

forest for a sustained yield, and whichever method of regeneration, whether natural or artificial, that fulfills this end is meeting the requirements. Timberland owners must take stock of their areas, determine where planting is required, and so locate their plantations as to give a maximum yield with a minimum cost, which conditions will be most fully met by proximity to the mills and using species of rapid growth. Let us take a concrete case. Let us imagine a pulp company with a plant which has cost some ten to fifteen million dollars and which has built up around it a community of five to ten thousand souls. Let us take it for granted that the directors wish to continue to manufacture pulp for the next hundred years. They might of course decide to scrap their mill at the end of twenty-five years and let the community fall to pieces and return

must help nature. Many mills have already adopted the first plan and have bought lands, often several hundred miles away from their plants, which they propose to hold for the future. The transportation charges on wood from these lands will be very heavy and they are not of the very best quality, being further to the northeast where the conditions for growing timber are not so favourable. On such lands held for the future, interest on the investment must be charged, fire protection is difficult and expensive, logging costs and transportation will be very high and the ultimate yield will bring only six to seven cords per acre cutting to Government demand limits.

Changed Ways—Changed Ideas.

Logging as carried on in Canada in the past has taken no thought for the future, and the results are beginning to show in the increasing

time. Logs had to be got out cheaply in order to earn dividends. Now we know the situation and that our supplies will not last for ever and we must devise ways and means to keep our industries going.

Make Each Acre Carry Timber

The statement has been made that all we need to do is to keep the fire out and let nature alone. This is manifestly wrong and I do not think that any forester who knows the conditions will subscribe to it. Something more must be done. In casting around for better methods we have gone to Europe where they have passed through the same crisis and have found a remedy. They have been forced to log entirely differently. Instead of taking out the best trees they gradually remove the poorest trees, trying always to favor the young growth and increase the STAND PER ACRE. They want timber and they want as much as they can force each acre to raise. This means that their logging costs when they first begin to manage a natural forest are proportionately high, but that, as the stand per acre increases, the logging costs decrease. We must change our logging methods so as to attain the same end, but we also must go through a period of greatly increased costs in order to improve the condition of our forests. Those of us who have studied European conditions on the ground know that we cannot adopt their methods here without modification. Foresters are agreed as to what must be done to improve logging conditions, but very few concerns are yet willing to spend the money or to reduce the cut per acre to accomplish these necessary ends.

The Case of Sweden.

Now let us glance for a moment at the attitude of European and Indian foresters who have sometimes centuries of experience to go on, toward natural reproduction unaided. At the Imperial Forestry Conference last summer only one forester would consider such a thing feasible and he was in charge of pine forests which reproduced very rapidly. All were in favor of aiding nature by planting. What is the practise in Sweden where conditions are admitted to be similar to our own? They have found that they cannot depend on nature alone and always fill out by planting the spaces left vacant by natural reproduction. They have a condition there which is very different from ours. The coniferous forests contain little hardwood while those of Eastern Canada abound with hardwoods, and cutting the softwoods encourages the hard-



A plantation of Scotch Pine set out in 1915. Laurentide Company's nurseries, Grand Mere, P.Q.

to the wilderness, as has been done in many a community built up around a large saw-mill in the United States, but have they a moral right to let the community dependent on their enterprise go to pieces? Are they not obliged to try and keep the community alive? In order to keep the mill going they must have wood. Let us further say, for the sake of argument, that our mill has timber enough standing to keep them going for twenty-five years—what shall they do after that is gone? In the first place, will the lands which they will cut over in that time restock themselves naturally? The investigations carried on by the Commission of Conservation on such lands, show that it will take fifty to sixty years to get a crop of merchantable timber and that it will average about one and a half cords per acre. Not enough to make logging possible. There are then two other possibilities, either they must buy virgin lands or they

inaccessibility of the timber and the large increase in logging and transportation costs. The practice was to go into the territory as near the mill as possible, to take the timber along the shores of the lakes and rivers, and to get the trees which only needed to be hauled short distances. In other words, removing the accessible timber, with no thought of a second cut.

High stumps were left, also tops—a large part of which could have been utilized. Logs which were good for pulp were used to make camps and roads. Trees a little difficult to reach were left. Much young growth was destroyed. Much logging debris was left and too often areas logged one season were burnt the next. This was not done deliberately, and no great blame can attach to the men who did the work. They and the directors of such companies were laboring under the same delusion as the general public, that we had timber for all