of chemical kinetics in environmental waste treatment processes and biological systems in Chapter 6. Applications of reactor models and transport theory are exemplified in Chapter 6".

Each chapter is accompanied by numerous student problems (e.g. Chapter 2 has 42 problems; Chapter 3 has 94 problems) for student assignment. Selected (but not all) answers to these problems are found in the appendix.

I turn now to the last chapter, "Applications of Chemical Kinetics and Mass Transfer Theory". Here the author discusses reactors and reaction kinetics. Next comes a focus on the water environment including fate transport of contaminants (from waste to other media), air stripping and photocatalytic reactions. In the air environment subsection, Valsaraj discusses fate and transport (of air pollutants) models including the often-cited Gaussian model.

I was particularly (having taught an air pollution control course) interested in Valsaraj's treatment of air pollution control devices: gravity settlers (not often used industrially any more because of their low particle removal efficiency but interesting in particular in regard to the theory of particle deposition), cyclones and electrostatic precipitators (missing, however, was a discussion of fabric filters). In the control of gases and vapors, adsorption, absorption and thermal destruction were examined.

In Section 4 (Chapter 6), soil and sediment environments are discussed. This is a topic of long interest to Valsaraj's LSU colleague, Louis Thibodeaux. Fate and transport modelling and soil and groundwater treatment are two of the major subsections here.

Finally, a topic of real interest to me (having a biochemical engineering background) and that was Valsaraj's discussion of biochemical engineering. Michaelis-Menten and Monod Kinetics, long a basis of predicting the rate of biochemical reactions are treated first to lay the groundwork for bioengineering, microbial reactions. This chapter ends with 77 student problems.

My overall reaction is (as it was for the first edition) that this is a very good book, but an edition made much better by the increase in number of student problems and new examples of the theories discussed.

Gary F. Bennett

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Remediation Engineering of Contaminated Soils

Donald L. Wise, Debra J. Trantolo, Edward J. Cichon, Hilary I. Inyang, Ulrich Stottmeister (Eds.), Marcel Dekker Inc., New York, NY, 2000, $250.00, 1008 pp., ISBN 0-8247-0332-4

"Remediation Engineering of Contaminated Soils" is a companion volume to "Bioremediation of Contaminated Soils," also published by Dekker but in the month prior to the appearance of this book. This book is advertised as a comprehensive reference "offering thorough coverage of the remediation of soils contaminated by hazardous wastes."

In the context of a wide variety of topics, the book is "comprehensive." But it is really only a collection of a large number of research review papers on a wide variety of topics. The text does not (nor does it purport to) comprehensively discuss each and every soil remediation technology. Contributions were supplied by over 100 researchers and scientists. With 41

papers involving over 1500 references, drawings, photographs, tables and equations, this book is an extensive review of the literature much as would be found (in topics covered) in a special topics issue of this journal (although a special issue of JHM would contain only a fraction of the number of paper found here).

The book is divided into four sections, roughly of the same length. The first section presents general engineering issues and discusses the regulation, ethical and technical framework with which these processes are manages. There are 10 papers in the section, beginning with one authored by two US EPA employees on "International Perspectives on Contaminated Land." Other papers in this section include ones on: (1) design considerations for hazardous waste landfills; (2) electrokinetic remediation, a topic of a special issue of the Journal of Hazardous Materials, some time ago; and (3) evaluation of the adequacy of hazardous chemical site remediation by landfilling.

The second (11 papers) section contains papers under the title of "Case Studies in Hydrocarbon Remediation." Most of the papers involve microbial treatment, and easily as a group could have been included in the bioremediation text noted above. The third, and longest (13 papers; almost 300 pages), section deals with "Traditional Soil-Specific Technologies" such as air-stripping, soil-vapor extraction, photolysis, ion-exchange and solvent extraction.

The final section contains several papers describing developing technologies: (1) use of CO_2; (2) novel (TORBED) process reaction; and (3) natural attenuation of explosives. Inexplicably, there were two seemingly out-of-place papers here in processing of vegetable raw material to produce fodder and municipal solid waste generation and management in Caracas, Venezuela.

Finally, a personal observation from an editor who is always seeking reviewers. Given the limited information supplied for each paper, it would present problems for me (as editor or someone who wanted to pursue the topic of the paper) in seeking out the author of the paper. At least for the United States, those authors at universities (the name of the university being given) could probably be contacted (it would be easier if the department names were given) but for those at companies or research institutions, it would be harder (but not impossible with internal resources) to get the addresses.

GARY F. BENNETT

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Biofilms: Investigative Methods & Applications

Hand-Curt Flemming, Ulrich Szewzyk, Thomas Griebe (Eds.), Technomic Publishing Co., Inc., Lancaster, PA, 2000, 264 pp., US$ 119.95, ISBN 1-56676-869-1

In the preface, the editors write, "During the last 10 years biofilms have become an important object of microbiological inquiry as a critical element in the preservation of quality within water systems as well as a key component of biological reactions in wastewater treatment. An understanding of biofilm development, structure and dynamics is one condition for improving water supplies and for addressing technical problems such as biofouling, corrosion and bioweathering."