tionals and orthogonal functions. This introduction then sets the stage for a discussion of the mathematical problems which occur in various applications with special reference to autocorrelation functions and frequency modulation problems. These methods are then applied to a problem in encephalographic analysis. Some discussion is given of the significance of random excitation of nonlinear systems, in particular electric circuits and problems of coding and decoding are also treated by these methods. On the more speculative side possible applications of these methods to problems of quantum theory and statistical mechanics are also indicated. This little book should not only prove interesting and useful to anyone interested in the application of Wiener's methods to a variety of problems, but will certainly provide a valuable foundation for a study of the more formal mathematical works in this field by Wiener, Cameron and Martin, and Doob.

Advanced Mechanics of Fluids. By D. W. Appel, P. G. Hubbard, L. Landweber, E. M. Laursen, J. S. McNown, H. Rouse, T. T. Siao, A. Toch, C. S. Yih. Edited by Hunter Rouse. 444 pp. John Wiley & Sons, Inc., New York, 1959. $9.75. *Reviewed by J. Gillis, The Weizmann Institute of Science.*

WELCOME as a useful addition to the literature on fluid mechanics, this book contains in a reasonable compass a wealth of material on the subject. The writing is slanted to appeal to engineering students rather than to mathematicians, in accordance with the frankly stated purpose of the book.

Chapter 3 contains an impressive selection of mathematical methods, including some of the more recent advances in the subject. The section on numerical methods could have been usefully enlarged by the inclusion of some of the many methods which have in fact been omitted. It would be unreasonable to expect a full treatment of the subject, but some ideas of series expansion methods could have been valuable and perhaps also an introduction to some of the standard methods for numerical solution of differential equations.

Chapter 4 on complex variable methods follows more or less standard lines, but one is glad to see that it includes a discussion of two-dimensional airfoil theory by Joukowsky and related transformations.

Chapter 5 presents the theory of viscous flow as we have grown accustomed to seeing it in such standard works as those of Goldstein and Schlichting. The subsequent account of boundary layer theory is presented in a slightly novel manner. Laminar and turbulent flows are developed together in such a way that the reader can see at once exactly what the various alternative approximations neglect. The discussion of turbulence is characterized throughout by its practical approach.

The composite authorship of this book manifests itself in many ways. Although the examples at the ends of sections are always formally related to the material of their respective sections, they often show signs of a spirit from elsewhere. Moreover, the level of writing 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