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**Igneous and Metamorphic Petrology.** *Francis J. Turner and Jean Verhoogen.* McGraw-Hill Book Company, Inc., New York. 1951. ix+602 pp. \$9.00.

About two-thirds of this excellent book is devoted to igneous petrology. Much of this material deals with the associations, petrological relations, and origins of various rock groups. It treats not only the concepts of magmatic differentiations but also the relations that may exist among environment, sedimentation, orogeny, and the origin of igneous rocks.

The part devoted to metamorphic petrology treats chiefly (1) the principles governing metamorphism and the formation of metamorphic mineral assemblages; (2) the characteristics of metamorphic facies and, in less detail, the role of metasomatism and metamorphic differentiation; (3) the principles governing chemical adjustment of solid rocks to metamorphic conditions; and (4) closes with a discussion of metamorphism in relation to magma and to orogeny.

About one-fifth of the book is devoted to a consideration of the principles of physical chemistry and thermodynamics, about equal space being given to (1) principles of chemical equilibrium applied to rocks, (2) crystallization of igneous minerals, and (3) the principles governing chemical adjustment of solid rocks to metamorphic conditions.

References are given only in footnotes and are selected chiefly from modern material easily accessible. Extensive references to older literature are available in the papers cited.

The entire treatment is modern, and brings together important concepts regarding the origin and evolution of igneous and metamorphic rocks, and their possible relation to molten material and to transformations in the solid state. This book is one of the most important and useful reference books available, but for most profitable use the reader needs considerable background in chemistry, mathematics, and petrography. Also, it is an excellent but rather difficult text for graduate students. Thus it fulfills well the purpose for which it was written, "the use of advanced students, research workers, and teachers in the field of petrology."

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