varies from the extremely lucid and precise standard set in Chapter 5 to some very loose and slipshod sentences elsewhere. Thus, to quote a trivial but irritating example, we have on page 23 "an algebraic expression (such as the Gaussian probability function)". The conditions for the validity of the boundary layer theory are formulated on p. 309 in very vague terms. Thus condition 4 "the velocity components tangential to the boundary are of the order of magnitude of U" raises the obvious question "where?". At the solid boundary? Inside the boundary layer? Outside the boundary layer? The author and the reviewer know the answer to this question and the reader can certainly find it out. But one would prefer to see these things stated precisely and explicitly.

Again Wieghart's method for solving the boundary layer problem is quoted as the best of those available. That estimate may be sound, and at least represents a tenable point of view. But it would be difficult to imagine that anyone, without having read the original paper, could possibly find out from the discussion on pp. 337–9 of the book even what the method is about.

Apart from such occasional lapses in clarity the book is strongly recommended to all students of fluid mechanics and, more particularly, to all who teach this topic.

Principles of Electricity: An Intermediate Text in Electricity and Magnetism (3rd Revised Ed.). By Leigh Page and Norman Ilsley Adams, Jr. 533 pp. D. Van Nostrand Co., Inc., Princeton, N. J., 1958. $7.50. *Reviewed by Joseph G. Hoffman, University of Buffalo.*

YEARS of usage since the first edition of 1931 have made Page and Adams a reference point in the evaluation of texts on electricity. The third edition retains the essential physical approach that has made its predecessors a standard intermediate between elementary and mathematical theory. A major innovation in the new edition is the introduction of the mks system of units, and tables for conversion between the several systems of units.

Many sections of the text are remarkable for lucid presentation unencumbered by mathematical machinery. There is, however, a price to be paid for the nonmathematical approach. For example, an elucidation of stresses in dielectrics requires the use of Maxwellian stress tensors, which are not discussed by Page and Adams. The sections on stresses in dielectrics are probably the best ones extant for pedagogical purposes. Yet close examination shows that the simplified version of stresses between lines of force fails to bring out a fundamental feature of the Maxwellian picture, namely that the existence of the stresses permits one to deduce a Coulomb attraction between unlike charges and the repulsion between like charges. The reader gets an incomplete picture of the tension between electrical lines of force; this concept has to be filled in by the teacher.

In many instances the text omits details and names that by now are considered classic. For example, the discussion of the electric field does not mention the Lorentz field or the names of Clausius and Mossotti although their equations are derived. The discussion needs to be extended since the field calculated in the text (p. 48) is known to be physically impossible in dielectrics such as water. An adequate presentation for the beginner would require the additional applications of elementary electrostatics along the lines developed by Onsager and Kirkwood. As it stands, the text needs a well-informed teacher to develop for the student a picture of the field in dielectrics in its most elementary forms.

The teacher must also know about the many diverse texts on electricity and magnetism because of the lack of uniformity in defining dielectric constant, k. Page and Adams defines it as related to the displacement by $D = kk_0E$. Students find textbooks defining k/k_0, as well as kk_0, as relative permittivity, and even defining kk_0 as dielectric constant. Page and Adams is consistent (or should one say "rational"?) in its use of the physical picture underlying the definition of the constant. The many different definitions that the student may encounter can only be reconciled by careful discussion and a little humor.

Although it does not give a detailed picture of intermediate electricity and magnetism, the third edition of Page and Adams is a handy pedagogical tool. Its format is excellent. It is practical in the sense that it devotes major space to describing the well-known methods for measuring electric and magnetic entities. The problems given with answers are guideposts for the student's application of principles given in the text, although here again it should be noted that the teacher must supplement the text and interpret the physical meaning of the problems posed.

Cosmic Electrodynamics. By J. W. Dungey. 183 pp. Cambridge U. Press, New York, 1958. $6.00. *Reviewed by Rolf Landshoff, Lockheed Missile Systems Division.*

MAGNETIC fields as well as highly ionized gases are encountered throughout the universe in various structures of interest to the astrophysicist. The significance of this fact as the cause for numerous phenomena was recognized by Alfvén. With the publication of his important monograph in 1950 research in this field received a tremendous boost. Dungey's volume is meant to bring the reader up to date.

A little more than half the book is devoted to basic theory. Being rather short the book only touches lightly on many important contributions. The variety of shock types discussed by de Hoffmann and Teller, for example, is not mentioned. In the section on magnetostatics, on the other hand, one finds lengthy discussions of mathematical details which are only of secondary importance.

The latter part of the book contains a useful description of some relevant cosmic phenomena and their theoretical interpretation, covering solar phenomena, magnetic storms, aurorae, and ionospheric electrodynamics.