Gmelin Handbuch der Anorganischen Chemie, 8th edition, *Zinn. Teil C2. Verbindungen mit Schwefel, Selen, Tellur, Polonium, Bor, Kohlenstoff, Silicium, Phosphor, Arsen, Antimon und Wismut*, Gmelin-Institut für Anorganische Chemie und Grenzgebiete der Max-Planck-Gesellschaft zur Förderung der Wissenschaften, H. Bitterer, editor-in-chief, Springer Verlag, Berlin/Heidelberg/New York, 1975, xvi + 300 pages, DM 477, $195.60.

This new Gmelin volume covers compounds of tin with the Group V and VI elements and with carbon, silicon and boron. (Part C1 covered tin compounds with hydrogen, oxygen, nitrogen and the halogens; two more volumes will complete the inorganic tin compound series). Two-thirds of the present volume is devoted to the divalent and tetravalent compounds of tin with sulfur, selenium and tellurium (principally the binary species, SnY and SnY_2). Most of the information presented concerns their physical, thermal, mechanical and electrical properties, although preparative reactions and chemical transformations are included as well. The types of compounds discussed cover a broad range. For instance, in the chapter on tin—phosphorus compounds are presented data on the Sn—P phase diagram, covalent Sn—P and Sn—O—P compounds, adducts of tin halides with various phosphorus halides and salts such as $[NOP_2Cl_4]_2[SnCl_6]$.

The tin—carbon compounds included in this volume are strictly of the "inorganic" type: carbonates, formates, acetates, oxalates, lactates, malonates, maleates, tartrates, citrates, cyanides and thiocyanates. A few compounds which we would class as organometallic nevertheless have found their way into the present volume because they contain $Sn(MR_n)_4$ systems: $Sn(BPh_2)_4$, $Sn(PPh_2)_4$ and $Sn(SiMe_3)_4$. The matrix isolation of a tin carbonyl also is mentioned.

English translations of the preface and chapter and section headings are provided as usual, and a brief but useful 1-2 paragraph summary in English as well as in German precedes each tin—element chapter. The many references cited with typical Gmelin thoroughness are complete through the end of 1972, but some 1973 and even 1974 references are given as well.

This Gmelin volume will be useful and of interest mainly to the inorganic and solid state chemist. However, as announced in the preface, eight Gmelin volumes on organotin compounds are planned and the first of these is scheduled to appear in 1975.

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Organometallics in Organic Synthesis; by J.M. Swan and D.St.C. Black, Chapman and Hall, London, 1974, 158 pages, £2.40.

"The use of organometallic compounds in organic synthesis" is a favourite stand-by essay for undergraduates. This short book provides a wealth of information relevant to such an essay, the material being organised somewhat differently from that found in organic chemistry texts to which students would usually refer. Part I (30 pages) entitled "Some Aspects of Organometallic Chemistry" serves as a useful introduction surveying the role

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