(*Continued from previous page*)

reference purposes, within the last two years. In my opinion Prof. William's *Polymer Science and Engineering* is worthy of consideration as a text along with *Principles of Polymer Systems* by Rodriquez and *Textbook of Polymer Science*, 2nd Ed., by Billmeyer. All three should be readily accessible to chemical engineers in the polymer field.

The first half of all three texts cover generally similar material (polymer synthesis, general properties, etc.), but in the last half of *Polymer Science and Engineering* the author discusses viscoelasticity, rubber elasticity, and somewhat more rheology rather than the various commercial polymers and fabrication processes that the authors of the other two books do. Having tried both the commercial polymer and process approach and the additional theory approach with chemical engineering seniors, I found from post-course evaluation sheets that the students much preferred the commercial polymer approach. I feel that the latter part of "Polymer Science and Engineering" is very appropriate in a first-year graduate course. Various instructors will differ somewhat on the nature of material that should be presented, however.

The problems at the end of the text are a great asset to the book. Such problems are almost indispensable in teaching senior chemical engineers.

Two seniors taking a chemical engineering polymer course were each asked to evaluate a chapter for readability, clarity, and depth. They read the chapters on polymer synthesis and found the readability and the depth of coverage very good. The introductory material at the beginning of the chapters was found somewhat disjointed, although perhaps no more so than similar works. The ionic polymerization material was particularly good. Over all, one student slightly preferred *Polymer Science and Engineering* as a text, and the other slightly preferred the text by Rodriquez, which is now used in the course.

In conclusion, *Polymer Science and Engineering* is a welcome addition to the field. It will be of value to all as a reference work, particularly for the latter chapters, and should be considered a serious candidate among textbooks for senior and first-year graduate chemical engineers.

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Fundamental Principles of Polymeric Materials for Practicing Engineers, Stephen L. Rosen, Barnes & Noble, New York (1971). 275 pages. $4.95.

This book is one of the publisher's Professional Engineering Career Development Series of "Fundamentals" books. The titles in the series cover a broad range of subjects of interest to the technical practitioner. The relatively inexpensive paperback format is durable and convenient.

Rosen presents the basics of the broad subject of applied polymer science in four main sections: Fundamentals, Synthesis, Properties, and Technology. Emphasis is placed on how a given molecular structure is obtained and how that structure determines practical aspects of processing and properties.

Basic principles are discussed in an informal, sometimes folksy, manner. The qualitative discussion is amplified in some cases by simple mathematical development and numerous "practical" problems and examples. Figures are used to fairly good advantage and quite a bit of jargon is introduced. Since the broad range of subjects discussed precludes any in-depth coverage, basic references are listed for further study.

The book serves as a good introduction for a variety of subjects from polymer chemical bonding to extruder operations. While persons familiar with the field will find little here except a review of basics and a list of reference books and articles they probably already use, chemical engineers who have little or no experience in the area should find the book a good starting place.

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Controlled Test Atmospheres, G. O. Nelson, Ann Arbor Science Publishers, Inc. (1971). 256 pages. $17.50.

The purpose of Nelson's book is to present principles and methods for producing various gas atmospheres. The book is aimed at analytical chemists, air pollution control engineers, industrial hygienists, and animal toxicologists. The major topics are the gas laws, air purification, flow and volume measurements, and production of gas mixtures in static and dynamic systems. The book attempts to bring together the many techniques scattered throughout the literature.

The methods and principles discussed are the classic ones. Many of the descriptions are rather cursory. Nelson prefers to reference the literature rather than to present detailed descriptions; this detracts from the book's usefulness. Most of the techniques represent applications of elementary principles; chemical engineers will be familiar with many of those mentioned and will be able to improve some of them.

Nelson treats some material inadequately. For instance:

1. He discusses the relative effectiveness of solid desiccants, but does not give enough information to design a system for a given level of water removal.
2. Equation (47) cannot be integrated as indicated to give Equation (48) (a correct expression).
3. Gas compressibilities are used incorrectly in example 19; Kay's rule would be better to use here.
4. Rate constants for chemical reactions are given without mention of the temperature to which they refer.

The concept of presenting in one volume the principles and techniques of generating controlled atmospheres is good. However, the book could be improved by a more careful, detailed, and in-depth presentation of the material. This could be accomplished in about the same space by eliminating the development of very elementary stoichiometric relationships, by presenting fewer examples of the type where numbers are simply substituted in formulas, and by presenting fewer graphs and tables of handbook data (for example, values of the molar gas constant, conversion factors).

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ERRATUM

In the Table of Contents for the November 1971 *Journal* the first author of the paper "Axial Dispersion of a Non-Newtonian Liquid in a Packed Bed" is C. Y. Wen, not C. Y. Yen.