

time because it wasn't profitable for him to take it. In fact, since the lumbering operations began in this mixed hardwood-softwood forest, say 50 or 60 years ago, there has not been enough regeneration of spruce eventually to replace what has been removed. In other words, the spruce as a tree of future commercial importance is being gradually crowded out of this mixed hardwood-softwood forest

Disease Amongst Trees

Under normal conditions forest trees die of disease. Very few die of

old age. There is scarcely a healthy tree in a mature forest. Unfortunately, lumbering methods have been such as to increase rather than to decrease the susceptibility of trees to disease. Periodically there comes a combination of man-made and nature-made conditions that produces an epidemic in the forest. Just now the Eastern forests are being swept by a real scourge, the spruce budworm, which has already destroyed about 30 years supply of pulpwood, according to Dr. J. M. Swaine, at the present rate of production. The destruction of wood material through

such epidemics, however, cannot be adequately measured by the trees killed at the time because the after effects continue for years. The weakened trees become susceptible to fungus diseases to which they were previously resistant. The fungus bodies are like cancers. They dissolve away the tissues of roots or stem at the base of the tree until it is overturned by the wind.

Our forests, particularly the older stands, are rotten with fungus diseases. The number of trees that die before their allotted time is enormous and this has an important economic significance. This is an enormous waste of sawlog and pulpwood supplies that will be largely eliminated when conditions are such that our forests can be really managed. Balsam is one of the most susceptible of the softwoods to fungus diseases. Dr. Faull, I believe, has found over 20 different kinds chewing at the vitals of balsam. This is the reason that we cannot depend upon this species as a source of pulpwood supply in the future.

We do not know as much as we should know with regard to the rate of growth of our forests. If the annual increase is as great as the annual loss, then the forests are self-sustaining and we have nothing to worry about. The chief object of all a forester's efforts is to get the area over which he has charge into that condition. Only by procuring a sustained and regulated yield can he furnish a continuous supply of raw material to the wood-manufacturing industries. That is what your Provincial Forester is trying to do. That is what the foresters of pulpwood companies, of which you have such splendid examples in Quebec Province, are trying to accomplish. That is what the foresters all over Canada are striving for—the furnishing of an endless succession of wood crops for the lumbering and the pulp and paper industries.

The Rate of Growth of Trees

Let me tell you some of the things we do know about the rate of growth in our forests. There are many misconceptions as to how fast trees grow in the natural habitat. Some one notices a fast growing forest tree in his field or garden, or in an open pasture and he concludes that trees in the forest grow at the rate. In the one case, the tree is more or less cultivated and is not subjected to competition by neighbors; in the other case it is subjected to a severe struggle for life from the day it is born, and this expresses itself in retarded growth. I have made



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