

ENGINEER'S BOOKSHELF

BOOKS REVIEWED IN THIS ISSUE

INSTRUMENT AND CONTROL MANUAL FOR OPERATING ENGINEERS
THERMODYNAMICS • ELECTRICAL DISTRIBUTION FUNDAMENTALS
TROUBLES OF ELECTRICAL EQUIPMENT • ENGINEERING DATA BOOK
COLLOID SCIENCE • INDUSTRIAL APPLICATIONS OF INFRARED
ENGINEERING APPLICATIONS OF FLUID MECHANICS
ELEMENTARY ENGINEERING THERMODYNAMICS
COMPRESSED AIR HANDBOOK • LESSONS IN ARC WELDING
MAGNETIC CONTROL OF INDUSTRIAL MOTORS
AIR CONDITIONING AND ELEMENTS OF REFRIGERATION
HOW TO RUN A LATHE • JET PROPULSION PROGRESS
FLUID MECHANICS OF TURBOMACHINERY • AIR CONDITIONING
MANUAL FOR PROCESS ENGINEERING CALCULATIONS
PROCEEDINGS OF 1947 SMOKE PREVENTION ASSN CONFERENCE
PRACTICAL ELECTRICAL WIRING • INDUSTRIAL MANAGEMENT
STANDARD WELDING SYMBOLS AND RULES FOR THEIR USE

Instruments and Controls

INSTRUMENT AND CONTROL MANUAL FOR OPERATING ENGINEERS, by Eugene P. Feller, associate editor of POWER. (1947 new). 426 pp., \$1.25, well illustrated, cloth, \$5. McGraw-Hill Book Co., 330 W 42nd St., New York 18, N. Y.

The book is a practical guide for the man in the plant who needs fingertip information for the quick and sound solution of specific metering and control problems. It explains the basic principles of control methods and describes the construction and operation of liquid level, pressure, temperature, and humidity indicators and controllers.

Considerable space is devoted to explaining the operating fundamentals of each primary element to give the reader a clear understanding of its physical characteristics. Separate chapters cover valves and piping and condensate-handling systems. Condensate removal goes hand in hand with control problems wherever steam is used as a heating medium.

Electric Distribution

ELECTRIC DISTRIBUTION FUNDAMENTALS (1947). By Frank E. Sanford, EE, director of research and development, Copper Wire Engineering Association. 352 pp., 91 illus., cloth, \$3.50. McGraw-Hill Book Co., 330 W 42nd St., New York 18, N. Y.

Intended primarily for men on the job, both in electrical distribution divisions of the utilities, and in the industrial wiring and commercial contracting branches of the broad field of distribution to the out-

let. Emphasis is given to the everyday problems and their relation to the standards and practices that have followed many operating and economic comparisons in past development.

There are two principal changes in this edition, the second; a revision of the vector addition method and secondly an enlargement on the subject of transformer operation.

Field Mechanics

ENGINEERING APPLICATIONS OF FLUID MECHANICS (1947). By J. C. Hunsaker, Department of Aeronautical Engineering, and B. C. Rhinehart, Department of Mechanical Engineering, both of Massachusetts Institute of Technology. 494 pp., 629 tables; illus., \$5. McGraw-Hill Book Co., 330 W 42nd St., New York, N. Y.

The writing of this book aims at giving the reader a fundamental understanding of flow phenomena rather than a host of details about practical devices. Recent improvements in engine and machine efficiencies have resulted from better understanding of the conditions of flow, and not so much from relatively simple determinations of overall performance.

Because of the increasing importance of controlled experiments in the development of machines a full discussion has been given of the theory of dimensions and physical similitude. Theoretical behavior of the ideal frictionless fluid introduces the basic concepts governing pressure and velocity distribution. To emphasize the simplicity of mathematical treatment and the validity of simplifying assumptions, more weight has been given hydro-mechanics

and the boundary-layer theory than might be expected in an introductory text of this type.

To understand this text the reader should have had two years of college physics and mathematics, including differential equations, and one year of applied mechanics.

Heat Power

ELEMENTARY ENGINEERING THERMODYNAMICS, third edition (1947). By F. Young, professor of mechanical engineering, Oklahoma Agricultural and Mechanical College, and C. A. Young, late head of the School of Mechanical Engineering, Princeton University. 268 pp., 619 tables, illus., \$4. McGraw-Hill Book Co., 330 W 42nd St., New York 18, N. Y.

This revision of the well-known text in heat power changes the emphasis on some applications of thermo developed during the war years and places greater stress on application to practical design. New material has been added in the discussion of Joule's Law, entropy, on the Brayton cycle and its application in the gas turbine, and in the introduction to super-saturation of nonequilibrium steam flow.

Compressed Air

COMPRESSED AIR HANDBOOK, first edition. 400 pp., 619, 247 illus., simulated leather, \$3. Compressed Air & Gas Institute, 169 Terminal Tower, Cleveland, Ohio.

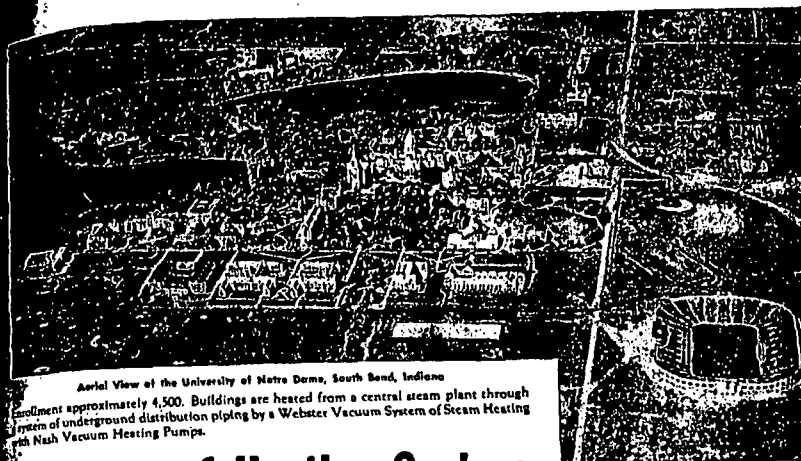
The handbook meets a widespread need for a reference text on application, installation, operation and maintenance of compressing equipment and air-powered tools. Revised and improved reference material was formerly published as "Trade Standards." The contents represent the collective knowledge and the experience of the 19 member companies of the Compressed Air & Gas Institute.

Air Conditioning

AIR CONDITIONING AND ELEMENTS OF REFRIGERATION (1947). By Samuel P. Brown, staff engineer, Coverdale & Colpitts, member, board of directors and formerly chief instructor, vocational div., Delahanty Institute, registered professional engineer, New Jersey & Ohio. With the editorial assistance of John D. Constance, registered professional engineer, New York. 644 pp., 657 illus., tables, cloth \$6. McGraw-Hill Book Co. Inc., 330 W 42nd St., New York 18, N. Y.

This book is based upon a textbook prepared for a resident course in air conditioning, conducted by the Delahanty Institute of New York for classroom training of students of high-school education or equivalent.

The text tells how to calculate heating



Aerial View of the University of Notre Dame, South Bend, Indiana
 Enrollment approximately 4,500. Buildings are heated from a central steam plant through system of underground distribution piping by a Webster Vacuum System of Steam Heating with Nash Vacuum Heating Pumps.

47 Years of Heating System Management at Notre Dame

A great university is, among other things, big business, receiving and disbursing large sums, maintaining and operating a large physical and mechanical plant. Consistent, competent management of the physical plant, such as is revealed by the record of heating system management at Notre Dame, is essential to success.

The first proposal for a Webster Vacuum System of Steam Heating at the University of Notre Dame was dated June 27, 1899—the installation, containing 16,913 square feet of radiation, was completed in 1900.

Thus started a cooperative business relationship that has continued for forty-seven years. During this period inevitably changes have occurred in architects, engineers, contractors, University plant personnel and Webster service personnel. But the

service of this business institution to the University has been continuous. As new requirements arose, as additions and changes were made, as worthwhile new developments in the heating art became available, changes have been made in the University's heating installation to keep it up to date.

This great heating system now totals 320,000 square feet of radiation—twenty times the size of the original Webster Vacuum System. And each increase has been accompanied by appreciation of the increased importance of quality standards both in material and in operating and maintenance procedures.

Currently, to assure at the same time comfort with maximum econ-

omy of fuel and minimum operating and maintenance costs a Webster Moderator Control System is being installed, designed to (a) balance distribution so that all radiators may be partially heated in mild weather, (b) apply automatic control-by-the-weather to the entire installation, (c) centralize all manual control to 38 zones at a single operating station.

How well these results are accomplished must necessarily be the subject of a later report. In the meantime, our experience is available to help you in your heating system management problems.

WARREN WEBSTER & CO., Camden, N. J.
 Representatives in principal U. S. Cities since 1898
 in Canada: Darling Brothers, Limited, Montreal

Webster
 HEATING SYSTEMS

Webster Moderator System Equipment



Webster Metering Orifices, correctly sized, a vital feature of the Moderator System, ensures distribution and makes possible control of each continuous heating.



A dash Webster Outdoor Thermometer Control automatically provides the lowest pressure for comfortable inside temperature in all zones at Notre Dame.



Special 15-Zone Control Control Panel for Notre Dame Moderator System Installation.



Webster Moderator Control Valve—38 installed at Notre Dame to provide continuous control of steam delivery in low pressure heating with remote shut-off.



Webster Thermostatic Radiator Trap—approximately 5,000 installed at Notre Dame.