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Book Reviews

Works intended for notice in this column should be sent direct to the Book-Review Editor (R. F. Bryan, Department of Chemistry, University of Virginia, McCormick Road, Charlottesville, Virginia 22901, USA). As far as practicable, books will be reviewed in a country different from that of publication.

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Organic crystal chemistry. (IUCr Crystallographic Symposia No. 4.) Edited by J. B. GARBARCZYK and D. W. JONES. Pp. xi + 203. Oxford University Press, 1991. Price £30.00, US \$55.00. ISBN 0-19-855383-8.

This book contains a cross-section of the papers presented at the Seventh Symposium on Organic Crystal Chemistry, organized by Professor Z. Kałuski of the Faculty of Chemistry at Adam Mickiewicz University, and held at Poznań-Rydzyna, Poland, 14–17 August 1989. These symposia have provided a forum for interaction between the sizable Polish chemical crystallographic community and a significant number of chemical crystallographers from other countries. The field of organic crystal chemistry has moved beyond the basic experimental determination of molecular dimensions to consideration of the chemical, biological and physical properties of both molecules and the crystals in which they find themselves. The papers in this volume deal with a wide range of current topics in crystal chemistry, including the arrangement of molecules in crystals (studies of polymorphism and crystal engineering), analysis and prediction of intermolecular interactions, studies of the properties of solid solutions, and identification of structural trends - found by surveying the wealth of data available from crystallographic databases.

This book is an excellent introduction to these various applications of crystallographic studies and should be placed in the hands of any young person considering a career in crystal chemistry. It is an admirable refutation of the misperception of many scientists that crystallography is a service rather than a scientific study.

A strong theme in the volume is the study, analysis and control of intermolecular interactions. The book begins with J. Bernstein's elegant presentation of polymorphism and its implications for the properties of crystalline materials, and of molecules, that depend strongly on conformation. D. Pauksta and coworkers present a cleverly designed device for growing crystals in an electric field and thereby affecting polymorphism. A chapter on controlling crystal growth through solvent-surface interactions (by L. Shimon, M. Vaida, L. Addadi, M. Lahav and L. Leiserowitz) continues the emphasis on intermolecular interactions and their role in determining crystal properties. T. Krygowski's paper provides mathematical tools helpful in the analysis of interactions, and examples of such

interactions are presented by A. Katrusiak in a study of β -diketoalkanes.

The chemistry or biology of molecules is another theme in the book and is represented in articles on the steroid hormone receptor (W. Duax and J. Griffin), Werner clathrates (Z. Lipkowska), cycloannulated aromatic systems (R. Boese and coworkers), S \rightarrow O hypervalent bonds (A. Kálmán) and aryl oxide-aluminium π -bonding (A. Barron). These papers demonstrate the power of a study that joins detailed analysis of individual structure determinations to the analysis of a large number of similar structures to identify chemical properties or predict biological actions.

The volume is carefully prepared and edited in all but one respect. The exception relates to the linkage between text and illustrations. As is often the case with papers prepared from oral presentations, although the papers are clear and well illustrated, the illustrations are often not explained adequately in the text, or are captioned unclearly. However, overall this volume is important reading for anyone working in the field of crystal chemistry.

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Crystallography in modern chemistry. A resource book of crystal structures. By THOMAS C. W. MAK and GONG-DU ZHOU. Pp. xiii + 1323. New York: John Wiley, 1992. Price \$136.00. ISBN 0-471-54702-6.

This book is based on lectures of the authors at the Chinese University of Hong Kong, the University of Western Ontario and Peking University over the past 25 years. It is a tribute to the richness of structural data obtained by X-ray crystallographic studies. The first 20 pages consist of a historical review of crystal structure determinations. Then follow details of structure determinations and discussions of their significance