

as compared with, say, 20,000,000 spindles in this country. Should, therefore, the English mills remain stationary, the two countries would in the course of ten or twelve years be about equal in their facilities for cotton manufacture, if we assume, as already stated, that the number of American spindles will increase at the rate of 2,000,000 annually during that period. There appear to be no apprehensions by manufacturers of an over production, as they seem to confidently calculate on a proper development of market opportunities now presenting themselves in the Far East.

South Carolina is rapidly taking a prominent position as a cotton manufacturing state, as reports from official sources show that during last year there were 26 new cotton mills chartered with a capital of about \$5,650,000, 16 mills before established also increased their capital by several million dollars, making the total aggregate capital put into cotton manufacturing during the past year \$9,079,000. Other southern states have also had good records, carefully prepared statistics showing that there are now invested in southern cotton mills \$125,000,000, and that these mills yearly consume about 1,400,000 bales of cotton, nearly one-sixth of this year's cotton crop, and it is predicted that in four years' time half the American cotton crop will be consumed by southern mills.

FINISHING HALF-WOOL FABRICS.

Many colored half-woolens are fulled immediately after leaving the loom. All the better grade goods, however, receive a further treatment. They are washed in the wash machine with soda and soap (to which, in the case of more delicate goods, an addition of ammonia is made), until the bulk of the dirt is dissolved. This can be recognized when wringing with the hand, the impurities clinging to the latter rather tenaciously in partially dissolved masses. If the threads be clean at the places desired, rinsing is done, and the goods brought as quickly as possible into the hydro-extractor, so that there will be no bleeding of the wool or cotton colors. Next follows the milling, which, as the cotton warp does not full, is performed breadthwise. The use of the sousing apparatus must be dispensed with. After milling, washing and hydro-extracting are done in the usual way. In case the goods are not immediately carded, they must instantly be dried. Only cleaned cards should be used for carding. As the goods are generally but slightly carded, it is sufficient to have from two to three 2-set dull cards. Let the goods run over each card breadth from two to three turns, first in line, and then two or three turns on such side against the line. Cards are then changed, and the manipulation is repeated. For line carding, a fresh set of cards is stuck; card first a few turns upon the first side, change the cards, again card from one to two turns, and then give full water from the spray pipe, while the goods run a turn. Then wash two turns with the addition of water; then again with water so long that everything becomes uniformly moist. In conclusion, stroke with from one to three turns. If insufficient dull cards be at hand, take, between the second and third rows, next to the old, a fresh card-row, filling it with holding flocks.

Drying is done soon after carding. In shearing, the hair is but little shorn, and merely to give a uniform appearance and a round shear. The cylinder is set so high that when the goods first go through, a moderate cut is observed. One may then go a little deeper. Care should be taken, however, not to go too far, as these goods will become considerably shorter in the further stages of the shearing, without having the cylinders set deeper. It is easy to incur the danger of getting the shear too short, which is all the more undesirable, as half-woolen cloths

cannot be improved, like all-woolen, by subsequent carding. The position of the knife, in case the table inclines frontwards with its upper edge, should be a somewhat elevated one towards the front, and the edge of the knife must in no case be allowed to come behind the edge of the table, but rather in the middle of the same. After shearing, nap and brush. Follow with a sharp but not too hot pressing.

White goods intended for piece-dyeing are, as usual, milled without being previously cleaned, stronger and more soda-containing soap being used than in the case of wool colored goods. After milling wash, whereupon the goods may lie wet, without having to be dried. One should, however, wash out very carefully, and free the goods from all grease, oil, etc., by the addition of ammonia, so that no cloudy appearance will result in dyeing. In milling, we must keep in mind that the goods will still further shrink by reason of crabbing, dyeing, etc. The further treatment will be according to the sizing, particulars of which it is desirable to obtain. In the close shearing of worsteds, the process is the following:

Pure worsteds are not milled, and carding is also dispensed with. Imitation worsteds, on the other hand, after being washed out, are brought on the carding machine, where the upper felt covering is removed. The carding is to be undertaken with as much moisture as possible. The pieces then come direct from the carding machine—that is, in a wet condition, and breadthwise—on to the steaming machinery, where they are best steamed in horizontal position. The goods are then cooled on the roller, washed, stroked, sheared, boiled in hot water, or in the case of flabby goods, strongly steamed on the roller. Then the goods are dyed, be it in one bath or several. It is recommended to use the jiggers for this purpose. The goods with stripe finish are treated in a different way. Here carding plays the principal part. They must be repeatedly carded, stroked, sheared, etc., whereupon they are subjected to the steaming process. After dyeing, says the *Deutsche Farber Zeitung*, wash, then card, stroke, dry and shear. The pressing should be done lukewarm, in order that no fatty gloss will form, which will readily supervene on account of the cotton.

TEXTILE INDUSTRIES IN SAXONY.

Textiles have taken, in recent years, first place among Saxon industries, says the special correspondent of The Hosiery Trade Journal. Saxony is a kingdom of less than 4,000,000 souls. It is hundreds of miles from the sea, was once famous for its wool, woods and mines. To-day fully one-third of the people participating directly in the German empire's textile trade are located within this little kingdom, and more than one-third of all the people in Saxony are employed in the textile industries.

One very interesting feature of industrial life here is the so-called house or home industry. Hundreds of dozens of gloves, hose, underwear, laces, embroideries, etc., are made in the home. In recent years the movement towards the mills has been gaining strength. Whereas in 1895, 113,341 hands were in the mills, 1895 found 165,459 in the factories. In 1886 the horse power accredited to stationary engines in the textile industries of Saxony was 33,352; in 1895, 81,292. Add to these a very considerable horse power produced by water. The average producing power of the help has been happily augmented by improved machines. Wages went up in recent years, the last five or six fully 25 to 30 per cent. The assertion—argument one cannot call it—advanced by the enemies of Saxony that it is unable to beat its competitors in the world's markets because of low wages, is without foundation in fact.

Saxony's success is due to its marvellously trained help, to