EISENBUD, MERRIL, *Environmental Radioactivity*, McGraw-Hill Book Co., New York, 430 pp., 1963, $12.50.

Up to 1940 a total of only a few hundred grams of radium had been extracted by man from radiogenic ores. Thus, a few hundred curies of radium constituted man's global inventory. By the standards of that day, a curie was an extremely large amount of radioactivity; hence the millicurie and microcurie were coined as units of greater convenience. Contrast that with the outlook of a recent Atomic Energy Commission estimate of the total number of curies of radioactive waste products that will have accumulated from nuclear power reactors by the year 2000. Their estimate is 10^{12} curies of long-lived radionuclides.

Clearly, environmental radioactivity is destined to become a problem of the most serious public and scientific concern. Eisenbud's book on this subject should make a substantial contribution toward familiarizing a wider group of scientists with quantitative aspects of this looming problem.

Increasing numbers of geophysicists in particular will need to become familiar with the subject matter of this book. Proposals for underground storage of fission wastes raise subtle questions of hydrology (contamination of aquifers) and stratigraphy (storage by hydrofracture techniques). Deep oceanic burial of wastes points up uncertainties in the area of oceanography (deep-water mixing times, diffusivities) and in marine biology (radioisotope concentration factors). Seismologists are currently involved in power-reactor siting hazards controversies. Meteorologists must keep a watchful eye on both routine emission hazards and atmospheric dispersion following major reactor accident hazards. *Environmental Radioactivity* will provide geophysicists, as well as many other scientists, with a competently assembled introduction to all these topics plus many more.

Eisenbud has not aimed at exhaustive treatment of any single part of the rapidly broadening field of radiological hazards and health physics. Instead, he has tried to prepare a book that could serve as both a general reference and an introductory text. He has succeeded in both attempts. Many useful quantitative data are included, and numerous tables, diagrams, and illustrations greatly increase the reference value of the book. Among the topics covered are transport processes in the atmosphere and ocean, food-chain contamination, reactor technology, fuel fabrication and reprocessing, management of fission wastes, fallout from weapons explosions, environmental surveillance techniques, and a good summary of several major accidents leading to radioactive environmental contamination.

Throughout the book Eisenbud takes the position that man's rapidly increasing production of artificial radioactivity need not lead to disastrous environmental contamination if adequate care is taken. I felt that Eisenbud's optimism concerning the latter proviso is perhaps a bit too brisk and cheery at times, and that extrapolation of past experience may not warrant some of the assurances the author offers. The prospect of 10^{12} curies of man-made fission-product wastes in our global environment by 2000 A.D. makes one shudder a bit and hope that increasing numbers of scientists will be watching this problem as it develops in coming decades. Geophysicists seeking a good introduction to the problem will find it in Eisenbud's book.

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