with the direct but admittedly rather limited observational confirmation of this hypothesis. The remaining chapters present the mathematical theory of pulsating gaseous spheres, proceeding from the simplest case—infinitesimal radial oscillations of a homogeneous gas at constant pressure—to such refinements as finite, anharmonic pulsations of model stars, secular stability of pulsating stars, and generation of shock waves in stellar atmospheres. While the presentation is necessarily mathematical, the physical concepts are usually kept clearly in the foreground, and observational data introduced wherever relevant. Since Eddington's classic analysis of Cepheid variables there has been much work done on these problems, and now for the first time this material is available in a unified and accessible whole.

Professor Rosseland is to be congratulated for an outstanding contribution to the literature of theoretical astrophysics. While the theory which he presents has not yet reached the state where it can explain the observations quantitatively, it nevertheless gives a qualitative understanding of the processes we believe are involved, and indicates where more work might be useful. The book will have a double value. It will be an indispensable reference work to all astronomers concerned with variable stars, especially to those engaged in theoretical exploration. It will also be of interest to mathematicians and theoretical physicists who wish to survey this extension and application of analytical mechanics in an important and interesting branch of astronomy.

Lyman Spitzer, Jr.
Princeton University Observatory

Kitchen Physics

A Brief Course in Physics for Students of Home Economics. By Lester T. Earls. 340 pp. Prentice-Hall, Inc., New York, 1949. $5.65.

The lay public frequently reacts to current research developments by asking the nearest scientist a question of the genus, "Will it fry an egg?" This elementary text book explains, using a minimum of mathematics, how the fundamental principles of mechanics, heat, light, electricity, and magnetism may be applied to gain a better understanding of the tools of modern living and indeed do assist in frying eggs.

Professor Earls treats these principles in a very elementary fashion but uses many analogies for clarity in explanation, illustrating them with discussions of familiar domestic equipment such as refrigerators, thermostats, cameras, pressure cookers, and household wiring circuits. The book is primarily intended, as the title indicates, for women students of home economics; it can certainly give to the women who study it more intelligent consumer and home management attitudes—even though it gives little of the background necessary for further studies in physics.

A need for physics texts of this scope is probably felt in many other fields outside of the physical sciences where only a background knowledge of physics is needed.

Jane H. Hall
Los Alamos Scientific Laboratory

Acoustics

Resonant Absorbers and Reverberation. A Report of the 1947 Summer Symposium of the Acoustics Group of the Physical Society. By Alexander Wood, P. V. Brüel, A. J. King, J. Moir, C. A. Mason, and Hope Bagenal. Published by the Physical Society, London, England. The report may be obtained from the Secretary of the Acoustical Society of America, 57 East 55 Street, New York 22, N. Y. $1.75.

The present volume is a collection of the papers presented at the first summer symposium of the Physical Society's acoustics group, held in London in 1947.

Alexander Wood reviews broadly, in his address, the main currents of the acoustics field as related to music, audition, electrical communications, architecture, and noise control. P. V. Brüel, in a paper on Helmholtz panel absorbents, discusses the design and performance of resonators of this type, after having summarized briefly the absorptive properties of porous materials and vibrating membranes. King's paper deals with the boosting of low frequency sound absorption by means of flexible membranes in front of porous absorbers. The papers by Moir, Mason, and Bagenal are concerned with auditorium acoustics. The usefulness and shortcomings of the classical approach to the reverberation of sound is examined in comparison with subjective observations of the acoustic qualities of rooms. Short pulse studies seem to agree more closely with these subjective impressions than do simple reverberation data.

The factual information and viewpoints compiled in this volume form an important contribution to contemporary acoustics literature.

R. H. Bolt
Massachusetts Institute of Technology

Broad

Advances in Electronics, Volume I. Edited by L. Marton. 475 pp. Academic Press, Inc., New York City. 1949. $9.00.

This initial volume of Advances in Electronics convinces one that electronics is a very broad field. The ten sections are: Oxide Coated Cathodes, Secondary Electron Emission, Television Pickup Tubes and the Problem of Vision, The Deflection of Beams of Charged Particles, Modern Mass Spectroscopy, Particle Accelerators, Ionospheric Research, Cosmic Radio Noise, Propagation in the FM Broadcast Band, Electronic Aids to Navigation, and all this without touching on amplifiers and oscillators.

Individually many of the articles are good or excellent, but it is not quite clear at whom they are aimed as a group. The one on deflection is mathematical, tough, and detailed. That on navigation is simple, descriptive, but almost too brief. The FM propagation article is a thorough survey of an engineering problem, while that on secondary emission is an excellent summary of the physics of the subject. Some are on intermediate ground. Life must be tough for editors.

J. R. Pierce
Bell Telephone Laboratories

Hydrogen Occlusion

Hydrogen in Metals. By Donald P. Smith. 366 pp. University of Chicago Press, Chicago. 1948. $10.00.

Dr. Smith has devoted a large part of his scientific life to the experimental study and consideration of hydrogen

Continued on page 35