constant and relaxation time values are listed. Several references are then given. A close examination of several nuclei revealed some problems. For example, only one value of a $^{11}B-^{11}B$ coupling constant (18.9 Hz) is given while literature values of J_{BB} range from 12 to 106 Hz. A remark under ^{77}Se states that no NOE is observed except when a proton is directly bound to Se. All relaxation studies to date have shown essentially no contribution to T_1 from the dipole–dipole mechanism even when Se–H bonds are present. Also, in the chemical shift scale figure for tin, Sn(IV) is listed for three different classes of compounds although it is fairly obvious that Sn(VI) and Sn(V) should be listed.

This book will not compete with "Practical NMR Spectroscopy" by Martin, Delpuech, and Martin or with "NMR and the Periodic Table" by Harris and Mann, but any laboratory doing multinuclear NMR will find it useful.

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Gmelin Handbook of Inorganic Chemistry. 8th Edition. Fe, Organoiron Compounds. Part C3, Binuclear Compounds 3. G. Dettlaf, U. Krüerke, N. Kuhn, and M. Mirbach, volume authors, U. Krüerke, volume editor. 1980. ii + 196 pages. DM 456, $269.10. Organoiron Compounds, Part C4, Binuclear Compounds 4. U. Krüerke, N. Kuhn, E. Luther, M. Mirbach, and B. Wöbke, volume authors, U. Krüerke, volume editor. 1981. ii + 285 pages. DM 787, $374.70. Gmelin Institut für Anorganische Chemie der Max-Planck-Gesellschaft zur Förderung der Wissenschaften and Springer-Verlag, Berlin/Heidelberg/New York.

These volumes are the latest additions to the Gmelin organoiron series which now numbers 15 volumes. In Part C3 are included dinuclear iron compounds with organic ligands bonded by four carbon atoms (mostly acyclic and cyclic dienes), with or without Fe–Fe bonds and dinuclear iron compounds containing one or two η^5-C_5H_5 ligands. The treatment of the latter class is continued and concluded in Part C4. A great diversity of organoiron compounds is found in these books, and the empirical formula and ligand formula indexes at the end of each volume will be indispensible to the user. The way the iron atoms are connected in these dinuclear complexes varies widely: direct Fe–Fe bonds and single bridges and double bridges of all kinds. Among the dinuclear η^5-C_5H_5Fe complexes, $[\eta^5\text{-}C_5H_5Fe(CO)_2]_2$ has received much attention, and 86 pages are devoted to this compound and to others containing alkyl and other substituents on the C_5 ligand. In Part C3, among the complexes with L^4 ligands, the ferracyclopentadiene complexes of type $C_4R_4Fe_2(CO)_6$ play an important role, with many known examples of this class.

The presentation of the many different types of dinuclear iron compounds, many with complex structures, is greatly helped by the many formulas and figures. All available data for each compound are provided, either in text or tables: preparation, physical and spectroscopic properties, structure, and chemical conversions, along with the pertinent references. These include citations of the original literature, reviews, theses, conference reports, and a few patents, through the end of 1977 for Part C3 and the end of 1978 for Part C4. A few later references have been added.

For anyone working in the area of organoiron chemistry these books, as well as the rest of the Gmelin organoiron series, will be very useful indeed. They provide a wealth of information and are as exhaustive in their coverage as "Chemical Abstratcts" permits, and they are well organized and up-to-date. A final volume in which the remaining dinuclear iron compounds are treated, those with organic ligands bonded to Fe through six or more carbon atoms, will conclude the "C" series.

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Advances in Catalysis. Volume 28. Edited by D. D. Eley, H. Pines, and P. B. Weisz. Academic Press, New York. 1979. x + 403 pages. $52.00.

This recent volume of Advances in Catalysis contains chapters by T. Engel and G. Ertl, "Elementary Steps in the Catalytic Oxidation of Carbon Monoxide on Platinum Metals", by R. Eisenberg and D. E. Hendriksen, "The Binding and Activation of CO, CO_2 and NO and Their Homogeneously Catalyzed Reactions", by M. I. Temkin, "The Kinetics of Some Industrial Heterogeneous Catalytic Reactions", by S. M. Csicsery, "Metal-Catalyzed Dehydrocyclization of Alkylaromatics", and by J. J. Villafranca and F. M. Raushel, "Metalloenzyme Catalysis".

It is often true that a review significantly reflects the vantage point and background of the reviewer—and the present is no exception. For this reviewer the gem of the volume is the article by Csicsery, surveying an important but as yet little recognized area of hydrocarbon chemistry, the cyclization reactions of alkylaromatics which lie at or just beyond the gasoline boiling range. Although somewhat documentary (rather than interpretive or projective) in nature, the article clearly surveys an area which (in my view) has not yet received the attention it merits within the industry.

Three chapters deal with reactions of small molecules, CO, CO_2, NO, NH_3, and the like, each directed at a distinct audience. The article by Engel and Ertl catalogs, in considerable detail, the state-of-the-art in CO adsorption and oxidation on Pt-group metal surfaces; Eisenberg and Hendriksen write for a general audience in their somewhat elementary overview chapter on reactive inorganic complexes of CO, CO_2, and NO; and Temkin seeks the engineering community in his kinetic analysis of reaction rates.

At the other extreme in complexity is the brief but very specific and very up-to-date review by Villafranca and Raushel on catalysis by three metalloenzymes: thermolysin, a Zn- and Ca-containing peptidase; yeast hexokinase, catalyzing reaction between hexose and MgATP; and glutamine synthetase, which requires divalent cations such as Mn^{2+}.

Overall Volume 28 of Advances in Catalysis is characterized by authors of recognized ability and by a wide breadth of subject material, ranging from highly analytical chapters on small molecule conversion and synthesis to the provocative articles on dehydrocyclization and on metalloenzymes.

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Aspects of Homogeneous Catalysis. Volume 4. Edited by R. Ugo. D. Reidel Publishing Co., Dordrecht. 1981. viii + 204 pages. $58.00, Dfl. 110.

This is the fourth volume of a series which is concerned with different areas of homogenous catalysis. The previous volumes have contained some useful reviews and the present one continues in this tradition.

The first chapter, by Sheldon, is on the metal-catalyzed epoxidation of olefins with hydroperoxides. It is a thorough treatment of this reaction with emphasis on the application of molybdenum [e.g. $Mo(CO)_6$] and vanadium [e.g., $VO(acac)_2$] compounds as catalysts. This reaction is the basis for the Halcon process (industrial preparation of propylene oxide).

There is a brief (28 pages) chapter by Mestroni, Camus, and Zassinovich on the homogeneous catalytic reduction of carbonyl, azomethine (i.e., Schiff bases), and nitro groups. This chapter is plagued by a number of typographical errors and word omissions and by a superficial mechanistic discussion, the latter being limited to the carbonyl reduction reaction.

The use of (η^3-allyl)metal complexes for the catalysis of diolefin reactions is examined in detail by Julémont and Teyssié. A valuable part of this contribution is the discussion of polymerization processes. This is the only chapter which cites papers published in 1980. Unfortunately, there are a number of printing errors, and incorrect grammar is used on occasion (e.g., p 115, "The stereospecific polymerization of conjugated dienes ... has been early related to η^3-allylic-M_T intermediates").

The last chapter of this voluem, by Markó and Bakos, consists of tabular lists of chiral phosphines and substrates (mainly olefinic) in rhodium complex catalyzed asymmetric hydrogenation. It is a useful compilation.

In summary, Volume 4 will be of interest to organic and inorganic chemists, particularly those working on metal complex catalyzed reactions of olefins.

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