soaping machine, which can be adjusted to give the cloths exactly the moisture desired, wet them evenly, and avoid any waste of the soap. Another advantage of the soaping machine is that the interior of the fulling mills is always free from surplus soap, rendering them easier to clean and less liable to decay and get out of repair, than when constantly coated with surplus soap, as is the case when the soaping is done in the mill. If, however, the soaping must be done in the mill it should be turned in gradually, at the back of the mill, while the goods are in motion. It is well to turn it in slowly, allowing the cloth to go around several times while putting on each pailful, thus insuring uniformity of moisture, which cannot be secured by dumping it in carelessly.

Sufficient quantity should be applied, so that by a gentle wringing of the cloth it will make its appearance on the outside or upon the hand. Rather than run the risk of getting the cloth too wet, which will hinder its being properly felted, it is best to stop a little short of the estimated amount required, allow the goods to run eight or ten minutes to get the soap thoroughly equalized, and then supply what more is needful. By adopting this method you may avoid the possibility of over-wetting, which is otherwise liable to occur, on account of the variation in the weight and yardage of the goods from the loom. The goods being once properly soaped, it must not be supposed that they will require no further attention on this point.

There is always a tendency for the goods to dry to some extent while running, besides which, when they begin to be fairly felted they will carry, and should have more soap than at the start. At any time during the process if they fail to show an appearance of soap by a gentle wringing of the cloth, a little more should be added, always being careful never to get them so wet that they will show the soaping streaks or a lather upon the surface of the cloth without the wringing test. Equally important with the moisture is the matter of temperature. The soap being applied cold, the mill should be closed, and remain closed until the goods become well warmed up, after which the temperature should be regulated if necessary by opening the rear doors to regulate it.

How warm they should be allowed to become is a matter to be left to the judgment of the finisher. Special care should be observed that they are not allowed to overheat, which will prove injurious to both the color and the fabric. Goods intended for a face finish, such as broadcloths, beavers, kerseys, etc., should be run at a moderately low temperature, to secure a good, compact felt. In giving the mills ventilation, it should be done, if possible, wholly by opening the back doors. By opening the front doors the rapid motion of the cloth will draw in a current of air, lowering the temperature very rapidly. Above all things, it should be the constant aim of the finisher to regulate, as far as possible, the moisture and temperature, so as to secure uniform result, and to do this will require a careful and trusty man to observe the points suggested in this article.—Cassimere in Wool and Cotton Reporter.

## MINOR TEXTILE FIBRES.

The last of the series of textile lectures was given in London, Eng., recently, by A. E. Garrett, F.R.G.S.

Jute and Sisal Grass—Referring briefly to jute, Mr. Garrett said it was obtained from two different species of plants, both of which belong to the order Tiliaceæ (elm tree). The order embraced several genera, the bark of which yielded fibre, but the corchorus was the most remarkable, as it included the two species of fibre producing the entire jute of commerce at the present day. In 1795 Dr Roxburgh showed bales of fibre prepared by himself from the stalk of one of the two species of jute plants, but its cultivation appeared to have been going on a great number of years before that year. The greatest jute producing district was in the lower part of the valley of the Ganges and Brahmaputra, and of late years the fibre had also been manufactured in the towns of that district. The most important centre of the industry in the British Isles was Dundee. Sisal grass, or henequen, had been in use in Yucutan from earliest times. There were two varieties of the cultivated plant (white hemp and green hemp) which furnished sisal—the fibre taking its name from the old port of Sisal from which it was first exported. The export of sisal grass from Yucutan during the ten years ending December 31, 1898, was 583,000,000 tons.

The Mohair Industry.—Dealing with mohair, Mr. Garrett said it was now more than fifty years since Sir Titus Salt and others found out that it was possible to manufacture dress goods from the wool of the Angora goat and the llama. The late Sir Titus Salt, as was well known, built the town of Saltaire. It must be remembered that alpaca and mohair were not exactly one and the same material. Alpaca was the dress-material manufactured from the wool of the alpaca. Mohair was the product obtained from the Angora goat, which had first for its chief home the uplands of Asia Minor. The animal had since been introduced into Cape Colony, where it had succeeded so well that at the present time the Cape supplied as much, if not more, of the raw material than any other part of the world. In 1856 mohair was solely produced by Asia Minor (Asiatic Turkey), and was still known as Turkey mohair. At first, of course, the quality of the wool obtained from South Africa was not equal to that from Asiatic Turkey; but in recent years great care had been given to the rearing of the goats in South Africa, and the wool now was equal in quality to the best Turkish. The finest hair was obtained from the youngest goats, which were clipped for the first time when only six months old.

From remote antiquity the wool of the Angora goat had been used. In the Old Testament Moses commanded the Israelites to bring white silk and goat-wool to weave the altar cloths and the curtains for the Tabernacle, and in Exodus was the following text: "And all the women whose hearts stirred them up in wisdom spun goats' hair." Further, the hair of the Angora goat was woven into cloth in the time of the Persians.

Angora wool, similar to the alpaca and llama used in manufactures, attracted the attention of English merchants, and Mr. Mosenthal was successful in introducing the Angora goat into Cape Colony, the climate of which, especially that which prevailed in the dry and open districts of its plains, resembled that of Asia Minor, and was eminently adapted to the successful breeding of the Angora goat. Mr. Mosenthal undertook a journey to Asia Minor with the express purpose of procuring a flock. In that undertaking he succeeded, and finally landed his precious freight at Southampton in August, 1856, from which port the animals were sent to London and placed in Victoria Park. From London about thirty of the goats were taken to the Cape of Good Hope. The skin of the Angora goat was very soft and flexible, and from it was made in Turkey the best quality of morocco leather.

The mohair imported into England during the last three years was as follows: From Turkey, 1899, 12,400,000 lbs.; 1898, 10,220,000 lbs.; 1897, 10,700,000 lbs. From Cape, 1899: 12,800,000 lbs.; 1898, 10,000,000 lbs.; 1897, 12,100,000 lbs. And