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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 This is for our information, and not for publication.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 Information requests on matters of personal rather than general interest, and requests for **Prompt Answers by Letter**, should be accompanied with remittance of \$1 to \$5, according to the subject, as we cannot be expected to perform such service 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) M. H. asks: 1. What wire gauge is used in measuring wire for induction described in SUPPLEMENT, No. 160? A. American. 2. By using 28 wire in said coil, will it do to light gas? A. Yes. 3. How are the medical coils made? A. Like the one described in the SUPPLEMENT, but without a condenser.

(2) C. S.—We know of no means of increasing the volume of sound in the Bell telephone receiver, but by using two receivers, one at each ear, the combined effect of the two is very much greater than that of a single receiver.

(3) E. A. R. wants some simple way in which to produce the gas and inflate toy balloons, so they will float in the air when released. A. You can make hydrogen gas for this purpose by pouring slightly diluted hydrochloric acid on an equal weight of zinc in a covered vessel having a small stop cock in the top for filling the balloon. Ordinarily, we believe, it is found to be more convenient to use the common illuminating gas, and the balloons can thus be directly filled from the gas jet.

(4) L. C. L. asks: 1. Are porpoises used for anything except oil? A. Besides the oil, the skin is of value for leather, and the flesh is eaten. It is said that a company has been organized for the purpose of using the flesh for mince meat. 2. By what kind of nets are they caught? A. The net is of loose mesh, and sometimes a seine as long as 1,000 yards is used, reaching to the bottom of the sea. 3. In your SCIENTIFIC AMERICAN of the 14th inst. you speak of turtle oil. Is there any established market for it, if so, what is its market value? A. Not in New York. 4. How is it prepared, and how preserved? A. According to Spon, it is extracted from the eggs and fat of various species of turtle in Brazil and the South Pacific islands, and is used in food and medicine, and for lighting. We presume that it is only of local importance. 5. Is the shell of the green sea turtle of any value? A. No.

(5) H. A. U. writes: I have a very old violin, and the finish or varnish is all worn off. Can you tell me how to varnish and stain it so as not to injure its sound? A. Use coarsely powdered copal and glass, each 4 oz.; alcohol, 1 pint; camphor, 1/2 oz.; heat the mixture with frequent stirring in a water bath, so that the bubbles may be counted as they rise until solution is complete, and when cold decant the clear portion. Add a little dragon's blood to produce the reddish color.

(6) E. I. writes: Would like to know if you could give me some information regarding the preservation of shrimps for fishing purposes, for say two or three weeks, either alive or dead. One way to keep them alive, but only for two days, is to put them in loose sawdust. Have also tried putting the dead shrimps in salt in a glass which answered fairly, but there may be some better way to fix them? A. We know of no other methods than the one mentioned by you.

(7) G. F. B. writes: I have made a mixture of kerosene oil, camphor, and ammonia; what can I put into it to kill the disagreeable smell? A. If the odor arises from the kerosene oil, the best thing to do is to use a better grade of the oil, and then it can be masked somewhat by using some strong aromatic, such as oil of cloves with perhaps a little oil of bergamot. A good quality of the kerosene should be almost entirely odorless. There is an aromatic ammonia described in the U. S. Dispensary which, if desired, could be substituted for the plain article as used in the recipe as given by you.

(8) A. P.—You can get soda ash from any druggist by asking for sodium carbonate or sodi-

carbonas. Its preparation as well as that of caustic soda is complicated, and unless you have a supply of apparatus, you will find it more convenient to purchase it.—It is probably the following: Mix 8 oz. prepared chalk, 2 oz. turpentine, 1 oz. alcohol, 4 dr. spirits of camphor, and 2 dr. aqua ammonia. Apply this mixture to the article with a sponge, and allow to dry before polishing.

(9) F. K. says: In your Notes and Queries of April 25, J. H. asks what harmless preparation he can use for coating a wooden tank, to supply his house with water, to prevent the water from penetrating the wood. Let him paint it inside with melted paraffine applied *hot*, then burn in with a gasoline burning tool, such as painters use for burning off old paint; the heat will expand the pores of the wood, and the paraffine will enter, leaving the surface clean; care should be taken not to apply the heat too suddenly, as the paraffine will run down before the pores are sufficiently open.—F. K. asks: What can I use to coat Manila paper, by dipping, to make it impervious to moisture. It must be cheap, contain no poisonous ingredients, not crack, nor deface the paper. A. Paraffine or wax is commonly used.

(10) C. W. B. writes: Please give me a recipe for mixing kalsomine so that I can put on successive coats (without mixing with alum or any size) and not wash up. A. Kalsomine is composed of zinc white mixed with water and glue sizing. The surface to which it is applied must be clean and smooth. For ceilings mix 3/8 pound glue with 15 pounds zinc; for walls 1 pound glue with 15 pounds zinc. The glue, the night before its use, should be soaked in water, and liquefied in the morning. 2. Also, will you give me a recipe for making a gold size that will not lose its tack. A. Gold size is prepared by grinding calcined red ochre with the best and oldest drying oil, and mixing with it a little oil of turpentine when used. When the work is to be gilded, first give it a coat of parchment size; then apply the above size where requisite, either in patterns or letters, and let it remain till, by touching it with the finger, it feels just sticky; then apply the gold leaf, and daub it on with a piece of cotton; in about an hour wash off the superfluous gold with sponge and water, and, when dry, varnish it with copal varnish.

(11) W. B. C. writes: 1. Will a dynamo that can be run with a spring or weight of 25 pounds supply one or two Edison lamps of 15 or 30 candle power each? A. It may be possible, but it is not practical. 2. Can I run an Edison lamp (15 candle power) with a battery? A. Yes, but it will take a large number of cells, and will be very expensive. 3. Can you tell me of any work on electricity that would explain constructing a dynamo, and the way electricity is used for a motive power? A. Consult Du Moncel on electric motors. See also back numbers of the SUPPLEMENT.

(12) E. B. writes: 1. Please explain how the sound wave is changed into an electric wave in telephoning. A. Sound waves are not changed into electric waves in the telephone. You will find a full explanation of the action of the telephone in the back numbers of the SUPPLEMENT. 2. If a steel magnet was wound with copper wire, and the ends of the wire continued to a short distance and wound round a soft iron bar, would the bar of soft iron become magnetic? A. No, that is, unless the magnetism of the magnet were in some way suddenly varied so as to set up an induced current in the wire. 3. Suppose an electro-magnet was brought to within a short distance of a piece of soft iron that was covered with copper, would the iron (the piece covered with copper) be attracted by the electro-magnet by induction? A. Yes. 4. And if so, would the iron after touching the electro-magnet adhere to the magnet, or would it be repelled? A. It would be attracted by the magnet. 5. Why are carbon rods used in the electric lamp, and why would not metal do as well? Would not the space between the wires be luminous if no electric lamp were used, but simply break the circuit? A. Carbon seems of all substances best adapted to arc lighting. All metals volatilize in the electric arc, and would therefore be speedily dissipated.

(13) W. E. D. desires the formula for an ink such as is used by penmen for engraving, the quality most desired being absolute impermeability to light. The ink I refer to is intensely black, leaving the finest lines show very distinctly. A. Try the following:
Bruised galls 4 parts.
Gum 1 "
Iron sulphate 1 "
Soft water 45 "
Macerate for three weeks, employing frequent agitation.

(14) W. P. C. asks: Can a good oarsman row and make any headway against a current flowing at 6 miles per hour? A. An expert oarsman in a good boat can do this for a short distance.

(15) C. M. B. asks a way of ventilating a Mansard third story of a twin house to lessen the summer temperature. A. We know of no better way than to open vent holes at the base of the Mansard, and put a ventilator on the top, so as to allow a circulation of air between the roof and ceiling. Better consult with an architect or builder.

(16) G. B. writes: I saw recently an account of filings being made to resemble gold dust so closely as to be hardly distinguished from it. Will you in your next issue please inform me the materials used, and the way of using same? A. Such a process was used for the accomplishment of a fraud. We have no knowledge of the means used, but suppose that the filings were electroplated with gold.

(17) R. R. D.—Water deprived of air by boiling or any other means is a better conductor of heat or cold, and thereby allows the freezing process to take place quicker. It is also supposed that the air in water imposes a mechanical impediment to crystallization, as the act of freezing discharges the air from the water to a great extent.

(18) S. N. S. writes: In Philadelphia we are afflicted with bad water. Some are sinking wells. Are all impurities removed from water, by boiling? A. The object in boiling water is to destroy any

disease germs or microscopic life that would injure health. While it no doubt does have a beneficial effect, still we believe that recent investigations have shown that certain germs are capable of resisting the heat of boiling water. Well water in cities is unsafe for drinking purposes.

(19) J. T. McC. asks: 1. What would be the best material to mix with ordinary paraffine oil to stiffen it into grease? A. Paraffine wax. 2. How should it be properly mixed? A. Melt together and stir until cool. 3. Would you recommend strongly as a part with other articles to bring it to a proper consistency? A. Lyes are without effect on paraffine. 4. Would you recommend paraffine tailings as a good and profitable article to mix with the above named oil? A. If for a lubricating compound, decidedly not.

(20) J. F. P. asks for the receipt of how to make the white powder used in making that effervescent summer drink called "sherbet," or "Persian sherbet." A. Take 8 ounces sodium carbonate, 6 ounces tartaric acid, 2 pounds finely powdered loaf sugar, 3 drachms essence of lemon. Let the powders be very dry. Mix them intimately, and keep them for use in a closely corked, wide mouthed bottle. Put two good sized teaspoonfuls into a tumbler; pour in 1/2 pint of cold water, stir briskly, and drink off. See also "Summer Beverages," contained in SCIENTIFIC AMERICAN SUPPLEMENT, No. 192.

(21) L. H. R. asks how much power can be developed from a 20 and 30 foot overshot wheel with a 4 inch solid stream of water. A. For 20 feet fall, 9 horse power; for 30 feet fall, 13 1/2 horse power.

(22) W. H. C., Leghorn, Italy, and others, —That the steamship Alaska was not provided with an eyebolt for chains on the outer edge of rudder is true; why, we do not understand.

(23) M. E. B. asks for the best way to prevent wrinkles (in transferring photographs on concave glass. A. See elaborate article on this subject, No. 8, vol. liii., page 120, SCIENTIFIC AMERICAN.

(24) E. S. G. asks what are "tatties" or "tatty," something or cool houses, used in India. A "tattia" is a bamboo frame or trellis hung at a door or window of a house, over which water is suffered to trickle, with a view of cooling the air as it enters.

(25) C. T. McM. writes: I am unable to account for the accepted fact of the moon's presenting to the earth the same side always. Please give me the reason. A. We, as well as all of the rest of the world, are in the same fix. We have no knowledge of the revolutions of the satellites of other planets, so that we can draw no conclusions from comparison, but accept the fact.

(26) C. T. J. asks: What must be the dimensions of a steam engine to constitute one horse power? A. Cylinder 3 inches diameter, 4 inches stroke, at 60 pounds boiler pressure and 150 revolutions per minute. If less pressure or number of revolutions, use a larger cylinder in proportion.

(27) L. A. D. asks (1) how to remove the fatty matter which collects in the pores of the face, sometimes having a black spot on their top. A. See answer to query 8, in SCIENTIFIC AMERICAN for February 21, 1885. 2. What will remove freckles from the face? A. For freckles use a mixture consisting of 2 parts sulphocarbonate of zinc, 25 parts of distilled glycerine, 25 parts rose water, and 5 parts of scented alcohol, and it is to be applied twice daily for from half an hour to an hour, and then washed off with cold water.

(28) C. D. C. asks if there is any known solution for plating glass with nickel or copper. A. We do not believe that there is any solution that can be used to plate glass with either nickel or copper. The process of silvering the ordinary looking glass is with tin and mercury.

(29) W. P. S. writes: I wish to get some inexpensive motor to operate a fan to be placed on the front of a church organ, to render comfortable the work of the organist. I have an electric motor, but the price of that is too high. A. The best device for your purpose we think would be a small jet taken from the organ bellows, and employed on the ejector principle to furnish the current of air.

(30) J. S. B. asks whether there is any form of magnet or dynamo which gives a continuous current in one direction without a commutator. A. There are several machines that give a continuous current in one direction, but of low tension; the Siemens uni-polar machine and the Delafield uni-polar machine are examples.

(31) M. G. asks: What will take out scratches from a thick plate mirror? A. There is no way except to repolish with rouge on a flat buff of woolen cloth or felt. If the scratches are deep, none but those used to such work can grind out the scratches and repolish the whole surface.

(32) H. C. J. asks: Is there any porous substance that I can use in manufacturing a cheap water filter for my family use, that is better than charcoal? A. Nothing better than charcoal and sand; put the charcoal between the layers of sand. See SCIENTIFIC AMERICAN SUPPLEMENT, No. 451.

(33) A. L.—For aquarium cement use 1 gill plaster Paris, 1 gill litharge, 1 gill fine white sand, one-third gill resin finely powdered. Mix thoroughly dry. Take what may be required for immediate use, and make a putty with boiled linseed oil and a little drier. Not too soft. Apply at once, as it sets quickly.

(34) L. K. asks: 1. Can an induction coil be used to produce an electric light, either arc or incandescent? A. Induction coils are in use for lighting by incandescents. 2. Is the quantity of electricity from an induction coil increased by using larger wire for secondary coil? A. Yes. 3. Would common clay crucibles do for porous cups for an electric battery? A. No; they are not sufficiently porous.

(35) J. F. B.—The horse pushes his collar, and it is by throwing his weight thereon that he pulls the street car.