

A rotary fan forces the air into the bottom under the pipes, and through the flax, thereby rapidly removing the moisture. When it is sufficiently dried by this arrangement to allow the fibres to slide apart without sticking to each other, it is passed through an opener which consists of a horizontal cylinder covered with needle-pointed card clothing, with workers covered in the same manner, and placed under the main cylinder, which makes about one thousand and four hundred revolutions a minute, and throws the stock into an adjoining room. The flax is then carried through ordinary gambрил cards, and taken off by a railhead with large and strong-corrugated iron rolls, held together by rubber springs, to pull apart any remaining long filaments. It is then passed through a lapper and a fine gambрил card, and baled for the market. The mode of preparing this stock, the steaming cylinder, and a considerable portion of the machinery used, are patented, and the entire apparatus is built by the patentees and their partner, Mr. Rice, at Claremont. The price of the apparatus (at present cost of labor and materials) for one thousand pounds of fibre per day, is about fifteen thousand dollars. Parties who may desire to embark in the manufacture of linen goods from stock prepared under the patents of these gentlemen would probably do better, in the beginning, to buy their stock from the owners of disintegrating works.

"There is a difference of opinion among those who have made microscopic examinations of the texture of flax fibres as to their composition. While all agree that they are cellular, and have transverse lines at variable distances, some think the lines are pores through which the interior moisture is evaporated in drying, and that the cellulose structure differs essentially from the structure of the intercellulose to allow the decomposition of the latter without injury to the former; others that the transverse lines indicate the growth of the cells, like cane joints; and that the composition of the cells is so nearly akin to the composition of the intercellulose, that both cannot be more than partially decomposed without so materially impairing the strength of the former at the marks, and intermediately, as to render them too weak for manufacturing. It is evident to us that the union of the cellular and intercellular matter is so thorough that while the former may be relieved from the tenacious hold of the latter, there should always be left enough of the intercellulose adhering to the cellulose after disintegration to keep the cells together until they are separated, if in a moist state, by sliding them apart through the intervention of pulling rollers; or if in a dry state, by the application of a picker to break them apart. The probability is that if the decomposition of the intercellulose is complete, or nearly so, the fibre would be much injured, if not destroyed. Hence the absolute necessity, in cottonizing, of using unretted flax, which always has fibre reliable for strength in any high steam process of disintegration if properly prepared.

"The opinion of the commission has often been asked upon the relative durability of goods made of long-line flax, or flax-cotton, and the relative strength of goods made of the latter to goods made of cotton. From such examination as we have been able to give the inquiry, we think that goods made from sound, long-line stock, when new, will be stronger than those made of well-prepared flax-cotton, in consequence of the excess of glutinous or intercellular matter in long-line yarns; but that as flax-cotton goods will be softer and less liable to crack when new than goods of long-line, while each ultimate fibre will be as strong, there is every reason to believe that they will be more durable, besides having the advantage of flowing more gracefully when made into garments; and as the fibres of flax-cotton are much stronger than the fibres of cotton, and much more soft and silky, fabrics made from them must not only be stronger when new, but more reliable for service than cotton goods.

"In addition to the probable greater durability of flax-cotton fabrics over those made of cotton, is the important fact of their superior ability to receive and hold colors. This is supposed to be caused by the difference in the shape of the fibre of the two plants. We have remarked that both are tubular; but the wall of a flax fibre being thick, its tubular form is permanently preserved, while the wall of cotton fibre being thin its tubular form in drying becomes flat spirally, like a twisted ribbon; consequently it presents only a flattened surface to receive and retain color; and hence it is always less brilliant, even when first dyed, than a flax fibre, the tube of which excludes the air, and by its transparency, reflects the colour strongly, while its closed condition shields the color from the fading influence of the atmosphere.

"The flax-cotton of Messrs. Fuller & Upham has been spun on cotton machinery into about No. 24, (cotton gauge), and also woven in the form of weft into print-cloth. To spin it successfully it will be necessary to alter the lapper and cards in the manner