

(49 pages, 135 refs.); "Carbonylation and Related Chemistry: Some General Aspects", by P.S. Braterman (15 pages, 104 refs.); "Promotion Effects in Transition Metal-Catalyzed Carbonylation", by G.P. Chiusoli, G. Salerno, and M. Foa (74 pages, 308 refs.); "Hydride Transfer to Coordinated Carbon Monoxide and Related Ligands", by C.E.L. Headford and W.R. Roper (39 pages, 129 refs.); "Reactions of Coordinated Isocyanides", by B. Crociani (85 pages, 416 refs.); "The Formation and Reactions of Metallacycles", by G. Ingrosso (38 pages, 199 refs.); "Nucleophilic Attack on Coordinated Alkenes", by J.-E. Bäckvall (52 pages, 161 refs.); "Asymmetric Additions to Double Bonds", by P.A. Chaloner and D. Parker (91 pages, 313 refs.); "Reactions of Coordinated Acetylenes", by J.L. Davidson (70 pages, 161 refs.); "Nucleophilic Attack on Unsaturated Hydrocarbons Coordinated to Transition Metals", by S.G. Davies, M.L.H. Green, and D.M.P. Mingos (41 pages, 114 refs.); "Reactions of Coordinated Dienes", by J.A.S. Howell (24 pages, 96 refs.); "Reactions of Five-Carbon and Larger Ligands", by P. Powell (67 pages, 388 refs.)

For Chapter 5 there is a specific statement that the literature coverage is only up to 1981/82. However, the same feature of an early cut-off data is evident in essentially all the contributions. For example, (i) the chapter on carbene complexes of some of the later transition elements by Professor Dötz does not even refer to the book published in 1983 on transition metal carbon complexes (Verlag Chemie, 1983), of which he is one of the authors; (ii) the chapter by Drs. Chaloner and Parker is less complete, with respect to asymmetric hydrogenation, than the review by J.M. Brown and P.A. Chaloner in "Homogeneous Catalysis with Metal Phosphine Complexes", (ed. L. Pignolet, Plenum Press, 1983); and (iii) in Chapter 9, the 35 "additional references" are to papers published in 1980/81.

In summary, this book provides some authoritative reviews on several topics of considerable interest but, unfortunately, for many of these, time has overtaken events.

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*Landolt-Börnstein. Numerical Data and Functional Relationships in Science and Technology. New series, Group II, Volume 17, Subvolume c. Magnetic Properties of Free Radicals: Conjugated Carbon-Centred and Nitrogen Radicals*, ed. H. Fischer, Springer-Verlag, Berlin, 1987. xi + 644 pp. ISBN 3-540-16985-7. DM 1620.

This sub-volume is the third part of Volume II/17; a major update of the data on the Magnetic Properties of Free Radicals contained in Volumes II/1 and II/9 of this series, and contains chapters 4 and 5 of the 22 finally envisaged. Literature coverage is from 1977 to 1985 (chapter 4) or 1986 (chapter 5); the data, arranged in its familiar format, is mainly concerned with ESR studies, with smaller numbers of ENDOR, TRIPLE, CIDEP and NMR references.

Chapter 4, by A. Berndt, is a 382 page compilation of data on carbon-centred radicals with conjugated  $\pi$ -systems, covering approximately 1400 radicals and 420 references. Chapter 5 on nitrogen-centred radicals by F.A. Neugebauer is somewhat shorter at 256 pages, and covers approximately 1200 radicals from 370 references.

The organometallic interest of this sub-volume derives mainly from the large number of radicals with organometallic substituents, and the use of organometallic compounds to produce the radicals. Approximately 15% of the radicals listed in this volume have an organometallic substituent. Silicon, phosphorus, germanium and tin substituents are the most numerous, with smaller numbers of substituents containing Se, B, Pb, Ag, Au, Al, Cu, and Cr. A large number of examples involve the addition of metal-centred radicals to C=X multiple bonds of various types. A significant number of entries demonstrate the use of organometallic reagents to prepare radicals without organometallic substituents; for example, photolysis of organometallic compounds to cleave carbon-metal bonds, and the use of tin-centred radicals to remove halogen atoms from organic halides.

The production is superb, and the reviewer noticed only one typographical mistake. All organometallic chemists interested in free-radical chemistry will wish to have access to this series of sub-volumes.

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*Inorganic Reactions and Methods. Volume 11. The Formation of Bonds to Elements of group IVB (C, Si, Ge, Sn, Pb) (Part 3).* Editor: J.J. Zuckermann, VCH Weinheim, etc., 1988. xxiv + 594 pages. DM 284. ISBN 3-527-26269-5

The most striking feature of the copy of this volume sent to me for review is that by a gross error on the part of the publishers, which has no doubt caused them considerable embarrassment, it is described in prominent gold lettering on the outside front cover as "*Volume 11, The Formation of Bonds to Hydrogen (Part 2)*". Such is the complexity of the organization of this series of volumes that it took me some time to convince myself that this was, indeed, just a simple error, and that the actual title should have been that given in the heading of this review.

The book deals with the methods of forming bonds between elements of group IVB (C, Si, Ge, Sn, and Pb) and elements of (i) group IA (Li, Na, K, Rb, Cs, Fr); (ii) group IB (Cu, Ag, Au), and (iii) group IIB (Zn, Cd, Hg). Given the space limitations the accounts are all that could be expected, and will provide very useful concise introductions to the topics for newcomers to the various fields. The only obvious weakness is that the organization of the material inhibits comparison of the advantages and limitations of the various methods, so that someone wanting to find out which is the best method of making a particular type of compound will have to examine the cited literature in detail.

Aspects of presentation can be criticized. A minor defect is that in places there is excessive emphasis on safety aspects, (though this is less marked than in other volumes in the series,) with little consistency from section to section. For example, in the first 31 pages on the formation of organolithium compounds the warning "Organolithium solutions are pyrophoric and should be handled with care" is printed in bold type six times, and then, with a change of author, no such warning appears again in the remaining 117 pages on the subject. A much more serious criticism is that, in my view, there is no justification for devoting 228 out of the total