RECOMMENDATIONS


This book covers both the petrology and petrography of igneous (274 p.), sedimentary (157 p.), and metamorphic rocks (140 p.) and includes a 20-page appendix on physical chemistry and extensive discussions of rock textures and classifications. The excellent drawings of Williams have been maintained from the original 1954 edition, but unfortunately, the results from some of the most fruitful techniques practiced since then have been omitted, including X-ray and electron microprobe, and even "microscopic oil-immersion" (Preface). The book is over 50% longer than the first edition, mainly a result of expansion of the petrology portion. How well have these changes matched the advances in the science in the last 28 years? One way to evaluate any textbook is to look at the material on fields with which one is familiar; perhaps those I chose are atypical, but in each, I found the book (and the indexing) disappointing. Studies of the significance of volatiles in igneous and metamorphic petrology, and of the fluid-inclusion evidence for such volatiles (visible in thin sections without oil immersion objectives), have mushroomed in the last 28 years, but the coverage here is trivial and in part misleading or simply erroneous. Similarly, the many types of immiscibility in magmas are treated lightly. The existence of halite as a rock is merely mentioned (p. 296), yet much of our knowledge of the important evaporite-forming environments has come from extensive studies of halite petrography over the last 28 years. Subject matter coverage is also rather irregular—the student is led carefully through 10 pages on the reading of binary phase diagrams but must then learn on his own to read the ternary diagrams used elsewhere in the book. A knowledge of optical mineralogy is assumed, but petrographic methodology is rarely mentioned, even those aspects that are not normally taught in optical mineralogy such as point counting or other types of modal analysis and the statistical problems in grain size and shape measurements. However, a full page is devoted to use of the index of refraction of the glass formed by fusing a little rock powder, but just as in the first edition, the interested student will have difficulty finding how this is done, as there is no literature reference. Some of the elaborate jargon characteristic of the first edition (and of petrography at that time) has been mercifully eliminated, but how much will students gain from learning textural terms like hyalophitic, hyalopilitic, pilotaxitic, proctoclastic, autoclastic, fiamme and blastophitic? I suspect that after they pass the final petrography examination, most may never encounter these terms again. In summary, the new edition will continue as the standard classroom text (and glossary) on classical petrography. The updating of the petrology part has helped but has not made it an adequate substitute for the several good petrology texts now available, and any teacher using the book will have to assign numerous additional readings for both lecture and laboratory.

EDWIN ROEDDER

U.S. Geological Survey


The author states, "This book is an attempt to put together in one volume the basic essentials of the chemical and physical behaviour and properties of petroleum, associated oilfield waters, and the rocks they inhabit. The book is primarily intended for recent graduates and students, both under- and post-graduate, whose major subject is geology and whose formal knowledge of chemistry, especially organic chemistry, and physics is limited." From an organizational viewpoint, the sequence in which the topics are presented in the book is logical, but the selection of certain topics for coverage is questionable. For example, neither the discussion of oilfield brines nor the discussion of the physical properties of reservoir rock appears highly pertinent to an understanding of the physics and chemistry of petroleum, and the descriptions of the types of compounds in crude oil and its distillates are far less informative than the descriptions that may have been given of the compositions of petroleum as precisely defined by modern analyses. Although the book does provide an excellent bibliography of recent research in the chemistry of petroleum, the author does not distinguish adequately between the relative importance of classi-