

the claim pass. The book is exasperating because, while there are some things in it that are worth saying, too many are said badly.

The subject demands precise treatment and clear definition of terms, but clear definitions we do not get; *vide*: "The physical variables that we use are of two *significantly* different sorts. The sort of variable that *probably first comes to mind* . . . we shall class as substantial variables." (Reviewer's italics.) The chapters on units are too often verbose and obscure. Those on similitude and dimensional analysis are more rewarding, though they are also unnecessarily laboured. This is not a book to be recommended to the busy reader who wishes to clarify his ideas with a minimum expenditure of effort.

R. W. HAYWOOD

Electrodynamics of Continuous Media. L. D. LANDAU and E. M. LIFSHITZ. Authorized translation from the Russian by J. B. SYKES and J. S. BELL. Pergamon Press, Oxford, 1960, 417 pp. 84s.

THIS work is the eighth in a series of publications by the authors on theoretical physics. The essential basic theory of electrodynamics of continuous media is presented rigorously and with great economy so that the reader is assumed to be familiar with the main mathematical techniques and theories of physics. Although the book deals primarily with the macroscopic theory the authors

have successfully incorporated the atomic and molecular viewpoint.

The initial chapters deal with a very comprehensive study of the electrostatics of dielectric materials. Here temperature-dependent properties are fully discussed with the aid of classical thermodynamics. The conductivity tensor is introduced, and the theory relating to the flow of current in isotropic or anisotropic materials is developed and leads to a discussion of the Hall effect and thermoelectric phenomena. An exhaustive treatment, carefully supplemented by physical arguments, is then given on the structure of magnetic materials and the theory of superconductors. Some transient problems are discussed, namely the effect of a variable magnetic field on a conductor, i.e. eddy currents and the skin effect, together with a discussion on the excitation of currents by the motion of a conductor in an electromagnetic field.

The remainder of the book, apart from that section which deals with the electromagnetic field equations, is devoted to the discussion of some special topics. These are magnetohydrodynamics, magnetic-optical effects, ionization losses of fast particles in matter, black body radiation, dispersion theory of electromagnetic waves and finally the general theory of X-ray diffraction.

This book stands out as a piece of careful exposition and should have a strong appeal for both physicists and applied mathematicians. The translators are to be commended on the excellence of their work.

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