BOOK REVIEWS

BARTH (T. F. W.). *Feldspars*. New York (Wiley-Interscience), 1969. xii+261 pp., 147 figs. Price £6. 16*s*.

Professor Barth's contributions to the feldspars extend over more than forty years and he is generally recognized as being one of the world's leading authoritites on this important mineral group. A book on this topic written by Professor Barth is therefore extremely welcome.

The book is divided into chapters on Mineralogy and Classification, Pseudosymmetry and Twinning, Structure, Physical Properties, Thermodynamic Properties, and finally Historical Notes and Old Names.

Chapter 1 deals with potassium feldspar, sodium feldspar, and anorthite separately and then with the alkali series, the plagioclase series, and the ternary feldspars. The treatment of each group here is somewhat brief because topics like structure and twinning are dealt with in later chapters, but there is considerable detail on perthites in this chapter. There is a very extensive list of references at the end of the chapter.

The chapter on twinning is an excellent and up-to-date summary of knowledge of twinning in this mineral group and includes considerable detail on the rhombic section.

The structure of the alkali feldspars is dealt with in detail. As far back as 1934 Barth suggested that the difference between monoclinic and triclinic K-feldspars was due to the ordered distribution of Al and Si in the triclinic form and disordered arrangement in the monoclinic form. This has since been established to be the correct explanation. In comparison with the alkali feldspars the plagioclases are treated rather briefly and this is perhaps not unexpected since his own interests have been mainly in the alkali feldspars. However, it is the reveiwer's opinion that in a book of this nature five pages is insufficient to cover the complexities that have been reported in the plagioclase feldspar structures in recent years.

The chapter on physical properties deals with hardness, density of crystals and glasses, thermal expansion, and elastic constants. One surprising feature of this chapter is the way in which refractive indices of the crystals are neglected. A table of RIs of the three feldspar end-members, both low- and high-temperature forms, is presented but otherwise RI is not discussed. There are no entries for extinction angle and optic axial angle in the index and indeed these are not mentioned in the book.

In his introduction Professor Barth explains that the book by Burri, Parker, and Wenk on *Die optische Orientierung der Plagioclase* published in 1967 [*Min. Mag.* **36**, 754] means that further treatment is therefore unnecessary. The reviewer does not agree. It is still possible to obtain a rough idea of the composition of plagioclases by refractive index and extinction angle measurements and a very accurate refractive index measurement of an alkali feldspar can be used to determine an approximate composition so that the purchaser of a book on *Feldspars* might expect to find at least some treatment of these properties without having to buy another book on Universal Stage methods. This is the chief criticism of this book.

The chapter on thermodynamic properties of feldspars in addition to containing the known thermodynamic constants for feldspar includes a large number of phase diagrams, which show phase relations in systems containing feldspars. The final chapter consists of historical notes and old names and is a useful concluding chapter.

The book is beautifully printed on a high quality paper on which the ten photomicrographs reproduce very well. The price for a book of this size at 6*d.* per page is excessive and in the reviewer's opinion authors should be more careful in their selection of publishers. Some publishers apparently cannot discriminate between a book that will have very limited sale and therefore must be priced very highly and a book that has such wide appeal that it can make a good profit without excessive cost.

W. S. MACKENZIE

SAVITSKIĬ (E. M.), POLYAKOVA (V. P.), and TYLKINA (M. A.). *Palladium Alloys.* Translated by R. E. Hammond. New York (Primary Sources), 1969. vi+212 pp., 129 figs. Price $24.50.

The main part of this monograph is devoted to the phase diagrams and the physical and electrical properties of binary and ternary alloys containing palladium. Other sections deal with the uses of the metal and its alloys, the extraction of palladium from copper–nickel sulphide ores, and the chemical and physical properties of the metal itself. Since the U.S.S.R. is responsible for about half of the present world production of platinum metals, it is appropriate that the authors should be Russian, and some of the work, particularly on the alloys of palladium with other transition metals, is their own work, unpublished hitherto. The presentation is rather too uncritical, but the book provides a most useful, if costly, compendium of information, particularly from Russian sources.

P. S. ROGERS

SCIENTIFIC AMERICAN. *Readings in the Earth Sciences.* Vols. 1 and 2. San Francisco (W. H. Freeman & Co.), 1969. Vol. 1, xii+305 pp. Vol. 2, xii+316 pp. Price 94*s.* each volume.

For many years *Scientific American* has made a major literary and scientific contribution by keeping both scientists and non-scientists informed of the latest developments in all fields of science. In these two volumes 74 of the articles that have appeared in the last 20 years on various aspects of the Earth Sciences have been collected together and reprinted in their original format complete with the original superb illustrations. Articles of direct interest to mineralogists and petrologists include those on 'Astroblemes' by R. S. Dietz, 'Tektites' by V. E. Barnes, 'Ancient fluids in crystals' by Edwin Roedder, 'Volcanoes' by Howell Williams, and 'Continental drift' by J. Tuzo Wilson, but these volumes will be used no doubt even more to read up on