

Book review

Inorganic Chemistry of Main Group Elements

R.B. King, VCH, New York, Weinheim, 1995, xix + 326 pages, DM115 £46.

ISBN 1-56081-679-1

To write a graduate-level textbook on the inorganic chemistry of the Main Group elements is to accept a colossal challenge. The subject is so wide-ranging and the topics to be covered so diverse that any book which is reasonable in length must appear to be superficial. In devising courses at university level many of us take the easy way out and cover 'selected topics' which we consider to be interesting or topical, but this approach quickly becomes dated as fashions change. Professor Bruce King has adopted a different strategy. He has attempted to cover the whole subject including all the topics which he thinks are important. He bases his account on the Periodic Table, with chapters on hydrogen, carbon, Si–Pb, nitrogen, P–Bi, chalogens, halogens and noble gases, boron, Al–Tl, alkali and alkaline earth metals, Zn–Hg, lanthanides and actinides. This is classical inorganic chemistry, taught in a traditional manner, but brought thoroughly up-to-date by reference to work published up to 1993. In most chapters there are brief, well-conceived sections on organometallic chemistry.

I think Professor King's judgments about the relative importance of the subjects he has covered are sound. He has included an astonishing amount of information and his clear, concise style is easy to read. Anyone looking for an introduction to an aspect of Main Group chemistry would do well to begin here. Inevitably, however, there is a breathlessness in the way the ground is covered; e.g. there is only one paragraph on gallium arsenide and only three on zeolites even though most university libraries have a shelf full of books on each topic. The size of Professor King's book is kept within bounds in two ways. First there is an excellent bibliog-

raphy at the end of each chapter so that those wanting more know where to find it. Secondly the emphasis has been kept firmly on the descriptive, on facts rather than theory, on what happens rather than on why it happens. So there is little on what factors determine the relative stabilities of various oxidation states, on why some lone pairs are stereochemically active and others not, on thermochemical cycles, structural data or orbitals. Each chapter begins with a section entitled 'general aspects' including a good account of NMR-active nuclei for each element. This reflects the crucial part played nowadays by multinuclear NMR spectroscopy in studying the chemistry of Main Group elements. The other points are also mainly descriptive with little to relate the chemistry of the elements to the properties of their atoms. It is true that attempts to account for reactions and properties in this way are often simplified to the point where the explanations are facile and misleading, but the highly descriptive, systematic segregated approach which we find in this book tends to underplay the importance of trends in properties which inform much of the creative thinking of inorganic chemists. Since the author expects his readers to be familiar with fundamental ideas of chemical structure and bonding from previous courses perhaps this quibble does not matter too much. We are certainly given a well-balanced picture of the range and importance of Main Group chemistry and if this book encourages students to read widely and follow up particular topics in detail it will have served its purpose well.

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