

for the supply of necessary tools, fencing material, &c. On the 23rd September a start was made on an area of 20 acres situated in the centre of Eweburn Township Reserve (a block of 740 acres), distant about one mile from the proposed railway-station. The choice of this locality was determined upon chiefly on account of its central position relative to the various plantation reserves in the district, none of which are more than ten miles distant therefrom; but soil, situation, altitude, and water-supply were also factors in making a final selection. The soils here are of various qualities, from heavy loam on an open clay subsoil to light friable soil on a gravel bottom. Neither of these characters of soil is sufficiently fertile to render the growth of nursery stock too luxuriant for successful transplanting.

The site having been finally fixed upon, active operations were at once begun. The boundary-fence consists of hardwood posts, at intervals of half a chain, with iron standards between 8 ft. apart. Wire-netting is sunk to a depth of 6 in. in the ground, and securely fastened to wires. At a distance of 3 ft. inside the fence-line a laurel hedge has been planted on northern and eastern sides, 30 chains in length, the total number of laurels required being 1,500, of which about 1 per cent. has succumbed to the effects of the exceptionally dry season. The ground for these was prepared by trenching 2 ft. deep and 3 ft. wide, all gravel patches met with being removed and good soil substituted. It is not intended to plant any tall-growing shelter-trees within the enclosure, as their presence would ultimately cause nursery stock grown to become delicate, and unable to withstand the withering blasts so prevalent in this treeless region.

Preparations are at present being made for the continuation of hedge along remaining sides. Simultaneously with the erection of fencing, about half an acre was trenched 2 ft. deep for the sowing of various tree-seeds. Circumstances beyond my control prevented the performance of this work during the previous autumn, during which season it ought to have been done in order to allow of the rotting of the turf and the general subsidence of the soil by the action of winter rains. During the second week of November the sowing of seeds was accomplished, and in order to protect them from the scorching rays of the sun and blighting winds during germination, as well as to afford a covering during the hard winters experienced in this climate, semi-cylindrical-shaped frames were provided. These conveniences consist of two 18 ft. lengths of hardwood laid edgewise at a distance of 3 ft. 6 in. apart, and connected by half-moon-shaped bands of hoop-iron 18 in. apart. At right angles to the frames are three equidistant bars of ordinary standard iron, held in position by flush-headed bolts. From the centre of these bars Hessian canvas shades are suspended on either side, and kept rigid by  $\frac{3}{4}$  in. round-iron rods in 9 ft. lengths, the shades being inserted in the lower edges by means of a hem. These shades can be rolled up or down as the weather requires, and are taken off and stored indoors during the autumn until heavy frosts set in.

Under the eighty shade-frames now in use there are approximately half a million of young trees, and although they are very dwarf, as a result of the exceptionally bad season experienced, they have abundant fibrous roots, a feature much more desirable than superabundant top growth. The principal species grown are *Pinus laricio*, *Pinus austriaca*, *Larix europea*, and *Abies douglasii*; while in lesser numbers are *Abies excelsa*, *Abies menziesii*, *Pinus strobus*, *Pinus ponderosa*, and a few species of *Picea* and *Eucalypti* for experimental purposes.

It may be mentioned that many of the common deciduous European trees—viz., ash, oak, elm, birch, lime, &c.—do not succeed on the Maniototo Plains unless planted in sheltered valleys at the base of surrounding hills, the cause of failure being frequent summer frosts, which kill the entire fresh growth of a season. Numerous examples of this are to be seen at various homesteads, where eight- or ten-year-old trees are found not to exceed 2 ft. in height. Poplars, willows, alders, and sycamores are also injured in the same way, but in a lesser degree. In the seed-beds, *Abies douglasii* (Oregon pine) has so far quite surpassed the other species in regard to growth, having made at least double the amount of progress that others have done, although the various seeds were sown at the same time. This valuable timber and shelter-tree (Oregon pine) has proved itself admirably adapted for planting on the poor gravelly patches to be met with throughout the plain, and good examples of its successful growth are to be found at Naseby, where it thrives luxuriantly in gravel tailings which are quite destitute of soil. *Pinus austriaca*, *Pinus laricio*, and *Larix europea* are growing in similar places, and give promise of good results.

The ground for sowing next season's tree-seeds has been trenched and cultivated with vegetables and other green crops in order to bring the soil into good working-order, and a manuka-scrub shelter-fence has been erected to prevent damage from heavy north-east gales. An area of 4 acres has been ploughed and sown with oats, and will be subsoiled with the plough during the present autumn, and then sown with a leguminous crop to be ploughed in at the proper time. This portion is intended for lining out, during next autumn, the seedlings now in beds. The seedlings will remain lined out for one or two years, according to variety, before being planted out in their permanent quarters.

At either end of the northern boundary large dams have been constructed for the storage of water during summer. These are fed by a stream flowing through the property, but it has, unfortunately, failed this season for the first time during twenty years. Provision has, however, been made against a recurrence of this contingency by sinking wells in the nursery (where even in the past dry summer the flow of water has shown no signs of diminution), and from these water can be pumped into the dams by means of a powerful windmill pump. This work, together with the laying of the necessary piping, has entailed considerable expense; but the past season has proved that tree-raising here without such provision could not be accomplished during exceptional seasons.

The total rainfall since the inception of the undertaking has only been 4.91 in.—viz., October, 0.23; November, 0.00; December, 0.58; January, 1.86; February, 0.25; March, 2.01.

A commodious sun-dried brick building, 50 ft. by 18 ft., has been erected for the nurserymen's accommodation, together with workshop, stable, &c. Concrete floors have been laid throughout, and every convenience provided for efficiently carrying on the various works in connection with the nursery. Leading from the entrance-gates to and around the building a roadway has been formed and gravelled, ample provision being made for carrying off storm-water.