The Utilization of Hardwoods

Contributed through the Canadian Society of Forest Engineers.

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PART I

There are three general methods of logging hardwoods.

I. To erect small portable mills in the forest and haul the sawn lumber to the railroad.

II. To construct logging railroads.

III. To drive the hardwoods.

I. Portable Mill in Bush

Dealing with these in the order mentioned, let us, first, consider the portable mill in the bush. This method is so simple that for all intents and purposes, it needs no description; let us therefore weigh the advantages and disadvantages of this procedure.

The advantages consist chiefly in the simplicity of the operation and the comparative low capital required for an individual to start up this business in a small way.

The disadvantages are:

(a) A loss of 10 per cent through using circular saws instead of band saws.

(b) The mill waste is lost, as it will not stand the cost of transportation. In well-developed communities, this item amounts to about four dollars per M, and one operator cutting 100,000 pieces per year informed me that if he could have his wood as a clear profit, every year, he would be satisfied.

(c) Small mills cannot saw as good lumber as large mills. On the one hand, the carriages neither set exactly nor do they run true, and too high a percentage of miscut lumber is the result. On the other hand, the sawyers are not so good. Hardwood lumber is all sold on grade, and the prices will vary from \$10 to \$90 per M, depending upon the number of knots in the boards, the size of the knots, and the size of the boards. It takes a good sawyer to get the minimum low grades from a cut of hardwood.

(d) Logs not watered have all the sand and gravel still in the bark, which was picked up while they were being skidded. If a farmer is taking out only a few logs, he may not wear his skidding trails down into the earth; but in heavy logging, the bark gets full of sand and mud, making it very difficult to keep saws in condition.

(e) It is often advantageous to run the hearts into ties and switch ties. If the haul is so long that it must be done on sleighs the following winter, ties cannot be cut, as they would check and spoil during the summer.

(f) If operating on a large scale, it is very difficult to maintain efficiency in a scattered organization.

(g) The sphere of such operations is necessarily very limited and is probably well covered at present.

(h) It costs more to keep men in the bush in the summer time.

II. Railroad Logging.—By railroad logging is not meant skidding to the railroad, but sleigh haul to the logging railroad. In this way, a larger amount of territory can be covered with a given amount of railroad. One could never skid to the railroad with horses, because it is impossible to skid hardwood very far. This fall on my own operation, the skidding distance was limited to about 200 feet, and then the horses were nearly killed.

The advantages of this method of hardwood logging are:

You are sure of getting your logs. Certain veneer using industries must have the logs; lumber will not do; and no matter if they cost many times more than lumber, they must be had at any rate. This seems to be about the only advantage of railroad logging in hardwoods.

The disadvantages are:

(a) The cut of merchantable hardwoods is almost never heavy enough to warrant the cost of a railroad. The Dennis Canadian Company, at Whitney, tried it, and, although they were successful hardwood loggers in Michigan, they lost money practically every year they operated in Canada. Our forests seem to be too near the northerly range of the hardwoods to get very heavy cuts. So far about 3000 F. B. M. to the acre is the heaviest cut that has been personally encountered, and it was only on a very limited area. Chemical companies using cordwood, used to find railroads successful; but now the Germans have invented a syn-

Peeling Grounds and Log Landing as viewed from the Water.

Skidding Logs and Peeling at the Landing.

Hardwood Does Float.

and camp broken, unless there is a very large amount of material to be felled.

When the leaves are thoroughly wilted, the trees may be made into logs and skidded in the regular manner, the only other variation from regular softwood logging being that the logs should be placed on a dry dump and not dumped on the ice. When timber is frozen and put in water, it is bound to suck in water when it thaws out, because the frozen sap contracts as it melts, and it is wise to preserve every advantage. Logs carefully treated in this manner will float for three months with an average loss of two per cent per month.

The great advantage of this period of driving is that the logs are available for early spring drive. In small creeks and other streams where there is doubtful storage of water it is the most suitable of any means of driving.

(7) Ordinary Winter cut and peeled on the shore. The requisite conditions for this method of driving are good dumping grounds and water for a summer drive. Given these, it excels any other method of driving.

The operation consists in logging the hardwood in a manner exactly similar to softwood, except that they are placed on a dry dump, where they may be spread out one tier deep. About the first of June, these logs come into peeling, the same as standing trees, the bark may then be easily removed. They are left in this condition for the space of a week or ten days, when they are ready to be rolled in and driven.

The great advantage of this method of driving hardwoods is that a perfect product is obtained. In the first place, the logs are cut in the winter; second, they lie on the bank, not long enough for dozing or discoloration to start—they are on the shore peeled for only a short time, not long enough to check. Third, the drive ends near the end of the season when there is plenty of space in the mill pond and permits the sawing of poor floating softwoods that must come down in the spring. Fourth, the lumber is sawn late and is half dry when sawn, so that the danger of discoloration in the piles is greatly reduced.

The names of the Companies driving hardwoods and the method used, might be of value in this regard.

In the opinion of the writer, the last two methods of driving hardwoods are preferable.

• Murray and Omanique, Barry's Bay, Ont.: Winter cut and peeling on the shore: distance of drive, 25 miles.

John S. L. McRae, Airy, Ont.; Both methods used; distance of drive, 15 miles.

Muskoka Wood Mfg. Co., Huntsville, Ont.: Winter cut and peeled on the shore; distance, 40 miles.

Bethune Pulp and Lumber Co.: Winter cut and peeled on the shore; distance, 40 miles.

Huntsville Lumber Co., Huntsville, Ont.: Both methods used; distance, 30 miles.

J. D. Shier Lumber Co., Bracebridge, Ont.: Winter cut and peeled on the shore; distance, 60 miles.

Gull River Lumber Co., Lindsay, Ont.: Both methods used; distance, up to 65 miles.

John Carew & Co., Lindsay, Ont.: Felled in the woods with a strip of bark removed; distance, 15 to 65 miles.

Keenan Bros., Owen Sound, Ont.: Felled in the woods with a strip of bark removed; distance, 20 miles.

North America Bent Chair Co., Owen Sound, Ont.: Winter cut and peeled on the shore; distance of drive, 25 miles, with a total of 120 miles, counting the tow across Georgian Bay.

The Advisability of Further Research

Through the use of the above methods, any hardwoods in Ontario may be extracted at a fair profit, because the country is so well served with railroads as far north as the hardwoods extend, and they should not be driven farther than the nearest railroad. Were it possible to drive hardwood for five years without losing a log it would not be advisable to find out the method. The hardwoods would merely be pillaged, the same as the pine forests have been.

In Quebec, however, the situation is different. Pulpwood species, such as white birch and poplar must be extracted and there must be methods more suitable than the above.

PART II

(a) The Effect of the Driving of Hardwoods upon the Forest Conditions.

You are all undoubtedly familiar with the results of Dr. Howe's investigation of the cut-over limits of Quebec; namely, that the forests are slowly reverting to hardwoods, due to the cutting of the softwoods alone, with the hardwoods remaining. As a result, a sort of deadlock would be reached when the limits should become solid hardwoods. The flotation of hardwoods breaks this deadlock, so that the old trees of any species may be profitably removed, and the forest crop keeps rotating and continuously productive. With volunteer growth as abundant as we have it, all that remains to be done is to keep out the fires and keep on cutting.

(b) The Effect of the Flotation of Hardwoods upon Forestry.

When every species may be utilized at a profit, it is possible to cut over an area, return in thirty years, and get another good cut. No matter what species exists, after the thinning it receives through the ordinary lumbering operation, there will be sufficient increment in that length of time to make good logging.

A forester will be able to survey his territory, locate his cut to cover it in thirty years, and then start all over again. If he wishes to grow more of a certain species, let him protect it from over-cutting by a diameter limit and cut the others as much as possible. For example, it seems wise at present to protect the most valuable species, white and red pine, white spruce, and yellow birch, with suitable diameter limits and exploit all others.