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Notes & Queries

A. L. B. will find a recipe for cement for grindstones on p. 251, vol. 31.—A. K. can temper millpicks by the process described on p. 202, vol. 31.—D. F. B. will find a description of silicate of soda on p. 225, vol. 23.—A. N. can destroy the trunks of trees by the method given on p. 219, vol. 31.—F. B. will find directions for preparing gun cotton on p. 282, vol. 31.—R. J. can proportion cone pulleys by the rule given on p. 180, vol. 26. (1) A. asks: Can I study chemistry without a knowledge of Latin? A. Yes. (2) F. F. asks: What will whiten a person's skin? A. We do not know of anything that we can recommend for this purpose. (3) A. S. asks: How can I take wrinkles out of parchment paper? A. Moisten it with water and place in a book under pressure. I have a brass watch which has been quicksilvered. The silver comes off and leaves a nasty gray color. Can you tell me how to silver it? A. The best method would be to detach the case and subject it to a sufficiently high temperature to vaporize the mercury. You had better electroplate the case with silver. See p. 299, vol. 31. (4) L. F. H. asks: In the substance of the cerebrum, beneath the folding of the gray matter, are various divisions and subdivisions. What special uses do they perform? A. Consult Dalton's "Physiology." (5) A. N. W. asks: 1. What would be the cost of a Grove electric battery, consisting of 40 cells? A. \$80. 2. To make the above would cast iron cells do as well as earthenware? A. No. Use glass. 3. Would tin answer? A. No. 4. What cheap material will do for inside porous cells? A. Clay cells. 5. What are the proper dimensions for a single cell? A. Four inches high by 3 1/2 wide. 6. Is the U the proper shape for the amalgamated zinc? A. W will answer. 7. Is 1 plate of platinum inside the porous cell? A. Yes. 8. How is the zinc fastened to the cell and in the battery? Is zinc joined to zinc, and platinum to platinum, or zinc to platinum? A. The zinc of one cell is joined to the platinum of the next. 9. Can you recommend any good practical handbook on electricity? A. Yes, Ferguson's. (6) W. Y. T. asks: I have seen it reported that cryolite has been discovered in Nevada. Is this so? A. It is probable that, if the report were true, a specimen would have been forwarded to us for examination. We have glauberite, salt, gay-lussite, borax, saltpeter, sulphur, and crytomorphite from these localities, but no cryolite. (7) S. A. T. asks: How can I dye the enclosed sample of yellow leather black? A. Steep the leather for a short time in a strong solution of copperas (sulphate of iron) in water. Please give me a recipe for making stick pomatum, perfumed. A. This pomade is generally composed of mutton suet, but is sometimes made of hard body, to which is added in summer 1 oz. wax for every lb. body. Lard body can also be used, but the proportion of wax must be increased. In its preparation, always melt the least fusible body first. In molding, care must be taken not to run the pomade while too hot, as cavities will occur in the center, rendering the sticks liable to break. To perfume, the usual odors are, 1 lb. pomade, essence bergamot, lavender, thyme, orange peel, of each 1 drachm. Color with annatto. Please give me a recipe for a waterproof cement with which I can join canvas. A. Place in a wide-mouthed bottle a number of pieces of gum rubber, and pour over them a quantity of bisulphide of carbon. Close the bottle, and allow it to stand for some time, until the rubber has all gone into solution; then add to this an equal quantity of a solution of rosin (colophony), in spirits of turpentine. Allow to evaporate in the open air until of the desired consistence. How can I soften brushes which have become hard with paint? A. Place them in turpentine for a short time. How can I make marine glue? A. Cut 3 parts india rubber into small pieces, and dissolve it, by

heat and agitation, in 31 parts of naphtha, chloroform, or benzine; add to this 65 parts powdered shellac, and heat the whole with constant stirring until the shellac is dissolved, then pour it while hot on metal plates, to form sheets. When used, it must be heated to 248° Fah., and applied with a brush. Can a kettle lined with porcelain be repaired in any way? The lining is burnt. A. It would be necessary to have the whole interior cleaned and re-enameled. See p. 137, vol. 27. (8) C. D. C. asks: What is the effect of buckwheat on the blood? Does it drive the impurity of the blood to the outside, or does it make the blood more impure and, by reason of excess, cause impurities to come to the surface? A. The harm is not due to any injurious ingredient in buckwheat. It is to be ascribed to the large amounts of butter and fatty matters eaten at the same time. (9) J. O. A. Y. says: A friend of mine and myself had a dispute as to polar or magnetic attraction. He said the needle of the surveyor's compass in all latitudes pointed to the true north. I maintain that the needle only points true north in two places. Which is right? A. The declination of the needle is very different in different places; in some places it is 10°, 20°, 30°, and even 90°, west of the true meridian, and in other places it varies as much to the east. (10) L. P. C. asks: 1. Is metallic lead useful for precipitating quicksilver from a solution of bichloride of mercury? A. No. 2. If sulphuric acid be poured into a solution of bichloride of mercury, would it cause the precipitation of an insoluble salt of mercury, such as sulphate of mercury? A. Yes. (11) H. L. C. asks: 1. If I make two magnets, 2 1/2 inches long with 1/2 inch cores, and wind one with No. 22 wire until it is 1/2 inch deep, and wind the other to the same depth with No. 14 wire, which will hold the heaviest weight? A. The latter. 2. If I make the cores 1 inch in diameter and use the same length of wire, will they hold more than before? A. No. 3. If two pairs of magnets of the same kind be put in the same circuit, will the two pairs hold more than one pair, or does the extra length of wire diminish the power of one pair in proportion to what is gained by the other? A. The maximum magnetic effect is produced when the resistance of the coils of the magnet equals that of the battery. (12) L. R. K. asks: How can I crystallize grass? A. Dry the leaves, steep in a strong solution of alum for a few minutes, and dry again. (13) C. P. W. asks: 1. Is it because electricity accumulates on the surface of bodies that lightning rods are made flanged, so as to expose more surface? A. Yes. 2. Are the inclosed specimens copper pyrites? A. Yes, twin crystals. 3. Please explain why has a man, born in the year 1800 and now living, not lived in both the eighteenth and nineteenth centuries? A. He has. A previous answer on this subject was an error. (14) S. H. L. says: We have a telegraph line of galvanized iron wire, about 2,200 feet long. We use four Morse sounders. How many Callaud jars, 4 1/2 x 7 inches, would it take to run such a line? A. Ten. (15) T. A. J. asks: Why will sulphuric acid become frozen? I got some a few days ago and placed the bottle in the cellar. It was not very cold, but the bottle cracked by the acid being frozen into a crystal mass. A. The phenomenon was probable due to the acid in question being quite dilute or very concentrated. If the former, there is nothing remarkable in its freezing, as strong oil of vitriol freezes at -15° Fah. The most concentrated sulphuric acid, when exposed to a temperature of 32° Fah., crystallizes and remains solid even at a temperature of 45°. When the fuming acid of Nordhausen is exposed to a low temperature, a crystalline substance separates, which is a hydrate containing one half as much water as the common liquid acid. 1. I made a battery cell according to the directions on p. 132, vol. 32. Which is the positive pole? A. The wire leading from the plate at the bottom of the jar is the positive pole of the battery. 2. Can I connect this cell to a Smee cell in silverplating, to make more current? A. Yes; connect the positive pole of this battery with the zinc of the Smee cell. 3. I have a nickel solution; and the anode will not dissolve and go on the work to be plated. Is the solution too weak, or is the battery too weak? A. Probably the former. (16) S. asks: Is the so-called aerated bread (made light with a gas generated from nitric acid and marble dust) injurious to health? A. It has been used in vast quantities, and has always been found wholesome. It is not as palatable to many as good fermented bread. (17) H. M. says: A young man has lately experimented on vulcanized rubber (old shoes, etc.), and has obtained (by the action of certain re-agents) several substances of different colors. I send you samples of five of those colors. What do you think about them? A. May not the colors be due to the substances put in, and not to the bodies gotten out by the various reagents? For example, the brilliant yellow color on examination proved to be chromate of lead, which certainly does not exist in old rubber shoes. (18) H. B. asks: 1. Are the ashes of coal of any value for manure? A. Coal ashes are not of great benefit as fertilizers. 2. Will they do for walks in gardens, if put on 2 or 3 inches thick? A. They are used extensively for this purpose. See p. 50, vol. 32. (19) F. S. asks: 1. I hear that bichromate of potash added to glue would render it insoluble in water. I see (on p. 272, vol. 32) that bichromate applied to gelatinous films and exposed to light makes them insoluble. Is it bichromate of potash?

A. Yes. 2. What proportion should be mixed with glue? A. The plates are flooded evenly with gelatin and allowed to dry. They are then placed in a bath consisting of an aqueous solution of bichromate of potash, which combines with the gelatin. The film so changed, on exposure to light, is rendered insoluble. (20) J. O. B. asks: Which is the better conductor of sound, wood or glass? A. Glass. 2. Would glass conduct sound better when resting upon glass? A. Probably. As to your other question, consult some good work on the subject. (21) L. T. S. asks: Is it as good to soak or boil green timber in hot coal tar as to kiln-dry the timber and then coat it with the same? The timber is to be used just beneath the surface of the ground. What is the ordinary increase in durability of pine timber when prepared with coal tar? A. The decay of the timber is due to a fermentation and putrefaction which take place in the sap, and this liquid portion is gotten rid of in kiln-drying, and its place occupied in part by the tar. If retained, it is difficult to prevent the decay from going on. No definite time is given, authorities say simply: "Much more durable." (22) F. A. says: You state that wood ashes are good to scatter over the ground about fruit trees. Would an admixture of coal or coke ashes be deleterious? A. The benefit of using wood ashes is due to the large percentage of potash which they contain; and as this is present only in minute quantities in coal ashes, the latter would not be of much service as fertilizers. (23) C. S. F. asks: Can you give me a recipe for the cure of moles and freckles? A. Corrosive sublimate 5 grains, muriatic acid 30 drops, lump sugar 1 oz., alcohol 2 ozs., rose water 7 ozs. Agitate together till all is dissolved. Apply night and morning. You state that coffins can be made of papier maché made waterproof with asphaltum. Why cannot this preparation be put on wood placed underground or in the water, to prevent rot? A. It has long been used for this purpose. (24) D. L. B. asks: What is good for stick iron leather together? A. Melt together in an iron pot equal parts of pitch and india rubber. What kind of cement will do to take a mold from type, which will bear heating to 200° Fah.? I want to make rubber stamps. A. Plaster of Paris. (25) J. M. L. asks: 1. How can I procure pure tin from the ordinary block tin? A. Ordinary block tin is nearly pure tin. It may be still further refined by melting and briskly agitating for some time, and afterwards allowing it to remain quiet for several hours, first having skimmed off any impurities on the surface. The upper part of the melted metal may then be run off into iron molds and considered as refined tin, most of the impurities having been left behind in the lower portions of the pot. 2. Of what is type metal composed? A. Type metal is an alloy of lead, with one third or one fourth of its weight of antimony. 3. What alloy melts at the lowest temperature? A. Newton's fusible alloy is composed of 2 parts bismuth, 1 of lead, and 1 of tin, and melts at 201° Fah., so that it liquefies readily in boiling water. (26) P. J. S. asks: How can I dissolve silicate of soda in large quantities? A. It may be readily dissolved by boiling in water for some time. (27) W. R. G. asks: By what process can oxygen gas be obtained, and put in a tank or vessel so that it can be taken by inhalation? A. Oxygen is obtained for this purpose as described in answer to J. H. L., p. 218, vol. 32, the only difference being the addition of a small quantity of caustic potash to the water in the wash bottle, to remove all traces of chlorine and carbonic acid. In charging the tanks, an ordinary steam gage is attached to the connection; and by means of an air pump, the gas is forced into the tank until the gage indicates a pressure of about 240 lbs. The screw valve is then closed, and the reservoir is ready for use. (28) E. L. asks: What is the best way to kill a bird or other animal preparatory to stuffing it? A. Use chloroform. (29) C. S. F. asks: Can any fluid be solidified, so as to withstand a great amount of heat? A. Boil a quantity of silicate of soda (water glass) in water for some time; allow to settle, and then decant the clear liquid. The addition of some muriatic acid to the liquid will convert it immediately into a stiff, hard jelly. This, if thoroughly washed with hot water, when heated, will resolve itself into nearly pure white sand, which will withstand a very high temperature. (30) F. T. W. asks: What can be done to remove a bad smell from rain water? A. Allow it to be well sunned and aired. Filter through carbon filters, or deodorize with freshly burnt charcoal. Or add sufficient permanganate of potash to impart a permanent red color, raise to boiling point, allow to cool, and decant the water from the sediment. (31) H. C. says: The pressure gage and the safety valve on my boiler do not agree. The steam blows off freely with the weight at 80 lbs. on the lever, while the gage shows but 60. The safety valve is 1 1/2 inch in diameter. I have examined the gage and find nothing wrong. How can I calculate the proper weight for the valve? A. When you have no steam in the boiler, secure the valve stem to the lever, and attach a spring balance to the lever just over the center of the valve stem. Then raise the lever slightly, so as to get the valve clear of the seat, and note the reading of the spring balance. Then divide this reading by the area of the valve in square inches (0.5184 in your case), and the quotient will be the pressure in lbs. per square inch at which the valve opens. The attention of all who wish to test their safety valves is invited to this extremely simple and accurate method.