

T. C. Bradbury: *Theoretical Mechanics*,
John Wiley & Sons, Inc., New York 1968,
641 pp., price 114 shillings.

In spite of the fact that so many books are written on the field of theoretical mechanics, the choice of the subjects makes this book valuable as a guidance for elementary courses in mechanics. In the first three chapters an extensive introduction to vectors, tensors, and matrices is given. The knowledge, gained in these chapters, forms a good mathematical background for the mechanical problems treated in the following chapters. However, it should be remarked that the summation convention is not used consistently in these first three chapters, which may cause some confusion.

Chapter four is called: The one-dimensional motion of a particle. This chapter is very extensive and examines the mechanics of a single particle of constant mass restricted to move along a straight line and other physical systems which obey identical differential equations.

Chapter five is called: Introduction to field theory. Here the nature and origin of some of the forces acting on a particle are studied. This chapter is intended to be a preliminary to subjects studied in the sixth chapter treating the motion of a particle in two and three dimensions.

In chapter six attention is concentrated on the development of the mechanics of a single mass point in a given force field. Both the Newtonian and the Lagrangian method are used. Hamilton's equations are introduced. The solution of certain problems by means of Jacobian elliptic functions is presented as well.

Chapter seven is the last chapter dealing with the motion of a single particle in a prescribed externally generated force field and is called: Motion of a charged particle in an electromagnetic field.

Chapter eight starts with the study of many particle systems.

Chapter nine is called: The two-body central force problem and scattering theory. In this chapter the interaction of two particles is treated.

Chapter ten is called: Relative motion and rigid body dynamics. Here problems of relative motion is dealt with in a classical way.

Chapter eleven is called: The calculus of variations. This chapter contains an introduction to the calculus of variations and applications to problems in mechanics.

Chapter twelve is called: Vibrating systems. In this chapter, several problems of gradually increasing complexity are treated, culminating with a discussion of one-dimensional continuous systems.

Chapter thirteen is called: Special relativity. This chapter gives a rather good insight in special relativity and treats some problems e.g., space ship driven by photons.

A. J. Hermans.