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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 This is for our information and not for publication.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.

Buyers wishing to purchase any article not advertised in our columns will be furnished with addresses of houses manufacturing or carrying the same.

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.

(6922) G. F. H. says: Will you please send me by mail the formula used in preparing bird lime? A. Boil the middle bark of the holly, gathered in June or July, for 6 or 8 hours in water, until it becomes tender; then drain off the water, and place it in a pit under ground, in layers with fern, and surround it with stones. Leave it to ferment for two or three weeks, until it forms a sort of mucilage, which must be pounded in a mortar into a mass, and well rubbed between the hands, in running water, until all the refuse is worked out; then place it in an earthen vessel, and leave it for four or five days to ferment and purify itself. Remarks: Bird lime may also be made from mistletoe berries, the bark of the wayfaring tree and other vegetables, by a similar process. Should any of it stick to the hands, it may be removed by means of a little kerosene oil or turpentine. It is used to rub over twigs and leaves to catch birds or small animals, who are blinded and confused by the leaves, etc., sticking to them. The "lime" (from German "leim") indicates glue. Another preparation is made by heating linseed oil until it emits an inflammable vapor or by boiling down printer's varnish until tough and sticky; or use a solution of cabinetmaker's glue in water with addition of strong chloride of zinc solution.

(6923) W. W. L. asks (1) for complete directions for making a Ruhmkorff coil giving a ten inch spark in air. A. A coil of twice or three times the lineal dimensions of the one described in our SUPPLEMENT, No. 160, if properly constructed, should do the work. The secondary should be wound in eight or ten sections at the least, and the difficulties incident to making such a coil successfully are such that it should not be attempted by the amateur. 2. How do focusing tubes differ from Crookes tubes? A. In the shape of the cathode. A special focus tube is shown in SCIENTIFIC AMERICAN, No. 14, vol. 74. Special X ray tubes are described in our SCIENTIFIC AMERICAN, Nos. 22 and 25, vol. 74, also SUPPLEMENT, No. 1057, with notes on making.

(6924) G. C. B. writes: 1. What length spark will I obtain with a coil built similar to George Hopkins' (1½ inch spark) induction coil, but of larger dimensions? Size of coil (over all) 5×5×10¼: winding space, 1½×4¾×8¼; iron core, 1¼×9; primary coil, 3 layers of No. 16 d. c. c., secondary No. 36 inch silk wound in layers. A. All we can say is that theoretically the length of spark should vary with the 5th or 6th power of the lineal dimensions. In practice, the result will be far less favorable. It would be safer to use the 3d power. Thus a coil twice as long, wide, etc., should give a spark eight times as long. 2. Would you suggest any change in the winding (size of wire, turns, etc.)? A. Wind the secondary in six or more sections, so as to separate portions of widely varying potential. 3. Which would be better, winding the secondary in layers with a turn of oil paper between layers or wind in halves as in Hopkins' coil? A. See preceding answer; wind in disk fashion. 4. Have you published any notes in the SCIENTIFIC AMERICAN or the SUPPLEMENT upon apparatus for producing the X rays? Please give number of issue and subject of articles. A. Exhaustive data on this subject will be found in SCIENTIFIC AMERICAN, Nos. 7, 10, 12, and 14, vol. 74, also SUPPLEMENT, Nos. 1050, 1054, 1055, 1056, 1057, 1058, 1065, 1067, 1068, and 1069. These articles give practical directions for taking the pictures, apparatus necessary, etc.; they also treat on the physical questions involved. You may anticipate much trouble in building so large a coil. Try smaller ones first. Disappointment in results is to be anticipated.

(6925) H. A. H. asks: 1. What is the best and simplest method for polishing mahogany and holly inlaid veneers? A. For polishing veneers, we refer you to the following books: "The Hardwood Finisher," by Hodgson, price $1; "The French Polisher's Manual," price 20 cents, postpaid. 2. Is the indicated coil for alternating currents described in SCIENTIFIC AMERICAN of March 11, 1893, suitable for producing X rays, using a T. H. alternating dynamo, with 12 field coils, and running at 1,500 revolutions per minute, as a source of current? Would the alternations be rapid enough? A. Yes. Probably it would be well to omit the Leyden jars. 3. Could above coil be used to excite a Crookes tube, if built on smaller scale? A. It could be made much smaller, but should be based on giving at least 200,000 volts. Give enough turns in secondary, when divided by turns in primary, to produce a multiplier which, multiplying the original voltage, would give 200,000. 4. Would it be possible to secure an index to Notes and Queries for the last six or seven volumes? Do you know of any subscriber to SCIENTIFIC AMERICAN who has one? A. Possibly some of our subscribers may answer this query.

(6926) J. J. O'D. asks: 1. By what process can melted lead be reduced to powder? A. Heat the lead, and when just melted pour into a wooden bread tray well chalked on the inside. Throw it into the air and catch it, and repeat this until it has solidified. It will then be in fine granulated form (test lead). 2. Also what process will convert litharge back to metallic lead? A. Heat with powdered charcoal and sodium carbonate (dry).

(6927) J. C. M. says: Do you know of anything that will cure sweaty hands? Hands that perspire so that the perspiration will drop off them when it is warm. A. When perspiration is excessive it may be regulated by using as a wash, once a day, not oftener, for about two minutes, liquor atropiæ, 2 drachms; water, 1 pint. The face and other parts may also be washed as often as desired with alum, 1 ounce; glycerine, 1 ounce; water, 10 ounces.

(6928) R. H. F. asks: Please explain the difference between a tornado and a cyclone, and the atmospheric disturbance. A. The tornado is a sudden outburst of wind in an otherwise quiet, sultry atmosphere; it is ushered in by a loud, indescribable roar, similar to a continuous roll of thunder; its path is very narrow—seldom more than 500 feet wide at greatest destruction; it moves, generally, from southwest to northeast, and rarely extends more than twenty miles; it very often rises in the air, to descend again at a point a few miles ahead; it is always accompanied by thunderstorms, with often a bright glow in the cloud; this cloud has usually a funnel shape, which appears to be whirling, though some observers have described its appearance like that of a huge ball rolling forward. A tornado may be considered as the result of an extreme development of conditions which otherwise produce thunderstorms. A cyclone, on the other hand, is a very broad storm, often times 1,000 miles in diameter, and sometimes can be followed half around the world; the winds circulate about it from right to left, or the way one turns clock hands backward (in the southern hemisphere this motion is reversed). The air pressure always falls as one approaches the center, where, at sea, there is a portentous calm, with clear sky visible at times. The cyclone winds often rise to hurricane force, but are not to be compared with the extreme violence of the tornado, before which the most solid structures are razed. The French term trombe or tourbillon describes almost exactly the tornado, which term was first applied to severe squalls, with funnel-shaped clouds, experienced on the west coast of Africa, and which, to this day, inspire the utmost fear in the minds of the natives. This is supplied by the chief of the Weather Bureau.

(6929) J. W. P. says: Can you give me some information regarding pyrocatechin as a photographic developer? A. Pyrocatechin is said to possess the following advantages as a developer: Its delicacy is equal to pyrogallol; the solution only alters very slowly on exposure to air, and is much more stable than hydroquinone, eikonogen, etc. The color of negatives is very favorable to printing, which proceeds more rapidly than with other developers. It gives brilliant prints without hardness. It does not fog the plates. It does not stain the fingers. The same bath will develop several plates. The following are the principal solutions: Solution A: Water, 1 ounce; sodium sulphite, 20 grains; pyrocatechin, 10 grains. Solution B: Water, 1 ounce; potassium carbonate, 100 grains. For use in ordinary exposures, equal parts of A, B, and water. For underexposed plates, take one part A to two parts B. For plates that have had a timed exposure, the following one solution developer is recommended: Water, 2 ounces; sodium sulphite, 25 grains; sodium carbonate, 50 grains; pyrocatechin, 10 grains. To bring out contrasts, a two per cent boric acid solution is recommended instead of bromide.

(6930) A. E. G. asks how to remove bichromate stains from the hand. A. Pour a little solution of sulphurous acid on to your hands. On rubbing the fingers the stains rapidly bleach. Subsequent washing with rain or distilled water would be preferable; but ordinary water will answer. Or take a warm, strong solution of hyposulphite of soda, and add thereto a small quantity of ordinary sulphuric acid. The same bleaching action as with sulphurous acid will take place.

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July 28, 1896,

AND EACH BEARING THAT DATE.

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