

In both plantations the greater portion of the trees have been planted pure, and this is fortunate, since, so far as can be judged by present growth, few of the mixtures that have been tried will prove conspicuously successful. It is always possible that some of the species that now lag behind in height-growth may later on even outstrip their competitors; but, on the whole, pure planting seems the best system to follow. Even if the attacks of insects or disease make mixed woods indispensable in the future, a mixture by groups or by strips, if equally effective in minimizing these dangers, will be preferable to a mixture by trees.

The Present.

Past experience has shown that only a few species of trees, and they not always the most valuable, will thrive when planted on open country in this climate. None of the hardwoods, such as oak and ash, can withstand the effects of late frosts, whilst of over fifty species of eucalypti that have been tried, only three—*E. Stuartiana*, *E. pauciflora*, and *E. amygdalina*—have proved sufficiently hardy to justify planting to any extent; and even these are liable to injury if the winter frosts are a little more severe than usual. The conifers have proved more suitable to the prevailing conditions, but many very desirable species have failed also. Therefore the policy pursued at present is to plant the quickest-growing and most valuable of the species that thrive in the locality, so that shelter will be provided as soon as possible, under which more-valuable tender species may be successfully introduced, and yet the returns from the first crop be such as will show a profit on its cost. Experiments on a small scale are being made from time to time with promising species that have not been planted previously, as it is always possible that an untried tree may prove eminently suitable for the locality.

On the areas already planted the usual maintenance-work is carried on. The younger trees are kept clear of underscrub till they have outgrown it. Fire-breaks are kept clean, and a watch is maintained for indications of attack by insects or disease. Rabbits damage the young trees in certain areas, and are kept in check by trapping.

The plantations are not yet sufficiently advanced to require thinning or underplanting, but experiments are being carried out with various species of trees on small patches of the older areas, so that when underplanting becomes necessary some reliable data as to the most suitable species for the purpose may be available.

The following is a short account of the trees that have proved most suitable, or seem most promising for afforestation work in this district:—

Larch (*Larix europaea*).—This has proved one of the best trees for this district. It is easily raised, soon recovers after transplanting, and grows quickly, on an average about 3 ft. per annum, when the trees are properly established—say, five or six years after transplanting. Young trees suffer from late frosts on low-lying land, otherwise the species is well adapted for the climate of this locality. The timber is soft, flexible, strong, and moderately heavy, very durable in contact with the ground, and is used for sleepers, mining-props, fencing, building purposes, and shipbuilding. Since it matures early, much of the small timber that must be removed in thinning can be sold. This is a most important consideration in artificial forests, and adds materially to the value of the species for afforestation. Larch is a native of the Alps, Moravian and Carpathian Mountains, but has been successfully introduced all over Europe. Grown in Great Britain, it is very subject to disease; yet foresters persist in planting it on account of its many good qualities. The climate of Rotorua, especially in elevated situations, should approach more closely to that of its native home, and we may therefore fairly hope for comparative immunity from disease in our plantations.

Corsican Pine (*Pinus Laricio*).—This species is well adapted for planting in this locality, and grows quickly—average about 2 ft. per annum; but it requires more careful treatment in transplanting than larch, being very liable to damp off, and even with the most careful planting shows a large percentage of failures. The climate of this district seems quite suitable for the healthy development of the species; it apparently does not suffer any ill effects from late frosts, and can therefore be planted in situations not suitable for larch. It produces soft, light, durable timber, which is used for sleepers, posts, and building purposes. It is a native of southern Europe, where it is found in the mountains, and has done well where introduced in Great Britain and Germany.

Heavy Pine (*Pinus ponderosa*).—This species makes a quicker recovery after transplanting than Corsican pine, and is of quicker growth—about 2 ft. 6 in. per annum. It has done well wherever planted in this district. The timber is heavy, strong, and durable, and is used for sleepers, posts, and building purposes. It is a native of north-western America, and is there widely distributed, but does not appear to have been introduced to any great extent elsewhere. This species might hold its own if planted in mixture with larch. It would not form an ideal mixture, both species being light-demanding; but if our pure larch woods should be attacked by disease this mixture might provide some degree of immunity.

Weymouth Pine (*Pinus strobus*).—On account of a difficulty in obtaining supplies of good seed this pine has not been very largely planted. It has proved fairly suitable for the locality, but has suffered to some extent when young from the effects of late frosts. It is of fast growth—about 2 ft. 3 in. per annum. The timber is light, and has been more used for building purposes than any other in the east of the United States of America. Gifford, in his "Practical Forestry," states that timber of good quality is only obtained from centenarians; and, if this be correct, species that mature more quickly are to be preferred. Weymouth pine is a native of the eastern States of America, and has been successfully introduced in Great Britain and the Continent of Europe. According to Dr. Schlich, it is fairly suited for underplanting larch, so may prove useful later if a good supply of seed is then available.

Remarkable Pine (*Pinus radiata* or *insignis*).—This is one of the fastest-growing trees, and on that account is useful for planting where there is a particularly rank growth of fern. It has been used