

to collect and study Mexican plants, and the opening in 1789 of a Royal Botanic Garden in Mexico City itself, furnished Prof. Izquierdo with material for a particularly interesting botanical chapter, which includes some account of the herbal knowledge of the Aztecs.

Montaña's belief that medicine should be scientific, and studied in conjunction with the natural sciences, brought him into association with the progressive party. The story is an involved one, linked with a particularly stormy period in Mexican politics, and the reforms he sought to establish were not achieved until some thirteen years after his death.

This well-printed book, illustrated with many reproductions from contemporary literature, has an appreciative preface by Prof. H. E. Sigerist. It is a welcome addition to accounts of scientific progress in the Americas. An English translation would be valuable and enable it to reach a larger circle of readers.

J. M. EYLES

MAGNETIC AMPLIFIERS

Magnetic Amplifiers

By H. F. Storm. (Contributors: E. F. W. Alexander-son, H. H. Britten, W. D. Cockrell, F. J. Ellert, E. A. Hart, H. W. Lord, W. Morrill, H. M. Ogle and P. A. Vance.) (General Electric Series.) Pp. xix+545. (New York: John Wiley and Sons, Inc.; London: Chapman and Hall, Ltd., 1955.) 108s. net.

THE early development of the magnetic amplifier was slow, probably because of the competitive influence of the electronic valve. During recent years this early neglect has been remedied, and there is now a great mass of technical articles describing developments of this robust and useful piece of apparatus. There have, however, been very few books published on this subject, and most of them have not been major works.

The issue of a 550-page book by Dr. H. F. Storm and his colleagues of the General Electric Co., Ltd., is both welcome and opportune. The advantages of having parts of a subject covered by different specialists in one book is normally obtained at the expense of some lack of continuity in the treatment, and this book is no exception; but Dr. Storm has written Chapters 4-20, covering the whole theory of the amplifiers, so that a large part of the book forms a satisfactory unit.

The first three chapters include the theory of magnetism, a description of magnetic materials and methods of testing them. Then follow Dr. Storm's chapters, and finally there are chapters on core and coil assemblies, metallic rectifiers and various applications of amplifiers.

Dr. Storm's treatment of the magnetic amplifier emphasizes the difference between operation with free even harmonics and suppressed even harmonic currents. Not all readers will agree that this is the best approach to the subject; but his treatment is clear and thorough, and he deals with both the steady-state operation and transient operation with resistive and inductive loads in considerable detail. He then covers the operation of feedback, including the amplistat and the bridge amplistat. Some aspects of the subject are not adequately covered, as, for example, the use of push-pull amplifiers and high-speed amplifiers, but this is a minor blemish in an otherwise excellent work.

Dr. Storm's mathematical arguments are often made needlessly difficult to follow by references to earlier equations which are spread over several chapters. A little judicious repetition of these equations would simplify the reader's task without adding unduly to the volume of the book. The figures are clear and well chosen, and there is a remarkable freedom from misprints in both text and figures in the chapters written by Dr. Storm; but the standard is rather less high in the other chapters.

This is a book which all serious students of the magnetic amplifier will need to have, but it is of postgraduate standard and is not easy reading. The highly glossed paper on which the text is printed is tiring to the eyes.

TEXT-BOOK ON HEAT ENGINES

Technology of Heat

By Prof. H. Wright Baker. Pp. xiii+427. (London and New York: Longmans, Green and Co., Ltd., 1956.) 36s. net.

WITH few exceptions, the contents of this book fall within the compass of what has until recently been called heat engines. There are various approaches to the theory of heat engines, and the author, Prof. H. Wright Baker, is to be congratulated on the line which he has followed in this work.

Although much is already familiar from Prof. Baker's edition of "William Inchley's Theory of Heat Engines", a broader background is given to the material. This has been arranged to introduce the diagrammatic representation of states, processes and working cycles at the earliest possible opportunity. Armed with this knowledge, the student (used in the generally accepted sense) is in a position to tackle the succeeding chapters on air compressors, steam engines and turbines, internal combustion engines, the gas turbine, and refrigerators and heat pumps, because all these chapters include a copious supply of cycle diagrams. As a direct consequence of the diagrammatic approach, steam and gas turbines appear as separated items.

Fuels and combustion are not confined to the chapter with that heading, additional information being given throughout the book. Both the title "Technology of Heat" and the preface heading "An Introduction to the Industrial Uses of Heat" give the impression that these aspects receive more detailed attention than they in fact do. For example, little is said of liquid fuels, and notable omissions are mentions of heat of formation, liquid fuel burners, and kinetics of combustion. Perhaps a little space could be found for mention of these at the expense of some of the matter referring to the reciprocating steam engine.

The chapter on heat transfer is welcome for the amount of information it contains on the radiation, conduction and convection processes. The final chapters deal with more practical aspects, namely, waste heat recovery and heat balances, and notes on testing. Example questions are appended to most chapters.

Although not including any innovations, this book is to be recommended to students working for degrees, Higher National Certificates, etc. As a general introduction to a very broad field of study, it requires additional references to more specialized books and articles.

T. D. PATTEN