

cell boundary acts as such. In the case of Guinier-Preston zones, dislocation channels may be responsible.

It is not unexpected that a Bristol Conference report contains new important work on the geometry of dislocations and on the physical effects of dislocations. Some of the subjects which have been theoretically treated are: stacking faults in close-packed lattices (Seegers), jogs in dislocation lines (Seeger, Thompson), dislocation sources and two-dimensional arrays of dislocations (Bilby), dislocation networks (Frank).

Among the experimental work, beautiful microphotographs (Dekeyser) and electron microphotographs (Wilsdorf & Kuhlmann-Wilsdorf) of dislocations are presented. In the latter paper traces of the dislocation network present in an undeformed single crystal are probably made visible. An extension of Mitchell's work on AgBr crystals demonstrates the intimate connexion between dislocations and photographic sensitivity.

Naturally, only a limited number of the Bristol Conference papers could be referred to here. The *Report* as a whole seems a most valuable account, carefully edited, of a physical domain which is being extensively studied along different lines.

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Praktische Edelsteinkunde. By W. FISCHER. Pp. 187 with 96 figs. and 3 plates. Kettwig/Ruhr: Gustav Feller-Nottuln. 2nd ed. 1954. Price DM. 16.80; 30s.; \$4.00.

One half of the volume presents an outline of the morphology, general physical properties and optical properties of crystals; the remainder is a descriptive account of some sixty types of gemstones and gem materials. Designed to appeal especially to working lapidaries and jewellers, the book gives details of many grinding and polishing media and of their suitability for different materials, and there is a section on the preparation of quartz oscillator plates. Synthetic stones and pastes are mentioned, and figure in the determinative tables. It has unfortunately not proved feasible to add the full range of illustrations withheld from the first edition on the score of cost, and this second edition is a reprint of the 1953 volume.

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Die Stereographische Projektion in der Kristallkunde. By H. TERTSCH. Pp. iv+122 with 71 figs. Wiesbaden: Verlag für Angewandte Wissenschaften. 1954. Price DM. 14.80.

The material of this little book is divided as follows: properties of the stereographic projection and graphical constructions (29 pages); graphical solutions of crystallographic problems (34 pages); crystal drawing, using the stereographic projection (43 pages); applications of the stereographic projection in crystal physics (14 pages).

The description of the projection is full and well-done, and the section on graphical solutions contains some very useful constructions. No example, however, is taken from

X-ray work, and the whole balance of the work is 'classical' rather than 'modern'; this is especially noticeable in the allocation of one-third of the book to crystal drawing. The last section contains some further useful and interesting constructions, but the treatment is summary compared with that given to crystal drawing.

The book is reproduced photographically from typescript and the result is confused and far from pleasing in appearance; with more careful attention to lay-out a much more attractive presentation could have been achieved. The figures, too, are poor: some are absurdly large while others are minute and quite illegible, a fault which appears to have been recognized at a late stage because several of the diagrams are reproduced a second time, somewhat enlarged, at the end of the book. There is a full table of contents, which does not, however, correspond in detail with the sectional headings in the text, but the omission of an index is a serious short-coming.

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X-Ray Diffraction by Polycrystalline Materials. Edited by H. S. PEISER, H. P. ROOKSBY and A. J. C. WILSON. Pp. 725 with 263 illustrations. London: Institute of Physics. 1955. Price 63s.; \$9.

The appearance of this book is eloquent testimony to the fact that X-ray diffraction has come of age. It is a very fine book, a veritable encyclopedia of the theory and technique of powder diffraction. There are three parts, followed by a very useful appendix of tables and a carefully prepared, and therefore useful, subject and author index.

Part 1, entitled 'Introduction and Experimental Techniques for Polycrystalline Materials', edited by Rooksby, contains 12 chapters on such subjects as monochromators and focusing cameras, low-angle cameras, high- and low-temperature methods, as well as on the more common techniques.

Part 2, 'Interpretation of X-ray Diffraction Data from Polycrystalline Materials', edited by Wilson, consists of 10 chapters, some dealing with the better known topics such as identification, determination of unit-cell dimensions and of accurate lattice parameters, others of a more specialized character treating subjects such as background scattering, scattering by non-crystalline media and preferred orientation.

Part 3, edited by Peiser, contains 10 chapters, each an essay on results obtained by powder diffraction techniques in various fields.

This reviewer is delighted at the uniformly high quality of the book. It is apparent that the editors have chosen their authors carefully, and wisely; it is also apparent that much editorial supervision has gone into its making. There is very little duplication: where it exists it is clearly deliberate and desirable. This book belongs in the working library of every X-ray crystallographer, even those who never deign to study anything but single crystals. It will serve them well.

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