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 This is for our information, and not for publication.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

**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.

**Minerals** sent for examination should be distinctly marked or labeled.

(1) E. D. M. writes: I have two telegraph instruments on same line, one 20 ohms resistance the other 6; why won't they work? Which is the best kind of battery to use on a short indoors line? In electrotyping with plaster of Paris, is any preparation put on the type or on the plaster, and is the common (commercial) plaster used? To what consistency should the plaster be mixed before pouring upon the type? Is crude or vulcanized rubber used in making rubber stamps? A. You can make your telegraphic instruments work by using sufficient battery power; but you would secure better results, with less battery, by making the resistance of your two instruments alike.—The gravity battery is undoubtedly the best for your purpose.—For moulds for electrotyping you should use the finest plaster of Paris; it is generally mixed up to about the consistency of cream. The mould requires no preparation other than drying.—The best rubber stamps are made by pressing vulcanizable rubber in moulds, and vulcanizing the rubber while in the mould.

(2) H. G. S.—It is entirely impossible to furnish an estimate of the value of a patent. It often happens that a patent which seemingly has no value whatever brings a large price; and, on the other hand, a patent which appears to have great value proves to be profitless. It is almost entirely a question of management.

(3) O. H. H.—Bath tubs are made of tinned copper, and cannot be retinned. Electroplating is not practicable, and would last but a very short time if done. The New York practice is to reline the tub with tinned copper or buy a new tub. We consider the latter the cheaper.

(4) E. F. M. asks what black lead is mixed with to make crucibles. A. Fine clay in quantity as small as will allow the black lead to be worked on a wheel. Clay and black lead should be ground together.

(5) W. K. asks: What substance could be used to render wax (for artificial flowers, etc.) pliable in a cold temperature without altering its whiteness? A. Mix with a small quantity of the oil of sweet almonds.

(6) H. C. P. asks how to make the enamel that is used on brass signs to fill up the letters that are cut in. A. Mix asphaltum, brown japan, and lampblack into a putty-like mass, and then fill in the spaces, and finally clean the edges with turpentine.

(7) J. W.—Most of the alum now sold in this country is made artificially. If a good supply of proper quality could be obtained, it would be marketable. Alum is worth about 2 cents per pound.

(8) H. S. G. asks: How do seedsmen extract seed from tomatoes, and whether any expensive or complicated machinery is required? A. The tomatoes are mashed or broken in a tub or other receptacle, and allowed to stand for a day or two until a slight fermentation has taken place. When this occurs, the seeds can readily be washed out. They may also be saved, when the flesh of the tomatoes is used for canning, by being shaken out after the tomatoes are cut open. The seeds are then scoured by being passed between two large circular brushes running in opposite directions.

(9) K. C. writes: We have here a mountain of plaster and a good many acres of alkali soil. Can this plaster be ground and applied in its raw state to this soil with any benefit, or must it be first burnt and ground before applying? A. It depends upon the character of the soil and also upon the variety of crops that it is desired to raise. Burn and grind before using. 2. Is the ordinary farm plaster advertised at the East burnt and ground? A. It is.

(10) E. V. B. asks: 1. Can a polyopticon be constructed by which a cabinet photo or other like opaque object can be enlarged (with coal oil light) to life size, and a clear-cut image produced, to trace with crayon? A. We think the light of an oil lamp will be insufficient for enlarging pictures in the manner proposed. Better take a negative of the photograph, and enlarge it by means of an oxyhydrogen lantern. 2. Would the same lenses be suitable for a draughtsman's camera? A. Probably the lenses of a polyopticon will answer for a draughtsman's camera. 3. What would be the proper dimensions, etc., and best method of constructing the polyopticon, and where can the proper lenses be procured at reasonable figures? A. See SUPPLEMENT catalogue, which we send you, for mention of articles on the subject. Any of the opticians who advertise in our columns could furnish you with lenses, etc.

(11) B. D.—The floating specks before the eyes, of which you speak, give in some cases indications of serious trouble; but in by far the greater number they are not of special moment. Nothing but an actual and careful examination by a skilled physician can tell to which class your case belongs. To follow directions given by any one else would be, not foolishness, but madness. Never trifle with the eyes. One general remark may be safely made—if the eyesight be unimpaired, the probability is that the specks are produced by nervous derangement only, and may be disregarded.

(12) N. S. McC.—General Winfield Scott died at West Point, N. Y., May 29, 1866.

(13) E. P. A.—To solder cast iron, galvanize the pieces and then flush tin into the joint. Hydrochloric acid, zinc, and sal ammoniac is the proper soldering acid; put water with it to make it less offensive. It will bear diluting for most purposes.

(14) L. L.—Surveys are made by all reputable surveyors in reference to the true meridian. Maps for record have the variation of the compass for the date of the survey marked upon them, and deeds, if properly written, should accord with the map, or the angles should refer to the true meridian. Every resurvey by compass should have the variation of the magnetic needle for its date corrected by the vernier upon the compass. If there is no vernier, then each compass run must be corrected arithmetically from the record of the field book.

(15) P. F. C.—There is no way known to us for removing the spots from a brass chandelier but refinishing. They may be scraped bright and lacquered, but there will still be spots when compared with the regular finish.

(16) G. G. P. asks: What is the best method of stenography in existence? A. Most stenographers think the system they have studied the best. The Graham, Munson, and Pitman systems are all largely used, and the Burnz system, a sort of phonetic simplifying of one of the other more elaborate systems, is also now much used; but to acquire the facility necessary to report a fast speaker requires close application and constant practice for years.

(17) T. H. De S. asks: Will it injure a tin roof or sheet iron to coat it with tar made from pitch pine?—Please explain what becomes of the quantity of water with which cement (hydraulic) is mixed when it sets rapidly. State the chemical change. A. Tar from pine and coal tar from gas works are both in universal use for painting ironwork. In SCIENTIFIC AMERICAN SUPPLEMENT, No. 383, you will find an interesting paper on the manufacture and composition of Portland cement. The setting of the cement is due to the formation of a hydrate of lime, alumina, and silica, a definite chemical compound, which, when formed, resists further action of water.

(18) A. C. D.—There are a great many receipts afloat for tempering baths, but the best results are from a thorough knowledge of the heat required by the steel, and proper method of dipping to get the best effect. Plain water is used in most of the shops. A little salt, acid, and a variety of chemicals have been suggested by experimenters to give the water a better hold on metallic surface in hardening. Such additions may allow of hardening at a trifling lower temperature, or at a given heat make the article a trifle harder. Still, our best workmen confine themselves to pure water, salt water, and good oil, for hardening the various kinds of steel articles and tools. Borax heated to evaporate its water and pulverized, with one-tenth sal ammoniac, is the best we know of for welding steel. Your pulley should be 50 inches in diameter.

(19) C. D. asks a recipe for some material to put in the seams of a boat which are almost too large for oakum. Also a good paint to paint the hull and bottom? A. We know of nothing better than strips of wood fitted and driven into the seams with hot pitch. Paint with linseed oil and plumbago or lampblack for priming, and a second coat of any desired color.

(20) F. M. F. asks the best way to get the gold out of rags used in a bindery? A. Burn the rags, collect the ashes, and treat them for gold by the usual method of assayers, *i. e.*, fusing with lead, and cupeling lead button.

(21) W. S. asks how to make a powerful spark coil, not an induction coil, to be used principally for lighting by electricity. I should prefer to have one of good strength, as I will probably use it for other purposes also. I do not exactly know the proper proportions for winding, the size of wire for the core, and also the outside wire. A. For full instructions on the construction of an induction coil, consult SUPPLEMENT, No. 160. If you do not desire it for giving sparks, you might omit the condenser.

(22) J. McV. asks how to polish common cow's horns, and gives thema fine gloss for fancy work? A. First scrape with glass to take off any roughness, then grind some pumicestone to powder, and with a piece of cloth wetted and dipped in the powder rub them until a smooth finish is obtained. Next polish with rottenstone and linseed oil, and finish with dry flour and a piece of clean linen rag. The more rubbing with the stone and oil, the better the finish.

(23) W. M. D. asks where the third man should be placed, so that three men will carry an equal weight of a bar 15 feet long, the other two being placed at the ends. A. One man in center and one man 2½ feet from each end.

(24) Fidelis asks: 1. If there is any cheap way to distill water for home use? A. Water that is first filtered and then boiled is comparatively pure. For the distillation of water a retort and worm are necessary. 2. How walnut water, for the hair can be made? A. See "Walnut Hair Dye," SCIENTIFIC AMERICAN for Oct. 24, 1885. 3. Whether hard or soft water is best for cleaning one's teeth and washing one's hair? A. Preference is generally given to soft water for the purposes mentioned.

(25) H. C. H. asks: What will take grease or oil out of a granite door step? A. Make a strong lye of pearlashes and soft water, and add as much unslaked lime as it will take up; stir it together and then let it settle a few minutes; bottle it and stop close; have ready some water to dilute it when used, and scour the part with it.

(26) J. B. F. asks for the best method of reducing rubber gum to a liquid state. I have used naphtha, but the result seems to be rather slow. A. Rubber is also soluble in ether, chloroform, coal tar benzol, and carbon disulphide. See "Solvents for Rubber," SCIENTIFIC AMERICAN SUPPLEMENT, No. 247.

(27) J. T. R. asks for the correct formula for making a particular "Pearline," a washing compound? A. It is considered to be an impure potassium carbonate or pearlsh preparation. An exact analysis of it would cost about \$25, depending upon exactly what information is desired, *i. e.*, the percentage of pearlsh alone would cost \$10.

(28) T. M. D. writes: Please forward me pamphlets which treat about taking out patents, also your pamphlet giving information of foreign patent laws. Please send me your Supplement Catalogue, also your list of scientific books you have for sale. Will you please answer me the following questions through the correspondent's column of the SCIENTIFIC AMERICAN? What will best remove rust from steel? How can you prevent steel from rusting? What is the toughest and most elastic wood obtainable in this country? A. You may remove rust by dipping the articles in a bath of hydrochloric acid 1 part, water 4 parts. A far better process is to polish off the rust with flour emery or emery paper, and then wipe the surface with a solution of paraffine in naphtha or turpentine.—Much depends upon the nature of the articles that are required to be protected from rust. White lead paint thinned with kerosene or lard oil is much used on machinery. Machinery for transportation is painted with whitelead or tallow.—Heart hickory and lancewood are the toughest and most elastic woods that we know of.

(29) F. A. T. asks: 1. What causes the current in the Straits of Gibraltar, and is there an outward current? A. The revolution of the earth is supposed to cause the flow of currents in the ocean and the great seas. The Mediterranean Sea is under the same influence, and furnishes several currents out and in through the Straits of Gibraltar. There is an inward surface current and an outward undercurrent, causing other local currents or eddies formed by the impinging of the great currents. 2. What materials and how used to polish shirt bosoms? A. Use a polishing iron, and boil a small piece of paraffine with the starch. 3. What is the title, and where can I obtain a book giving the manners and customs of the people from Adam to the present? A. You will require many books, among which may be mentioned: The Bible; Andrews, The 18th Century, Manners and Customs; John Lord's Works; Lacroix, Manners, Customs, and Dress during the Middle Ages; the histories of Rome, Greece, etc.

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