

Forest wealth of Canada.

importance to the country. Mr. Lefebvre began by referring to the establishment of pulp making in Scandinavia, to which most European countries now look for the raw material used in their paper mills. Mr. Lefebvre traced the revolution in the art of paper-making on the continent to the time of the civil war in the United States, where the demand for news of the great conflict led not only to an enlargement of old, but to the creation of new papers. Other publications also increased in size and number, and soon paper manufacturers found it impossible to meet the ever increasing demand for their goods. Rags, cotton waste and straw were neither sufficient nor cheap enough. Manufacturers first tried to utilize vegetable fibres and grasses, especially espartero, which they treated by the soda process. This process, perfected in Germany by the chemist Mitscherlich, was finally adapted to wood, causing a radical change in the manufacture of paper, the cost of which was also considerably reduced. In a word, wood paper was invented. But it was still too costly in production to meet the needs of the case. Further research led to the discovery of ground or mechanical pulp, which Mr. Lefebvre characterized as one of the greatest discoveries of the age. Nearly all the printing paper and a large part of the writing paper is made of wood pulp. Chemical pulp enters to the extent of thirty to forty per cent, and ground or mechanical pulp to sixty or seventy per cent in the composition of paper. Newspaper, which was sold in 1860 at 15 to 16 cents a pound, now sells for three cents. By these discoveries, the cheap journal and the cheap book were made possible.

Mr. Lefebvre said three things were necessary to the success of the pulp industry, suitable wood, extensive water power and cheap labour.

The different kinds of wood suitable for the manufacture of pulp are white and black spruce, Canada balsam, poplar, aspen and pine. Spruce and balsam are the most valuable, on account of the special quality of their fibre, and also on account of their colour. These comparatively soft woods are easily ground. Poplar and aspen have the same property, but they are faulty on account of knots and black veins, which spoil the colour of the paper. Pine is used only in the manufacture of chemical pulp. It gives a good pulp, but the process required to bleach it is rather expensive. Moreover, this wood is too high priced to be used profitably in the manufacture of paper. With the low rate of the present market for paper, pulp manufacturers require wood of small value, and, hence, spruce and balsam are the most profitable, and, in fact, indispensable in the business.

Considerable water powers are also required. To run a mill capable of producing twenty-five to thirty tons of ground pulp per twenty-four hours, takes a motive power of from 2,500 to 3,000 horse-power. The generation of such motive power by means of steam would be a costly matter, and in practice, it is acknowledged that pulp can be manufactured profitably in those places only where power can be supplied by water. Cheap labour is also an essential condition of success in this industry, which employs a large number of hands in comparison with the value of the output.

All the elements indispensable to the success of pulp manufacture are to be found in Canada, besides particular additional advantages. Our immense forests of coniferous trees contain a practically inexhaustible supply of the different kinds of wood required in this line of manufacture. They are, moreover, of a superior quality and very much sought after by manufacturers of the United States, who, in the year 1893, bought from us to the extent of \$454,253. The best proof of the excellent quality of the Canadian wood for pulp manufacturing purposes lies in the yearly increase of the American importations. Exportation to the United States was inaugurated some four years ago. The figures for 1890 are \$57,197, \$170,636 in 1891, \$183,312 in 1892, and, as above stated, in 1893, they reached the sum of \$454,253. The tables of Trade and Navigation for 1894 are not yet published, but it is an acknowledged fact that the exportation of that year extended considerably beyond that of 1893. With regard to quantity and quality, Canada therefore ranks before our neighbour, and is equally, if not better situated than Norway and Sweden, who, up to this time, had monopolized this industry, operating sixty-nine mills throughout the united countries. If the price obtained in England be taken as a criterion, Canadian wood produces better pulp than that of Norway and Sweden, for in 1893 Canadian pulp was sold in England at an average of \$24.80 a ton, as against \$20.77 for the Scandinavian product.