyl volume to deal with organic sulphur compounds appeared in 1955 and included organoselenium and organotellurium species. A critical survey of organosulphur chemistry over the last thirty years has generated two substantial books, with selenium and tellurium compounds reserved for a later issue. Sulphur analogues of the carboxylic acids were considered in volumes E4 and E5, and sulphur—phosphorus compounds in E1 and E2. Taken together with the earlier work, organosulphur chemistry is reviewed into 1984.

The Houben—Weyl series has as its purpose to detail the chemistry (synthesis and reactions) of the classes of compounds in question. It thus complements the Gmelin inorganic and Beilstein organic series, which are more concerned with comprehensive lists of compounds and their properties.

The present volume details the preparations and reactions of all classes of sulphur compounds, many of which were little known in 1955. Most notable of these, perhaps, are new classes of sulphonium salts, sulphur ylids and chiral

organosulphur compounds. The first volume deals with sulphur(II) and sulphur(IV), with sulphur(VI) compounds occupying most of the second volume. Overlap with the previous volume is kept to a minimum, other than in cases where a new synthesis requires a previously described compound.

The organisation of this wealth of new material is a splendid achievement by Dr. Dieter Klamann and his 25 collaborators. The contents tables are detailed and illustrated, as is the extensive index. Both of these features are invaluable to the user who does not read German well or who is unfamiliar with the systematic nomenclature of the compounds. A large number of tables and equations also assist the reader in finding his way about the book. There is also an excellent bibliography of review articles and monographs for each section.

Like the other volumes in this series this work is attractively presented and meticulously accurate. I particularly liked the use of boldface type to indicate the relevant parts of reacting molecules. The price of this series is now such as to deter all but the most affluent library purchasers, but it will be invaluable to anyone wishing to prepare any type of organosulphur compound. Finally a short plea on behalf of the non German speaking user — now that both Beilstein and Gmelin are appearing in English it might be an appropriate time to consider the same for the Houben—Weyl series.

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

PENNY A. CHALONER