

they will be immediately thinned out and underplanted. The main point here is the area of pure larch."

The visiting foresters were of unanimous opinion that such results can only be achieved after a persistent study of local conditions. Evidently each expert present realized the necessity of reducing the initial expenditure in creating forests, if financial success is to be the outcome of his labours, and perhaps regeneration and underplanting of forests either artificially formed or natural were two of the most discussed phases of the question during the whole tour.

In British Columbia and other parts of America regeneration of spruces and hemlocks by the strip system is fostered, but there is always a danger of uprooting of surrounding trees attending the removal in blocks of such shallow-rooting trees, and consequently much discretion requires to be exercised in selecting suitable spots for carrying out the proposition. The usual practice is—(1) The removal of commercially valuable timber; (2) burning of a fair proportion of slash; (3) permitting small clumps of well-formed trees to remain here and there for seeding purposes; (4) protecting the area from injury by live-stock. There is no doubt that the robust nature of the spruces and hemlock, suitability for pure planting, fertility of seeds, and simplicity of germination render the members of the *Picea* and *Tsuga* families eminently adapted for natural regeneration.

The perpetuation of our native forests is generally looked upon as being quite possible with adequate protection; but perhaps the natural regeneration of the forests has not received very much attention, principally owing to the slow progress of indigenous trees generally. It has occurred to me that areas relieved of the first- and second-grade timber might be advantageously underplanted with such fast-growing exotics as Douglas fir in the shadier, and pines in the more open, situations. This artificial reforestation would, in localities where noxious weeds speedily take possession of the ground and agriculture is not undertaken extensively, likely become profitable at an earlier rotation than where virgin land is operated upon. A small experiment would indeed be interesting. The following numbers of pounds of seed per acre are used in broadcast sowing burnt areas:—

Variety of Tree.	Quantity per Acre.
Ash	30 lb.
Balsam fir .. .	35 lb.
Beech	120 lb.
Birch	25 lb.
Elm	25 lb.
Maple	40 lb.
White-pine .. .	10 lb.
Tamarack .. .	10 lb.
Spruce	10 lb.
White-oak .. .	10 bushels.
Red-oak	8 "
Black-oak .. .	8 "

DISEASES OF AND INJURY TO TREES.

Much of an interesting nature regarding the damage to seedlings and trees was observed, and perhaps the inclusion of a few brief notes thereon will not be out of place.

Firstly, I was much surprised to find that little damage to seedlings in nurseries results from the very limited presence of the grass-grub, *Odontria* sp., and officers in charge showed much surprise on relating our experience with the pest in New Zealand. Following ground is, however, resorted to in several places where the cockchafer—*Melolontha vulgaris*—is known to exist, and this precautionary measure is usually attended with success. Seedlings of larch and pines were slightly more affected with *Chermes laricis* than those in our New Zealand nurseries; but, strangely enough, *Pinus sylvestris* (Scots pine), which is raised so extensively in Scotland, and is usually literally smothered with aphids in New Zealand, is almost immune from this insect. "Damping-off" was noticed frequently, particularly where thick sowing had been undertaken, in the more moist localities throughout the British Isles, and the remedies resorted to in such cases coincide with those adopted in New Zealand—viz., judiciously thinning out and facilitating freedom of sunshine and air about the seed-beds.

Larch Needle-shedding.—The mysterious development of premature needle-shedding of larch, both in our nurseries and plantations, was specially borne in mind, and a similar state of affairs, although in a smaller degree, was noticed at the Forest of Dean, England, and Avondale, Ireland. On pointing out this peculiarity to officers I was informed that it was generally believed that the cause of discoloration was due to unfavourable atmospheric conditions—late frosts, winds, &c.—but it was unaccountable how perfectly healthy specimens remained surrounded by affected trees. It is evident that the development is not looked upon so seriously as in New Zealand, and I would strongly recommend that our co-operative investigations into the cause be continued.

Peziza Wilkommii.—Several opportunities were afforded me of studying the effects of the dreaded larch-canker, which has played havoc with plantations, and, in fact, absolutely prohibited the growing of the European species in certain places. The Japanese larch (*Larix leptolepis*), however, has proved itself to be not so susceptible to the disease, and accordingly is receiving more attention of recent years. The fungus responsible for the disease produces sporophores on the bark or decayed branches, and the resulting spores are liberated, particularly during moist weather in the autumn and spring periods, and being carried about by wind it is not difficult to understand the rapidity with which the disease spreads over large areas. Although pure planting is still being carried on, generally speaking, larch is used in admixture with shade-