

ENGINEERS' LIBRARY

Any book reviewed in these columns may be obtained through the Book Department of
The Canadian Engineer.

CONTENTS.

Book Reviews:

Modern Tunneling, with special reference to mine and water supply tunnels. By Brunton and Davis	599
The Science and Practice of Management. By A. H. Church	599
Strength of Materials. By H. E. Murdock ...	599
Hydraulics. By Louis A. Martin, Jr.	600
Concrete Roads and Pavements. By E. S. Hanson	600
The Calculus. By John Graham	600
Hydraulics. By W. M. Wallace	600
Handbook of Construction Plant. By Richard T. Dana	600
Publications Received	601
Catalogues Received	601

BOOK REVIEWS.

Modern Tunneling, With Special Reference to Mine and Water Supply Tunnels. By David W. Brunton and John A. Davis. Published by John Wiley & Sons, New York; Canadian selling agents, Renouf Publishing Co., Montreal. First edition, 1914. 450 pp.; 80 illustrations; 6 x 9 ins.; cloth. Price, \$3.50 net.

This book will be found of exceeding value by those who have been on the lookout for practical information concerning tunneling methods, particularly in the United States. It is confined chiefly to problems of tunneling for drainage, transportation or development, but it also includes those for water power, irrigation or domestic purposes, in which the essential features are very like those of mine tunnels. It should be stated that the book pertains almost entirely to excavation in solid rock and does not refer to soft ground, subaqueous or railroad tunneling.

Following the introduction are chapters on history of tunneling; modern mining and water tunnels; choice of power for tunnel work; air compressors; ventilation; surface equipment; rock-drilling machines; haulage; incidental underground equipment; drilling methods; blasting; methods of mucking; timbering; safety; cost of tunnel work; bibliography. The authors devote little space to the history of tunneling or to old-time methods. They enter at once upon the work of presenting up-to-date information, such as is desired by tunnel engineers who generally feel that up-to-date methods and equipment that are proving safe, efficient and economical are not as widely known as they should be.

Of great interest are the chapters devoted to a discussion of the various types of machinery, plant methods, etc. The advantages and disadvantages of many different varieties of equipment are voiced; tables are presented and the whole treated in such an exhaustive and complete manner as to leave little to be desired on the part of the reader. A chapter on "safety" supplies a very needful part of a book on this subject. The authors have treated it in a practical way that should meet with

approval. The chapter on cost of tunnel work gives some excellent data covering the more important tunnels of the United States. This data has already appeared in *The Canadian Engineer* (issues of Sept. 24, Oct. 1, and Oct. 8, 1914). It had been previously collected by the authors for the U.S. Bureau of Mines. (It is in justice to the Bureau to state that the material in the book under discussion is very considerably the same matter as had already appeared in Bulletin No. 57 of the U.S. Bureau of Mines, under the same title, written, of course, by the same engineers.) The bibliography occupies 60 pages, although it has been "selected," as stated by the authors.

The Science and Practice of Management. By A. Hamilton Church. Published by the Engineering Magazine Co., New York. First edition, 1914. 535 pp.; illustrated; 5 x 7 in.; cloth. Price, \$2.00.

For one who is searching for a scientific treatment of the fundamental principles and elements underlying scientific management, this volume will be found to go a long way toward analyzing and classifying the existing forms with which they are more or less familiar. The author has endeavored, according to his introductory notes, to ascertain the fundamental facts of production, not from the viewpoint of cost but from the viewpoint of management. One is accordingly impressed with his success in formulating such fundamental facts and regulative principles as may be hereafter developed into a true science of management.

The first part of the volume has to do with the science of management and Part II. with practical organization of the organic function. There are five appendices dealing with the labor question; the expense burden in relation to piecework and premium; the same in relation to bonus; the planning department; some axioms of administrations.

The reader will find the author's classification one by which the information on the subject of management may be scientifically analyzed, properly grouped and, as a result, made more useful.

Strength of Materials. By H. E. Murdock, M.E., C.E. Published by John Wiley & Sons, Inc., New York; Canadian selling agents, Renouf Publishing Co., Montreal. Second edition, 1914. 352 pp.; numerous illustrations; 5 x 7 in.; cloth. Price, \$2.00 net.

The first edition of this book was reviewed in *The Canadian Engineer* for Nov. 30, 1911. It is essentially a book for engineering students and has been written with the aim of making intelligible the fundamental principles of the strength of materials without the aid of the calculus. The book is replete with illustrated examples and problems. The subject is proceeded with in the following way: Materials of construction; direct stresses and applications of them; riveted joints; beams, external flexural forces and internal flexural stresses; stresses in such structures as chimneys, dams, walls and piers; graphic integration; deflection of beams; elastic curve; same determined by the algebraic method; secondary stresses; columns and struts; torsion; repeated stresses resilience, hysteresis impact; reinforced concrete beams;