resources played an important role in the demise of many of the early civilizations. Later chapters address current problems and the author critically evaluates present-day intensive agricultural practices. He also draws attention to development schemes in many parts of the developing world. Chapters in the latter part of the book are devoted to current topics such as wetlands, deforestation, desertification, fresh water supply, soil and erosion, and others. It isn't all gloom and he does suggest a guarded optimism for the future.

It is a stimulating book to read. It is not a technical coverage of the topics, rather one written in a style a layperson can readily comprehend. There are 30 chapter in the book. The chapter are short, however, about five to 10 pages, and are easily read. It reflects a keen interest in the subject by the author and one he is highly qualified to write about. His writing style makes it enjoyable reading.

I have been interested in the general topic of soil, water, and civilization for some time. This is clearly the best book on the subject that I have read. Anyone interested in soil and water use (past, present, or future) will enjoy this book. It has appeal to a wide audience.—T.W. SCOTT, Department of Soil, Crop, and Atmospheric Sciences, Cornell University, Ithaca, NY 14853.

**Carbon, Nitrogen, and Sulfur Pollutants and Their Determination in Air and Water**


Compounds of C, N, and S are important biogeochemical constituents of elemental cycles that have been affected by anthropogenic activities. The stated purpose of this book is to give engineers and chemists the necessary background and direction for selecting methodology to be used for quantitative analyses of these compounds as pollutants, especially those for which they do not have a working familiarity.

The book is divided into four parts and 12 chapters. Part I (24 p.) introduces the history of pollutants including brief descriptions of water sanitation and killer smogs. There is also a general description of the biogeochemical cycles of C, N, and S. Similar information could be found in most introductory textbooks on environmental science. Part II (97 p.) describes the basic chemistry (electron configuration, chemical bonding) of these three elements and how their respective compounds contribute to water and atmospheric pollution. Although there are some interesting points linking chemical attributes to specific pollutants and their role in biogeochemical cycles, most of the information on chemistry is similar to that introduced in undergraduate chemistry courses. Part III is the major portion (193 p.) of the book and gives general descriptions of analytical methods including spectroscopy, electrochemical procedures, chromatography, and various chemical as well as biochemical methods. The linkage of the methodology to the actual chemical attributes of the compounds is not always developed clearly. Part IV (4 p.) is a very brief description of the use of commercial instruments.

The general absence of a critical review of the methods necessitates that the reader use other sources of information to ascertain limitations related to costs, precision, accuracy, and chemical interferences. The literature cited is also cursory. The use of both English and SI units is inconsistent and distracting.

This book could be used as a general review of the chemistry of C, N, and S pollutants. However, the author's attempt to cover such a broad range of topics has resulted in a rather superficial treatment. For most scientists and engineers seeking information on the selection of analytical methods, other more complete and detailed sources of information will be required.—MYRON J. MITCHELL, State University of New York, College of Environmental Science and Forestry, Syracuse, NY 13210-2788.

**Drinking Water Health Advisory Volatile Organic Compounds**


The U.S. Environmental Protection Agency Office of Drinking Water Health Advisory Program provides information and guidance to individuals or agencies concerned with potential risks from drinking-water contaminants for which no national regulations exist.

This book contains Health Advisories (HAs) for 15 unregulated volatile organic compounds (VOCs) that are known or anticipated to occur as drinking-water contaminants. The 15 VOCs are: 1,1,2-trichloroethane; trichlorofluoromethane; o-chlorotolueno; hexachlorobutadiene; 1, 1, 1, 2-tetrachloroethane; chloromethane; bromochloromethane; 1, 3, 5-trichlorobenzenes; 1, 2, 4-trichlorobenzene; bis-(2-chloroisopropyl) ether; p-chlorotoluene; 1,2,3-trichloropropane; bromomethane; dichlorodifluoromethane, and naphthalene. Each HA contains information on the nature of the adverse health effects associated with the contaminant and the concentrations of the contaminant that would be anticipated to cause no adverse health effect following various periods of exposure. Data on occurrence, environmental fate, and pharmacokinetics of each VOC are summarized. Analytical methods for detection and treatment technologies for removal of each contaminant are included. General information about each VOC includes synonyms, physical and chemical properties, and uses for the chemical. Methods and assumptions used to assess risks and to derive the HAs are described.

Readers of this book will find they can locate the information of interest to them efficiently. A separate chapter is devoted to each VOC. Information within the chapter is presented in outline form with all data clearly referenced as it is given. The listings of references accumulated from the extensive literature search of publications through September 1989 should be helpful. Drinking water suppliers, public health officials, toxicologists, environmental scientists and engineers, regulators, and researchers concerned with any of the addressed aspects of these VOCs should consider this book a useful reference text.—L. FAYE JONES, Department of Civil Engineering, University of Alabama, Box 870205, Tuscaloosa, AL 35487-0205.

**Ozone in Water Treatment: Application and Engineering**


The use of ozone as a water disinfectant originated before the turn of the century. Currently, there are about 40 plants in the USA that have ozonation facilities. In response to the interest in the treatment of drinking water using ozone, this book offers guidelines as to its various applications, design, and operational procedures.

This hardcover is a collective effort of 35 authors who are ozone experts from Europe and North America. It includes...