

## REVIEW

*Oceans*: by Karl K. Turekian. P. 120, 73 figs., 1 chart, 20 tables. Englewood, N. J., 1968, Prentice-Hall, \$2.00 paper, \$5.95 clothbound. — This is a curious book which is difficult to evaluate. Any judgment of its merits must be intimately related with an assessment of its potential audience, perhaps not so much the audience for which it was written as the audience for which it is most useful. It is one of a series of short texts on the Foundations of Earth Science produced by the publisher, and the Preface suggests that these are modern elementary text books at the beginning college level. The book carries a title closely similar to the single most influential book in modern oceanography, "The Oceans" by H. U. Sverdrup, M. W. Johnson, and R. H. Fleming, originally published in 1942, also by Prentice-Hall.

This very generalized title is certainly somewhat misleading, because the book deals primarily with the geological, geophysical, and geochemical aspects of the ocean floor. It does contain a brief chapter on water masses and water movements, which is probably the least inspiring of all and provides such bare fundamentals that it does not manage to captivate the reader nor to supply him with adequate information. Another chapter on marine chemistry is also very brief and, in part, oriented toward geological problems. Marine biology is conspicuous only by its absence as are other topics such as the interaction between air and sea, marine physics, or the influence of the oceans on the world's weather, certainly topics of considerable importance today.

Although this is unfortunate in a way, it does not detract significantly from the value of the book as a review of marine geology. Geomorphology of the ocean floor, marine sediments and sedimentation, marine stratigraphy and the geological history of the ocean basins, and the tectonics of the ocean floor are well covered in a remarkably up-to-date fashion in comprehensive chapters that convey in clear language the knowledge existing today and illuminate sharply the areas where research is moving ahead rapidly. One could have wished for a more balanced list of references which are somewhat slanted toward the products of certain groups of investigators and occasionally, as in the caption of figure 2-6, attribute a fundamental relationship to a derivative source. However, for certain audiences this does not notably diminish the value of the text. Minor criticism is easy: the description of pumice as "a glass more granitic in composition (than basaltic glass)" is obviously not directed toward the same reader who is informed in the caption of figure 3-10 that the illite-quartz ratio "is based on the ratio of intensities of X-ray diffraction peaks". One could also argue that the hyaloclastite of page 45 is in reality sideromelane, and it is clear that the Gilbert geomagnetic epoch is not normal on one side of a mid-ocean ridge and reversed in polarity on the other (fig. 7-5). However, these flaws are not numerous. One can argue at length whether some topics should have been omitted in favor of others, but the overall impression

is that of a thorough coverage of important aspects in a variety of fields. Reading this book conveys a clear and convincing image of what makes the field stimulating and challenging to a rapidly growing group of scientists, and I know of no other text that serves this important purpose so well and is so suited to attract interest in the marine sciences amongst an educated public.

Returning to the question of the audience for which this book was written, I have no clear answer nor does, I suspect, the author. As a basic text in oceanography or marine geology I would consider it too restricted, too fragmentary, and too uneven. On the other hand, on a recent oceanographic cruise it was avidly read by a wide spectrum of technicians, junior scientists, and ship's officers who all found that it helped them to understand the goals of oceanography and gave them a feeling of the excitement that moved their scientists. I would greatly recommend it to those who, equipped with a reasonable general education, wish to acquaint themselves with parts of a field that has so suddenly and spectacularly advanced in the public eye. Even senior marine geologists with long experience in the field read it, as I did, with pleasure and were stimulated. This is in no small measure due to the very readable style, the good organization, and the excellent and often beautiful illustrations and layout. One must also praise the publishers for the reasonable price at a time that so often books in science are priced well beyond the means of its practitioners.

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## ERRATA

### PARACRYSTALLINE MICROBOUDINAGE OF ZONED GRAINS AND OTHER CRITERIA FOR SYNKINEMATIC GROWTH OF METAMORPHIC MINERALS

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In the paper by Misch (January 1969, p. 43-63), on page 44, footnote 1, line 3, the phrase should read "by *preferred* orientation"; on page 63, line 3, "Chinsaukum" should read "Chiwaukum".