

Spectroscopic Properties of Inorganic and Organometallic Compounds, Volume 21; edited by G. Davidson and E.A.V. Ebsworth, The Royal Society of Chemistry, 1988, xv + 509 pages, £120, U.S.\$120, ISBN 0-85186-193-8.

The latest of this series of volumes covers the literature for the year ending late 1987; the general format will be familiar to regular readers. This volume is divided into eight chapters with the following headings (in brackets are shown the number of pages and references, respectively). "Nuclear Magnetic Resonance Spectroscopy", by B.E. Mann (116 pages, 3478 refs.); "Nuclear Quadrupole Resonance Spectroscopy", by K.B. Dillon (17 pages, 72 refs.); "Rotational Spectroscopy", by S. Cradock (16 pages, 234 refs.); "Characteristic Vibrations of Compounds of Main-group Elements", by G. Davidson (30 pages, 361 refs.); "Vibrational Spectra of Transition-element Compounds", by G. Davidson (31 pages, 393 refs.); "Vibrational Spectra of Some Co-ordinated Ligands", by G. Davidson (50 pages, 495 refs.); "Mössbauer Spectroscopy", by S.J. Clark, J.D. Donaldson, S.M. Grimes, and M.J.K. Thomas (71 pages, 461 refs.); and "Gas-phase Molecular Structures Determined by Electron Diffraction", by D.G. Anderson and D.W.H. Rankin (19 pages, 48 refs.). As in previous years, the NMR section is by far the largest, and concludes with a useful compilation of references to papers dealing with nuclei other than ^1H .

As in recent earlier volumes, the book has been produced by direct photographic reproduction from manuscript. Although the nature of the type-face is different for each single contribution, the overall appearance is clear. There are no indexes.

Inevitably, this work is one for reference rather than casual reading.

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Organometallic Chemistry Reviews; edited by A.G. Davies, E.O. Fischer, and O.A. Reutov, (Journal of Organometallic Chemistry Library 20) Elsevier, Amsterdam, 1988, 365 pages, US\$155.25, DF1295.00, ISBN 0-444-42950-6.

This volume contains 5 reviews (in brackets are shown the number of pages and references, respectively): "Synthesis and properties of carboranes(12) containing boron-element bonds", by V.V. Grushin, V.I. Bregadze, and V.N. Kalinin (62 pages, 204 refs.); "Pyridine and quinoline derivatives of Group IVB elements", by E. Lukevics and I.D. Segal (121 pages, 423 refs.); "Phase transfer catalysis in organosilicon chemistry", by Yu. Goldberg, V. Dirnens, and E. Lukevics (34 pages, 85 refs.); "Rhenium carbonyl and organometallic compounds: analysis and classification of crystallographic and structural data", by C.E. Holloway and M. Melnik (86 pages, 257 refs.); and "Metallocendichalkogenolen-metallacyclen. Chelatkomplexe elektronenarmer Übergangsmetalle", by T. Klapötke and H. Köpf (21 pages, 59 refs.).

The chapter by Grushin et al. is principally concerned with carboranes of formula $\text{RR}'\text{C}_2\text{B}_{10}\text{H}_9\text{X}$ in which for the most part the group X is attached to one of the boron atoms. However, other examples include those where X is a PMe_2 or

CH_2NEt_2 group which is attached to one of the carbon atoms. The majority of the references are to the Russian literature, as is appropriate because this is an area which is much studied in the USSR. One of the authors, Dr. Bregadze, is a leading exponent.

The second chapter is perhaps the most specialised; its title may be slightly misleading. The chemistry relates to pyridine or quinoline derivatives in which by and large the group 4B element (mainly Si or Sn) is joined to the aromatic nucleus directly or through C, N, O, or S. This contribution is an up-date of earlier reviews in 1960 and 1972.

The first example of phase transfer catalysis in organometallic chemistry (Si) appears to have been in the USSR in 1973 (M. Fedorynski, and M. Makosza), and this was followed somewhat later (1976) by a contribution from Canada (H. Alper and D. Des Roches). The chapter by Goldberg et al. deals with the topic under various headings: "Nucleophilic substitution of halogen in silyl halides"; "Nucleophilic reactions involving haloalkylsilanes"; "The reactions of alkenyl- and hydro-silanes with carbenes and nitrenes"; "Other two-phase reactions involving organosilicon compounds"; and "Organosilicon compounds as reagents and catalysts for phase-transfer reactions".

The chapter by Holloway and Melnik has a substantial body of tabulated X-ray data relating to rhenium carbonyls (42 pages) and rhenium organometallic compounds (35 pages). The chapter complements an article by the same authors in *Rev. Inorg. Chem.* dealing with Re coordination compounds.

The final contribution (in German) is the most specialised, and deals largely with metallocene complexes of early transition metals in oxidation state +4 ($M = \text{Ti}$ to W), in which (usually) a Cp_2M fragment is part of a 5-membered ring and the two atoms directly attached to M are S_2 ; S,NH ; O_2 ; or S,Se ; the bulk of the work is taken up with the dithiolene (S_2) system. Some of the discussion concerns conformational problems relating to inversion at the chalcogen atoms.

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