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Book Reviews:

BOOK REVIEWS.

Manual of Public Utilities (first annual number). Published by Poor's Railroad Manual Company, 535 Pearl Street, New York; 1,924 pp. Price, $7.50, postpaid.

This manual is devoted entirely to statements of public service corporations, such as street railway, gas and electric light, water, power, telephone and telegraph companies. It is a record of about 8,500 corporations, or practically every public utility in Canada and the United States.

The general index contains the names of merged companies, with references to the companies into which they have passed. The balance sheets and income accounts of the more important companies are presented in comparison with those of other years, so as to show the rate and extent of growth and development, supplying thereby the necessary data upon which to form an opinion of the value of their securities.

The manual contains reference to a larger number of public service corporations and their standing than does any previously published work.

Emery and the Emery Industry. By A. Haenig. Translated from the German by Charles Salter. 104 pp.; 5 ins. x 7 ins.; 45 illustrations; tables; bound in imitation leather. Publishers, Scott, Greenwood & Son. London, England. Price, $1.50 net.

This little work in three chapters deals with the growth of industry of abrasives and grinding machines attendant upon the development of the machinery industry. A neat historical introduction is followed by a chapter on natural and artificial abrasives, together with considerable space devoted to carborundum—its properties, methods of manufacture, output, etc. Chapter II. enters upon the preparation and complete treatment of emery wheels and discs, taking into consideration hardness and grain of material, binding medium and allowable peripheral velocity, stability and capacity of grinders, and points in their mounting, use and experimental tests. The next chapter is based upon the various types of grinding machines and their special uses.

The book closes with a valuable list of references, for the most part from the German, and a very complete index. The volume is well printed and handsomely bound, and the subject matter has been treated in a clear and most interesting manner. It will be of value to all laymen, tradesmen and engineers in mechanical circles.

Steam Engineering. By W. R. King, U.S.N., Principal Baltimore Polytechnic Institute. Publishers, John Wiley & Sons. 450 pp.; 6 ins. x 9 ins.; cloth. Price, $4.00 net.

The number of books along this line is increasing with such rapidity that very much originality can scarcely be expected in any of them. The author of this book, however, does not claim originality for his work, but feels that the systematic arrangement and simplicity attempted are worthy of merit.

Considerable space has been devoted to each of the parts of a power plant, such as the boiler, the engine, the condenser, etc., and as the engine is a very vital and probably the most intricate part, the method of designing and testing it has been gone into with some detail. The action of the simple slide valve is explained, and an entire chapter is devoted to the use and construction of the Leuner valve diagram.

The design of simple and compound engines is discussed, together with the general advantages of compounding and the method of combining the diagrams of these engines. There is only one chapter devoted to the turbine, and one-half of this is devoted to the de Laval make.

A five-page chapter on Entropy does not seem to be of much assistance to the general policy of the book, owing to its brevity, and one feels that it should have been longer, or else entirely omitted.

The whole order adopted in the book is very unusual, but the matter contained should be helpful to those without a close technical knowledge of the science of steam engineering, and, on the whole, the work is sufficiently simple as to be very easily understood.

A Text Book of Thermodynamics. By James R. Partington, M.Sc. Publishers, Constable & Company. 542 pp.; 5½ ins. x 8½ ins.; cloth. Price, $4.20 net.

This book has been written with special reference to chemistry, and is a mathematical treatment of the science of thermodynamics, the illustrations and applications applying almost entirely to chemistry.

The first chapter on thermometry and calorimetry, which deals with such matters as thermometers and the specific heats of substances, is followed by two chapters discussing in some detail the first and second laws of thermodynamics, on which the rest of the book is naturally based. These laws are then taken up in their general applications to fluids, and following this two chapters deal with their special reference to the perfect and permanent gases and vapours.

The remaining half of the book gives the special applications of the science to chemistry, containing chapters on thermochemistry, gas mixtures, the general theory of mixtures and solutions, capillarity and absorption, the kinetic theories and other kindred subjects.

The work is very nicely gotten up, but, as the calculus has been freely used, the book would be of little value to anyone not having sufficient mathematical training. To the