Business and Personal.

The charge for insertion under this head is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in the following week's issue.

Marine Iron Works. Chicago. Catalogue free.

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Notes & 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 This is for our information and not for publication.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.

(7754) W. H. K. asks: What solid fuel would you recommend as being applicable to the running of a light steam automobile? And how would it compare in time required to get up steam and in bulk to be carried with kerosene or naphtha? A. Of solid fuels we recommend anthracite nut coal for vehicle boilers. It does not ignite quite as easily as pulverized coke, but will last longer in the furnace and needs less care. The hard anthracite makes the best and most reliable feed for a magazine furnace. Coke is much used in Europe, where soft coal is the principal fuel. Coal from a magazine is preferable to kerosene or gasoline burners in many ways, especially in regard to odor. On the other hand, the kerosene may be the easiest to control and to obtain from any grocery or country store. From the moment of firing steam can be raised much quicker with kerosene or gasoline burners than with coal or coke.

(7755) E. A. W. asks how to take care of a marine boiler during winter while it is stored away. My boiler is a 10 horse power Scotch marine. A. Charge the boiler with three gallons of kerosene oil, either through the pump with steam sufficient to run the pump, and then pump the boiler nearly full of water with as tow steam as will run the pump. Then, after drawing the fire, blow off the boiler and clear the pump, pipes and the legs of the boiler of water and excess of oil by opening the lowest hand hole. Then close the boiler air tight. This will leave an oiled surface over the entire interior of the boiler, and the exclusion of air will prevent rust.

(7756) A. W. H. asks: 1. Where was the "Shamrock" built? A. "Shamrock" was built on the Thames by Thornycroft. 2. Is the "Navahoe" a keel or centerboard boat? A. "Navahoe" is a centerboard boat. 3. Did the Queen of England give the yacht club the "America" cup raced for in 1851? Is it rightly called the queen's cup? What I mean is did the queen give to the Royal Yacht Squadron the cup which they offered in 1851, to be raced for by the yachts of the world? A. The queen did not give the cup. She did give a cup, but the "America" did not enter the race for this cup as time allowance would have had to be given. The cup she did sail for and capture was given by the R Y.S., and was sailed for without the customary time allowance.

(7757) M. W. asks for a receipt for burnishing ink used for blacking the edges of heels and soles of shoes. A. Receipts for burnishing ink for heel and sole edge polishing:

a. Extract of logwood ..... 1 to 2 oz.
Tincture of iron ..... 1 to 2 oz.
Sweet oil ..... 1 to 2 drm.
Diluted alcohol ..... 1 pint.

b. Extract of logwood ..... 4 oz.
Bichromate of potassium ..... 12 grn.
Ferrocyanide of potassium ..... 12 grn.
Rain water ..... 1 gal.

The ink in either case is applied with a brush and immediately burnished with a hot iron.

NEW BOOKS, ETC.

THE FIREPROOFING OF STEEL BUILDINGS. By J. K. Frietag, C.E. New York. 1899. 8vo. Pp. 319. Price $2.50.

The want of any systemized and collected form of information on the subject of the development of fireproofing of steel buildings and its present most approved and efficient methods of treatment as recommended and used in the best practice of the day, has induced the author to offer this volume, which we have no hesitation in saying is a most valuable one, which no architect or architectural engineer can afford to be without. Steel buildings are comparatively a new departure, and the literature relating to them in book form is slight, though the articles on it in periodicals are voluminous. The present volume has many well executed illustrations detailing the latest and best methods of fireproofing steel structures. It is an important contribution to engineering literature.

DICTIONARY OF BIRDS. By Alfred Newton. Assisted by Hans Gadow. London: Adam & Charles Black. New York: Macmillan Company. 1893 to 1896. Pp. 1088. Price $5.

A most admirable book filled with valuable information presented in the most readable form. It is well illustrated by wood engravings. Not only are the birds themselves listed and described but there are valuable sections devoted to such subjects as the "Muscular System," "Nervous System," "Nidification," "Quill," etc. There are four pages of "Notanda et Corrigenda," and it is gratifying to see that the authors have not been ashamed to place their errata in a prominent position. No greater service can be rendered to a scientific book than this, and it is impossible in a scientific book of this size not to have many corrections.

COMPULSORY LICENSES UNDER THE PATENT ACTS. By J. W. Gordon. London: Stevens & Sons, Limited. 8vo. Pp. xxxv, 443.

This book is a compendium of the British law and practice relating to the grant of compulsory licenses for the manufacture and sale of patented articles. The intention of the legislators was to prevent owners of patents from withholding the benefits of their inventions from the public, and to compel them to supply the demand that might exist for the patented goods, and to provide a legal procedure to determine the conditions under which a patentee should grant a compulsory license. The Board of Trade, to which such matters are referred under the law, has rendered several important decisions defining the right of the public in patented inventions. Mr. Gordon's book is a clear and exhaustive statement of the law and practice of compulsory licenses.

THE RISE AND DEVELOPMENT OF THE LIQUEFACTION OF GASES. By Willett L. Hardin, Ph.D. New York: The Macmillan Company. London: Macmillan & Company, Limited. 1899. Pp. 250. Price $1.50.

Recent developments in the liquefaction of air and the recent liquefaction of hydrogen have added considerable interest to the whole subject of the liquefaction of gases. The literature of the subject is limited and is scattered for the most part in foreign journals. It has been the author's pleasant task to collect these papers and write a complete history of the developments of the methods employed in the liquefaction of gases. The book is written in a popular science style, but at the same time scientific accuracy has not been departed from in any degree. It will prove useful to those who already have Sloane's "Liquid Air."

PROBLEMS IN MACHINE DESIGN. By Charles H. Innes, M.A. Second Edition. Manchester: The Technical Publishing Company, Limited. 1899. Pp. 258. Price $1 60.

There never can be too many good books upon this subject; the mechanical engineer is always needing precisely the kind of information which is given in this work. We regret to note that the object of the author in writing this book is to supply engineering students with a text book which will enable them to pass the honor stages of the science and art examinations. We sincerely trust that it will appeal to a much larger public.

A COURSE IN QUANTITATIVE CHEMICAL ANALYSIS. Gravimetric and Volumetric. By Nicholas Knight. New York: A. S. Barnes & Company. 1899. Pp. 110. Price 80 cents.

Complete analyses are outlined in this book, and substances have been selected for analysis which it is believed will illustrate the more common methods of separating and determining the parts of a compound or mixture of compounds. This treatise will contribute to a knowledge and love of this beautifully exact, fascinating and useful branch of chemical science.

NOTES ON THE CONSTRUCTION OF CRANES AND LIFTING MACHINERY. By Edward C. R. Marks. New and Enlarged Edition. Manchester: The Technical Publishing Company, Limited. 1899. Pp. 183. Price $1.40.

A modern and practical book on cranes and other lifting machinery has been needed. It is a much neglected part of mechanical engineering and the present book will certainly prove most valuable to those who have to design such machinery.

A KEY TO ENGINES AND ENGINE RUNNING. By Joshua Rose, M.E. New York: D. Van Nostrand Company. 1899. 12mo. Pp. 410. Price $2.50.

This is a practical treatise on the management of steam engines and boilers for the use of those who desire to pass an examination to take charge of engines or boilers. It also includes instructions upon engines, calculations, indicator diagrams, engine adjustments, and contains other valuable information necessary for engines and firemen. The author was an old-time contributor to the SCIENTIFIC AMERICAN and he had an excellent reputation as a practical mechanical engineer. The book will prove of value to the class to whom it is addressed.

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