

industrial atmosphere, but restrict the problem statements to one page. Statements, therefore, are sometimes awkward and problems often appear to be artificial. Furthermore, we tacitly assume a level of knowledge about equipment or processes which not all students have. As a result, the quality of the solutions submitted varies widely.

From an instructor's standpoint, the disadvantage of this brief treatment of problem solving is that we cannot develop adequate problem solving skills. At best we can only pass on the flavour of problem solving. We do give notice that orderly trouble shooting—problem solving procedures exist. We also illustrate how these procedures are applied. We believe that this is sufficient to justify trouble shooting in our curriculum. □

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BOOK REVIEW: Turbulent Mixing

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reaction are not particularly emphasized. These subjects appear in a context of fluid mechanical or heat transfer analogs and as additions to analysis of fluid mechanical mixing in turbulent shear flows. As might be expected there are no discussions of laminar shear or mixing in periodic flows.

This volume can be recommended for discover-

ing the state of research and for reading what workers in the area think about the topics presented. It tends to discourage a casual reader by showing great complexity, but at the same time it lays out a considerable portion of the problem for consideration by those who may not yet be lost in a maze of eddies. Of particular value are the experimental papers which give enough sampling of direct observation for a reader to ponder his own explanations and make his own uses of the information. Results from several types of novel experiments are presented, and these evoke interest not so much by the heuristic explanations given but by the nature of the experimental results. As with most proceedings the report is more valuable than the comment.

A review paper by the editor with an extensive bibliography and lists of references enhance the volume's purpose as a statement of position of a field of research and study. However, reading of this group of papers leaves the impression that mixing is not yet a discipline and that many of the approaches to quantitative understanding are giving diminishing returns for more effort. □

ChE book reviews

ELEMENTARY PRINCIPLES OF CHEMICAL PROCESSES

By R. M. Felder and R. W. Rousseau
John Wiley & Sons 1978, 576 pp, \$21.95

Reviewed by John D. Stevens
Iowa State University

This textbook by R. M. Felder and R. W. Rousseau of North Carolina State University is aimed at traditional mass and energy balance courses and contains heavy emphasis on engineering techniques used to solve process-related problems. This book has already made considerable inroads on the market most recently dominated by Himmelblau's stoichiometry text.

The book is divided into fourteen chapters. Part 1 consists of the first four chapters which introduce basic concepts on units, variables and data representation. Some sections of this, particularly Chapter 4 on data representation and analysis, may be skipped depending on the students' background. Part 2 covers material balances and Part 3 covers energy balances. Part 4 (Chapters 12-14) consists of three case studies

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ChE class and home problems

In the Spring 1980 issue of CEE, Professor Robert L. Kabel presented the "Prairie Dog Problem" and our student readers were encouraged to submit their solution to him at the ChE Department, Pennsylvania State University, University Park, PA 16802, by June 15th, 1980. This deadline for entries has now been extended to September 5th, 1980, and Professor Kabel's solution to the problem, will be published in the Fall 1980 issue of CEE. A complimentary subscription to CEE will be awarded to the best solution submitted in both graduate and undergraduate categories (please designate your student status on your entry.)

BOOK REVIEW: Chemical Processes

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of industrial processes. The book contains almost 600 problems, including many computer problems, at the end of chapters. In general, the text content is similar to Himmelblau's.

The strength of this text is in the authors' use of clear, concise language and carefully chosen examples to convey concepts to the reader. This text is obviously written with students in mind. To aid in the students' learning, important points are italicized and "Test Yourself" questions are scattered throughout the reading material. Answers to all "Test Yourself" questions plus some homework problems are given in the Appendix. In Parts 1 and 2, SI units seem to be used in about one-half of the examples and homework problems. However, in Part 3 the emphasis on SI units increases. Conversion tables on the inside cover make conversion factors readily available. The physical property tables in the appendix are quite complete although in some problems the authors also force the student to become familiar with Perry's Handbook as an information resource. However, the psychrometric charts are a disappointment. They have been reduced to 4.5 x 6" charts and are practically impossible to read. Most instructors will want to supply supplemental psychrometric charts.

Some instructors will also disapprove of the authors' decision to adopt the convention of positive work as that work done on a system by the surroundings. Thus, in the First Law the heat and work side of the energy equation becomes $Q + W$. While this convention has been adopted as an international standard, most current texts still use the opposite sign convention.

Nevertheless, this text appears to have many

more positives than negatives. The case studies offer the opportunity of assigning term-long, comprehensive problems to help tie course concepts together. Alternatively, the instructor can choose to emphasize computer aspects and assign programming problems. The authors have gone to considerable lengths to help instructors use this text. The problem solution manual is almost error-free and includes four suggested course outlines for either a semester course or a two quarter sequence. Complete solutions to the case studies are supplied. The text is flexible enough to offer an instructor the opportunity to design an introductory stoichiometry course to suit that instructor's own objectives.

The bottom line is whether this text is accepted by students. In our initial experience we found the students' acceptance to be exceptional. Quite simply, the students find the text readable and easy to learn from. They find the problems understandable and worthwhile.

In summary, this text merits serious consideration by any instructor who teaches an introductory chemical engineering course. □

AIR POLLUTION—3RD EDITION VOL. IV— "ENGINEERING CONTROL OF AIR POLLUTION"

Edited by Arthur C. Stern
Academic Press, Inc., N.Y.
Reviewed by William Licht
University of Cincinnati

In 1970 Professor Arthur C. Stern was presented the Richard Beatty Mellon Award of the Air Pollution Control Association because (in part) he was "the man who wrote *the* book!" The reference was to the monumental "Air Pollution" already in its second edition (1968) of three