

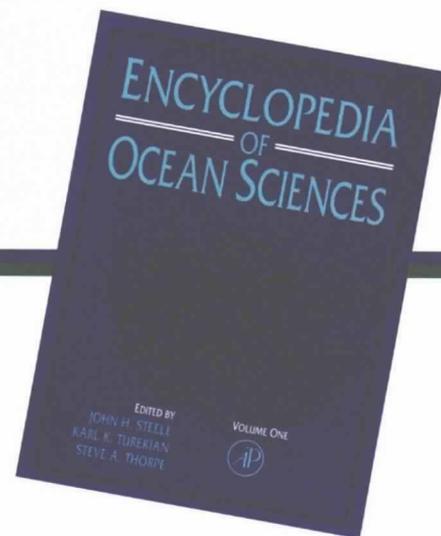
Book Review

"ENCYCLOPEDIA OF OCEAN SCIENCES"

Edited by John H. Steele, Karl K. Turekian, Steve A. Thorpe
Academic Press ISBN 0-12-227430-X
6 Volumes; 3399 pages

Reviewed by Richard W. Spinrad, Editor, Oceanography

My copy of *The Encyclopedia of Ocean Sciences* arrived in a large carton. The statistics and specifications on this encyclopedia set the stage well. More than 3000 pages, in six large format hard-bound volumes, with a promised on-line supplement, this major work is a daunting contribution to the technical literature of the oceanographic community. The Editorial Advisory Board, alone, has 32 members from 7 countries. The Editors, John Steele, Steve Thorpe and Karl Turekian, well-known community leaders, compiled contributions from more than 400 scientists from 22 countries (with many of them enjoying membership in The Oceanography Society) in an extraordinarily diverse spectrum of topics, from "Abrupt Climate Change" (by S. Rahmstorf) to "Zooplankton Sampling with Nets and Trawls" (by Peter Wiebe and Mark Benfield). That, in fact, is where the real craft of this encyclopedia materializes. How does one identify the 400 or so topics that lend themselves to a 5–10 page comprehensive overview each, and that—in aggregate—represent a complete definition of the field of ocean science? The answer, in this case, is "very nicely!" Even a quick glance through the contents reflects a very fair balance of treatment of such diverse subjects as physical oceanography (e.g. "Upper Ocean Responses to Strong Forcing Events" by Nick Shay), marine policy (e.g. "Coastal Zone Management" by Seoung-Yong Hong and Chan-Wen Lee), platforms (e.g. "Autonomous Underwater Vehicles" by Jim Bellingham), and ocean biogeochemistry (e.g. "Iron Fertilization" by Ken Coale). I am particularly impressed by the care that the Editors gave to maintaining the appropriate level of 'granularity' in their definition of topics, and the obvious oversight they imposed in ensuring that the authors adhered to this guidance. For example, instead of dealing with the broad subject of "Ocean Optics" (this reviewer's own 'pet rock'), about which lengthy



volumes have been produced, the Editors broke the subject into several key contents including "Radiative Transfer in the Ocean" (by Curt Mobley), "Transmissometry and Nephelometry" by Casey Moore, "Bio-Optical Models" by Andre Morel, and "Inherent Optical Properties and Irradiance" (by Tommy Dickey). (There are also a score of articles on various aspects of remote sensing). Similarly, a topic like Marine Mammals is parsed into at least seven distinct articles. The result is a collection of succinct articles of easily digestible length and detail.

Nevertheless, the Editors of the Encyclopedia of Ocean Sciences were obviously faced with a challenge regarding the utility of this work: How does one make hard copy encyclopedic information available to a reader who has learned the art and science of Boolean searches in cyberspace? Obviously this Encyclopedia brings the highest levels of technical quality assurance, simply by virtue of the credentials of its gallery of accomplished authors and Editors. That, alone, should be reason for looking to this volume before logging on to Google™, AltaVista™ or Dogpile™ (just to name a few search engines). But let's be honest, the ease of typing in, say, "authigenic deposits" and getting 2,410 hits in under two seconds might make it more alluring than taking the time to pore through Volume I of the Encyclopedia to read G.M. McMurty's outstanding 12-page discussion. On the other hand, simply knowing that I can get what I need from reading the article might be the incentive to go to the hard copy first. The Editors have recognized this, and have done a superb job of building a hierarchical system of cross-referencing in the Encyclopedia. From any number of access points the reader is able to "hot link" to other articles throughout the whole Encyclopedia and get the information he/she needs. It may not be as fast as the Web, but the fact is that you don't have to sift through the

2,409 irrelevant hits to find the information you seek. Each article has an extensive list of related topics at the end of the article, as well as a good bibliography of technical references. The index is comprehensive and easy to use. Even the list of Contents (which is reproduced at the front of each volume, in its entirety) includes "dummy entries" where synonyms exist for entries. For example, the dummy entry "Convection" directs the reader to the topics of "Deep Convection," "Double-diffusive Convection," and "Open Ocean Convection," each of which has cross references at the end of those articles. All in all, this presents a very effective and efficient structure for finding the information needed. But ... this is where the promise of linking with electronic media becomes a problem. In the initial press releases of the Encyclopedia much was made of the on-line complement that would be provided free of charge for six months to all purchasers of the printed Encyclopedia. This was to be "part of the Academic Press IDEAL® ReferenceWorks program, an innovative line of print and online encyclopedias." Apparently, with the takeover of Academic Press' parent company, Harcourt, by Reed Elsevier, I was informed that "the release of the e-versions of works like the Encyclopedia of Ocean Sciences on the old AP "IDEAL®" platform is on hold." That was the word in the spring of 2002. At this writing (October 2002), the IDEAL® ReferenceWorks web site still shows no content for ocean sciences. I don't see this as a detriment to the Encyclopedia itself, although many of the first buyers may be feeling deprived.

The technical level of the Encyclopedia is appropriate for the reader with some scientific background and at least an introductory familiarity with the field of oceanography. For example, the reader would need to know to aim for the topic "Redfield Ratio" (by T. Tyrell) rather than undertake a search for the more general topic of "chemical oceanography". Other aspects of the quality of this Encyclopedia are its graphics and general layout, both of which are handled adequately. Color is used in limited manner throughout, but is done so effectively (e.g. for remote sensing images). Scattered plate-type figures (e.g. black and white transmission electron microphotographs, and color drawings of sea birds) make an attractive addition. The typesetting, table layout and use of page space is aesthetically pleasing and professional in connotation. Some of the figures appear to have suffered 'bit-map pixelation' or low resolution digital translation, but certainly not to the extent of losing any technical impact.

This encyclopedia is a good addition to any university library, and should certainly be part of the holdings of graduate institutions in the marine science community. As a Federal bureaucrat myself, I would argue that it makes a good reference for those agency heads and subordinates who must deal with a wide diversity of issues in ocean research, operations and policy. On the other hand, at a list price of \$1400 per copy for the Encyclopedia, I'd recommend *individuals*, instead, spend their cash on collections of learned texts more specific to their own disciplinary focus. ☑

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