

mentation, and be consequently non-intoxicating? A. No; more or less fermentation is likely to occur. Cider is only intoxicating in consideration of the amount of alcohol it contains.

(31) De W. C. K. writes: I have two pieces of convex glass, one 10x12 and one 8x8. I wish to coat them with something so as to make a looking glass. What is the quickest way of doing it? A. Lead and tin of each 2 ounces, bismuth 2 ounces, mercury 4 ounces. Add the mercury to the rest in a melted state, and remove from the fire; mix well with an iron rod. This amalgam melts at a low heat, and is employed for silvering convex mirrors, etc. The glass being well cleaned, carefully warmed, and the amalgam rendered fluid by heat is poured in and the vessel turned round and round, so that the metal may be brought in contact with every part of the glass which it is desired to cover. At a certain temperature this amalgam readily adheres to the glass.

(32) L. A.—The following is one of the popular receipts for making mead for a summer drink: 1 pound of Spanish sarsaparilla; boil 5 hours and strain off 2 gallons, add sugar 16 pounds and tartaric acid 10 ounces. Half a wineglass to half a pint tumbler of water and half a teaspoonful of soda is a fair proportion for a drink. See also list of "Summer Beverages," contained in SCIENTIFIC AMERICAN SUPPLEMENT, No. 142, and the "Effervescing Beverages," given in SCIENTIFIC AMERICAN SUPPLEMENT, No. 270.

(33) A. P. F.—To clean silver, mix two teaspoonfuls of ammonia in a quart of hot soap suds. Put in the silver ware and wash it, using an old nail brush or tooth brush for the purpose. 2. Caustic soda is the article generally used. The amount to be used depends upon the variety or kind of soap you desire to make, hard or soft, and fat you have at your disposal.

(34) H. R. S. asks how to make fish glue so it can be used cold and be waterproof without injuring it much. A. White lead added to glue is said to make it waterproof as well as to strengthen it. Potassium bichromate, when added in proportion of about 2 per cent and the glue exposed to the light, causes it to become insoluble. We can send "A Practical Treatise on the Raw Materials and Fabrication of Glue, Gelatine," etc., by F. Dawidowsky. Price \$2.50.

(35) W. W. A. writes: I wish to ascertain the process of manufacture of the common chalk or school crayon—the materials of which it is composed, but the machinery used in its manufacture and the different processes through which it goes to completion. A. The crayons consist of equal parts of washed pipe clay and washed chalk mixed into a paste with sweet ale made hot, into which a chip or two of isinglass has been dissolved. This paste is rolled out with a rolling pin, cut into slips, then rolled into cylinders by means of a small piece of flat wood, cut into lengths, and finally placed in a slow oven or drying stove until hard.

(36) N. C. R. asks what to put with pine tar to make a chewing gum. Something that would be healthy to chew a great deal of. A. THE FOLLOWING process is used in Maine: Large quantities of the gum are purchased from the lumbermen and gum hunters for the purpose of refining it, as they say. But as a general thing, the refining consists in adulteration with rosin. They throw it into a big kettle, bark and all, and boil it to about the consistency of thick molasses, skimming the impurities off as they rise to the surface. Then, if the purpose be to adulterate, some lard or grease and a lot of rosin is added, and in some cases a little sugar. The mixture then becomes thicker, and, after more stirring, is poured out on a slab, where, while it is yet hot, it is rolled out in a sheet about a quarter of an inch thick, and then chopped with a steel die into pieces half an inch wide and three-quarters of an inch long. These pieces are wrapped in tissue paper and packed in wooden boxes. There are 200 pieces in a box. Some gum is treated in this way without adulteration.

(37) J. R. N. asks a cement for stopping a cavity in bottom of a canoe dug out of a poplar tree. A. After you have plugged the hole up, fill the interstices and coat the outside with a cement consisting of shellac 4 ounces, borax 1 ounce; boil in a little water until dissolved, and concentrate by heat to a paste. —The best means of preserving posts consists in charring them and then coating with tar.

(38) C. W. H. writes: Chlorine is generated by the action of dilute sulphuric acid in chloride of lime. It possesses a more pungent odor, we think, even than sulphur. We would recommend you to consult the article on "Disinfectants and their Special Application," contained in SCIENTIFIC AMERICAN SUPPLEMENT, No. 162.

(39) M. W. W. writes: I have a photograph that I would like to color, but the colors run off, it seems owing to oil upon the picture. How can I get it off? A. There should be no oil on the surface of the photograph. It frequently happens that the face of the picture is coated with a colorless varnish, but this will readily wash off, whereupon the paints or water colors are mixed with ox gall and applied direct.

(40) Casarey.—The Louisiana Fiber Making Company, of New Orleans, La., own and control the only process by which bagasse can be readily and economically decorticated and prepared for the pulp mill. The New Orleans Daily Picayune of May 15, 1884, was printed on such paper. The process requires machinery similar to that used in the manufacture of the chemical wood pulp. An experienced and intelligent superintendent is more essential than able workmen. The Swedish filtering paper is composed of flax fiber, and the fibers are very much crushed and broken. The linen pad evidently did duty elsewhere in the rag before it found its way into the paper. The fibrillae of the broken fibers serve to fill up the pores, and prevent solids passing through the paper. Only the purest materials are used in the manufacture of Swedish filter paper. Its small amount of ash is its chief characteristic.

(41) S. asks: Does a human being weigh more after consuming two pounds of solid food than before? A. Weighs 2 pounds more.

(42) J. R. E. asks: What city on the earth has no horses? A. Venice, Italy.

(43) F. P. S.—Nickel melts at upward of 3,000° C.—Water gas is a mixture of nearly equal parts of hydrogen, carbon monoxide, and marsh gas with about 15 per cent of illuminants. See SCIENTIFIC AMERICAN SUPPLEMENT, No. 398.

(44) G. P.—We do not believe any horse ever made such distances in the time as were made by the competitors in the recent walking match.

(45) G. W. S.—The smallest engine and boiler on the market is 1 horse power, price \$300 complete. Locomotive engineering is perhaps as good a trade as any. See SCIENTIFIC AMERICAN SUPPLEMENT, No. 341, for the dimensions and weight of the largest locomotives. Also SCIENTIFIC AMERICAN SUPPLEMENT, No. 286, for illustrated description of a 1,000 horse power Corliss engine.

(46) N. R. W.—Cast iron cannot be welded to cast iron with any practical benefit. The Chinese method of burning is only a curiosity. It may also be sweated together by heating the pieces in contact to nearly their melting point with a flux of caustic soda.

(47) M. M.—The sun in its general influence upon the atmosphere may indirectly influence the draught of chimneys. The relative position of the roof in regard to prevailing winds probably has a larger influence than the sun. The heat of the fire and height of chimney determine the draught. It has been found economical to burn culm or screenings for many uses; good draught and a fine grate are requisite.

(48) J. G. P.—A corrugated iron roof should be lined to prevent sweating, in places where the air is liable to become moist, or where many persons are congregated. Cover the frame with matched boards, then lay the corrugated iron.

(49) C. F. M. desires a good receipt for curing natural flowers by immersion or dipping. A. Dip the flowers in melted paraffin, withdrawing them quickly. The liquid should be only just hot enough to maintain its fluidity, and the flowers should be dipped in one at a time, held by the stalks, and moved about for an instant to get rid of air bubbles. Fresh cut flowers free from moisture make excellent specimens in this way.

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

C. H. D. & Co.—The specimen is principally quartz, with possibly a small quantity of serpentine mixed with it, producing the green color.—T. J. W.—The specimen appears to be an excellent quality of fire clay. Nothing positive concerning its value can be determined until it has been burned. It is not likely to be marketable in New York, on account of the excellent deposits situated in New Jersey.—D. W. S.—Others themselves are clays containing varying amounts of iron oxide. The specimen sent is in a color in the mass that it is a clay colored by iron oxide, but it is a very poor variety, for it is principally clay.—E. G. L.—The specimen is hematite (iron peroxide), and appears to be a valuable ore of iron. The expense of analysis would be \$15.00.—W. S. R.—The specimen is limestone, and contains no metal apparently.

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