

21,000 bales of 450 lbs. each per annum. The Turks also have increased their production very largely. From 1863 to 1873 about 25,000 bales were exported from Constantinople yearly. From 1873 to 1883 about 33,000 bales was the average, while from 1883 to 1893 it was about 40,000 bales. Since 1893 the exports have averaged 42,000 bales yearly. The bales from Turkey weigh 170 lbs. each.

TO PRESERVE THE SOFTNESS OF WOOL IN DYEING.

(Translated from *Leipziger Monatschrift für Textil-Industrie*.)

Not less important than the quality of the wool itself, and next to the sorting and washing processes, when it is desired to obtain soft goods, is the dyeing operation. It happens occasionally that the properties of the staple necessary for soft goods, as well as its appropriate treatment in sorting and washing, are nullified in the dye house. Too many experiments are now being instituted with large amounts of various kinds of mordants, all of which have a more or less corrosive action upon the wool by making it harsh and brittle, and diminishing its natural softness and pliability, as well as its felting capacity. The strength of the wool is also impaired by these corrosive agents. This can be readily seen in the fulling of the cloths, especially when the felting capacity of the wool used for the weave is to be developed to its highest degree. The fibre having become brittle, can no longer withstand the pressure and strain, as well as the friction of the working parts of the fulling mill, and it will break. These goods, besides lacking in softness and pliability, lose largely in weight in the finishing operation, and the manufacturer, therefore, suffers loss from two sources. The careful manufacturer, who desires to produce such a line of goods, which are at the same time to be exposed to a strong fulling, should remember that cloth which has to resist a strong fulling is not to be treated with such excessive quantities of mordants that softness, pliability and strength are impaired. It is marvelous to what excess dyers will occasionally go in this respect. One dyer recently published a mordanting recipe for black in which he used 24 per cent. of the weight of the wool in mordants.

Another very essential point to observe in preserving the natural properties of the wool after dyeing is the time during which it is left in the mordanting and dye baths while these are at boiling temperature. Finally, it is important to know whether the necessary quantity of mordant and dye liquors is provided for the lot to be dyed in order that it may expand sufficiently in the two baths. Two hours' boiling in the mordanting bath is decidedly too long for the wool, even under normal conditions, and especially when the bath contains an unduly large quantity of mordanting agents. A moderate boiling from $1\frac{1}{4}$ to $1\frac{1}{2}$ hours is amply sufficient for preparing the staple for the subsequent process of dyeing, so that it will absorb the dyestuffs. Too violent a boiling can never result to the advantage of the wool, but will invariably injure it. An insufficient quantity of the liquor will make the staple not only brittle, but cause it to lose its softness, and its felting capacity is materially deteriorated. In the dye bath the wool may be subjected to boiling for about the same length of time that is required in mordanting, but it is obvious that this general rule must often be departed from. When dyeing to the shade of a given sample, additions to either the one or the other dyestuff cannot be avoided. When forced to do this, even though the extra boiling be ever so short, it must be continued until the added dyestuff is fixed on the fibre. If this subsequent boiling is done moderately, it cannot greatly injure the wool. Prolonged boiling evaporates the dye bath, and since the dyer is apt to concentrate his attention on the shade to be produced, he may overlook this fact to the detriment of the wool.

Regarding the different working arrangements of the dye house, the oldest system of heating, the open fire, might be considered one of the most rational, though it is inferior to steam heating. The wool, if correctly treated, remains soft and open—a feature frequently wanting in that treated by direct steam heating, since the

portions of the wool lying nearest to the steam feed pipe often become felted by the action of the steam.

The direct steam heating system possesses one merit, that the dyer is able to regulate the boiling in the kettle or vat to a nicety; but this, however, does not prevent the felting of the wool. This system of dyeing gave way, however, to that of indirect heating with steam, by which the direct contact of the wool or material to be dyed with the heating steam was avoided. In kettles this heating is obtained by using a false bottom, between which the steam exerts its heating effect, and in vats by a finely perforated copper sieve bottom, which is placed over the heating coil, whereby the wool is protected almost entirely from the action of the entering steam. This last system of indirect steam heating may be considered as the best in general use. Although Obermayer's system, which was introduced a few years ago, may justly be regarded as superior, it has not been adopted extensively. The cooling of the wool at the right time after it issues from the mordanting or dye bath, is an important point to observe. As soon as the wool has been withdrawn, the dyer's first care must be to drain it as quickly as possible from the dye liquor, which is best done by placing the baskets high and upon their lower edge. When no more liquor drips off, the baskets must be emptied at once and the wool drawn apart with hooks, so that it will cool well and quickly. If this is omitted, or if the wool is left in the baskets, dry vapors will develop in the hot wool which have an injurious effect upon the softness, elasticity and strength of the fibres, and produce that condition generally designated as "burned or scalded." It is correct to let the mordanted wool cool for twenty-four hours before it is entered into the dye-bath, because the prolonged influence of the mordanting agents upon the staple will better prepare it for the reception of the dyestuffs than when it is entered immediately after coming from the mordanting bath. It is all the better if the mordanted wool can be spread out to permit the admission of the air to every fibre. Dyers should lay due stress on this, because it is of great assistance in the preparation of the wool for the actual dyeing process.

MOVEMENTS OF TRAVELLERS.

Among the recent arrivals in England of travellers in the dry goods and kindred trades, are the following: A. H. Hardy and W. Greenshields, Greenshields, Son & Co., Montreal; William Kisson, Caverhill, Kisson & Co., Montreal; G. A. Woodhill, Kenny & Co., Halifax, N.S.; H. J. Caulfeild, Caulfeild & Co., Toronto; H. L. Smyth, H. L. Smyth & Co., Montreal; F. X. Garneau, P. Garneau Frères, Quebec; James Slessor and his son, W. P. Slessor, James Johnstone & Co., Montreal; E. St. Pierre, Thibault Bros. & Co., Quebec and Montreal; E. Guiguère, Shehyn & Co., Quebec; J. Daoust, Montreal; John Lillie, Wyld, Grasett & Darling, Toronto; Henry Macartney and V. de V. Dowker, Gault Bros. & Co., Montreal; George Kent, McMaster & Co., Toronto; J. E. Bizzoy, Knox, Morgan & Co., Hamilton; A. J. C. O'Brien, Toronto.

The following departures for Canada are recorded. J. Sander-son, John Macdonald & Co., Toronto, Thomas Alison, Toronto; A. Hewat, McMaster & Co., Toronto, A. Murray, A. Murray & Co., Hamilton, R. Ackerman, L. A. Brais & Co., Montreal; J. T. Donnelly, Montreal; J. W. Reid, Ottawa; G. H. Smith, Manchester, Robertson & Alison, St. John, N.B.; T. Bilsbury and W. E. Williams, Canadian travellers for Rylands & Sons, Manchester.

Several dry goods travellers were on the steamer "Mariposa," which was wrecked in the Straits of Belle Isle, but were picked up and taken on to England by the "Sardinian."

LATF reports from Batley, Yorkshire, state that the cloth manufacturers there are well off for orders, some firms having what will keep them going for six months, and others well into the next year. Two large manufacturing premises, which have been standing idle, have found new owners, and are expected to be soon set to work again.