are all specialists in their fields. In terms of semiconductor physics, it is a fine review, ranging from theory through experiment to technology. Although about 60 per cent of the papers deal with work carried out in industrial laboratories concerned with the applications of solid-state electronics, the reports themselves emphasize the results of basic research. There is also a highly readable survey by W. Shockley entitled, "Crystals, Electronics, and Man's Conquest of Nature", which, for the most part, is a nontechnical account of the fundamental findings disclosed in the symposium.

The format of the four volumes is impressive. The heavy, coated paper is excellent for halftone reproductions, and each article is generously illustrated with diagrams and graphs and is documented with adequate references. There is, however, no index, although each volume has a table of contents.

Mechanics of Solids and Fluids. By Robert R. Long. 156 pp. Prentice-Hall, Inc., Englewood Cliffs, N. J., 1961. $9.00. *Reviewed by R. C. Alverson, Stanford Research Institute.*

INTENDED as an elementary text for the advanced undergraduate, this book is a welcome and much needed departure from the traditional exposition of the mechanics of continuous media. Throughout the book, the emphasis is on fundamental mathematical and physical concepts in continuum mechanics rather than on the solution of boundary-value problems. Further, the book is entirely free of the usual morass of numerical examples which do little more than teach students to ignore concepts and to substitute numbers in a compendium of formulae. Each of the eight chapters includes a set of problems devised to enhance the student's mastery and appreciation of the subject matter.

The author devotes the first chapter to the Cartesian tensor (and the remainder of the book, for the most part, is written in Cartesian tensor notation) and then introduces the notion of a continuum as an idealization of a solid or a fluid. He then proceeds with the definition of stress and the derivation of the equations of motion in a continuous medium. In the definition of stress and strain rates, both the Eulerian and Lagrangian viewpoints are used. Following a chapter on the properties of material, the remainder of the book is devoted to solids and fluids whose stress and deformation tensors are linearly related. The partial differential equations which govern the motion and deformation of continuous media are derived in great detail. Plane stress and plane strain, elastic-wave propagation, the barotropic fluid, and the vorticity equations of Cauchy are some of the special topics discussed.

One criticism which may be leveled is the absence of a clear discussion which would point out that, in a linearly elastic solid with small strains, there is no difference between governing differential equations

when derived by either the Lagrangian or Eulerian viewpoints. There are, however, some who will argue that the use of Cartesian tensor notation is too advanced or sophisticated for the undergraduate student. This is a fallacy; any undergraduate who has mastered calculus and analytic geometry well enough to advance to the third year of a course in science will have little difficulty in getting used to the notation.

In general, the book is very well written and should prove useful, not only to the undergraduate in physics or engineering, but also to the student of mathematics who wishes to gain insight into and appreciation for the subject of mechanics.

Probability: A First Course. (319 pp., $5.00) and **Probability with Statistical Applications.** (478 pp., $6.50). By Frederick Mosteller, Robert E. K. Rourke, George B. Thomas, Jr., Addison-Wesley Publishing Co., Inc., Reading, Mass., 1961. *Reviewed by Robert J. Malach, Eastman Kodak Company.*

FOR the individual seeking a sound, basic introduction to probability and an insight into statistical application, *Probability: A First Course* is an excellent book. The basic material on the probability theory includes discussions of sample spaces, events and sets, Bayesian inference, random variables, and expectations; this is instructive reading regardless of the background of the reader. Special emphasis is given to the binomial theorem and its probability applications. Two of the tables include the individual and cumulative terms of the binomial distribution. All topics are well illustrated with a broad scope of applications. The concluding chapter consists of examples of statistical applications of probability. With an understanding of high-school algebra, the reader will have very little trouble following the text material and working the wide range of problems.

The same material can also be found in the book, *Probability with Statistical Applications,* in which the authors have extended the statistical applications of probability theory in three new chapters. These include good and well-illustrated discussions of joint and continuous distributions, the normal probability distribution, sampling theory, correlation, curve fitting, and the application of least squares to regression analysis. The latter three items compose an additional chapter to the material covered in the continental classroom text, *Probability and Statistics,* by the same three authors.

Viscoelastic Properties of Polymers. John D. Ferry. 482 pp. John Wiley & Sons, Inc., New York, 1961. $15.00. *Reviewed by Stuart A. Rice, Institute for the Study of Metals, The University of Chicago.*

AS in many other fields, the study of the viscoelastic behavior of polymers can be conveniently divided into two categories. First: the development and application of a consistent macroscopic formalism character-