ern, the principle editor of the book, is an introduction to the general occurrence and human health effects of radionuclides of radium, uranium, and radon in water supplies. This is followed by a brief discussion of maximum contaminant-level standards for radionuclides in drinking water. The other paper concerning nuclides of the three elements here being considered is essentially a summary of the findings of The National Inorganics and Radionuclides Survey (NIRS) conducted by USEPA during the mid-1980s. This includes mass and/or activity concentration data of the important radionuclides of radium, uranium, and radon occurring in water supplies throughout the United States.

The goal of the paper, which discusses radium and radon, is to explicate basic relationships that occur between the concentrations of these elements, more specifically radium-226 and radon-222, in various drinking water supplies of the United States and the underlying types of geological formations. Also discussed is the general occurrence of these radionuclides in crystalline rock ("hard-rock") and sedimentary rock ("softrock") aquifers. The papers regarding radon in drinking water discuss: (i) the fate and health effects of ingesting radon in drinking water, (ii) the transfer of radon from household water to house air, (iii) the risk of the inhalation and ingestion of radon, (iv) the technology for the removal of radon from water, and (v) methods of measuring radon in water.

The papers regarding radium in drinking water discuss: (i) the analysis of radium in water, (ii) the rationality of removing radium from drinking water, (iii) methods of radium removal from water, and (iv) regulations and options available for the disposal of radium in solid and liquid wastes associated with water treatment and waste water treatment facilities. Such waste "will have to be disposed of at a licensed low-level radioactive waste disposal facility."

The papers regarding uranium in drinking water discuss: (i) methods of measuring uranium in water, (ii) gastrointestinal absorption of uranium by humans, and (iii) methods of the removal of uranium from water.

Cohen has been involved in a nationwide study of radon in homes of many of the counties of most of the states of conterminous United States since 1985. In the study here reported, he presents the results of least squares fits to radon in household air to lung cancer mortality rate. Suprisingly, the slopes (both male and female) are negative, whereas slopes of previous theories are positive. He concludes that his data "are not in conflict with an acceptable theory, linear no-threshold plus hormesis. At low doses and low dose rates, the hormesis effect could produce a negative slope that overrides the positive slope of linear no-threshold."

Schnare, in his paper "Raid on Sanity...," alludes to the many difficulties involved in the making of inferences regarding the health effects of radionuclides in drinking water, as well as the concomitant problems experienced by decision makers in the establishment of drinking water standards for radionuclides. In regards to the latter, he discusses a variety of ways "the analyst manipulates the data, the decision maker, and, therefore, reality." He concludes by giving several examples of a basic model of tabular data which is routinely used by USEPA decision makers.

This book does, indeed, contain a significant amount of basic information regarding radion, radium, and uranium in drinking water systems of the United States. Unfortunately, there is little structure to the arrangement of the "chapters"; consequently, the book is a patchwork of 17 individual papers. This results in some duplication of information and inconsistency of style. The quality of the papers ranges from excellent to poor, and, with one exception, none of the authors use SI units. --GARETH E. GILBERT, Department of Botany (emeritus). The Ohio State University, Columbus, OH 43210.

The Physiological Ecology of Woody Plants


The emergence of a host of environmental issues such as acid rain, forest decline, and global climate change as well as changes in natural resource management policies has emphasized the need to understand the fundamental basis of how plants and ecosystems function. The Physiological Ecology of Woody Plants text written by Kozlowski, Kramer, and Pallardy is a good blend of physiological, ecological, and silvicultural principals that govern ecosystem functioning. The first two chapters describe how genetics, physiology, and environment interact to control tree growth. The remaining 11 chapters describe current understanding of woody plant physiological responses to major weather elements, air pollutants, plant stresses, and cultural practices. The physiological and ecological basis for ecosystem responses to disturbance factors such as fire, drought, and forest management are described in detail. Excellent graphical illustrations occur throughout the text.

The emphasis of this text is at the process, whole plant, and ecosystem level. The biochemical bases for plant responses are not overly emphasized. As such, it will be a valuable textbook for undergraduate courses in ecophysiology. Also, the thorough coverage of current information on woody plant physiology makes this text a valuable reference for scientist active in woody plant ecophysiology research. --PHILLIP M. DOUGERTY, USDA Forest Service, P.O. Box 12254, Research Triangle Park, NC 27709.

Effective Expert Witnessing

Edited by Jack V. Matson, Lewis Publishers, Inc., 121 South Main Street, Chelsea, MI 48118. 1990. $49.95.

The author has drawn on his experiences as an expert witness to develop a small (145 pages) handbook that provides a wealth of information useful to those called upon to testify as expert witnesses. The book not only includes information on the legal proceedings and contains definitions of the essential jargons, but it also indicates what is expected of the witness and how he or she should respond in various circumstances that are likely to arise. Although there are a few inconsistencies in the text and a few procedural matters stated that are not applicable in all courts, these do not detract significantly from the work. In the preface, Matson states that the purpose of the book is to get into the "head-to-head" battles that characterize the legal war. The author is successful in doing just that. But one critical point that receives less attention is that the expert witness will have a better chance to win the war if he or she has done all the necessary homework and is very thoroughly prepared.

The chapters include a brief introductory scenario that vividly indicates what the witness is up against; Chapter 2 lays out factual information and defines the components of the legal system that the witness will encounter; Chapter 3 lays out what is expected of the expert witness; Chapter 4 provides guidance on marketing your service and fee schedules; Chapter 5 provides critical information on how to give a deposition and how to give courtroom testimony; Chapter 6 describes methods of communicating under the strained circumstances imposed on the witness by the court system; Chapter 7 provides a brief hypothetical case study starting with the origin of the complaint, proceeding through the