

## NEW BOOKS, ETC.

**FIRST AID TO THE INJURED AND AMBULANCE DRILL.** By H. Drinkwater. London: J. M. Dent & Co. New York: The Macmillan Company. 1901. Pp. 104. 16mo. Price 40 cents.

The number of books published on this subject is legion, but this is one of the best we have ever seen. Its very moderate price places it within the reach of everyone. A general knowledge of ambulance work should be possessed in many of our small towns and cities where there is no regular ambulance service.

**A TEXTBOOK OF PLANT DISEASES.** By George Massee. New York: The Macmillan Company. 1899. 480 pp. Price \$1.60.

This volume forms a complete handbook of Vegetable Pathology, or the study of plant diseases. By studying it at odd moments, any grower of plants may learn what diseases his particular species is subject to, and how to prevent, or, failing this, to combat them in the most approved manner. The book will be found invaluable to all florists and gardeners.

**BUGLE CALLS.** By Benjamin Wood. New York: Brentano's. 1901. 184 pp.

This book is both interesting and unique, for it gives the convictions and opinions of a very large employer of labor on the trade union question, and is about the only book we have seen coming from such a source which upholds the dignity of labor and believes in the union. The book is valuable, since it gives the results of experience in employing union labor, and shows the many dangers that labor is threatened with in America.

**TELEPHONE LINES AND THEIR PROPERTIES.** By William I. Hopkins. New York: Longmans, Green & Company. 1901. 302 pp., numerous illustrations.

This book is intended as a help and guide for both the practical telephone man and the student. It covers the whole subject broadly, including the establishing of lines and the operation of exchanges; but is devoted chiefly to the questions of interference with the telephone currents from outside sources, such as electric railways. Any mathematical demonstrations that seem necessary are included in footnotes. The book has entered its fourth edition, and will prove interesting and instructive to the general reader.

**THE ROMANCE OF THE HEAVENS.** By A. W. Bickerton. New York: The Macmillan Company. 1901. 276 pp. Price \$1.25.

In this most interesting little volume the author sets forth a new theory of the origin of the solar system—the impact theory. He shows how many observed phenomena—such as variable stars—can be accounted for by the use of such a theory, and that it is likewise applicable to the origin of the universe and solar system. The book is non-technical in language, and may be read appreciatively by anyone with but slight knowledge of astronomy.

**RECENTI PROGRESSI NELLE APPLICAZIONI DELL'ELETTRICITA.** Di Rinaldo Furrini, Professore nel R. Istituto Tecnico Superiore di Milano. 3a edizione completamente rifatta. Milan: Ulrico Hoepli. 1901. Pp. 277, 109 illustrations.

**LEE'S AMERICAN AUTOMOBILE ANNUAL FOR 1901.** Edited by A. B. Chambers. Philadelphia and Chicago: Laird & Lee. 1901. Price \$1.50.

This volume includes a brief history of the automobile and discusses various types. Its illustrations do not warrant special comment.

**PRACTICAL ADVICE FOR MARINE ENGINEERS.** By Charles W. Roberts, M. I., Marine Engineer. London: Whittaker & Company. New York: The Macmillan Company. 1901. 16mo. Pp. 150. Price 75 cents.

The author is a practical engineer, and he has produced a work which is of value to all marine engineers. It will be specially welcome to junior engineers who desire to grasp the general ideas which should govern the management of steamship machinery.

**SIX MONTHS ABOARD ON \$300.** An Account of a Tour Taken by a Gentleman and His Wife. Carrollton, Mo.: E. H. Kellar. 18mo. Pp. 43. Price 50 cents.

The author describes a trip to Europe and the East, the accommodations being in the steerage and in inferior classes on the railways. To those who enjoy traveling in this manner the book may be of some assistance, but it is safe to say that the intense annoyances and discomforts of this mode of traveling do not compensate for the money saved by a thousandfold. Americans should not go abroad until they are able to go at least in the second cabin of a good liner.

**PRIME NOZIONI FONDAMENTALI DI ELETTRICITA.** Alfonso Cossa. Milan: Ulrico Hoepli. 1901. Pp. 113.

**CONTI E CALCELI FATTE.** I. Gersi. Milan: Ulrico Hoepli. 1901. 18mo. Price 50 cents.

**MODERN METHODS OF SAVING LABOR IN GAS WORK.** By C. M. Brackenbury, A.M. I.C.E. London: P. S. King & Sons. Pp. 64. Price \$1.60.

A most valuable monograph on the subject. While the literature of gas-making is by no

means limited, we do not know of any work dealing with this particular phase of the subject. The very latest devices and methods are described. It is well illustrated.

**SELECT BIBLIOGRAPHY OF CHEMISTRY.** 1492-1897. By Henry Carrington Bolton. Sec. 8. Academic Dissertations, Smithsonian Miscellaneous Collections, No. 1,253. Washington: Smithsonian Institution. 1901.

Dr. Bolton has done a signal service to science in his monumental "Bibliography of Chemistry." He has practically devoted his life to this work, which is, of course, a pure labor of love, which could not be published by any one but a governmental institution. We commented favorably on the first volume when it appeared, and we have nothing but words of praise for the present volume.

**PURE AIR, OZONE AND WATER.** By W. B. Cowell. London: Scott, Greenwood & Company. New York: D. Van Nostrand Company. 1900. Pp. 85. Price \$2.

This is a practical treatise on the utilization of air, ozone and water in oil, grease, soap, paint, glue and other industries. It deals with the purification of air and water, and also of the generation of ozone and their utilization. The value of pure air for oxidation, purification, etc., is well known, but the practical utilization by means of cheap methods has not until recent years been fully realized.

**ELEVATION AND STADIA TABLES.** For Obtaining Differences of Altitudes for all Angles and Distances: Horizontal Distances in Stadia Work, Etc., with all Necessary Corrections. By Arthur P. Davis. New York: John Wiley & Sons. 1901. 12mo. Pp. 43.

The present volume, which includes hydraulic tables for giving velocity for various tunnels and slopes, will undoubtedly prove of great value to engineers.

**A PRACTICAL TREATISE ON THE LEATHER INDUSTRY.** By A. M. Dillon. Translated by Frank T. Addyman. London: Scott, Greenwood & Company. New York: D. Van Nostrand Company. 1901. 8vo. Pp. 505. Price \$10.

The literature of leather is limited. Most of the more important books have been suffered to go out of print. The sale of books on this subject is always limited, and for this very reason we welcome most gladly the appearance of a translation of an important French work. The French methods and practices which are described are of deep interest to English and American tanners. It is a book which we can recommend most highly to all who are desirous of obtaining a thoroughly up-to-date book on the leather industry. It is well illustrated and is handsomely printed with a wide margin, and is attractively bound.

**THE CHEMISTRY OF SEVERAL NATURAL AND ARTIFICIAL HETEROGENEOUS COMPOUNDS USED IN THE MANUFACTURE OF PORCELAIN, GLASS AND POTTERY.** By Simeon Shaw, LL.D. London: Scott, Greenwood & Company. New York: D. Van Nostrand Company. 1900. 8vo. Pp. 713. Price \$5.

This classic work is reissued in its original form by the publishers. It is one of the classics of both ceramic and chemical literature. It was first issued in 1837, and has been known for a long time as a valuable book. In its present form it should have a considerable sale. It is filled with most valuable information for the pottery chemist.

**RESEARCHES ON THE PAST AND PRESENT HISTORY OF THE EARTH'S ATMOSPHERE.** By Dr. Thomas Lamb Phipson. London: Charles Griffin & Company, Limited. Philadelphia: J. B. Lippincott Company. 12mo. Pp. 194.

This work includes the latest discoveries and their practical applications. It is to a great extent the result of Dr. Phipson's own observations, which were spread over a considerable number of years. The author is well known as a contributor to chemical literature.

**THE A B C OF DYNAMO DESIGN.** By Alfred H. Avery. London: Dawbarn & Ward. 1900. 104 pp., 61 illustrations. Price 50 cents.

The instructions found in these pages are clear and concise, and will enable any amateur with a reasonable amount of work to design and construct a small dynamo. All the data are given for a 30, a 500 and a 2,000 watt dynamo, besides directions for designing any other similar size.

**ORATORY: ITS REQUIREMENTS AND ITS REWARDS.** By John P. Altgeld. Chicago: Charles H. Kerr & Company. 1901. 65 pp. Price 50 cents.

In this little book will be found a clear exposition of this most powerful of all arts in the swaying of men's emotions. The author sets forth, in a clear, succinct style, the qualifications that one must have to become a successful orator, and gives, in a general way, directions for the cultivation of voice, tone, articulation, etc. He concludes with a description of some of the great orators and orations of history. The book will be found a practical little volume for all public speakers.

**THE HISTORY OF THE DEVELOPMENT OF THE MANUFACTURE OF INDIGO.** By H. Brunck, Ph.D. New York: Kittroff, Pickhardt & Company. 8vo. pamphlet.

## Business and Personal Wants.

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Sawmill machinery and outfits manufactured by the Lane Mfg. Co., Box 13, Montpelier, Vt.

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For Sheet Brass Stamping and small Castings, write Badger Brass Mfg. Co., Kenosha, Wis.

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**Inquiry No. 997.**—For manufacturers of sponge rubber in sheets, or shapes to order.

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**SAWMILLS.**—With variable friction feed. Send for Catalogue B. Geo. S. Comstock, Mechanicsburg, Pa.

**Inquiry No. 999.**—For manufacturers of appliances for making macaroni, vermicelli and spaghetti.

Manufacturers of Valves, Fittings, Brass and Iron Work. Spindler & Deringer, 18-22 Morris St., Jersey City, N. J.

**Inquiry No. 1000.**—For small ice-making machines, with capacity of 300 to 500 pounds daily.

For Machine Tools of every description and for Experimental Work call upon Garvin's, 149 Varick, cor. Spring Streets, N. Y.

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**Inquiry No. 1002.**—For flouring mill boilers and engines.

See our Collective Exhibit—Section "S," Electricity Building, Pan-American Exposition. Standard Welding Company, Cleveland, Ohio.

**Inquiry No. 1003.**—For the address of the Continental Manufacturing Company, perfumers.

**PATENT RIGHTS OF BOILER FOR SALE.** No. 538,885.—Saves 40 per cent. of fuel. Cash \$50,000 for half interest, \$100,000 outright. E. S., Box 773, New York.

**Inquiry No. 1004.**—For a manufacturer of portable iron houses.

The celebrated "Hornby-Akroyd" Patent Safety Oil Engine is built by the De La Vergne Refrigerating Machine Company. Foot of East 138th Street, New York.

**Inquiry No. 1005.**—For the manufacturer of Naphey's acetylene gas tips, 1/4-foot and 1-foot sizes.

The best book for electricians and beginners in electricity is "Experimental Science," by Geo. M. Hopkins. By mail, \$4. Munn & Co., publishers, 361 Broadway, N. Y.

**Inquiry No. 1006.**—For the manufacturer of machinery to remove dents from locomotive headlight reflectors.

**FOR SALE.**

One No. 11, 6 1/4 x 8 Scattergood portable hoisting engine with boiler: drums hold 500 feet 1/2-inch cable; in comparatively new condition. Sold at reasonable figure, and can be inspected at any time. Obermeyer & Liebmans, Bremen and Noll streets, Brooklyn, N. Y.

**Inquiry No. 1007.**—For manufacturers of spectroscopes.

A member of a prominent export firm, being about to travel through Australasia, invites communication with manufacturers and proprietors of specialties, with a view of arranging for their representation by special agency or otherwise. This offers an exceptional opportunity to manufacturers who wish to introduce new lines. Prompt application is necessary. Address X. L., P. O. Box 924.

**Inquiry No. 1008.**—For manufacturers of wire crimping rolls.

**ELECTRICAL ENGINEER (Tramways).**—Wanted immediately by the Council of the City of Wellington, New Zealand, a thoroughly qualified Electrical Engineer, who must have had special experience in carrying out and equipping overhead electrical tramways and power stations. Full particulars and conditions may be obtained on application to Messrs. R. W. Forbes & Son, Produce Exchange, New York, and applications must be delivered at the office of Messrs. John Duthie & Co., Ltd., Lime Street, London, E. C., England, not later than noon on the 20th July.

**Inquiry No. 1009.**—For the address of the Strowyer automatic telephone exchange.

Send for new and complete catalogue of Scientific and other Books for sale by Munn & Co., 361 Broadway, New York. Free on application.

**Inquiry No. 1010.**—For small ice-making machines and cooling apparatus to work by hand.

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**Inquiry No. 1012.**—For dealers in new or second-hand gasoline engines of about 1/4 or 1/2 horse power, for running car of about 60 pounds weight.

## Notes &amp; Queries

## HINTS TO CORRESPONDENTS.

Names and Address must accompany all letters or no attention will be paid thereto. This is for our information and not for publication. References to former articles or answers should give date of paper and page or number of question. Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and, though we endeavor to reply to all either by letter or in this department, each must take his turn. Buyers wishing to purchase any article not advertised in our columns will be furnished with addresses of houses manufacturing or carrying the same. Special Written Information on matters of personal rather than general interest cannot be expected without remuneration. Scientific American Supplements referred to may be had at the office. Price 10 cents each. Books referred to promptly supplied on receipt of price. Minerals sent for examination should be distinctly marked or labeled.

(8253) B. P. asks: Will you kindly furnish me with information regarding liquid air, its process of manufacture, cost, properties, etc., and what developments have been made regarding its uses and its dangers? A. We can send you ten good articles upon liquid air at ten cents each, or else the book upon the subject by Sloane, for \$2.50 by mail. Liquid air has no commercial uses at present, and there are no dangers from it, if handled by one having knowledge of the usual properties of gases.

(8254) V. N. S. writes: In the SCIENTIFIC AMERICAN of May 25, in answer to question No. 8193, you give a way of stopping "cross talk" caused by two telephone lines crossing each other; and as we have a similar trouble here, caused by a one-wire private line crossing the Bell metallic circuit line, please explain a little more fully how we can overcome the trouble. A. The cross talk can be cured by using the Bell metallic circuit on your line, twisting the two wires around each other as the parts of a rope are twisted. The lines in the cities are usually twisted three to four times per foot. The double wires can be bought ready twisted.

(8255) C. M. L.—The principal source of graphite in the United States is the mines at Ticonderoga, N. Y., which furnish about 200 tons per annum. It is also mined near Raleigh, N. C., and in Virginia, Georgia, New Hampshire, Rhode Island, and California; also in Nova Scotia. The best graphite comes from Colombo, Ceylon, and costs from 2 to 4 cents per pound, according to quality. Prices depend much upon the regularity of the supply.

(8256) W. E. asks: Will you tell me how the voltage and internal resistance of a Bunsen cell can be calculated mathematically, or refer me to a good book on the subject? A. The voltage and internal resistance of a battery are not calculated by mathematics. They are measured by instruments. The processes employed are to be found in Kempe's "Handbook of Electrical Testing," price \$7.50. This work is complete. A special book upon batteries is Carhart's "Primary Batteries," price \$1.50, both prices by mail.

(8257) X. writes: I wish to obtain some information which would be very acceptable to me, and in fact to a great many at this time, when the question of using gasoline engines on automobiles of different kinds is very popular; and that is, the dimensions and drawings, if possible, of a jump spark or induction coil that would be oblong in shape, without vibrator, light as possible, and to work on low voltage giving a one-quarter inch spark. A. The details for making an induction coil to give a spark one-quarter inch in length can be found in Bonney's "Induction Coils," price \$1 by mail. You can omit the vibrator and arrange the break in the combustion chamber or cylinder without special instructions. The shape may also be changed to adapt it to the space allotted to it. The important thing is the insulation and the windings. All else is secondary. Only a low voltage can be used upon so small a coil.

(8258) Fuller & Cooper ask: Please tell us how to make a jumping spark coil. Give us a good description if you can. A. See answer to above query.

(8259) F. P. asks: 1. Is the efficiency of an electric motor affected if the body frame of the automobile is iron, or if motor is clad with wrought iron or other metal instead of cast iron? A. The efficiency of an electric motor is not affected by the material of the frame of the carriage to which it is attached. Nor does it make any difference to the motor by what metal it is inclosed. The reason for using ironclad motors on street cars is chiefly to prevent the escape of magnetic lines into the space around the motor. No metal but iron can do this, and cast iron is cheaper than wrought iron. 2. Will wrought iron field magnets, instead of cast iron, in SUPPLEMENT 1195 (November 26, 1898), double the efficiency of the motors? If not, what winding will do it? A. Wrought iron will transmit about twice as many lines of forces as cast iron; hence a saturated magnet core of wrought iron will give twice the effect of one of cast iron. 3. If pinion wheel is placed on top of gear wheel, is it as efficient as if placed on the side? A. The position of the driving gear does not affect the amount of power it transmits. 4. If not