

BOOK REVIEWS.

The Blacksmith's Guide.—By J. F. Sallows; publishers, the Technical Press, Brattleboro, Vt. Size, $4\frac{1}{2} \times 7$, pp. 160. Price, \$1.50.

This book is written for blacksmiths, machinists, and toolmakers, and contains valuable instructions on forging, welding, hardening, and tempering, treatment of high-speed steel and annealing, case-hardening, coloring, brazing, and general blacksmithing. The methods described in its pages have been derived from the practical experience of the author during many years on the forge, and deserve the consideration of all firms doing machine work, and all mechanics who wish to become skilled and independent workers. Information that is no real help to the mechanic has been omitted in this work. The book is strictly practical, since the author's experience has been very wide, having had to do with nearly all kinds of shops, including horse-shoeing, marine, railroad, printing press, sawmill machinery, and automobile shops. The methods described show how to become a rapid and independent workman. The book contains 165 illustrations, three of which are in colors, and one folding plate. This little book should be a valuable aid to any mechanic, and especially to those engaged in this particular work.

Practical Design of Irrigation Works.—By W. G. Bligh, M. Inst. C.E.; publishers, Archibald Constable & Company, Leicester Square, London, W.C., Eng. Size, 7×9 , pp. 390. Price, \$5 net.

This work sets forth the principles governing the design of irrigation works in a detailed as well as a general aspect, and the information is arranged and described in such a way that any engineer, even if not specially conversant with this branch of engineering science, may by attention to the principles on which good design must be grounded, evolve suitable plans of irrigation works. The method adopted in this book consists mainly in the provision of what to accept and follow, and what to reject. The first four chapters deal with the sections of various parts of irrigation structures. The groundwork of the subject is given considerable attention in view of the fact that errors in many designs occur, even in the more elementary parts of the subject. A chapter descriptive of weirs is the only phase of the work described from that of dams. A chapter dealing with hydraulic formulae and tables and their practical application, includes several based on a new and original theory. These will be found of great help in

facilitating the calculations of numerous problems and examples subsequently introduced. The work as a whole is dealt with in the remaining chapters, and consists of the practical application of the results arrived at in the previous five chapters. A practical application is made of the new theory and the so termed "frictional stability" of a sand substrata. Throughout the whole work graphical solutions have been adopted entirely with the one exception of high dams. An idea of the size of this work may be obtained from the following chapter heads: Retaining walls; Dams (section); Weirs (section); Piers, Arches, Abutments and Floors; Hydraulic Formulae; Canal Headworks (three chapters devoted to this work); Canal Falls; Canal Regulation Bridges, and Escape Heads; Canal Cross-drainage Works; Design of Channels; Reservoirs and Tanks. The concluding chapter deals with screw gear for tank sluices and roller gates. This work contains a great many illustrations, which in most cases are sections of work, each placing before the engineer the practical side. A short appendix deals with a repetition of hydraulic gradient, etc., in sand foundation. The whole work is very carefully gotten up, and should be of great assistance and a valuable work of reference for the engineer.

Concrete Factories.—By Robert W. Leslie, Assoc. Am. Soc. C.E.; publishers, Bruce & Banning, New York. Size 7×10 , pp. 152.

This book contains a review of the principles of construction of reinforced concrete building, including reports of the sub-committee tests, reports of the United States Geological Survey and the French rules of reinforced concrete, while in conclusion a symposium represents the views of leading engineers, architects and experts in the field of concrete and reinforced concrete. The work is not intended to be used as an authority in the field that it sets out to cover, but is intended to impress much that is of interest and value in the way of information on the present state of the art of concrete and reinforced construction. The reports of the sub-committee on tests, the United States Revisory Board on fuel and structural materials, and the French rules on reinforced concrete, are given in considerable detail, covering the newest field of this branch of engineering. These constitute the introductory chapters of the book, and are followed by the advantages of reinforced concrete as a structural material for factories and other buildings, in which the reinforcement used is described in detail. This book is well illustrated, since it contains views of work in operation at different sections all over America.

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