

consider that when a crop of young trees is destroyed by fire no damage is done as it would be to report that no loss was sustained by the destruction of a field of green grain or any other immature crop.

REFORESTATION.

Replanting burned-over areas, even though it pays finally and yields a fair return in the investment, is the most expensive operation in forestry. If the timber is protected from fire, natural reproduction is so abundant that there will never be very much planting to do.

DESTRUCTION OF SOIL BY FIRE.

One of the most serious results of forest fires is the destruction of the soil. Repeated fires, especially on rocky or sandy land, or in mountain country, destroy first the mature timber, then any young trees which may follow and finally, having burned off the vegetation and the humus, leave sterile subsoil or rock exposed. Where a subsoil exists, it is, particularly in a rough country of steep slopes, exposed to the weather, and with every rain is washed down to fill stream beds, impede navigation and damage irrigation works. When there is no subsoil and the bed-rock is uncovered, a barren waste is produced upon which no crop of profit can be grown until the lapse of hundreds or thousands of years unless fire results in the production of a thin soil cover.

The soil is the capital of a district relying on lumber or agriculture. Every fire which passes over the soil reduces the capital; and in our northern forest belt it requires but few fires to utterly destroy the capital.

CAUSES OF FOREST FIRES.

Reports from all the provinces are unanimous in giving, as the main causes of forest fires, sparks from railway locomotives, bush burning by settlers and carelessness by travellers and sportsmen. Fires from other causes are, to a great extent, preventable. The first necessity is the education of the people to the extent of the damage due to forest fires, the second a more thorough patrol of the country where fires are likely to occur, and the third a more stringent regulation of the railways. New York State has recently passed a law requiring locomotives on all railways operating through the state forest lands to burn oil from 8 a.m. to 8 p.m. during the summer months.

SUCCESSFUL FIRE PROTECTION.

That forest fires are unnecessary and can be successfully controlled is shown by the experience of several countries where an efficient fire protective organization has been developed.

The National Forests of the United States comprise over 190,000,000 acres of land, the greater part of which is within rough mountain ranges and inaccessible districts difficult to patrol. Yet by its system of protection the Forest Service has annually reduced the burned-over area in the National Forests, as is shown in the following statement:—

Year.	Percentage of forests burned over.
1904.66 of 1%
1905.16 of 1%
1906.12 of 1%
1907.07 of 1%

This is convincing proof of what can be done by an organized protective force which has the support of the people.