soften celluloid so that it will not break when hammered. Dipping it in water warmed to 40 deg. C. will suffice for this. Any factory will furnish soft celluloid if ordered in sufficiently large quantities to pay.

NEW BOOKS, ETC.

RUMFORD FIREPLACES, AND HOW THEY ARE MADE. By G. Curtis Gillespie, M.E., architect. New York: William T. Comstock. One 12mo. vol.; cloth. Price, $2.

This work, based on the original Rumford essays, which are given in full with the original drawings, is an elaborately illustrated essay on fireplaces, ancient and modern, and their fixtures. The author has given much study to this subject, not as a mere dilettante, but as a practical worker. As an architect of experience in the construction of residences he has found a great demand for fireplaces on the part of owners, but a lack of ability on the part of mechanics to construct them on lines that were at once artistic and efficient. In this respect the book follows carefully in its drawings and descriptions the technical treatment necessary to secure the best results. He claims that Rumford discovered the form and proportions best suited to insure good heating, and that no later designer has been able to compete with him. This portion of the book will be read with much interest by the architect, the mason, and the heating engineer. While elaborately illustrated and containing many designs for mantels, fireplaces, and their accessories, which will render it valuable to the decorative designer, the book is thoroughly practical and the diagrams and drawings can be worked up into actual fireplaces which will not only adorn but heat the rooms they are in without blinding the eyes of their occupants with smoke.

CONCRETE STEEL BUILDINGS. Being a Companion Volume to the Treatise on Concrete Steel. By W. N. Twelvetrees. London and New York: The Macmillan Company. With 331 illustrations. 12mo.; cloth; 408 pages. Price, $3.25.

A presentation of detailed particulars of buildings in concrete designed for different uses in Great Britain, on the Continent, and in America. The works chosen are variously noteworthy, some for their size, some for their strength, and others for the manner in which difficult problems have been solved. All of the buildings show the adaptability of concrete to structural requirements of every description.

PRACTICAL METAL TURNING. A Handbook for Machinists, Technical Students, and Amateurs. By Joseph G. Horner. Illustrated with 488 engravings. New York: The Norman W. Henley Publishing Company. 8vo.; cloth; 404 pages. Price, $3.50.

In this work little is said of the lathe itself, preference being given to the practice of turning rather than to lathe design, a wide subject, undergoing rapid changes. Although it would be a hopeless task to attempt to treat the subject exhaustively in one small volume, few matters of importance seem to have been omitted. The principles and practice in the different branches are considered, and well illustrated. All the different kinds of chucks of usual form as well as some less usual ones, are shown. The important section devoted to modern turret practice is a feature of the book; boring is another subject which is fully treated; and the chapter on tool holders illustrates a large number of types. Screw-cutting is discussed at reasonable length. The last chapter contains a generous body of information relating to high-speed steels and their work.

NOTES ON CONSTRUCTION IN MILD STEEL. By Henry Fidler. With illustrations from working drawings, diagrams, and tables. London and New York: Longmans, Green & Co. 8vo.; cloth; 448 pages. Price, $5.

The object of this work is to bridge the gap that often occurs between the carefully calculated stress-sheet or correctly drawn graphic diagram and the completion of a working drawing which will successfully pass the ordeal of criticism in the girder maker's or bridge or roof builder's yard. No attempt has been made to treat the subject from the point of applied mechanics as ordinarily understood, nor are the theories of construction or the calculations of building or engineering structures referred to, except as may be required incidentally in connection with the legitimate subject matter. The great range of the topics of which the notes treat, however, and the severe limitations which are necessarily imposed, form an excuse for the apparent insufficiency of discussion.

WATER WORKS MANAGEMENT AND MAINTENANCE. By Winfred D. Hubbard and Wynkoop Kreisted. New York: John Wiley & Sons. 8vo.; cloth; 429 pages. Price, $4.

The maintenance and operation of a system of water works is often believed to be a purely business proposition, requiring generally a business management. Regarded in a broad and comprehensive sense, this view may be correct, but a far-seeing business manager will not overlook the purely technical or scientific considerations which are of necessity involved in the management of a modern water works system. The selection of a water supply drawn from an unpolluted source is highly desirable, and inspires the confidence of the public in the management of water works. This confidence, however, may be also secured in a water drawn from polluted sources, provided the water be properly purified for use. It is the object of this work to present all the problems of water works management, both of systems where the water is drawn from polluted and from unpolluted sources. Its scope is broad, even dealing with the legal aspect of the case, and with the financial management of the properties.

ARMATURE CONSTRUCTION. By H. M. Hobart and A. G. Ellis. With 420 illustrations, including numerous colored diagrams. London and New York: The Macmillan Company. 8vo.; cloth; 348 pages, Price, $4.50.

The design and manufacture of dynamo-electric machinery is so extensive a subject, that it cannot be handled in a single treatise with sufficient comprehensiveness. The present work deals with the subject from a constructional and practical standpoint rather than from a designing and calculating standpoint. The theoretical and designing elements have not been allowed to predominate, and are only inserted in so far as they facilitate an intelligent appreciation of the various methods and points encountered in the construction. A novelty which makes the figures much more readily followed is the introduction of colored diagrams in the study of polyphase windings and multiplex continuous current windings. Although to a mind which is continually dealing with such windings these colored diagrams are not so necessary, in the present case, however—where the desire is to reach those more or less unfamiliar with the subject—this innovation is a great assistance.

RAILROAD MEN'S CATECHISM. By Angus Sinclair. New York: Angus Sinclair Company. 16mo.; cloth; 216 pages. Price, $1.

This is a book which gives information that will be useful and acceptable to all classes of railroad men from the president to the newest brakeman. The questions are intended to impart information covering the entire practice of train operating, and to explain all details of mechanism. The questions and answers are the outcome of Sinclair's Locomotive Engine Running and Management, and are an enlarged code that grew up through many small forms, the best known having been the Questions and Answers prepared by the Traveling Engineers' Association.

SOUTHERN SHIPPER'S GUIDE DIRECTORY. A List of the Shippers of Foodstuffs in the Southern States. Houston, Texas: Thomas-Willson Publishing Company. 8vo.; cloth; 300 pages.

ANNALS OF THE ASTRONOMICAL OBSERVATORY OF HARVARD COLLEGE. Edward C. Pickering, Director. Vol. LII. Part I. Eclipses of Jupiter's Satellites. 1878-1903. Cambridge, Mass.: Published by the Observatory.

HIGH ELECTROMOTIVE FORCE. Its Application to the Study of Powerful Electrical Discharges and to Spectrum Analysis. By John Trowbridge. Cambridge: John Wilson & Son, 1907. 185-215 pages; 3 plates.

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