

Short Reviews

Thermodynamics Applied to Heat Engines: a Textbook covering the Syllabuses of the B.Sc. (Eng.) and A.M.I.Mech.E. Examinations in this Subject. By E. H. Lewitt. (Engineering Degree Series.) Pp. x+347. (London: Sir Isaac Pitman and Sons, Ltd., 1933.) 12s. 6d. net.

A VERY useful account is given in this book, from an engineering point of view, of the application of thermodynamics to the theory of the steam engine, mechanical refrigeration, steam nozzles, steam turbines, fuels and the internal combustion engine. Students reading for the final examination for an engineering degree should find the accounts of these applications helpful. The author states that the "subject has been methodically developed from the fundamental laws of experimental physics". His attitude towards some of these fundamentals may be gauged from the quotations following, which the reviewer gives without comment:

"It has been calculated that a gas will occupy no volume at a certain low temperature known as absolute zero temperature . . . The accuracy of the assumption . . . is extremely doubtful, as the gas would liquefy . . . before this low temperature is reached."

"A perfect gas is the name given to the natural state of any substance of which the evaporation from the liquid state is complete."

"Liquids and solids have one specific heat only; but a gas is regarded as having two distinct specific heats . . ."

"Boyle found experimentally that when a gas is heated at a constant temperature the pressure multiplied by the volume remains constant."

"Entropy cannot be regarded as a physical property of the fluid; it is an imaginary property which was devised by Rankine and is used by engineers as a means of providing a quick solution for problems dealing with the adiabatic expansion of vapours." A. F.

Experimental Electrical Engineering and Manual for Electrical Testing: for Engineers and for Students in Engineering Laboratories. Vol. 1: By Prof. V. Karapetoff. Revised by Prof. Boyd C. Dennison. Fourth edition, completely revised and reset. Pp. xxviii+781. (New York: John Wiley and Sons, Inc.; London: Chapman and Hall, Ltd., 1933.) 37s. 6d. net.

THIS volume is written for engineers and for students in engineering laboratories. It contains very few mathematical formulæ and very little theory. It will be useful to electricians in testing laboratories and to students who have a wide elementary theoretical knowledge of the subject. As a work of reference it will be of value; the methods of testing given are good and many of them are standard methods in the United States. The methods given of diagnosing the causes of faulty running in machinery can also be com-

mended. We notice that in this edition the chapters on telephone practice have been omitted and also the chapter on primary cells. The book therefore deals more exclusively with heavy engineering.

Direct and Alternating Currents: Theory and Machinery. By Prof. E. A. Loew. Pp. xiii+656. (New York: McGraw-Hill Book Co., Inc.; London: McGraw-Hill Publishing Co., Ltd., 1933.) 27s. net.

IN this volume the author reviews the theory of the electric circuit and the operating principles of electric machinery. The applications of electricity are now so numerous that it is very difficult to decide what to describe and what to omit. That everything has to be included in one volume makes it necessary to pass lightly over much theory, and since the student will in his future practice come across many types of equipment some of which it is necessary to describe, there is practically no space for modern theory. Luckily the laws and principles necessary to understand the performance of everyday electrical machines are few in number. The author has made a happy selection and the book will be useful to the technical student.

Practical Acoustics for the Constructor. By C. W. Glover. Pp. xi+468+27 plates. (London: Chapman and Hall, Ltd., 1933.) 25s. net.

THERE is little excuse nowadays for a badly designed hall, church or theatre—badly designed, that is to say, from an acoustic point of view. The principles which govern acoustic design are very well understood, and the number of books dealing with architectural acoustics is legion. Mr. Glover's addition to the list may be recommended as a thoroughly practical volume, designed for the use of practising architects. The information given is very full and detailed, and the work forms a most useful book of reference. There is a remarkable bibliography appended to the volume. A. F.

The Great God Waste. By John Hodgson. Pp. viii+127. (Eggington, Beds.: John Hodgson, 1933.) n.p.

ARGUMENTS are more likely to prove weighty in the absence of exaggerated presentment, and may easily show fallacies in depending upon statistics. Issue may be joined with the remark, that taxation impoverishes one class to enrich another; and the glorification of leisure as the *dolce far non troppo*, in place of an honest day's work, as hitherto understood, is to be deplored. Mr. Hodgson has wandered up and down and to and fro, with the amazing resultant discovery, that the U.S.S.R. deserves praise at the expense of the rest of the world. The trend of events during the last few months serves to discount the value of much of Mr. Hodgson's text. P. L. M.