Introduction to Theoretical Physics. By Leigh Page. New York, Van Nostrand, 1928. x+587 pp.

This book, which is based on a course of five hours a week for a year, given by the author at Yale, covers in a very satisfactory but, necessarily, not very detailed way those parts of theoretical physics with which every graduate student should be acquainted. An introduction (39 pp.) gives the usual theorems of vector analysis and the vector notation is consistently used in the subsequent portions of the book. Part I (pp. 41–84) treats the dynamics of particles, of rigid bodies, deformable bodies and advanced dynamics (including a useful section on phase integrals and action variables). Part II (pp. 185–248) discusses the hydrodynamics of perfect and viscous fluids. Part III (pp. 249–316) is devoted to classical thermodynamics, statistical mechanics, and the kinetic theory of gases. Part IV (pp. 317–484) treats electrostatics and magnetostatics, electric currents and electromagnetic theory (including such topics as the principle of relativity, the Compton effect and the distribution of energy in the normal radiation spectrum). The concluding Part V treats of geometrical optics, physical optics, and the origin of spectra (including the Bohr theory of the hydrogen and helium spectra, Stark effect, electronic bands).

It is quite clear that any attempt to give an account of so many things in one book must forego any particular novelty of treatment and must have usefulness as its aim. The book under review should prove very useful for many years to students beginning graduate work and its careful exposition will permit many an instructor to treat in detail matters in which he is particularly interested. The printing is excellent and the proof reading must have been done with great care.

The following minor points seemed to call for some criticism. The definition of a vector on p. 1 is a tautology since no explanation of, or criterion for, what is meant by *having direction* is given. This is cared for subsequently in §8. Since the vector product $\mathbf{p}\times\mathbf{p}$ is the zero vector and not the scalar zero, the zero (p. 6) should be set in black type. The definitions of velocity and acceleration on p. 42 might well bring out clearly the fact that these terms are defined *relative to a given reference frame.* It is necessary to show that the angular velocity vector (as defined on p. 86) actually is a vector; the statement on p. 88 describing the analytical character of the difference between linear and angular velocity is hardly satisfactory, the real distinction being that what is called angular velocity is really a dyadic or linear vector function. The significance of the word rigid (p. 100, l. 15) is not clear. The definition of number of degrees of freedom on p. 168 is valid only for holonomic systems and the discussion of p. 169 is applicable, as given, only to systems having fixed constraints. The reason for fixing the limits of the phase integral for a cyclic coordinate (p. 181) as 0 and 2π is not explained.

We recommend this book to all mathematicians interested in applied mathematics (may their tribe increase). For this group of readers the work would be greatly improved if suggestions for further reading were given at the end of each chapter.

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