Maintenance of Way and Structures. By William C. Willard, C.E., M.S., Assistant Professor of Railway Engineering, McGill University. Published by the McGraw-Hill Book Co., New York. First edition, 1915. 450 pages, 225 illustrations, 6 x 9 ins., cloth. Price, $4. (Reviewed by J. R. W. Ambrose, M.Can.Soc.C.E., M.A.R.E.A.)

Of all the volumes published on engineering, very few have been devoted to railroad engineering as a whole. This edition has long been wanted, particularly as a text in universities where there has been a maximum of theory and a minimum of practical information.

The chapters, no doubt, are modelled after the Committees of the American Railway Engineering Association, the greatest of its kind in existence, which controls the railway engineering practice of this continent at least.

The chapter on Rules and Organization is excellent information for the student, but of no practical value to the railroad man, as each company has its own characteristics and the standardization of all would be impossible.

The impression given of track labor is wrong. This class of labor is becoming more important each year, and railway companies are beginning to recognize the possible economy and efficiency through this department.

The chapters on Roadway, Ballast, Ties, Wood Preservation, Rails, etc., are very good and profusely illustrated.

The article on rail anchors is descriptive, but later anchors, such as the "McCooe," might be added, which overcome the difficulties mentioned.

The chapter on Stresses in Track is excellent. This is a new subject and valuable to the engineer as well as the student.

The chapter on Bridges does not go into the design, but the illustrations are valuable to the practical man and particularly so to the student. The statement that ballast floor bridges are not generally waterproofed is incorrect. The author probably meant that special materials are not always used, but some method of waterproofing is always intended.

The remaining chapters give the recommended practice in a concise way, making a convenient reference for the engineer and an excellent text for the student.

The directions for railway drafting are exceptionally good.

As a railway engineering text book, the writer has not seen its equal. The illustrations are clear, instructive and numerous.

Engineering Office Systems and Methods. By John P. Davies, M.E. Published by McGraw-Hill Book Co., Inc., New York. First edition, 1915. 544 pages, 244 diagrams, forms and illustrations, 6 x 9½ ins., cloth. Price, $5.00 net. (Reviewed by H. G. Acres, hydraulic engineer, Ontario Hydro-Electric Power Commission, Toronto.)

The sub-title of this volume indicates its scope more effectively than the general title—"Schedules and instructions for the collection of preliminary data for engineering projects; sampling, inspecting and testing engineering materials; conducting domestic and export shipping operations, etc."

The text is divided into thirteen chapters, ten of which are devoted to engineering subjects. Chapters 5, 8 and 9, entitled respectively, "Purchasing—Office Methods and Forms," "Domestic Shipping," and "Export Shipping," have a much more general scope, as their titles indicate. Chapter 9 contains a well-handled description of procedure and routine formalities in connection with export shipping which could be most opportunely studied by many Canadian manufacturers who plan to invade foreign markets at the close of the war.

Chapters 10 and 11 are devoted to "Progress Charts, Scheduling Systems" and "Indexing and Filing Systems." While these subjects are treated from an engineering viewpoint, an intelligent reader could study these two chapters with profit and adapt the principles outlined to any class of heavy manufacturing. The description of the Dewey decimal system and the discussion of its manifold applications is particularly interesting.

The remaining chapters are more or less directly related to engineering office system and methods or "reminders," and the data required for (*a*) preparing specifications, (*b*) obtaining manufacturers' designs and quotations, (*c*) preparing engineering designs, (*d*) reporting on engineering projects, etc. Chapter 6 deals with cost keeping and estimating and Chapter 7 with sampling, inspection and testing of engineering material. With the exception of the chapter on cost keeping and estimating, these remaining chapters are of doubtful value. The information is not given in sufficient detail to be safely used by an inexperienced engineer, while on the other hand, it is of such a fundamental nature that it must obviously be part of the stock in trade of any competent engineer or inspector. The volume as a whole, however, is a very useful work of reference as related to heavy manufacturing, and should find a market not only among engineers, shop superintendents, etc., but among executives and officers having to do with the purely commercial phases of manufacturing.

Mechanical Engineers' Handbook. Lionel S. Marks, Editor-in-Chief. Published by McGraw-Hill Book Co., Inc., New York. First edition, 1916. 1,836 pages, 4½ x 7¼ ins. About 1,000 illustrations and diagrams. Flexible leather. Price, $5 net.

This handbook brings into the mechanical engineering field the principle of specialization which was introduced into the civil engineering field by the American Civil Engineers' Pocket Book. Prof. Marks, who is professor of mechanical engineering at the Massachusetts Institute of Technology, is the chief editor, but each of the fifteen main sections of the book was written by a specialist.

The book is based upon the German, "Hütte." The German book includes civil and electrical engineering, however, and those portions are not included, arrangements having been made with the Germans for the use of only such portions of their handbook as were required. The greater part of the book must be regarded as new, although the subjects of friction and hydraulic turbines follow "Hütte" closely, while a few of the more theoretical topics, such as heat and mechanics of materials, follow "Hütte" in a general way, with important departures, however.

The specialists who contributed to the book have furnished new data on machine tools and machine shop practice, hoisting and conveying, pipe and pipe fittings, heat, lubricants, paints, weights and measures, refrigeration, fractory accounts and costs, industrial buildings, air conditioning, illumination, fans, hydraulic turbines, air compressors, pumps, measuring instruments, gas engines,