

being frequently quoted. The notation employed is the standard adopted some years ago by the Concrete Institute of London and other influential British organizations and to one accustomed to the symbols now so generally employed by writers on this side of the Atlantic, a little difficulty in reading results. One cannot but feel that the usefulness of this excellent reference book to American readers will be sensibly reduced because of the use of an unfamiliar notation.

The first 113 pages of the volume are devoted to matter descriptive of materials and of construction methods. Then follows some 300 pages which are given over to theoretical matter, the first third of which is a discussion of the mechanics of beams, slabs and columns; and the remainder of which consists of the application of these principles to the design of a multitude of structures comprising apparently nearly everything to which reinforced concrete as a structural material can lend itself. Specific computations are facilitated in actual design by a large number of inserted graphs or charts covering beams, columns and T-beams, from which the busy designer can readily obtain much of the information he desires. It is interesting to observe that in the discussion of the stability of retaining walls, the theorem of Professor Rankine is easily given the first place. Indeed, the influence of that illustrious writer whose works have held for over two generations a unique and respected place in the literature of engineering, is plainly evident in many places throughout the book. The treatment of continuous beams is much more complete than is ordinarily found in American text books. The concrete truss without diagonals is briefly considered. To the flat slab, here designated the "mushroom" floor, several pages of discussion are devoted and the computations for a four-way floor of assumed span and loading are worked out in detail after a method generally attributed to Mr. A. R. Lord. The regulations of the city of Chicago governing this now popular type of construction as adopted some two years ago, are included. The computation of reinforced concrete beam deflection receives a brief consideration. The discussion of the retaining wall seems quite complete, and includes the full computations for a wall with counterforts for assumed conditions. The reinforced concrete arch of several types is treated according to the semi-graphical method. Other sections are devoted to coal bunkers, chimneys and dams. The final chapter is given over to practical geometry, tables of areas, metrical equivalents, properties of rolled shapes, etc., of much the same character as is found in the ordinary handbook.

The volume seems to have been compiled with a proper regard to arrangement and continuity and because of the scope of the subjects included, should become a valuable addition to the designer's library.

**Preliminary Mathematics.** By Prof. F. E. Austin, E.E., Hanover, N.H. Published by the author. First edition, 1917. 169 pages,  $4\frac{3}{4} \times 7\frac{3}{4}$  ins., cloth. Price, \$1.25. (Reviewed by Alfred S. L. Barnes, Hydro-Electric Power Commission of Ontario.)

This is a small book of some 170 pages which, like several others which have been published within the last few years on the same subject, commences in a very elementary way, so much so as to seem tedious to the ordinary reader of average education. At the same time, it gradually leads up to more advanced work in such a way that any one going through it seriously should be able to follow it up step by step without difficulty.

Arithmetic is dealt with at first, but this is soon merged into the use of letters instead of numerical values,

thus introducing algebra. Numerous worked-out examples are given, together with many problems left for the reader to solve.

The use of logarithms is explained and algebraic methods of extracting square and cube roots, etc., are shown, as well as problems in both arithmetical and geometrical progression.

On page 60 in the first paragraph the printer appears to have got mixed in the use of some of the letters of the Greek alphabet, as the words "logos" and "arithmos" are incorrectly given in that language.

The book should be quite useful to students or to older persons desirous of learning a little elementary mathematics themselves, which is the object the author has in view.

**Lubricating Engineer's Handbook.** By John Rome Battle, B.S.M.E. Published by the J. B. Lippincott Co., Philadelphia. 333 pages, 114 figures,  $6 \times 9\frac{1}{4}$  ins., cloth. Price, \$4.25 net. (Reviewed by C. I. Grierson, Imperial Oil Co.)

Mr. John Rome Battle has in his "Lubricating Engineer's Handbook" an admirable, useful and concise publication. This publication cannot fail to be appreciated universally.

This may well be called an age of engineering and machinery. Standardization by specification must of necessity be recognized. Mr. Battle in this handbook has explained thoroughly the principles of lubrication, both theoretically and practically, as only one who "knows" can do.

The overcoming of friction is one of the greatest problems of our national life. Friction is overcome mostly by lubrication. A working knowledge of lubrication is imperative. Engineers and those in charge of machinery are fast becoming appreciative of the selection and use of correct lubricants and the fact that oil is cheaper than machinery. The old-time saying that "oil is oil no matter what it is used for" is fast depreciating. These facts are very ably covered in Mr. Battle's handbook.

The alphabetic index, together with the chapter index, illustration index, and test of tables and charts reduces reference troubles to a minimum.

Every engineer, manufacturer, or person responsible for the supply of lubricants should not consider his library complete without this publication.

Mr. John Rome Battle is to be congratulated for this compilation of much-in-demand knowledge.

## PUBLICATIONS RECEIVED.

**Canadian General Electric Co., Limited.**—Annual report, 1916.

**Canadian Society of Civil Engineers.**—List of members, Toronto branch, 1917.

**Report of the Director of Forestry** for the year 1916. Issued by the Department of the Interior, Canada.

**Commission of Conservation, Canada.**—Review of work of the Commission. By Sir Clifford Sifton, chairman.

**Temiskaming and Northern Ontario Railway Commission.**—Fifteenth annual report for the year ended October 31st, 1916.

**Mines.**—Annual report of Mines, of the Province of Nova Scotia, 1916, issued by the Department of Public Works and Mines, Halifax.