Chemistry and Mineralogy of Soils. It deals with the physical chemistry of clay–water systems, the mineralogy of the coarser parts of soils, the colloid constituents, the organic matter, and then the physical properties of the soils.

The book is of a very special nature and has been written, by one of the world's leading exponents, for the specialist in the soil field. From the mineralogist's point of view the chapters on mineralogy are a well-written summary of clay minerals and silicate chemistry. The chapters on the clay–water systems where cation exchange, vapour pressure, osmotic pressure, Donnan equilibrium, suspension effects, hydrolysis, electrophoresis, and oxidation and liquid junction potentials are dealt with, are useful reading for the mineralogist. The diagrams dealing with the atomic structure of the silicate minerals are well produced and it is a pity that the electron micrographs used were not of this high standard.

The author is to be complimented on bringing together many diverse subjects, and volume II is awaited with anticipation.

H. G. MIDGLEY

PELLETIER (R. A.). *Mineral resources of South-Central Africa.* Cape Town (Oxford University Press), 1964. 277 pp., 56 maps, figures, and plates. Price: 70*s*.

This book is directed towards a less specialized reader than the recently published 'Mineral Resources of Africa' by de Kun, and also covers a more restricted part of the continent. In fact, the title is somewhat misleading: South, Central, and Eastern Africa would have been more appropriate. However, the author includes an outline map of the area on the book-cover to guide the reader.

The whole book is profusely illustrated with black-and-white maps and sections of excellent standard, with numerous photographs, including two in colour, and also a folding litho-coloured geological map of Africa south of Rhodesia. The maps are well selected and include index maps of regional areas, showing mineral distribution and general regional geology; and also more detailed maps of individual mining areas, and in places, generalized mine plans and sections through them. The large format of the book prevents the illustrations from being finicky and crowded.

The text first describes the geology of the region as a whole and indicates its mineral production and potential: it also includes a table of correlations of formations between the various countries, which many may disagree with. There is also a chapter on the general and the mining

history from pre-European times. The longest chapter describes the geology and mineral resources of the Republic of South Africa and the adjacent protectorates. Gold, not unnaturally, gets the greatest coverage in this chapter, as it does in the rest of the book. This reflects the author's own long connexion with New Consolidated Gold Fields. Rhodesia, Zambia, and Malawi follow, with adequate descriptions of gold and copper mineralization. There are then chapters on the Congo Republic (Leopoldville), Portuguese possessions, and East Africa. In this latter part of the book there is decreasing detail of descriptions. Perhaps this is justified in that the mineral resources are of lesser importance than those in the countries of the south, but one does feel that Tanzania diamonds are worth more than one page, and that carbonatites could have been treated in greater geological detail. There is a final chapter on mineral exploration and the author stresses the importance of adequate geological maps on which to base prospecting programmes of all sizes, and also the dependence of modern prospecting on geologists.

This reviewer found the book most interesting and it should appeal to a wide readership. It should not be regarded as a specialized book on the economic geology of Africa and students, in particular, could obtain much from it. J. W. BARNES

SINKANKAS (John). *Mineralogy for Amateurs.* Princeton, New Jersey (D. van Nostrand Company, Inc.), 1964. 608 pp., 327 figs. Price: 97*s*.

An excellent introduction for anyone interested in mineralogy; the text is easily understandable and well written. The line drawings are well drawn, abundant, and always clearly instructive. All the plates are very well selected and clear.

A brief outline of the atomic structure of minerals is given as a foundation to the study; atoms and molecules are described in their relationship to crystal formation and the important silicate structures are described and well illustrated. The structure and meaning of chemical formulae are expressed in simple terms and the classification of minerals by ions on the Berzelian System is expounded.

The growth of crystals from melts, solution, and vapour precedes the discussion of growth rates, the development of crystal faces, the development of imperfections of form, and the formation of crystal aggregates and twin crystals. Crystallography is treated simply from the morphological standpoint. The explanations of crystal axes, axial ratios, and crystal symmetry are clearly expressed. The essential forms of the