

Book Review

Synthetic Methods of Organometallic Chemistry (Hermann/Brauer) Volume 5, Copper, Silver, Gold, Zinc, Cadmium, and Mercury, Edited by D.K. Breitingger and W.A. Hermann, Georg Thieme Verlag, Stuttgart/New York, 1999. ISBN 3-13-103061-5, DM 198.

This volume is in the series of monographs which seeks to bring up-to-date the well-known German textbook 'Brauer' ('Handbuch der Anorganische Chemie') which was previously revised at various times. Several of the earlier tomes of this new series have been useful. I am particularly familiar with volume 6, dealing with lanthanides and actinides. There are six chapters. The first deals with copper (24 pages, 71 references), the second with silver (25 papers, 100 references), the third with gold (35 papers, 140 references), the fourth with zinc (54 papers, 273 references), the fifth with cadmium (25 papers, 131 references) and the sixth with mercury (27 papers, 296 references). Zn is by D.K. Breitingger and C.E. Zybilla; and Cd and Hg are by D.K. Breitingger. The authors of Cu, Ag, Au are W. Hiller and C. E. Zybilla.

The principal objective of the series is to provide the reader with recipes for syntheses (on a 1–60 g scale) of selected compounds of each of these elements. The principal advantage of this methodology is to deal with the problem on an element-by-element basis, without having to look up a cited reference. Against this, by comparison with *Inorganic Syntheses*, which surely must be the benchmark, is that the authors are merely reporters and procedures have not been exposed to the rigour of independent checking. Curiously, the number of references to *Inorg. Synth.* in the present volume is restricted to a very small number — 6 for Cu, 3 for Ag, none for Au or Cd, 2 for Zn and 1 for Hg. However, in contrast, the number of compounds for which proce-

dures are available in *Inorg. Synth.* is 74 (Cu), 47 (Ag), 51 (Au), 45 (Zn), 19 (Cd) and 39 (Hg).

The coverage for post-1990 references is sparse: 1 (Cu), 6 (Ag), 52 (Au), 6 (Zn), 6 (Cd) and 12 (Hg). The same is true for procedures; for example, in the Cu chapter, there is an absence of quantities or yields for the following: Cu metal, colloidal Cu, CuH, CuCl, CuBr, CuI, CuCl₂, some of CuBr₂, CuO, KCuO₂, Cu₂S, CuS, Cu₂Se, Cu₂Te, CuSO₄ (no yield stated), Cu₃N, CuSCF₃, [Cu(NH₃)₄][CuCl₂]₂·H₂O (no yield stated), [Cu(en)₂][CuI₂]₂, or [CuCl(η-C₄H₆)₂] (no quantities stated). The procedures for [NEt₄]₂[CuCl₄], K₂[Cu(ox)₂](2H₂O, CuPh, [CuCp(PET₃)], Cu(OAc)(CN), [Cu(CNTol-p)₄][BPh₄], [CuCl(PPh₃)₂], [Cu(PMe₃)₄][CuMe₂], [Cu₃(C₆H₂Me_{3-2,4,6})₃] are rather better described. Among notable absences are [Cu(μ-CH₂SiMe₃)₄], [Cu{C(SiMe₃)₂C₃H₄N-2}]₂, and [Cu{N(SiMe₃)C(Bu^t)CHSiMe₃}₂] and a significant number of other organocopper complexes that can be found with appropriate references in, for example, the *Dictionary of Organometallic Compounds*.

While in this reviewer's opinion, the Cu chapter is the least satisfactory, the others are also patchy in their coverage, although the organometallic sections are, on the whole, more acceptable. In summary, this reviewer believes that there is considerable room for improvement before the laudable objectives, which the editors set themselves, can be regarded as having been realised.

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