

Book Reviews

Chemistry Reviews, Volume 3 (1981), Edited by M.E. Vol'pin, Soviet Scientific Reviews, Section B, Harwood Academic Publishers, New York, 1981, pp. 299, price US \$77.50.

The articles in this series are each written in Russian by a Soviet expert in the field, and then rapidly translated and published in the English language. Clearly the aim is to make Soviet science more accessible to Western readers.

This volume contains four reviews.

(i) *Investigations in the Field of Technetium Chemistry*, by V.I. Spitsyn, A.F. Kuzina, G.N. Pirogova and O.A. Balakhovskii (Institute of Physical Chemistry of the Academy of Sciences of the U.S.S.R.) (74 pages, 154 refs., about 50% Russian).

The chapter deals with many aspects of technetium chemistry including: production, history, valency and electrochemistry, radiolysis, solvent extraction, catalytic properties (very detailed) and physical properties of the metal. The emphasis is on technetium metal rather than on its complexes and is a useful overview of the chemistry of this rare element.

(ii) *Carbyne—A New Allotropic Form of Carbon*, by A.M. Sladkov, Institute of Organo-Element Compounds, Academy of Sciences of the U.S.S.R. (36 pages, 66 refs, over 50% Russian).

Carbyne is an allotropic form of carbon, diamond and graphite being the better known allotropes. Carbyne was discovered about 20 years ago but its existence has often been questioned. This chapter reviews the history of this interesting species. Phase diagrams, X-ray structural information, infrared, Raman and thermophysical properties are discussed. To date techniques do not exist to make this allotrope in large amounts.

(iii) *Current Structural and Spectroscopic Investigations of Heteropoly Compounds* by V.I. Spitsyn, L.P. Kazanskii, and E.A. Torchenkova, (Institute of Physical Chemistry of the Academy of Sciences of the U.S.S.R. and Dept. of Chemistry of Moscow State University) (86 pages, 212 refs. about 40% Russian).

A critical review of studies in heteropolyanions, especially those of molybdenum or tungsten, containing primarily NMR and structural information.

(iv) *The Tautomerism of Free Radicals. "Wandering" Valence* by M.I. Kabachnik, N.N. Bubnov, A.I. Prokof'ev and S.P. Solodovnikov (Institute of

Organo-Element Compounds, Academy of Sciences of the U.S.S.R. (100 pages, 67 refs, 50% Russian).

A detailed study, by NMR and ESR, of the dynamic delocalisation of unpaired electrons in organic systems. In addition to common carbon radicals, interesting radicals containing silicon or tin, phosphorus, arsenic, antimony, and bismuth and aluminium are also discussed. A most useful study for both organic and inorganic chemists.

This book is well produced, though in some cases, the diagrams could have been clearer.

The Editor's Desk

Boron Chemistry—4, Edited by Robert W. Parry and Goji Kodama, Pergamon Press, Oxford, 1980 pp. 161, price US \$49.50.

This volume contains the plenary and session lectures presented at the Fourth International Meeting on Boron Chemistry, Salt Lake City and Snowbird, Utah, U.S.A., 9–13th July 1979, and sponsored by the International Union of Pure and Applied Chemistry (IUPAC).

Chapters cover conceptual advances in boron chemistry, carboranes and cluster compounds, organometallic compounds containing boron or carboranes, the use of boron in organic chemistry, organoboranes, non-classical ions, medical applications of boron amino acids, smaller boranes and borane applications. Chapters were contributed by Nobel Laureate Lipscomb, Rudolph, Wade, Hill, Johnson and Hosmane, Bregadage, Kampel, Usiatinsky and Godovikov, Pelter, Gaines, Siebert, Fehlner, Nöth, Spielvogel, Williams and Field, and a perspective report by Burg. The book was produced 'camera ready' but has a pleasing presentation. Unfortunately there are no indexes. A useful book for all interested in boron chemistry.

Coordination Chemistry—20, Edited by D. Banerjea, Pergamon Press, Oxford, 1980, pp. 275, price US \$75.00.

This volume contains the invited lectures presented at the 20th International Conference on Coordination Chemistry, Calcutta, India, 10–14th December 1979, sponsored by the International Union of Pure and Applied Chemistry (IUPAC), and the Indian Chemical Society (Calcutta). The book contains contributions by Bailar (New developments in coordination chemistry), Chatt (Complex chemistry and mimicry of metalloenzymes), Basolo (Synthetic oxygen carriers), Sigel (Mixed ligand complexes in solution), Tobe