*Gmelin Handbook of Inorganic Chemistry*, 8th Edition. *W — Tungsten, Supplement Volume B6: Anhydrous Tungstates of Group IVA to VIB Metals*, Springer-Verlag, Berlin, Heidelberg, New York, Tokyo, 1984, xx + 397 pages, DM1329. ISBN 3-540-93506-1.

This is the seventh volume of the Gmelin Handbook to deal with the chemistry of tungsten (System Number 54) since the main volume was published in 1933, and the fifth to deal exclusively with oxides. As the title suggests, this volume continues and concludes the exhaustive coverage of the anhydrous metal tungstates which was initiated in Supplement Volume B2, and has comprised the content of Supplement Volumes B3—B5. Amongst the many systems described are the tungstates of titanium, zirconium, hafnium, thorium, germanium, tin, lead, vanadium, niobium, tantalum, chromium, and molybdenum. The closing date for comprehensive literature coverage is 1982, but a number of references from after that date have been included. This volume, taken with its predecessors, forms an indispensible reference work to all solid state chemists. Its value is much enhanced by the high quality of the illustrations of the structures and phase diagrams. The authors (A. Drechsler, W. Kurtz, F. Schröder and U. Trobisch) have performed a splendid task of reportage and collation, producing a volume of the highest standards, which one almost takes for granted in this invaluable series. This volume should be in every library attached to institutes in which solid state chemistry is practiced and, taken with the other B Supplements, it will clearly be the definitive source for information concerning tungstates for the remainder of this century.

In conclusion, I issue an appeal to the Gmelin Institute. Tungsten has a rich and fascinating coordination and organometallic chemistry; there are as yet no volumes of the Gmelin Handbook of Inorganic Chemistry covering these areas of prime interest to all inorganic chemists, both in industry and academia. Have they been commissioned yet? When are they to appear?

*School of Chemistry and Molecular Sciences,*
*University of Sussex, Brighton BN1 9QJ (Great Britain)*

KENNETH R. SEDDON

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*Gmelin Handbook of Inorganic Chemistry*, 8th Edition, *Formula Index 1st Supplement Vol. 1, Formula Index Ac to Au.* Springer-Verlag, Berlin etc., 1983, ix + 149 pages, DM 501. ISBN 3-540-93481-2.

The Gmelin Formula Index which appeared in 1975—1980 covered the Main Series of the 8th edition up to the end of 1974 and the New Supplement Series up to 1973. The First Supplement to the Index, which will appear as eight volumes at the rate of two or three annually, will bring the coverage up to the end of 1979, and the volume under review is the first in the series. It covers empirical formulas beginning with the symbols Ac to Au, and contains almost 7000 entries.

The index is not as useful as it could be. This is because the entries are by the empirical formulae, with the elements arranged alphabetically. Thus

because only Ac precedes Ag, the entries under Ag cover all the silver compounds appearing in the relevant volumes, and by looking through the 100 pages of such entries one can see which silver compounds are included. But when one moves to arsenic, any compounds containing both As and Ag are missing. This means that for inorganic elements later on in the alphabet, the index is useful only to look up specific compounds which one thinks may have been made. It would, of course, involve considerable expense to issue indexes in which each inorganic element in turn appears first in the empirical formula, but the cost of the Gmelin series is so high anyway that the additional extra expenditure in making it more useful would seem justified.

Fortunate inorganic and organometallic chemists who have ready access to the Gmelin Handbook will certainly wish these indexes also to be available to them.

*School of Chemistry and Molecular Sciences,*
*University of Sussex, Brighton BN1 9QJ (Great Britain)*

COLIN EABORN

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*Structures versus Special Properties. Structure and Bonding 52*, Springer-Verlag, Berlin, Heidelberg, New York, 1982, vi + 202 pages, DM108. ISBN 3-540-11781-4.

This volume consists of four articles describing optical activity, high-spin cobalt(II) complexes, magnetic ordering in transition metal fluorides, and organic derivatives of antimony(V), respectively. The first article, entitled: Natural Optical Activity and the Molecular Hypothesis (R.G. Woolley), gives an account of the quantum theory of the molecular hypothesis for chemical substances, in which atoms and molecules are characterised as composite elementary excitations (quasi-particles) of the macroscopic quantum-mechanical system called matter, and the spontaneously broken space inversion symmetry (revealed by the existence of optical isomerism) is studied in this context: the need for the unification of the models involving interactions with a boson reservoir and the weak neutral current is emphasised.

The second article (by L. Banci, A. Bencini, C. Benelli, D. Gatteschi and C. Zanchini) correlates the spectroscopic and magnetic properties of a wide range of cobalt(II) complexes with their ground state structures. Although the article contains much useful discussion, the extensive compilations of EPR and electronic spectral data are perhaps its most useful feature. The third review (by A. Tressaud and J.-M. Dance) concerns the relationships between structure and low-dimensional magnetism in transition metal fluorides. Fluorides provide examples for most of the different theoretical models (Ising, Planar Heisenberg and Heisenberg) of low-dimensional magnetism in structures characterised by a three-dimensional crystallographic arrangement of $\{MF_6\}$ octahedra in layers, chains and rings, and this excellent article presents the facts and theories in a carefully considered and lucid manner.

The final review (by V.K. Jain, R. Bohra and R.C. Mehrotra) describes the structural chemistry of organoantimony(V) complexes, and is the only article