

Book Reviews

Works intended for notice in this column should be sent direct to the Editor (A. J. C. Wilson, Department of Physics, University College, Cathays Park, Cardiff, Great Britain). As far as practicable books will be reviewed in a country different from that of publication.

Mineralogy: Concepts, Descriptions, Determinations. By L. G. BERRY and BRIAN MASON. Pp. 612+xi, with 265 figures and 34 tables (excluding 26 pp. of determinative tables). San Francisco: W. H. Freeman. 1959. \$8.75.

As indicated by the title this book has three parts. In the first section on concepts, there are seven chapters devoted to introductory material, crystallography, the physics, chemistry and genesis of minerals, determinative methods and the systematics of mineralogy. In the next section on mineral description, about two hundred common species are considered in some detail in eight chapters arranged according to an adaptation of the Berzelius system. Finally, the last section contains determinative tables with some notes upon their use. The book is well-produced with clear diagrams and half-tone plates to illustrate the text; there is a good index, and the book has very few misprints or other small errors.

In the first part, the elementary concepts of crystallography are approached from the ideas of space lattices rather than from a morphological viewpoint, an innovation which is to be highly commended. In the same chapter there is an excellent summary of the effects and causes of twinning in crystals, a subject rather neglected in some other undergraduate text-books. Indeed the seven chapters of this part are, in the main, very well developed; special mention must be made of the chemical approach, particularly in the section on the genesis of minerals. For each of the mineral species described in the second part, the crystal system and class, axial elements, lattice type, cell dimensions and content, hardness, density, colour, streak, lustre, cleavage, *etc.*, are listed, together with brief comments upon habit, occurrence and alteration. The most striking feature of these descriptions is the omission of any mention of optical properties. Some comment upon this omission is made by the authors in the preface in which they suggest that the inclusion of optical properties is unnecessary because 'most colleges special courses in optical mineralogy follow the course in general mineralogy and that the average field geologist seldom has access to a petrographic microscope'. Leaving aside the question of the order in which courses shall be arranged, the serious student of mineralogy must become familiar with thin-section and crushed-fragment optical determination. In order to do this, he must supplement the present book with other texts containing optical descriptions; these books will already contain many of the more useful properties described in the present volume, which will, so far as this section is concerned, become superfluous. Further, if the present descriptions are designed to help the average field geologist, it is difficult to see what justification there can be for the inclusion of structural data with each description. The determinative tables of the third part are based on lustre and hardness with the minerals in each category listed in order of increasing density; they are laid out for

convenient use with a page reference to the full description of the mineral given in the second part.

Although the book is designed to satisfy the requirements of an undergraduate course in mineralogy, it is difficult to feel that it will do so except within a limited field. The many excellent features do not compensate for the disappointment that the descriptive sections are unbalanced by the decision that the important optical properties are to be omitted. It is most strongly to be urged that at the earliest possible opportunity this should be rectified by a revision of the text of the second part. Then it will be possible to recommend this book as suitable in all ways for undergraduate courses, and it will occupy the high place it at present almost achieves in the esteem of teachers of mineralogy.

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Optical Mineralogy. By PAUL F. KERR. 3rd ed. (Previous editions by AUSTIN F. ROGERS and PAUL F. KERR). P. xiv + 442. New York, London, Toronto: McGraw-Hill. 1959. Price 66s.

'Rogers & Kerr' has been widely accepted for many years as a standard text on the optical properties of minerals and their study under the polarizing microscope. Owing to the death of the senior author in 1957, the preparation of this new edition has been undertaken by Prof. Kerr alone. Its appearance—seventeen years after its predecessor—will be warmly welcomed.

The general character of the book has not been changed, and its length has not been much increased. The mineral descriptions, illustrated by photomicrographs of typical specimens and by drawings showing optic orientations, are in the same clear and concise form, but they have all been reviewed and brought up to date, and some new ones added. Descriptions of opaque minerals have been reduced in order to make room for other material. A number of new references have been added, thereby extending the scope of the work without adding appreciably to its length.

New features in the first part of the book, which deals as before with principles and methods, include a short section on phase-contrast illumination and a chapter on the universal stage. The chapter on the polarizing microscope contains descriptions and plates of typical modern American and German instruments and ancillary equipment.

There are, however, a few errors and rather prominent omissions, and some sections on which the treatment could, it is felt, have been made a little clearer. In dealing with the compensator for measuring small retardations, which is shown in Fig. 2-20, it is stated that the $\lambda/30$ mica plate is *tilted*, like the calcite plate in a Berek compensator. In fact the instrument figured is the so-