to be purchased by libraries than to find its way to the bookshelves of the individual, particularly at the price of $31.50.

N. Boden


A review of this book by J. E. Lydon has been published in the October issue of Journal of Applied Crystallography, page 418.


This rather formidable work is an edited volume in the NATO Advanced Study Institute Series, and contains the main lectures read at a course held in the University of Namur from September 1st to 14th 1974. At the present time there is a great experimental effort in progress in the optical and conductivity properties of molecular crystals, and future practical applications, if they are to come, will eventually involve polymers, if only to secure adequate mechanical properties for material to be used in electronic devices. So there is a great need to develop the theory of electronic behaviour of π-electron molecular crystals at the present time. The same may be said for polymers, although the efforts here may still be a little premature.

The first three lectures, by J.-M. Andre, J. Ladik and J. Delhalle (of Namur) outline successively ab initio and semi-empirical band structure calculations in polymers, LCAO band structure calculations, and some numerical applications of the foregoing to one-dimensional chains. In the fourth lecture G. D. Mahan (Indiana) discusses methods of interpreting, and theoretically calculating, the optical properties of molecular crystals. This author concludes that a high-density, close packing of polarizable substituents is absolutely essential to attain high-temperature superconductivity [since these lectures were given the first polymeric superconductor (SN)] has been discovered, with a critical temperature of 0.26 K]. W. L. McCubbin (E. Anglia) deals with the symmetry properties of polymers and their influence on calculated band structure. E. Atkins (Bristol) discusses the X-ray structure determination of polymers, and Ph. Coppens (Buffalo) deals with experimental charge densities (from X-ray crystallography) and their use in testing theoretical band structure calculations. D. T. Clark (Durham) in 130 pages gives an exhaustive account of ESCA as applied to polymers. J.-L. Calais (Uppsala) surveys the various efforts to deal with electron correlation in polymers and molecular crystals, F. C. Collins (Ohio) deals with ab initio SCF-LCAO Hartree-Fock calculations, and F. E. Harris (Utah) and D. P. Santry (Hamilton, Ontario) continue with reviews of their own contributions. R. Rein (Buffalo) discusses methods for calculating intermolecular interactions between biopolymer units leading on to M. Simonetta’s (Milan) discussion of the conformation of constituents in molecular crystals. F. Herman (IBM San Jose) with K. H. Johnson and R. Kjellander outline applications...