

Current Crystallographic Books 1970 through 1981

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The previous *Crystallographic Booklist*, edited by Helen Megaw, was published for the IUCr in 1965;* supplements were published in 1966 and 1972, the latter in *J. Appl. Cryst.* **5** (April, 1972). The present Booklist is *an addition to*, rather than a replacement of, that of Megaw.

The format of this Booklist, different from its forerunners, is intended to maximise convenience and efficiency for the user – not so much to be definitive, but rather to have the greatest practical value.

Crystallography is a large and interdisciplinary field, with many near-neighbour fields. There are many books now, on many different topics. However, the researcher, teacher, or student, who is looking for suitable books, has usually only one subject area, or perhaps three or four related ones in mind at any one time. Accordingly, the 1200 or so entries in this list are divided up into about 30 identifiable subject areas, each of which is then of roughly uniform material and of manageable size. One admitted drawback of this system is that some books, inevitably, are such as to be associated with two (or more) subject areas; here, this difficulty is met simply by the duplication of all such entries. The slightly increased volume of the resulting list is a small price to pay, we believe, for the basic convenience of these segregated subject areas. Within these subject categories, the books are listed alphabetically by author because, within any one area (with the exception of *Tabulations*, perhaps), books are far more commonly referred to by author than by title. The layout which we have adopted is very compact and the device of differing typefaces is used to enable the user to scan up and down the columns quite easily and efficiently, either for **authors**, or for **TITLES**, just as desired.

For each entry in this Booklist, the amount of author information is intended to be enough for the user to locate that book in a library or to order it from a bookseller. Hence the ubiquitous initials. The name of the publisher is given for those who wish to purchase but addresses are not normally given since most booksellers usually know these, except in special cases. The date of publication is always given because this is an important detail in a rapidly moving subject such as ours. (This itself is the main reason for the restriction of this Booklist to the past decade.) Whenever a book has been reviewed in one or other of the IUCr journals (this is so for about half of all titles), the reference to that review is given; since we are referring to these IUCr journals only, we have used the simple abbreviations, A, B and J for the *Acta Cryst.* sections A and B, and *J. Appl. Cryst.*, respectively. Finally, there are, scattered here and there, various comments on the books which are essentially personal ones (for which the IUCr cannot be held responsible), which it is hoped will be helpful to the users of this compilation.

*Prior to Helen Megaw's Booklist (which contained about 1000 entries) a still earlier one was edited by Judith Milledge and Arne Magnéli.

Acknowledgements It was the IUCr Commission on Journals which initiated the production of this Booklist; members of that Commission have contributed useful suggestions as well as titles. The Commission on Crystallographic Teaching (which initiated the first Booklist) was also much interested and, following the XIIth Congress at Ottawa, contributed a great deal of material. It was the suggestion of this Commission that the boundaries of the Booklist should be widened to include books in any language (*i.e.* not be limited to the four IUCr official languages). This move delayed production somewhat but has significantly enhanced the international flavour of the resulting list. Contributions were received from all members of that Commission and its Consultants, especially Professor H. von Philipsborn (of Regensburg University, Federal Republic of Germany), who organised this exercise, and most notably from Dr Barbara Oleksyn (of the Jagiellonian University, Kraków, Poland), who submitted by far the largest number of titles from Eastern Europe, including the USSR.

The *subject areas* ('key words') used are:

1. Crystal Growth
2. Crystal Physics/Physics of Condensed Matter
3. Defects/Faults/Impurities
4. Diffraction Theory
5. Electron Diffraction
6. Electron Microscopy
7. General Crystallography
8. History
9. Industrial Crystallography/Metals/X-ray Spectrometry
10. Liquid Crystals
11. Materials and their Properties/General Materials Science
12. Materials/Electronics/Devices/Semiconductors
13. Materials as Electrolytes/Fast Ionic Conductors
14. Materials of Low Dimensionality
15. Mathematics/Computing
16. Methods for Solving Structures
17. Minerals
18. Miscellaneous
19. Molecular Structures
20. Neutron Diffraction/Scattering
21. Optical Microscopy
22. Phases/Phase Transformation and Polycrystalline Diffraction
23. Polymers
24. Proteins/Macromolecules/Biological
25. Solid-State Chemistry/Crystal Chemistry/General Crystal Structures
26. Student-Oriented Texts/Books for Students
27. Surfaces
28. Symmetry
29. *Tabulations/Data/Bibliography*

I. Crystal Growth

- Bardsley, W. et al.** (Eds.): *CRYSTAL GROWTH: A TUTORIAL APPROACH*. (N. Holland, 1979). Substance of the summer school of 1977; a useful text, though unattractively produced. Review in J14, 155.
- Blom, G. M. et al.** (Eds.): *LIQUID PHASE EPITAXY*. (N. Holland, 1974). Review in J8, 697.
- Bourdon, J.** (Ed.): *GROWTH AND PROPERTIES OF METAL CLUSTERS*. (Elsevier, 1980). Conf. proc.; applications to catalysis and the photographic process. Review in A37, 141.
- Brice, J. C.**: *THE GROWTH OF CRYSTALS FROM LIQUIDS*. (N. Holland, 1973). Review in J7, 637.
- Chadwick, G. A. & Smith, D. A.**: *GRAIN BOUNDARY STRUCTURE AND PROPERTIES*. (Academic Press, 1976).
- Chernov, A. A.** (Ed.): *GROWTH OF CRYSTALS*, Vol. 11. (Plenum, 1979). This is the latest volume of a continuing series, edited previously by Sheftal (see below); each volume is a collection of specialised papers, translated from Russian.
- Cullen, G. W. et al.** (Eds.): *VAPOUR GROWTH AND EPITAXY*. (N. Holland, 1975). Conf. proc. Review in J10, 212.
- Elwell, D. & Scheel, H. J.**: *CRYSTAL GROWTH FROM HIGH TEMPERATURE SOLUTIONS*. (Academic Press, 1975). Not as limited as its title suggests, this is a good all-round book on crystal growth from solution. Review in A32, 1035.
- Faktor, M. M. & Garrett, I.**: *GROWTH OF CRYSTALS FROM THE VAPOUR*. (Chapman & Hall, 1974).
- Freyhardt, H. C.** (Ed.): *CRYSTALS: GROWTH, PROPERTIES AND APPLICATIONS*, Vols. 2, 3 and 4. (Springer, 1980, 1980 and 1981). Freyhardt is the managing editor of this series, which now runs to a 6th Vol. For Vol. 1, see Rooijmanns; for Vol. 5, see Grabmaier. Reviews of Vols. 2, 3 and 4 in A36, 1093; J14, 354; and A38, 397.
- Goodman, C. H. L.** (Ed.): *CRYSTAL GROWTH: THEORY AND TECHNIQUES*, Vol. 1 (1974) and Vol. 2 (1978) (Plenum). Review of Vol. 2 in J13, 106. Available also in Russian translation (MIR, 1977).
- Grabmaier, J.** (Ed.): *SILICON* (Vol. 5 of the series *CRYSTALS: GROWTH, PROPERTIES AND APPLICATIONS*). (Springer, 1981). The managing editor of this series is Freyhardt; see above, for earlier Vols.
- Guzik, Z. & Oblakowski, J.**: *SYNTHETIC MONOCRYSTALS: METHODS OF GROWING*. (in Polish) (Slask, 1973).
- Hartman, P.** (Ed.): *CRYSTAL GROWTH: AN INTRODUCTION*. (N. Holland, 1973).
- Hawkins, D. T.**: *CHEMICAL VAPOUR DEPOSITION, 1960-1980: A BIBLIOGRAPHY*. (Plenum, 1981).
- Heimann, R. B.**: *AUFLÖSUNG VON KRISTALLEN*. (Springer, 1975). Review, in English, in A33, 253.
- Henisch, H. K.**: *CRYSTAL GROWTH IN GELS*. (Penn State Univ. Press, 1970). Review in J4, 270.
- Ikornikova, N. J.**: *HYDROTHERMAL SYNTHESIS OF CRYSTALS IN CHLORIDE SYSTEMS*. (in Russian) (Nauka, 1975).
- Kaldis, E. & Scheel, H. J.** (Eds.): *CRYSTAL GROWTH AND MATERIALS*. (N. Holland, 1977). Review papers from the first European conference on crystal growth, 1976. Review in J11, 673.
- Kaldis, E. & Schieber, M.** (Eds.): *CRYSTAL GROWTH AND EPITAXY FROM THE VAPOUR PHASE*. (N. Holland, 1971). Conf. proc.
- Keesee, A. M. et al.** (Compilers): *CRYSTAL GROWTH BIBLIOGRAPHY*. (Plenum, 1979). Review in J13, 402. There is now a SUPPLEMENT available (Plenum, 1981).
- Keller, W. & Mühlbauer, A.**: *FLOATING-ZONE SILICON*. (Dekker, 1981). This is the second Vol. of the series *PREPARATION AND PROPERTIES OF SOLID STATE MATERIALS*; for other Vols. see Wilcox, below.
- Kolkert, W. J.**: *GROWTH OF HOMOGENEOUS ORGANIC MIXED CRYSTALS BY REPEATED-PASS ZONE-LEVELLING*. (Drukkerij Elinkwijk BV, Utrecht, 1974).
- Kozlova, O. G.**: *GROWTH AND MORPHOLOGY OF CRYSTALS*. (in Russian) (Izd-vo Mosk. Univ-ta, 1980).
- Kubiak, R.** (Ed.): *PROBLEMS OF CRYSTAL GROWTH*. Papers of the Committee of Crystallography, Polish Academy of Science. (in Polish) (PWN, Warsaw, 1978). See also Olejnik, under 2. *Crystal Physics*.
- Laudise, R. A.**: *THE GROWTH OF SINGLE CRYSTALS*. (Prentice Hall, 1970). Review in J5, 53. This is available in Russian translation (MIR, 1974).
- Lefever, R. A.** (Ed.): *ASPECTS OF CRYSTAL GROWTH*. (Dekker, 1971). This is the first Vol. of the series *PREPARATION AND PROPERTIES OF SOLID STATE MATERIALS*; for other Vols., see Wilcox, below.
- Lemlein, G. G.**: *MORPHOLOGY AND GENESIS OF CRYSTALS*. (in Russian) (Nauka, 1973).
- Lobachev, A. N.**: *HYDROTHERMAL SYNTHESIS OF CRYSTALS*. (Plenum, 1971). Translation from Russian.
- Lobachev, A. N.** (Ed.): *CRYSTALLISATION PROCESSES UNDER HYDROTHERMAL CONDITIONS*. (Plenum, 1973). Translation from Russian.
- Maleev, M. N.**: *PROPERTIES AND GENESIS OF NATURAL FIBRILLAR CRYSTALS AND THEIR AGGREGATES*. (in Russian) (Nauka, 1971).
- Matthews, J. W.**: *EPITAXIAL GROWTH*, Parts A and B. (Academic Press, 1975).
- Mullin, J. W.**: *CRYSTALLISATION*, 2nd ed. (Butterworth, 1972).
- Mullin, J. W.** (Ed.): *INDUSTRIAL CRYSTALLISATION*. (Plenum, 1976). Review in J10, 508.
- Nitsche, R.**: *INFORMATION ÜBER KRISTALLZUCHTUNG*. Deutsche Gesellschaft f. Kristallwachstum, 1976).
- Ohara, M. & Reid, R. C.**: *MODELLING CRYSTAL GROWTH RATES FROM SOLUTION*. (Prentice Hall, 1973).
- Pamplin, B. R.** (Ed.): *CRYSTAL GROWTH*. (Pergamon, 1975). Review in A33, 686. (There is now a 2nd ed., 1980).
- Pamplin, B. R.** (Ed.): *PROGRESS IN CRYSTAL GROWTH AND ASSESSMENT*. (Pergamon). A new review journal; the first issue was in 1977.
- Pamplin, B. R. & Elwell, D.** (Eds.): *INORGANIC BIOLOGICAL CRYSTAL GROWTH*. (Pergamon, 1981).
- Parker, R. L. et al.** (Eds.): *CRYSTAL GROWTH, 1977*. (N. Holland, 1977). Conf. proc. Review in J11, 720.
- Platenko, J. A. et al.**: *MINERALOGICAL CRYSTAL CHEMISTRY OF TITANIUM*. (in Russian) (Nauka, 1976).
- Rooijmans, C. J. M.**: *CRYSTALS FOR MAGNETIC APPLICATIONS*. (Springer, 1978). This is the first of a new series, edited by Rooijmans, on crystal growth (see Freyhardt, above). Review of this Vol. in J12, 642.
- Rosenberger, F.**: *FUNDAMENTALS OF CRYSTAL GROWTH*, 1. (Springer, 1979). Review in J13, 401.
- Rousseau, R. W.**: *ANALYSIS AND DESIGN OF CRYSTALLISATION PROCESSES*. (American Inst. of Chem. Engineers, NY, 1976).

- Salli, I. V.:** CRYSTALLISATION AT VERY HIGH COOLING RATES. (in Russian). (Naukova Dumka, 1971).
- Savitskii, E. M.:** MONOCRYSTALS OF METALS: GROWTH AND PROPERTIES. (in Russian). (Nauka, 1976).
- Savitskii, E. M. & Burkhanov, G. S.:** MONOCRYSTALS OF HIGH-MELTING AND RARE EARTH METALS AND ALLOYS. (in Russian) (Nauka, 1972).
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- Shapiro, C. M.:** CRYSTAL FORMATION: BIBLIOGRAPHY, Vols. 1 and 2. (in Russian) (Nauka, 1970).
- Sheftal, N. N. (Ed.):** GROWTH OF CRYSTALS, Vol. 9 (1975) and Vol. 10 (1976) (Plenum). See comment under Chernov, above. Review of these Vols. in A32, 1036 and A34, 1045.
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- Ueda, R. & Mullin, J. B. (Eds.):** CRYSTAL GROWTH AND CHARACTERISATION. (N. Holland, 1975). Conf. proc. Review in A33, 254.
- Wilcox, W. R. (Ed.):** CHEMICAL VAPOR TRANSPORT, SECONDARY NUCLEATION AND MASS TRANSFER IN CRYSTAL GROWTH. (Dekker, 1976).
- Wilcox, W. R. (Ed.):** GROWTH MECHANISMS AND SILICON NITRIDE. (Dekker, 1982). This is the most recent volume of the series, published by Dekker, entitled PREPARATION AND PROPERTIES OF SOLID STATE MATERIALS; for the earlier Vols., see Keller, Lefever and Wilcox.
- Wilcox, W. R. (Ed.):** LEAD TIN TELLURIDE, SILVER HALIDES, AND CZOCHRALSKI GROWTH. (Dekker, 1981).
- Wilcox, W. R. (Ed.):** MORPHOLOGICAL STABILITY, CONVECTION, GRAPHITE, AND INTEGRATED OPTICS. (Dekker, 1979).
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- Wilke, K.-T. & Bohm, J.:** KRISTALLZÜCHTUNG. (VEB Verlag, 1973). Review, in English, in J7, 450.
- Woodruff, D. P.:** THE SOLID-LIQUID INTERFACE. (CUP, 1973, and now a paperback, 1980).
- Bartolo, B. D. et al. (Eds.):** LUMINESCENCE OF INORGANIC SOLIDS. (Plenum, 1978). Conf. proc.
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- Blakemore, J. S.:** SOLID STATE PHYSICS. (Florida State Univ., 1974).
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- Brodin, M. S. (Ed.):** EXCITONS IN MOLECULAR CRYSTALS. (in Russian) (Naukova Dumka, 1973).
- Brüesch, P. (Ed.):** PHONONS: THEORY AND EXPERIMENTS, I: LATTICE DYNAMICS AND MODELS OF INTERATOMIC FORCES. (Springer, 1982).
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- Califano, S. (Ed.):** LATTICE DYNAMICS AND INTERMOLECULAR FORCES. (Academic Press, 1975).
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- Callaway, J.:** QUANTUM THEORY OF THE SOLID STATE, Parts A and B. (Academic Press, 1974). Review in A34, 349.
- Chadwick, G. A. (Ed.):** GRAIN BOUNDARY STRUCTURE AND PROPERTIES. (Academic Press, 1976).
- Chakraverty, A. S.:** INTRODUCTION TO THE MAGNETIC PROPERTIES OF SOLIDS. (Wiley, 1980).
- Cochran, W.:** THE DYNAMICS OF ATOMS IN CRYSTALS. (Arnold, 1973). Highly recommended by the reviewer, in A30, 604.
- Coleman, R. V.:** SOLID STATE PHYSICS. (Academic Press, 1973).
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- Cowley, J. M.:** MODULATED STRUCTURES. (American Inst. of Physics, 1979).
- Cracknell, A. P.:** MAGNETISM IN CRYSTALLINE MATERIALS. (Pergamon, 1975).
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- Crow, J. E. et al. (Eds.):** CRYSTALLINE ELECTRIC FIELD AND STRUCTURAL EFFECTS IN *f*-ELECTRON SYSTEMS. (Plenum, 1980). Review in A37, 142.
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2. Crystal Physics/Physics of Condensed Matter

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- Agranovich, V. M. & Ginzburg, V. L.:** CRYSTAL OPTICS WITH REGARD TO SPACE DISPERSION AND EXCITON THEORY. (in Russian) (Nauka, 1979).
- André, J.-M. & Ladik, J. (Eds.):** ELECTRONIC STRUCTURE OF POLYMERS AND MOLECULAR CRYSTALS. (Plenum, 1975). Review in A33, 253.
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- excitons, polarons and polaritons; and low-dimensional systems, phase changes and experimental techniques, respectively.
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- Dorner, B.**: COHERENT INELASTIC NEUTRON SCATTERING IN LATTICE DYNAMICS. (Springer, 1982).
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- Freeman, A. J. & Schmid, H.** (Eds.): MAGNETO-ELECTRONIC INTERACTION PHENOMENA IN CRYSTALS. (Gordon & Breach, 1975). Review in **A32**, 176.
- Fumi, F. G.** (Ed.): PHYSICS OF SEMICONDUCTORS. (N. Holland, 1976). Conf. proc.
- Geballe, T. H. & White, R. M.**: LONG RANGE ORDER IN SOLIDS. (Academic Press, 1979).
- Geguzin, J. E.**: GRUNDZÜGE DER DIFFUSION IN KRISTALLEN. (VEB Deutscher Verlag f. Grundstoffindustrie, 1977).
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- Hall, H. E.**: SOLID STATE PHYSICS. (Wiley, 1974).
- Hardy, J. R. & Karo, A. M.**: LATTICE DYNAMICS AND STATICS OF ALKALI HALIDE CRYSTALS. (Plenum, 1979). Review in **A37**, 270.
- Harrison, W. A.**: ELECTRONIC STRUCTURE AND PROPERTIES OF SOLIDS. (Freeman, 1980).
- Hart-Davis, A.**: SOLIDS: AN INTRODUCTION. (McGraw-Hill, 1975).
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- Herman, F. et al.** (Eds.): COMPUTATIONAL SOLID STATE PHYSICS. (Plenum, 1972). Conf. proc.
- Herrmann, R. & Preppernau, U.**: ELEKTRONEN IM KRISTALL. (Springer, 1979). Review, in English, in **A36**, 1091.
- Hirsch, P. B.** (Ed.): THE PHYSICS OF METALS, Vol. 2: DEFECTS. (CUP, 1975).
- Hobbs, P. B.**: ICE PHYSICS. (OUP, 1975). See also **Tryde**, below.
- Hodgson, J. N.**: OPTICAL ABSORPTION AND DISPERSION IN SOLIDS. (Chapman & Hall, 1970).
- Horton, G. K. & Maradudin, A. A.** (Eds.): DYNAMICAL PROPERTIES OF SOLIDS. Vols. 1, 2, 3 and 4. (N. Holland, 1974, 1975, 1980 and 1980 respectively). Review of Vol. 2 in **A32**, 1035. A strongly theoretical emphasis.
- Ivanovov, L. I.**: MELTING, CRYSTALLISATION AND PHASE FORMATION IN WEIGHTLESSNESS: EXPERIMENT IN THE FRAME OF THE PROJECT 'Soyuz-Apollo'. (in Russian) (Nauka, 1979).
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- Jones, W. & March, N. H.**: THEORETICAL SOLID STATE PHYSICS, Vols. 1 and 2. (Wiley, 1973).
- Juretschke, H. J. & Villars, F. M. H.**: CRYSTAL PHYSICS. (Addison Wesley, 1975). Review in **A32**, 924.
- Kachanov, L. M.**: FUNDAMENTALS OF THE THEORY OF PLASTICITY. (MIR, 1974).
- Keller, H. J.** (Ed.): CHEMISTRY AND PHYSICS OF ONE-DIMENSIONAL METALS. (Plenum, 1977). (See also 14. *Materials of Low Dimensionality*.) Review in **B34**, 2068.
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- Klein, M. L. & Venables, J. A.** (Eds.): RARE GAS SOLIDS, Vols. 1 and 2. (Academic Press, 1976 and 1977). Review in **A34**, 639.
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- Kubiak, R.** (Ed.): PROBLEMS OF CRYSTAL PHYSICS. Papers of the Committee of Crystallography, Polish Academy of Science (in Polish) (PWN, Warsaw, 1979). See also **Olejnik**, below.
- Lekhnitsky, S.**: ELASTIC THEORY OF ANISOTROPIC SOLIDS. (MIR, 1980).
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- Madelung, O.**: INTRODUCTION TO SOLID STATE THEORY. (Springer, 1978). Review in **A35**, 1087.
- Manning, J. R.**: KINETICS OF ATOM DIFFUSION IN CRYSTALS. (Russian translation from English) (MIR, 1971).
- March, N. H. & Parrinello, M.**: COLLECTIVE EFFECTS IN SOLIDS AND LIQUIDS. (Hilger, 1982).
- Maris, H. J.** (Ed.): PHONON SCATTERING IN CONDENSED MATTER. (Plenum, 1980). Conf. proc. Review in **A37**, 272.
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- Melankholin, N. M.**: METHODS OF INVESTIGATION OF THE OPTICAL PROPERTIES OF CRYSTALS. (in Russian) (Moskva, 1970).
- Metzger, R. M.** (Ed.): Crystal cohesion and conformational energies. (Springer, 1981).

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8. History

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11. Materials and their Properties/
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12. Materials/Electronics/Devices/Semiconductors

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- Arnold, H.:** PHYSIKALISCHE CHEMIE DER HALBLEITER. (Akademie-Verlag, 1978).
- Ash, E. A. (Ed.):** SOLID STATE DEVICES. (Inst. of Physics, London, 1978). Conf. proc.
- Balkanski, M. (Ed.):** HANDBOOK ON SEMICONDUCTORS, Vol. 2: OPTICAL PROPERTIES OF SOLIDS. (N. Holland, 1980). For Vols. 1, 3 and 4, see Paul, Keller and Hilsum, respectively, below. Review of this Vol. in J13, 637.
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- Beneking, H. (Ed.):** GALLIUM ARSENIDE AND RELATED COMPOUNDS. (Inst. of Physics, London, 1971). Proc. of the 3rd International Symposium on GaAs; for the most recent of these, see Sugano, below.
- Blom, G. M. et al. (Eds.):** LIQUID PHASE EPITAXY. (N. Holland, 1974). Review in J8, 697.
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- Cullen, G. W. & Wang, C. C. (Eds.):** HETEROEPITAXIAL SEMICONDUCTORS FOR ELECTRONIC DEVICES. (Springer, 1978). Review in J12, 319.
- Cullen, G. W. et al. (Eds.):** VAPOUR GROWTH AND EPITAXY. (N. Holland, 1975). Review in J10, 212.
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- Dalven, R.:** INTRODUCTION TO APPLIED SOLID STATE PHYSICS: TOPICS IN THE APPLICATIONS OF SEMICONDUCTORS, SUPERCONDUCTORS, AND THE NONLINEAR OPTICAL PROPERTIES OF SOLIDS. (Plenum, 1980).
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- Heywang, H. & Weiss, H. (Eds.):** SOLID STATE DEVICES. (Inst. of Physics, London, 1971). Conf. proc.
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- Paul, W.** (Ed.): HANDBOOK ON SEMICONDUCTORS, Vol. 1: BAND THEORY AND TRANSPORT PROPERTIES. (N. Holland, 1982). For the other volumes of this series, see **Balkanski, Hilsum**, and **Keller**. The overall editor of this series is **T. S. Moss**.
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- Vigdorovič, V. N.**: PURIFICATION OF METALS AND SEMICONDUCTORS BY CRYSTALLISATION. (Freund Publ. Co., Tel Aviv, 1971).
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- Zemel, J. N.** (Ed.): NONDESTRUCTIVE EVALUATION OF SEMICONDUCTOR MATERIALS AND DEVICES. (Plenum, 1979). Review in **J13**, 342.

13. Materials as Electrolytes/Fast Ionic Conductors

- Armstrong, R. D.** (Ed.): SOLID IONIC AND IONIC-ELECTRONIC CONDUCTORS. (Pergamon, 1977). Review in **A34**, 832.
- Chandra, S.**: SUPERIONIC SOLIDS: PRINCIPLES AND APPLICATIONS. (N. Holland, 1981). Recommended as a good textbook for this new subject of solid electrolytes.
- Geller, S.** (Ed.): SOLID ELECTROLYTES. (Springer, 1977). Review in **A34**, 640.

- Gool, W. van** (Ed.): FAST ION TRANSPORT IN SOLIDS. (N. Holland, 1972).
- Mahan, G. D. & Roth, W.** (Eds.): SUPERIONIC CONDUCTORS. (Plenum, 1976). Conf. proc.
- Salamon, M. B.** (Ed.): PHYSICS OF SUPERIONIC CONDUCTORS. (Springer, 1979). Review in A35, 1089.
- Subbarao, E. C.** (Ed.): SOLID ELECTROLYTES AND THEIR APPLICATIONS. (Plenum, 1980).
- Vashishta, P. D. et al.** (Eds.): FAST ION TRANSPORT IN SOLIDS. (N. Holland, 1979). Papers presented in Wisconsin, 1979.

Note: A new journal, SOLID STATE IONICS (N. Holland), started 1980.

14. Materials of Low Dimensionality

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- Poulet, H. & Mathieu, J. P.**: *VIBRATION SPECTRA AND SYMMETRY OF CRYSTALS*. (Gordon & Breach, 1976).
- Preuss, E.**: *LAUE ATLAS*. (Wiley, 1974).
- Randolph, A. D.**: *DESIGN, CONTROL AND ANALYSIS OF CRYSTALLIZATION PROCESSES*. (American Inst. of Engineers, NY 10017, USA, 1980).
- Randolph, A. D. & Larson, M. A.**: *THEORY OF PARTICULATE PROCESSES: ANALYSIS AND TECHNIQUES OF CONTINUOUS CRYSTALLISATION*. (Academic Press, 1971).
- Read, P. G.**: *GEMOLOGICAL INSTRUMENTS: THEIR USE AND PRINCIPLES OF OPERATION*. (Newnes-Butterworth, 1978).
- Reynolds, C. & Collins, T. C.**: *EXCITONS: THEIR PROPERTIES AND THEIR USES*. (Academic Press, 1981).
- Rudman, R.**: *LOW TEMPERATURE X-RAY DIFFRACTION*. (Plenum, 1976). Review in B33, 3623.
- Schneer, C. J.** (Ed.): *CRYSTAL FORM AND STRUCTURE (BENCHMARK PAPERS IN GEOLOGY, No. 34)*. (Wiley, 1977). Review in A34, 349.
- Schubert, K.**: *CRYSTAL STRUCTURES OF TWO-COMPONENT PHASES*. (Russian translation from German) (Metallurgija, Moscow, 1971).
- Shenoy, G. K. et al.**: *TERNARY SUPERCONDUCTORS*. (N. Holland, 1981). Conf. proc. See also **Ginzburg, Vonsovsky, Weber, and White**.
- Sherwood, J. N.** (Ed.): *THE PLASTICALLY CRYSTALLINE STATE*.

- (Wiley, 1979). See also **Poirier**, in 2. *Crystal Physics*, and **Gray & Winsor**, in 10. *Liquid Crystals*.
- Smith, G. F. H.**: GEMSTONES. (Chapman & Hall, 1972). Review in J6, 501. See **Elwell**, and others, above.
- Stevens, J. G. & Shenoy, G. K.** (Eds.): MÖSSBAUER SPECTROSCOPY AND ITS CHEMICAL APPLICATIONS. (American Chemical Society, 1981). See also **Bhide, Gonser, Gruverman, and Vértes**.
- Symons, M. C. R.** (Ed.): ANNUAL REPORTS OF THE ROYAL SOCIETY OF CHEMISTRY, Vol. 76, 1979, section C. (Royal Society of Chemistry, London, 1980). Ch. 7 in this report is an account by **Neilson, G. W. & Enderby, J. E.** of the application of X-ray and neutron diffraction to aqueous solutions of electrolytes.
- Taylor, C. A.**: IMAGES. (Wykeham, 1978). Comment in A35, 254. A well-illustrated 'popular' book.
- Teo, B. K. & Joy, D. C.** (Eds.): EXAFS SPECTROSCOPY: TECHNIQUES AND APPLICATIONS. (Plenum, 1981). On synchrotron radiation in general, see **Kunz** and **Winick**.
- Timmerhaus, K. D. & Barber, M. S.** (Eds.): HIGH PRESSURE SCIENCE AND TECHNOLOGY. (Plenum, 1979). Review in J12, 641. See also **Pistorius**, above.
- Ubbelohde, A. R.**: THE MOLTEN STATE OF MATTER. (Wiley, 1978). Review in B35, 2828.
- Vavrinecz, G.**: ATLAS OF SUGAR CRYSTALS; DESCRIPTIVE MORPHOLOGY OF SUCROSE. (Verlag Dr Albert Bartens, Berlin, 1965). A delightful book.
- Vértes, A. et al.**: MÖSSBAUER SPECTROSCOPY. (N. Holland, 1979). See also **Bhide, Gonser, Gruverman, and Stevens**, above.
- Vogel, W.**: STRUKTUR UND KRISTALLISATION VON GLASSERN. (VEB Deutscher Verlag f. Grundstoffindustrie, 1971). See also **Götz**, above, and **Eitel**, in 11. *Materials and their Properties/General Materials Science*.
- Vonsovsky, S. V. et al.**: SUPERCONDUCTIVITY OF TRANSITION METALS, THEIR ALLOYS AND COMPOUNDS. (Springer, 1982). Translation from Russian. See also **Ginzburg, Shenoy, Weber, and White**.
- Wagner, R.**: FIELD-ION MICROSCOPY IN MATERIALS SCIENCE. (Springer, 1982). This is Vol. 6 of the series CRYSTALS, GROWTH, PROPERTIES AND APPLICATIONS, edited by **Freyhardt**; the other Vols. are listed under his name in Sections 1, 11 and 12.
- Walton, A.**: MOLECULAR AND CRYSTAL STRUCTURE MODELS. (Horwood, 1978). Even a good survey of this subject dates rapidly.
- Weber, H. W. & Hittmair, O.**: SUPRALEITUNG. (Karl Thiemig, 1979). Review, in English, in A36, 502. See also **Ginzburg, Shenoy, Vonsovsky, and White**.
- White, R. M. & Geballe, T. H.**: LONG RANGE ORDER IN SOLIDS. (Academic Press, 1979). Broadly on superconductivity and magnetic phenomena.
- Winick, H. & Doniach, S.**: SYNCHROTRON RADIATION RESEARCH. (Plenum, 1980). Comment in A37, 448. See also **Kunz**, and **Teo**, above.
- Yen, W. M. & Selzer, P. M.** (Eds.): LASER SPECTROSCOPY OF SOLIDS. (Springer, 1981). Review in A38, 175.
- INTERNATIONAL REVIEW OF SCIENCE**; it contains articles on neutron and electron diffraction as well as many articles on non-diffraction-based physical methods. The later book, corresponding to this, in 'Series 2', is edited by **Buckingham**: see below.
- Brand, J. C. D., Speakman, J. C. & Tyler, J. K.**: MOLECULAR STRUCTURE, THE PHYSICAL APPROACH. (Arnold, 1975). This is the 2nd, revised, ed. of the book originally by **Brand & Speakman**. Review in B33, 317.
- Buckingham, A. D.** (Ed.): MOLECULAR STRUCTURE AND PROPERTIES. (Butterworth, 1975). This is Vol. 2 of the 'Series 2' of the INTERNATIONAL REVIEW OF SCIENCE; for the earlier 'Series 1' book, see **Allen**, above. This Vol. contains articles almost entirely devoted to non-diffraction-based methods. Crystal diffraction methods and their results are covered in Vol. 11 of this series, which is edited by **Robertson**: see below.
- Bullen, G. J. & Greenslade, D. J.** (Eds.): PROBLEMS IN MOLECULAR STRUCTURES. (Chapman & Hall, 1982). This surveys a very wide range of different methods for the determination of structures.
- Clarke, M. J. et al.** (Eds.): STRUCTURE AND BONDING. (Springer). This is less of a book than a journal: it is issued 'at irregular intervals, according to the material received'. Currently, there are 4 or 5 Vols. each year. There is a panel of editors. Only some articles are of direct crystallographic interest; one relevant to molecular structures is on crystallography of transition metal hydrides, in Vol. 44 (1980). Review of Vol. 44 in B38, 1684.
- Cyvin, S. J.**: MOLECULAR STRUCTURES AND VIBRATIONS. (Elsevier, 1972).
- Dobler, M.**: IONOPHORES AND THEIR STRUCTURES. (Wiley, 1981). In the context of molecular structures (as opposed to solution theory), ionophores are defined as *molecules which are able to transport ions from an aqueous phase to a hydrophobic one*. This is a presentation of all the structural information, especially X-ray results, available on these compounds. Review in B38, 2097.
- Dodson, G., Glusker, J. P. & Sayre, D.** (Eds.): STRUCTURAL STUDIES ON MOLECULES OF BIOLOGICAL INTEREST: A VOLUME IN HONOUR OF DOROTHY HODGKIN. (OUP, 1981).
- Duax, W. L. & Norton, D. A.** (Eds.): ATLAS OF STERIOD STRUCTURE, Vol. 1. (Plenum, 1975). Review in B33, 3273.
- Dunitz, J. D.**: X-RAY ANALYSIS AND THE STRUCTURE OF ORGANIC MOLECULES. (Cornell Univ. Press, 1979). This book, which should be of great interest to the organic chemist, is the sequel to **J. M. Robertson's** classic, ORGANIC CRYSTALS AND MOLECULES (Cornell Univ. Press, 1953, but still in print). Review in B37, 493.
- Dunitz, J. D. & Ibers, J. A.** (Eds.): PERSPECTIVES IN STRUCTURAL CHEMISTRY, Vol. 3. (Wiley, 1971). Review in B27, 1481.
- Gimarc, B. M.**: MOLECULAR STRUCTURE AND BONDING. (Academic Press, 1979). Review in B35, 2477.
- Hirshfeld, F. L.** (Ed.): ELECTRON DENSITY MAPPING IN MOLECULES AND CRYSTALS. (Weizmann Scientific Press, Israel, 1977). Review in A35, 254.
- Hoppe, W. & Mason, R.** (Eds.): ADVANCES IN STRUCTURAL RESEARCH BY DIFFRACTION METHODS, Vol. 6. (Pergamon, 1975). Review in A33, 254. (See also Vol. 7 of this series, listed just below).
- Hoppe, W. & Mason, R.** (Eds.): UNCONVENTIONAL ELECTRON

19. Molecular Structures

Allen, G. (Ed.): MOLECULAR STRUCTURE AND PROPERTIES. (Butterworth, 1972). This is Vol. 2 of the 'Series 1' of the

- MICROSCOPY FOR MOLECULAR STRUCTURE DETERMINATION. (Vieweg, 1979). Review in B36, 2509. This is Vol. 7 of the series on ADVANCES IN STRUCTURAL RESEARCH BY DIFFRACTION METHODS; for Vol. 6, see above.
- Kennard, O., Allen, F. H. & Watson, D. G.:** MOLECULAR STRUCTURES AND DIMENSIONS: GUIDE TO THE LITERATURE, 1935-1976. (Bohn *et al.*, Utrecht, 1977). Obtainable now from Reidel, Dordrecht, The Netherlands, or from Polycrystal Book Service, Chicago, USA. This large book, which gives the literature references for 40 years worth of crystal structures in one set of multiple indexes, is a companion volume to the series referred to just below and entered with more detail in 29. *Tabulations/Data/Bibliography*. Review in B34, 3847.
- Kennard, O., Watson, D. G. *et al.*** (Eds.): MOLECULAR STRUCTURES AND DIMENSIONS, Vols. 1-12 (1969-1981) and Vol. 1A (1973). (Reidel) For further details on this remarkable compendium of molecular structures, see the entry in 29. *Tabulations/Data/Bibliography*.
- Klyne, W. & Buckingham, J.:** ATLAS OF STEREOCHEMISTRY: THE ABSOLUTE CONFIGURATION OF ORGANIC MOLECULES, 2nd ed., Vol. 1 (to the end of 1971) and Vol. 2 (from 1971 to 1976). (Chapman & Hall, 1978). Review of the first edition (1974) in B31, 1986.
- Lide, D. R. & Paul, M. A.:** CRITICAL EVALUATION OF CHEMICAL AND PHYSICAL STRUCTURAL DATA. (US National Academy of Sciences, 1974). This compares various methods for obtaining structural information about molecules.
- Melson, G. A. (Ed.):** COORDINATION CHEMISTRY OF MACROCYCLIC COMPOUNDS. (Plenum, 1979). Review in B36, 2511.
- Robertson, J. M. (Ed.):** CHEMICAL CRYSTALLOGRAPHY. (Butterworth, 1975). Review in B33, 635.
- Schuster, P. *et al.*** (Eds.): THE HYDROGEN BOND, Vols. 1, 2 and 3: RECENT DEVELOPMENTS IN THEORY AND EXPERIMENT. (N. Holland, 1976).
- Sim, G. A. & Sutton, L. E. (Eds.):** MOLECULAR STRUCTURE BY DIFFRACTION METHODS. This is an annual publication and consists of review articles. Reviews of Vols. 3 and 4 (1975 and 1976) in B33, 318 and B34, 1050. Subsequent Vols. have editors **Sutton & Truter**: see below. The publisher is The Royal Society of Chemistry, London.
- Speakman, J. C.:** MOLECULAR STRUCTURE: ITS STUDY BY CRYSTAL DIFFRACTION. (The Chemical Society, London, 1977). This is a MONOGRAPH FOR TEACHERS; only 50 pages, but good value.
- Sutton, L. E. & Truter, M. R. (Eds.):** MOLECULAR STRUCTURE BY DIFFRACTION METHODS. This annual publication consists of review articles addressed primarily to chemists. Vols. 5 and 6 were published in 1977 and 1978; a review of Vol. 6 is in B36, 508. Vols. prior to these were edited by **Sim & Sutton** (see above). The publisher is The Royal Society of Chemistry, London.
- Symons, M. C. R. (Ed.):** ANNUAL REPORTS OF THE ROYAL SOCIETY OF CHEMISTRY, Vol. 76, 1979, section C. (Royal Society of Chemistry, London, 1980). Ch. 6 in this report gives a condensed but very readable account, by **Truter**, of the current state-of-the-art of molecular structure determination by diffraction methods. It may be noted that this series has not included the traditional section on crystallography for the past ten years: that role was taken over by the new series of SPECIAL REPORTS which started in 1973 (see **Sim & Sutton**, and **Sutton & Truter**, above).
- Tollenaere, J. P. *et al.*:** ATLAS OF THE 3-DIMENSIONAL STRUCTURE OF DRUGS. (Elsevier, 1979). Review in B36, 1985.
- Trotter, J. *et al.*** (Eds.): STRUCTURE REPORTS. These volumes, which are published annually, cover all crystal structures, not merely molecular structures; they are obtainable from Reidel, Dordrecht, The Netherlands. For more detail, see 29. *Tabulations/Data/Bibliography*. For a recent review, see A35, 346 or B34, 3847.
- Walton, A.:** MOLECULAR AND CRYSTAL STRUCTURE MODELS. (Horwood, 1978). Review in B35, 2477.
- Note: a new review series, MOLECULAR INTERACTIONS. edited by **Ratajczak, H. & Orville-Thomas, W. J.** (Wiley, 1980-).

20. Neutron Diffraction/Scattering

- Bacon, G. E.:** NEUTRON DIFFRACTION, 3rd ed. (OUP, 1975). Review in A32, 749.
- Bacon, G. E.:** NEUTRON PHYSICS, 2. (Wykeham, 1970). Review in A28, 222.
- Bacon, G. E.:** NEUTRON SCATTERING IN CHEMISTRY. (Butterworth, 1977). This includes neutron diffraction and updates the earlier books that are listed just above. Review in B34, 700.
- Bonse, U. & Rauch, H. (Eds.):** NEUTRON INTERFEROMETRY. (OUP, 1979). Review in A36, 1095.
- Dachs, H. (Ed.):** NEUTRON DIFFRACTION. (Springer, 1978). A basket of review articles. Review in A35, 509.
- Dorner, B.:** COHERENT INELASTIC NEUTRON SCATTERING IN LATTICE DYNAMICS. (Springer, 1982).
- Hoshino, S.:** NEUTRON DIFFRACTION. (in Japanese). (Kyoritsu Shuppan, 1976).
- International Atomic Energy Authority (Ed.):** NEUTRON INELASTIC SCATTERING, Vols. 1 and 2. (IAEA, 1978). Review in A35, 348. Vienna symp. proc.
- Izumov, Y. A. & Ozerov, R. P.:** MAGNETIC NEUTRON DIFFRACTION. (Plenum, 1970). Translation from Russian. Review in A27, 301.
- Kostorz, G. (Ed.):** NEUTRON SCATTERING. (Academic Press, 1979).
- Larose, A. & Vanderwal, J.:** SCATTERING OF THERMAL NEUTRONS: A BIBLIOGRAPHY, 1932-1974. (Plenum, 1974). Review in A32, 527.
- Lovesey, S. W. *et al.*** (Eds.): DYNAMICS OF SOLIDS AND LIQUIDS BY NEUTRON SCATTERING. (Springer, 1977).
- Marshall, W. & Lovesey, S. W.:** THEORY OF THERMAL NEUTRON SCATTERING. (OUP, 1971).
- Mughabghab, S. F. *et al.*:** NEUTRON CROSS SECTIONS, Vol. 1, parts A and B. (Academic Press, 1981). A voluminous compilation of data and references, this is the up-dated version of **Mughabghab & Garber's** book of 1973. Vol. 2, giving neutron cross-section curves, is in preparation.
- Oles, A. *et al.*** (Eds.): MAGNETIC STRUCTURES DETERMINED BY NEUTRON DIFFRACTION. (Orpan-Export, Warsaw, 1976). A data compilation.
- Sidorov, S. K. & Goshchitskii, B. N. (Eds.):** NEUTRON DIFFRACTOMETRY OF METALS, ALLOYS AND COMPOUNDS. (in Russian). (Sverdlovsk, 1977).
- Squires, G. L.:** INTRODUCTION TO THE THEORY OF THERMAL NEUTRON SCATTERING. (CUP, 1978). This can be regarded as the practical man's version of **Marshall & Lovesey**, above. Review in A35, 1085.

- Willis, B. T. M.** (Ed.): CHEMICAL APPLICATIONS OF THERMAL NEUTRON SCATTERING. (OUP, 1973).
- Willis, B. T. M.** (Ed.): THERMAL NEUTRON DIFFRACTION. (OUP, 1970).
- Windsor, C. G.**: PULSED NEUTRON SCATTERING. (Taylor & Francis, 1981).

Note also, the use of neutron diffraction for the study of structures *in solution*: see **Symons**, in 18. *Miscellaneous*.

21. Optical Microscopy

- Beyer, H.**: HANDBUCH DER MIKROSKOPIE. (Verlag Technik, Berlin, 1977).
- Bloss, F. D.**: THE SPINDLE STAGE. (CUP, 1981). The spindle stage is a simple yet ingenious and invaluable practical device for the microscopist-crystallographer.
- Emons, H.-H. et al.**: CHEMISCHE MIKROSKOPIE. (VEB Deutscher Verlag f. Grundstoffindustrie, 1973).
- Girault, J.**: CARACTÈRES OPTIQUES DES MINÉRAUX TRANSPARENTS. (Masson, 1980).
- Hallimond, A. F.**: THE POLARISING MICROSCOPE. (Vickers Instruments, York, England, 1970).
- Hartshorne, N. H. & Stuart, A.**: CRYSTALS AND THE POLARISING MICROSCOPE, 4th ed. (Arnold, 1970).
- McCrone, W. C. et al.**: POLARISED LIGHT MICROSCOPY. (Ann Arbor Science Publ., 1978).
- Marmasse, C.**: MICROSCOPES AND THEIR USES. (Gordon & Breach, 1980).
- Michel, K.**: DIE GRUNDZÜGE DER THEORIE DES MIKROSKOPIS IN ELEMENTARER DARSTELLUNG, 3. Aufl. (Wissenschaftliche Verlag, Stuttgart, 1980).
- Phillips, W. R.**: MINERAL OPTICS. (Freeman, 1971).
- Richardson, J. H.**: OPTICAL MICROSCOPY FOR THE MATERIALS SCIENCES. (Dekker, 1971). Review in J5, 388.
- Schumann, H. & Kornder, F.**: ANLEITUNG ZUR ALLGEMEINEN UND POLARISATIONS-MIKROSKOPIE DER FESTKÖRPER IM DURCHLICHT. (E. Schweizerbart'sche, Verlagsbuchhandlung, Stuttgart, 1973).
- Shelley, D.**: MANUAL OF OPTICAL MINERALOGY. (Elsevier, 1975). Review in A33, 348.
- Stoiber, R. E. & Morse, S. A.**: MICROSCOPIC IDENTIFICATION OF CRYSTALS. (Ronald Press, New York, 1972). Review in J6, 251.
- Taylor, C. A.**: IMAGES. (Wykeham, 1978). This well illustrated, popular book covers much more than just conventional optical microscopy. Review in A35, 254.
- Tröger, W. E.** (Edited by **Bambauer, H. U. et al.**): OPTICAL DETERMINATION OF ROCK FORMING MINERALS, Part 1. DETERMINATIVE TABLES. (E. Schweizerbart'sche Verlagsbuchhandlung, Stuttgart, 1979). Teil 2 (TEXTBAND) of this treatise, dated 1967, is available from the same publisher, in German.
- Uytenbogaardt, W. & Burke, E. A. J.**: TABLES FOR MICROSCOPIC IDENTIFICATION OF MINERALS. (Elsevier, 1970). Review in J5, 385.
- Wahlstrom, E. E.**: OPTICAL CRYSTALLOGRAPHY, 5th ed. (Wiley, 1979). Comment in A36, 333.
- Wood, E. A.**: CRYSTALS AND LIGHT: AN INTRODUCTION TO OPTICAL CRYSTALLOGRAPHY. (Dover, 1977). This is revised from the 1964 edition; a most delightful little book.

22. Phases/Phase Transformations and Polycrystalline Diffraction

- Alper, A. M.** (Ed.): PHASE DIAGRAMS, Vols. 1-5. (Academic Press, 1970-78).
- American Society for Metals**: PHASE TRANSFORMATIONS AND RELATED PHENOMENA IN STEELS. (American Society for Metals, Ohio, 1973).
- Bruce, A. D. & Cowley, R.A.**: STRUCTURAL PHASE TRANSITIONS. (Taylor & Francis, 1981).
- Céolin, R. & Legendre, B.**: INTRODUCTION À L'ÉTUDE DES DIAGRAMMES DE PHASES. (Société d'édition d'enseignement supérieur, Paris, 1974).
- Cross, L. E.** (Ed.): PHASE TRANSITION-1973. (Pergamon, 1973).
- Domb, C. & Green, M. S.** (Eds.): PHASE TRANSITIONS AND CRITICAL PHENOMENA. (Academic Press, 1972).
- John, V. B.**: UNDERSTANDING PHASE DIAGRAMS. (Macmillan, 1974).
- Kaufman, L. & Bernstein, H.**: COMPUTER CALCULATION OF PHASE DIAGRAMS. (Academic Press, 1970).
- Klug, H. P. & Alexander, L. E.**: X-RAY DIFFRACTION PROCEDURES FOR POLYCRYSTALLINE AND AMORPHOUS MATERIALS, 2nd ed. (Wiley, 1974). This is the up-dated version of the 1954 treatise by these authors. Review in J8, 573.
- Kubiak, R.** (Ed.): X-RAY PHASE ANALYSIS. (in Polish). (PWN, Warsaw, 1978) One of a series of papers of the Committee of Crystallography of the Polish Academy of Science, dealing with the present state of a given area of crystallography.
- Lipson, H. & Steeple, H.**: INTERPRETATION OF X-RAY POWDER DIFFRACTION PATTERNS. (Macmillan, 1970). Review in J5, 146.
- Moffatt, W. G.**: HANDBOOK OF BINARY PHASE DIAGRAMS. (General Electric Co., NY 12305, USA, 1978).
- Müller, K. A. & Thomas, H.**: STRUCTURAL PHASE TRANSITIONS. (Springer, 1981). Review in A38, 397.
- Nedoma, J.**: INDEXING OF POLYCRYSTALLINE X-RAY DIAGRAMS FOR TETRAGONAL AND HEXAGONAL SUBSTANCES. (in Polish). (Ślask, Katowice, 1973).
- Pauffer, P.**: PHASENDIAGRAMME. (Akademie-Verlag, 1981).
- Rao, C. N. R. & Rao, K. J.**: PHASE TRANSITIONS IN SOLIDS. (McGraw-Hill, 1978). Review in A36, 332.
- Riste, T.** (Ed.): NONLINEAR PHENOMENA AT PHASE TRANSITIONS AND INSTABILITIES. (Plenum, 1982). NATO inst. proc.
- Stanley, H. E.**: INTRODUCTION TO PHASE TRANSITIONS AND CRITICAL PHENOMENA. (OUP, 1971).
- Wyryll, C. J.**: THE THEORY OF TRANSFORMATIONS IN METALS AND ALLOYS. (Pergamon, 1975).
- Zevin, L. S. & Zavyalova, L. L.**: QUANTITATIVE PHASE ANALYSIS. (in Russian). (Nedra, 1974). Review, in English, in J9, 513.
- Note: A new journal, PHASE TRANSITIONS, edited by **Glazer, A. M. & Smoluchowski, R.** (Gordon & Breach, 1982-).

23. Polymers

- Alexander, L. E.**: X-RAY DIFFRACTION METHODS IN POLYMER SCIENCE. (Wiley, 1970).
- Bassett, D. C.** (Ed.): DEVELOPMENTS IN CRYSTALLINE POLYMERS -1. (Applied Science, 1982).

- Battista, O. A.:** MICROCRYSTAL POLYMER SCIENCE. (McGraw-Hill, 1975).
- Blumstein, A.:** LIQUID CRYSTALLINE ORDER IN POLYMERS. (Academic Press, 1978).
- Blythe, A. R.:** ELECTRICAL PROPERTIES OF POLYMERS. (CUP, 1979).
- Ciardelli, F. & Giusti, P. (Eds.):** STRUCTURAL ORDER IN POLYMERS. (Pergamon, 1981).
- Fava, R. A. (Ed.):** POLYMERS, Parts A, B and C. (Academic Press, 1980). This is Vol. 16 of a series entitled METHODS OF THE EXPERIMENTAL SCIENCES; Part B of this Vol. is subtitled CRYSTAL STRUCTURE AND MORPHOLOGY.
- French, A. D. & Gardner, K. H. (Eds.):** FIBRE DIFFRACTION METHODS. (American Chemical Society, 1980). This is based on the 1979 symp. in Washington. Review in B38, 350.
- Geil, P. H.:** POLYMER SINGLE CRYSTALS. (Krieger Publ. Co., Huntington, NY, USA, 1973).
- Hall, C.:** POLYMER MATERIALS: AN INTRODUCTION FOR TECHNOLOGISTS AND SCIENTISTS. (Macmillan, 1981).
- Kakudo, M. & Kasai, N.:** X-RAY DIFFRACTION BY POLYMERS. (Elsevier, 1972).
- Lefkowitz, I. & Taylor, G. (Eds.):** PHASE TRANSITIONS IN POLYMERS. (Gordon & Breach, 1980). Conf. proc.
- Lipson, H. (Ed.):** OPTICAL TRANSFORMS. (Academic Press, 1972). Ch. 4 of this book is on the diffraction patterns of polymers and fibres.
- McMillan, F. M.:** THE CHAIN STRAIGHTENERS: FRUITFUL INNOVATION: THE DISCOVERY OF LINEAR AND STEREO-REGULAR POLYMERS. (Macmillan, 1981).
- Miller, R. L.:** FLOW-INDUCED CRYSTALLISATION IN POLYMER SYSTEMS. (Gordon & Breach, 1979).
- Samuels, R. J.:** THE IDENTIFICATION, INTERPRETATION AND APPLICATION OF CRYSTALLINE POLYMER STRUCTURE. (Wiley, 1974).
- Schultz, J. M. (Ed.):** PROPERTIES OF SOLID POLYMERIC MATERIALS, Parts A and B. (Academic Press, 1977).
- Wunderlich, B.:** MACROMOLECULAR PHYSICS, Vols. 1, 2 and 3. (Academic Press, 1973, 1976 and 1980). The subtitles of these Vols. are: CRYSTALLINE STRUCTURE, MORPHOLOGY, DEFECTS; CRYSTAL NUCLEATION, GROWTH, ANNEALING; ANNEALING AND CRYSTAL MELTING, respectively. Vol. 1 is also available in Russian translation (MIR, 1976). Review of Vol. 3 in A37, 606.
- 24. Proteins/Macromolecules/Biological**
- Arndt, U. W. & Wonacott, A. J. (Eds.):** THE ROTATION METHOD. (N. Holland, 1977). The 'new' technique for the collection of intensity data. Review in B34, 1049.
- Balaban, M. et al. (Eds.):** STRUCTURAL ASPECTS OF RECOGNITION AND ASSEMBLY IN BIOLOGICAL MACROMOLECULES, Vols. 1 and 2. (Balaban International Science Services, 1981). Proc. of the Weizmann Inst. conf. of 1980. Included is a supplement of colour stereoviews, prepared by **Feldmann**, which can be purchased separately (from Taylor Merchant, NY, USA).
- Blundell, T. L. & Johnson, L. N.:** PROTEIN CRYSTALLOGRAPHY. (Academic Press, 1976). A superb book. Review in B33, 2702.
- CIBA Foundation (Ed.):** MOLECULAR INTERACTIONS AND ACTIVITY IN PROTEINS. (Excerpta Medica, 1978).
- Dodson, G., Glusker, J. P. & Sayre, D. (Eds.):** STRUCTURAL STUDIES ON MOLECULES OF BIOLOGICAL INTEREST: A VOLUME IN HONOUR OF DOROTHY HODGKIN. (OUP, 1981).
- Fermi, G. & Perutz, M.:** HAEMOGLOBIN AND MYOGLOBIN. (Clarendon Press, 1981). This is the second of a series, ATLAS OF MOLECULAR STRUCTURES IN BIOLOGY, which is edited by **Phillips, D. C. & Richards, F. M.** This volume is an in-depth presentation of the structures of mammalian haemoglobin and myoglobin, with large excellent diagrams, many being red/green stereo figures. Review in B38, 2096. For Vol. 1 in this series, see **Richards**, below.
- McPherson, A.:** PREPARATION AND ANALYSIS OF PROTEIN CRYSTALS. (Wiley, 1982).
- Nancollas, G. H. (Ed.):** BIOLOGICAL MINERALIZATION AND DEMINERALIZATION. (Springer, 1982).
- Náráy-Szabo, G. (Ed.):** STERIC EFFECTS IN BIOMOLECULES. (Elsevier, 1982).
- Neidle, S. (Ed.):** TOPICS IN NUCLEIC ACID STRUCTURE. (Macmillan, 1981). An overview, from X-ray and NMR studies. This represents the first Vol. of a series that Macmillan have launched, dealing with molecular and structural biology; the 2nd Vol. will also be on nucleic acid structure; the 3rd will be entitled MOLECULAR ASPECTS OF ANTI-CANCER DRUG ACTION.
- Porter, R. & Fitzsimons, D. W. (Eds.):** MOLECULAR INTERACTIONS AND ACTIVITY IN PROTEINS. (Excerpta Medica, 1978). Review in B36, 2510.
- Richards, F. M. & Wyckoff, H. W.:** RIBONUCLEASE. (Clarendon Press, 1973). This is the first of a series, ATLAS OF MOLECULAR STRUCTURES IN BIOLOGY, which is edited by **Phillips, D. C. & Richards, F. M.** For the second, published 1981, see **Fermi**, above.
- Royal Society (London) (Ed.):** THE ENZYMES OF GLYCOLYSIS: STRUCTURE, ACTIVITY AND EVOLUTION. (Royal Society, London, 1981). This book is the proc. of a Discussion held in London, in 1981, organised by **D. C. Phillips et al.**, with about 50 participants; it is the hard-cover version of some 200 pages of PHILOS. TRANS.
- Sarma, R. H. (Ed.):** BIOMOLECULAR STEREOYNAMICS (two Vols.; Adenine Press, NY 12084, USA, 1981). Conf. proc.
- Senechal, M. (Ed.):** STRUCTURES OF MATTER AND PATTERNS IN SCIENCE, INSPIRED BY THE WORK AND LIFE OF DOROTHY WRINCH. (Schenkman Publ. Co., USA, 1980). Symp. proc.
- Sherwood, D.:** CRYSTALS, X-RAYS AND PROTEINS. (Longman, 1976). A remarkably disappointing book, most of all for anyone interested in proteins. Review in B32, 2732.
- Squire, J.:** THE STRUCTURAL BASIS OF MUSCULAR CONTRACTION. (Plenum, 1981). A book essentially for the biologist, which illustrates the crucial role played by the physical methods of X-ray diffraction and EM.
- Srinivasan, R. & Pattabhi, V. (Eds.):** STRUCTURAL ASPECTS OF BIOMOLECULES. (Macmillan, India, 1981). Lectures from the Madras winter school of 1978.
- Srinivasan, R., Subramanian, E. & Yathindra, N. (Eds.):** BIOMOLECULAR STRUCTURE, CONFORMATION, FUNCTION AND EVOLUTION, Vols. 1 and 2. (Pergamon, 1981). Vol. 1 covers X-ray diffraction and related methods; Vol. 2 deals with other methods.

Note also – for the *in-solution*, as opposed to the *as-crystallised* structures of proteins – a very useful article by **Williams, R. J. P.**, describing the evidence of NMR

studies: THE CONFORMATIONAL PROPERTIES OF PROTEINS IN SOLUTION, in *BIOL. REV.* (1979), **54**, 389–437.

25. Solid State Chemistry/Crystal Chemistry/General Crystal Structures

- Adams, D. M.:** INORGANIC SOLIDS: AN INTRODUCTION TO CONCEPTS IN SOLID-STATE STRUCTURAL CHEMISTRY. (Wiley, 1974).
- Bacon, G. E.:** THE ARCHITECTURE OF SOLIDS. (Taylor & Francis, 1981). Review in **B38**, 1683.
- Barrer, R. M.:** ZEOLITES & CLAY MINERALS AS SORBENTS AND MOLECULAR SIEVES. (Academic Press, 1978).
- Bokii, G. B. (Ed.):** CRYSTAL CHEMISTRY, Vol. 8. CRYSTAL STRUCTURES OF FLUORINE COMPOUNDS. (in Russian) (Moskva, 1972).
- Brown, D. B.:** MIXED VALENCE COMPOUNDS. (Reidel, 1980). Review in **B38**, 349.
- Brown, P. J. & Forsyth, J. B.:** THE CRYSTAL STRUCTURES OF SOLIDS. (Arnold, 1973).
- Burns, R. G.:** MINERALOGICAL APPLICATIONS OF CRYSTAL FIELD THEORY. (CUP, 1970). Review in **J3**, 287.
- Burstein, E. (Ed.):** ATOMIC STRUCTURE AND PROPERTIES OF SOLIDS. (Academic Press, 1973).
- Chojnacki, J.:** ELEMENTS OF PHYSICAL AND CHEMICAL CRYSTALLOGRAPHY. (in Polish). (PWN, Warsaw, 1973). Also available in Czech (Akademia, Praha, 1979).
- Clark, G. M.:** THE STRUCTURE OF NON-MOLECULAR SOLIDS: A COORDINATED POLYHEDRON APPROACH. (Applied Science, 1972).
- Clarke, M. J. et al. (Eds.):** STRUCTURE AND BONDING (Springer). More of a journal than a book, this series, edited by a ~6-member panel, is 'issued at irregular intervals, according to the material received'. There are now about 4 or 5 Vols. per year. Only some articles are of direct crystallographic interest: CHEMICAL BONDING IN SOLIDS, in Vols. 18 and 19 (1974); CUBIC STRUCTURE TYPES in Vol. 37 (1979); MONOLAYERS in Vol. 38 (1979); CRYSTALLOGRAPHY OF TRANSITION METAL HYDRIDES in Vol. 44 (1980); FERRITES in Vol. 47 (1981); and STACKED METAL COMPLEXES in Vol. 50 (1982). Reviews of Vols. 7, 8, 37 and 44 in **B26**, 1638; **B27**, 1839; **B37**, 1480; and **B38**, 1684.
- Dereń, J. et al.:** CHEMISTRY OF SOLIDS. (in Polish). (PWN, Warsaw, 1977).
- Donohue, J.:** THE STRUCTURES OF THE ELEMENTS. (Wiley, 1974). Review in **B31**, 334.
- Dorain, P. B.:** SYMMETRIE UND ANORGANISCHE STRUKTURCHEMIE. (Vieweg, 1972).
- Dunitz, J. D.:** X-RAY ANALYSIS AND THE STRUCTURE OF ORGANIC MOLECULES. (Cornell Univ. Press, 1979). This book, addressed principally to the organic chemist, is the sequel to **J. M. Robertson's** book of 1953, ORGANIC CRYSTALS AND MOLECULES. X-ray analysis has advanced a lot in 26 years. Review in **B37**, 493.
- Dunitz, J. D. & Ibers, J. A., (Eds.):** PERSPECTIVES IN STRUCTURAL CHEMISTRY, Vol. 3. (Wiley, 1971). Review in **B27**, 1481.
- Dunitz, J. D. et al. (Eds.):** STRUCTURE AND BONDING. (Springer). Vols. 11 to 42 of this series were edited by Dunitz *et al.*; from Vol. 44 (1981), the editors are **Clarke et al.**, and further details are given under that name, above.
- Evans, R. C.:** EINFÜHRUNG IN DIE KRISTALLCHEMIE. (de Gruyter, 1976). This is a translation of the well known English book.
- Fair, H. D. & Walker, R. F. (Eds.):** ENERGETIC MATERIALS, Vols. 1 and 2. (Plenum, 1977). These two volumes are exclusively on the inorganic azides. Review in **B34**, 3846.
- Franks, F. (Ed.):** WATER IN CRYSTALLINE HYDRATES. (Plenum, 1973).
- Galasso, F. S.:** STRUCTURE AND PROPERTIES OF INORGANIC SOLIDS. (Pergamon, 1970). This has a useful bibliography and good illustrations.
- Garner, C. D. & Seddon, K. R.:** TRANSITION-METAL CHEMISTRY REVIEW, 1979. (Elsevier, 1981). This is simply Vols. 35 and 37 of the journal *COORD. CHEM. REV.* Review in **B38**, 1684.
- Gilinskaya, E. A. (Ed.):** CRYSTAL CHEMISTRY, Vol. 11. (in Russian). (Moskva, 1976).
- Gladyshevskii, E. J.:** CRYSTAL CHEMISTRY OF SILICIDES AND GERMANIDES. (in Russian). (Metallurgija, 1971).
- Greenwood, N. N.:** IONENKRISTALLE, GITTERDEFEKTE UND NICHTSTÖCHIOMETRISCHE VERBINDUNGEN. (Verlag Chemie, 1973). Translation from English.
- Hannay, N. B.:** CHEMISTRY OF THE SOLID STATE. (in Polish translation) (PWN, Warsaw, 1972).
- Hannay, N. B. (Ed.):** TREATISE ON SOLID STATE CHEMISTRY, Vols. 1–6. (Plenum, 1973–1976). Review of Vol. 3 in **B33**, 2001.
- Harrison, W. A.:** ELECTRONIC STRUCTURE AND THE PROPERTIES OF SOLIDS: THE PHYSICS OF THE CHEMICAL BOND. (Freeman, 1980).
- Hayes, W. (Ed.):** CRYSTALS WITH THE FLUORITE STRUCTURE. (OUP, 1975).
- Hemmerich, P. et al. (Eds.):** STRUCTURE AND BONDING. (Springer). Vols. 1–10 of this series were edited by Hemmerich *et al.*; from Vol. 44 (1981), the editors are **Clarke et al.**, and further details are given under that name, above.
- Holt, S. L. et al. (Eds.):** SOLID STATE CHEMISTRY: A CONTEMPORARY OVERVIEW. (American Chemical Society, 1980). Based on a symp. of 1978. Review in **B38**, 348.
- Hulliger, F.:** STRUCTURAL CHEMISTRY OF LAYER-TYPE PHASES. (Reidel, 1977). Review in **B35**, 793. This is Vol. 5 of Reidel's series of seven Vols. on layered materials; for the others, see **Lee, Lévy, Lieth and Wieting**, in 11. *Materials and their Properties/General Materials Science*.
- Kaluski, Z. & Kosturkiewicz, Z. (Eds.):** ORGANIC CRYSTAL CHEMISTRY. (Poznan, 1979 and 1980). Proc. of two symp.
- Kepert, D. L.:** INORGANIC STEREOCHEMISTRY. (Springer, 1982). This is a systematic, detailed survey of the structures of metal coordination compounds.
- Kitaigorodskii, A. I.:** MIXED CRYSTALS. (Springer, expected 1982).
- Kitaigorodskii, A. I.:** MOLECULAR CRYSTALS AND MOLECULES. (Academic Press, 1973). A unique study of the packing of molecules in the crystalline state, it is somewhat up-dated in the recent German text, listed just below.
- Kitaigorodskii, A. I.:** MOLEKÜL KRISTALLE. (Akademie-Verlag, 1976). Review, in **B36**, 2194.
- Kornilov, N. I. & Matveeva, N. A. (Eds.):** METALLOIDS: STRUCTURE, PROPERTIES AND APPLICATIONS. (in Russian). (Nauka, 1971). A set of papers.
- Krebs, H.:** PRINCIPLES OF CRYSTAL CHEMISTRY OF INORGANIC COMPOUNDS. (in Russian). (MIR, 1971).

- Ladd, M. F. C.:** STRUCTURE AND BONDING IN SOLID STATE CHEMISTRY. (Horwood, 1979). Review in B37, 492.
- Lévy, F. (Ed.):** CRYSTALLOGRAPHY AND CRYSTAL CHEMISTRY OF MATERIALS WITH LAYERED STRUCTURES. (Reidel, 1976). Review in B33, 2351. See also **Hulliger**, above.
- Lévy, F. (Ed.):** INTERCALATED LAYERED MATERIALS. (Reidel, 1979). See also **Hulliger**, above.
- Lieth, R. M. A. (Ed.):** PREPARATION AND CRYSTAL GROWTH OF MATERIALS WITH LAYERED STRUCTURES. (Reidel, 1977). Review in B34, 3948. See also **Hulliger**, above.
- McKie, D. & McKie, C.:** CRYSTALLINE SOLIDS. (Nelson, 1974). A text giving particular attention to the physics rather than the chemistry of the solid state. A long review in A31, 397.
- Malinovskii, T. I. (Ed.):** CRYSTAL CHEMISTRY OF INORGANIC COMPOUNDS. (in Russian). (Shtiinca, Kishinev, 1976). A set of articles.
- Marshall, R. C.:** SILICON CARBIDE 1973. (Univ. of S. Carolina Press, 1973). Conf. proc.
- Matkovich, V. I. (Ed.):** BORON AND BORIDES. (Springer, 1977). Review in B35, 793.
- Megaw, H. D.:** CRYSTAL STRUCTURES: A WORKING APPROACH. (Saunders, 1973). A mine of information, and guidance, on structures such as ilmenite, feldspar and ice, yet curiously (in view of its quite general title) silent on the immense world of molecular crystals. Review in A30, 605, or B30, 1887.
- Meyer, K.:** PHYSICO-CHEMICAL CRYSTALLOGRAPHY. (Russian translation from German) (Metallurgija, 1972).
- Muller, O. & Roy, R.:** CRYSTAL CHEMISTRY OF NON-METALLIC MATERIALS, Vol. 4. THE MAJOR TERNARY STRUCTURAL FAMILIES. (Springer, 1974).
- Nishiyama, Z.:** MARTENSITIC TRANSFORMATION. (Academic Press, 1978).
- O'Keefe, M. & Navrotsky, A. (Eds.):** STRUCTURE AND BONDING IN CRYSTALS, Vols. 1 and 2. (Academic Press, 1981). This book, which is a survey of recent developments, is in celebration of the 50-year anniversary of the original publication of *Pauling's Rules*.
- Parthé, E.:** CRISTALLOCHEMIE DES STRUCTURES TÉTRAÉDRIQUES. (Gordon & Breach, 1972).
- Roberts, I. F.:** CRYSTALS AND THEIR STRUCTURES. (Methuen, 1974).
- Rooijmans, C. J. M. & Rabenau, A. (Eds.):** CRYSTAL STRUCTURE AND CHEMICAL BONDING IN INORGANIC CHEMISTRY. (N. Holland, 1975). Review in A33, 349.
- Saito, Y.:** INTRODUCTION TO CHEMICAL CRYSTALLOGRAPHY. (in Japanese). (Kyoritsu Shuppan, 1975).
- Samsonov, G. V.:** THE OXIDE HANDBOOK. (Plenum, 1973). Review in J7, 94.
- Schmalzried, H.:** SOLID STATE REACTIONS (revised 2nd ed.). (Verlag Chemie, 1981).
- Schubert, K.:** CRYSTAL STRUCTURES OF TWO-COMPONENT PHASES. (in Russian translation) (Metallurgija, 1971).
- Schuster, P. et al. (Eds.):** THE HYDROGEN BOND: RECENT DEVELOPMENTS IN THEORY AND EXPERIMENT, Vols. 1, 2 and 3. (N. Holland, 1976).
- Sirota, N. N. (Ed.):** CHEMICAL BONDS IN SOLIDS, Vols. 1-4. (Plenum, 1972). These are translated from Russian.
- Sowerby, D. B. (Ed.):** MAIN GROUP CHEMISTRY REVIEW, 1979. (Elsevier, 1981). This is simply Vol. 34 of the journal *COORD. CHEM. REV.*. Review in B38, 1684.
- Suchet, J. P.:** CHEMISTRY AND SEMICONDUCTION IN TRANSITION METAL BINARY COMPOUNDS. (Academic Press, 1971).
- Trotter, J. (Ed.):** STRUCTURE REPORTS. Volumes are published approximately annually; thus, Vol. 44A and B (inorganic and organic, respectively) covering the year 1978 were published in 1980. Review of the latest issues in B34, 3847 and A35, 346.
- Van Meersche, M. & Feneau-Dupont, J.:** INTRODUCTION À LA CRISTALLOGRAPHIE ET À LA CHIMIE STRUCTURALE. (Oyez, 1976).
- Vinogradov, A. P. (Ed.):** PROBLEMS OF ISOMORPHOUS SUBSTITUTIONS OF ATOMS IN CRYSTALS. (in Russian). (Nauka, 1971).
- Walton, A.:** MOLECULAR AND CRYSTAL STRUCTURE MODELS. (Horwood, 1978). Review in B35, 2477.
- Wells, A. F.:** FURTHER STUDIES OF THREE-DIMENSIONAL NETS. (American Crystallographic Association Monograph No. 8, 1979).
- Wells, A. F.:** MODELS IN STRUCTURAL INORGANIC CHEMISTRY. (OUP, 1970).
- Wells, A. F.:** STRUCTURAL INORGANIC CHEMISTRY, 4th ed. (OUP, 1975). Review in B32, 985.
- Wells, A. F.:** THREE-DIMENSIONAL NETS AND POLYHEDRA. (Wiley, 1977). Review in B34, 2958.
- Wood, J. et al. (Eds.):** REACTIVITY OF SOLIDS. (Plenum, 1977). Review in B34, 3497. Int. symp. proc.
- Zadneprovskii, G. M. et al.:** CRYSTALLOCHEMICAL RULES IN URANIUM FLUORIDES AND THEIR ANALOGUES. (in Russian). (Atomizdat, 1975).
- Zannetti, R. & Celotti, G.:** ELEMENTI DI STRUTTURA CHIMICA DIFFRATTOMETRICA. (Editrice Piccin, Padova, 1969).
- Zeeman, J.:** CHIMIE CRISTALLINE. (Dunod, 1970). Translated from the original German, by **Bertaut**. A small but excellent text on basic crystal chemistry. Review in B27, 251.

26. Student-Oriented Texts/Books for Students

- Bacon, G. E.:** THE ARCHITECTURE OF SOLIDS. (Taylor & Francis, 1981). Review in B38, 1683.
- Bardsley, W. et al. (Eds.):** CRYSTAL GROWTH: A TUTORIAL APPROACH. (N. Holland, 1979). Despite inelegant print and production, this is a good text on the controlled production of quality crystals for technological applications.
- Batthey, M. H.:** MINERALOGY FOR STUDENTS. (Oliver & Boyd, 1975).
- Bogdanow, R. W.:** VOM MOLEKÜL ZUM KRISTALL. (Akademie Verlag Geist & Portig, Leipzig, 1976).
- Bojarski, Z. et al.:** TUTORIAL MATERIALS ON CRYSTALLOGRAPHY. (in Polish). (Katowice, 1976).
- Borchardt-Ott, W.:** KRISTALLOGRAPHIE: EINE EINFÜHRUNG FÜR NATURWISSENSCHAFTLER. (Springer, 1976). Review, in German, in B33, 2988.
- Brostow, W.:** SCIENCE OF MATERIALS. (Wiley, 1979). A good general text on materials.
- Brown, M. A.:** X-RAY METHODS. (Morrow, 1971). Quite general and very simple.
- Bullen, G. J. & Greenslade, D. J. (Eds.):** PROBLEMS IN MOLECULAR STRUCTURES. (Chapman & Hall, 1982). This

- surveys a very wide range of different methods for the determination of structures.
- Buerger, J. M.** INTRODUCTION TO CRYSTAL GEOMETRY. (McGraw-Hill, 1971. For Buerger's other books see 7. *General Crystallography*).
- Burns, G. & Glazer, A. M.**: SPACE GROUPS FOR SOLID STATE SCIENTISTS. (Academic Press, 1978). Review in J12, 428.
- Burzlaff, H. & Zimmermann, H.**: SYMMETRIELEHRE. (Thieme, Stuttgart, 1977). One of the best texts on the subject (in German).
- Cartmell, E.**: PRINCIPLES OF CRYSTAL CHEMISTRY. (The Chemical Society, London, 1971). This is one of the MONOGRAPHS FOR TEACHERS.
- Chojnacki, J.**: ELEMENTS OF PHYSICAL AND CHEMICAL CRYSTALLOGRAPHY. (in Polish). (PWN, Warsaw, 1973). Also available in Czech (Akademia, Praha, 1979). Of the various Polish language texts listed here in this section, this one 'has the most original approach, especially to crystal geometry, crystal chemistry and crystal physics'.
- Close, K. J. & Yarwood, J.**: AN INTRODUCTION TO SEMICONDUCTORS. (Heinemann, 1971).
- Cullity, B. D.**: ELEMENTS OF X-RAY DIFFRACTION. (Addison Wesley, 1978). Despite the generality of the title, this book is addressed, apparently, only to metallurgy students.
- Curien, H.**: LES GROUPES EN CRISTALLOGRAPHIE. This is in **Kahan, Th.**: THÉORIE DES GROUPES ET PHYSIQUE CLASSIQUE ET QUANTIQUE, Tome 2. (Dunod, 1971). For postgraduate students.
- Delepine, C.**: INTRODUCTION À LA CRISTALLOGRAPHIE. (Dunod, 1971).
- Dent Glasser, L. S.**: CRYSTALLOGRAPHY AND ITS APPLICATIONS. (Van Nostrand, 1977). An excellent text for students. Review in B34, 1750.
- Dorain, P. B.**: SYMMETRIE UND ANORGANISCHE STRUKTURCHEMIE. (Translated from English). (Akademie Verlag, 1972). Also available in Polish (PWN, Warsaw, 1968).
- Ducros, P.**: RADIOCRISTALLOGRAPHIE. (Dunod, 1971).
- Ducros, P. & Lajzerowicz-Bonneteau, J.**: PROBLÈMES DE CRISTALLOGRAPHIE. (Dunod, 1967).
- Durski, Z.**: PRINCIPLES OF X-RAY CRYSTALLOGRAPHY AND STRUCTURE ANALYSIS OF CRYSTALS. (in Polish). (Warszawa, 1973).
- Egert, E. & Lindner, H. J.**: STRUKTUREN DER MATERIE UND IHRE SYMMETRIE. (R. Schmidt, Nieder-Ramstadt, 6101, Federal Republic of Germany, 1976). A booklet of rather good stereopictures. Review, in English, in B33, 2352.
- Engels, F.**: ELEMENTS OF CRYSTALLOGRAPHY. (in Polish). (Gliwice, 1975).
- Gabis, V.**: MANIPULATIONS, EXERCICES, PROBLÈMES CORRIGÉS À L'USAGE DES ENSEIGNANTS EN MINÉRALOGIE, CRISTALLOGRAPHIE, SCIENCES DES MATÉRIAUX. (Société Française de Minéralogie, 1980).
- Glusker, J. P. & Trueblood, K. N.**: CRYSTAL STRUCTURE ANALYSIS: A PRIMER. (OUP, 1972). Easy to read, and with almost no mathematics, this book approaches X-ray diffraction from optical diffraction and Fourier transform concepts. Review in A28, 680.
- Guinier, A.**: STRUCTURE DE LA MATIÈRE - DU CIEL BLEU À LA MATIÈRE PLASTIQUE. (Hachette, 1980). This is a beautifully written and beautifully illustrated book for schools, relating structure at the atomic level to all aspects of the everyday world. Review, in English, in A38, 559 and B38, 1685.
- Guy, A. G.**: ESSENTIALS OF MATERIALS SCIENCE. (McGraw-Hill, 1976). This is very readable, well-illustrated, and gives useful attention to the applications of materials.
- Harburn, G. et al.**: ATLAS OF OPTICAL TRANSFORMS. (Bell & Hyman, 1975). Almost entirely pictorial; what text there is in both English and French. This book can usefully be studied in conjunction with **Lipson's** OPTICAL TRANSFORMS (see below). Review in B32, 1622.
- Harsch, G. & Schmidt, R.**: KRISTALLGEOMETRIE: PACKUNGEN UND SYMMETRIE IN STEREOARSTELLUNGEN. (Diesterweg/Salle/Sauerländer Verlag, 1981).
- Hart-Davis, A.**: SOLIDS: AN INTRODUCTION. (McGraw-Hill, 1975).
- Heymann, P.**: THÉORIE DYNAMIQUE DE LA MICROSCOPIE ET DIFFRACTION ÉLECTRONIQUE. (PUF, Paris, 1974).
- Hudson, M.**: CRYSTALS AND CRYSTAL STRUCTURE. (Longman, 1971). A very elementary text. Nice illustrations.
- Hukins, D. W. L.**: X-RAY DIFFRACTION BY DISORDERED AND ORDERED SYSTEMS. (Pergamon, 1981). This fairly simple presentation extends across the whole range of types of materials, from single crystals, to polycrystalline aggregates, to liquid crystals, polymers, fibres, amorphous materials and liquids. Review in B38, 2097.
- IUCr Commission on Crystallographic Teaching:** Booklets ('pamphlets') on various aspects of crystallography. The general editor is **C. A. Taylor**. There are currently ten booklets available; each independent, on different topics and by different authors, they are written at very different levels. Nos. 2-4 are the best, No. 1 the simplest. They are obtainable, separately if required, and quite cheaply, from the University College Cardiff Press, CF1 1XL, UK. A further set of ten booklets is expected in late 1982.
- IUCr Commission on Crystallographic Teaching:** A list of publications on the teaching of crystallography. (expected 1982).
- Jelenkowsk, J. & Wesolowski, K.**: PRACTICE IN X-RAY STRUCTURE ANALYSIS. (in Polish). (Kraków, 1978).
- Jost, K.-H.**: RÖNTGENBEUGUNG AN KRISTALLEN. (Akademie-Verlag, 1975). Review, in English, in A32, 749.
- Julg, A.**: CRYSTALS AS GIANT MOLECULES. (Springer, 1978). This booklet tries to show the application of the MO approach to extended assemblies of atoms. Review in B35, 1540.
- Kakudo, M. & Sasada, Y.**: INTRODUCTION TO X-RAY ANALYSIS, 2nd ed. (in Japanese). (Tokyo Kagaku Dojin, 1975).
- Keller, E.**: WACHSTUM UND AUFBAU DER KRISTALLE. (Aulis Verlag Deubner, Köln, 1980).
- Kennon, N. F.**: PATTERNS IN CRYSTALS. (Wiley, 1978). This was intended, no doubt, to be an original presentation, crystal clear, for beginners; it succeeds in the first but not the second of these objectives. Review in A36, 500.
- Kitaigorodskii, A.**: ORDER AND DISORDER IN THE WORLD OF ATOMS. (MIR, 1979).
- Kleber, W.**: AN INTRODUCTION TO CRYSTALLOGRAPHY. (VEB Verlag, 1970). Review in A28, 221. This is the English version of a text that has been well known in Germany since 1956, during which time there have been many successive editions. The latest German edition is listed just below.
- Kleber, W.**: EINFÜHRUNG IN DIE KRISTALLOGRAPHIE. (VEB Verlag, 1977).

- Kozlova, O. G.:** GROWTH AND MORPHOLOGY OF CRYSTALS. (in Russian). (Izd-vo Mosk. Univ-ta, 1980). Suitable for undergraduates and postgraduates of geology or materials science backgrounds.
- Kubisz, J. & Żabiński, W.:** TUTORIAL MATERIALS ON MINERALOGY. (in Polish). (Kraków, 1978).
- Kushta, G. P.:** INTRODUCTION TO CRYSTALLOGRAPHY. (in Russian). (L'vov, 1976). A textbook for students of physics and chemistry.
- Lipson, H.:** CRYSTALS AND X-RAYS. (Wykeham, 1970). Review in A27, 507.
- Lipson, H. (Ed.):** OPTICAL TRANSFORMS. (Academic Press, 1972). This book discusses many different applications of the concept of the Fourier transform; Ch. 10 is especially devoted to the use of optical transforms in teaching. See also Harburn, above.
- Luger, P.:** MODERN X-RAY ANALYSIS ON SINGLE CRYSTALS. (de Gruyter, 1980). This up-to-date text is highly recommended by the review: B37, 492.
- McKie, D. & McKie, C.:** CRYSTALLINE SOLIDS. (Nelson, 1974). A student text particularly concerned with the physical aspects of crystalline matter. Review in A31, 397.
- Milburn, G. H. W.:** X-RAY CRYSTALLOGRAPHY. (Butterworth, 1973). Review in A29, 583.
- Pauffer, P. & Leuschner, D.:** KRISTALLOGRAPHISCHE GRUNDBEGRIFFE DER FESTKÖRPERPHYSIK. (Vieweg, 1975). A short introduction, addressed primarily to students of physics.
- Penkala, T.:** OUTLINE OF CRYSTALLOGRAPHY. (PWN, Warsaw, 1977).
- Phillips, D. C. & North, A. C. T.:** PROTEIN STRUCTURE. (OUP, 1973). A 30-page booklet, with excellent diagrams, including red/green stereos.
- Rigault, G.:** INTRODUZIONE ALLA CRISTALLOGRAFIA. (Libreria Editrice Levrotto e Bella Universitaria Torino, 1976).
- Rigault, G. & Graziosi, G.:** COMPITI ED ESERCITAZIONI DI CRISTALLOGRAFIA. (Libreria Editrice Levrotto e Bella Universitaria Torino, 1972).
- Roberts, I. F.:** CRYSTALS AND THEIR STRUCTURES. (Methuen, 1974). An extremely simple booklet.
- Saito, Y.:** INTRODUCTION TO CHEMICAL CRYSTALLOGRAPHY. (in Japanese). (Kyoritsu Shuppan, 1975).
- Sands, D. E.:** INTRODUCTION TO CRYSTALLOGRAPHY. (Benjamin, 1975).
- Schlenker, B. R.:** INTRODUCTION TO MATERIALS SCIENCE. (Wiley, 1974). This is the revised SI edition. An excellent student text on materials science from an engineer's point of view.
- Schultz, J. M.:** DIFFRACTION FOR MATERIALS SCIENTISTS. (Prentice Hall, 1981). A comprehensive treatment.
- Senczyk, D.:** LABORATORY PRACTICE IN X-RAY STRUCTURE ANALYSIS. (in Polish). (Poznań, 1974).
- Shaskol'skaya, M. P.:** CRYSTALLOGRAPHY. (in Russian). (Vysshaya Shkola, 1976). Review, in English, in J12, 139.
- Skrzat, Z.:** ELEMENTS OF CRYSTALLOGRAPHY. (in Polish). (Toruń, 1980).
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