

Book review

Topics in Organic Electrochemistry; edited by A.J. Fry and W.E. Britton, Plenum Press, New York and London, 1986, xiv + 296 pages, \$49.50. ISBN 0-306-42058-9.

One is, perhaps, alerted to the fact that something is not quite right when observing that the cover design selected for a book entitled “Topics in Organic Electrochemistry” features the anodic oxidation of ethyl(5,10,15,20-tetraphenylporphinato)cobalt(III). Indeed, it is the title of this volume (along with the directions to librarians to categorize under (1) electrochemistry and (2) chemistry, physical organic) which represents its greatest fault. For although this volume does contain chapters clearly aimed at organic electrochemists, specifically describing the electrochemistry of nonbenzenoid hydrocarbons (A.J. Fry, 34 pages, 95 refs.), electrochemical applications in organic chemistry (V.D. Parker, 45 pages, 102 refs.), organic photoelectrochemistry (M.A. Fox, 49 pages, 93 refs.) and structural effects in organic electrochemistry (W.E. Britton, 27 pages, 61 refs.), the longest chapter is entitled “The Electrochemistry of Transition Metal Organometallic Compounds” (J.C. Katz, 96 pages, 370 refs.), and the final chapter describes modified electrodes (M. Fujihira, 40 pages, 223 refs.).

The chapter describing the electrochemistry of the organometallic compounds of the transition metals covers the literature up to mid-1983, is intentionally not comprehensive, and is designed to be used in conjunction with Kochi's book, “Organometallic Mechanisms and Catalysis” (Academic Press, 1978). It discusses specifically the electrochemistry of the metallocenes and other sandwich compounds (including bis(arene) complexes), monomeric and dimeric ‘binary’ metal carbonyls, other metal carbonyl complexes (including $[M(CO)_nL_m]$ and $[M(CO)_nX_m]$, $[M(cp)(CO)_n]$, and $[M(C_6H_6)(CO)_n]$), and electrochemically induced reactions (including electrochemically induced structural changes, ligand substitution, and ligand reactivity). The article is written with the insight of an experienced practitioner, and will be of value to all workers in the field. It is well worthy of comment that this review is totally accessible to a non-electrochemist, and is a valued addition to the literature.

The chapter on chemically modified electrodes (a challenging new field of interest for the organometallic chemist) is authored by an acknowledged expert in the field, is clearly written (with the absolute minimum of mathematical equations) and, if read in conjunction with the excellent chapter on photoelectrochemistry, should stimulate many new research areas in the years to come.

The chapters on nonbenzenoid hydrocarbons and structural effects in organic electrochemistry are beyond the scope of this review, but it must be said that the chapter on electrochemical applications is disappointing. Its stated aim, “to present the electrochemical methods and their use in mechanism analysis in such a way that the nonspecialist reader obtains a clear picture of what is done in such studies”, is

sadly not really achieved, and the neophyte would be best advised to start reading elsewhere. Finally, the two-page "index" is derisory, and might as well have been omitted.

In conclusion, this book represents excellent value for money. Its good features far outweigh its defects, and it is written at a level equally suitable for undergraduates, postgraduates and cognoscenti. I believe all chemistry libraries should own a copy, and there should be significant private purchases. I hope the title does not put off too many inorganic and organometallic chemists -- you can't judge a book by looking at its cover!

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