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 This is for our information, and not for publication.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.
Books referred to promptly supplied on receipt of price.
Minerals sent for examination should be distinctly marked or labeled.

(1) T. O. T. asks: 1. Can you give a receipt for a good toning solution? A. Acetate of soda and common salt, each 15 grains; chloride of gold, 1 grain; 8 ounces water. This makes a good, practical toning solution, but something always depends on the way your paper is sensitized. 2. Is there any way of polishing photographs without the aid of a burnisher or glass plate? A. Not any way of making so good a polish. 3. What is the best cure for ringworm? A. Wash the part affected with a little lemon juice; then rub in with the finger a little gunpowder which has been bruised in a mortar. Do this gently about twice a day. 4. Can you give a receipt for good rubber cement? A. See receipt given in article on Cements in SCIENTIFIC AMERICAN SUPPLEMENT, No. 158.

(2) B. F. McD. asks: What is the best kind of steel to make magnets of for telephone receivers? Can Bessemer, good tool, or spring steel be used? Also should the same be tempered or hardened? A. For magnets the usual run of Bessemer steel is too soft. Good tool steel is to be recommended, tempered to a straw color, provided you can subject it to a sufficiently powerful source of magnetization. You may very well use a purple tempering color.

(3) E. M. asks the radius of the sharpest curves in use on the elevated railroads in New York city. A. 90'.

(4) F. J. P. asks how he may construct a reliable telephone from his store to his residence, a distance of 180 rods. A. Cut a circular aperture about 6 inches in diameter in a board. Over this tack a piece of parchment. To a wire solder a button or disk one inch in diameter. Pass the wire through a hole in the center of the parchment, support the latter horizontally, wet it, and suspend a weight to the wire. Prepare two of these. When dry, place one at each end of the line and stretch a wire tightly between them, drawing against the bottoms. Where the wire goes around corners, which should be avoided as much as possible, one or more loops of marlin must be used to carry it. It must touch no solid object. If properly arranged, on talking against one drum head the sound will be reproduced by the other.

(5) S. A. H. writes: Many of the spectacles sold are advertised as Russian or Scotch pebble. Do they make any glass of Russian or Scotch pebble? Is it superior to ordinary flint or crown glass for spectacles? A. Pebble spectacle glasses are made from pure crystal quartz. The advertised name of origin has no significance whatever as to their quality. Fine crystalline quartz is found in every country, and probably none better than in the United states. It is no better than good optical glass in its optical properties, but is somewhat harder than glass, and when well polished, retains its luster longer than glass. Ordinary spectacle glasses are made of plate glass, which is inferior to quartz in optical quality, and generally imperfectly polished.

(6) T. H. asks: 1. Will it be a good plan to connect a lightning rod to an iron pump in well that has 1½ inch gas pipe for suction? A. Yes; but the pipe should not be relied on as the only ground for your rod, unless it always extends deeply into the water. 2. Are the nickel or silver plated points on lightning rods better than plain copper wire points? A. Bright points are more efficient than dull ones. 3. How many points should there be on one story house, about 27 feet square, with I 24×14 feet? A. There should be one on each chimney and one on each gable. 4. How to make a bright black paint for locomotive stack and smoke box, that can be put on with a sponge? A. Coal tar answers very well for this purpose. Asphalt varnish is also good.

(7) H. C. O. asks if hard rubber would do as well or better than glass for the plate of a Wimshurst electric machine, such as has been described in the SCIENTIFIC AMERICAN several times in the past few years. I have constructed one, and it worked well, but I have trouble with the glass plates breaking. A. Rubber plates are sometimes used for this purpose, but in time they deteriorate. The sulphur which separates from the rubber and incrusts its surface seems to interfere with its action. Glass seems to be preferable.

(8) H. S. B. asks: Does the phonograph imitate the peculiar tone of voice of the person who speaks into it, and can it imitate the different notes in a piece or song, and can it imitate the different musical instruments? A. The phonograph does imitate all the features of the voice or any other sound affecting it, but imparts also its own metallic character thereto. Musical notes will be reproduced if the exact speed of rotation is preserved in the second turning of the barrel.

(9) H. J. K. desires a formula for the wax used for map engraving by the wax plate process. A. Take of white wax 2 ounces, asphaltum 2 ounces. Melt the wax in a clean pipkin, add the asphaltum in powder, and boil to a proper consistence. Pour it into warm water, and form it into balls, which are kneaded and put into taffeta for use.

(10) W. C. C. writes: 1. I have two pop valves on my compress set at 90 pounds, and neither ceases to pop until they get to near 80. What is the remedy? A. There is none, but to relieve them of any undue friction by cleaning free from rust and dirt. Possibly the spring is not set with a central tension, which may cause slight friction. No safety valve will close within 2 or 3 pounds of its opening pressure unless pulled back to its seat. The increased area after opening is the primary cause of this, which with friction from dirt or rust may add several pounds to the difference of opening and closing. 2. Last year I had three ¾ steel sheets put on the bottom of each of my boilers, the original boiler being seven-sixteenths iron. Boilers are 60 in. by 16 ft. long. Was it a good plan to put steel sheets on old boilers? A. There should be no apprehension in regard to putting steel sheets in your old boilers, if the work is well done. 3. We use water from artificial tank. What kind of scale preventive would you advise me to use? A. Could not give advice in regard to scale without knowing kind of scale you have. See SCIENTIFIC AMERICAN SUPPLEMENT, Nos. 286, 137, also Davis on steam boiler incrustation, which we mail for $2.00.

(11) C. W. B. asks a receipt for bluing gun barrels. A. Clean bright, then heat in an oven or long muffle until the desired color is obtained. Cool and rub with linseed oil.

(12) N. McG.—You can japan brass by heating, to oxidize the surface, or dipping in acid for the same purpose. Bright work does not take the japan well. It is also liable to crawl in baking.

(13) T. M. B. asks a receipt for icing for cakes and pastry. A. 10 teaspoonfuls of pulverized sugar to the white of one egg. Beat to a stiff froth.

(14) C. R. asks when a rattlesnake has its first rattle. A. At 2 years of age.

(15) A. J. G.—To make stick rouge. Melt paraffine and mix rouge so that there shall be as little paraffine as will possibly hold the rouge together, and roll into sticks.

(16) W. T. B.—The amount of flow in an artesian well is not always indicated by the static pressure when the well is closed. The kind and coarseness of the sand or gravel composing the stratum from which the water enters the pipe, governs the volume of the flow to a large extent. A high static pressure with the lower end of pipe terminating in a coarse gravel usually gives an abundant flow of water. While if it terminates in close sand the flow is strangulated or the water may bring sand with it if under great pressure.

(17) A. N. S. asks: What weight will be sustained by a cubic foot of air at 150° Fah., the outside air being at 80°. A. 0·008463 of a pound per cubic foot.

(18) J. M. W. asks: Why are kites not more used for propelling boats? A. It would not be possible thus to obtain as much power as can be got from sails, and the direction of the vessel could not be as readily controlled. Short trips have thus been effected frequently as an experiment, a man having thus made good time across Long Island Sound in a small boat, and it is reported that Benjamin Franklin was once towed across a pond while in swimming, by holding a kite string in his mouth.

(19) F. V. V. writes: In reply to G. S. D., No. 19 query of July 9, page 27, I find that you have made a mistake. You state never sharpen the clipper on the flat side, always on the bevel side. Use Washita or Arkansas stone and oil. Being a cutter and grinder, and having about eight or nine years' experience in the business, I feel it my duty to inform you of your error. I grind from 15 to 30 pairs of clippers per month myself, and have tried almost every way and everything. The way that I have succeeded in turning out a clipper to give perfect satisfaction was to take the clipper apart and grind the flat surfaces on a wheel running horizontally. This wheel is made up of two-thirds tin and one-third lead, and is turned up on a lathe perfectly flat. Then it is ready for use. When in use, Soling flour emery is used the most, as it is the most effective. A little sprinkled on the wheel when in motion gives great satisfaction. When the wheel is in such constant use, it must be turned up every three months, to be in good condition.

(20) F. L. D.—The force of dynamite and all other explosives is equal in all directions from the center fire. Whatever is laid upon the charge has weight. The air has weight. Tamping is, however, more necessary with gunpowder than with dynamite, guncotton, and the other high explosives, because the latter act with many times the suddenness of gunpowder.

(21) W. I. asks: Does a larger coal stove produce more heat from the same amount of coal than a smaller one? A. The size of stove should be proportioned to that of the room to be heated, when the stove is burning the fuel in the manner for which it was designed. There is a great difference in the way various stoves are intended to operate, but the forcing of combustion in too small a stove, in order to warm a large room, frequently results in carrying no inconsiderable portion of the heat up the chimney.

(22) Americus. — Balloons cannot be made of papier mache with rivets and braces, nor are they yet made of sufficient buoyancy to carry their own gas-generating apparatus. See a great number of articles on balloons in back numbers of SCIENTIFIC AMERICAN SUPPLEMENT.

(23) J. R. D. asks if meerschaum pipes are ever colored by a chemical process. A. They are. Various dealers throughout the United States boil the meerschaum in an oily mixture, the exact composition of which is kept secret, and thereby artificially color the pipe. The process is restricted to the cheaper varieties.

(24) H. J. asks about liquids for silver plating. A. Such preparations are usually salts of mercury in combination with silver, of which combinations the following is one of the better class: Take 3 ounces of nitric acid, put it in a bottle, and add a 25 cent piece, cut fine. Let it dissolve, and then add 3 ounces mercury, which is also to be dissolved; finally add 2 quarts rain water. In using, immerse the article to be plated, and after a few minutes rub gently with a piece of sponge wet with the solution, and polish with buckskin. The thickness of the plate may be increased by repeating.

(25) E. M. asks if silver chloride without being in contact with organic matter is decomposed by sunlight, also silver cyanide such as used in plating. A. The former is, while the latter, which is the double cyanide of potassium and silver, is not affected by light.

(26) A. B. desires a receipt for a varnish that when applied to one side ordinary glass will imitate the genuine ruby glass. A. Use an ordinary shellac varnish, made by dissolving shellac in alcohol, and color to suit your fancy by dissolving some aniline red in a little alcohol and mixing it with the varnish.

(27) C. P. McG. wants a formula for making a paste or glue with which to stick labels to tin boxes. A. Use starch paste with which a little Venice turpentine has been incorporated while it was warm.

(28) A. H. N. asks if there is anything that will positively remove freckles from the face of a person. A. Nothing will entirely banish freckles, although a wash made by dissolving three grains of borax in five drachms each of rose water and orange flower water is said to be excellent.

(29) P. H. C. desires a receipt for making a washing blue, and the best way to make it and compound it. A. Take one ounce of soft Prussian blue, powder it in a mortar with 1 quart of clear rain water and add ¼ ounce of oxalic acid. A teaspoonful of this is sufficient for a large washing.

(30) M. S. T. desires a receipt for mixing white paint (lead or zinc) to paint inside woodwork for his house, so it will not turn yellow. A. Use zinc white mixed with white varnish, and finish off with white varnish, also use best quality of ingredients to insure perfect success.

(31) R. S. McI. writes: Water, when allowed to freeze upon glass, adheres quite strongly. Will you please explain the philosophy of this? A. The ice is in intimate contact with the surface of the glass, and adheres, as all substances do under like conditions. The phenomenon is described in manuals of physics as adhesion. Glue and other substances show it in a high degree.

(32) T. K. P. desires a receipt for making a paint for branding wood red, something that will dry quick and not run when varnished. A. Take of shellac, 2 ounces; borax, 2 ounces; water, 25 ounces; gum arabic, 2 ounces. Boil the borax and shellac in water until they are dissolved, add the gum arabic, and withdraw from the fire. When the solution has become cold, complete 25 ounces with water, and add Venetian red enough to bring it to a suitable consistence and color.

(33) J. J. desires recipe for a good, harmless hair wash. A. Take of scalded black tea 2 ounces, with 1 gallon boiling water; strain, and add 3 ounces glycerine; tincture cantharides ½ ounce, and bay rum 1 quart. Mix well by shaking, and then add perfume.

(34) E. M. R.—High and low tone is difference in pitch, which is made by difference in the number of vibrations per second. The same tone may be loud or strong, or weak or soft, with the same number of vibrations per second. The strength of tone is a separate quality from pitch. A is right. B is also right. You have the terms confused. High and low are properly pitch terms. Loud and soft are properly volume terms. The lowest sound recognized in music has 32 vibrations per second. Highest, C, 9th octave, 16,384 vibrations per second. Vibrations may be heard slightly below and considerably above these figures.

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July 5, 1887,

AND EACH BEARING THAT DATE.

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