Magyar, master cellist for 16 years with the Hungarian String Quartet. Meanwhile Betty, the Berkeley music major, continues the family tradition by operating her own music studio.

In summary, Dick has made a significant contribution by identifying electrochemical phenomena where chemical engineering concepts find welcome application. He has helped unify diverse electrochemical subfields so that intercommunication between them has been promoted. Through his research students and his professional activities, he has contributed significantly to the broadening horizon of chemical engineering.

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MASS TRANSFER IN ENGINEERING PRACTICE

By Aksel L. Lydersen
John Wiley & Sons, 1983, xiii + 321 pgs, $39.95

Reviewed by F. L. Rawling, Jr.
E.I. Du Pont de Nemours & Co., Inc.

This book is a companion volume to the author’s previous book “Fluid Flow and Heat Transfer” (John Wiley & Sons, 1979). The aim of the present volume is to present a short refresher course in those areas of unit operations specifically dealing with mass transfer. The book consists of eight chapters: an introductory chapter on the principles of diffusion and seven chapters covering distillation, gas absorption and desorption, liquid-liquid extraction and leaching, humidification, drying of solids, adsorption and ion exchange, and crystallization. The introductory chapter on the principles of diffusion provides a summary of the major equations together with a short discussion of the various types of diffusion, i.e. diffusion with bulk of mass in motion, eddy diffusion, molecular diffusion in liquids, etc. A short discussion of the two film theory and the penetration theory is also presented. No attempt is made at providing a fundamental treatment of the subject of diffusion; rather, reference is made to the literature. Several problems, typical of those encountered in industry are worked out in detail. There are four problems to be worked by the reader. The chapter ends with a good bibliography, although half the references are pre-1970.

Approximately two-thirds of the book is concerned with staged operations, reflecting the industrial importance of this type of process. In general, each chapter follows the same outline: a short discussion of the theory involved together with the relevant equations, a discussion of the unit operation presenting the assumptions involved and the major design equations, a very general discussion on the various types of equipment employed, a series of worked examples, a set of problems to be worked by the reader, and a bibliography.

The worked examples in each chapter make this book worthwhile. They are well chosen to illustrate industrial problems and are worked out in detail, giving the assumptions and reasoning involved in arriving at a solution. In a few instances, a programmable calculator (Hewlett-Packard) is used in the solution of a problem. The calculator program is given.

I believe the book fulfills its goal, i.e. a refresher course in mass transfer. The many references adequately direct the user to the fundamental literature. Practicing engineers faced with a problem in an area of mass transfer that they have not been involved with for some time will find this a good, succinct review. Students will find the worked examples illuminating. Instructors should find this book to be a useful adjunct to their course.
activities of the teacher, but by a more efficient use of the students’ and lecturer’s time; i.e. the internal efficiency of the instructional process has been improved.

The main feature of the new course is the modular system. We developed a teacher-paced modular system which allows the students to study on a full or a 60% pace (a 2 gear-system). Remedial teaching was not applied. This system resulted in a constant study load in transport phenomena during the semester and few students lost the junction in an early phase as they had in the past. We may conclude that it is worthwhile to apply a modular scheme, even under very restricted conditions of faculty time.

ACKNOWLEDGMENT

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LITERATURE


THE HISTORY OF CHEMICAL ENGINEERING AT CARNEGIE-MELLON UNIVERSITY

By Robert R. Rothfus
Carnegie-Mellon University,
Pittsburgh, PA 15213, 302 pages

Reviewed by
Robert B. Beckmann
University of Maryland

The author, Robert R. Rothfus has been associated with the chemical engineering program at Carnegie-Mellon, as a graduate student and faculty member, for over forty years, a period that covers over half the Chemical Engineering programs total existence and almost the entire period of its existence as a separate department. The book was obviously a labor of love to Professor Rothfus as evidenced by its attention to statistical detail and anecdotes as well as historical development.

The first part of the book outlines the historical development of the school beginning with Andrew Carnegie’s original offer to establish an institution for technical education on 15 November 1900 and traces the development from the “Carnegie Technical Schools” to the transition (1912) to Carnegie Institute of Technology and the final transition (1967) to Carnegie Mellon University. Following the detailed development to University status the book turns to the historical growth and development of the original School of Applied Science . . . one of the four original Schools founded by the Carnegie gift . . . to the current College of Engineering. The first diplomas in Chemical Engineering Practice were awarded in 1908 along with the initial “Diplomas” in the Civil, Electrical, Mechanical and Metallurgical Practice fields. Included are statistical and organizational details relating to the various departments, research laboratories, interdisciplinary programs, the academic calendar, tuition and enrollments.

The development and growth of the Chemical Engineering Department is chronicled in Chapter 4, beginning with the original Chemical Practice program in 1905 and the transition to Chemical Engineering in 1910. The chapter divides the history of the Department into quantum periods depending upon who was the chief administrative officer of the department during that period. The problems, issues and accomplishments of each period are well chronicled. The development is carried through 1980.

Part Two of the book, which comprises over 40 percent of the total pages is devoted to an exhaustive presentation of departmental statistics from its inception through 1980. The various chapters include such topics as enrollment and degrees granted, the faculty over the years, the changing undergraduate curriculum and graduate instruction, research activities and financial support and anecdotal sections devoted to departmental “personalities” and a recalling of the unusual, comical and tragical events over the years. The Appendices, about a third of the book, are devoted to a complete delineation of faculty, staff and students (graduate and undergraduate) by name and years of service, or graduation, who have been a part of the Carnegie Story in chemical engineering.

Continued on page 48.


**BOOK REVIEW: Carnegie-Mellon Continued from page 37.**

Obviously the book is not intended for use in the usual academic sense and its particular audience is the many people ... faculty, staff and students ... who have contributed to chemical engineering at Carnegie over the years. It can also serve as a guide to those considering similar undertakings at their own institution in pointing out the monumental effort involved. Admittedly, this reviewer is not wholly unbiased in consideration of this volume inasmuch as he has spent almost half of his academic career at Carnegie, but he can attest to a considerable portion of the accuracy of Professor Rothfus’ many details. Its delightful reading!!