Book Review

Works intended for notice in this column should be sent direct to the Book-Review Editor (R. O. Gould, Department of Chemistry, University of Edinburgh, West Mains Road, Edinburgh EH9 3JJ, Scotland). As far as practicable books will be reviewed in a country different from that of publication.

Acta Cryst. (1991). B47, 304

Molecular structure of organosilicon compounds. By E. LUKEVICS, O. PUDOVA and R. STURKOVICH. (English translation from original Russian), pp. 359. Chichester, New York: John Wiley, 1989. Price £69.95.

This book contains experimental structural data from solid-state investigations (X-ray and neutron diffraction) and from gas-phase studies (electron diffraction and rotational spectroscopy), as well as some results from *ab initio* calculations. Data for a large number of compounds are presented in four chapters. This English edition has been somewhat extended, and the references cover the year after the appearance of the Russian version in 1988.

Chapter 1 deals with organosilanes: hydrosilanes, tetraorganosilanes, silacyclic compounds and compounds with Si=C bonds (silaethylenes). Chapter 2 surveys polysilanes: linear and cyclic compounds with Si—Si bonds and compounds with Si=Si bonds (silenes). In chapter 3, data for organometallic and -metalloid derivatives of silicon are presented. This is the largest chapter (186 pages) and the data are presented across the periodic table, group by group. The last chapter deals with compounds containing penta- and hexacoordinated silicon atoms both in donor compounds and in ionic complexes. It shows strikingly the great variety of structural silicon chemistry.

The structural data are in most cases presented clearly, but sometimes compounds one would expect to find together are covered in different chapters. This is caused by the way the chapters are organized and the priorities assigned to different molecular fragments. A molecule may thus fall into either of two chapters when it contains both a silacyclic fragment and a metal atom.

This book is mainly useful for reference, and explanations for observed structural trends have only been suggested in a few cases. Although standard deviations for structural parameters are given in most cases, as a structural chemist I found that some of these parameters were presented in a somewhat uncritical manner. Old and new data for the same compound are presented side by side without any suggestion or explanation of why one of the sets should be preferred to the other. This very feature is a reason for structural chemists to find this book stimulating in two ways: comparison of results obtained for a compound by different methods and in different states of matter enables an understanding of the forces between molecules to be gained. Furthermore, comparison of structural results for a compound obtained by the *same* method in the same state of matter gives insight into the different prejudices which govern the outcome of an analysis at a specific time. The latter is most pronounced in gas-phase studies, where knowledge and prejudices are to a larger degree built into the molecular models.

As a whole, the book is a very good and extensive work of reference with more than 1800 numbered references and an index on empirical formula. An additional unnumbered list of references covers the year after the publication of the Russian original to bring the book more up-to-date. There are numerous drawings of molecules and many systematic tables. The nature of these makes this an interesting book for structural chemists, and not only for chemists working in the field of organic synthesis, for whom it is primarily intended.

RICHARD BLOM

Department of Chemistry
University of Oslo
N-0315 *Oslo* 3
Norway