of the metal centre in organometallic reactions from a mechanistic standpoint. Parts II and III (100 pages) deal with syntheses classified accordingly to bond-making, and here, for reasons of space, coverage is necessarily subjective. This would not matter were the work to be adequately referenced. Unwisely perhaps, the authors have chosen to cite more recent papers from the original literature at the expense of key articles often dealing specifically with synthesis, which the more advanced student would normally turn to for further information. Indeed few of the major organometallic works, such as "Coates, Green and Wade", are cited. Apart from this defect, the element-by-element coverage achieves reasonable balance and there is a welcome emphasis on relatively novel use of organo-palladium and -thallium compounds. The book certainly provides excellent reading for undergraduates, but the rear-cover advertisement recommending the text to the new graduate student who needs an introduction to the main literature in the field is misleading.

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Iron-Sulfur Proteins; ed. by W. Lovenberg, Academic Press Inc., New York and London, 1973. Vol. 1, xiii + 385 pages, $33.00, £15.85; Vol. 2, viii + 343 pages, $29.00, £13.90.

Bioinorganic chemistry has emerged as a fashionable area of science, but occasionally one wonders whether there are genuine problems open to collaborative or complementary investigations by biologists, biochemists and inorganic chemists. Whatever one's general scepticism, the particular topic of iron-sulfur proteins illustrates how quickly a field which was hardly recognised a decade ago can be brought to a fairly high level of maturity, given the present hothouse atmosphere of science and the prescriptive mechanisms by which it is supported. This survey of the iron non-heme or iron-sulfur proteins is edited by Lovenberg, whose work is associated with the very beginnings of the investigations of the structure and function of the ferredoxins and related proteins; and most of what one would have wanted to read is there and contributed by well-known workers.

The first volume, sub-titled, "Biological Properties", starts off with a very nice overall view of the field by Beinert. Then we find a series of essays concerned with redox reactions (Mortenson and Nakos), with dinitrogen fixation (Hardy and Burns), with photosynthesis (San Pietro) and carbon assimilation (Buchanan). While these concentrate on the particular involvement and functions of the ferredoxins, the related proteins (putidaredoxins, adrenodoxins and the flavoprotein dehydrogenases and hydroxylases) are covered by five further articles, the two by Massey and his colleagues being of particular value. Volume 2, "Molecular Properties" is nominally of more interest to the chemist with several articles dedicated to crystallographic and spectroscopic studies, particularly of rubredoxin and ferredoxin. There was just time to include one of the more striking developments in model chemistry, viz. Holm's work on the tetranuclear and binuclear iron-thiol complexes, so that it all amounts to a comprehensive and worthwhile survey of the area to

the end of 1972 or so. What will make the pair of volumes somewhat ephemeral is that the shape of researches in this area has already shifted significantly since Jensen's unequivocal determination of the rubredoxin and ferredoxin structures, and the new emphasis is, understandably, not captured.

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Electrophilic Substitution at a Saturated Carbon Atom; by M.H. Abraham. *Comprehensive Chemical Kinetics*, Vol. 12; ed. by C.H. Bamford and C.F.H. Tipper, Elsevier, Amsterdam-London-New York, 1973, xiii + 256 pages, £12.60.

The organometallic approach to electrophilic substitution at saturated carbon developed during the 1960's largely through the efforts of Ingold, Reutov and their respective collaborators, working for the most part with organomercury compounds. Their results were summarised in a series of reviews (Reutov) and in the 2nd edition of Ingold's famous book, "Structure and Mechanism in Organic Chemistry", accounts which, whilst setting out the mechanistic basis of the problem, adopted a selective approach. Volume 12 in the Bamford–Tipper series, written entirely by Dr. Abraham, presents the first truly comprehensive in-depth survey of the subject covering all metals, electrophilic reagents and systems within the definition aliphatic. A series of opening chapters provides an excellent and lucid introduction as one could wish to find to the often subtle and bewildering nuances of mechanistic emphasis which have grown up around the topic. Notably, the quest for reactions conforming to S_E1 criteria has been fraught with danger and interpretive difficulties and the experimental evidence for and against the mechanism is carefully sifted and evaluated (Chapter 4). Subsequent chapters deal in turn with metal-for-metal exchanges, acidolysis and halogenolysis (the electrophilic conditions most often employed), and reactions involving miscellaneous electrophiles. Allylmetal compounds are then singled out for separate treatment and the book concludes with a chapter covering constitutional, salt and solvent effects, and the hotly-debated question of metal–metal bonding in S_E2 transition states. Interested readers should turn to Matteson's recent book "Organometallic Reaction Mechanisms" at this point!

The book is defective in one important respect. As stated, it has been written entirely by Dr. Abraham, yet this fact is only apparent from one single line statement on an inside page. His name is excluded in favour of the Editors' names on the spine of the book and even the dust cover, and the practice extends even to the biographical notes! The Editors must be rebuked for this most unfair treatment.

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