

cal instruction, which are attracting much attention in Great Britain and Germany.

We believe Meyer's "History of Chemistry," standing as it does alone, should be much used by teachers and students.

*A Manual of the Steam Engine. Part I.: Structure and Theory.*  
By ROBERT H. THURSTON. New York, Wiley. 8°. \$7.50.

IT has been a common slur at the thermo-organic theory of heat-engines that it has led to little of the improvement in their construction. It is well known that the thermo-dynamics of the steam-engine was not understood, or at least generally recognized, till the best part of a century had passed after the first introduction of the engine as a practical motive power. But even then the theory applied only to an ideal engine—an engine consisting of a few diagrammatic lines called a "hot body," a "cold body," etc., and known as the Carnot engine. That this theoretical explanation of the working of the heat engine is of the greatest interest, and has certainly aided materially in clearing engineers' ideas as to the possibilities of the heat-engine, cannot be denied; but there are so many differences between the Carnot engine and the steam-engine of practice that the improvement of the latter has been forced to depend on the "rule of thumb" for guidance.

Professor Thurston, in this book, makes an attempt to carry the theory forward a step and put it in such shape as to be applicable to the real engine. He does not maintain that this can as yet be done with perfect satisfaction, but only that sufficient knowledge

of the various wastes of heat has been obtained to justify this treatise. The subject is still obscure, but it is believed that the provisional theory and purposed processes of computation will aid the engineer materially in his endeavor to anticipate the performance of any new engine, the design of which may be hand.

Cotterill's "The Steam-Engine considered as a Heat-Engine" was perhaps an earlier attempt in the same direction, and with the progress of experimental work at the numerous technical institutions the world over, modifications in Thurston's treatment must be called for.

This first part covers the structure and theory of the steam-engine; the second part will be devoted to the design, construction, and operation.

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BROOKLYN Institute, Third Year-Book of the (1890-91). Brooklyn, Eagle Pr. 232 p. 12°.  
MERRILL, G. P. Stones for Building and Decoration. New York, Wiley. 453 p. 8°. \$5.  
SCHUCHHARDT, C. Schliemann's Excavations: an Archaeological and Historical Study. New York, Macmillan. 363 p. 8°. \$4.  
SMITH, E. F., and KELLER, H. F. Experiments Arranged for Students in General Chemistry. 2d ed. Philadelphia, Blakiston. 56 p. 8°.  
SOLMS-LAUBACH, H. Graf zu, Fossil Botany. New York, Macmillan. 401 p. 8°. \$4.50.  
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