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BOOKS

Mechanics of Solids and Fluids, Robert R. Long, Prentice-Hall, Inc., Englewood Cliffs, New Jersey (1961). 156 pages. Trade edition \$9.00, text edition \$6.75.

A large part of this book is concerned with stress, strain, and equations of motion in a continuous three-dimensional medium. As an introductory text it is primarily restricted to matter with linear stress-strain diagrams, such as elastic solids and Newtonian fluids. But it is not just another mechanics book. The vector and tensor notation allows the author to devote more space to concepts than to lengthy equations and at the same time describe situations of more than one or two dimensions. The qualitative discussion of plastic solids and plastic fluids is interesting. Theory is emphasized, but applications are clear.

For the chemical engineering student this book would be useful for considering force balances and one-phase motion

problems in a general notation. It would be useful for learning some applications of calculus and boundary value problems. But little is said about fluids and even less about real fluids that have viscosity and friction. The author's attitude is expressed in his discussion of the Navier-Stokes equation where he mentions that "In nearly all cases of practical importance the frictional terms are only a very small fraction of the other terms, except in limited regions." Three paragraphs are devoted to turbulent flow. The brief discussion of real fluids is well done however.

This is not a chemical engineering book, but it can provide a link between the mechanics of civil engineering and the fluid flow of chemical engineering. This would, for example, be good preparation for reading new texts such as "Transport Phenomena" by Bird, Stewart, and Lightfoot.

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Physical Chemistry, 2 ed., Farrington Daniels and Robert A. Alberty, John Wiley and

Sons, Inc., New York (1961). 744 pages. \$8.75.

This book continues to be an outstanding one for its purposes, that is, as a text for comprehensive first course in physical chemistry. The new edition includes several topics and approaches not in the first edition and is substantially reorganized.

Much of the early work in physical chemistry was concerned with the average properties of large parcels of molecules. This deterministic approach, of which classical thermodynamics is an example, has lead to the development of many useful relationships. In recent years however more investigations have been concerned with the properties of molecules themselves; the stochastic approach, involving molecule to molecule variations, is becoming increasingly important. This emphasis on molecular properties has strongly influenced the reorganization of this edition. Classical thermodynamics has been presented first, kinetic theory follows, and then the sections on quantum theory, mo-

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