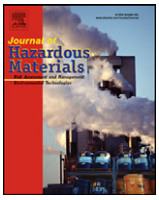
Journal of Hazardous Materials 160 (2008) 688–689

Contents lists available at ScienceDirect

Journal of Hazardous Materials

journal homepage: www.elsevier.com/locate/jhazmat



Book reviews

**Ecotoxicology: A Comprehensive Treatment, M.C. Newman, W.H. Clements. CRC Press/Taylor & Francis Group, Boca Raton, FL (2008). 878 pp., Price: US$ 139.95, ISBN: 978-0-8493-3357-6**

This book, the authors write, "...is intended to bridge a widening gap between ecotoxicology textbooks and technical books focused on ecological topics... This treatment represents a synthesis needed to provide the student with an understanding beyond that afforded by a general textbook but, unlike that from more specialized books, remains focused on paradigms and fundamental themes."

"Ecotoxicology is the science of contaminants in the biosphere and their effects on constituents of the biosphere including humans; it is a hierarchical science." The flyer that accompanied my copy of the book describes it thusly:

> "Divided into six sections [divided into 36 chapters], the book builds progressively from the biomolecular level toward a discussion of effects on the global biosphere. It begins with the fundamentals of hierarchical ecotoxicology and vantages for exploring ecotoxicological issues. The second section introduces organismal ecotoxicology and examines effects to biochemicals, cells, organs, organ systems, and whole organisms, and bioaccumulation and bioavailability of contaminants. Population ecotoxicology, section three, places the discussion in the larger context of entire populations by analyzing epidemiology, population dynamics, demographics, genetics, and natural selection.
>
> Section four encompasses issues of community ecotoxicology. This section presents biotic and abiotic factors influencing communities, biomonitoring and community response, and the application of multimetric and multivariate approaches. Section five evaluates the entire ecosystem by describing assessment approaches, identifying patterns, analyzing relationships between species, and reviewing the effects of global atmospheric stressors. A detailed conclusion integrating the concepts discussed and promoting a balanced assessment of the overarching paradigms rounds out the coverage in section six."

Clearly, a detailed review of this lengthy text is not possible. I will rather briefly summarize one chapter whose topic would be of significant interest to readers of this journal. That is Chapter 26, entitled Community Responses to Global and Atmospheric Stressors. In the introduction to this chapter, the authors write "Effects of atmospheric stressors on communities are likely to be complex, interactive, and difficult to predict."

The authors limit themselves in this chapter to a discussion of three atmospheric and global pollutants: (1) carbon dioxide and associated global warming, (2) acidic deposition and (3) UV-B radiation caused by atmospheric ozone depletion. The authors write (and I fully agree) that "The cause and consequences of global climatic change and the specific role of carbon dioxide are among the most contentious environmental issues today. However, the connection between the atmosphere and biological processes and the occurrence of a natural greenhouse effect are indisputable factors."

I was surprised to learn that the hypothesized relationship between global climate change and greenhouse gases is not a new idea because Arrhenius, a Swedish chemist, proposed that increased levels of carbon dioxide in the atmosphere could influence global temperature. The authors discuss the facts and evidence behind the claim that the atmosphere is warming as well as examining carbon cycles and sinks and the mismatch between climate models and ecological studies among other topics.

I have only scratched the surface of this impressive book but suffice it to say, it is well written and to the extent I can evaluate its content is exceedingly well done.

Gary F. Bennett*
*The University of Toledo, Department of Chemical and Environmental Engineering, Mail Stop 305, Toledo, OH 43606-3390, United States*

*Tel.: +1 419 531 1322; fax: +1 419 530 8086.
*E-mail address:* gbennett@eng.utoledo.edu

10 March 2008

Available online 15 March 2008

doi:10.1016/j.jhazmat.2008.03.030

**Kent and Riegel's Handbook of Industrial Chemistry and Biotechnology, J.A. Kent (Ed.)., 11th Edition Springer Science, Business Media, LLC, New York, NY (2007). 1861 pp., Price: US$ 190.00, ISBN: 978-0-387-27842-1**

This massive two-volume set has 37 chapters devoted to various areas of the chemical industry—indeed, almost all areas of the chemical industry. Among other topics dealing with specific chemicals, information is provided on process safety, emergency preparedness, statistical modeling, and green engineering. The book is "future looking" with its discussion of the foregoing topics. However, "... the heart of the book is contained in twenty-eight chapters covering various areas of the chemical process industry."

Given the length of the volumes, I can only comment on a fraction of their contents. Let me start by listing the chapter titles:

1. Recent history of the chemical industry
2. Economic aspects of the chemical industry
3. Safety considerations in the chemical process industries
4. Managing an emergency preparedness program
5. Applied statistical methods and the chemical industry