

## Book Reviews

*Works intended for notice in this column should be sent direct to the Editor (P. P. Ewald, Polytechnic Institute of Brooklyn, 99 Livingston Street, Brooklyn 2, N.Y., U.S.A.). As far as practicable books will be reviewed in a country different from that of publication.*

**Tabellen zur optischen Bestimmung der gesteinsbildenden Minerale.** By W. E. TRÖGER. Pp. xi+147, with 256 figs. and 17 tables. Stuttgart: Schweizerbart'sche Verlagsbuchhandlung. 1952. Price DM. 27.80.

The optical and chemical data published in the last twenty-five years have been correlated in the hope of presenting them in an up-to-date text-book, but conditions in post-war Germany have necessitated a restriction of this plan to publication in tabular form without critical text and with key references only. The resulting volume is to be considered as a new form of Mügge's *Hilfstabellen zur mikroskopischen Mineralbestimmung* in *Die Physiographie der petrographisch-wichtigen Mineralien* of Rosenbusch.

The 234 minerals thus tabulated are numbered for cross reference and divided, first, into the water-soluble minerals, then into the four main optical groups: opaque, isotropic, uniaxial and biaxial. These, in their turn, are arranged on the chemical and structural basis of the classification of Strunz (*Mineralogische Tabellen*, Leipzig, 1949). If dealing with a completely unknown mineral, reference is made to the initial key diagram in which the mean index of refraction is plotted against the double refraction. This gives sufficient indication as to which tables to consult. Useful data on the paragenesis of individual minerals are given in the tables, and it is suggested that the information in this column might have been adapted to make the basis of a second key table. Such a paragenetic key table would be particularly useful to students and might even be of service to the compiler, for rare accessories in igneous rocks are amply listed, but there are notable omissions of some mineral phases of primary significance in the study of metamorphic rocks: spurrite, for example, is included, but not tilleyite, rankinite or larnite.

Each mineral is, in general, featured in three ways: in a table, as a drawing and, when subject to chemical variation, in graphical plots. Once the abbreviations have been mastered, and the eye adjusted to the neat and space-saving hand italics, the tables are seen to contain a wealth of information compressed into their ten columns. While recognizing that this is primarily a work on the optics of minerals, the insertion of the usual non-optical properties prompts the question why X-ray data should be ignored, for, in such cases as the cell sizes of garnets and spinels, and the 201 spacings of the soda-potash feldspars, X-rays analysis is at least as important as the determination of the density. The chemical staining tests for nepheline and orthoclase are also omitted.

The convenient arrangement of the illustrations is the main feature of the book. 'Nothing' says the author 'is so conducive to a rapid understanding of a mineral species as a good crystal drawing in parallel perspective . . .', and here are hundreds of them, the materialization of all the doodles a petrographer ever pencilled beside his microscope, but, we are assured, carefully based on those

in Goldschmidt's *Atlas* and with the necessary optics added. (These visual aids extend even to the determinative lists where the columns are headed by the appropriate arrangement of isogyres and vibration directions.) Most of the drawings for the uniaxial minerals are so simple as not to warrant inclusion and their space might more usefully have been given to the biaxial water-soluble minerals, none of which is illustrated. The care is, perhaps a little overdone, for in such diagrams the presence of any but the simplest crystallographic forms is irrelevant to the petrographer's purpose, and their inclusion often hinders the attainment of the perception intended. When necessary, diagrams of oriented sections and stereograms are also supplied, and here it is felt that an opportunity has been missed by not emphasizing in the drawing of dolomite the relation between the twin lamellae and the cleavage, and its difference from that in calcite.

For minerals of variable composition, 96 easily read graphs are presented. Those for the plagioclase feldspars incorporate the results of Kohler and of van der Kaaden and show the data for the low- and high-temperature forms. It should, however, be borne in mind that these graphs vary in accuracy, and it would have been helpful if the plotted points on which the curves were constructed had been inserted, particularly as the 36 compiled by the author are published here for the first time.

The book is completed with monograms for the evaluation of optical measurements, and with lists of minerals arranged according to such further properties as dispersion, the optics of cleavage flakes, colour, magnetism and anomalous double refraction. Bearing in mind the range of minerals it covers, it must be regarded as one of the best collections of tabulated data available.

S. O. AGRELL

*Department of Mineralogy and Petrology  
Cambridge, England*

**X-ray Structure Analysis.** By A. I. KITAIGORODSKII. Pp. 650, with 325 figs. Moscow; Leningrad: State Publishing House for Technical-Theoretical Literature. 1950. Price 18 roubles, 40 kopeks.

**A Practical Course in X-ray Structure Analysis, Vol. 1.** By G. B. BOKII and M. A. PORAIKOSHITS. Pp. 430 with 312 figs. Moscow: University Publishing House. 1951. Price 8 roubles, 10 kopeks.

Outside the Soviet Union there is little demand for textbooks in Russian, and, apart from the possibility of re-publication in translation, the main interest is in the indications they can give of the level of crystallography in that country. Papers in Russian on various branches of crystallography and the structure of matter now amount to about 200 per annum, and more than 20% of the papers under the heading of Structure of Matter (A6)