

the well-established field of ionic conduction in membranes, might have added to the value of the book, and formed a bridge to already well-established areas of electrophysiology. Where ionic and electronic conductivity exist side by side, there is a real problem in distinguishing one from the other. But Dr Pethig was probably wise not to trespass beyond his

brief of electronic properties, since this is a neglected area of biophysics at present, and I believe this book makes a valuable contribution towards remedying this neglect.

D.D. Eley

D.D. Eley is Professor of Physical Chemistry at the University of Nottingham, UK.

Photochemistry of small molecules

Photochemistry of Small Molecules. By Hideo Okabe. Pp. 431. (Wiley: Chichester, UK, 1978.) £24.55.

ADVANCES in techniques, made over the past decade or so, have greatly facilitated detection of photochemical primary products and made possible detailed studies of photodissociation dynamics. The information obtained, coupled with much new experimental data on the reactivities of ground state and excited atoms and radicals, has provided the basis for an improved understanding of photochemical processes. Dr Okabe's book has been written to cover the progress made in the gas phase photochemistry of molecules containing up to five atoms.

The contents of the book fall essentially into three parts. Two chapters deal with the principles of spectroscopy and of the primary photochemical process; the introductory section is concluded with a chapter on experimental techniques. The author has chosen here to emphasise certain topics that are of interest to himself; and they are topics of importance often ignored elsewhere. The thermal contribution to photodissociation, atomic resonance absorption and emission, and deviations from the Beer-Lambert Law are dealt with in detail, as are energy and angular distributions in photofragments, and the determination of dissociation energies. The chapter on techniques is similarly concerned with certain special aspects rather than with a comprehensive overview. The order of presentation is sometimes unexpected, with detail preceding generalisations. For example, a mathematical treatment of band intensities

is given in a section before, and unrelated to, that in which observations of intensity distributions are reported and the Franck-Condon principle stated.

The central section of the book consists of four chapters dealing with the quenching and reactions of excited atoms, and the photochemistry of diatomic to pentatomic molecules. For some 80 molecules, the spectroscopy and photochemistry are discussed in the light of information available up to July 1977. Although the huge amount of factual material presented necessarily precludes a deeply critical approach, the review is structured and readable.

A final chapter of the book is devoted to some topics related to photochemistry: isotopic enrichment, photochemical air pollution of the troposphere and stratosphere, and the photochemistry of the atmospheres of Mars, Venus and Jupiter. No more than an introduction can be given to these subjects in a total of 35 pages, but the chapter will provide a stimulus to the reader, as well as guiding him to more detailed references.

The author states that his book is aimed at the physical chemist, spectroscopist and atmospheric scientist interested in photochemistry. The level and content seem about right for this readership. A non-specialist would probably find the first chapters inadequate, and the review part too detailed, for the book to provide an introduction to photochemistry. But, for the practising photochemist, Dr Okabe has provided a most valuable reference book.

R. P. Wayne

R. P. Wayne is Lecturer in Physical Chemistry at the University of Oxford, and Dr Lee's Reader in Chemistry at Christ Church, Oxford, UK.

Asbestos sourcebook

Asbestos. Vol. 1: Properties, Applications and Hazards. Edited by L. Michaels and S. S. Chissick. Pp. 553. (Wiley: Chichester, UK, and New York, 1979.) £25.

In 1976, Dr Michaels and Dr Chissick, of the University of London, could discover no comprehensive source book on all aspects of asbestos. This first of two volumes is the result of a useful, and at

times entertaining, attempt to provide such a book. The volume covers the mineralogy, chemistry and physics of asbestos, its use, monitoring, identification, and substitute materials; and five chapters are devoted to asbestos-related diseases. There are also contributions on attitudes to asbestos, and dealing with asbestos problems.

Each chapter was commissioned with an obviously careful brief to be comprehensive, not too technical and independent of other chapters. This has led to some repetition, for example, of the different varieties of asbestos and of the

history of asbestos-related diseases. But this does not detract from any individual chapter and is only a slight annoyance to reviewers or other cover-to-cover readers.

Clearly, the brief that the editors gave themselves was to seek moderation. The contributors were carefully selected to exclude members of the asbestos industry and its declared opponents. This has worked remarkably well, as the contributions are well balanced without the extreme views often expressed on the emotive subject of the hazards of asbestos. This balance has been maintained effectively except in the chapter on attitudes to asbestos. There, the moderate discussion of attitudes of governments, industry and unions becomes more extreme itself when considering the extreme viewpoints of pressure groups and in the media. It was a pleasure to see the publication of such a positive response.

It was also a pleasure to see aired (for example, on page 385) certain of the inter-professional disputes which have been well-known among research workers, but have rarely been made public. This is a good move towards more openness in science.

In a series of commissioned chapters, not all can be of uniform standard. The introduction contains definitions (misleadingly headed Bibliography) of some terms. The first is of asbestos bodies, but the definition is of a fibre; the second contains one of those misprints prized by collectors — asbestosis is characterised by diffuse *intestinal* fibrosis — although it is argued on page 421 that the fibrosis is not "interstitial"; the radiographic classification given was issued by the International Labour Office in 1958, but the first version specifically to cover the radiographic changes related to asbestos exposure was not issued until 1971. The chapter on the clinical features of asbestos-related disease seems to treat the subject most superficially, particularly by comparison with the adjacent chapters. There were also a few other odd statements such as road death statistics are a hazard to health (page 330), and asbestos is the only known naturally occurring fibrous mineral (page 306). More seriously, there was no specific mention of the Medical Research Council as a source of information despite the many years of research on asbestos undertaken by its staff.

However, the overall impression is of a most comprehensive source book, useful to almost everybody who needs to discover information about asbestos. It goes a long way towards the editors' aims of public education. The only missing information seems to be the contents list for volume two. **Charles E. Rossiter**

Charles E. Rossiter is Head of the Division of Computing and Statistics at the Clinical Research Centre, Harrow, UK.