The barrenness, from the standpoint of young trees, on one-half of the logged area is due to the occurrence of repeated fires. One burning stimulates the reproduction of Douglas fir. In fact, it is regarded as necessary for the establishment of dense stands; but a second burning is very disastrous, because it kills both the seed trees and the young growth following the first fire. There is nothing left with which to start another crop of trees on the area.

Judging by the age of the fire scars on the older trees, and by the age of the stands following the first fire, the writer found that during the past 20 years four widespread fires occurred. That is, a severe fire occurred once in five years, the last one being four years ago. From 20 years to 100 years ago the average interval between widespread fires was 27 years, while from 100 years to 360 years ago severe and widespread fires took place at intervals of 86 years. Therefore, the rate of the occurrence of fires has increased enormously in the past few years. Practically all of these fires were upon the logged-over areas, and so endangered or killed the forest reproduction.

The significance of the increasing number of fires lies in the fact that the future supply of saw-logs must come from the logged-over areas. It takes, under average conditions, from 75 years to 100 years to make even the smallest trees now being used for saw-logs. The largest trees are from 400 to 900 years old. Adequate fire protection for the young growth on the logged-over areas should be installed at once.

NATURE OF THE INVESTIGATIONS

The following report upon the re-establishment of the forest after logging and after burning is the result of work on the eastern coast of Vancouver Island as far north as Union bay and on the mainland coast as far north as Powell river. The investigations extend inland about five miles in each case, so that the total area explored covered about 1,000 square miles. After areas of second growth of various ages had been located by a general exploration, the number of young trees on them was counted by means of strips 33 feet (one-half chain) wide and their ages determined. The length of the strips depended upon the density and uniformity of the stand, being shortest in the more dense and more uniform stands. With the exception of the stands less than 10 years old, however, all the strips were at least 20 rods (5 chains) long, and some of them were two miles in length, the average being about one-fourth mile (20 chains). From these sample strips, the number of trees on an acre was calculated and the results are given in the tables below. The total area of such sample strips on which the young trees were counted was over 43 acres. Besides this, sample strips of like nature, amounting to 28 acres, were made in the