

## Book Reviews

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Subject reviews recently published in *Organometallic Chemistry Reviews, Section B – Annual Surveys*. Note that this section has now been absorbed into the regular publications of this Journal.

### VOLUME 7

*No. 1.* Contains a survey of silicon chemistry covering the year 1968, written by R.W. Bott (174 pages, 1169 references).

*No. 2.* Contains a survey of silicon chemistry covering the year 1969, written by M.J. Newlands (130 pages, 823 references).

### VOLUME 8 – ANNUAL SURVEYS COVERING THE YEAR 1970

*No. 1.* Main metals: Groups IIIB and VB. Boron(I) (boron hydride chemistry) is reviewed by D.S. Matteson (44 pages, 154 references), boron(II) by K. Niedenzu (32 pages, 123 references), J.P. Oliver reviews aluminum (66 pages, 129 references), gallium and indium (8 pages, 24 references) and thallium (16 pages, 39 references), arsenic by G.O. Doak and L.D. Freedman (51 pages, 242 references); L.D. Freedman and G.O. Doak also review antimony (23 pages, 76 references) and bismuth (5 pages, 23 references).

*No. 2.* Main metals: Groups IA, IIA and IIB. W.H. Glaze reviews lithium (65 pages, 259 references) and sodium and potassium (13 pages, 68 references), D. Seyferth reviews beryllium (7 pages, 16 references), calcium (3 pages, 7 references) and mercury (9 pages, 244 references); C. Blomberg reviews magnesium (55 pages, 238 references), and J.G. Noltes reviews zinc (17 pages, 58 references) and cadmium (5 pages, 17 references).

This issue contains the Author Index to Volume 8.

### VOLUME 9 – ANNUAL SURVEYS COVERING THE YEAR 1970

*No. 1.* Transition metals, general, structures,  $\pi$ -complexes; Groups IIIA, IVA, VA and VIIA. Transition metals, results of general interest by P.S. Braterman (52 pages, 272 references); M.I. Bruce reviews organometallic structures – transition metals (45 pages, 185 references) and organic reactions of selected  $\pi$ -complexes (31 pages, 126 references); F. Calderazzo reviews lanthanides and actinides (5 pages, 16 references), titanium, zirconium and hafnium (15 pages, 65 references) and vanadium, niobium and tantalum (5 pages, 27 references), A. Wojcicki reviews manganese, technetium and rhodium (43 pages, 165 references); Erratum to Volume 6, No. 4.

*No. 2.* Main metals: Group IV (excluding silicon). Germanium is reviewed by B.C. Pant (42 pages, 260 references); E.J. Bulten reviews tin (90 pages, 479 references); and lead

(18 pages, 85 references) This issue contains the Author Index to Volume 9.

VOLUME 10 – ANNUAL SURVEYS COVERING THE YEAR 1970

*No. 1* Transition metals: Groups VIA, VIII and IB. Chromium, molybdenum and tungsten are reviewed by G.R. Dobson (73 pages, 230 references); ferrocene by M.I. Bruce (47 pages, 198 references); iron, ruthenium and osmium by J.A. McCleverty (49 pages, 223 references), cobalt, rhodium and iridium by M. Green and T.A. Kuc (33 pages, 162 references), nickel, palladium and platinum by R.P. Hughes and J. Powell (73 pages, 300 references), and copper, silver and gold by T. Jack and J. Powell (19 pages, 113 references).

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*Introduction to Applied Quantum Chemistry*, by S.P. McGlynn, L.G. Vanquickenborne, M. Kinoshita and D.G. Carroll. Holt, Rinehart and Wilson, Toronto, 1972, 472 pp., \$14.70 (hard cover).

This book presents an introductory course in quantum mechanics covering areas of particular relevance to molecular spectroscopy.

As prefaced by the Authors, this is a "how to" book, and contains a wealth of worked examples. It is recommended that the book be used as a supplementary text rather than supplanting existing texts.

The chapters discuss: atomic orbitals (including various many-electron approaches), overlap integrals, Huckel molecular orbital approach, Mulliken-Wolfsberg-Helmholz procedures, free electron MO theory, composite-molecule methods, symmetry and spin-adapted wave functions, energy of many-electron systems, electric dipole transition probabilities, static electric dipole moments, spin-orbit coupling and spin-spin coupling.

The text is well written and the many examples are pedagogically particularly valuable. Naturally a great deal is left out but this does not detract from the value of the book as a supplementary text: some minimal knowledge of quantum mechanics, operator and group theory is desirable before the book could be adequately utilised.

The sections dealing with overlap integrals, symmetry and spin-adapted wave functions, transition probabilities, spin-orbit and spin-spin coupling are particularly rewarding for the depth of explanation, by example, not generally found in other texts. The only criticisms are the occasional 'glossing over' of a difficult point in a calculation without adequate explanation or literature reference from which additional information might be obtained, and the tendency in some areas, specifically those dealing with different approaches to

handling atomic or molecular orbitals, to present very short, concise accounts which are so short as to be almost valueless.

The book is attractively produced, fairly free from typographical errors and is certainly to be recommended for its pedagogical value.

A.B.P. Lever

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