

sively lower temperatures. Bailey and Macdonald, in contrast, trace a sequence of metamorphism with ascending temperature that culminates in partial fusion, generating the felsic melts. This volume therefore avoids overlap with H. S. Yoder's 1976 book, *Generation of Basaltic Magma*, as well as with Bowen's classic.

Bowen himself provided the appropriate conclusion for this review; in the following quotation from his 1952 review of Turner and Verhoogen's textbook *Igneous and Metamorphic Petrology*, only the price is changed. "It is a good book. Every petrologist who can borrow \$35 should have his copy."

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## Marine Geoscience

**The Geophysics of the Pacific Ocean Basin and Its Margin.** A Volume in Honor of George P. Woollard. Papers from a symposium, Honolulu, Dec. 1974. GEORGE H. SUTTON, MURLI H. MANGHNANI, RALPH MOBERLY, and ETHEL U. MCAFEE, Eds. American Geophysical Union, Washington, D.C., 1976. xvi, 480 pp., illus. \$15. Geophysical Monograph Series, 19.

This volume includes 32 papers, many of which have a more geological than geophysical flavor, presented at a symposium celebrating the 66th birthday of George P. Woollard. Contributions are grouped into sections headed Gravity and Geodesy (five papers), Seismology (seven), Magnetism (six), Marine Geology and Tectonics (three), Volcanology and Petrology (six), and Tectonophysics (five). Only the section on magnetism has an introduction that attempts to fit the papers into the framework of past and present research. Similar introductions to other sections would have increased the value of the book to the nonspecialist. In addition to the papers there are five abstracts published without papers, but most of them are so uninformative that their inclusion seems unwarranted.

The papers are of different types and cover a wide range of subjects. Some, especially those from Hawaiian authors, are original reports of specific experiments that could equally well have been published in specialized journals (for example, the reflection and refraction results from the Colombian and Peruvian margins reported by Meyer and others and by Hussong and others). Other original contributions interpret data from wide areas of the Pacific (for example, gravity and magnetics in the northwest Pacific, by Watts and others and by Hilde and others).

However, there has been no attempt to achieve complete geographic coverage of the Pacific area, and several of the papers stray beyond the confines suggested by the title (for example, the documentation and discussion by Melson and others of the chemical diversity of volcanic glasses erupted worldwide at oceanic spreading centers). There are also papers that are mostly reviews of previously published results. Several of these are welcome syntheses of less accessible reports (for example, the summary by Wright and others of the U. S. Geological Survey studies of Kilauean lava lakes), some are useful introductions to subjects with large bibliographies (Jackson's paper on linear volcanic chains on the Pacific plate), and a few are merely condensations of longer papers or monographs (the analysis of the Cenozoic history of the central equatorial Pacific by van Andel and others). Macdonald has contributed a succinct and informative historical essay on the development of volcanology in the Pacific area.

This volume does not provide a coherent view of the present understanding of the Pacific ocean crust and its interactions with surrounding continents, but most specialists in geophysics, marine geology, or volcanology will find several papers that they will want to read and that will justify paying the remarkably low price for this handsomely produced volume.

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## Books Received

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**Algorithms and Complexity.** New Directions and Recent Results. Proceedings of a symposium, Pittsburgh, Apr. 1976. J. F. Traub, Ed. Academic Press, New York, 1976. x, 524 pp., illus. \$19.50.

**America's Great Outdoors.** The Story of the Eternal Romance between Man and Nature. L. James Bashline and Dan Saults, Eds. Ferguson, Chicago, 1977 (distributor, Crowell, New York). xvi, 368 pp., illus. + plates. \$24.95.

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