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-$K\alpha$,