

BOOK REVIEWS

DREYER (W.) *Materialverhalten anistropen Festkörper* (Applied Mineralogy, vol. 7). Wien and New York (Springer-Verlag), 295 pp., 121 figs., 1974. Price s.894 (DM 125.00; \$51.30).

This book will be valuable to those mineralogists who are concerned with the thermal expansion, conduction (thermal and electrical), and dielectric properties of minerals. A distinctive feature of the book is its emphasis on the properties of polycrystalline aggregates both natural and artificial.

The first part of the book gives the comprehensive mathematical treatment which applies to single-crystals and to random arrangements of crystal grains in a composite block. Then the physical properties mentioned above are discussed starting with triclinic crystals and going through the systems of symmetry up to the cubic system. Examples are given of the measurements made and the derivation from these measurements of the principal coefficients of thermal expansion, etc., and the orientation relative to the external faces of the principal axes. The tables of the physical constants are comprehensive and are classified by the crystal system in every case. There is an extensive bibliography.

A few errors have been noted. On page 87 ' $\sqrt{3}$ ' has been omitted in equations 738/740 and '3' has been omitted in equation 741. On page 88 the data given do not lead to the values derived for the magnitudes of the principal coefficients nor to the directions of the principal axes. On page 92 the formula given does not lead to the calculated value of the coefficient of expansion (771).

Praise must be given to the printer and draughtsman for the clear type and excellent drawings. The book will be valuable to all those who have occasion to study second-order tensor properties in single-crystals or in rocks consisting mainly of one mineral.

W. A. WOOSTER

HEY (M. H.) and EMBREY (P. G.). *A second appendix to the second edition of an index of mineral species and varieties arranged chemically*. London (British Mus. [Natur. Hist.]), xii+168 pp., 1974. Price £5.50.

The first appendix [M.A. 16-605] to the second edition of this Index [M.A. 11-117] incorporated data in the literature up to the end of 1962; this second appendix includes material up to the end of 1972; the style is compatible with the earlier work. In addition to addenda to the chemical index and to the alphabetical index of accepted mineral names and synonyms, unnamed minerals are arranged by locality of origin and an alphabetical list of authors of unnamed minerals (1889-1972) is also given.

R. A. H.

PIES (W.) and WEISS (A.). *Crystal structure data of inorganic compounds*. Part bI. *Key elements O, S, Se, Te. Substance numbers bI... bI817* (Landolt-Börnstein:

Numerical Data and Functional Relationships in Science and Technology. New Series, Group III: *Crystal and Solid State Physics*, Vol. 7). Berlin, Heidelberg, and New York (Springer-Verlag), 1975. xxiii+674 pp., 33 figs. Price DM 560.00 (\$229.60).

This is another of the series of volumes in this great work. Group III covers Crystal and Solid State Physics; Volume 7 is Crystal Structure Data of Inorganic Compounds; Part b deals with the elements O, S, Se, Te, and bl is the first volume of such compounds. In Volume 7 there are to be Parts a to h, but we have to wait for the last to get the index for all of them. The data are essential and the production is beautiful, so that any argument can only be concerned with the best method of making such data available. In view of the enormous mass of information it may be thought that the time has come for this to be stored in a computer, from which the individual user could have a card index printed out to cover the compounds of interest to him.

N. F. M. H.

BARDET (M. G.). *Géologie du diamant. Première partie: Généralités*. Mem. Bur. de Recherches Géol. Minières (Paris), no. 83, 1974. 232 pp., 18 figs., 3 pls., 1 sketch-map. Price FF 224.70.

This first of two volumes on all aspects of the geology of diamond may be considered to have three distinct sections. The first section is broadly on the mineralogy of diamond, with chapters on its properties, its use as a function of these properties, and on its synthesis and occurrence in meteorites. The last section is concerned with the characteristics of detrital diamonds, their prospection, and with an evaluation of the economics of diamond production and of world reserves. But it will be with the central section of this volume that geologists will be most concerned, dealing as it does with the problems of the mineralogy, genesis, and tectonic setting of kimberlites. There are chapters on the petrography, geochemistry, and mineralogy of kimberlites, on the genesis of diamond in kimberlite, and on the emplacement, origin, and genesis of kimberlite, and its relation to platform magmatism.

The genesis of kimberlites is considered here in terms of the 'cold mantle', i.e. in an environment at great depth combining high pressures with relatively low temperatures. Such conditions are only realized under ancient stable cratons, generally after the upper part of the underlying mantle has given rise to tholeiitic basaltic magma, thus reducing the heat flux so that after an interval (of several tens of millions of years) the isotherms are considerably lower and the thermal convective energy is converted to mechanical energy, producing the bulging of the crust found at kimberlitic sites. When the kimberlitic magma charged with gas forces a passage through narrow cracks, which it erodes and enlarges, it carries along debris of some of the surrounding material. The conservation of the high pressures necessary for diamonds is only obtained if the mechanical resistance of the surrounding material is sufficient, i.e. in the centre of a rigid cratonized zone. The importance of the time factor is