



will cause a considerable change in the character of the metal. To obtain exactly the degree of hardness and toughness that is de sived, requires considerable skill in mixing. Sometimes one per cent or one per cent and a half of lead is added to the above mixture, in order to make metal more easily worked in the machine shop.

NEW BOOKS, ETC.

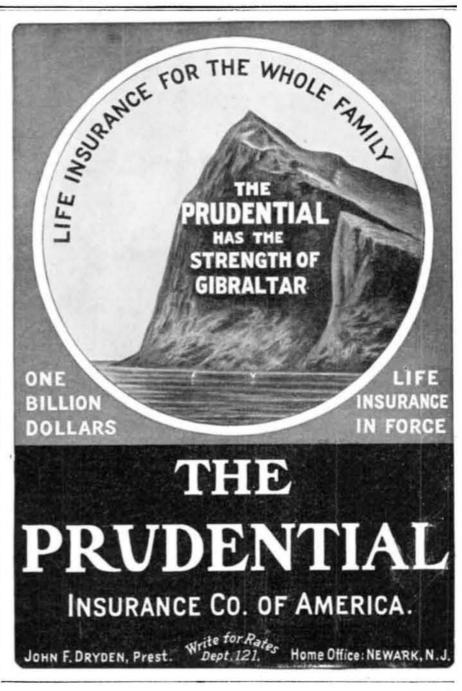
CYCLOPEDIA OF APPLIED ELECTRICITY. Five volumes. Prepared by the American School of Correspondence at Armour Institute of Technology. Chicago, 1905. Large 8vo; 2,500 pages; 3,000 illustrations. Price, \$30.

This is a very comprehensive work on electricity, dealing particularly with its practical applications and avoiding all unnecessary di-gressions into theory. Well-known specialists in the different branches covered have aided in the collaboration of this work, contributing specially-prepared articles, and all the standard works on electrical subjects have been consulted and freely drawn upon. Primarily, this cyclopedia is intended for the use of students the matter being arranged in the progressive order in which it is usually taught, instead of being alphabetically arranged. Examples are used throughout, in order to give a practical understanding of the various subjects, and a the end of each volume are a series of review questions, which permit the reader to examine himself and test the knowledge he has acquired. But though the work is thus particularly adapted for students, it is none the less of value to electricians, engineers, tele phone and telegraph operators, and all who are interested in the practical side of electricity. Higher mathematics is avoided, and only the simplest equations are used. All the explana-tions and descriptions are extremely simple and clear, and at the same time they are very therough and complete. A common fault with most general works on electricity is the free use of technical terms without explicit definitions of their meanings. In the present work the simplest language is used, and technical terms, while not avoided, are fully explained before being introduced.

The first volume deals with the elements of electricity, electrical measurements, electric wiring, insulators for transmission lines, and telegraphy, including a comprehensive chapter on wireless telegraphy, and one on the telautograph. Electric welding is also described in this volume. The second volume describes di-rect-current dynamos and motors, with a valuable chapter on electric motors in machineshop practice, and another on storage bat-teries. Volume III covers the subjects of electric lighting and electric railways, dealing also with power stations and management of dyname-electric machinery. The volume con tains in addition a chapter on boiler trials. The fourth volume takes up alternating-current machinery and power transmission. describing all the principal types of alternators, synchronous motors, induction motors, etc., also converters, including a chapter on the mer-cury-vapor converter. In the fifth volume telephones and telephone practice are dealt with This is a complete and very practical book on the subject, written by William C. Beyrer, who is a telephone engineer of wide experi-The volume ends with a chapter or ence. wireless telephony and a complete index of the entire cyclopedia.

MODERN INDUSTRIAL PROGRESS. By C. H. Cochrane. Philadelphia: J. B. Lip-pincott Company, 1905. 12mo.; pp. pincott Company, 1905. 647; over 400 illustrations. Price, \$3. Mr. Cochrane's book, although not an original work, must be considered a most successful attempt to popularize modern engineering. He has described tersely, though vividly, the foremost technical achievements in civil engineering, steel-making, photography, wireless telegraphy, farming, glass-making, and most of the important American industries. The illustrations in the book vary in excellence. Some are extremely good and some nothing more nor less than catalogue cuts, which ought to have no place in a volume of this character. Apart from this defect, the book is one that can certainly be recommended to the non-tech nical reader.

RADIUM. And All About It. By S. R. Bottone. New York: Whittaker & Co., 1904. 12mo.; pp. 96. Price, 50





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FRICTION AND LUBRICATION. A Handbook for Engineers, Mechanics, Superin-tendents, and Managers. By William M. Davis. Pittsburg: The Lubrica-tion Publishing Company, 1904. 12mo.; pp. 265. Price, \$2.

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