amount of vital information scattered throughout scientific and engineering literature. Dr Uhlig successfully correlated the combined efforts of 102 scientists and engineers, recognized as leaders in their field. Some material is entirely original.

In addition to being a condensed summary of corrosion information, the book includes a cross section of scientific data and industrial experience. Every aspect of corrosion is carefully considered in chapters covering the basic theory: corrosion behavior—aqueous and atmospheric—of metal and alloys, as well as behavior at high temperatures; protection against corrosion and corrosion testing.

A significant contribution is the glossary, standardizing definitions, and prepared by the Editorial Board and Subcommittee V of the American Coordination Committee on Corrosion. To avoid ambiguity, the sign of potential conforms with the convention adopted by The Electrochemical Society and National Bureau of Standards.

Combustion Problems

BOILER FIREMAN'S HANDBOOK. *By Joseph R Darnell, registered professional engineer. 193 pp, 6x9, 189 illust, cloth. $3. Technical Pub Co, 53 W Jackson Blvd, Chicago.*

This book helps firemen and powerplant engineers solve combustion problems. Chapter divisions are logical, beginning with fundamentals of combustion which discusses both terminology and theory. From here, the author takes up flue gas, heat transfer, sampling and testing, then goes back to fuels, firing methods, boiler-room auxiliaries.

Publicly Owned Systems

RESULTS OF PUBLICLY OWNED ELECTRIC SYSTEMS (1947-48, *9th edition*). *384 pp; 6x9; illust, tables, paper. $10. Burns & McDonnell Engineering Co, PO Box 7088, Kansas City, Mo.*

A tabulation of 590 cities out of 3460 that have publicly owned central-station electric systems. Statistics are given on rates, earnings, expenses, investment, type of supply and other operating factors. Included are brief histories of several federally owned power systems.

Centrifugal Pumps

CENTRIFUGAL AND AXIAL FLOW PUMPS. *By A J Stepanoff, developments engineer, Ingersoll-Rand Co. (1948 new) 428 pp, 6x9 in., well illustrated, cloth, $7.50. John Wiley & Sons, 440—4th Ave, New York.*

Centrifugal pumps meet practically all requirements of pressure, capacity, temperature, nature of liquid and operating speed. To make possible this development in pump design required extensive theoretical and experimental studies of cavitation, operation outside the normal head-capacity range, axial and radial thrust, effects of stuffing boxes on the critical speed of pumpshafts, control of head-capacity and brake-horsepower curves, pumping viscous liquids, etc, all of which are treated here.

Treatment combines theory and practical aspects. Theoretical treatment of the centrifugal pump deviates from that in existing books. Flow through the impeller is resolved into a meridional flow caused by the energy gradient drop and a circular motion, which may assume any one of many forms of vortex motion.

Many chapters, particularly those dealing with applications and operation of pumps, are practical. Therefore, even though the book was written primarily for pump designers, consulting engineers, and plant-designing engineers, the plant operator can use it to advantage.

Nomography

ELEMENTS OF NOMOGRAPHY (1947). *By Raymond D Douglass, professor of mathematics, and Douglas P Adams, assistant professor of graphics, both of Mass. Institute of Technology, 209 pp; 6x9; 111 illust. $3.50. McGraw-Hill Book Co, 330 W 42nd St, New York 18, N. Y.*

The book serves those who study by themselves and need a thoroughly practical presentation. Six types of alignment charts are treated rather than classifying the subject by equations. The value of orderly computations, careful scale designing and clear draftsmanship is stressed. Difficulties pertinent to scale work are thoroughly discussed, resulting in a more extensive treatment than in most books.

A large number of completed diagrams are included, many unreduced in scale so the reader may readily check measurements. Diagrams usually illustrate discussion points, but many are drawn for practical engineering use.

Managerial Problems

MANAGEMENT LEADERS MANUAL, *edited by James O Rice & M I Dooher, American Management Staff. Leatherette binding, $3. American Management Assn, 330 W 42nd St, New York 18, N. Y.*

Primarily for operating executives, supervisors and foremen, the book was compiled to promote wider understanding of managerial problems and techniques, particularly in human relations.

The seven sections deal with the management leader's human relations responsibilities, management leadership in a democracy, interviewing and counseling techniques, and means of diagnosing organization problems. Also included are tests to determine qualifications for management leadership.

Among the authors are Rexford Hersey, director, executive development and training, American Airlines, Inc; Leland P Bradford, director, adult education service, National Education Assn of U. S.; Ellis C Maxcy, personnel relations supervisor, Southern New England Telephone Co; Dr Ronald Lippett, Institute of Group Dynamics, Mass. Institute of Technology; John M Pfiffner, professor of public administration, University of Southern Calif; E G Michaels, Vick Chemical Co.

The book is designed for individual reading to gain knowledge of the management structure, for supervisory conference training through chapter-by-chapter discussion, as a desk manual for executives and supervisors, and for general reading as an introduction to practical, professional management.

Electric Instruments

MANUAL OF ELECTRIC INSTRUMENTS (1948) *Based upon teaching material in GE training courses, 152 pp, 10½x8½; illust. $1. General Electric Co, Schenectady 5, New York.*

This contribution to the more effective use of electrical instruments explains their operating principles as well as their application. All basic measuring instruments are treated, also many special instruments evolved from fundamental forms. For the most part, electronic instruments are omitted.

This is a manual for technical schools and colleges as well as for engineers who want to improve their knowledge of measuring tools in the electrical industry.

Thermodynamics

ELEMENTARY THERMODYNAMICS (1948, *revised*). *By Virgil M Faires, professor of mechanical engineering, Agricultural and Mechanical College of Texas. 268 pp, 6x9¼, 116 illust. $4.40. The Macmillan Co, 60 Fifth Ave, New York, N. Y.*

This revision of a well-known book includes many small changes, among which are mention of the elementary gas-turbine cycle and probable layout of an atomic energy plant. This edition, like the original, is designed for short college courses on thermodynamics. Brevity is achieved by reducing the number of subjects, rather than attempting to cover the full range of heat power.

Supercharging

SUPERCHARGING THE INTERNAL-COMBUSTION ENGINE (1948). *By E T Vincent, professor of mechanical engineering, University of Michigan. 315 pp, 6x9, illust, cloth. McGraw-Hill Book Co, 330 W 42nd St, New York 18, N. Y.*

This book presents for the first time the essential fundamental theory of the various forms of superchargers and turbochargers in use today and their effects on engine cycle, power outputs and thermal efficiencies. While emphasis is largely on aircycle engines, where supercharging has been most widely practiced, a concluding chapter deals with supercharging the diesel engine, including recent developments in charging at relatively high pressures.

Beginning with a presentation of the thermodynamic fundamentals, the book deals successively with compressor types, the impeller and diffuser, estimating operating conditions, surging in centrifugal superchargers, testing, turbosupercharging and the axial flow compressor.

Engineers in the internal-combustion engine field will welcome this volume for its collection of basic information on currently important subjects.

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