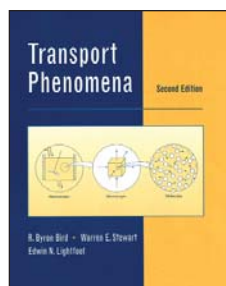


Transport Phenomena, Revised 2nd Edition

R. Byron Bird, Warren E. Stewart and Edwin N. Lightfoot,
John Wiley & Sons, Hoboken, NJ, 920 pages, 2007,
\$136.95 hardcover, ISBN: 978-0-470-11539-8

The first edition of "Transport Phenomena" came into the world in 1960 with a postface containing eleven paragraphs.



The first letters of the paragraphs spelled out "ON WISCONSIN." The postface of the second edition has been completely changed with fresh insights — but "ON WISCONSIN" is still there. Similarly, the book remains an elegant treatise on the power contained in first principles. It displays great intellect and wit, befitting its legendary authors — the

Univ. of Wisconsin's R. Byron Bird, the late Warren E. Stewart, and Edwin N. Lightfoot.

Often referred to simply as "BSL" (which we all know stands for the authors' initials), the book begins with molecular interaction models, mixes in mathematics, and on this basic framework constructs a set of relationships to explain a medley of subjects that chemical engineers work with when we cause materials to flow, heat or cool — or to move from one phase to another. The book makes believers of anyone who has followed the examples or tried to answer the discussion questions at the ends of the chapters. BSL demonstrates the logic behind the rules of chemical engineering.

The original book was so elegantly done that for a long time many believed that nothing in the chemical engineering literature could improve upon it — until someone noticed that the index failed to contain words like "pump," "distillation," "process," or "design." This provided the basis for old-timers to keep their other books of chemical engineering wizardry around for reference.

I thought it was a great book when I first encountered it 45 years ago. The revised second edition has improved the physical presentation but it remains much the same. It is still a great book. It is physics — on a practical level.

Whether the chemical engineering discipline will continue to grow on this level is unclear. In the years since 1960, we have acquired enough data and empirical correlations that most things can be looked up or predicted. Much of today's chemical engineering is dependent on messy applications in turbulence and two-phase flow that the book does not address well. Another change is that current software tools and homemade spreadsheets have obviated much of the need for the book's mathematical elegance.

BSL will continue to be a great teaching tool for chemical engineers, even if it has less practical application for today's design engineers.

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Commercialization of Innovative Technologies: Bringing Good Ideas to the Marketplace

C. Joseph Touhill, Gregory J. Touhill and Thomas O'Riordan,
John Wiley & Sons, Inc., Hoboken, NJ, 252 pages, \$65,
Apr. 2008, ISBN: 978-0-470-23007-7

The engineering field is brimming with new technological development. This book offers inventors, engineers and business people an intelligent, entrepreneurial approach to bringing innovative products and technologies to market.

The authors set the stage for successful commercialization, concentrating on three core areas: developing and managing a strong innovation team of inventors, investors, technologists and entrepreneurs; building a portfolio that distributes risk; and leveraging input from technologists throughout the commercialization process. Early chapters establish a foundation with details on how to develop an effective strategic plan and how to recruit and work with a diverse innovation team. This is followed by hands-on tactical topics such as how to find, fund, assess, develop, design and demonstrate innovative technologies. The final chapters discuss the follow-through after successful commercialization, including further improvements to the technologies.



Phase Equilibria, Phase Diagrams and Phase Transformations: Their Thermodynamic Basis

Mats Hillert, Cambridge Univ. Press, New York, NY,
524 pages, \$85, Dec. 2007,
ISBN: 978-0-521-85351-4

This second edition, a revision of the original 1998 volume, presents the fundamentals of thermodynamics, with an updated discussion of computer applications.

The book covers the theoretical basis of chemical equilibria and chemical engineering, with an emphasis on the properties represented in phase diagrams. Starting with the basic principles, discussion moves to systems involving multiple phases. Three new chapters have been added to the latest volume, covering irreversible thermodynamics, extremum principles, and the thermodynamics of surfaces and interfaces. Theoretical descriptions of equilibrium conditions, the state of systems at equilibrium, and the changes as equilibrium is reached are demonstrated graphically.

Illustrative examples and exercises with solutions are included throughout the book, making this suitable as a text for advanced students of thermodynamics. Additional exercises are available on the Cambridge Univ. Press website (www.cambridge.org). Also on the website — the thermodynamic package Thermo-Calc, used by the author for computer applications, is accessible to readers for a free trial.

