

## Arts and Manufactures.

### DYEING AND PRINTING.

At the present time, sumac is much used in dyeing and printing, in order to cause other dyes to take better on the fabrics or fibres of materials to be dyed or printed. According to an invention lately patented by Mr. J. L. Norton, of Bell Sauvage Yard, Ludgate Hill (whose name is well known in connection with the Abyssinian tube well), an extract of the bark of the hemlock tree is substituted for the sumac, the desired result being thus more effectually and economically attained. The following are the details of the methods by which Mr. Norton operates in order to obtain a number of different colours:—

To dye 20 lbs. weight of cotton a magenta colour, take 3 lbs. of Miller's extract of hemlock bark as imported from Canada, and boil it with 20 gallons of water, and then lay the cotton in the liquid for a night. In the morning, add 3 pints of red cotton spirits diluted with 20 gallons of warm water, and work afterward the cotton in this for 50 minutes. Then bring it out and wash twice with cold water, and afterward with warm water. Then take 20 gallons of fresh water heated to 160° and put two pints roseine solution into it, and work the cotton in this liquor till the colour is full enough. Wash the cotton and dry it.

To dye a primula colour, proceed as before, only using a solution of Hoffman's violet instead of roseine, and work at the same temperature (160°). A bluer tint may be obtained by increasing the heat, or a redder by lessening it.

To dye a lavender colour, take of extract of hemlock bark 1½ lbs. to 20 lbs. of cotton, and work the cotton in the extract diluted with 20 gallons of water for half an hour. Rinse and wash in cold water, and then in warm. Take of red cotton spirits 1 pint, diluted with 20 gallons of warm water, and work the cotton in it for 15 minutes, then wash in two warm waters. Afterward work the material in a bath consisting of 1 pint of Nicholson's No. 2 blue solution, with 1 gill of nitric acid at about 100°. Wash the cotton and dry it.

To dye a green colour, prepare with 4 lbs. of extract of hemlock bark mixed with 20 gallons of water. Lay the cotton in this for 1½ hour at a boiling heat; then prepare a bath with 20 gallons of cold water and 2½ pints of double muriate of tin, and work in this half an hour. Wring the cotton out and wash off well to kill the strong acid. Afterward take 20 gallons of water at a temperature of 170° or 180°, and put into it 1 pint, or nearly so, of iodine green paste diluted with 1 gill of methylated spirits; if a yellow shade is required, add a little picric acid. Work the materials in this for about 20 minutes, then wash and dry it.

To dye a gold colour, prepare with ½ lb. of extract and 1 lb. turmeric dissolved in two gallons of water. Work at a heat of about 90°, then cool down and add ½ gill nitric acid. If the

colour is not red enough, add a little annatto; if not deep enough, repeat until the shade required is obtained.

To dye black, take 4½ lbs. of extract of hemlock bark and boil it with 20 gallons of water, and then lay the cotton in this liquid for a night. In the morning take it out and put it into a cold lime water bath of 4°, and work in this for ten minutes. Wring out and sodden with 15 gallons of old sumac liquor, 1½ lb. of copperas, and 2 gallons of urine. Work it in this for 15 minutes, wring out, and again put it into the lime liquor and work in it for 10 minutes, and then wring out. Afterward scald 6 lbs. of chipped logwood with 15 gallons of boiling water, and work in this for 20 minutes, and then give the cotton 3 turns in 15 gallons of cold water, in which 1 lb. of copperas has been dissolved. Soap it with 1 lb. of soap in 20 gallons of warm water, and wash off in cold water and dry.

To dye brown, proceed as above, only with 4 lbs. of the extract, and in the morning take the cotton out and work it for 30 minutes in 20 gallons of cold water, to which add 2½ pints of red cotton spirits. Then wash off in two cold and one warm waters. Then scald 7 lbs. chipped logwood with 15 gallons of boiling water, and let it cool a little, and then work the cotton in it for 30 minutes. Take the cotton out and add 1 lb. of alum to the bath and work the cotton again for the shade required. Wash off in cold water, and dry.

By red cotton spirits is meant a compound of about 2 parts of aquafortis to 1 pint of spirit of salts, to which black tin is added for the purpose of killing it before using. The quantities directed to be used of the several aniline dyes are applicable to the usual commercial strengths. —*European News.*

### EXPLOSIVES.

"Giant Powder."—The distinguished scientist who first demonstrated to the world the terribly effective energy of nitro-glycerine was by no means discouraged at the disastrous results which followed; but, like a true follower of science, at once set himself to work to seek out the hidden cause of its danger, and apply the proper remedy. His efforts were crowned with most unexpected success, and the same explosive has now been introduced in a modified form, which is far safer than common powder, while it still retains the full efficiency of the original compound. We have no time to pass in review the steps which have gradually led to this result, or the experiments by which its attainment has been proven. It is sufficient to say that the result is an accomplished fact, and Mr. Nobel has coined a new word to give his compound an expressive name—*dynamite*. The dynamite of Europe is the "giant powder" of California. It is simply a new form of nitro-glycerine. A peculiar infusorial earth, finer than the finest flower, and yet consisting of the silicious coverings of what were once a shelled animalculum, are saturated with this oil, and we have a brown powder looking more like fine