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Notes & Queries

HINTS TO CORRESPONDENTS.

No attention will be paid to communications unless accompanied with the full name and address of the writer.

Names and addresses of correspondents will not be given to inquirers.

We renew our request that correspondents, in referring to former answers or articles, will be kind enough to name the date of the paper and the page, or the number of the question.

Correspondents whose inquiries do not appear after a reasonable time should repeat them. If not then published, they may conclude that, for good reasons, the Editor declines them.

Persons desiring special information which is purely of a personal character, and not of general interest, should remit from \$1 to \$5, according to the subject, as we cannot be expected to spend time and labor to obtain such information without remuneration.

Any numbers of the SCIENTIFIC AMERICAN SUPPLEMENT referred to in these columns may be had at the office. Price 10 cents each.

Correspondents sending samples of minerals, etc., for examination, should be careful to distinctly mark or label their specimens so as to avoid error in their identification.

(1) M. G. M. asks how peanut oil is purified and deodorized? A. In European mills the nuts are first cleaned, then deoiled, and winnowed, by which the kernels are left perfectly clean. These are crushed like any other oil seed, and put into bags which are introduced into cold presses; the expressed oil is refined by passing through filter bags. The residual cake is ground very fine and pressed under three tons to the inch in the presence of steam heat; this affords a second quality of oil inferior to the cold pressed. The usual product is one gallon of oil from one bushel of nuts by the cold process, besides the extra yield by the hot pressing. In France, where the oil is most largely prepared, three expressions are adopted: the first gives about eighteen per cent of superfluous oil, fit for alimentary purposes; the second, after moistening with cold water, affords six per cent of a fine oil suitable for lighting and for woolen dressing; the third, after treating with hot water, yields six per cent of oil applicable only to soap making. The cold pressed oil is almost colorless, of agreeable odor, and bland olive-like flavor. On the European market large quantities of it are passed off as olive oil.

(2) J. H. M. asks: 1. How to render a piece of muslin non-combustible? A. See article on "Incombustible Tissues," SCIENTIFIC AMERICAN SUPPLEMENT, No. 245. 2. How is sherry wine made? A. The juice is deposited in butts of 108 gallons each, and after the first fermentation is racked from the lees, each butt receiving from two to ten gallons of spirit, according to the quality of the wine, the inferior sorts requiring most re-enforcement. The wine is subsequently flavored with a liqueur called *dulce*, made from the must of over-ripe grapes, the fermentation of which has been checked by the addition of overproof spirit, and colored by an admixture of *vins de color*, which is simply must boiled until it is reduced to one-fifth of its bulk and has acquired the consistency of treacle. It is deep reddish-brown, and has a harsh and bitter flavor. By means of this agent all the popular shades of color are given to the sherry.

(3) D. R. P. asks for a receipt for bluing revolvers and gun barrels, also the mode of employing same? A. The bluing of revolvers is done by first finishing every part to an even polish, and then heating in a muffle till the desired color is obtained. For a blue finish, clean every part to an even color finish, and apply nitric acid, 1 part, diluted with 10 parts water until a blue film is produced upon the surface. Then wash with warm water, dry, and wipe with linseed oil.

(4) W. H. L. asks for the quickest way to dry large oak hubs and avoid cracking. Does steaming affect the solidity of the wood? How soon after steaming can it be made to assume its former solidity? A. To dry oak hubs, pile them in a drying oven so that there will be room for circulation of steam and air between the blocks. Turn steam into the oven so as to moisten the surface of the blocks, and also steam into coil for heating. Close the oven tight; keep it closed until the blocks are heated thoroughly, so as to boil the water out from the interior, which will take four to six hours. Continue the steam in the heating coil, and shut off the steam from the wood for a few hours more with a little ventilation, when they will be found thoroughly dry without cracking or checking.

(5) R. H. B. asks: What material to use to make a hone surface on wood, such as is put on razor strops, and how proceed? A. Levigated oxide of tin, prepared putty powder, 1 oz.; powdered oxalic acid, 1/2 oz.; powdered gum, 20 grains; make into a stiff paste with water, and evenly and thinly spread it over the strop. This is said to give a fine edge to the razor. If it cannot be used as it is, we recommend that it be mixed with sufficient glue to cause it to adhere to the wood.

(6) W. J. P. asks: Does the height of a balance wheel affect its running, as regards the atmospheric obstructions it may meet? A. Practically, no. 2. Or will a wheel run as easily under a machine, close to the floor, as above it? A. Yes; as easily, if the atmosphere around the wheel be not confined.

(7) H. C. A. asks: 1. How to make a good imitation of snow? A. This depends upon your object. Scraps of paper are used in theaters; negatives are scattered so as to produce this effect. Salt is likewise used by photographers. 2. I have a large lithograph and would like to put a gloss to it—will it do to varnish it? A. Float the lithograph in varnish.

(8) S. H. J. writes: I have a piece of apparatus used to register the number of vibrations per second of a wire by means of an electric current. The current is broken and closed by the wire. What solution is there, if in which paper is soaked and then drawn between the ends of the conducting wires, a mark will be made? I have tried iodide of starch paper, but the mark made is not instantaneous, which is necessary.

A. Iodide potassium..... 1/2 lb.
Bromide..... 2 lb.
Dextrine or starch..... 1 oz.
Distilled water..... 1 gal.
You might also try:
Nitrate ammonia..... 2 lb.
Muriate..... 2 lb.
Ferricyan. potassium..... 1 oz.
Water..... 1 gal.

(9) J. A. S. asks: 1. Could I generate enough steam in a boiler 4 in. square by 12 in. high to propel a machine at the rate of 50 revolutions per minute that requires the foot power of one man to propel? A. We think not. 2. Also, would plates one-eighth in. thick be thick enough to withhold the pressure? A. One-eighth inch thick is sufficient for wrought iron plates if the boiler is cylindrical, but not if square, whether it be wrought or cast iron. 3. What kind of oil would be best to heat with? A. Your question is rather indefinite, but for a stove heated with oil we think you will find good kerosene as good as anything.

(10) I. P. S. asks: 1. How to prepare a cement to mend broken alabaster ornaments? A. Use glue sold by druggists for cementing china and glass ornaments. 2. Why are not steam engines with oscillating cylinders more generally used? A. The oscillating steam engine in the present advanced practice of engine building cannot compare with other forms of engine.

(11) T. H. R. asks: What is the best method of getting rid of the quality of stickiness in boiled linseed oils? How can such stickiness in canvas or calico cloth dressed with such oil be overcome? A. The stickiness of linseed oil is one of the properties of the oil in question, and cannot be got rid of unless decomposition takes place. For your special purpose we would recommend that the articles coated be thoroughly exposed to the air, and the oil oxidized. By this means it will harden, and the condition sought for will be to a great extent accomplished.

(12) E. F. writes: I have a large sheep skin mat on my floor which has troubled me for some time back by seemingly sweating. The carpet on which it lies is perfectly dry and distant from any damp spot. The skin becomes very wet, necessitating drying every few days. Please explain the cause of this and any remedy I may apply to prevent it. A. The sheep skin mat is probably cured with salt or salt and glycerine. When the air is moist, these ingredients absorb the moisture from the air. The remedy is to wash and redress with borax water and dry in the sun. Stretch the skin while drying.

(13) W. B.—For information on English railroad building you had better refer to some work on the subject. Speed of ordinary trains about the same as in the United States, 30 to 35 miles per hour. First class trains, 40 to 60 miles per hour. The humming noise along the telegraph lines is caused by the wind blowing across the wire, setting the line into vibration in the manner of an Aeolian harp, the poles acting as a sounding board. Do not know of any better way of preventing the noise than to use covered wire near the offices. Do not anchor the main line to the office or building—come into the office with a slack copper wire covered and dipped in paraffine.

(14) L. L. writes: 1. Two steam boilers are supposed to be in a vacuum, and both made of material exactly the same in thickness, strength, etc. The diameter of the second boiler is say one hundred times greater than that of the first. Both boilers and their contents are deprived of all weight. No flues are supposed to be used. A pressure of one hundred pounds of steam to the square inch is all the first boiler will stand. Will the second boiler stand the same steam pressure (viz. one hundred pounds to the square inch)? A. No. The strength of the boiler will be inversely as the diameter. 2. Two circular iron water tanks are presumed to be in a vacuum, and are also made of material the same in thickness and strength. The diameter of the second tank is say one thousand times greater than that of the first. The depth of both tanks is exactly the same. We deprive both tanks of the weight of the material of which they are made. Both tanks are full of water in a state of perfect tranquility. The pressure against the side of the first tank is all it will stand. Will the water in the second tank burst the side of the tank? In the above questions only pressure is to be considered. A. Yes.

(15) O. C. writes: 1. I am using a project- ing lantern with an oil lamp, but I desire a better light. For what little I use I cannot afford the oxyhydrogen or electric light. In looking over the back numbers of the SCIENTIFIC AMERICAN I find in vol. xlv, No. 25, a description of Dr. Regard's incandescent lamp, and would like to ask a few questions about it. 1. Is it practical? 2. Is it safe? A. 1 and 2. We think both practical and safe. 3. Is there such a piece of apparatus in the market, and if so, where can it be obtained? A. It is not for sale in this market. 4. If not, will you please give full directions so that I can make one. Also where I can get the necessary material? A. We have published all the information we have on the subject. 5. If this is not practical, can you suggest any improvement on the common oil lamp for intensity of light? A. Although the light referred to would probably answer your purpose, we would suggest that you use a lamp with a wide wick turned edgewise toward the object. Place a concave reflector behind it, and between the lamp and the slide, place a good condenser com-

posed of two or three plano convex lenses. A lantern arranged in this way ought to give good results. An oxyhydrogen light would not be very expensive, and would be preferable to anything else.

(16) W. K. writes: 1. I see in your reference book that neither zinc nor steel are marked as conductors of electricity; would like to know if they are conductors or not? A. They are both conductors of electricity. 2. A: what distance will an electro magnet attract iron, causing it to move, provided the iron is not too large for the magnet to move? A. The attraction of a magnet for its armature is inversely as the square of the distance. The greatest distance depends on the strength of the magnet, but in any case it is not very great. 3. Is chemically pure zinc better to make a voltaic pile with than ordinary sheet zinc? A. Yes.

(17) W. A. asks: 1. If perpetual motion has ever been invented? A. No. 2. What is the exact meaning of such a machine? A. A machine to produce force out of nothing. 3. Was there ever a premium, or is there still one offered for its invention? A. No.

(18) G. W. M.—Scotch pig iron as given by Thurston is as follows:

Carbon, combined.....	3.00	3.40	per cent.
Carbon, graphitic.....	0.28	0.46	"
Silicon.....	3.50	2.93	"
Phosphorus.....	0.98	0.75	"
Sulphur.....	0.02	0.04	"
Manganese.....	1.58	1.62	"
Copper.....	0.10	0.07	"
Iron and loss.....	.9054	.9073	"

100 00 100 00 per cent.

(19) J. G. T. asks if there is a powder made for removing ink blots, etc., from paper, and if so, of what is it composed? Also if there is a liquid for the same use, and what it is composed of? A. We know of no powder that is really effective in removing ink; but of solutions there are several. A solution of chloride of lime and acetic acid is often used. Oxalic and citric acids are employed for this purpose. See article on inks, SCIENTIFIC AMERICAN SUPPLEMENT, No. 157.

(20) C. S. writes: In a planer to dress staves, which is the best velocity to give to the cutter, also to the speed, and how do I determine, or what is the proportion of the speed of feed to that of the cutters. A. The question in regard to speed of stave machines is very indefinite. The kind of staves, hard or soft wood, and the condition of the lumber, whether there is much or little to come off, should regulate the speed of the feed—half foot per second may be the average speed. The cutters may have from 1,000 to 1,500 turns per minute. A trial with good judgment is worth more to you than the advice of those that are not acquainted with your machine or lumber.

(21) S. C. T. asks: How can I remove grease from painted machinery (a Campbell printing press) without removing the paint or polish? Also, what will keep the polished steel and castings from rusting? Also, what will loosen the parts, when gummed with oil? A. Benzine or naphtha will remove grease without removing the paint if used quickly and carefully. A slight film of good sperm or lard oil is as good as anything for preventing rust. Kerosene oil injected into a gummed joint will loosen it. Use good oil, and you will not be troubled with gumming.

(22) W. B. asks if there are any patent ovens used in baking japanned work, or how to construct a good one, and what are the materials used in japanning and how to prepare them, or is there any work published on japanning? A. There are no patent ovens required to bake japan varnish. Any room suitable for the quantity of work required to be baked at one time, so arranged as to be safe from fire, and to be heated to 250°, will do the work. We would not recommend you to attempt to make the varnish; it is a peculiar business. Buy the varnishes of the colors that you require. You have varnish agencies in St. Louis. We know of no work treating especially upon this subject.

(23) C. J. H. asks how sugar is made from Indian corn, also if it is possible to make sirup from old rags, paper, etc.? A. For the manufacture of sugar or glucose from corn, see a full account in the SCIENTIFIC AMERICAN SUPPLEMENT, Nos. 98, 259, and 260. Jelly has been made from old rags, paper, and old boots, but this system has not usurped the public favor over the old.

(24) T. J. M. asks: 1. Can the ink used by copper plate printers be bought ready for use, and where? A. Yes. Write dealers in printing ink who advertise in our columns. 2. How is it applied to the plate? A. It is rubbed into the lines, and the surplus wiped off with a cloth and a little whiting. 3. How many impressions will each application of ink be likely to give? A. One. 4. Can I get a book of instruction on "copper plate" and "relief" printing? A. Write any of our industrial-book publishers.

(25) C. E. B. asks: 1. How to make a cheap and easily made vulcanizer to vulcanize rubber for hand stamps? A. For this information we refer you to the article on "The India Rubber and Gutta-percha Industries," SCIENTIFIC AMERICAN SUPPLEMENT, Nos. 249 and 251, especially the latter, where vulcanizers are described on page 3992. 2. What is the difference between the setting of the type for the first Polyglot Bible and that of other type setting? A. The setting of the type for a Polyglot Bible is different and more complex than other type setting, because of the text being represented in several languages. The *Complutensian* or first was printed in four languages; *Hutter's Polyglot* in twelve languages. Some of the editions contained the *Hebrew*, *Syriac*, *Chaldean*, and *Samaritan* texts, with their *Latin* versions.

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

J. M. G.—The mineral is pyrite (iron sulphide), and may carry gold. An assay costing \$5.00 would determine this.—J. T. C.—The shiny particles of mineral are small plates of mica. We do not think the mineral

contains gold. An assay costing \$5.00 would determine the presence of precious metals.—J. A. R.—The mineral is one of the varieties of feldspar, and may carry a little zinc with it. In order to ascertain this it would be necessary to have it assayed. The expense of this would be \$5.00.

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January 15, 1884,

AND EACH HEARING THAT DATE.

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