

and others against the present situation, and in a way that enhances their stature. There is hardly a mention, however, of workers in the field of external crystal geometry. The book contains no methodology, nor discussion of chemical properties of crystals. The reader is referred on the dust jacket to other volumes by the author, but this book is, in many ways, similar to his *Elementary Crystallography* (1956). As it stands, however, the book is a succinct exposition of crystal structure and should find acceptance in undergraduate courses.

A. C. BISHOP

ROTH (R. S.) and SCHNEIDER (S. J.) (Eds.). *Solid State Chemistry*. NBS Special Publication 364, U.S. Govt. Printing Office, Washington D.C., 1972. xv+783 pp. Price \$7.50.

This book contains the proceedings of the fifth Materials Research Conference held in July 1971. The 63 papers are grouped into sections on oxides (37), borides, carbides, silicides, and related materials (10), chalcogenides (12), and discussions on non-stoichiometry (4). The papers are well illustrated, and even photographs have reproduced surprisingly well for a work printed by offset methods. The papers are of consistent and respectable quality, and some are of outstanding interest and importance.

About one-tenth of the papers are of direct and obvious mineralogical interest, including those on the use of infrared and Raman spectroscopy in the study of order-disorder in oxides (White and Keramidas), on defects in oxides (J. S. Anderson), and on the system FeO-SiO₂-TiO₂ at high pressure (Woermann and Lamprecht). Of the work on chalcogenides, the papers on Cu₂S (Cook) and CuFeS_{2-x} (Adams *et al.*) are directly applicable to mineral systems.

The many papers on such phases as the tungsten bronzes, in which non-stoichiometry is accommodated by a variety of ingenious mechanisms, are of less obvious mineralogical interest, but of great significance for our understanding of the microstructure of crystalline solid solutions. Outstanding among these are the papers by Bursill and Bursill, Hyde, and O'Keeffe on crystallographic shear in rutile. These, and the reviews by Allpress and Anderson, should be read and re-read by all mineralogists who are interested in the microstructure of complex mineral solid solutions such as the pyroxenes of the lunar rocks, the more chemically complex pyroxenes and amphiboles of igneous and metamorphic rocks, and many rarer minerals.

R. G. J. STRENS

HYNDMAN (D. W.). *Petrology of igneous and metamorphic rocks*. New York and London (McGraw-Hill), 1972. x+533 pp., 141 figs. Price £7.70.

The appearance of a new undergraduate textbook on igneous and metamorphic rocks is something of an event, and when it shows some resemblance to Turner and Verhoogen's notable book (almost identical title, similar format, same publisher), and has the advantage of being 12 years more up-to-date, it merits special attention.