Another paper of interest deals with the decomposition of solid solutions of the type $2CaO.(Al,Fe)_2O_3$ at high temperatures. Of more technological significance are papers on reactions and decomposition of foreign inclusions in pottery bodies, the influence of volatile substances present in the blast furnace on carbon monoxide attack on the refractories, and problems encountered in preparing vacuum-tight seals on alumina products capable of withstanding high temperatures.

In section IV, White surveys the factors determining the structure of polyphase ceramics. In particular he is concerned with chrome-magnesite refractories and the nature of the periclase bond. Recent investigations have shown that in magnesia–monticellite mixtures fired above the melting point of monticellite the equilibrium dihedral angle found in the liquid phase at junctions between periclase grains is increased by additions of Cr_2O_3 and decreased by addition of Fe_2O_3. Consequently Cr_2O_3 decreases the tendency of silicate to penetrate between the periclase grains, Fe_2O_3 having the opposite effect. Other papers in this group are concerned with connected porosity in dense sintered oxides at high temperatures, the thermodynamic order of phase-transition in rock-salt and spinel type lithium ferrites, aspects of the surface energy of ceramics, strains in glazed ceramic products, solid oxide electrolytes, effects of method of preparing titanium monoxide on its electrical properties, and on glass ceramics. This last subject is one that is exercising the minds of many workers in the ceramics and glass industries; the development of these products by controlled nucleation and crystal growth from a glassy matrix has introduced a new factor into the field of heat-resistant materials and, in effect, is a by-product of the space research programme.

Section II, which is of no immediate interest to the mineralogist, contains papers of equal merit; these should prove of value to workers more directly concerned with the ceramic field.

The present volume, which is admirably produced and illustrated, maintains the high standard of its predecessor. D. A. HOLDRIDGE

VANDERS (IRIS) and KERR (PAUL F.). *Mineralogical recognition*. New York (Wiley), xiii+316 pp., 247 figs., 49 coloured plates. 1967. Price 95*s*.

The aim of the book is to provide a text for the identification of minerals in hand specimens. In the preface to the book it is stated that it is intended for '. . . the mineral collector, the nonprofessional reader with an interest in minerals, the beginning student of mineral science, the

geologist or the scientist in related fields'. A book of this sort is always difficult to assess since it cannot be fitted easily into the context of the usual curriculum in crystallography and mineralogy in this country. Its price also puts it out of the range of many students. In an effort to reconcile the requirements of the amateur and budding professional in one book many discussions go beyond the realm of the former but never quite far enough for the latter. Chapters 1–6 dealing with the early exploitation and use of minerals, crystal growth, crystal chemistry, crystallography, physical properties, and chemical tests are very well written and are of a much higher standard than several other recent books of this type. The chapter on crystal chemistry is an excellent introduction to the subject and in the following section on crystal morphology the various crystal classes are adequately described. The treatment of crystal indices is rather perfunctory and, although Hermann–Mauguin notation is used throughout the book, it is not explained in the text. The remainder of the book consists of a chapter (pp. 107–53) devoted to mineral recognition tables based upon colour, habit, aggregation, cleavage, etc., and the main descriptive mineral chapter (pp. 154–299) describing minerals in terms of macroscopic crystal, physical, and chemical properties. There is a brief appendix (five pages) on meteorites. There are forty-nine excellent colour plates, each containing four to six different minerals. Even unpromising material such as limonite are skilfully reproduced. While colour plates of museum-quality material may interest the amateur collector with limited access to specimens, they are of doubtful practical value to the professional. T. W. B.