

Book review

Organic Selenium Compounds: Their Chemistry and Biology, edited by D.L. Klayman and W.H.H. Günther, Interscience—Wiley, 1973, xiv + 1188 pages, \$55.00.

This represents the first comprehensive coverage of the organic chemistry of selenium. This element has not attracted the interest of a large number of chemists, but interesting recent developments concerning the nutritional and biochemical aspects of this element, together with the unique photoconducting properties of selenium and heavy metal selenides, should make this book attractive to a larger audience than heretofore.

Chapter I covers the nomenclature of selenium compounds in a systematic and thorough manner while chapter II discusses the structure and properties of the element perhaps too briefly. There follow ten chapters on the organic chemistry of selenium which include selenols, selenides and selenonium compounds, selenium analogues of carboxylic acids, aldehydes and ketones, selenium containing organophosphorus compounds, heterocyclic selenium compounds, and selenium amino acids and peptides. This reviewer can find little to criticize in this section of the book. The authors are well chosen and knowledgeable in the areas in which they write. Those of us who have long been engaged in selenium chemistry are delighted to see the work of our colleagues systematized and collected. Henry Mautner covers the subject of heterocycles with selenium substituted on the ring in nine pages and proves that one can be brief and still thorough. The late Leslie G.S. Brooker is senior author of an interesting discussion on selenium containing dyes. The influence of the Scandinavian school in this area is reflected by the large number of contributors, including K.A. Jensen. Professor Magdisieva is senior author of the section on selenophenes, and the organoselenophosphorus compounds are thoroughly covered by Jan Michalski and Anna Markowska. All of the contributors are worthy of mention, but individual mention is precluded by the length of this review.

Chapter XIII covers the subject of selenium compounds in nature and medicine. Jay Shapiro's discussion of selenophobia is most interesting and places the evidence, pro and con, in proper balance. Daniel Klayman's section on selenium compounds as potential chemotherapeutic agents should attract considerable interest.

Selenium containing polymers are the subject of Chapter XIV. The nature of the infrared, ultraviolet, visible, PMR and ^{77}Se NMR and mass spectra of compounds of this element are discussed in Chapter XV along with the chiroptical properties of selenium compounds and X-ray studies. The last two chapters cover the subject of coordination compounds of transition metals bonded to organic selenium and tellurium containing ligands and finally, analytical methods for the determination of this element.

The organization of chapters which deal with more extensive subjects into subsections, each separately handled by an expert(s), is quite desirable. For example, the chapter on Heterocyclic Selenium Compounds is divided

into six sections on selenacycloalkanes, selenophenes and related compounds, selenium containing nitrogen heterocycles, heterocycles with selenium substituted on the ring, selenium containing dyes, and miscellaneous selenium-containing heterocycles. Both the subject and author index are very complete, and will be of great use to interested readers.

It is a bit unfortunate that the work of Rotruck, Hockstra, and co-workers on the recognition of erythrocyte glutathione reductase as a biologically active form of selenium appeared just after the appearance of this book. Also, the report of Stadtman and co-workers on the presence of a selenium containing protein as part of the glycine reductase system in *Clostridia* was published too late to be incorporated into this volume. However, the book covers the field of organic selenium chemistry comprehensively and expertly and the wealth of information contained between the covers of this volume makes it well worth the price.

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