

threads left will immediately indicate the nature and extent of the adulteration.

METEORIC IRON IN GREENLAND.

The Swedish arctic expedition has brought home a number of masses of meteoric iron found there upon the surface of the ground. These masses vary greatly in size, the largest weighing 49,000 Swedish pounds, or twenty-one tons English, with a sectional area of about forty-two square feet. This has been deposited in the hall of the Royal Academy at Stockholm. Another piece, weighing nine tons, has been presented to the Museum of Copenhagen. These specimens considerably exceed in size the famous mass at Yale College, which weighs 1,635 pounds, but are not larger than some blocks that have been observed in parts of South America. The Swedish chemist Berzelius was one of the first to examine meteoric iron to see if it contained elements different from those found on minerals of terrestrial origin; but he never detected anything new. This result is rather disappointing, as meteoric iron is now believed to come from sources outside of our world.

ILLINOIS AND ST. LOUIS BRIDGE.

This important work is progressing successfully and rapidly. The St. Louis *Railway Register* states that thirty-eight of the large skewback anchor steel bolts to be used in the bridge have arrived. The work of putting them in place has been begun, and there will be no further necessity for delay on their account. The yellow pine and white oak to be used in the construction of the bridge have also begun to arrive. The pine is from Georgia. The oak is from Southern Illinois. Both the pine and the oak are of the best. Work will be commenced in this department at an early day.

HOT WATER PIPES AGAINST WOOD WORK.

We are asked whether these are dangerous. Our own opinion is that no fire ever originated from hot water pipes or from low steam pipes, except where materials liable to spontaneous ignition have been placed on or near the heating apparatus. Artificial heat will, of course, increase the probability that oily wool, greasy wood, metal cuttings, etc., will take fire. The ordinary woodwork of buildings will not ignite at 212°.

LA FEUILLE DES JEUNES NATURALISTES.

A journal of a most interesting and valuable kind, under the above title, has recently entered upon its second year. It is published in Paris, and its object is to become a means of communication and mutual instruction between such French youths as are willing to devote their leisure hours to the study of natural history. The facilities for such pursuits are great in France, as almost every large school has its own museum, containing specimens culled and arranged by the boys themselves. The editors, with commendable liberality, invite communications from young naturalists in other countries, promising to translate and publish any which shall be found suitable for the pages of this magazine.

EVAPORATION OF CHLORINE.

Those of our readers who use chloride of lime in manufactures are well aware of the quantity of the chlorine which escapes from the salt, and is lost. A good test for determining the amount of free chlorine has recently been published by Dr. Graeger. He takes a dilute solution of strongly acidified protosulphate of iron, and triturates it with a one tenth solution of permanganate of potassa. The compound must be kept in a close stoppered bottle. A solution of a weighed portion of the bleaching powder to be tested is added, through a pipette, to a portion of the protosulphate and permanganate solution in a stoppered flask, and the bottle well shaken. After this has stood a short time, the amount of protosulphate of iron undecomposed is estimated by means of the permanganate solution. One gramme of bleaching powder, containing 0.3546 grammes chlorine, requires 0.278 grammes protosulphate of iron; but the reaction is made additionally certain if the above named quantity of the iron salt be doubled. Care must be taken that ammonio-sulphate of iron is not used, lest that most dangerous explosive, chloride of nitrogen, be formed.

BREAKWATERS.

The obvious desirability of these important constructions, in situations where the water is deep and the expense of laying foundations, to say nothing of the superior erections, is very great, has frequently attracted much attention to the question of floating breakwaters. It has been recently asserted by an eminent authority, that at a depth of fifteen feet below the surface, wave action is reduced to a nullity, or zero; and experiments fully prove the correctness of this calculation. Of the great economy to be effected by a floating breakwater, with at least fifteen feet of material below the average horizontal line of wave motion, there can be no reasonable doubt; for an estimate of the cost of building breakwaters in the usual manner, namely, on a solid foundation, is given by an English engineer as ranging from \$750 to \$2,100 per foot run; and the splendid erection of this kind at Plymouth, England, which secures calm water to a large bay while the sea outside is one of the most tempestuous known in the world, costs \$75,000 a year to keep in repair. Mr. Thomas Cargill, C.E., in discoursing on the subject before the Society of Engineers, London, Eng., points out that the idea of a floating protection to a harbor is probably derived from the observed action of sea weeds. The Gulf weed always has calm water to leeward, although the enormous masses of it seldom are more than twenty-four inches deep in the water. In these days of cheap iron construction, a system of connected iron cylinders, securely fastened together and anchored at the ends might prove valuable, especially as the protection of iron from the action of salt water by cement is now known to be practicable and thoroughly efficient.

Examples for the Ladies.

Mrs. R. W. Sanderson, Poppenhausen Institute, College Point, N. Y., has had a Wheeler & Wilson Machine since February, 1859, employed, without repairs, in sewing all materials, from triple beaver to Nansook, (ten years in dress-making) it is now used for instructing pupils in the Institute.

"I feel that my comfort depends upon WHITCOMB'S ASTHMA REMEDY."—*J. Shaw, Saugus, Mass.*

NEW BOOKS AND PUBLICATIONS.

SCIENCE RECORD FOR 1872. Being a Compendium of the Scientific Progress and Discovery of the Past Year. 400 pages, octavo. 100 Engravings, Steel Plate and Wood. Handsomely bound in muslin, \$1.50; extra binding, half calf, \$2. Munn & Co., Publishers, 37 Park Row, New York, Office of the SCIENTIFIC AMERICAN.

This new and elegant work presents, in convenient form, notices of the leading subjects and events, pertaining to science, that have occupied public attention during the past year. The progress of the more important public works is duly chronicled, with illustrative engravings. The leading discoveries, facts, and improvements, in chemistry, mechanics, engineering, natural history, and the various arts and sciences, are recorded and illustrated. Sketches of prominent scientific men, with illustrations, are given, and among the portraits are those of Faraday, Murchison, Darwin, Agassiz, Huxley, and Herschel. The Mont Cenis tunnel, the Hell Gate works, the Brooklyn suspension bridge, the Hoosac tunnel, the St. Louis bridge, the United States Patent Office, and other works are illustrated. A large amount of useful information, tables, descriptions of improvements, with engravings, are likewise presented. The book is one of much interest and value, and should have a place in every library.

THE NATIONAL ENCYCLOPEDIA. A Compendium of Universal Information, Brought down to the Year 1871, with the Pronunciation of Every Term and Proper Name. By L. Colange, L.L.D., Editor of Zell's Encyclopedia. Illustrated with five hundred wood engravings. Complete in eighteen numbers. New York: Francis B. Felt & Co., 91 Mercer Street.

The first two numbers of this work are received. As a popular work of reference it gives, in a compressed form, a vast fund of general information. Specimen numbers will be sent to any address on application. It is issued semi-monthly, at 40 cents per number.

THE MANUFACTURE OF RUSSIA SHEET IRON. By John Percy, M.D., F.R.S., Lecturer on Metallurgy at the Royal School of Mines, London, and to the Advanced Class of Artillery Officers at the Royal Artillery Institution, Woolwich, Author of "Metallurgy." With Illustrations. To which is added an Appendix on American Sheet Iron. Philadelphia: Henry Carey Baird, Industrial Publisher, 406 Walnut Street. Price, by mail, free of postage, 50 cents.

This is a pamphlet, containing an alleged exposition of the secrets of Russia sheet iron. Those interested in metallurgy will find it an interesting contribution to metallurgical science.

LORD BANTAM. A Satire. By the Author of "Ginx's Baby." Author's Edition. New York: George Routledge & Sons, 416 Broome Street.

Those who have read "Ginx's Baby" will need no assurance of ours that its successor, "Lord Bantam," will repay the reading. The sharp pen of the author scaries whatever and whoever it touches, but in a good humored way that redeems it from the charge of bitterness.

THE HOOSIER SCHOOLMASTER. A Novel. By Edward Eggleston. With twenty-nine Illustrations. New York: Orange Judd & Co., 245 Broadway.

This is a graphic picture of "Hoosier" life, entirely free from any thing morally unwholesome, and possessing elements of popularity second to very few recent publications of its kind.

A HAND BOOK ON SILEX. Embraced in Three Practical Treatises. I. On Soluble Glass, and all its Applications in the Arts. II. On Glass Making in all its Details. III. A Guide for Soap Making; the Manufacture of all Soaps, and their Manipulations. Containing a large Number of Useful Formule for Rendering Wood and Timber Fire and Dry Rot Proof, Silicifying Stones, Mortars, Cements, and Hydraulic Lime, White Washes, Paints and Cements, and How to Protect Wooden Shingles, Pavements, Railroad Sleepers, etc., etc. By Dr. Lewis Feuchtwanger, Chemist and Mineralogist. New York: Published by L. and J. W. Feuchtwanger, No. 55 Cedar Street.

This book contains much of the subject matter treated in the author's original work on soluble glass, the first edition of which is exhausted, the two departments on glass making and on soap making, having been added. The author has had a large experience as a practical chemist, which is in this work placed at the command of such as wish information upon the subjects enumerated in the title.

CHICAGO AND THE GREAT CONFLAGRATION. By Elias Colbert and Everett Chamberlain. With Numerous Illustrations by Chapin & Gluck, from Photographic Views Taken on the Spot. Cincinnati & New York: C. F. Vent. Chicago: J. S. Goodman & Co. Philadelphia: Hubbard Brothers.

This volume supplies information in regard to the material prosperity of Chicago antecedent to the great fire, a full account of the fire, and the condition of the city subsequent to the catastrophe. It is a large octavo of 328 pages.

HANNA'S COMPLETE READY RECKONER AND LOG, TABLE, AND FORM BOOK. By J. S. Hanna, Lumber Inspector, Lockhaven, Pa. Philadelphia: J. B. Lippincott & Co., Nos. 715 & 717 Market Street.

This is a very handy and reliable pocket manual, for those who have to perform calculations relating to measurements of lumber and other building materials, wages, board, rent, etc., etc.

NEW YORK OBSERVER YEAR BOOK FOR 1872.

Improved from their last year's issue, both in contents and appearance. It contains a list of all the Protestant clergymen of the country, classified into the various denominations, and other ecclesiastical information not attainable elsewhere. Price \$1. New York Observer, 37 Park Row, N. Y.

THE HOME FIRE INSURANCE COMPANY, Broadway, N. Y.,

Has issued a set of twelve beautifully illuminated calendars, neatly fastened together—very convenient and ornamental for the counting room or library. Each card has the calendar for the month, and is embellished with an appropriate original design, printed in colors.

ALMANACS.—We are indebted to G. W. Childs, of Philadelphia, for a copy of The Public Ledger Almanac for 1872. The cover is embellished with patriotic devices printed in colors, and the contents comprise much valuable information. Ninety thousand are issued, and a copy is presented to each subscriber of the Ledger.

The publishers of "WORK AND PLAY," a magazine for children of both sexes, have issued an annual, containing directions for playing indoor and outdoor games, tricks, charades, etc. It is well gotten up and illustrated, and is from the house of Milton, Bradley & Co., Springfield, Mass.

Business and Personal.

The Charge for Insertion under this head is One Dollar a Line. If the Notices exceed Four Lines, One Dollar and a Half per Line will be charged.

Dry Steam, dries green lumber in 2 days; tobacco, in 3 hours; and is the best House Furnace. H. D. Bulkley, Patentee, Cleveland, Ohio.

The paper that meets the eye of manufacturers throughout the United States—Boston Bulletin, \$4 00 a year. Advertisements 17c. a line.

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A Mechanical Draughtsman wants a situation in a Draughting Office. Good testimonials. L. F. Baker, 29 Union St., Hartford, Conn.

For 2 & 4 Horse Engines, address Twiss Bro., New Haven, Ct.

Working Models made at low rates, by Wm. E. Cass, 61 Hamilton St., Newark, N. J.

Improved Foot Lathes, Hand Planers, etc. Many a reader of this paper has one of them. Selling in all parts of the country, Canada, Europe, etc. Catalogue free. N. H. Baldwin, Laconia, N. H.

Automatic Gas Machines! The Cheapest method of Lighting Buildings out of the reach of City Gas Works. D. W. Holmes, 7 Liberty Square, Boston, Mass.

Patent Rights Sold on Commission by Moody & Co., 7 Murray Street, New York city. Send 50 cts. for one year's subscription for "The Patent Bulletin," post paid. Agents wanted.

Steel Springs for Pocket Books, Memorandums and Diaries. Springs of all kinds made to order. J. F. Dubber, 48 Hicks St., Brooklyn, N. Y.

Best Oak Tanned Leather and Vulcanized Rubber Belting. Greene, Tweed & Co., 18 Park Place, New York.

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The Improved Ingham or California Cleaner and Smutter Combined is beyond question one of the very best and cheapest in America. Send for illustrated circular, giving full particulars. It will pay you. Address M. Deal & Co., Bucyrus, Ohio, Manufacturers.

Presses, Dies & all cantools. Ferracute Iron Wks, Bridgeton, N. J.

Maine's Portable Ventilator—Adjustable to any window fresh air without draft. See Scientific American, Dec. 23. Send for Circular. Underhill & Co., 95 Duane Street, New York.

Chard & Howe's machinery oils, the best—try them—134 Maiden Lane, New York.

A practical Machinist, having first class Machinery for Iron Work, would like to hear of power, with inclination to settle in Virginia, Kansas, or intervening States. Address, J. D. A., Lock Box 91, Boston, Mass.

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Rubber Valves—Finest quality, cut at once for delivery; or moulded to order. Address, Gutta Percha & Rubber Mfg Co., 9 & 11 Park Place, New York.

For Hydraulic Jacks and Presses, New or Second Hand, send for circular to E. Lyon, 470 Grand Street, New York.

Williamson's Road Steamer and Steam Plow, with Thomson's Tires. Address D. D. Williamson, 32 Broadway, N. Y., or Box 1809.

Boynton's Lightning Saws. The genuine \$500 challenge. Will cut five times as fast as an ax. A 6 foot cross cut and buck saw, \$6. E. M. Boynton, 80 Beekman Street, New York, Sole Proprietor.

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For Steam Fire Engines, address R. J. Gould, Newark, N. J.

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Brown's Coal yard Quarry & Contractors' Apparatus for hoisting and conveying material by iron cable. W. D. Andrews & Bro, 414 Water st., N. Y.

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Mining, Wrecking, Pumping, Drainage, or Irrigating Machinery, for sale or rent. See advertisement. Andrews' Patent, inside page.

Vertical Engines—Simple, Durable, Compact. Excel in economy of fuel and repair. All sizes made by the Greenleaf Machine Works, Indianapolis, Ind. Send for cuts and price list.

Millstone Dressing Diamond Machine—Simple, effective, durable. For description of the above see Scientific American, Nov. 27th 1869. Also, Glazier's Diamonds. John Dickinson, 64 Nassau st., N. Y.

Peck's Patent Drop Press. Milo Peck & Co., New Haven, Ct.

To Ascertain where there will be a demand for new Machinery, mechanics, or manufacturers' supplies, see Manufacturing News of United States in Boston Commercial Bulletin. Terms \$4.00 a year.

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