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.

Notes & Queries.

[We present herewith a series of inquiries embracing a variety of topics of greater or less general interest. The questions are simple, it is true, but we prefer to elicit practical answers from our readers.]

1.—COLORING CASTOR OIL.—How can I impart a yellow color to castor oil, without injuring its medicinal value?—S. W. O.

2.—SOLVENT FOR ANILIN GREEN.—Can any one inform me of a volatile non-acid solvent for anilin green?—A. G., Jr.

3.—SEASONING HICKORY.—Can any one inform us, through the columns of your paper, the best way to season second growth hickory for stone cutters' mallets, so that they will not check?—G. W. B. & Co.

4.—KILN FOR DRYING CORN.—I am in pursuit of the best method of kiln drying corn, but cannot find anything that suits me. Can your readers make some suggestions on this point?—J. M. P.

5.—DYEING.—How are anilin colors used in dyeing, and what are the proper recipes for preparation? How can I color fabrics with chrome green and yellow, and with Prussian blue; and what is used as a "set" or mordant for each?—S. W. O.

6.—CEMENT FOR VARNISHED WORK.—Can you inform me how to make a glue or cement to fasten wood to painted or varnished work, so that it will adhere as well as on unpainted work?—PAINTER.

7.—STRENGTH OF WOODEN VAT.—Can any one inform me what pressure a wooden vat, 16 feet deep and 10 feet wide, of staves five inches thick, hooped with ⅞ iron, 19 inches apart, will bear, and what should be the limit of pressure of steam therein? The vat is used in preparing straw.—L. A. S.

8.—TIMBER FOR WATER PIPES.—What kind of timber will make the best and most durable piping for conveying water under ground, and should the bark be left on or taken off?—C. H.

9.—NICKEL PLATING LEAD PIPE.—Can any one inform me what, if any, are the advantages of nickel plating the supply or induction pipes of pumps? Will such plating prevent the deleterious effects which are said to be caused by the placing of lead pump pipes in wells?—B.

10.—EXPANSION OF MERCURY BY HEAT.—Will some one of your readers inform me how much per cent mercury will expand when heated from 0° to 100° Fahr.? Which metal comes nearest to mercury in its degree of expansion?—S.

11.—STAINING POPLAR A WALNUT COLOR.—I would like to know how to stain poplar or other light colored woods a walnut color, so that I can rub it down smooth after staining. I can stain a very nice walnut with permanganate of potash, but it does not go deep enough in the wood, and any attempt to rub smooth rubs off the stain.—J. R. H.

12.—NICKEL IN SOLUTION.—Nickel, held in solution so that it can be applied with a brush, is much needed. It must be chemically prepared with such ingredients as not to discolor polished steel, and should evaporate at a low temperature of heat, leaving the articles plated with nickel. The discoverer of such an article would find an immense sale for it, and would confer a lasting benefit on manufacturers of, dealers in and users of polished tools.—J. E. E.

13.—PITCH OF SCREW PROPELLERS.—Can any of your readers give a simple method of computing the correct pitch of screw propellers from the dimensions of the wheel?—G. R.

Answers to Correspondents.

SPECIAL NOTE.—This column is designed for the general interest and instruction of our readers, not for gratuitous replies to questions of a purely business or personal nature. We will publish such inquiries, however, when paid for as advertisements at 1·00 a line, under the head of "Business and Personal.

ALL reference to back numbers must be by volume and page.

LARGEST ENGINE IN THE WORLD.—W. N. G. is informed that we used the figures given by our informant regarding this engine. It was probably the crank that weighed one tun, and not the crank pin.

A. B. S., of La., sends a black mineral specimen and says: Will you kindly let me know the cost of having the enclosed specimen of plumbago analyzed? I would also like to be informed of the number of graphite mines now worked or known to exist in North America, the value of said mines, etc.—Answer: Your specimen is not "plumbago," but is simply a soft bituminous shale. If you will compare the traces on paper made by it and by a good lead pencil, you will see the difference. The best graphite (plumbago) mines in the United States are at Sturbridge, Mass., Ticonderoga, N. Y., Brandon, Vt., and Wake, N. C.

FAST COLORS.—Query 8, March 16.—If the material to be dyed black is woolen, be sure, in the first place, to have it thoroughly free from grease, and clean. Boil in your logwood (half weight of material) liquor for an hour, and add the copperas, in solution, gradually, and continually stirring; after boiling awhile, the addition of a little muriate of tin in solution will give a brilliancy of tone. Now take out the goods, drain, and expose to the action of the air for an hour or two, after which give a thorough washing in water, and eventually with warm soapsuds.—E. H. H., of Mass.

TEST FOR LEAD IN WATER.—Query 24, March 9.—To F. C. The best test is sulphuretted hydrogen. Precautions to be observed: Evaporate in a porcelain vessel or a porcelain lined preserving kettle. Lead is usually present in water, as carbonate or some other insoluble compound, hence most or all of it remains on the filter and should be tested for there. The sulphuretted hydrogen may be prepared from black sulphuret of iron and either oil of vitriol or muriatic acid, no heat being required. The gas should be washed by passing through water. F. C. may prepare the gas quite as well, if not better, by heating together a little flowers of sulphur and some paraffin.—E. J. H., of —

MELTING ASPHALTUM.—No. 1, March 23.—To H. E. W.—This can easily be done in a pot over the fire.—E. H. H., of Mass.

TEMPERING TRAP AND OTHER SPRINGS.—W. R. H. should take good cast steel, work at a low heat, and forge evenly; temper in salt water, and then heat gradually and evenly until it will burn tallow when some is rubbed on. Continue the heating till the blue flame ceases to appear and the flame is white. This is, I believe, the best mode for trap or other large springs; who knows of one better adapted for small springs?—W. H. R., of Pa.

PAINTING BATH TUB.—If C. A. H. will have his bath tub painted with dead flat colors, and then varnish it, it will not scale.—W. C. R., of W. Va.

TEST FOR IRON AND STEEL.—Tell J. H. that if he let fall a drop of nitric acid on steel, it will cause a black spot upon it, but if upon wrought iron, it will not have this effect. He will find this a simple and easy method of distinguishing the two.—H. S., of R. I.

DEMAGNETIZING STEEL.—Let J. B. W., page 200, scour his tools with fine emery, and he will remove the magnetism from them, as it only affects the surface of iron and steel.—C. T., of Vt.

FROSTING GLASS.—C. P. may make a saturated solution of Epsom salts, and cover his glass with it by means of a piece of rag. In crystallizing, the salt will present a pretty appearance.—E. H. H., of Mass.

MAKING RULES.—J. E. M., may dissolve shellac in alcohol, and add a little gum elemi to give increased toughness. To blacken the figures, mix a little lampblack with the above.—E. H. H., of Mass.

PREPARING SKELETON.—G. L. F., after cutting off as much flesh and cartilage from the bones as possible, should then boil them in water till the remainder easily separates. The French still further prepare their skeletons, by bleaching for a short time in a weak solution of chloride of lime. This is no disadvantage whatever.—E. H. H., of Mass.

DISINFECTING WELL.—The most feasible plan for cleansing the well would, I think, be putting in an abundance of chloride of lime. The quantity I can't suggest, not knowing the depth of water. Mix the powder to a smooth cream with water and pour in. Give the sides a thorough washing over, and allow to remain some days in order to effectually destroy the putrid matter; constant agitation of the water will tend to wash the stuff out of the crevices. Afterwards pump all out, and again allow the water to accumulate and again pump out. After a while, I think the well will be found perfectly clean and pure. I would like to know of the success of the plan.—E. H. H., of Mass.

SHELLAC VARNISH WITH LINSEED OIL.—J. C. may dissolve the lac in either a strong solution of ammonia or a saturated solution of borax, and then add the oil and thoroughly agitate, to form an emulsion. The ammonia will be found the best, as in use it will evaporate and leave the coat of lac and oil.—E. H. H., of Mass.

CLEANSING SOAPY FELTS.—W. H. P. will probably find that, after the soap is washed off as thoroughly as may be, the addition of stale urine or dilute ammonia will remove the remainder. These alkalies will be better than either caustic soda or potash, as less likely to affect the color of the material.—E. H. H., of Mass.

W. A. McD., of Pa.—The black "hairs" attached to the coke are pure carbon. If these is any appreciable difference in quality between the hairy coke and the hairless coke, it is in favor of the former. The white hairy substance that you send, resembling cotton wool, which you say is formed by passing a jet of steam through the slag that issues from the bottom of the furnace stacks in which the Fayette county coke has been used, is only the silica of the slag, blown into threads by the steam jet. It readily melts and is not like asbestos as you suppose.

A. H. M. & Co., Ala.—The mineral you send is a soft bituminous shale without any graphite. It may be (and is) used to adulterate graphite for stove polish and the like; but it can never take the place of true graphite in the manufacture of pencils and in the electrotype art.

WATER IN AQUARIA.—I have had an aquarium for fifteen months without changing the water, and C. D. can have similar success by taking some porous stone, broken into small pieces, and covering the bottom of the aquarium to a depth of two inches. In this place some myrtle, water lilies, or other plants that will thrive under water. Do not put in too many plants, and wash such as you use free from all dirt. Fill the aquarium with water, put in your fishes, place the vessel out of the sunshine, and let Nature do the rest. Study how to proportion the plants to the fish, as the plants yield oxygen to the fish and the fish carbon to the plants.—S. B. R.

DIVIDING CIRCLES.—Your correspondent R. C. W., query 19, Feb. 17, wishes a method of dividing circles. The best method is by calculating as follows: Let n equal the number of parts into which the circle is to be divided, d equal the diameter, and c equal the length to be spaced off, that is, the side of inscribed polygon; then will c divided by d is equal to (*sine* times 180 divided by n)°. A near approximation, when n is large, is c divided by d is equal to 3·141593 divided by n. Let n equal 63, then by the first formula: c divided by d is equal to 0·049846, and by the second c divided by d is equal to 0·049366; hence c equals d multiplied by 0·049846.—H. A., of Conn.

BRASS FOUNDING.—If D. C. will take a sand crucible, and allow it first to be well warmed up, he can heat it safely in a blacksmith's fire, although, at best, there is some liability to crack. He should have on a good supply of coal, so that the crucible is not too close to the sharp blast; then use a light blast, and heat slowly until the brass is melted. When hot, it will look white on the surface. If the brass, as he says, "will not run," let him add to the old brass a little good sheet copper, and a small quantity of block tin. Old brass will not run well, if remelted several times, unless thus treated. The white smoke of which he speaks is nothing uncommon.—W. H. R., of Pa.

PAINTING SHEET IRON.—Query 18, March 16.—Let J. C. mix together one pint good varnish, one pint boiled oil, and red lead sufficient to produce a proper consistency. Prepare it a few hours before wanted, and repeatedly stir while using. Use no turpentine or dryers. I have a stack thus painted which has stood the weather and heat for two years, and remains as when first done, but changing to a darker color. The expense is trifling. This is applicable to C. A. H.'s bath tub, and I would advise him to give it a trial.—J. K. W., of Mich.

WORCESTERSHIRE SAUCE.—White vinegar, 15 gallons; walnut catsup, 10 gallons; Madeira wine, 5 gallons; mushroom catsup, 10 gallons; table salt, 25 pounds; Canton soy, 4 gallons; powdered capsicum, 2 pounds; powdered allspice, 1 pound; powdered coriander seeds, 1 pound; cloves, mace, and cinnamon, of each, ½ pound; assafœtida, ¼ pound, dissolved in brandy, 1 gallon. Boil 20 pounds of hog's liver in 10 gallons of water, for 12 hours, renewing the water from time to time. Take out the liver, chop it, mix with water, and work it through a sieve; mix with the sauce. *Imitation No.* 1.—White vinegar, 240 gallons; Canton soy, 36 gallons; sugar house sirup, 30 gallons; walnut catsup, 50 gallons; mushroom catsup, 50 gallons; table salt, 120 pounds; powdered capsicum, 15 pounds; allspice, 7 pounds; coriander, 7 pounds; cloves, mace, and cinnamon, of each, 4 pounds; assafœtida, 2½ pounds, dissolved in St. Croix rum, 1 gallon. *Imitation No.* 2.—White vinegar, 1 gallon; Canton soy, 1 pint; molasses, 1 pint; walnut catsup, 1½ pints; table salt, 4 ounces; powdered capsicum, 1 ounce; allspice, 1 ounce; coriander, ½ ounce; cloves, ½ ounce; mace, ½ ounce, cinnamon, 6 drams; assafœtida, ¼ ounce, in rum 4 ounces; mix. *Imitation No.* 3.—Take port wine and mushroom catsup, of each 1 quart; walnut pickle, 1 pint; soy, ½ pint; pounded anchovies, ½ pound; fresh lemon peel, minced shallots, and scraped horse radish, each 2 ounces; allspice and black pepper (bruised), each 1 ounce (or currie powder, ¾ ounce); digest for 14 days, strain, and bottle.—H. W. B., of N. J.

WORN COINS.—By heating these gradually, the inscription will, in almost all cases, make its appearance.—A. J. H., of N. Y.