

that the rain-gauge, on which the meteorologist pins his faith is a very crude instrument, and that it is utterly impossible to measure the rainfall accurately in a forest by means of it, wherever the rain-gauge may be placed. In fact, many of the comparative observations are about as valuable as it would be to attempt to detect a leak in the roof by placing a rain-gauge in the garden.

In any case it is not a question of the total rainfall, but of what becomes of the rain. If the rain runs off the surface, ten times the rainfall will not keep the ground as moist and fertile as when it soaks in. An excessive rainfall is as bad as a deficient one, and renders a climate equally unfitted for agriculture, as witness the west coasts of Tasmania, Ireland, and Scotland, where humus forming conditions prevail to excess. A dry climate can be improved by irrigation, but an excessive wet one cannot be appreciably ameliorated.

In an ordinary climate trees bring back the moisture and dissolved minerals from the deeper layers of the soil, and retain them largely in local circulation. The effects of the rain and the rain itself are made to last over a longer period, and the moisture conditions of the district made more equable, instead of torrential leaching and erosive rain, alternating with devastating droughts. A forest is a sponge, to suck up moisture when it rains, and give it out again slowly when dry, and in the term "forest" all permanently-wooded bush or scrub land is to be included.

This brief statement by no means exhausts the subject, but the evidence to show, for instance, how the methods of deforesting adopted in clearing the land for agriculture, and still more for sheep pasture, have favoured the spread of injurious weeds is reserved for a subsequent paper.

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## COMPULSORY TIMBER RESERVES ON SETTLERS' LANDS.

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BY E. G. JOLY DE LOTBINIÈRE.

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Since lumbering became an industry in Canada, no period ever offered greater incentives than the present, to the holder of timber lands, to attack and destroy our spruce and balsam forests.

Before Canada became the great pulp wood producer that she is to-day, our forests were, comparatively speaking, safe, and no one, even the most pessimistic, ever believed in the possibility of their exhaustion.

They had their natural enemies, fire, disease and insect pest, but lumbering, as carried on 30 years ago, where only mature and adult timber was felled, for conversion into dimen-