

About the year 1845 vast areas west of lake Superior were burned over. Some years later a very extensive fire burned along the height of land from lake Timiskaming to Michipicoten. In 1871 a fierce fire swept over more than 2,000 square miles of forest from lake Nipissing westward along the north shore of Georgian bay. About the same time the greater part of the Saguenay and Lake St. John district, in Quebec, was swept by one of the most destructive fires on record. During a period of dry years from 1883 to 1893, a series of disastrous fires destroyed immense areas of timber in eastern and northern Manitoba and in northern Saskatchewan. Two other fires in 1891 and 1896 devastated more than 2,000 square miles of country in the southern Algoma district; in Quebec, country along the line of the Quebec and Lake St. John Railway also suffered by a number of disastrous forest fires about this time.

During more recent times a series of disastrous fires swept over northern Ontario. A number of isolated fires around the mining camp of Porcupine culminated, on July 11, 1911, in a conflagration which resulted in the loss of 72 lives and property damage estimated at \$3,000,000. In 1916 fires in the same general region were responsible for the deaths of at least 224 people. In 1922 a third fire destroyed the town of Haileybury and other centres. In 1908 a fire originating in the forest around Fernie, B.C., destroyed that city. Every year thousands of acres are devastated by fires of less individual importance, which in the aggregate are rapidly depleting our forest resources. In 1923 there were unusually disastrous fires, chiefly in Eastern Canada. A total area of over 6,000,000 acres was burned over with a loss of approximately \$46,000,000. The average area burned over for the ten-year period from 1928 to 1937 was slightly over 2,524,000 acres with an average annual loss of 325 million cubic feet of standing timber of merchantable size and over 1,000,000 acres of young growth and cut-over land. The cost of fire-fighting and the value of timber and other property destroyed averaged \$4,878,000 annually.

Speaking generally, there are, annually, two periods in Canada when the forest fire hazard is highest—in the spring, after the disappearance of the snow, when the forest floor is dry and the green underbrush has not yet developed, and again in the fall when the herbaceous growth is dead and the ground covered with dry leaves.

Statistics compiled by the Dominion Forest Service from reports received from the various provincial and private forest protective organizations show that, during the ten-year period from 1928 to 1937, 85 p.c. of all fires reported were due to human agencies and were, therefore, preventable. The chief causes of forest fires in Canada, on a percentage basis are: camp fires, 20 p.c.; settlers, 16 p.c.; lightning, 15 p.c.; smokers, 14 p.c.; with railways and incendiary, 8 p.c. each.

Losses Through Insects and Fungi.—From 1912 to 1923 the spruce bud-worm caused tremendous damage to the spruce and balsam-fir forests in Eastern Canada. In Quebec it was estimated that 100,000,000 cords of pulpwood were destroyed by this insect, and in New Brunswick the loss was placed at 15,000,000 cords. In these regions the active state of the infestation is now practically over, but the insect is causing damage to jack pine in northern Ontario, Manitoba, and Saskatchewan. Other insects, though not as destructive as the spruce bud-worm, entail a heavy drain on the forest. The hemlock looper and a new species closely related to the spruce bud-worm cause considerable damage in eastern coniferous forests. The most serious forest insect infestation at present is that of the spruce saw-fly, which is causing extensive damage in Quebec and New Brunswick. During recent years dusting by aeroplane has been developed on a practical basis by the Division of Entomology of the Department of Agriculture and promises to be effective in the control of certain defoliating insects under certain conditions.