

Growing New Crops of White Pine

On the Harvard Forest, experiments in securing a maximum reproduction of white pine gave this conclusion.

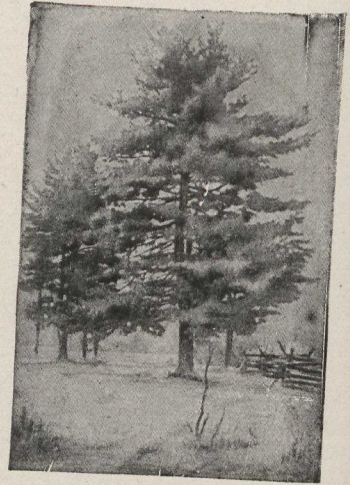
That the best reproduction was secured following a heavy thinning, involving the removal of one quarter of the trees per acre.

Stands so treated have in five years shown as many as 25,000 seedlings per acre. At the end of five years the remaining cover wood was removed.

Clear cutting in strips or in patches gave various results, mostly favorable, But was open to the objection of higher costs, due to the scattered area.

With the annual harvest of Canada's premier wood—white pine—steadily decreasing, as regards what is taken from Crown Lands, our readers will be interested in studies made on 54 separate logging operations in Massachusetts and New Hampshire during four years, by R. T. Fisher and E. I. Terry, and published recently in the *Journal of Forestry*.

Of the 54 separate areas examined only 14 showed satisfactory reproduction of pine. This was taken to mean 500 thrifty seedlings or more per acre. All of these 14 lots were cut in seed years, that is, in the autumn or winter following the fall of seed. Two lots cut in seed years showed no reproduction, the failure being due to the fact that the previous stands were unusually dense and below the seed-bearing age. Of the remaining 40 woodlots cut over in non-seed years, only 10 showed any pine reproduction at all, and of these 10 only one anything like a sufficient seeding. These partially satisfactory results were always explainable on account of accidentally favorable conditions, such as the proximity of seed trees and the smallness of the area cut. The examination showed that general site factors such as slope and aspect had little or no effect, but that the condition of the seed-bed was apparently of first importance. Heavy ground cover and leaf-litter was unfavorable; thin leaf-litter and humus with mineral soil mixed with it or exposed made the best seed-bed. If seedlings failed to start within from 2 to 5 years after the cutting, the development of other vegetation kept them out entirely. Incidentally the study showed that under dense stands no reproduction survives, but that under open or mixed



stands advance growth of white pine may survive for years. There was no evidence of reproduction from seed stored in the leaf-litter more than one year. Outstanding facts were that on all but the lightest of the local soils, the hardwoods are gaining, and that the composition of the present forest types has been controlled in the main by the previous treatment of the land.

Taking the total area of the woodlots examined, about 15 to 20 per cent showed good pine reproduction; on another 20 per cent pine seedlings were scattering. On the other hand from 60 to 70 per cent of lots cut both in seed years and non-seed years, was satisfactorily stocked with valuable hardwoods such as red oak, white ash, hard maple, etc. These figures apply only to the first 10 years after cutting. However successful the reproduction may be at the start, within 10 years from 10 to 80 per cent of the