

lowing fire, were also found in all the places of detailed study. Thus, in the 80 years previous to the period beginning 20 years ago, the average interval between extensive fires was 27 years. If the study of the life history of the forest at Powell river may be taken as a standard, the average interval between fires from 100 years to 360 years ago was 86 years.

From his investigations of the areas logged and burned within the past 20 years, the writer is convinced that young fir stands sufficiently uniform and dense to reproduce the original commercial forests are found on only about one-half of such areas. The reason for this is the occurrence of two or more fires on the balance of these areas. The disastrous effect of repeated fires is two-fold, through the killing of seed trees and through the destruction of the young forests already established. In regard to the killing of seed trees, it may be said that the first fire which brings the reproduction of fir into existence materially reduces the number of seed trees. Sample strips, totalling ten acres were made in areas burned once after logging and the average number of seed trees per acre was found to be as follows: Fir, 20; hemlock, 10; and cedar, 5; total, 35. Comparing this with the number given on p. 13 for the logged areas not burned, we find that, on the average, the total number of trees has been reduced by more than one-half. It would appear that hemlock and cedar suffer most. Sample strips, totalling 13 acres, were made on areas burned twice since logging and the average acre was found to contain 5 fir, 0.2 hemlock, and 0.5 cedar seed trees, a total of less than 6. This is only about one-sixth of the number on areas burned only once, and one-thirteenth of the number on logged areas not burned. At this rate the third fire would kill them all. The figures for the areas burned twice are descriptive only of the very best conditions, for sample strips were not made in the numerous large areas burned twice on which there were no seed trees, such areas sometimes being a mile square. Even six seed trees per acre would not be enough to seed an area in adequate numbers, since some of them are weakened by fire and will eventually die and others will be wind-thrown. Making allowance for the usual death rate, the number of trees left after the first burning is about the minimum to insure adequate seeding, even when the condition of the ground is favourable for germination.

A still more disastrous effect of a second burning, however, lies in the fact that it kills the young forests which are to be the forests of the future. Since the second fire, as shown above, has reduced the number of seed trees below the point of efficiency, no natural means are at hand to start the process of forest reproduction over again. Reproduction from the edge of the green forest may