

ENGINEERS' LIBRARY

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

BOOK REVIEWS:

The Elements of Chemical Engineering: Reviewed by J. Watson Bain	637
Electrical Machine Design: Reviewed by J. A. Johnson	637
Building Construction and Drawing	638
Building Construction	638
A Handbook of English for Engineers	639
Publications Received	639
Catalogues Received	639

BOOK REVIEWS.

The Elements of Chemical Engineering. By J. Grossman, M.A., Ph.D., F.I.C., with preface by Sir William Ramsay, K.C.B., F.R.S. Cloth; second edition; 50 illustrations. Price, \$1 net. Charles Griffin & Company, London, Eng.

Reviewed by J. Watson Bain, B.A.Sc.*

It is a matter of common remark that the superintendents of many of our factories are being drawn from the ranks of university graduates, and this is particularly true in the chemical industries. After a more or less lengthy apprenticeship in the laboratory and in the factory, the man with a good technical training and a sufficiency of common sense usually develops into a valuable official, and the rapidity with which this end is attained depends very largely upon the rate at which a familiarity with routine operations and apparatus is acquired. In the school or university the instruments employed are small and easily handled, while the use of glass and porcelain overcomes the difficulty of dealing with corrosive liquids. The college graduate then, on entering the manufacturing field, finds himself confronted by new problems which arise in the handling of large quantities of material, and it is here that valuable time is often lost in the endeavor to cope with changed conditions. To the chemist who finds himself in such circumstances or to the student who has not yet graduated, Dr. J. Grossman's "Elements of Chemical Engineering" will be of great assistance. Dr. Grossman has set himself to bridge the gap between the laboratory and the factory, and has produced a short treatise, which deals with the subject in a clear and interesting manner. The comparison of the simple forms of laboratory apparatus with their factory equivalents is emphasized in a novel fashion and assists materially in acquiring ideas as to the construction and uses of the latter. The author draws attention continually to the differences between an operation as carried out on a small scale in the laboratory and as executed on a large scale in the factory; such emphasis deserves particular commendation in view of the not infrequent blunders which arise from a lack of appreciation of this important distinction.

The chapter on technical research is particularly valuable to the young students and will suggest to him that

* Associate Professor of Applied Chemistry at the University of Toronto.

manufacturing materials are not pure, that the solubilities of his ingredients are important and that careful experiment must be carried out in the devising of a factory process. The actual design cannot be treated in a volume of this size, and the student is referred to the more extended literature dealing with this phase. The fact that there is no other short treatise in English which covers the same field will make this book a welcome addition to the library of the young chemical engineer.

The illustrations are numerous and well chosen, while the author advises his readers to make a collection of catalogues and price lists.

Electrical Machine Design. By Alexander M. Gray, B.Sc., Assistant Professor of Electrical Engineering, McGill University, Montreal. Publishers, McGraw-Hill Book Company, 239 West 39th Street, New York. Cloth; 500 pages, with illustrations and charts. Price, \$4 net.

Reviewed by J. A. Johnson.*

In the preface to this work the author states: "The study and design is of the utmost importance to all students, because only by such a study can a knowledge of the limitations of machines be acquired." A statement of this sort is very apt to be made by specialists who happen to hold professional positions. Each one seeming to believe that his own particular subject is the one really essential one. If they all were allowed to have their way students would have to devote their lives to preparing for their life work. It certainly is arguable, that engineers would do better to have a knowledge of the limitations of machines; that, in fact, the progress in design comes from the demands of those big-minded men who know nothing about the limitations of machines, but do know what they want and keep after it till somebody finds out that the so-called limitations are no limitations after all.

The book is of approximately 500 pages divided into four sections and forty-nine chapters. The four sections are respectively of direct current machinery, alternator and synchronous, polyphase, and induction motors and transformers. The method followed is, as to each section: First, the consideration of the theory of operation followed by a description of the types and forms of construction; consideration of characteristics of performance, procedure in design and typical specifications; the latter would stand considerable improvement, especially as to form. Mechanical design is not gone into except incidentally. One chapter only is devoted to the consideration of a few of the fundamental mechanical problems.

The author states that the work was compiled as a course of lectures. Its value as a text-book would seem to be confined pretty largely to the use of special students of design, as it seems rather too voluminous to find a place in the regular course for all students, except at the expense of time that

* Electrical Engineer, Ontario Power Company, Niagara Falls, Ont.