twisted at home. And while we may not be just as hard pressed by outside authority, we must not relax one whit our efforts to give the best that can be got. We are generally confined to warp yarns on the rings, and when we get into the custom of spinning a long time for a certain class of goods, we naturally come down a peg or two in vigilance, and let things remain as they are. There is no spinning master who will not admit the truth of this assertion, and further, who will not deny that he has often been caught napping under the security of uninterrupted leisure. While on warps he generally and without indulging, has a pretty "soft thing," so far as twist is concerned, a man who has been used to spinning warps all the time has but few qualifications for the difficulties attending the making of filling on frames. This method of producing shuttle pirns is becoming more general, and is likely in time to supersede the cop made in the old style. The spinning of it on rings requires a degree of knowledge which is seldom exercised on warps, especially those woven on the premises. No, no. The warp spinner, who gathers his information regarding twist and measures it by what he has learned in books and by the spells of ease afforded him between changings, is not the man to take charge of filling frames. He has got inured into him an idea which, in defiance of every effort to the contrary, will make its appearance to the detriment of the filling he produces. What is there, then, in filling that makes it so much more difficult to handle on a spinning frame than warps? In the first place, the former is not dressed for the loom, but enters into the cloth as it comes from the frame. It must, therefore, according to the natural characteristics of the fiber, partake to a certain extent of furriness. Now, these short outstanding fibers fill up spaces in a very serviceable manner. It will not do, therefore, to twist them down; they must be left soft to render the best feeling, as well as give the closest appearance. This idea is carried out still more thoroughly by having the twists reversed. By using opposite twists it will readily be seen that the combination will allow a prompt and facile compression.

TANNIN FROM THE DOCK.

What may prove to be a valuable discovery was made at the Colonial College, Hollesley, Suffolk, Eng., viz., that the dock is an important source of tannin, has created much interest throughout the country, and through the kindness of the secretary of this institution we are able to give full particulars. It was suggested by a former student of the college now in California, that canaigre could be grown with advantage in England. When the specimens of the plant forwarded by this gentleman arrived, the director of the college noted their practical identity with the too well-known English dock and naturally looked for similar if not necessarily identical chemical characteristics in the native plant. The roots of various varieties of dock were tested for tannic acid, and quantitative analyses were made comparing the percentages with those of canaigre, oak bark, valonia, and other recognized tannin materials. The difficulties connected with the quantitative estimation of tannic acid are well known to our readers, and making use of Loewenthal's method improved by Proctor, widely differing percentages were got, even with specimens of the same variety, the differences seeming to originate in the conditions of growth and the method adopted of drying the samples. The native plants were estimated along with a standard solution of commercial tannin and the highest quantity of tannic acid found in the Suffolk dock was 21 per cent., the sample of canaigre sent from California containing 36 per cent. It is not of course absolutely taken for granted, but there is reasonable hope that the English dock, which requires little or no labor in cultivation, may henceforth be a source of revenue to the farmer and a favorite tannin material in commerce. The college has received so many communications on the subject that it has been found impossible to answer them individually, and this shows that the interest in the matter is widespread

BLACK ON MERCERIZED COTTON.

The two dyestuffs Diamnogene B and Diaminogene extra have now been extensively adopted for the dyeing of cotton goods, and particularly of mercized cotton goods, which hitherto have been dyed with aniline black, for instance cotton linings, etc., state Leopold Cassella & Co. The most essential advantages offered by the dyeing of such goods with Diamnogene blacks are, the makers state: Their equality in rank with aniline black as regards shade and fulness; a simpler and safer method of dyeing; the absolute immunity from all danger of tendering the fiber; their fastness to storing. Practical experience has also proved that dyeing with Diamin[illegible]ene blacks does not entail any greater cost than the oxidation black process, they also state. Although hitherto the diazotizing and developing process has already been carried out on machinery allowing of a continuous working, the dyeing is still done on the jigger and in some cases on the winch.

We give full particulars of a process by which the dyeing with Diamnogene blacks can be done in a continuous manner, the details of which will be found in the following. The dyeing machine consists of three combined vats of the following dimensions: Height about 4 ft., length about 2 ft. 8 in., width according to the width of the goods to be dyed. These wooden vats are provided with guide rollers, and over each vat wooden squeezing rollers, padded in the usual way, are suitably adjusted. Above the vats a feeding tank is placed, containing the dyestuff solution to be used for additions. A coil is placed near the bottom of each vat to heat the bath. The heating of the latter with indirect steam is preferable to heating with direct steam, as it will avoid dilution of the dye-bath; at the same time the steam pipe may be provided with an arrangement for introducing direct steam when required. This will allow of heating up the bath quicker for the start, whereas the indirect heating should follow as soon as the boiling point has been reached. The speed of working should be such as to cause 45 revolutions per minute for the squeezing rollers of about 6 in. diameter; in this way a production of about 1,100 yards per hour will be attained. Should a greater production be desired, the passage has to be lengthened by adding a fourth vat, or if less production should be wanted, two vats will prove sufficient, the same being worked at a proportionately slower speed.

Fill the vats up to half with water, heat and charge each of them with (for narrow goods)—7 oz soda ash, 4 lbs. 6 oz. Diaminogene B, pat., 1 lb. 10 oz. Turkey-Red Oil, 4 lbs. 6½ oz desiccated Glauber's salt; (for wide goods) —14 oz. soda ash, 8 lbs. 13 oz. Diamnogene B, pat., 3 lbs. 5 oz. Turkey-Red Oil, 8 lbs. 13 oz. desiccated Glauber's salt. First put in the soda, then the dyestuff previously dissolved in hot water, boil up, then add the Turkey-Red Oil, and finally the Glauber's salt. The quantities given for the first bath need not always be strictly adhered to; modifications will and can be made, according to the quality of the goods to be dyed, and according to the time allowed for the passage. On the average, however, the quantities mentioned will be found suitable for the first trial; the examination of the first few pieces will show whether a further addition to the bath, or a dilution of the same will be required.

The additions to the dye-bath during the dyeing process are regulated by the weight of the goods to be dyed, and the following proportions should be adhered to: For every 100 lbs. of cotton (dry weight) take—8 oz soda ash, 3½—4 lbs. Diamnogene B, pat., 8 oz. Turkey-Red Oil, 3½—4 lbs. Glauber's salt.

Under normal conditions the solution to be added to the dye bath may be prepared in one pan and the dye-vats may be