

Notes and News

Announcements and other items of crystallographic interest will be published under this heading at the discretion of the Editorial Board. The notes (in duplicate) should be sent to the Executive Secretary of the International Union of Crystallography (J. N. King, International Union of Crystallography, 13 White Friars, Chester CH1 1NZ, England).

Structure Reports

In addition to the five volumes of *Structure Reports* published in November 1974 (Volumes 30B, 31B, 32B, 33B and 35B, covering the literature for organic compounds for 1965–1968 and 1970), five more volumes have just been published. These latest volumes cover all the literature for 1963 and the literature for metals and inorganic compounds for 1965, 1966, 1968 and 1970. All the annual volumes, up to and including Volumes 39A and 39B (for 1973), should be published by the end of 1975. This will bring *Structure Reports* up to date and make it even more useful to all crystallographers.

The five volumes just published are:

Volume 28, covering all the literature for 1963 (viii+723 pages). Price: 225 Netherlands guilders.

Volume 30A, covering the literature for metals and inorganic compounds for 1965 (viii+487 pages). Price: 75 Netherlands guilders.

Volume 31A, covering the literature for metals and inorganic compounds for 1966 (viii+278 pages). Price: 75 Netherlands guilders.

Volume 33A, covering the literature for metals and inorganic compounds for 1968 (viii+535 pages). Price: 95 Netherlands guilders.

Volume 35A, covering the literature for metals and inorganic compounds for 1970 (viii+499 pages). Price: 95 Netherlands guilders.

Orders may be placed direct with the publisher (Oosthoek, Scheltema & Holkema, Emmalaan 27, Utrecht, The Netherlands), with Polycrystal Book Service, P.O. Box 11567, Pittsburgh, Pa. 15238, U.S.A., or with any bookseller. Details of price reductions for personal subscriptions and for standing orders may be obtained direct from Oosthoek, Scheltema & Holkema or from Polycrystal Book Service.

Book Reviews

Works intended for notice in this column should be sent direct to the Book-Review Editor (M. M. Woolfson, Physics Department, University of York, Heslington, York YO1 5DD, England). As far as practicable books will be reviewed in a country different from that of publication.

The structural chemistry of phosphorus. By D. E. C. CORBRIDGE. Pp. xiii+542, Figs. 93, Tables 55. Amsterdam: Elsevier, 1974. Price f250.00 (U.S. \$96.20)

In 1958, J. R. Van Wazer wrote in the preface to his book *Phosphorus and its Compounds* that the purpose behind publication was to lay a foundation for a new, separate discipline in chemistry that would be concerned with the element phosphorus. He also comments on the general lack of systematization in inorganic chemistry but considered that this was likely to change following the increased sophistication in quantum-mechanical calculations and the greater application of both old and new methods of structure determination. The present volume by Dr Corbridge shows how the latter factor (in particular X-ray diffraction) has been instrumental in unifying and extending our knowledge of this most important element, and it is clear that the systematization of the subject has progressed greatly.

The book is concerned with some 2600 references, many from 1973, and the author is to be congratulated on his handling of this mass of information. Solid-state structures derived from X-ray diffraction data are the basis of the book but there is generally sufficient of the relevant chemistry to put the structural data well into context. Perhaps a minor weakness of the book is the absence of the bulk of data on species in solution, but the author is probably correct in not stressing here data based on, as he puts it,

'the more speculative explanations of reaction mechanisms, spectroscopic data or preparative chemistry', if only to limit the book to a reasonable size. Solution data are, in fact, not completely neglected and aspects are found in most parts of the book.

The chapter headings indicate a logical division of the material. After a brief general introduction, there is an up-to-date survey of the element and a comprehensive account (40 pp.) of phosphide structures. This is a rapidly expanding field and although important data have accumulated since publication this chapter will serve as a good general introduction to the topic. A chapter on the binary oxides, sulphides and selenides is followed by a detailed account (66 pp.) of the metal orthophosphates. Condensed phosphate systems are covered in 44 pp. and there is a comprehensive survey of non-metal phosphates and the biologically important phosphate esters. Chapter 8 (42 pp.) is concerned with substituted phosphates and considers data on phosphites, hypophosphites, phosphonates, phosphinates and derivatives containing nitrogen, halogen, sulphur and selenium. In the next chapter, the author draws together for detailed discussion data on P–O bond distances and the geometry of hydrogen bonds involving phosphorus molecules. Hydrides, nitrides, halides and organophosphine structures follow, and attention is drawn to the continuing relative rarity of six-coordinate species in this area. Complex transition-metal compounds treated in order of periodic group cover some 32 pp., and structural correla-

tion for the cyclic phosphazenes 33 pp. Geometrical and optical isomerism for phosphorus in various coordinations is considered in Chapter 13 and the possibilities for binuclear tetrahedral, trigonal bipyramidal and octahedral geometry are tabulated. The author then returns to other monocyclic systems and treats the cyclic polyphosphines and systems containing heteroatoms such as S, B, C and O and ends with structures based on cages. A tabulation of unit cell and space group data is included as an appendix.

Although structural data are now abstracted and listed in a number of publications, the need for books of this calibre will always exist. They point to a unity which is not apparent in a simple listing of solved structures and for phosphorus chemists of all persuasions a substantial gap in the literature has now been effectively filled.

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Atlas of stereochemistry. Absolute configurations of organic molecules. By W. KLYNE and J. BUCKINGHAM. Pp. xv + 311. London: Chapman & Hall, 1974. Price £15.00.

The purpose of this monumental work is to bring together in a readily available form a part of the enormous mass of data in the literature concerning the absolute configurations of chiral molecules. This is the first such extensive compilation, as previous surveys were relatively brief and more selective. Even so, the approximately 3000 compounds

contained in this *Atlas* still represent only an outline of the field. The emphasis is on fundamental chiral compounds containing one or two chiral centers (68 pp.) and on natural products (for which key compounds only are listed for each group), *viz.* carbohydrates (6 pp.), terpenes and steroids (52 pp.), alkaloids (40 pp.), and miscellaneous (34 pp.). Special sections deal with chirality due to isotopic substitution (4 pp.), configurations around chiral axes and planes (14 pp.), and chiral centers other than at carbon atoms (12 pp.).

Each page of the *Atlas* shows numerous correlations among the configurations of related compounds, with a clearly and carefully explained symbolism used to denote how the configurations are linked. The over 260 compounds for which the absolute configurations have been determined by the Bijvoet method are enclosed by grey frames. As pointed out by the authors, these are the fundamental 'triangulation points' of their survey. The authors have done a thorough job of untangling the complex interrelationships among the various classes of compounds. The indices, 44 pp. of formulas, 16 pp. of authors, and 11 pp. of subject, are a most useful feature and make it relatively easy to locate a desired compound or derivative.

If you are the kind of structural chemist who looks at a stereochemical formula and says 'Well, if it isn't *R*, then it must be *S*' this book is not for you. On the other hand, if you are interested in absolute configurations of only a few of the categories of compounds included in this *Atlas*, then this well produced and inexpensive (for its size) volume is a must for your library.

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