

Freuden eine vermehrte Berücksichtigung der in neuerer Zeit vielfach ganz zu Unrecht vernachlässigten konoskopischen Methoden. Dabei werden interessanterweise zur Auswertung der Interferenzbilder Polarkoordinaten an Stelle der bis jetzt ausschliesslich benutzen rechtwinkligen eingeführt. Das Kapitel über die U-Tischmethoden ist ebenfalls wesentlich erweitert, wobei u. a. ein neues Verfahren für die Berücksichtigung des Brechungsunterschiedes zwischen Kristall und Segment angegeben wird. Der Abschnitt über die Auflichtmethoden enthält eine ausgezeichnete Zusammenfassung über die von Berek entwickelten quantitativen Methoden. In apparativer Hinsicht beschränkt sich die Darstellung auf die Erzeugnisse der Firma Leitz-Wetzlar, was jedoch in Anbetracht des hervorragenden Anteils, welcher Berek an deren Schaffung hatte, sowie angesichts der Stellung der Herausgeber durchaus verständlich ist. Das Buch kann bestens empfohlen werden. Für eine Neuauflage wünschte sich der Referent die Zitierung der neuern Spezialliteratur.

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**Verfärbung und Lumineszenz. Beiträge zur Mineralphysik.** By K. PRZIBRAM. Pp. xiii+275 with 69 figs. Vienna: Springer. 1953. Price S 210; DM. 34·70; \$8·25; S.fr. 35·50; 59s.

This book could hardly have been written by another author. Przibram is by profession and training a physicist, but a great part of his interest and love was always directed towards mineralogy. The physicist's contribution to the book is rather an introduction to the second part, in which he applies his knowledge and experience to problems of mineralogy.

Przibram does not have to excuse himself, as he does in the preface, for putting great emphasis on the research done in his own laboratory. As a scientist who has specialized in the field for more than thirty years and was a pioneer in it long before solid-state physics became the fashion, he is well entitled to present the results of his life work. And in doing it, by no means does he neglect the contributions from other sides: he is full of praise for the achievements of the Göttingen school, refers to Seitz and Mott for theoretical interpretation, etc. For the reader who is not at home in the subject, it is certainly useful to learn about the results obtained by authors who are not so frequently quoted in the literature, not only by those of the Vienna Radium Institut, but many others such as Röntgen & Joffe, Rexer, Smekal, Doelter, etc. The very complete bibliography at the end of the volume contains 923 references.

Much space in each chapter is given over to the historical development, and sometimes the enumeration of partially contradicting statements may become a little confusing. The chapter dealing with experimental methods is altogether essentially of historical interest and will not be very helpful to the reader accustomed to modern equipment, except to teach him how, with relatively simple means, important discoveries can be made, or at least could be made. There were no photomultipliers, no recording spectrophotometers, no electronics, no Co<sup>60</sup>  $\gamma$

sources equivalent to many hundred grams of radium, although in the Vienna Radium Institut, of which Przibram was a distinguished member for many years, at least more than 0·5 g. of radium metal were at hand. A home made monochromator in connection with alkali photocells and a string electrometer was the most accomplished measuring instrument—this already far superior to the earlier visual spectrophotometer.

As mentioned above, the book is divided into two parts of about equal length, the first of which deals with the phenomena observed in artificially colored crystals: experimental methods, formation of color centers under various conditions, photoelectric effect, theoretical interpretation of color centers, colored glasses, coloration by colloids, and luminescence. Referring to more detailed books, the chapter on luminescence gives a short survey of this large domain. Without increasing its length, much could have been gained in clearness by inserting a figure representing the energy-level scheme instead of the verbal explanation on p. 95; such a figure would be even more useful for the transitions occurring in 'radiophotoluminescence' which are very incompletely explained by the level scheme given in the text on p. 109. Otherwise, it is fully justified that relatively much space of the luminescence chapter is devoted to radioluminescence, radiothermoluminescence (including the method of glow curves developed in Przibram's Institut long before it came to general use) and radiophotoluminescence—phenomena which were among the main subjects studied in the Vienna Radium Institut.

The second part of the book begins with a discussion of the possibility that natural minerals owe their color to the presence of radioactive elements in their interiors or in the surrounding soil. Two thirds of this part are devoted to two paradigms: rock salt and fluorite; in either case numerous samples obtained from various locations are discussed with respect to their coloration, morphology, radioactivity of their original surroundings, presence of impurities or colloidal particles, etc. Other minerals, such as quartz, corundum, calcite, various sulfates, nitrates, phosphates and silicates, are dealt with in shorter sections. A last chapter deals with haloes in natural minerals and their probable origin.

The book is printed on excellent paper; the reproduction of the figures, many of them in half tone after original photographs, could not be better.

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**Tafeln zum Bestimmen der Minerale nach äusseren Kennzeichen.** By H. v. PHILIPSBORN. Pp. xxvii+244 with 10 plates and 289 figs. Stuttgart: Schweizerbart'sche Verlagsbuchhandlung. 1953. Price DM. 17·00.

The main portion of this text, pp. 1–167, consists of tables for the determination of minerals by means of easily recognizable physical properties, such as luster, color, crystallization, streak, and hardness. These tables are an extension of those by Albin Weisbach, first published in 1866, which passed through thirteen editions.

Friederick Kolbeck was responsible for the sixth to the thirteenth (1923) editions. The book is dedicated to these mineralogists who pioneered in this method for the determination of minerals.

There are also helpful determinative tables based on (1) morphological features, pp. 168-184, supplemented by 289 crystal drawings; (2) chemical properties, pp. 185-218; and (3) microscopic-optical properties, pp. 219-236. The various terms, properties, and methods used in the

tables are amply explained in the Introduction, pp. xi-xxvii, which also includes a rather extensive bibliography. There is a good index.

The author has brought together in a single volume very useful tables for the rapid determination of minerals.

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## Books Received

*The undermentioned works have been received by the Editors. Mention here does not preclude review at a later date.*

**Gmelins Handbuch der anorganischen Chemie. Schwefel A2.** Pp. 450. Weinheim/Bergstrasse: Verlag Chemie. 8th ed. 1953. Price DM. 244.

**Gmelins Handbuch der anorganischen Chemie. Schwefel B1.** Pp. 372 with 45 figs. Weinheim/Bergstrasse: Verlag Chemie. 1953. Price DM. 204.

**General Chemistry.** By L. PAULING. Pp. xii+710 with 193 figs. and 2 plates. San Francisco: Freeman. 2nd ed. 1953. Price \$6.00; 51s.

**Organic Crystals and Molecules.** By J. M. ROBERTSON. Pp. xi+340 with 132 figs. Ithaca: Cornell University Press; London: Geoffrey Cumberlege. 1953. Price \$5.00; 32s. 6d.

**Tafeln zum Bestimmen der Minerale nach äusseren Kennzeichen.** By H. v. PHILIPSBORN. Pp. xxvii+244 with 289 figs. Stuttgart: Schweizerbart'sche Verlagsbuchhandlung. 1953. Price DM. 17.

**The Crystalline State. III. The Determination of Crystal Structures.** By H. LIPSON and W. COCHRAN. Pp. ix+344 with 305 figs. and 9 plates. London: Bell. 1953. Price 50s.

**Dislocations in Crystals.** By W. T. READ, JR. Pp. xvii+228 with many figs. New York; Toronto; London: McGraw-Hill. 1953. Price \$5.00; 36s.

**Structure Reports for 1945-1946.** Edited by A. J. C. WILSON, C. S. BARRETT, J. M. BIJVOET and J. M. ROBERTSON. Pp. viii+325 with many figs. Published for the International Union of Crystallography. Utrecht: N.V. A. Oosthoek's Uitgevers Mij. 1953. Price 45 Dutch florins.

**Structure and Properties of Solid Surfaces.** Edited by R. GOMER and C. S. SMITH. Pp. xiii+491 with many figs. and tables. Chicago: University Press. 1953. Price \$8.50.

**Solution of the Phase Problem. I. The Centrosymmetric Crystal.** A. C. A. Monograph No. 3. By H. HAUPTMAN and J. KARLE. Pp. xvi+87. Wilmington: American Crystallographic Association. Price \$1.50.

**Twinning and Diffusionless Transformations in Metals.** By E. O. HALL. Pp. ix+181 with 97 figs. and many tables. London: Butterworths. 1954. Price 30s.

**Les Constantes Physiques des Composés Organiques Cristallisés.** By J. TIMMERMANS. Pp. 556 with 80 figs. and many tables. Paris: Masson. 1953. Price Frs. 5,200.

**Dislocations and Plastic Flow in Crystals.** By A. H. COTTRELL. Pp. x+223. Oxford: University Press. 1953. Price 25s; \$5.00.