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a es ts and fibres of the requisite fineness and length to be spun into coarse yarn, which with the loss of short fibre in manufacturing, and tare of the bags and ropes, will be fully equal to twenty per cent. of its weight, thereby adding two cents per pound to the first cost; to which must also be added 14 cent per pound for railroad and mill transportation and other expenses, making the entire cost of the stock in ordinary times at the consuming mills about 104 cents per pound.

"The same stock sold from the brake machines at seven cents per pound to the proprietors of mechanical and chemical disintegrating works, to be "cottonized" for yarn suitable to weave into print-cloths or shirtings, would be subject to a loss in the respective processes of about forty-five per cent. of its weight, thereby adding about 64 cents per pound to the cost; to which must also be added 14 cent per pound for railroad and works transportation and other expenses, making the cost at the works thus far fifteen cents per pound. The cost of cottonizing, including the preliminary mechanical operations at the works, will be about four cents per pound net weight, making the entire cost at the works in ordinary times, exclusive of any charge for profit, about nineteen cents per pound.

"If any of the manufacturing trade should be apprehensive under this estimate that the difference in value between flax-cotton and cotton in ordinary times would discourage the use of the former, no matter how perfect the stock may be prepared, we would remind such, that if linen goods continue to maintain their supremacy in the market, print-cloths or shirtings made of flax cotton would probably command a price that would leave a larger difference in favor of the manufacturer than the difference of cost between the two kinds of stock.

"In the early stage of the effort to cottonize, there was a general belief among experts (including the Chevalier Claussen, and also Mr. Sands Olcott, of Pennsylvania, the pioneer in this country of flax-cotton, and who patented a flax-straw cutting machine in 1840) that it would be necessary to cut the straw into lengths comparing favorably with the length of cotton; but a critical and microscopic analysis of the constituent parts of the fibrous covering of the straw revealed the fact that the filaments of which it was composed were subdivided into cells or individual tubular fibres, of nearly uniform fineness, and somewhat variable lengths, cemented longitudinally by intercellulose, or gluten, which, while it would to a great extent resist the disintegrating power of machinery, could not maintain its cohesion against the liberating and dissolving power of tepid-water soaking, followed by long-continued boiling in mild alkaline solutions and subsequent exposure for a short time to high steam; or by boiling at a temperature of 280° Fahrenheit, with soda-ash or caustic solution, without any preliminary processes.

"It then became a question to what degree of fineness and maximum and minimum lengths of fibre can flax be safely reduced by mechanical means only; and in what way can the product of such means be successfully spun into coarse yarn on cotton machinery? These questions have been met by the owners of a number of cotton mills in various parts of the country that have heretofore been employed in manufacturing the lower and coarse grades of cotton goods. Some of these mills, especially those that are located in flax-growing regions, began with tangled straw, and carried it successfully through draught-roller brakes, dusters, and wool and cotton pickers, thereby preparing their own stock; while others situated remotely from such districts have preferred purchasing their supply in bales, of parties residing there who have made the preparation of such stock a special business. The latter mode of obtaining it, besides being in accordance with the views of the commission, seems best adapted to encourage the alteration of this class of cotton mills into flax mills; and also for supplying flax disintegrating works with material to be transformed into flax-cotton for use by a higher class of cotton mills in the production of fine linen goods.

"In determining the question of length of stock by means of preparatory machinery, it has been found impracticable to obtain, by any combination of machines yet employed, maximum lengths of fibre less than about three inches, without reducing the minimum lengths shorter than the fibres of cotton; and hence it became necessary to depend for the further reduction of the maximum lengths upon modifications of the machinery at the mills as arranged for cotton. To this branch of the subject the commission has given much attention, but as a report of our investigations is expected in time for distribution soon after the closing of the present Congress, we have reductantly suspended our labors without obtaining as full results as the magnitude of the inquiry