important feature of metamorphic rocks. It is perhaps unfortunate that the author who produced it still refers to the pitch of folding (p. 105). There is no index.

The numerous isotope-dates scattered throughout the book help one in understanding the gross geology of Canada and can be appreciated without any reservation. N. R.

MACGILLAVRY (C. H.) and RIECK (G. D.), Editors. *International tables for X-ray crystallography.* Vol. 3: *Physical and chemical tables.* Birmingham, England (Kynoch Press for the International Union of Crystallography), 1962, xvi+362 pp., 44 figs. Price 115*s.*; working crystallographers may obtain a reduced price copy on application to the publishers.

This is the third of a series of volumes produced by the Editorial Committee of the International Union of Crystallography: volume 1, *Symmetry groups*, was published in 1952, and volume 2, *Mathematical tables*, in 1959.

As with the other volumes, volume 3 contains a good deal more than its title implies, since not only are physical and chemical data tabulated but there are excellent succinct accounts of the techniques employed in the study of crystals both by X-rays and by ancillary methods. Furthermore there is space devoted to the basic theory concerning the methods and data that are presented. For example, associated with 35 pages of tables of absorption coefficients there are 8 pages concerned with their definition, explanation, and methods of use. Explanatory matter must obviously be restricted in a book of this kind but this is compensated for by the presence, at the end of each section, and sometimes sub-section, of a useful list of references to the literature.

There are five main sections: 1. Examination and Preparation of Specimens, including specimen mounting, and crystal setting by X-rays. 2. X-rays and their Interaction with Crystals, including production and wavelengths of X-rays, filter and monochromator techniques, and thermal expansion. 3. Measurement and Interpretation of Intensities, including photographic and counter techniques, absorption, and atomic scattering factors. 4. Interatomic and Interionic Distances. 5. Texture and Line Broadening Analysis. Small-Angle Scattering, including the textures of polycrystalline materials, and particle size analysis.

In addition there is a section on the protection against radiation injury

by X-rays, electrons, or neutrons, and finally a dictionary of common terms in five languages and a subject index for all three volumes.

The tables are of two kinds: tables of data, most of which would otherwise have to be found scattered among various publications, but some of which are not to be found elsewhere, and, secondly, tables for saving labour of calculation in applying correction factors to measured values or in deriving other parameters from them. There is inevitably some overlap with the subject-matter treated in volumes 2 and 3, and one might not always be sure in which a particular topic is to be found: this might arise particularly for matters relating to intensity measurements.

No doubt additional tables will become desirable as new methods and techniques are developed, and the editors acknowledge the possibility of supplements or further volumes.

Diffraction workers have to make use of data, methods, and techniques that cover a wide field of chemistry, physics, and mathematics, and the greatest value of this volume is in its gathering together of such information under one cover. In conjunction with the earlier two volumes, crystallographers are fortunate in having so many aspects of their subject so well documented, and one wonders whether any other discipline in science has such a useful and comprehensive work of reference.

Many mineralogists are now making use of X-ray methods, and their interests may lie, for example, in mineral identification, the variations of spacings or intensities in solid solution series, cell parameters, twinning, micro-radiography, X-ray fluorescence, textures, or partial or complete structure determination. There is much in the three volumes to aid such studies, and they can be highly recommended to any diffraction-minded mineralogist. The technical production of the book is of very high quality, and even without the concession to certain individuals, there is good value for the price. Such an economic price has been made possible by subsidy by various organizations, and by the voluntary work by many contributors, to all of whom the users of these volumes are indebted.

J. Z.