BOOK REVIEWS

OPTICAL MINERALOGY by AUSTIN F. ROGERS AND PAUL F. KERR. xvi+389 pages, 369 figures. McGraw-Hill Book Company, New York, **1942.** Price $3.75.

This is a second edition of the well known Thin-Section Mineralogy by the same authors. The change in title was made because Thin-Section Mineralogy found application in other forms of microscopical identification of minerals with the microscope. In the preface to the second edition the authors state that many explanations of optical properties have been rewritten, new diagrams have been added and descriptions of a number of mineral groups have been rewritten.

It is apparent to one familiar with Thin-Section Mineralogy that the authors have made a thorough revision, although the general form of the book is the same. Over 100 new figures have been added, including diagrams explaining optical phenomena, orientation diagrams, and excellent photomicrographs of minerals. A new chapter on the observation of mineral fragments includes directions for the use of the immersion method and data on the preparation, and care of immersion media. To the identification tables have been added charts showing the range of refractive indices of isotropic, uniaxial, and biaxial minerals and the range of axial angles of biaxial minerals.

In Part II, Descriptions of Individual Minerals and Mineraloids, some groups of minerals have been revised and expanded to list separately species grouped in the previous edition. An example is *pigeonite* now described separately but formerly included with *augite*. The pyroxenes, amphiboles, olivines and chlorites have thus been expanded. In addition a few individual minerals have been added. Descriptions of monoclinic and triclinic minerals include the axial angles between the crystal axes. The list of names of minerals include several new ones, such as *lamprobolite* suggested by the senior author for basaltic hornblende and *serpophite* used by Lodochnikov for structureless serpentine with weak birefrigence.

Little fault can be found with this book. It is planned as a text for a first course in optical mineralogy and as such admirably meets its purpose. The reviewer would prefer that the optics of uniaxial crystals be separated from those of biaxial crystals and that isomorphous relations of some groups of minerals be more closely related to specific optical properties. He also feels that the description of the Berek compensator is somewhat superfluous because this apparatus is not available to most beginning classes in optical mineralogy. Students occasionally are puzzled by orientation diagrams arranged with the vertical axis placed in a horizontal position in the book, an arrangement found in this edition as well as in the first edition. The publisher has done his usual good job of book making and the cost of the book is not unduly high.

JOHN T. LONSDALE

DIAMOND AND GEM STONE INDUSTRIAL PRODUCTION by PAUL GRODZINSKI. Octavo, 256 pages, with 183 figures and 32 tables. N. A. G. Press, Ltd., London, **1942.**

This is the first book in English to discuss the cutting of the diamond for both gem stone and industrial purposes. It is well known that the great progress which has been made in recent years in precision machining has been largely due to the use of diamond-set tools, and that the more rapid drawing of metallic wires and filaments which accurately meet prescribed specifications has been made possible through the increased use of wire drawing diamond dies. The use of diamonds for these purposes involves careful preparation and accurate shaping which are not necessary with carbonado and boart as used in diamond drill bits.

Up to the present time the only volume available dealing with the use of the diamond

in industry has been Grodzinski's *Diamant-Werkzeuge*, which was published in Berlin in 1936. As is easily understandable, this volume has had little circulation in this country. However, Grodzinski's new text, *Diamond and Gem Stone Industrial Production*, which has been prepared to meet the increasing demand for authoritative information in this important field, undoubtedly will be used extensively. This should be the case in Great Britain and the United States where the enormous defense programs call for greatly increased production of diamond-set tools and wire drawing diamond dies, especially since the principal source of the latter was formerly France and the Low Countries.

The book contains fourteen chapters, the first eight dealing with general methods while the last six discuss special manufacturing methods. There are also three appendixes containing very helpful tables, and a short selected bibliography. While the main emphasis is on the diamond, the cutting and polishing of other gem stones receive some attention.

The treatment is general in character and does not assume an extensive background as far as the crystallography and mineralogy of the diamond are concerned, or considerable experience in the cutting processes. In some instances the descriptions of the construction and the functioning of the machines which are illustrated are too concise and are not clear. It is to be regretted that more care was not exercised in orienting properly the various crystal drawings. This applies especially to Figs. 6, 11, 86, 87, and 88A.

The N. A. G. Press, Ltd., London, is to be congratulated in bringing out this useful volume during this very critical war period.

EDWARD H. KRAUS

PROCEEDINGS OF SOCIETIES

PHILADELPHIA MINERALOGICAL SOCIETY

The Academy of Natural Sciences of Philadelphia, November 6, 1941

Dr. W. Hersey Thomas presided, with 83 members and visitors present. Mr. Charles R. Toothaker, Curator of the Commercial Museum, addressed the society on "Curious Uses of Minerals."

December 4, 1941

Dr. W. Hersey Thomas presided with 73 members and visitors present.

Dr. E. G. Zies of the Geophysical Laboratory addressed the society on "Volcanos and Fumaroles."

January 8, 1942

Dr. W. Hersey Thomas presided with 43 members and visitors present. President Thomas introduced the speaker of the evening, Dr. Joseph Gillson, who spoke on "The Relation of Ilmenite Sands of Brazil to the Physiography of Brazil" Dr. Gillson gave a review of his experiences and geologic discoveries on a recent trip to the eastern coast of Brazil. His account covered the region along the coast from Rio de Janeiro northward about 700 miles.

The history of the land surface development and the relation of the land to the sea has been the critical factor in the development of the ilmenite deposits. At the end of the Cretaceous period there was a deep soil zone on the land. With the uplift, the first erosion carried this soil down to the sea so that the bottom of the Tertiary sedimentary deposits is formed of the material from this soil zone. It is in these bottom layers that the ilmenite was first deposited. Reuplift and erosion of the Tertiary sands caused a reworking of the sands by the waves and by off-shore currents. Being heavy the ilmenite was deposited on the beaches where waves were attacking the Tertiary cliffs, or it was concentrated in off-shore bars that were being built up across the mouths of the estuaries. The latest uplift has