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## *Book Reviews*

**Brekhovskikh, L., Goncharov, V.: Mechanics of continua and wave dynamics.** Springer series on wave phenomena, vol. 1, 342 p., Springer-Verlag, Berlin, Heidelberg, New York, Tokyo 1985.

This volume is a simple introduction to the mechanics of continua which has emerged from lectures given by the authors at the Physico-Technical Institute at Moscow. It is divided into two main parts:

The first part (consisting of 5 chapters) deals with the theory of elasticity in the limit of the linear theory and of isothermic or adiabatic strain. The first two chapters contain the basic laws of the deformation of an elastic body and an analysis of waves and vibrations in rods. Chapter 3 and 4 then proceed with the general theory of stress and strain and wave propagation in simple media. Chapter 5 gives a treatment of waves in plates, which is of special interest for model seismic experiments.

The second part on fluid dynamics, which comprises 9 chapters, is by far the more extensive and comprehensive part of this volume. Again it starts with the simplest case of ideal fluids and potential flow. In chapter 8 viscosity is introduced and chapter 9 gives the basic theory of turbulent flows. The remainder of the volume is devoted to waves in fluids. Gravity waves and sound waves are studied in chapters 10 to 12. In chapter 13 some aspects of magnetohydrodynamics are discussed, and chapter 14 finally gives an introduction to nonlinear effects in wave propagation.

An appendix on tensors, a bibliographical sketch with proposals for further reading and a subject index are included.

The intention of this volume is to present the main features of continuum mechanics and wave propagation in a simple and self-contained manner without using much sophisticated mathematics. This goal is achieved by the authors: all the material is presented step by step, starting with simple questions and proceeding to more complicated ones.

A very important part of this volume are the numerous exercises (including solutions) which conclude every chapter. By trying to solve at least some of them the reader can immediately check his understanding. Some of the exercises also give additional information which is excluded from the main text.

The only criticism I have is that the part on elastic waves in solid materials is too short. Therefore many topics of special relevance to seismology had to be omitted. For example, nothing is said about seismic sources and the propagation of spherical waves. Ray theory and viscoelasticity are other topics which have been excluded.

In spite of this shortcoming the volume can be strongly recommended as a textbook for students in the field of physics and geophysics. It requires only the knowledge of basic mathematics as given in undergraduate courses, and it provides the background for the study of other monographs on this subject. **M. Korn**