enough information to make first generic assessments possible. In this connection the collection of example calculations provides a good tool for gaining a sound knowledge of this field. The only improvement the reviewer could recommend would be to include a list of the literature in which methods and examples of handling uncertainties are given.

The booklet can be recommended to everyone who encounters radiological assessment problems for the first time and wishes to avoid being overwhelmed by a host of theories, formulas, and detailed information. It may be recommended especially to students, who represent the largest group of those individuals using it as a textbook. It may be also used in connection with private study. It should also stand on the shelf of anyone who through his profession occasionally comes into contact with these problems. Moreover, it can be recommended to everyone who is interested in this subject, which from time to time is a topic of controversial discussion by the public and in the media.

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Radionuclide Distribution and Transport in Terrestrial and Aquatic Ecosystems
(Volumes I, II, ,III)

Authors	P. J. Coughtrey, D. Jackson, and M. C. Thorne
Publisher	A. A. Balkema Publishers, Rotterdam, The Netherlands (1984)
Pages	Volume I, 496; Volume II, 500; Volume III, 372
Price	$40.00 per volume
Reviewer	Gerald A. Schlapper

This three-volume work presents a very systematic review of available data and provides guidance for use of this data to assess the radiological impact on man of radioactive effluents. Emphasis is placed on routine releases, but most of the data would also be relevant to accident assessments. Most of the data deals with the deposition of material on plants and soils, transport within soil media, uptake and dispersal of radioactivity in plants via roots and foliage, metabolism of varied compounds in domestic animals, and transfers through elements of the aquatic environment. The authors present and compare the data and conclusions of numerous researchers.

The current concern over the movement of radionuclides in terrestrial and aquatic ecosystems emphasizes the need to better describe the transport of these materials. The processes that are involved depend on the physical and chemical properties of the material, the pathway the nuclide follows until it reaches the environment, and/or the characteristics of the ecosystem that the material is entering. These volumes review the wealth of information on models and parameter values applicable to a wide range of conditions. Using data obtained from field and laboratory studies of stable element behavior as well as an accumulation of radiological data, the authors recommend models and parameter values to be used in a variety of circumstances. The authors have organized this information by grouping the elements by method of production, chemical similarities, and like environmental interactions.

To maintain consistency, the authors have organized the numerous chapters into essentially five sections. Following a brief introduction, the first major section deals with the chemistry of the subject material. After this discussion, the distribution and transport of the element in its parent media and soils are outlined. The third section details the uptake and distribution of the material in plants, while the next two sections discuss the metabolism of the element in domestic animals and man and the behavior of the element in the aquatic environment. Exact details of the processes of atmospheric and hydrospheric dispersal are not presented. However, the first chapter of the first volume contains a conceptual outline of the various processes involved. References for atmospheric-dispersion processes and models to include available computer codes are included. Calculation of dose to man due to ingestion or inhalation of radionuclides transported through all pathways through the environment is not emphasized.

The authors note that they had difficulty selecting the "best" data and models from the wealth of information available. Because of recent improvements in the precision and reliability of analytical techniques, all data were not equally weighted, but data from experiments most relevant to the topic being considered were used. Model parameters recommended were those shown to be most accurate for analysis of the impact of the pollutant on man, because to extend this analysis to all components of the environment was beyond the scope of this work. Since radionuclide contamination is a relatively small part of the overall contamination of the environment, restricting analysis of radionuclide contamination to effects on man is generally accepted.

The scope and detail of this work indicate that it will be considered for several years as a reference work for assessing the movement of radioactivity in the environment. According to the authors, further volumes are currently in preparation to cover those major elements that are not addressed in this three-volume set. It should be emphasized that the data presented are also of use in determining the distribution and transport of a variety of stable pollutants, so use of these volumes is not restricted to the area of transport of radionuclides but would be of equal use in the analysis of dispersion of stable chemical pollutants.

Gerald A. Schlapper was involved with the operational health physics program while on the staff of the University of Missouri Research Reactor. He also served as a research fellow in the nuclear medicine department of the Harry S. Truman Veterans Administration Hospital. In January 1981 he joined the faculty of the Radiological Health Engineering Program of the nuclear engineering department at Texas A&M University.