BOOK-REVIEWS.

A Manual of the Steam-Engine. Part II: Design, Construction, and Operation. By R. H. THURSTON. New York, Wiley. 8°. $7.50.

THE first part of the "Manual of the Steam-Engine" we have already noticed. Its purpose was twofold: (1) the development of the mathematical theory from the simple form applicable to the Carnot engine to a form that would assist the mechanical engineer in following the flow of energy into the engine of practice and its conversion into power or loss in many ways; (2) the application of the principles of thermo-dynamics and the data obtained by experiment to the computation of the quantities of heat, steam, and fuel required for the production of power in a given engine, and the determination of the proportions of engine and distribution of steam that would give the best result.

But so much has been gained by experience, simply, in the design and construction of engines, aside from the progress based on theoretical considerations alone, that the author has preferred Part II. of his Manual to cover the more usual methods of design, construction, and operation of the steam-engine. Part I. contains the scholastic foundation; Part II., the practitioner's super-structure.

The two volumes already issued, it is proposed by the author, are to be followed by a third, which shall contain working drawings of the latest and best modern machinery of this class. The third part will, therefore, provide an atlas of such drawings, with concise accompanying text.

After treating the portions of his subject which are recognized as belonging to mechanical engineering, our author, in the last chapter, treats of the financial element in the theory and practice of steam-engine construction. This is something quite novel, and Professor Thurston looks to his friends for such criticism as will lead to the further development of this branch of the subject. Designing for a minimum cost is a matter which every experienced member of the profession has constantly been compelled to consider; but scientific methods of computation of minima rarely have been known or practised.