

Book Review

The Chemistry of Inorganic Homo- and Heterocycles. Volumes 1 and 2, edited by I. Haiduc and D.B. Sowerby, Academic Press, London, Orlando, San Diego, New York, Austin, Boston, Sydney, Tokyo, Toronto, 1987.

Vol. 1, xxiv + 416 + XI pages, £60, \$108, ISBN 0-12-655775-6.

Vol. 2, xxiv + 461 + XI pages, £65, \$117, ISBN 0-12-655776-4.

Set Price (2 vols.), £105.

These two books provide a detailed look at homo- and hetero-cyclic compounds of the elements in Groups III to VI (Groups 13 to 16 by the current IUPAC nomenclature). The aim of the books is to bridge the period between 1970 (when Haiduc's two-volume monograph "The Chemistry of Inorganic Ring Systems", Wiley-Interscience, was published) and 1980 (from when a series of annual reviews in the area of inorganic ring systems, published in *Reviews in Inorganic Chemistry*, cover the subject). In general, the literature up to 1982 has been covered, although two chapters (viz. sulfur homocycles by Steudel, and S-Se heterocycles by Steudel and Strauss) have at-proof updates of the literature to 1986. A noteworthy feature of the referencing system used throughout the books is the partitioning of reviews and key theses into a bibliography at the end of each chapter.

Before embarking on the chemistry contained in the two volumes, the reader is advised to pay attention to a most useful section in the introduction on nomenclature and classification of ring types. It is also important to note how the editors have defined inorganic cyclic compounds; only carbon-free rings are considered and, in addition, boranes have been omitted. The latter appears to have been a valid decision, made on the grounds that the electron-deficient bonding in boranes sets them apart from other inorganic homocycles. A very brief chapter (2 pages) by Haiduc covers cyclopolyboranes, and emphasises just how few boron systems involve localised bonding.

Volume 1 of "The Chemistry of Inorganic Homo- and Heterocycles" concentrates on Groups 13 and 14. The chapter by Maringgele on boron-nitrogen heterocycles contains a well referenced section devoted to spectroscopic aspects of the systems. With over 400 references, this chapter illustrates the wealth of chemistry in the area. Boron-phosphorus and boron-arsenic systems (by Sowerby), boron-oxygen (Haiduc) and boron-sulfur and boron-selenium heterocycles (Siebert) are adequately reviewed, and the chapters are well organised. The chapter by Cesari and Cucinella on

aluminium-nitrogen rings and cages stands out as being the only discussion concerning compounds of aluminium; since 1970, the chemistry of these systems has progressed greatly. Two substantial chapters on silicon-nitrogen (by Klingebiel) and silicon-oxygen (Chvalovský) chemistry almost hide the few pages necessary to cover silicon-phosphorus heterocycles (Fritz and Härer). In particular, the cyclosiloxane chapter is enhanced by a useful, fully referenced, tabulation of syntheses, reactions and physicochemical data. Some interesting and unusual chemistry also emerges in chapters 12-16, which review germanium and tin systems.

In Volume 2, homo- and heterocycles of the elements of Groups 15 and 16 are covered. Half of the book is devoted to the vast literature on phosphorus-nitrogen chemistry in chapters by Baudler and Glinka, Keat, Allen and Schmidpeter. Again, the chapters are well presented and extensively referenced. There is some beautiful chemistry described in the sections on arsanes, As-X (X = N, O, S or Se) and antimony/bismuth systems. In particular, the discussion of metal complexes involving arsenic (Haiduc and Sowerby) illustrates some unusual bonding environments for this element. The Group 16 chemistry is, not surprisingly, dominated by sulfur homocycles and by sulfur-nitrogen chemistry.

"The Chemistry of Inorganic Homo- and Heterocycles" is an excellent set of books and, at the special price of £105 for the two volumes, I feel it is extremely good value. The two volumes are, however, most useful when used in conjunction with the earlier Haiduc monograph, "The Chemistry of Inorganic Ring Systems".

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