

*Crown Ethers and Analogues*; by E. Weber, J.L. Toner, I. Goldberg, F. Vögtle, D.A. Laidler, J.F. Stoddardt, R.A. Bartsch and C.L. Liotta, John Wiley and Sons, New York, 1989, ix + 558 pages, £96.00. ISBN 0-471-91707-9.

This is the third volume published in the new series entitled "Updates from the Chemistry of the Functional Groups" under the general editorship of Saul Patai and Zvi Rappoport. The main volume in the series on the Chemistry of Functional Groups on the ether linkage appeared in 1967, at which time the subject of crown ether chemistry was in its infancy. Supplement E, published in 1980, contained four chapters on crown ethers, and the present volume contains some material which has been published since then.

Chapters 1 and 2 of this volume, detailing the syntheses of crown ethers and their analogues, and organic transformations mediated by macrocyclic multidentate ligands, are reprinted from the earlier Supplement E. The same is true of Chapters 4 and 6, on crown ether complexes, and the geometry of ether, sulphide and hydroxyl groups, and structural chemistry of macrocyclic and non-cyclic polyether complexes. Chapter 7 is a substantial update on Chapter 6, and contains a comprehensive and well-written account of the recent literature. Chapter 8, detailing the complexation of aryldiazonium ions by polyethers, is reprinted from Supplement C, published in 1983. Chapter 9 comprises an update on this area, with references up to 1987.

Chapter 3 is entirely new, and is entitled "Modern Aspects of Host-Guest Chemistry". It opens with an introduction to general concepts, and a good and well-illustrated account of molecular modelling studies in this area. This is followed by a comprehensive account of new types of ligands including hemispherands, cryptahemispherands, spherands, cavitands and molecular cleft hosts, with particular emphasis on the recognition by hosts of guests, both metal ions and small organic molecules. Chapter 5 is also new, and entitled "New Developments in Crown Ether Chemistry: Lariat, Spherand and Second-sphere Complexes"; there is a certain amount of overlap with Chapter 3, but the section on second sphere coordination is of especial interest. A number of second sphere derivatives of metal ammine and aqua complexes are already known, and the prospects for investigating the reactivity of organometallics in such environments looks good.

The production of this book is of high quality, with good diagrams and a helpful index. There is also an author index. Material is densely packed, and this is a useful reference book. However, almost half the material has been published before. Whilst not wishing to criticise its quality, it is rather dated. There has been progress in the synthesis of crown ethers, and in their use as catalysts and complexing agents over the last ten years. These sections should have been updated. Two chapters have "add-on" updates; surely a rewrite would have been more satisfactory. This book looks like an attempt to get a new publication (probably bought by many libraries as a regular subscription) "on the cheap", and I am surprised to find reputable editors and publishers engaging in this. I would advise purchasers to look carefully at the ratio between the price and the novel content before buying.