

established a reputation for fancy cloths that can be sold at low prices, while the mill owner of Old England puts his best efforts into the production of good plain cloths. The tastes of the Canadian and American people are very much alike, and if the British manufacturers desire to control this market they would do well to study the methods of their competitors on this side of the Atlantic. With the depression that exists in the India cloth markets, and being crowded as they are by the competition of Germany in foreign countries, the British manufacturers are paying more than ordinary attention, at present, to the trade of the colonies. Whatever goods we must import, let us import from Great Britain.

The New York Wool Auctions of the New York Wool Exchange, which according to schedule should have taken place on Wednesday, March 9, did not take place. The postponement appears to be indefinite, and not a few dealers in the local market express the opinion and the hope that the sale held February 9 will be the last. The last sale had a bad effect on the market and caused prospective buyers to become "scary"; dealers finding that while they could do a fair business previous to the last auction, since then they have been able to accomplish little. The Wool Exchange claims to have some 3,000,000 pounds of wool, which is being offered at private sale. The parcels of wool contained in the list plainly bear the earmarks of the lots offered at auction in the past, and which were undoubtedly bought in. If the system of selling wool by auction, which the promoters thought, says the *American Wool and Cotton Reporter*, would revolutionize the system of selling wool, "consists of putting up at auction and buying it back again, we fail to see its merits."

The Raw Cotton Market. Higher markets for spot cotton at the South, together with increased buying in Liverpool, has recently forced an advance in the raw cotton market in the United States. The improvement was well maintained and with few fluctuations, although a few points were lost on futures. The Liverpool price for Middling Uplands on the spot is 3 15-32d., against 3 7-16d., and July-August futures 3 25-64d., against 3 24-64d. Receipts continue to fall off, although still high compared with those of a year ago. Middling cotton at about this time in 1895 was 5 $\frac{3}{4}$; in 1896, 7 $\frac{1}{4}$; in 1897, 7 $\frac{3}{4}$; in 1898, 6 $\frac{3}{4}$.

HOW TO DESIGN A CLOTH.*

The general term "designing" as applied to textile fabrics is very often misunderstood. The general impression is that it consists in making the pattern and the necessary drafts for drawing the warp through the heads and the cards to operate them. In reality the design consists in determining the whole structure of the fabric—the counts of the warp, counts of weft, number of ends and picks per inch, weight of cloth, and a proper regard to the building of the cloth for the purpose to which it is to be applied.

What art is there in building a plain cloth, and how can a plain cloth be ornamented? These are questions which may well be asked, yet in the answer lies the gem which determines the whole principle of cloth building, for all that applies to the building or ornamentation of plain cloth, applies equally to all others, with of course, the varying conditions dependent upon pattern. It will be the simplest way to take plain cloth and a simple twill or two, to illustrate how to approach the subject.

The designer must always keep two questions before him; first, to what purpose is this cloth to be put; second, what is the nature or character of the ornamentation to be?

If an architect is designing a building, his first consideration must be stability. Whatever the building is intended for it must be strong enough for its purpose, and whatever the nature of the ornamentation it must not interfere with that stability. Cloths made for different purposes have to bear strains in different directions, as well as friction. For instance, a pair of trousers has to bear more longitudinal than lateral strain, especially at the knees; that implies that there must be more strength in the direction of the warp than weft, or at least there must not be less. In a coat, if a man has to bend or lift weights, the greatest strain is lateral—between the shoulders, hence the warp must be held firmly on the weft. In the same way in ladies' dress goods the greatest strain is, usually, round the waist, it is not necessary to name any reason, and so in all other fabrics.

Then to take a perfectly plain cloth, where the warp and weft interweave alternately throughout, and where, if in the process of finishing, each is allowed to take its own course, both will be bent in some degree, forming a series of corrugations. Then both strength and stability will be the same in both directions. That is, neither warp nor weft will slip upon the other except in the same degree; and if there is sufficient number of threads according to their bulk, these will be a fine stable cloth. Now suppose it is desired to ornament this cloth by forming ribs or cords, either in the direction of the warp, lengthwise of the piece; or in the direction of the weft, or across the piece—the conditions of structure will be entirely altered. Instead of the warp and weft being of the same bulk, or counts, one must be increased and the other decreased; and just in the ratio in which this alteration is made in bulk, so must an alteration be made in the number of threads per inch.

Suppose for instance the cord is to run in the direction of the warp; then the warp threads must be made thick or a number put together as one, and the number per inch decreased, and the weft must be made finer and the number of picks per inch increased. The reason for this will be obvious after very little consideration. The cord, or rib, can only be accentuated by thick threads and correspondingly wide spaces between them, and those ribs can only be made to look clear and be well defined by having fine threads crossing them and lying very close together. Then here comes the first danger to stability.

There is no fear of displacing the thick threads, for the fine ones will hold them in position, for the simple

* Thos. R. Ashenhurst, in the *Textile World*.