ment being made, and those lessons of experience which the first settlers had learned in the cultivation of this plant and its subsequent manipulation, or knew before they emigrated from "home," have not been transmitted from father to son; hence the present generation, as a class have actually to be taught a portion of that valuable industry with which their fathers were familiar, and by neglect has grown out of date and perhaps out of remembrance. The State of New York cultivated 46,000 acres of flax in 1845; ten years later the area under that crop had diminished seventy-five per cent. The United States, in 1850, produced 7,709,678 lbs. of flax; in 1860, only 3,783,079 pounds, a diminution of more than fifty per cent.

In order to understand the true nature of the preparation of flax for the market, and the difficulties and chances which attend it, a brief description of flax straw is necessary, so that the object of the successive manipulations to which it is subjected may be understood.

Composition of Flax Straw.

If we examine minutely the structure of flax straw, we shall discover that it consists of five parts 1st, the epidermis or outer covering; 2nd, the bark; 3rd, the fibres, which make it commercially valuable; 4th, the woody centre, or "shove;" 5th, the pith. The "fibres" form a tubular sheath round the woody centre or shove, and are cemented together by a mucilaginous compound which it is the object of the manufacturer to dissolve, so that the fibres may be separated after they have been removed from the bark and woody centre, into delicate filaments or fibrilla. The grand object of the flax-fibre manufacturer, then, is to separate these filaments uniformly from one another by a cheap mechanical or chemical process. This is effected in a greater or less degree by the steeping, raking and scutching processes. The "steep" dissolves, after fermentation, the mucilaginous cement which binds the filaments into fibre and the fibres into a tubular sheath. The breaking process enables a considerable portion of the woody centre, or "shove," and the bark to be separated, the remaining part is removed by the scutching machine, when the material is considered to be fit for market purposes. All of these objects can be effected by hand labour, and the greater part of the flax fibre in Europe is so prepared; but hand labour in this country is too expensive, and would always operate as a bar to the extensive preparation of flax fibre among our farmers, hence the absolute necessity of performing as much of the mechanical processes by machinery as possible, if we desire to extend the cultivation of this valuable plant.

A great step has already been made in advance by the Government introducing into the country Rowan's flax-scutching machines. To this machine has recently been awarded the gold medal, from among forty competitors, at the late Agricultural Meeting at Lille, the centre of a district where the cultivation and manufacture of flax is the staple industry.

The cheapness of Rowan's machine places it within the reach of small manufacturers, and the excellent work it accomplishes, with the small amount of loss, gives it a practical recommendation of the highest value in extending the sphere of this important branch of industry.

It will be argued by many that in the present scarcity of capital in Canada it will be necessary to rely upon the farmer preparing the straw for the operation of the scutching machine; that there is no prospect of the establishment of a sufficient number of factories in districts where flax would probably be grown if the entire process, from the steep to the prepared fibre, is to be accomplished in one and the same establishment, the farmer merely supplying the straw. Although the arguments which could be advanced in favour of home steeping are very strong, yet they are far from opposing an obstacle to the gradual introduction of a modification of Schenck's process in factories especially designed for the purpose. Schenck's process is speedy, economical, reliable, and can be conducted throughout the year. It does not involve much outlay of capital, and has been actually introduced, to a considerable extent, in Ireland, where skilled labour available for the ordinary rotting process is everywhere abundant. In Ireland there are now upwards of thirty establishments at work on this principle, requiring annually from fifty to sixty thousand tons of straw.

The mode of operation is simple in the extreme; it consists in submitting the straw to the solvent action of water at a uniform temperature of 80° or 90°. Instead of the flax requiring to remain in the steep for 10 to 20 days, according to the temperature, the whole fermentative process is completed in three or four days. The operation is altogether independent of the weather, and can go on uninterruptedly throughout the year. Tanks, with a hot water pipe passing through them are all that is required. The results have been favourably reported on by the Irish Flax Improvement Society. The investigations of that body led to the conclusions that Schenck's process increased the yield of fibre, increased the strength of the fibre, and increased the quality of the linen made from the fibre. Prof. Wilson speaks of this process in the following words: "This process is so simple, and its advantages over