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Book review

Inorganic Synthesis Vol. 26, Editor-in Chief, Herbert D. Kaesz, John Wiley and Sons, New York, £47.50. ISBN 0-471-504858.

The editor's view that "synthesis is a central discipline in science" and not just chemistry is eloquently argued in the preface of this the 26th volume of *Inorganic Syntheses*. As with earlier volumes in the series the difficult task of catering for the "synthetic tastes" of such a wide range of connoisseurs is admirably accomplished. There is something for almost everyone here, six categories of compound are dealt with.

Chapter One covers compounds of the Main Group (*p*-block) elements and the lanthanides. The inclusion of the "one-pot synthesis of one mole in one day" for the widely used PMe_3 will be welcomed.

The second, third, and fourth chapters deal with mononuclear transition metal complexes of three types: (a) those with unidentate neutral and anionic ligands including some with metal to carbon triple bonds; (b) those with weakly coordinating anionic ligands, including tetrafluoroborate and triflate, in conjunction with low valent Mo, W, and Re and a whole host of electron-rich Group 8 complexes (which are useful precursors for coordinatively and electronically unsaturated compounds); and (c) compounds with metallacyclic ligands, with particular attention drawn to the importance of metallacyclic compounds, especially metallacycloalkanes, in the area of homogeneous catalysis. Accordingly syntheses of metallacycloalkanes and related species with one non-carbon chelating atom are presented, including the well known cyclometallation reactions of azobenzene and some orthometallation reactions of triphenylphosphine.

The fifth category of compounds related to polynuclear transition metal complexes, where the emphasis is on complexes of nuclearity 3 or greater; a useful table of those syntheses of clusters which appeared in volumes 1–25 is included. The present selection of syntheses includes examples where novel Main Group ligands (carbide, nitride, and sulphide) are incorporated in the cluster as well as a number of mixed-metal types. Chapter six covers the solid state syntheses and crystal growth procedures for compounds of the class $\text{A}_3[\text{M}_2\text{X}_9]$, which are of interest from a spectroscopic and magnetic point of view. This section also details the synthesis of the organic superconductor $(\text{BED-TTF})_2\text{ReO}_4$.

Most chapters are prefaced by an informed account by an eminent researcher on the relevance of the content.

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