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

School of Chemistry
University of Leeds
Leeds LS2 9JT
England

Applications of liquid crystals. By G. MEIER, E. SACMANN and J. G. GRABMEIER. Pp. iii + 164. Springer-Verlag, 1975. Price $23.00.

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

Количественный рентгенографический фазовый анализ. By *Л. С. Зевин* and *Л. Л. Завьялова* **(Quantitative X-ray phase analysis.** By *L. S. Zevin* and *L. L. Zavyalova*). Pp. 184, Figs. 53, Tables 26+7 (in appendices). Moscow: Nedra, 1974. Price Rb 0·62.

A review of this book by K. Łukaszewicz has been published in the December issue of *Journal of Applied Crystallography*, page 513.

Technische Mineralogie. Bd. 8. Auflösung von Kristallen. By R. B. HEIMANN. Pp. viii+270. Springer-Verlag, 1975. Price DM 115.00.

The subjects of crystal habit, solution and etching with which this text deals have a history from the early days of crystallography (one reference is to 1820) up to the present-day development and application of dislocation theory and chemical kinetics.

The first and longest section of this book is devoted to 'micromorphology', *i.e.* the systematic study of the form, stability and kinematics of surface etching. It begins with a survey of theoretical approaches to these topics, leading on to illustrative examples in which the structural and chemical aspects play their role in detail. Due weight is given to the symmetry of etch pits and their relation to crystal symmetry groups. In Chap. 6 there is a brief account of techniques of etching and chemical polishing and of various procedures for observing and recording the results. There is also reference to 'hypomorphy' and other steric effects. The second section, on 'macromorphology', deals principally with the kinematics of solution of spheres and hemispherical holes, with appropriate examples.

From the wide literature available it can be claimed that this text is a selection well chosen to illuminate the whole field in a reasonable compass without neglecting the 'applied' aspect. The introductions to various theoretical facets are, by reason of brevity, somewhat demanding and presuppose in particular a good knowledge of classical crystallography – a demand somewhat lightened by adequate literature references. This would apply to such topics as the Gross kinematic theory, the Gibbs–Wulff and Herring theories and the Frank topographic theory. The standards of presentation and printing, apart from a few misprints, mostly of minor importance, are generally high. The generous provision of diagrams and plates is a most acceptable feature. It is a book to arouse as well as satisfy the reader's interest.

G. E. PRINGLE

School of Chemistry
The University of Leeds
Leeds LS2 9JT
England

Electronic structure of polymers and molecular crystals. Edited by JEAN-MARIE ANDRE and JANOS LADIK. Pp. 704. New York and London: Plenum. Price $67.20.

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 substitutents is absolutely essential to attain high-temperature superconductivity [since these lectures were given the first polymeric superconductor $(SN)_x$ 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