

Forest Research in Eastern Canada

Some Developments that have Occurred in Various Experimental Plots
East of the Rocky Mountains

In two parts—Part II

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The Swedish foresters have worked out a formula for calculating the size of trees all along the trunk and the applicability of this formula to Canadian species is being thoroughly gone into. As this formula allows the construction of volume tables by mere calculation, provided the average form quotient of stands can be readily determined, we may yet reach the long sought goal of a universal volume table. At any rate we should learn a great deal more about what we really have in our present volume tables, and avoid the necessity of constructing so many different tables.

Other work done along the lines of mensuration has been the construction of local volume tables, the measurement of growth, and the collection of data for yield tables.

In the field of silviculture which includes so many problems for which solutions are necessary before scientific management of our forests for continuous production can be successfully undertaken, a considerable range of studies has been begun. A brief mention of the general nature of these studies may explain what are the main purposes of this work and what is the necessity for it.

It may be explained first of all that the studies are made by establishing small, permanent sample plots of from a quarter acre to one acre in area. On these plots complete data of the existing stand are recorded, and plans prepared showing the location of every tree. Then whatever operations are involved in the experiment are carried out. If trees are removed it is noted on the plan. The trees left are numbered with metal tags, so that measurements made at later dates can be compared exactly. Following this method, we will know definitely what the original conditions have been, and exactly what has been responsible for any changes that may take place later. Remeasurement at five year intervals is contemplated. This method was adopted after foresters had attempted in vain to solve silvicultural problems by studying old logged-over areas and old burns, to

determine the conditions under which reproduction recovery from suppression and the like took place. The lack of exact knowledge of previous conditions militated against the success of the work. In order to de-



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termine the success of any silvicultural operation, it is necessary to create the condition desired by an operation carried out for the purpose, and to record full data of what has been done. Records taken at succeeding periods will show definitely what the results have been, and make it possible to determine the reasons therefor. This is the purpose of the permanent sample plot. A period of years must elapse before conclusions can be reached, but only in this way will definite answers to questions be secured.

At Petawawa, 48 sample plots were established up to the end of 1920; 33 of these being established in the last year.

The growth of white and red pine in mixture with poplar and paper birch has been the subject of one

series of studies. This is a common condition on logged-over or burned pine areas. On some plots the poplar and birch have been removed to see if a better stand of pine cannot be secured. The material was disposed of at a profit. The Petewawa Experiment Station offers an opportunity of demonstrating the practicability under certain conditions of removing undesirable trees in order to improve the character of the final stand. In some cases, sufficient pine for the final stand are present and it was desired merely to release them from competition. In other cases, there was only a sufficient number for seed trees, and the intention is to try and secure pine reproduction by the shelterwood system.

Several plots in pure white pine have been thinned to different degrees. This was done to determine not only the practical advantage of thinning, but the maximum yield that can be secured from pure pine stands.

The question of the most suitable soil conditions for natural reproduction of pine has been approached by establishing a series of plots under a variety of conditions, on which different methods of preparing the seed bed have been followed. Plots are also being established in mature white pine areas which are being logged under ordinary commercial conditions.

The Commission of Conservation have established an experiment station at Lake Edward, Quebec, in co-operation with the Laurentide Company and under the direction of Dr. C. D. Howe, Dean of the Toronto Forest School. This station is located in a region cutover originally for white pine and later for spruce and balsam, leaving a mixed softwood and hardwood forest. The area offers an opportunity for studying in connection with spruce and balsam problems similar to those outlined in connection with pine at Petawawa. This station has now been taken over by the Dominion Forest Service and the work is being continued.