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Notes and Queries.

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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 This is for our information and not for publication.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 Supplement 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.

(8639) F. W. G. asks: I have a camera with two 1 1/4-inch diameter 7-inch or 7 1/2-inch focus meniscus lenses, as illustrated on page 334, "Experimental Science," Fig. 2. I want to place a plano-concave lens between the meniscus lenses, same as Fig. 12. Of what focus must the plano-concave lens be? A. To adapt your lenses to portrait work after the manner described in "Experimental Science," page 334, Fig. 12, you will need a concave lens slightly stronger than 16 inches focus. A 14-inch lens should enlarge the image sufficiently for portrait work. The difference between a lens with 7 1/2-inch focus and one of 8-inch focus is very slight.

(8640) J. W. E. and M. D. F. write for instructions for tinning cast iron. A. To be successful in coating cast iron with tin the castings must be absolutely clean and free from sand or oxide. The greater the care in cleaning at the outset the better the resulting work. Before the castings can receive a coating of tin it is necessary to remove the coating of scale or oxide, so the clean metal will be exposed to the tin. The castings are usually partly cleaned by means of a "rattler," which removes much of the scale. They are then to be placed in a pickle of dilute muriatic acid until a clean surface is the result. If the pickle is warmed by means of a steam jet the operation will be hastened. The castings can be examined occasionally while in the pickle and any sand or black spots removed by means of a scraper or wire brush. The castings can then be washed, and if desired kept for a length of time by being placed under clean water. As long as they are covered with water they are not subject to oxidation. For a flux the castings are dipped in a mixture composed of 4 parts of a saturated solution of sal ammoniac and 1 part of muriatic acid. "Boiled" acid, as that combined with zinc is sometimes called, is not to be used. For tinning the best block tin is required, and this should be melted in an iron pot, care being taken that it is not burned or overheated in melting. After the tin is melted it can be cleaned of impurities by taking a piece of green or wet wood secured to a pointed iron rod, and fastening same so the wood will be kept at the bottom of the pot of melted metal for one or two hours, depending on the amount of impurity in the metal. The surface of the metal is to be skimmed occasionally by means of a perforated iron skimmer. To protect the surface of the metal from oxidation it can be covered with sal ammoniac. There is nothing to be added to the tin. Another method is to cover the surface of the tin with tallow or palm oil. The casting is taken up by means of suitable tongs, dipped in the flux and then immersed in the melted tin and held for a sufficient time to allow the surface to be tinned. The tin should not be so hot as to discolor when casting is removed. If desired the casting can be held for a time in another pot, which is to be partly filled with tallow or palm oil and kept at a temperature that will melt tin. This bath of grease will allow the casting to retain an even coating of tin, and allow any superfluous metal to drain off. The castings may be cleaned from the grease by first rubbing in sawdust and then in bran.

(8641) E. B. C. asks for a good non-corrosive, easy-flowing jet black ink. A. An exceedingly fine ink is said to be produced by the following recipe: 11 parts galls, 2 parts green vitriol, 1-7 part indigo solution and 33 parts of water. Here the relatively larger quantity makes the gum unnecessary, while the indigo solution makes the brilliant black seem still deeper. Writing executed with this ink may, it is true, be removed by means of dilute acids, but it may be rendered visible again by chemical means.

(8642) M. E. H. writes: I have one of your 1901 receipt books, and consider it the best book of its kind on the market. I would not do without it. But I fail to find any receipt in it for oil paint such as used for painting photographic backgrounds, and would like to ask if you could help me to secure such a receipt. A. The following retains sufficient flexibility to enable the sheet to be rolled: Soft soap, 2 ounces; boiling water, 12 ounces. Dissolve and work well into usual oil paint, 6 pounds.

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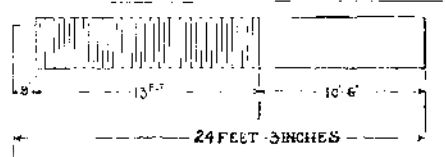
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