

and to the latter as a summary of experimental and theoretical work in the areas covered. The first eight chapters primarily present essential theory, and the remaining 12 deal in a systematic fashion with various classes of organic compounds and specific types of spectroscopic studies. Throughout the latter chapters experimental results are effectively summarized, interpretations outlined, and original literature references indicated. Its organization and approach make the book a useful reference text for those who want a concise introduction to a given class of compounds. Probably its greatest single asset is, however, that it gives many specific examples of how one may relate absorption spectra to electronic and molecular structure.

This volume will doubtlessly be widely used, and for this reason its limitations should be carefully noted. The most apparent of these is that, despite its all-inclusive title, the book is, with the exception of a chapter on inorganic complexes and one that contains considerable material on emission phenomena, concerned almost exclusively with room temperature solution spectra of organic molecules. This observation is not made critically but to point out that important topics in electronic spectroscopy are not covered here, since to deal with even this more limited area in one volume is certainly a formidable task in itself. It is disappointing, however, that the authors did not emphasize more strongly the role of polarization determinations in theoretical and experimental studies of electronic absorption spectra, especially since polarized emission techniques seem to be a natural topic for consideration in the chapter that deals with fluorescence and phosphorescence.

From an interpretive point of view, the authors have essentially limited themselves to a molecular orbital and free electron approach. Especially noticeable is the omission of references to the resonance force (or exciton) theory that has been applied to such compounds as the polyenes and azo-dyes and to aggregates.

Technically, the book is generally well organized and very readable. There are some typographical errors and some minor errors of fact, but, for the most part, these will not confuse readers. However, some consternation may arise from the confusion in the listing of the polarization directions in Table 12.13 and from such errors as the in-

version of the connection between ground and excited state vibrational frequencies and structure in emission and absorption, which occurs on page 553.

This book represents a welcome and extremely useful effort to fill a rather serious void in the chemical literature, and it is to be hoped that it will inspire further efforts aimed at completing the coverage of this area.

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Harper's Geoscience Series

Structural Geology of North America.

A. J. Eardley. Harper and Row, New York, ed. 2, 1962. xviii + 743 pp. Illus. \$21.50.

All geologists and geophysicists should welcome this second edition of a well-known book. Its general arrangement and appearance are similar to those of the first edition, but extensive revisions have been made without greatly increasing the number of pages. Stratigraphy and igneous geology, as well as tectonics, are fully treated.

The major divisions of the book are based on geological chronology, but the subdivision into chapters is based primarily on geographic distribution. The first three chapters are introductory. The remaining 40 chapters are arranged in six major units: Precambrian tectonic belts (1 chapter), Paleozoic tectonic belts (12 chapters), Mesozoic tectonic belts (12 chapters), Cenozoic tectonic belts (4 chapters), igneous provinces of the western Cordillera (6 chapters), and provinces in the northern and southern parts of the continent (5 chapters).

The author says that the "book is not intended to stand entirely alone. The reader or instructor should have the following maps for ready reference, preferably mounted and hanging on the wall at short range." He then lists seven maps, such as the geological maps of North America and Canada.

Evidence that the author has covered the literature exceedingly well is the list of approximately 1100 references assembled on pages 709 to 738. Fifteen colored page-size maps, 14 of which are tectonic maps for the various periods, deserve special commendation. Many of the 491 figures are direct or

slightly modified copies from the original publications. Some, however, are new diagrams prepared with great thought and care for this book. The significance of recent seismic and gravitational data is thoroughly analyzed. Moreover, the numerous discussions of theoretical and genetic aspects of regional geology are most stimulating.

The book is not without deficiencies. Some of the maps lack scales. On many maps the latitude and longitude are not given—essentials in locating the area readily on the national geological maps recommended at the beginning of the book. In the structure sections more care should have been taken to show the vertical scale where it differs from the horizontal scale, and to indicate the amount of the vertical exaggeration. Good coherent descriptions of some very important areas are lacking, such as the Sierra Nevada and the Klamath Mountains. However, considering all the problems involved, Eardley has done a magnificent piece of work in assembling and presenting this material.

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Uranium Alloys

Uranium Metallurgy. vols. 1 and 2. vol. 1, *Uranium Process Metallurgy* (772 pp. \$18); vol. 2, *Uranium Corrosion and Alloys* (745 pp. \$16). W. D. Wilkinson. Interscience (Wiley), New York, 1962. Illus.

W. D. Wilkinson, the author of *Uranium Metallurgy*, must be congratulated on an excellent attempt to discuss and assimilate the available information on this technologically important material. Wilkinson, a senior staff member in the International Institute of Nuclear Science and Engineering at the Argonne National Laboratory, obviously had an unusual opportunity to scrutinize the literature, technology, and uses of uranium and its alloys. Many of the thousands of references that are documented here (and these extend right up to 1961) refer to relatively unavailable, unpublished reports which only recently have been declassified. The two volumes will undoubtedly be the main source of authoritative information on uranium and its alloys for some time to come.