Electrophilic Aromatic Substitution; by R. Taylor, Wiley, Chichester, 1990, xvi + 513 pages, £85.00. ISBN 0-471-924822.

This book (by one of my colleagues at the University of Sussex) is meant to replace the highly regarded monograph entitled *Electrophilic Substitution in Benzenoid Compounds* by the author and R.O.C. Norman that appeared in 1965. Although that monograph is still much used, the updating was undoubtedly needed, since of the 2700 references in the present volume, some 60% are to articles that have appeared since the original was written, and about three times as many types of reaction that can be regarded as electrophilic aromatic substitutions are described.

Organometallic chemists would be very wrong to think that this book is only for organic chemists. Many of the reactions discussed involve formation or cleavage of aryl–metal bonds, and furthermore substitution in aromatic rings containing organometallic substituents and in metallocenes and carboranes is dealt with. In particular, a chapter on replacement of a substituent by hydrogen is concerned with cleavage by protic species of aryl–M bonds where M = Au, Mg, Hg, B, Si, Ge, Sn, Pb or Pd, and cleavages of these and related bonds by a range of other electrophiles are discussed in another chapter.

The book begins, however, with a concise general introduction, with emphasis on substituent effects and mechanisms, then proceeds to a detailed discussion of hydrogen-exchange, which is used as the prototype reaction to illustrate the main features of mechanism and of electronic effects of substituents, and very rightly so in view of its relative simplicity, the availability of more quantitative data than for any other electrophilic aromatic substitution, and the virtual absence of direct steric effects. (It is to be hoped that authors of future undergraduate texts will follow this precedent.) There are then detailed accounts of the conventional substitutions, such as nitration, halogenation, sulphonation, alkylation, and acylation, and a final chapter is concerned with quantitative evaluation of electronic and steric effects, and includes a very useful extensive list of values of σ^- and σ^+ contents.

The outstanding feature of the book is that it is comprehensive and presents very clearly and concisely a massive amount of precise information. Its style is such that it can be read easily to acquire a general knowledge of the field, yet it is also a very valuable reference work. It is much more than a simple compilation of information; it is a substantial creative contribution to the subject. In particular, the author points out seeming anomalies, and in many cases offers his own suggested explanation of them, and even if these are not always correct (I myself do not accept all of them) they will stimulate the reader to seek alternatives.

The book is a model of its kind. It is very well produced, and the diagrams and tables unusually clear. There are a few minor type-setting errors (e.g. the unattached and irrelevant numbers 3,2,2 in Table 3.7; the incorrect inclusion of the rate factors 163 and 125 in compound (**79**) on page 311; and the incorrect position of a double bond in structure **11** on page 354), but they are unlikely to be misleading. There is an excellent index (to be used in conjunction with a comprehensive contents list), of the type that one gets only when a conscientious author has compiled the entries, and not left it to a computer. The book is a very valuable addition to the literature and will be much cited for many years to come. It should be in every library

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 spectrsocopy, 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-