

ture, phénomène compliqué, est très peu abordée.

Certaines technologies décrites sont plus élaborées que dans le proche passé; tels sont les progrès de l'encapsulation liquide. D'autres sont nouvelles, par exemple une technique vidéo pour l'observation des images topographiques X *in situ* et non *post facto*.

Les simulations sur ordinateur de la croissance aléatoire des atomes font l'objet de plusieurs mémoires approfondis.

Il faut aussi signaler que, dans ce recueil, la table des matières finale est structurée de façon originale et pratique.

En effet, le titre *Perfection of Crystals* ne renvoie pas seulement aux sections X et XIV; les 31 références énumérées se rapportent aussi à d'autres sections où il est question de perfection cristalline.

De même, sous le titre *Characterization Methods* on trouve que 21 méthodes ont été collationnées. Trois d'entre elles sont les plus employées: la microscopie électronique (21 références), la diffraction X (17 références), la topographie X (16 références). En outre l'attention est attirée par l'électrodécoration, la microscopie infrarouge, les hologrammes interférométriques, l'analyse par activation neutronique, etc.

Ces exemples, entre autres, montrent combien est ici aisée une recherche bibliographique spécifique.

R. HOCART

Laboratoire
de Minéralogie-Cristallographie
Université Paris VI
4 place Jussieu
Paris V
France

Crystallography and crystal defects. By *A. Kelly* and *G. W. Groves*. Pp. x + 428, Figs. 274, Tables 42. London: Longman, 1970, reprinted with corrections but without plates in Longman Text Format 1973. Price £3.00.

This textbook originates from lectures actually given by the authors, and combines in an original way an elementary

exposition of classical crystallography (*i.e.* the structure of perfect crystals), an introduction to the structure of crystal defects observed in real crystals, surfaces and interfaces, dislocations and point defects, and finally an introduction to the geometrical aspects of deformation by slip, twinning and martensitic transformation.

The table of contents is as follows: Part one – *Perfect Crystals*: Lattice geometry; The stereographic projection and point groups; Crystal structures; Tensors. Part two – *Imperfect Crystals*: Stress, strain and elasticity; Glide; Dislocations; Dislocations in crystals; Point defects; Twinning; Martensitic transformations; Crystal interfaces. Appendices: Crystallographic calculations; Vector algebra and reciprocal lattice; Planar spacings and interplanar angles; Transformation of indices following a change of unit cell; Crystal structure data.

Seen as a book for students in crystallography, this volume provides a reasonable balance between the study of perfect and imperfect crystals. It emphasizes rightly that imperfections are a fact of life for real crystals, which one cannot forget, but that these defects have a geometry of their own, which can be as complex and fascinating as that of perfect crystals.

Within its scope, this book is certainly clearly written, and combines in a pleasing way a simple and practical geometrical analysis with references to actual physical applications directly useful to crystallographers or metallurgists. It is prudent enough in controversial subjects still to prove correct five years after its initial publication. A set of problems with their solutions for each chapter and a small bibliography make the book very suitable for teaching.

The scope of the book provides of course its own limitations. With its emphasis on structure and geometry, the book does not mention any method of observation, nor practically any physical properties except, for the defects, their energy of formation and their mobility. There is for instance no mention of processes such as strain hardening, creep or sintering. Some chapters have aged, notably those on the mobility of dislocations and point defects

and those on surfaces and interfaces, especially the structure of grain boundaries. Finally it is surprising in such a book to see no specific mention, except in a vague reference, to twins with an axis of rotation.

These are however minor criticisms, and the reprinting of this textbook was amply justified.

J. FRIEDEL

Faculté des Sciences
Service de Physique des Solides
Université de Paris
Bâtiment 510
91-Orsay
France

Books Received

The following books have been received by the Editor. Brief and generally uncritical notices are given of works of marginal crystallographic interest; occasionally a book of fundamental interest is included under this heading because of difficulty in finding a suitable reviewer without great delay.

Advances in quantum electronics, Vol. 3. Edited by *D. W. Goodwin*. Pp. xii + 473. London: Academic Press, 1975. Price £17.40, or \$46.00.

This volume, by L. C. Balling, C. C. Davis and T. A. King consists of two sections only: *Optical pumping* (ca 150 pp.) and *Gaseous ion lasers* (ca 300 pp.), with little direct relevance to crystallography.

Flash radiography. By *F. Jamet* and *G. Thomer*. Pp. ix + 192. Amsterdam: Elsevier, 1976. Price Dfl 85.00 or \$33.95.

The bulk of this publication is not connected with crystallography – although the systems for the generation of high intensity ($i = 10^4 \text{ \AA}$) short X-ray pulses (10^{-7} s) are interesting. However, fifteen pages at the end are on the use of these systems on diffracting materials, showing, for example, the changing powder pattern of a metal foil during explosion.