screw with an arrow to show which way it is turned to make it advance. The Chinese saying that a picture is worth 10 000 words may be paraphrased to say that a line drawing is worth at least 500 words when it comes to explaining physics. The extensive series of white line drawings on black background in the section on optics are unsurpassed for clarity of presentation; their equal is rarely found in textbooks on optics.

An important feature of the text is its method of setting formulae inside a square. This highlights the formulae and also permits easy reference. The derivations are models of simplicity in all instances, and where they lead to basic formulae the latter are boxed for emphasis. This is a useful pedagogic device for recitation as well as lecture purposes.

Since it is authoritative and covers physics from Newton's law to radioactivity and nuclear fusion, this book is to be recommended as more than a textbook. Furthermore, the text and diagrams are so explicit that scientists in other fields would do well to have it on hand as a reference for elementary physics. In addition to an index, the book contains tables of logarithms, conversion factors, trigonometric functions, elements, fundamental constants, and the Greek alphabet. For school work there are numerous problems at the end of each chapter and answers to odd-numbered problems at the end of the book. It is an attractive and highly commendable book.

Theoretical Hydrodynamics (4th ed.). By L. M. Milne-Thomson, 660 pp. The Macmillan Co., New York, 1960. $11.00. *Reviewed by Ellis H. Dill, University of Washington.*

SUCCESSIVE editions of this popular text have been steadily expanded to include the results of recent research but have been only slightly revised since the first edition of 1938. This fourth edition contains additions to the third consisting of sections on the application of the formulae of Plemelj, flow under gravity with a free surface, and exact treatment of the surface wave of constant form. The preface states that the objective of this book is to give a thorough, clear, and methodical introductory exposition of the mathematical theory of fluid motion which will be useful in applications to both hydrodynamics and aerodynamics. The book was founded upon lectures to junior members of the Royal Corps of Naval Constructors.

Except for the introductory first chapter, vector analysis is used throughout. The use of vectors is classical and is of the school involving dyadics and a concept of gradient, divergence, and curl as integral operators over the surface of an infinitesimal volume. Most of the book is devoted to an extensive and detailed study of two-dimensional incompressible flow making full use of complex-variable theory. However, no prior knowledge of complex variables or of vector analysis is necessary since there is a separate chapter presenting the fundamentals of each subject. There is also a complete treatment of wave motion and axially symmetric three-dimensional incompressible flow. The last three chapters consist of fifteen pages on vortex motion, forty pages on viscosity, and fifty pages on compressible flow.

The reviewer feels, as the success of the book attests, that the stated objective is unusually well executed. However, as a mathematical theory, the book suffers because of a failure to distinguish clearly for the reader those results which are true in general from those which depend upon incompressibility and lack of viscosity. It does not pretend to be a physical treatment and therefore does not give the physical basis of fluid mechanics. The modern developments in the use of tensor analysis are not included.

Fluid Mechanics. Vol. 6 of Course of Theoretical Physics. By L. D. Landau and E. M. Lifshitz. Transl. from Russian by J. B. Sykes and W. H. Reid. 536 pp. (Pergamon Press Ltd., London) Distributed by Addison-Wesley Publishing Co., Inc., Reading, Mass., 1959. $14.50. *Reviewed by Herman Feshbach, Massachusetts Institute of Technology.*

THIS is another admirable text in the Landau and Lifshitz "Course of Theoretical Physics". In many ways the virtues of this series of texts are most strikingly apparent in this volume. Fluid mechanics is an ancient subject. On one hand there is an extensive and formidable mathematical apparatus permitting the exact or approximate solutions of certain classes of idealized problems. At the same time the many engineering applications have led to the development of empirical formulas which have very little basis in fundamental theory. Most of the introductory books in the field place a great deal of emphasis on either or both of these aspects, a Scylla and Charybdis which is completely avoided by Landau and Lifshitz. Their main object is to present the physics of fluid flow. When idealizations are introduced, their physical origin and their limitations are indicated. Since fluid mechanics is concerned with macroscopic properties of matter, the thermodynamic state of the fluid must be, and is, adequately described. One of the great merits of the book is the attention paid to relatively modern developments. For example there is a chapter on superfluids, and a chapter on turbulence, a major unsolved problem in fluid flow. Finally we mention that the text is augmented and illustrated by a set of solid problems.

A list of the chapter titles will indicate the breadth of content of this book: Ideal Fluids, Viscous Fluids, Turbulence, Boundary Layers, Thermal Conduction in Fluids, Diffusion, Surface Phenomena, Sound, Shock Waves, One-Dimensional Gas Flow, Intersection of Surfaces of Discontinuity, Two-Dimensional Gas Flow, Flow Past Finite Bodies, Fluid Dynamics of Combustion, Relativistic Fluid Dynamics, Dynamics of Superfluids, Fluctuations in Fluid Dynamics.

In conclusion, this is an excellent text and one which this reviewer can strongly recommend as a superb introduction to the *physics* of fluids.