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Book reviews

Organic Photochemistry: Vol. 6; edited by A. Padwa, Marcel Dekker, New York, 1983; 458 pages, Sw.Fr. 198.

It is clear that chemists have responded to the uncomfortably fast growth of their subject by instituting new review series in each of the main fields. The photochemistry of organic compounds is well served by such material, and Organic Photochemistry, now in its 6th volume, has always presented reviews of above average thoroughness. This volume is no exception.

It is timely in that a theme running through most of the contributions in this new volume is that of electron transfer. This reaction mechanism has received increasing attention in gound state chemistry, and it is not surprising that it plays a still larger part in photochemistry.

A chapter on photochemical heterocyclisation summarises the counterpart of classical heterocyclic synthesis, with emphasis on the preparative rather than mechanistic aspects. Photochemical alkylation is discussed mainly with reference to the useful chloroacetamide reactions. The photochemistry of organic anions which is the topic of another chapter, is in its infancy, but some expected properties are observed; these reactive anions will invariably be associated with metal counter-ions, and the way in which these influence the reactions is clearly a study for the future.

Photochemical electron transfer is explicitly treated in one chapter, cyclisation, isomerisation, rearrangement and oxidation all being described in terms of electron transfer. The last chapter in the book, on photosolvolysis, amply demonstrates the fascination and difficulty in attempting to correlate photochemical reactions with their very extensively studied ground state counterparts. Although there are more than enough unsolved problems in carbon photochemistry, it is perhaps an indication of the future that the photochemically produced carbocations of the last chapter have recently been joined by a photochemically-induced solvolysis of organo-silicon halides. The cross-fertilisation of two such prolific disciplines as photochemistry and organometallic chemistry would, one feels, be a mixed blessing! This book is well produced with clear formulae and script, and no significant typographical errors. However the remarkably high price prevents recommendation as value for money.

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