bulky, mainly because the contributions are typewritten in double spacing. Illustrations, however, are usually clear. There are good indexes and many excellent bibliographies. M. B.

SHUBNIKOV (A. V.), BELOV (N. V.), *et al. Coloured Symmetry.* Edited by W. T. HOLSER. Translated from the Russian by J. Itzkoff and J. Gollob. Oxford (Pergamon Press), 1964. xxv+263 pp. Price: 70*s*.

Classical crystal symmetry theory was completed some 70 years ago with the description of the 230 space groups by Federov, Schoenflies, and Barlow. Recently crystallographers and others have been interested in new elements of symmetry that arise when the symmetry-related objects can be regarded as having different signs, + and −; a mirror plane relating a + object with a − object is, for example, a plane of antisymmetry. Situations like this arise, for example, in two dimensions in the so-called generalized Fourier projections of crystal structures; in three dimensions in the magnetic superstructures found in antiferromagnetic crystals, where each magnetic atom may have one of two opposed directions of magnetization.

+ and − objects might also be denoted black and white, and the possible symmetries of arrangement of objects of this type are known as the black and white space groups. Clearly it is possible to imagine symmetries of arrangements of objects of more than two classes, and hence a generalized 'Coloured Symmetry'.

The 46 black and white plane groups were derived by Cochran (Acta Cryst., 1952, vol. 5, pp. 630–4), but the main development of the symmetry theory and of the 1651 black and white space groups has appeared mainly in the Russian literature. This book collects edited translations of the main Russian papers covering this work, forming a connected account of dichromatic symmetry and an introduction to polychromatic symmetry. In the absence of a specially written textbook, this book is therefore unique in English and forms an essential introduction to modern developments in symmetry theory. It is clearly written and well produced. R. J. DAVIS

PARRISH (William) and MACK (Marian). *Data for X-ray analysis.* 2nd edn, vols. 1, 2, and 3. *Charts for the solution of Bragg's equation.* Philips Technical Library, Eindhoven, distributed in U.K. by Cleaver-Hume Press Ltd., 10–15 St. Martin's Street, London, W.C.2.

All three volumes contain charts (θ and 2θ versus d) for the solution of Bragg's equation for various radiations. Thus the data for Cu-$K\alpha$,

$K\alpha_1$, $K\alpha_2$, and $K\beta$ are contained in vol. 1. Vol. 2 deals with Mo, Co, and W radiations, whilst charts for Fe and Cr radiations make up vol. 3. In the first edition all this information was contained in one volume and no data for W radiation were given. The charts claim to be sufficiently accurate for modern requirements and each page covers an angular range of 2·5° (2θ). The pale-blue millimetre grid seems to be very faint and of poor definition on a number of pages compared with the well-defined grid used in the first edition. Sheets of thick, black paper supplied to be placed under the page to be read, so as to reduce transparency, do not seem to make much difference, and since usually a large number of d-spacings have to be obtained, using these tables may prove to be very tiring. A table converting degrees and minutes into degrees and decimals, found at the beginning of each volume, will probably prove very useful. In addition to the charts, d-spacings are listed against degrees of 2θ in 'short-tables' for each radiation. The accuracies of d-spacings and wavelengths used are also discussed. R. J. D.

SINDEEVA (N. D.). *Mineralogy and Types of Deposits of Selenium and Tellurium.* (Translated from the Russian.) New York, London, and Sydney (Interscience Publishers), 1964. xv+363 pp., 86 figs., 23 tabs., 41 ref. tabs. Price: 102*s*.

This translation has been published on behalf of the Geochemical Society, with financial assistance provided by a grant from the National Science Foundation. The book is divided into four chapters:

General Information (32 pp.) is devoted to a general discussion of the physical and chemical properties of selenium and tellurium, together with data on the application, utilization, and production of the two elements. Brief descriptions of analytical methods are also included.

Mineralogy of Selenium and Tellurium (136 pp.) gives a detailed account of the properties of the known minerals of both elements, together with some brief generalizations concerning their crystal structures and physico-chemical properties.

Selenium and Tellurium Deposits (85 pp.) outlines the regional distribution of selenium and tellurium deposits, and proceeds to describe the geology and occurrence of the elements in 17 types of deposits, divided into four main groups: magmatic, volcanic, hydrothermal, and exogenic.

Physical Characteristics of the Geochemistry of Selenium and Tellurium (45 pp.) discusses the distribution of the two elements in cosmic bodies and the earth's crust, and goes on to examine the behaviour of the