

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 This is for our information, and not for publication.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) B. S. H. asks: 1. What are the ingredients used in flavoring the best smoking tobacco? A. Various flavoring mixtures are made and sold in New York. Cristiani's "Perfumery and Kindred Arts" gives a number of recipes such as the following: Tincture of cascarilla.....6 ounces. " tonqua.....4 " " tolu.....2 " " orris.....2 " " valerian.....2 " Oil of nutmegs.....1/4 " " cloves.....1/4 " " rhodium.....1 rachim.

2. There was a circus here some time since in which a girl walked on a ceiling, apparently of board, in an inverted position. By what means was it accomplished? A. The walking is accomplished by means of electromagnets. A patent for this purpose has recently been issued, a copy of which we can send to you for 25 cents.

(2) G. W. asks what mercury can be thoroughly dissolved with. A. Nitric acid, even when dilute and in the cold, dissolves it freely.

(3) J. H. L. desires a receipt for frosting silver jewelry. A. Dip the article in a solution of nitric acid and water, half and half, for a few minutes, then wash well in clean water and dry in hot sawdust. When thoroughly dry, brush the sawdust away with a soft brush, and varnish the parts required to be bright.

(4) A. C. asks at what point along the Atlantic coast the Gulf Stream approaches the nearest. A. Cape Hatteras.

(5) L. C. B. writes: Will you please tell me how diastase may be obtained? A. A cold infusion of malt is heated to 158° Fah. (to coagulate its albumen); it is then allowed to cool, and alcohol is added to the filtered liquid, when diastase is precipitated under the form of a tasteless white powder which is freely soluble in water.

(6) J. L. H. writes: I wish to make a propeller 20 inches in diameter. From which could I obtain the most speed—from a 2 horse power engine, one of 3 flukes or one with 2 flukes? The boat is 25 feet over all, 20 feet keel, 3 feet deep, and 5 1/4 beam. A. 3 flukes are generally used, and considered the most efficient.

(7) J. P. K.—The addition of a little oil of cloves will prevent muckage from souring. Salicylic acid, and sometimes carbolic acid, are similarly used. You will find in SCIENTIFIC AMERICAN SUPPLEMENT, No. 157, numerous recipes for inks.

(8) H. C. F.—For long and short reach vehicles of the same weight, both being under the same conditions on a level road, there could be no perceptible difference in their pull; but on uneven roads the long reach vehicle is easier and less jerky upon the horses. This is very perceptible in drawing long timber on rough roads.

(9) F. W. S. asks whether any one has ever used a continuous screw for propelling boats—a screw 10 feet or 20 feet long. A. The continuous screw was tried in the early experiments with screw propulsion, and found worthless.

(10) P. T. C. asks for a solution to prevent the colors of embroidery on white silk handkerchiefs fading in washing. A. Before washing it is recommended to soak the articles for some time in water, to every gallon of which is added a spoonful of ox gall. Alum added in small quantities to the wash water is also used to prevent fading.

(11) M. C. asks: What is the best preparation used by draughtsmen for whitening box-wood blocks previous to making drawings? (Blocks used by wood engravers.) A. Every draughtsman has his fancy for one or another of the many whites, with varieties of gums. Our artists find good satisfaction in cake flaked white or bottled Chinese white.

(12) G. W. F. asks: Is there any better way to obtain a due east and west course than by turning a right angle from the true north and south as obtained by observing the North Star? If this is sufficient, is the mean of repeated angles with a Buff and Berger transit (4 1/2 inch needle) sufficiently accurate to run such a line sixty miles in length, a boundary between States? A. A due east and west line in your latitude is not a straight line, but rather a great curve in which every part shall be at a right angle with the polar axis, and whose absolute radius shall be the least distance from the given point in latitude to the earth's axis. The curve on the plane of the given latitude should have a radius equal to the distance on that plane extended to meet the polar axis, so that, to run a due east or west boundary for 60 or more miles, offsets for tangential departure from the great circle should be made, and a new meridian established for each section of from 5 to 10 miles. This equation forms one of the difficulties encountered in rearranging boundary surveys that were originally described by compass courses.

(13) E. B. asks: 1. Can a static machine be substituted for a battery of cells for galvanoplasty? A. No. 2. The reason why? A. Because galvanoplastic operations require a current of great quantity with low intensity. The electricity of the static machine has a very high tension, but very little quantity.

(14) H. S. asks: Why do the eyes of a portrait appear to follow a person around the room? A. The surface upon which the features are outlined being flat, no matter at what angle they are observed, we see the same flat delineation, the lines always bearing the same relation to each other.

(15) R. J. P. writes: I would like you to answer in your columns a few questions in regard to the dynamo described in SUPPLEMENT, No. 161. 1. Will it answer to have the magnet and armature cast from the same iron, if it is soft, as used in a machine shop, or would it be better to have the magnet cast, and to make the armature of soft wrought iron? A. Both magnet and armature may be made of soft cast iron. 2. Are Nos. 14 and 16 wire the best, where machine is to be used for plating, and run by power? A. These numbers are correct, but coarser wire may be used if desirable. 3. How fast should it run to get the best results? A. From 1,500 to 2,000 revolutions per minute. 4. Could the machine be used to run a small light, if wound with coarse wire? How many gallons of solution will it operate, or how much nickel will it deposit in an hour? A. Yes, if the lamp has a very low resistance. The questions regarding the solution must be settled by trial.

MINERALS, ETC.—Specimens have been received from the following correspondents, and examined with the results stated.

F. R. S.—The specimen of clay sent is useful for the manufacture of the commoner grades of earthenware. It brings \$1.35 a ton at Amboy and \$1.50 at New York. We would suggest your sending samples to the potteries at Liverpool, Ohio.—G. W. S.—The mineral is an arsenical iron ore, known mineralogically as mispickite. It is of no commercial value, as arsenic is only smelted as a by-product.

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October 20, 1885,

AND EACH BEARING THAT DATE.

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