toward the former. Incidentally, the book is dated 1949, but the author's preface is dated December 1945. This doubtless explains why microwave molecular spectroscopy goes unmentioned, since this is almost entirely a postwar development. One can only regret this, since a fairly large fraction of students now interested in molecular spectroscopy are concerned with this new branch of the field.

ARTHUR ROBERTS

State University of Iowa

Practical Spectroscopy. C. Candler. London N.W.1: Hilger & Watts, 1949. U. S. distributor: Jarrell Ash Co., Boston, Mass. 190 pp. $6.10 postpaid.

This book is one of the well-known Hilger publications dealing with selected topics of applied optics and allied fields. Although it has been written primarily for university and technical college students, it is a source of valuable information for everyone interested in the field of practical spectroscopy. The book contains elementary treatments of spectroscopic instruments and auxiliary apparatus, including photometers and interferometers. The various methods of wavelength measurements, qualitative and quantitative spectrochemical analysis, and absorption spectroscopy are discussed in some detail. About one-fifth of the book deals with infrared spectroscopy.

The book's most remarkable feature is the abundance of experiments and practical exercises described at the end of appropriate chapter sections. Every instructor of a laboratory course in practical spectroscopy will greatly profit by this collection, even though he does not have all the instruments. The text refers mainly to instruments made by Hilger, but this does not impair its general value, since most of the experiments can be performed with other apparatus also.

K. W. MEISSNER

Purdue University

Introduction to Theoretical Physics, 5 vols. Max Planck. Reissue; translated by Henry L. Brose. ***General Mechanics,*** Vol. I, 272 pp. ***The Mechanics of Deformable Bodies,*** Vol. II, 234 pp. ***Theory of Electricity and Magnetism,*** Vol. III, 247 pp. ***Theory of Light,*** Vol. IV, 216 pp. ***Theory of Heat,*** Vol. V, 301 pp. New York: Macmillan, 1949. $3.00 a volume.

This work consists of five volumes of modest size, written between 1916 and 1932. The first volume deals with the general mechanics of mass points and rigid bodies, and the second with the mechanics of deformable bodies—elasticity, sound, and hydrodynamics. Volume III, on the theory of electricity and magnetism, covers static and dynamic processes in vacuum and in continuous media, and in conclusion points out the conceptual need for Einstein's restricted principle of relativity. Volume IV, on the theory of light, treats geometrical and physical optics, crystal optics, and dispersion, and finally draws an analogy between the optics of inhomogeneous bodies and the Schrödinger equation of quantum mechanics. Volume V deals with the theory of heat—thermodynamics, heat conduction, thermal radiation, and statistical mechanics. It was the unifying role of the last-named subject, in basing the concepts of heat on mechanics and electrodynamics, that led the author to place this volume at the end of the series.

The approach throughout stresses clarity of physical concepts rather than mathematical elegance or comprehensive coverage. The result is a work that goes much farther beneath the surface than the usual elementary physics text, and is not as detailed as the advanced specialized books on the separate fields of physics. Knowledge of analytic geometry and differential calculus is assumed in the first volume, and of integral calculus and some differential equations in the others. These volumes appear to be most suitable for use by exceptionally capable elementary physics sections, for separate courses at the intermediate level, and for reference or review by advanced students of physics.

L. I. SCHIFF

Stanford University

University Physics. Francis Weston Sears and Mark W. Zemansky. Cambridge, Mass.: Addison-Wesley, 1949. 848 pp. $6.00.

This textbook, based on the senior author's Principles of Physics series, is intended to cover a one-year elementary course for physics and engineering students taking concurrent courses in calculus.

The chapters on mechanics and hydraulics, which occupy almost one third of the book, are excellent. The treatment is, above all, rigorous. Vector analysis is used throughout. Calculus is introduced gradually. Typical of this section of the text is the treatment of Newton's second law, which is first introduced in its simpler form, but later reformulated in the more rigorous form used in mathematical physics. Three systems of units—English gravitational, mks, and cgs—are introduced, but mechanics are discussed largely in the first system.

Electricity and magnetism are covered in another third of the book and given much the same rigorous treatment as mechanics. The rationalized mks units, which simplify the writing of Maxwell's equations, are used, but the authors neither develop nor state Maxwell's equations.

The remaining third of the book deals with the subjects of optics, heat, sound, and atomic physics. The mathematical treatment of optics is comprehensive. The other chapters are generally more qualitative or descriptive in form and contain some equations whose derivations are not given, but whose meaning the student can grasp. Introductory equations and definitions, however, are treated rigorously: thus the short section on heat contains a thorough discussion of temperature scales. Thermodynamics is treated without either the concept or the term of entropy. In the final chapters the student is whisked from the Bohr atom to nuclear reactors and brought as close as possible to the present frontier of physics.

Students of engineering should find this text clear and practical and derive much aid from the many problems and examples. Physics majors should receive a sound introduction from the rigorous treatment of the more