wide indeed. Wolken states that he has chosen to illustrate the various photobiological phenomena with examples taken primarily from organisms that he himself has studied. I have a slight suspicion that this decision may have determined the balance of the material presented. For example, I think that photosynthesis warrants more space than the 19 pages it is given here. The discussion of the chloroplast structure largely relates to a 1975 model proposed by Wolken, and the treatment of artificial photosynthesis concentrates on some particular experiments with liquid-crystalline systems. Again, I feel slightly uneasy about the balance in the discussion of vision. Although fascinating, the 38 pages devoted to the structure and optics of the eyes of vertebrate and invertebrate creatures is a little off-course for this book, especially when the discussion of visual pigments, the photochemistry of visual excitation, and the molecular structure of retinal rods (which is again largely about a 1975 model) together take only just over half the space given to other aspects of the eye. I would have thought that at least a mention was warranted of the way in which photoisomerization of retinal produces a neural signal by triggering a cascade of enzymatic reactions, and of the transmission of information from the receptor disk to the plasma membrane. The references in this section seem generally rather dated, and there is an implication that the structure of rhodopsin is unknown.

Subject to my remarks about balance, which must be recognized as a personal opinion only, I find that the author has succeeded in presenting important information in an interesting and lively way. He provides for non-specialists an introduction and a guide to photobiology. Ancient societies evolved legends that connected the origin of light with the creation of life, and Wolken shows some of the substance behind the myths. As photochemists we will all be pleased that a wide audience is being introduced to one aspect of our work.

R. P. WAYNE

Organic Photochemistry

by J. M. Coxon and B. Halton; published by Cambridge University Press, Cambridge, 1986, 2nd edn.; 243 pp.; price, £37.50; ISBN 0-521-32067-4

The first edition of this book was one of a number of introductory textbooks on photochemistry that were published about 15 years ago, and a distinctive feature of that book was its emphasis on *organic* photoreactions rather than general photophysical and photochemical processes. This remains an attractive feature of the second edition, and the main chapter titles reflect the organic orientation: Introduction — excitation and the excited state; Intramolecular reactions of the alkene bond; Intramolecular reactions of the

carbonyl group; Intermolecular cycloaddition reactions; Oxidation, reduction, substitution and elimination reactions.

These titles point to a mixed classification of reactions, either by functional group or by overall reaction type. Such an approach has certain drawbacks for teaching purposes, as can be highlighted, for example, by citing the introduction of intramolecular hydrogen abstraction in ketones (*e.g.* Norrish type 2 reaction) long before intermolecular hydrogen abstraction appears as an example of photoreduction; similarly, the photocyclization of stilbene is classed with photo-oxidations rather than with electrocyclic reactions of alkenes.

One feature on which I would take issue with the authors is the very great emphasis placed on the Woodward–Hoffmann rules. A substantial part of the book is devoted to the rules as they apply to electrocyclic, sigmatropic and cycloaddition reactions, and to one theoretical model (involving orbital correlation diagrams) for rationalizing the rules. However, much of what is said relates primarily to thermal reactions and is covered nowadays in standard organic chemistry texts. Some of the special features of photochemical concerted reactions are not drawn out fully (except for the general "reversal" of the selection rules as compared with thermal analogues), and I would like to see more stress on the experimental evidence for concertedness, which is incomplete for many examples of photochemical reactions that are said to uphold the validity of the selection rules.

My criticism, however, must be balanced against a pragmatic point, namely that in many undergraduate courses pericyclic reactions and organic photochemistry are taught in the same block of lectures, and in this regard students may be well served by this book. The changes in the second edition are much more than cosmetic — new material is added to reflect the extensive research activity of the past decade or so, some reorganization has taken place, figures are redrawn, and more up-to-date references (as far as 1984) are included. The overall appearance is good and the presentation is clear, so there is much to commend in this text.

JOHN COYLE