

concerned with chemistry at the undergraduate, postgraduate, or research level, and many chemists will want it on their own shelves.

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Photoinduced Electron Transfer, Parts A–D; edited by Marye Anne Fox and Michel Channon, Elsevier, Amsterdam, 1988. Part A, Conceptual Basis, xvii + 640 pages, \$189.50, ISBN 0-444-87122-5. Part B, Experimental Techniques and Medium Effects, xvii + 748 pages, \$217.75, ISBN 0-444-87123-3. Part C, Photoinduced Electron Transfer—Organic Substrates, xvii + 754 pages, \$217.75, ISBN 0-444-87124-1. Part D, Photoinduced Electron Transfer Reactions—Inorganic Substrates and Applications, xvii + 790 pages, \$223.75, ISBN 0-444-87125-X. Set, \$710.50, ISBN 0-444-87121-7.

Electron transfer reactions are important in almost every area of chemistry, and we are frequently brought to realise that reactions which have long been described by conventional “curly arrow chemistry” with movement of two electrons, may be less simple, and may involve an electron transfer step. This four volume set is indeed a monumental work in the area, and will clearly be a standard reference text for many years to come.

Part A covers mainly theoretical considerations. The introduction provides a particularly readable account of thermodynamic and kinetic considerations, with useful details of oxidation and reduction potentials. Other chapters in this volume deal with theories of electron transfer reactions, competition between energy and electron transfer, jet cooled exiplexes, in situ generated intermediates, and photochemistry and photophysics of organic charge transfer complexes. The chapter on solvent effects, from D.F. Calef, is particularly impressive.

Part B is divided into two sections dealing respectively with experimental techniques and medium effects. The main techniques for studying these processes are detailed, including accounts of laser spectroscopic methods, pulse radiolysis, time-resolved resonance Raman spectroscopy, EPR spectroscopy, and temperature and pressure dependence studies. All the accounts are liberally provided with examples drawn from both organic and inorganic chemistry. Under the heading of medium effects, there are accounts of solvent and salt effects, photoinduced electron transfers in membrane mimetic systems, electron transfer at interfaces and polyelectrolytes. Those not expert in mathematics will find some of this rather heavy going.

In Part C the photoinduced electron transfer reactions of organic substrates are detailed. Among the substrates considered are carbon–carbon multiple bonds, strained hydrocarbons, aromatics, heterocyclic aromatic compounds, aromatic carbonyl compounds, iminium cations, amines, thiols and thioethers, flavins and deazaflavins. Photoinduced nucleophilic substitution at sp^3 carbon is also treated, as are light-induced redox reactions of dyes, metal complexes and amines. The section on NAD(P)H and NAD(P)⁺ and analogues is excellent.

The final volume of the set deals with inorganic substrates and applications. Most of the inorganic substrates discussed are classical coordination complexes (including at least some of those in the chapter on organometallics!) but organome-

tallic chemists will also find the section of activation on molecular oxygen, and dioxygen-containing transition metal complexes of considerable interest. The second section of the volume deals with applications, with interesting accounts of photocatalysis on semiconductors, artificial photosynthesis, solar energy harvesting, and drug-induced photosensitisation.

Although the editors have contributed several chapters to these volumes, most have been written by other experts. The manuscript has been produced as camera ready copy, but this has produced only a few defects. One or two symbols have been inserted by hand, and a few of the structures could, with advantage, have been a little larger. Overall, however, the typescripts have been of good quality, and have reproduced clearly. Each chapter is well referenced, though the cut-off dates do appear to vary widely. There are author, subject, and chemical indexes for each volume, and a cumulative index in Part D. These are both clear and reasonably comprehensive.

Overall this is an excellent set of books. The authors and editors are to be congratulated on producing a comprehensive work which remains largely intelligible to the non-specialist, and conveys some of the excitement of current work in the area. It should be purchased by all good libraries.

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