

the effect of management practices on nitrogen in soils and groundwater and of minimizing gaseous losses of nitrogen. Although all the chapters have different authors, they are written generally to a good standard—the editor probably put in a lot of work—and they are generously supplied with tables, diagrams, and references.

The book is a very helpful compendium of information ranging from the population statistics with which the review began to the effects of pruning on tissue nitrogen concentrations in cherry trees. It should be useful to undergraduate and postgraduate students in all the subjects that touch on environmental nitrogen problems, as well as to research workers and those involved at the *sharp end* of nitrogen fertilizer use. A book you may need to chain to the shelf. —TOM ADDISCOTT, *IACR-Rothamsted, Harpenden, Herts, AL5 2JQ, UK (tom.addiscott@bbsrc.ac.uk)*.

Science and Judgement in Risk Assessment

Committee on Risk Assessment of Hazardous Air Pollutants, National Research Council, National Academy Press, 2101 Constitution Avenue, NW, Washington, DC 20418. 1994. Hardbound. 672 p. \$69.95. ISBN 0-309-04894-X.

Politicians and the public have a poor perception of risk. This, allied with the stream of alarming reports in the press and the activities of pressure groups, can easily lead to environmental decisions being taken on entirely the wrong basis. Objective, soundly based risk assessment is at a premium, and this book provides the means. It comprises the findings and recommendations of the National Research Council Committee on Risk Assessment of Hazardous Air pollutants following their review of current human health risk assessment methodologies and procedures used by the USEPA. The nature of the Report means that the focus of the book is necessarily very specific; only human health risk assessments are covered and not those for wildlife, only USEPA methodologies are reviewed, only air pollutants are considered, and, among these, the focus lies mainly on carcinogens. Given this rather narrow focus, the broad title could be argued to be misleading, but the book does contain much of interest to the broader audience. The first part provides an excellent summary of how risk assessment developed as a set of tools, and of the methods currently employed by the USEPA. The committee give a number of recommendations on how the process of risk assessment could be improved, often (though not always) with specific suggestions as to how the recommended improvements could be implemented. Since most risk assessment schemes used around the world have a basis similar to that used by the USEPA, the recommendations of the committee will be strongly relevant to risk assessment scientists, risk managers, and policy makers in other parts of the world. More the half the book is composed of detailed appendices which are highly informative and are as useful to the reader as is the main text. —PETE SMITH and TOM ADDISCOTT, *Department of Soil Science, IACR-Rothamsted, Harpenden, Herts, AL5 2JQ, UK (tom.addiscott@bbsrc.ac.uk)*.

Environmental Geology

B.W. Murck, B.J. Skinner, and S.C. Porter, John Wiley & Sons, 605 Third Avenue, New York, NY. 1996. 560 p. \$59.95. ISBN 0-471-30356-9.

This paperback textbook is an introduction to environmental geology in which the authors state in the preface, “we have

chosen to explore environmental geology from a distinctly human perspective. Throughout the book, we return to the themes of human-induced environmental change, the impacts of geology on human interests, and societal dependence of the Earth’s resources.” The generalization appears to be accurate. The textbook is organized into 18 chapters that are sorted under the four main parts of the text: 1. Geological Framework (Earth Systems and Cycles, Earth Structure and Materials); 2. Hazardous Geologic Processes (Earthquakes, Volcanic Eruptions, Tsunamis, Landslides and Mass Wasting, Subsidence, Floods, Hazards of Ocean and Weather, and Meteorite Impacts); 3. Using and Caring for Earth Resources (Energy from Fossil Fuels, Energy Alternatives, Mineral Resources, Soil Resources, and Water Resources); and 4. Human Impacts on the Environment (Waste Disposal, Contaminants in the Geologic Environment, and Atmospheric Change).

Like previous environmental geology textbooks, this publication contains many of the classic examples of the interactions between civilization and geologic processes such as the unforeseen side effects of the Aswan High Dam in Egypt, the devastation of the volcano Krakatau in 1883, the eruptions of Mount Pinatubo, and other historical (pre-1970) earthquakes, floods, volcanic eruptions, landslides, droughts, and tsunamis. One of the outstanding features of this textbook, however, is its inclusion of relatively recent phenomena. Included is the earthquake in Kobe, Japan, and the flooding in the Netherlands, both of which took place in January 1995. Also discussed in detail is the 1993 flooding in the American Midwest, and the recent discovery of the Chicxulub Crater (near the Yucatan Peninsula), which may have been created by the meteorite that caused the Cretaceous-Tertiary extinctions. Other recent events that are present include the collision of Comet Shoemaker-Levy 9 with Jupiter in 1994, and the havoc of Hurricane Andrew in Florida in 1992.

The text is well written and easy to follow. There seemed to be an even balance of technical material (basic geology) mixed with case studies, conjecture about the future, and a few philosophical notes. The authors state that “[their] global perspective is reflected...by examples and illustrations from numerous foreign areas. The authors did cite examples from South America, Africa, the Middle East, Europe, Asia, Australia, and India, but much of the material cited was in the United States. The authors also include a few historical perspectives such as the early use of oil by Babylonians, and the discovery of kerosene (by a Canadian chemist, we are reminded). Another feature of the textbook is the number and quality of the illustrations. There are about 250 color photographs, and about 277 color drawings or groups of drawings that include graphs, maps, and block diagrams. There are 49 tables. No literature citations are given in the text, but 46 “interdisciplinary student activities” are given (from 4 to 8 at the end of most chapters). For example, at the end of Chapter 17 (Contaminants in the Geologic Environment), we have “Take a field trip to identify point sources and nonpoint sources of pollution.” This new textbook is very descriptive and qualitative. Unlike other environmental geology textbooks, landuse planning, and the influence of geology and geography on the distribution of disease are not major topics. Beyond these minor shortcomings, this textbook appears to be an excellent update of older publications for teaching introductory environmental geology. I appreciated its authors exposing their readers to a taste of environmental chemistry and engineering applied to waste disposal such as municipal landfills and radioactive wastes. Future revisions of the textbook should expand on these areas, including more quantitative material.

In summary, this publication deserves consideration by academia for use as an introductory text for undergraduate stu-