

October 31, 1912.

less than eight sub-aqueous tunnels, involving the construction of sixteen tubes, have been constructed for the service of the city of New York alone.

This edition has been revised, so that the entirely new methods which have been introduced by professional men are here presented in due prominence.

Space has also been given to important tunnels recently built. This material illustrates the various methods discussed in the text, and brings out more clearly the characteristics of the different methods of tunnel excavation. The volume now forms an admirable treatise on the subject, and will, no doubt, meet the present requirements of both engineers and students.

Design of Steel Mill Buildings.—By Milo S. Ketchum, C.E., Dean of the College of Engineering and Professor of Civil Engineering, University of Colorado. Published by McGraw-Hill Book Co., New York. Third edition; cloth; size, $6\frac{1}{2} \times 9$ in.; 562 pages; 66 tables and 270 illustrations. Price, \$4.00 net.

In this third edition Professor Ketchum has brought this treatise on the design of mill buildings and the calculation of stresses in frame structures to date.

In the preface to the first edition he states that the book is intended to provide a short course in the calculation of stresses in frame structures and to give a brief discussion of mill building construction. The original edition admirably filled the place allotted to it by the author. The book has received a well-merited appreciation since it was first published. In this edition the chapters on Stresses in Frame Structures and Stresses in Bridge Structures have been rewritten and enlarged; the "Specifications for Steel Frame Buildings" have been revised and re-written and many changes have been made in the text. The additions to the book include two Problems in Graphic Statics, and Appendix III, "Structural Drawings, Estimates and Designs."

A Textbook of Physics.—Contributors: A. Wilmer Duff, E. Percival Lewis, Charles E. Mendenhall, Albert P. Carman, R. K. McClung and William Hallock. Edited by A. Wilmer Duff, D.Sc., Professor of Physics, Worcester Polytechnic Institute, Worcester, Mass. Third edition, revised. P. Blackiston's Son & Co., Philadelphia. Cloth; size, $5\frac{1}{2} \times 8\frac{1}{2}$ in.; 686 pages; 595 text illustrations.

This textbook of Physics has now reached its third edition, the first edition being published in 1908. As noted, it is the combined work of seven experienced teachers of College Physics. For this edition, entirely new parts on Heat, and Electricity and Magnetism have been prepared, and extensive changes have been made in other parts. To facilitate reference a list of tables of constants has been given, and the indexes have been somewhat increased.

Machine Design.—By H. D. Hess, M.E., Professor of Machine Design, Sibley College, Cornell University. Published by J. Lippincott Co., Philadelphia. Cloth; size, $6 \times 9\frac{1}{2}$ in.; 368 pages; 18 plates; 318 figures. Price, \$5.00 net.

The book deals specifically with machine design as applied to hoists, derricks and cranes. While the book is written with special reference to the student, it will be well received by the practising engineer, particularly those who are directly engaged in the design of this particular field.

A determination of the stresses in frames and machinery is developed by the use of elementary theoretical principles. While empirical formulas are used throughout the book where the conditions call for such use, the theoretic development is used where possible. Many examples are

shown throughout the text, and these are practically all drawn from present-day practice.

The book is divided into twelve parts under the following headings: Introduction, Frames and Girders, Brakes and Clutches, Winches and Hoists, Pillar Cranes, Jib Cranes, Under-braced Jib Crane, Inverted Post Crane, Wall Crane, Overhead Electric Travelling Cranes, Hoisting Engine, Locomotive Cranes.

The Introduction includes a discussion of the properties of materials and fibres used in this class of machine design, and a few pages are given to an exposition of the elements of graphic statics, followed by a discussion of rolling and sliding friction crane blocks and block efficiencies for chain and wire rope. The other parts of the book are devoted to a presentation of the theory of columns and beams, methods of determining stresses in different frames, the various forms of brakes and clutches, and the remaining portion of the book takes up under the several headings the design of different types of cranes.

The treatise will be a most valuable one as a book of reference for the practising engineer and as a textbook for the student.

PUBLICATIONS RECEIVED.

Annual Report City Engineer, City of Ottawa. For the year 1911. City Engineer, Newton J. Ker, Ottawa.

Outline of the Smoke Investigation. Bulletin No. 1 of Department of Industrial Research, University of Pittsburg.

The Specific Heat of Wood. By Frederick Dunlap. Bulletin 110 of the Forest Service, U.S. Department of Agriculture.

Tests of Structural Timber. By McGarvey Cline and A. L. Hein. Being Bulletin No. 108 of the Forest Service, U.S. Department of Agriculture.

Department of Agriculture. Seventh Annual Report for the Province of Saskatchewan, 1911. W. R. Motherwell, Minister of Agriculture, Regina, Sask.

A Great Industrial Plant and Its Owner. Being booklet No. 1, Water Supply Educational Series, issued by the Bureau of Water, City Hall, Philadelphia.

The Simmen System of Railway Signalling and Despatching. By Paul J. Simmen. Reprint from *The Canadian Engineer*, September 12th, 1912. Copies may be secured from Northey-Plummer, Limited, Toronto.

Forest Products of Canada, 1911. Tight and Slack Cooperage, compiled by R. G. Lewis. Bulletin No. 31, Forestry Branch, Department of the Interior, Ottawa.

Report of the Chief Engineer of the Board of Estimate and Apportionment of the City of New York for the Year 1911. Office of the Chief Engineer, 277 Broadway, New York.

Summary Report of the Geological Survey Branch of the Department of Mines, for the year 1911. R. W. Brock, director, Geological Surveys Branch, Department of Mines, Ottawa.

Sewage Pollution of Interstate and International Waters. By Allan McLaughlin. Being Bulletin No. 83, Hygienic Laboratory, Public Health and Marine Hospital Service of the United States.

Provincial Board of Health of Ontario. The thirteenth annual report for the year 1911. Copies may be obtained from Dr. J. W. S. McCullough, Chief Officer of Health, Parliament Buildings, Toronto.