

## TECHNICAL PUBLICATIONS.

**The Centrifugal Pump, Turbines, and Water Motors: including the Theory and Practice of Hydraulics.** (Specially adapted for engineers). By Charles H. Innes, M.A., Lecturer on Engineering at Rutherford College, Newcastle-on-Tyne. Fourth and enlarged edition. Pages 340. Figures 276. Price \$2.00. 1904. Manchester: The Technical Publishing Company, Limited, and New York: D. Van Nostrand Company, and The Derry-Collard Company.

Commencing with the assumption of the law of the conservation of energy, and afterwards assuming the law that the change of angular momentum is equal to the angular impulse of the force producing it, and that the losses of energy in a stream are proportional to the square of the velocity of flow, the author has developed the theory of operation and methods of design of the machines included in the title. The first few chapters are devoted to the exposition of the fundamental principles of the science of hydraulics. In the sixth chapter, however, the author, having "always found that theoretical principles, although absolutely necessary, are best administered in small doses, turns from them to describe a few types of hydraulic engines for producing rotation." Carried along with each description are the theory governing the case in question, and its application to the design in hand. The turbine is taken up both graphically and by

methods of calculation, the latter being given the preference on account of its greater accuracy, and only slightly increased demand upon the time of the engineer. Under the head of "impulse turbines" is given the Pelton wheel, so common in the United States, and so rarely met in Europe.

The theory of the centrifugal pump is based on the assumption, for the sake of simplicity, that the axis of rotation is vertical, it being obvious that, otherwise, "particles at equal distances from the shaft would have different velocities and be under different pressures, which would complicate the theory, although the effect in practice is unimportant." Comparisons are made, for both centrifugal pumps and turbines, between theory and the results of experimental practice, a large number of experimental results being tabulated and represented by the usual curves of performance.

Chapters are given to the more or less closely allied subjects of the steam turbine, and the centrifugal fan, while one of the last chapters in the book is devoted to a description of the plant and hydraulic apparatus of the Niagara Falls Power Company. The only steam turbine accorded extended mention is the Parsons.

The numerous cuts, which serve to illustrate and explain the text, are quite clear, though many of them are relatively crude. The typography is good.

**Record of American and Foreign Shipping.** Pp. 1,294. Size 8 by 9 1-2 inches. Price \$15.00. American Bureau of Shipping, 66 Beaver street, New York.

The price of this book was given in our February number as \$5.00, which is incorrect.

**Types and Details of Bridge Construction.** Part I.—Arch Spans. By Frank W. Skinner, M. Am. Soc. C. E. Pages 299, and 250 illustrations. 1904, New York: McGraw Publishing Company.

The purpose of this book is to present the development of advanced practice and standard details, to illustrate the classes of structures adapted to different conditions, show some of the characteristic differences between American and foreign design, besides recording important and well-known examples so as to have their principal data readily accessible. The first consideration in the selection and preparation of this data has been in every case to show clearly the special and important features, to give only what is essential to the design, and to present the requirements, conditions, and methods involved in the construction and erection of the work. The list of structures described is by no means complete, and the classification is not absolute, but both are sufficient to illustrate different types and to show a wide range of practice and detail. The bridges have been arranged in order and grouped in classes, and the descriptions are in many cases supplemented by specific references to more extended articles in technical journals or professional papers. Typography and illustrations leave little to be desired.

**Maver's Wireless Telegraphy.** By William Maver, Jr. 216 pages; 123 illustrations. 1904, New York: Maver Publishing Company. Price \$2.00.

The subject has been treated from both the theoretical and the practical standpoint in language as free as possible from mathematical formulæ, and the whole written in a manner designed to be clear to the average reader. The intention has been, in order to economize in space, to limit the descriptions of systems and apparatus to those in actual operation. The few exceptions to this rule relate to peculiar types of systems of which a brief account was thought to be useful. The aim has been to give a comprehensive statement of all that appertains to the art at the present time, and in the hope of supplying a complete and practical handbook of wireless telegraphy. The first part of the book was written when there was but one wireless system in operation. It may, therefore, be said that the book has grown up with the art of which it treats. This has necessitated considerable cross reference in the text, and has resulted in the inclusion in the volume of an unusually complete index.