

oil; 600 grams (21½ ozs.) tannin. The proportions given are for a medium red.

The yarn is entered in the bath, handled in it for one-quarter hour without heating, after which the temperature is gradually raised up to 35° C. (95° Fahrenheit) during the second one-quarter hour, up to 50° C. (122° Fahrenheit) during the third, and up to 65° C. (149° Fahrenheit) during the fourth. At this degree of temperature the bath is completely "exhausted," that is it becomes colourless; but the heat is maintained for one-quarter or one-half hour longer, in order to fix well the colouring matter upon the yarn. Rather better results are obtained by leaving the cotton yarn in the bath for a longer period and at a higher temperature. We expressly recommend dyeing in the cold during the first one-quarter hour to avoid the sudden running up of the alizarine, which would produce an uneven colour.

The yarn is then withdrawn from the dye bath, left to dry and cool, and rinsed in running water. It is then dried and passed in a new oil bath composed of 1 part Turkey red oil and 15 parts water. The yarn is moved in cold for one-quarter hour, wrung, and dried for 12 hours in the stove at 60° to 70° C. (140° to 158° Fahrenheit); then, so as to fix the oil upon the fibre, it is again steamed for one-half hour, as stated above. Next follows—

The Brightening.—In dyeing ordinary reds upon cotton yarn, a new oil bath, after dyeing, can be dispensed with, when immediately after dyeing the yarn is rinsed, dried, and steamed for one-half hour. A bath of ordinary soap heated to 85° or 90° C. (185° to 191° Fahrenheit) suffices for these colours. For dyeing the yarn yellowish red, a mixture of 85 parts alizarine (I. D.) and 15 parts alizarine V 2 a (bluish) is advantageously employed.

By mixing these two brands in proper proportions all the shades desired are produced.

The brightening is for the purpose of giving brilliancy to the color, which on being withdrawn from the dye bath, is of a brown red color, without any vividness. For this purpose, the yarn is placed into boilers similar to those used in the boiling-off operation, and into which the following mixture, proportioned for 100 kilograms cotton yarn, is introduced: 1,200 liters (317 gallons) water, as free from lime as possible; 100 to 400 grams (3½ to 14½ ounces) of carbonate of soda (calcined soda); 4,500 grams (10 lbs.) white Marseilles soap; 100 grams (3½ ounces) of tin salt. The boilers are closed air tight, and kept at a boil for 3 or 4 hours under 1½ to 2 atmospheric pressure; the yarn is then lifted, drained, and after cooling down, "whizzed," and dried.

The quantity of soda carbonate to be added to the water is very variable; its purpose being to precipitate the lime, its proportion is to be graded according to the calcium contained in the water. The carbonate of soda is first added to the water, and only after it is well dissolved, and has operated upon the water, the soap and tin salt are added. Solution may be accelerated by heating the water.

It is preferable, although not indispensable, to carry out the brightening process under pressure, and an open tub may be used as well. In this the brightening bath for 100 kilograms of yarn is prepared to 2,000 litres, (528 gallons) water, 1 to 2 kilograms (2 lbs. 3½ ozs. to 4 lbs. 6½ ozs.) carbonate of soda, 7½ kilograms (16 lbs. 8½ ozs.) white Marseilles soap, and 120 grams (4½ ozs.) tin salt. The temperature is gradually raised to 85° C. (185° Fahrenheit), and at this maintained for three quarters of an hour.

In place of tin salt, bran may be used for the brightening in the closed boiler, as well as for the ordinary soap bath. Equally bright tones are obtained by this manner of brightening.—C. E. M. in *Teinturier Pratique*.

Wool is cheaper in America than in any European centre. Prices must be equalized by and by, which will mean an advance in prices in this country.

WOOL SUPPLY IN THE ARGENTINE REPUBLIC.

CONSUL BARKER, of Buenos Ayres, reports that the wool season of 1885-86 in the Argentine Republic already exhibits a large deficit in the returns for the previous year. The reports of this season from October 1st to July 15th are 281,000 bales against 315,000 for last year. The apparent shortage in the wool clip is about 30,000 bales. The deficit is in reality, however, much larger than this, as every year heretofore there has been an average balance of 20,000 bales carried from one clip to the next, while this season there is no stock whatever on hand; so that the actual deficit is upwards of 50,000 bales, equal to upwards of 30,000,000 pounds. The prospect for the approaching wool clip (1886-87) is thought to be still more unpromising. The winter has been very severe on the flocks. The next clip, it is predicted, will be 75,000 bales, or 45,000,000 pounds, below that of 1884-85.

SOAP FROM WOOL GREASE.

(Bradstreet's)

FRENCH chemists are said to have solved the problem of the utilization of the heretofore waste grease from scoured wools by using it to make soap. The fat having been heated to the melting point absorbs certain compounds of sulphur, to the extent of retaining in a fixed state one hundred times its volume of sulphurated hydrogen. When the fat is allowed to cool it is found to be soap. The combination of substances destroys the unpleasant odor of each, the mixture being fine and homogeneous. In the report of Consul Williams, at Rouen, giving these particulars, it is stated that manufactured soap of this kind has already become a commercial product in France. It is not a toilet soap, but so cheap that it is likely to displace soaps based on soda for many important uses, "particularly in vine culture and horticulture as a defence against the insects that prey upon plants."

ALL the factories in Augusta, Ga., are to start up now, after a strike in the Augusta Mill of over three months and a lockout in the others of over two months. By the agreement between the Southern Manufacturers' Association and James A. Wright, representing the executive committee of the Knights of Labor, the pass system and petty tyrannies complained of are to be abolished. No former employee will be deprived of work on account of his connection with the Knights of Labor. All future difficulties will be settled by the arbitration of a committee to be composed of two mill presidents and two employees, and in case they do not agree the committee to select an umpire, employees to continue work pending adjustment; and in the case of the discharge of an employee for cause, the position or machine of such employee is not to be boycotted.

A DISCOVERY that may lead to important practical results has been made by Walter Hempil, a German experimenter, in the observation that the quantity of electricity furnished by a machine increases considerably when the latter works in an atmosphere of compressed air.

THERE are several new houses in New York city that are only fifteen feet wide. A large and pleasant entrance hall, with a fireplace and ornamental staircase, occupies the whole width of the house and extends twenty-two feet back. The kitchen is in the rear, and the parlor and dining-room on the second storey.

A BERLIN (Germany) mechanic has invented a handy appliance for detecting leakage of gas from house pipes. It consists of a small pipe bent twice at right angles and connected with the service before and after the main cock. A small glass bulb partly filled with a mixture of glycerine and water is placed on this pipe. A tube dips into the liquid in the bulb, and is so arranged that any gas passing through the small pipe bubbles through the liquid. The bulb is also provided with cocks at its inlet and outlet. If these latter are opened and the main cock closed and the burners shut off, any bubbles in the liquid show a leakage of gas in the pipes or fixtures beyond.