

=30 lb. pressure. 4. Can water be compressed? A. Water is only slightly compressible under high pressure.

(11) F. E. DeC. asks: 1. What can be used to repolish a piano? A. Dissolve 4 oz. orange shell in one quart of 95 per cent alcohol; to this add one quart of linseed oil and one pint turpentine; when mixed add 4 oz. of sulphuric ether and 4 oz. of aqua ammonia; mix thoroughly and well before using. Apply with a cloth or sponge, and rub the surface to which it is applied until the polish appears. Such jobs require no little skill, as well as a good deal of hard work. Most amateurs will stop work where a good polisher really only commences. 2. Is there anything that will bring back the color of marble, which has been stained with vinegar? A. If the marble is white, coat it with gum arabic and expose it to the sun. When it peels off, wash with water, or make a paste with fuller's earth and hot water, cover the spots therewith, let it dry on, and next day scour it off with soft soap. The luster can be restored by rubbing with a dry cloth.

(12) E. C. R. asks: The best way to mix plumbago so as to produce a bright and lasting polish on stoves and not cause disagreeable odor. A. The common liquid stove polish consists of black lead 1 lb., water 4 oz., turpentine 4 oz., and sugar 1 oz. Mix thoroughly. It is not very lasting, nor has it a very agreeable odor, but it is about as good as anything yet found for the purpose.

(13) J. H. R. desires a recipe for a blood purifier, one that will cure acne and eruptions breaking out on the face. A. Take 2 parts of sulphur and 1 part of cream tartar and mix it with sufficient molasses to allow it to flow, i. e., it must not be made too stiff. Take one tablespoonful daily.

(14) G. G. B. asks how to make a good mucilage, without using gum arabic. A. Take gum dextrine 2 parts; water 5 parts; acetic acid 1 part; dissolve by aid of heat and 1 part of alcohol.

(15) W. F. B. asks the formula for making a cement that the brass sign makers use for filling the letters on brass signs. A. Mix asphaltum, brown japan, and lamp black into a putty like mass, and then fill in the spaces, and finally clean the edges with turpentine.

(16) J. B. J. desires a formula for making glue used on edges of writing paper tablets to hold sheets together. A. Use either (1) white glue, refined glycerine, acetic acid, and coloring material; (2) common glue with 5 per cent glycerine; or (3)  $\frac{1}{4}$  oz. crude gutta percha dissolved in carbon disulphide to the consistence of mucilage. The materials used in making this glue or cement are of a low grade commercially, so that some experiment is necessary to make a good article.

(17) G. H. J. asks if there is any substance that will remove printer's ink from paper, without disfiguring the paper. A. Place a thick pad of white blotting paper beneath the sheet of paper which is soiled. Then apply sulphuric ether with cotton wool, gently rubbing. Finally apply white blotting paper to absorb the color. Continue the application of fresh ether and repeat until all stains disappear. Do this away from a light.

(18) J. A. P. writes: In printing with ordinary gold size and bronze powder, upon soft leather, the print after several weeks becomes discolored and broken up, apparently by reason of the size sinking into the leather. Can you give a formula for a size which can be used on a printing press, and will dry on the surface of the leather without penetrating it? Or can you suggest a transparent flexible varnish that I can put on the leather before printing, something that is absolutely proof against the gold size, and will remain so. A. An "olive size" is made which may answer your purpose. When our printers have work of this kind to do they use ordinary gold size, but always give it two impressions. That is print the job in size and let it lie overnight and dry. In the morning run it through the press again. The leather will absorb the first printing, but the second will remain on the surface. A little of the white of egg mixed with the size, in the second printing, will make it dry very rapidly.

(19) J. C.—The plant is the English plantain or rib grass (*Plantago lanceolata*). It is a common and widely distributed weed. It has no value except as a pasture for cattle, and not much value for that.

(20) F. V. B.—Your fluid extracts are spoiled, and there is no remedy in the case. The cause of the change you mention is not known. Write to the manufacturer, who, for the sake of his reputation, would doubtless substitute fresh extracts for the spoiled ones.

(21) H. S.—The plant is the common mallow (*Malva sylvestris*). The leaves and flowers are chiefly used in fomentations, cataplasms and emollient enemata. Its properties are demulcent.

(22) H. R. E. asks concerning the process for the manufacture of yellow ochre into paint, also for preparing kaolin or china clay for the trade, such as whitening, calcining, adulterant, etc., for which it is largely used. A. Ochre is dried by heat, ground into powder and made into paint by mixing with oil. The process is similar for the other materials mentioned.

(23) J. D. asks: What are the ingredients composed of for making metallic paints, such as are used by card writers, to write on an enameled surface? How to grade, to make them hard or soft? A. They are made in varying proportions of tin, lead, bismuth, and antimony, those that are the hardest are of lead melted with some antimony and a little quicksilver.

(24) W. P. K. asks: What should be mixed with ordinary printer's ink to make it suitable for printing etchings? A. Etcher's ink is similar to printer's, but more carefully ground. It consists essentially of linseed oil, varnish and lampblack. You can buy it much more cheaply and probably of better quality than you can make it yourself.

(25) M. G. H. asks: How mirrors or looking glasses are made, and what the materials are, and how prepared? A. A large, perfectly flat stone table is provided, upon which is evenly spread a sheet of tin-foil, without a crack or flaw. This is covered uniformly to the depth of  $\frac{1}{16}$  inch with clean mercury. The plate of glass, perfectly cleansed from all grease and impurity, is floated on to the mercury carefully, so as to exclude all air bubbles. It is then pressed down by loading it with weights, in order to squeeze out all mercury which remains fluid. After about 24 hours it is raised gently on its edges, and in a few weeks it is ready to frame.

(26) S. L. M. asks: 1. Directions for soldering brass articles, by means of ordinary solder—for soldering brass to iron. A. For soldering brass and tools, see a valuable treatise in SCIENTIFIC AMERICAN SUPPLEMENT, No. 20. 2. Also for making mastic varnish from gum mastic. A. Dissolve the gum mastic in turpentine enough to make it of the proper consistency.

(27) H. A. M. writes: A distinguished clergyman says: "Astronomers have swept their telescopes through the sky, and have found out that there have been thirteen worlds, in the last two centuries, that have disappeared. At first they looked just like other worlds. Then they got deeply red—they were on fire. Then they got ashen, showing they were burned down. Then they disappeared, showing that even the ashes were scattered. And if the geologist be right in his prophecy, then our world is to go in the same way." Does not science teach us that the earth was once a molten mass, and that it has, for countless ages been losing its heat, and is at the present time still in the cooling process? A. We believe that the clergyman referred to does not profess to be a scientist, but is ever ready to catch at a theory that may be made an element of destruction to sinners. Your question gives the idea most commonly entertained, but even at this time a collision of the earth with some wandering star from beyond our system would produce an outburst of heat and light similar to the star outbursts that have been observed.

(28) W. H. S. asks: 1. Does choke boring a shot gun improve penetration? A. No; it prevents too much scattering by drawing the charge together at the instant of leaving the gun. 2. Is the mouth of the Mississippi River farther from the center of the earth than the source? A. Yes. 3. Would the Mississippi run toward the north or south if the earth stopped revolving on its axis? A. It would run north. 4. How can I mark steel tools? A. Coat thinly with beeswax, in which make the desired marking down to the tool, and then use nitric acid 1 part and water 4 parts, to bite out the exposed surface of the steel while the wax protects the surrounding portion from the action of the acid.

(29) J. A. S. asks: 1. What is the best substance to keep gun barrels from rusting? A. You can keep gun barrels from rusting only by care in keeping dry and oiling with linseed oil. 2. Can gravel walks be practically treated so that they will not grow weeds? A. Asphalt, cold tar, and cement are good materials to mix with sand to make a layer that will not only keep the weeds out, but make a smooth and hard walk. Gravel walks generally have some soil intermixed, which, with the fining of the gravel by use, affords a foothold for the growth of weeds. 3. What is a good cure for colds? A. See SCIENTIFIC AMERICAN SUPPLEMENT, No. 75, How to Cure a Bad Cold and Sore Throat. Also a valuable paper on Catching Cold, SCIENTIFIC AMERICAN SUPPLEMENT, No. 297. Also Quick Cure for a Cold in the Head, SCIENTIFIC AMERICAN SUPPLEMENT, Nos. 25 and 228.

(30) J. C. R. desires a formula for making red or strawberry coloring from carmine (or without aniline) for coloring bottled soda pop. A. Boil some Brazil wood in water and then add a small quantity of it. You can make it very dark originally and then dilute until you get the proper shade.

(31) G. J. H. writes: A discussion relative to conductors of electricity has resulted in a wager to the effect that, a stream of water propelled from a brass nozzle and coming in contact with an electric light wire, in an exposed part through which the electric current is running, results in the death of the person handling the nozzle, by the transmission of the shock through the stream of water, provided the current is severe enough. Will you kindly decide in the next issue of your valuable paper the above? A. The conductivity of water is so poor it is doubtful if a dangerous shock could be received under the conditions named.

(32) O. F. M. writes: We want to build a tank of 3 inch pine plank to hold a wash of oil vitriol about one-fifth vitriol, four-fifths water, for wool wash. We usually put these tanks together with three-quarter inch iron bolts, down through the wood, but find the acid will soon penetrate the wood and destroy the iron bolts. Is there any metal strong enough to hold the tank together that the vitriol will not affect, that is practical to use, and where can it be obtained? A. Copper is very slowly attacked by sulphuric acid. You might inclose the iron bolts in pieces of lead pipe. The lead would resist the acid indefinitely.

(33) J. M. asks: Would a copper lined cylinder used in a common well pump do the water any harm for drinking? A. Probably not if it was kept full of water. If alternately dry and wet, it might impair the water.

(34) A. B. J. asks how to remove book-binder's varnish from leather, after it has been on three or four years. A. Try alcohol. It will dissolve the varnish. 2. How to treat egg glair to prevent it smelling. A. Use oil of cloves or some strong antiseptic with it.

(35) G. A. H. asks: 1. Will you kindly give a cheap and effective process for bleaching coral? A. First wash well in very dilute hydrochloric acid in the proportion of one part of acid to thirty of water, then rinse well in water, then immerse in a dilute solution of chloride of lime. 2. Is there a cheap and quick

method of nickel plating wire and tin? A. See "Recipe for Nickelizing without Electricity," in SCIENTIFIC AMERICAN SUPPLEMENT, No. 191.

(36) F. M. J. asks: By what process are horns, such as are used for knife handles, combs, etc., bleached and rendered transparent? A. Care is generally taken to select good white horns, but they can be bleached by exposing to the fumes of burning sulphur, largely diluted with air.

(37) J. F. L. desires a simple process for making koumiss. A. Dissolve 4 ounces white sugar, in 1 gallon of skimmed milk and place in bottles of the capacity of 1 gallon, add 2 ounces of baker's yeast, or a cake of compressed yeast, to each bottle; cork and tie securely, then set in a warm place until fermentation is well under way, and lay the bottles on their sides in a cool cellar. In three days fermentation will have progressed sufficiently to permit the koumiss to be in good condition.

(38) G. W. W. asks how they mix rouge to make it into what is called hard rouge, also what the different articles are and how mixed? A. Take of oxalic acid 1 part, iron peroxide 15 parts, powdered rotten stone 20 parts, palm oil 60 parts, petrolatum 4 parts. Pulverize the oxalic acid, and add the iron and rotten stone, mixing thoroughly, and sift to remove all grit, then add gradually the palm oil and petrolatum, incorporating thoroughly.

(39) F. B. P. asks if there is any remedy that will remove warts. A. Take a small piece of potato, and let it stand in the open air until it slakes, then thicken it to a paste with pulverized gum arabic which prevents it from spreading where it is not wanted. Apply to the wart until it disappears. Some cases, however, are very obstinate, the warts seeming to come constantly for a period, and then suddenly disappearing.

(40) H. N. H.—For making printers' rollers, see answer to query No. 33, in SCIENTIFIC AMERICAN for March 24, 1888.

(41) J. H. asks: What was Queen Victoria's maiden name? A. Guelph.

(42) J. H. C. writes: I wish to run two incandescent Edison lamps. Will you kindly tell me the simplest and cheapest means by which I may attain that end? A. A dynamo driven by steam or other power is the most economical method of obtaining a lighting current.

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