

THE PULP INDUSTRY IN CANADA.*

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You will notice by referring to your programme (that the title of the paper which I am to give you is "The Pulp Industry in Canada." The pulp industry in Canada embraces so much matter that were I to attempt to cover it in all its details, I would consume so much of your valuable time and attention that I feel sure you would never want to hear the word "pulp" mentioned again.

When your worthy assistant secretary first requested me to give a paper before this convention, he mentioned the fact that Mr. J. C. Langelier, Superintendent of Forest Rangers for the Province of Quebec, in his paper entitled "The Pulp Industry in Relation to our Forests," had made reference to the complete system with regard to cutting timber, which would assure a supply ad finitum for the Laurentide Pulp Company and asked me for a paper dealing with the system and organization of the operation of our timber limits, as well as the system pursued for the preservation of our forests. In reply to this request I stated that I thought a paper on the subjects he mentioned would be superfluous at the present time, owing to the fact that enormous quantities of pulp wood were allowed to leave Canada with a very small export charge, and that in the procuring of pulp wood for exportation more ruthless cutting, damage to forests and depreciation of same took place annually than the Forestry Association could hope to offset by the preservation of limits controlled and owned by the Crown or Canadian manufacturers. At the same time I mentioned the fact to your assistant secretary that I was not competent to give a paper on forestry or the preservation of forests, but that if it would be acceptable to your Association, I would endeavor to show that Canada was not pursuing a proper policy for the preservation of her forests as an asset, and also was not getting the best possible results.

As you are all probably aware, pulp, whilst being a manufactured article from wood, is still only a basis of raw material for the manufacture of paper. The two principal grades of pulp in use to-day are mechanical, or ground wood pulp, and chemical, or sulphite pulp. Mechanical, or ground wood pulp, is almost explained by its name, as the process of manufacture is very simple, consisting principally of grinding wood into pulp. Chemical, or sulphite, pulp is a very much more intricate process of manufacture, and consists in treating the wood by chemical process, and thus separating the fibres of the wood by the extraction of resinous material. In the manufacture of paper 70 to 75 per cent. of the pulp used is mechanical, and the balance, 25 to 30 per cent. is chemical. Paper made altogether from mechanical pulp would not be satisfactory for newspaper or any of the finer grades, as the fibres of the pulp are too short to give the paper sufficient strength, so that it is necessary to use a proportion of sulphite pulp, which by its process of manufacture retains the long fibres of the wood, and thus gives the strength to the paper.

The first consideration, therefore, to the manufacturer of pulp is his raw material and power. An enormous quantity of water power, on account of its cheapness, is necessary for the manufacture of mechanical pulp, and therefore it is usual for a pulp manufacturer to locate his mill at a point where there is good water power and where his source of supply of pulp wood is close at hand. A pulp manufacturer, having his water power assured and his source of supply of pulp wood for his raw material located, then figures on the quantity of raw material he will require for a season's operations. For the manufacture of a ton of mechanical pulp it takes a trifle over a cord of spruce wood, and for the manufacture of a ton of chemical pulp it takes almost two cords of spruce pulp wood. If, therefore, the pulp manufacturer has a capacity of so many tons of each kind of pulp per day, it is very easy for him to figure the exact amount of pulp wood he will require for the operation of his mills for a year. If he should have his own limits, his first step in procuring his pulp wood is to know exactly what his limits consist of and the amount of available spruce logs that are contained in same. As the Government regulate the size of a tree to be cut, he must therefore only figure on cutting trees

in accordance with these regulations. In the case of the Laurentide Pulp Company, who own such a large area of timber limits, we have found it more practicable to divide these limits into three districts, having a superintendent over each district. We have also found it much more practicable for each of these superintendents, by giving his whole time and attention to his district, to become thoroughly acquainted with all rivers, streams and lakes in same, and where the best points are to procure logs to advantage, rather than have one or two men for the entire limits, which by their large area would only permit them, to say the least, to have a superficial knowledge of it all.

Having, then, determined the quantity of pulp wood to get out in a season, and having your limits divided into districts, with a man thoroughly familiar with the conditions of each district, you determine the quantity you will get from each district. As a pulp manufacturer wants to ensure a uniform cost of his raw material for years, it is therefore bad policy for him to attempt to pick out the easiest spots to get pulp wood one year, and leave the hardest and more expensive places for a following year. Under the circumstances it is necessary for him to average this up, taking some of the expensive wood each year so as not to leave it all for future operations.

It is the policy of most pulp manufacturers to procure their pulp wood, or, at least, a large portion of it, by letting contracts to jobbers or contractors. This to my mind is a very cheap way to procure pulp wood, but from my experience the results of this method are but temporary. It has been the practice in the past to allot a certain territory to a contractor and give him a contract for a certain number of logs. As far as I can learn, the territory allotted to a jobber in the past has been much too large for the quantity of logs that his contract calls for. As a natural consequence this jobber, who has only one aim, viz., to make money out of his contract, picks out the easiest spots in his territory, and no matter whether there are some large fine spruce logs in his territory that should be cut, but which would cost him a trifle more to get out, he will leave these standing. The following year, therefore, when a contract is let in the same territory, a higher price is demanded owing to the timber being scattered and only the hard places left to lumber in, and it usually ends up with the result that no contractor will go into this territory except at an exorbitant price, and it therefore falls to the lot of the pulp manufacturer to establish his own camps and get out the remaining available logs at a very high cost. This point I wish to emphasize more particularly, and that is, when a contract is let for a certain quantity of logs the area of territory should be limited, and so thoroughly explored that it can be cleared systematically of the logs that should be cut. As contractors for logs are more or less men of moderate means, and who, if a bad season sets in and a possible loss in fulfilling their contract stares them in the face, either fall far short of their contract or abandon it, it is therefore necessary for a pulp manufacturer, in order to be safe regarding his raw material, to establish some of his own camps which will get the logs out no matter what the set-backs are. It has been amply demonstrated that a camp, or camps, operated by a company cannot get logs out as cheaply as a jobber or contractor, at least in the Province of Quebec where the timber is scattered and the country very mountainous, but the results obtained by operating camps direct are in the long run very much more beneficial than from contractors. The Laurentide Pulp Company, as mentioned before, having such a large territory, and requiring such an enormous quantity of pulp wood for the operation of their mills, have found it advisable to employ two inspectors, one for the jobbers or contractors and the other for its own camps. It is the duty of the former inspector to inspect regularly and frequently all jobbers' camps, and to see that these jobbers do not waste the timber nor break the Government regulations. He also sees that all logs are stamped and properly culled, and when he finds anything out of the way, he reports it direct to the management of the company. The inspector of the camps acts in a similar capacity, but reports on the general conditions of the camps in addition to the above.

Another bad feature of giving contracts to jobbers for logs is, that it is usual to give a contract for a cer-

tain quantity of logs to be of a uniform length. Suppose, for example, that a contract has been let for 30,000 spruce logs 13 feet in length, 7 inches at the small end and up. A contractor, when he cuts down a tree, will only make from this tree logs of 13 feet in length, and I have found from personal experience that a large proportion of these trees would permit of another log being cut from 8 to 10 feet in length, and still not be under 7 inches in diameter at the small end. This part of the tree is just as good for making pulp as anything else, but, as you know, the cost of handling and driving a small log is almost as great as a large log, and if a manufacturer only considers his immediate circumstances, and his immediate cost of raw material, he will not bother with these ends of a tree, but if he considers the fact that his raw material is worth money, and that by leaving these ends of the trees in the woods he is simply throwing away part of his assets, and in addition to this is enhancing the danger of forest fires, he will, even at a slight extra cost, have these taken to his mills with the larger logs. In the case of a company operating its own camps this should be done in any case. In the case of the logs being cut for export to the United States, these ends of trees are not considered of any value.

The next step in the cost of raw material is the handling and driving of these logs to the pulp mills, and this is a point I wish to emphasize very particularly. The cost of pulp is determined largely by the quantity produced, as the fixed charges of a pulp manufacturing concern are almost the same whether a larger or smaller quantity of pulp is manufactured. It therefore is apparent that a large pulp mill has an advantage over a smaller one, and this refers more particularly to the cost of handling and driving the logs to the mill. As you are all no doubt aware, it costs very little more to drive a larger quantity of logs than a smaller quantity, and therefore if a pulp manufacturer has a large quantity of logs to handle, it pays him to make permanent improvements on his streams, lakes and rivers so as to lessen the cost of driving operations as well as ensure the safety of the logs.

The cost of manufacturing pulp is determined largely by the cost of the raw material, viz., pulp wood, and it is natural, therefore, for a pulp manufacturer to endeavor to obtain his supply of raw material at the very lowest possible cost. In doing this, however, it seems to me that in the past, at least, it has been done at the expense of his prime asset, viz., his pulp wood limits, and he will find that each year his cost will grow greater; whereas by systematically getting a proportion of expensive wood each year with the cheap wood, and eliminating all source of wastefulness in the cutting of logs, and by making improvements so as to lessen the expense of driving operations, he will in the long run make more money and be better off than the manufacturer who simply looks one year ahead.

The raw material, or pulp wood logs, having arrived at the booms in front of the mills, their conversion into pulp is an entirely different business from the logging operations. I do not intend to go into the details of manufacturing pulp wood into pulp, except to say that so far as the pulp wood is concerned, it should be as carefully watched as coal or any other article that costs money. I fear, however, that a great deal of waste is incurred in preparing the pulp wood for manufacturing. In the case of the Laurentide Pulp Company, we allow nothing to go to waste, and even if a block of wood should come along with a certain amount of rot in it, instead, as is the usual custom, of using it for fire wood, the rot or imperfections in the wood are extracted and the balance used for manufacturing pulp.

In Canada there are more mills manufacturing mechanical pulp than anything else, and as this is a comparatively easy matter and requiring less capital, it is bound to grow considerably. The manufacture of chemical pulp is very much more intricate, entailing more expert labor, and therefore has not grown to the extent of mechanical pulp mills.

As stated previously, the manufacture of pulp is only a step in the manufacture of paper, and the object of my paper is more for the purpose of showing what Canada is losing by not manufacturing this pulp into the finished product of paper than anything else. As an example of what this means to Canada, we will commence with a cord of wood. We will say, for con-

* Paper read before the Canadian Forestry Association.