

*Process Engineering for Pollution Control and Waste Minimization*, D.L. Wise and D.J. Trantolo, eds., Marcel Dekker, New York, NY, 1994, \$195, 730 pp., ISBN: 0-8247-9161-4

The editors have compiled a very impressive (and lengthy) text of 36 chapters written by more than 50 contributors. The editors' goal was "... to provide an up-to-date source of technical information relating to current and potential pollution control and waste minimization practice".

The text is divided into five major sections:

- Engineering Issues in Pollution Control and Waste Minimization
- Methodologies of Waste Control
- Wastewater Treatment
- Modeling for Pollution Control
- Industry-Specific Pollution Control.

I read several of the chapters. Individually, each was very good, but their wide-ranging topics lack focus. The book is more like a periodical, with a collection of papers (admittedly up-to-date) on diverse topics. If I were doing research or assigning students a research topic such as "freeze concentration in wastewater treatment" or "organoclay sorbents for removal of organics", I would have them read the appropriate chapter in the book. But I would never have them purchase the book as a text. Its use, I feel, will be as a library reference text – unfortunately, this information would not be readily available (even in an electronic data base) and would only be accessible if a would-be user pursues the book's index. Until then, he/she probably would not know it contains a chapter entitled "Photocatalytic Degradation of Hazardous Wastes".

GARY F. BENNETT

*Arsenic in the Environment – Part I: Cycling and Characterization*, J.O. Nraigu, ed., Wiley, New York, NY, 1994, \$95.00, 430 pp., ISBN: 0-471-30436-0

Arsenic probably has the worst public relations history of any element and its name has become almost synonymous with the word poison. Yet it is ubiquitous in nature; it is found in poultry and seafood and drugs (e.g. Fowler's solution which is 1% arsenic trioxide).

This first volume (Part I) in the series (of two) focuses on arsenic's history, chemical composition, characteristics, behavior in the environment and the analytical techniques used to measure it. There are 17 separate chapters dealing with arsenic. Some of the topics discussed are:

- history
- distribution in soils
- bioavailability
- removal from drinking water
- biotransformation

- analytical measurement
- environmental persistence when used for weed control.

The editor has certainly compiled a comprehensive picture of arsenic's environmental fate and effects from a very wide variety of sources:

- 17 chapters
- 33 authors from 11 different countries.

GARY F. BENNETT

*Toxic Substances in the Environment*, B.M. Francis, Wiley, New York, NY, 1994, \$49.95, 360 pp., ISBN: 0-471-50781-4

Chemicals have provided society with unparalleled benefits. Yet, many chemicals are toxic. As these chemicals (many of which are toxins) accumulate in the environment, the concern of the population in general and scientists in particular continues to rise. Hence, the book which is based on a course given by the author (a geneticist) at the University of Illinois.

The text is organized around a series of case studies that illustrate the hazards associated with particular substances and demonstrate the multidisciplinary approach that is essential to any effective effort to clean up or prevent contamination.

The book has many good points. Clearly, the author (a geneticist) is well-versed in the ecological and health effects of toxic chemicals. She details these chemical effects (inputs) in a series of case histories, one of which dealt with the kepone contamination in Hopewell, Virginia. I have read much about the incident but learned much more about the toxic effects of kepone (chlordecone) than I had known before.

Then I turned to a chapter, which I felt my background could let me critically review – Hazardous Waste Disposal. To say the least, I was not impressed. The author began by commenting on garbage; then she discussed sludge, and ended with air pollution from metals' use and production. All are important topics, but much out of place in this chapter. What legally constitutes hazardous waste and the amounts produced are not discussed, and the number of hazardous waste generators in this country is portrayed by a map of the US from the *New York Times*!

Indeed the above generates another criticism of the book. There were more references from the popular press than the scientific literature. Even her list of pertinent periodicals to read (at the back of the book) missed the chemistry, chemical engineering and technical environmental journals.

Curiously, a chapter I learned a great deal from (albeit starting from a very limited knowledge basis) was the chapter on carcinogens. For a neophyte such as myself, it was very worthwhile reading.

My overall assessment is that the author probably teaches a very good course and the book is a good point of departure for students of environmental sciences. But some balance is required to show engineering solutions to the problems presented. It would also be helpful to have some idea of the assignments given to students.

GARY F. BENNETT