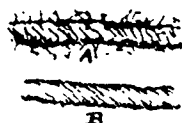


by employing different yarns and stocks. In fact the scope offered for study and display of talent in the designing of fancy figured patterns is too great for immediate comprehension, and it is a many-sided mind that can penetrate this branch of the textile industry to its boundary lines.

#### ATMOSPHERE.

A peculiarity of the atmosphere of the American continent is that it favors electricity. It does not generate electricity; it fails to pass it off as fast as it is generated by friction. Go into any card room of a cotton or woolen mill on a dry, frosty morning, before the machinery gets warmed up, and you will see the delicate strands of roving standing out from the rub-rolls in all directions, and seeking to attach themselves to whatever objects they may be near. All this is due to the inability of the dry air to absorb the electricity as fast as generated by the friction of the different parts of the machinery, particularly the rub-rolls. A damp atmosphere, however, is a good conductor of electricity, and it is on account of this fact that the possibility of running looms by electricity is feasible. For instance, go into the same card room on a moist, rainy morning, and no presence of electricity will be noticed. This is because it is conveyed away by the atmosphere, and sufficient quantity to have any effect on the fibres is not allowed to accumulate. This accounts for the comparatively little trouble experienced through electricity in European mills. The atmosphere there is so heavily laden with dampness that the electrical element is practically overcome and carried away. The effect of electricity on yarns in process of weaving is given in the illustra-



tions. A glance at these enlarged specimens of yarns will show that one is very much "ruffled," while the other is comparatively smooth and even so far as surface structure is concerned. The ruffled piece *A* has been subjected to a charge of electricity, consequently the fibres of which it is made are striking out in all directions, and the thread is far from being a good, smooth and uniform strand like the second specimen, *B*. This latter specimen, although made of exactly the same kind of material and spun at the same time, presents a far different appearance under the powerful glasses of the microscope. The difference between the two yarns is readily seen in the sketch. The reason of the difference is that the sample *B* has not come in contact with anything electrical. The surface is exceedingly smooth, when compared with that of specimen *A*, and the fibres are retained in a firm, compact form, thus making it a good substantial and easily woven thread. We cannot reasonably expect yarn, in the condition of sample *B*, to work well in the weaving process.

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#### TEXTILES IN GREECE AND ROME.

Spinning and weaving, chiefly wool, was a domestic employment of the women of ancient Greece and Rome. Cotton and silk were both known in Greece, but their cost made them uncommon wear. For a long time silk tissues were worn only by ladies of the highest rank, and in the time of the Roman emperors men who thus attired themselves were considered most effeminate. The Emperor Aurelian forbade the use of silk, and refused his empress a silken robe on account of its costliness. Various substitutes for silk were adopted both in Rome and Greece. The Island of Cos, in the Ægean, became celebrated for the production of fine transparent gauze, made by unravelling the close silk fabrics of Persia and India, and re-manufacturing the fibres. Another fabric which came into extensive use was "subsericum," in which the wool alone was silk. By the fourth century silk had become cheap enough to be generally worn by the richer people.

#### COTTON YARNS.\*

It is not my intention at this time to go into all the details of the manufacture of yarns, or to carry on a lengthy discussion of any one subject, but to point out a few of the places which are sometimes overlooked even in mills which bear A 1 reputations. Nor is this paper intended so much for those who are old veterans in a mill, but for the younger superintendents who have yet to make their mark.

The more automatic a machine, the more the tendency to depend on that machine to do the work heretofore done by the brain. This is all right, but in no case should it lead to neglect. Machines made to-day require as much care and attention as those made a quarter of a century ago. The nearer a machine is to perfection the greater the demand on that machine for not only quantity, but quality. Quantity, quality and cost are, or should be, the three watchwords of every manager or superintendent, and how to increase the two former and decrease the latter is not a study of a day or a year, but an everlasting keeping at it so long as you are in the harness. The faculty of keeping track of details and taking advantage of failures counts for much in a business life. If I am rightly informed, it is the custom of a great many mills to run the sliver through a railway head before going to the combers, but not afterwards. If the combers always delivered a sliver of uniform weight I would have nothing to say regarding this point, but they do not, and if a railway head is a good thing to regulate the weight of the sliver before going to the combers, why is it not a better thing to regulate the sliver afterwards? Although many will differ with me in regard to the value of a railway, yet I believe it to be a very necessary machine, and although many doublings tend to produce an even thread, the railway gives you a more even sliver to begin with.

\*Paper read before the New England Cotton Manufacturers' Association by John S. Adams, jr., Adams, Mass.