

For convenience in handling, the trees are put up in bundles of twenty-five, and are conveyed from the nursery in covered wagons, up to 100,000 plants being carried in a load. The plantation adjoins the nursery, but the land has been gradually planted up until, at the present time, the trees have to be carted a distance of five miles and a half by wagon, and from a mile to a mile and a half further by sledge. When a wagon-load of trees arrive they are at once "heeled in" in trenches, in order to keep the roots of the plants moist. Deciduous trees, such as larch, are packed much more closely in the trenches than pines, which, owing to their thick bushy foliage, if packed very closely and left for any time in the trench, are very liable to become heated. From the main trenches on to the ground to be planted the trees are carted by sledge, and are again placed in trenches, where they will be most convenient to the planters. The sledge used for this purpose has a short runner on either side in front and a pair of low wheels behind; the wheels making pulling up hill much lighter, and when coming down an incline the runners in front act as a brake, and prevent the sledge leaving the track. This vehicle can be used on fairly rough country, and carries a load of 20,000 average-sized plants.

The planters each carry their own trees, using a canvas bag 18 in. long by 12 in. deep, which will hold from two to three hundred larch or pines; in dry weather, however, when there is a danger of the roots becoming dry, not more than a hundred are carried. Old spades which have been worn too much to be of any further use for pitting are converted into handy planting-tools by cutting off part of each side of the blade, leaving it 6 in. wide at the top and tapering to 4 in. at the bottom or cutting-edge. Although several kinds of planting-tools have been used here, this has proved to be the handiest and most efficient of any.

In operation, the planting-spade is driven deeply into the centre of the prepared pit, and then drawn forward, leaving an opening in the soil behind it in which the plant is inserted, care being taken to place the root in proper position. The spade is then withdrawn, and the soil round the plant trampled firmly. Planting commences in April with the pines, after which the larch are put in, and then the eucalypti, the season, as a rule, finishing about the end of August.

The cost for labour, preparing land, and planting is as follows: pitting, 9s. per thousand; planting, 7s. per thousand; clearing, £1 per acre. These figures represent a fair average, but much depends upon the nature of the land being dealt with. Steep country makes both pitting and planting more costly, while some land will cost as much as £2 per acre to clear, and on other portions no clearing is required.

APPENDIX B.

FOREST-TREE GROWING IN THE SOUTH ISLAND.

[By R. G. ROBINSON, Superintending Nurseryman, Tapanui.]

INTRODUCTORY REMARKS.

The afforestation-work conducted by the State in the Dominion has, since its initiation, received the whole-hearted support of many enthusiastic tree-growers; but with each succeeding year the increasing prominence of our young artificial forests has attracted the attention of the general public, who, on becoming enlightened regarding the annual progress made, not infrequently express their surprise at the magnitude of the undertaking.

As might be expected, the presence of flourishing State plantations of timber trees in the various districts throughout the Otago and Canterbury Provinces stimulates the desires of farmers and others to produce similar results, and officers of the Department are frequently called upon to supply such information as will materially assist intending tree-planters.

Although certain rules for general guidance have been maintained since the inauguration of the Forestry Branch, it has only been through a sustained series of experiments, together with the introduction of new practical ideas from various sources, that the present measure of success has been attained.

This condensed article on tree-raising methods adopted in the South Island nurseries and associated plantations is prepared with the object of conveying to readers information which recent correspondence and personal inquiries show is mostly solicited.

By the actual observance of the various works in progress, however, more productive knowledge is gained than from any literary source, and departmental officers are ever ready to give a practical demonstration to those contemplating tree-planting.

Whilst the effect of desired brevity and compulsory omission of much detail will be apparent throughout this paper, its object will be accomplished, however, if a concise practical review of the leading items of labour essential in raising seedlings and creating plantations up to their present stage is portrayed.

TREE-SEEDS.

On learning that the conifer-seed used was chiefly obtained from a foreign market—Europe and America—visitors to the nurseries have advanced theories supporting opinions to the effect that seeds gathered in the Dominion would possess greater germinative qualities, be cheaper, and the resulting plants more speedily adapt themselves to existing conditions. These opinions are partially correct, but the increased expense attached to local cone-gathering and subsequent extraction of an approximate 8 cwt. of seed annually, together with the questionable practice of tree-raising from seed which had perhaps been taken from comparatively youthful trees, has, up to the present, prohibited the utilization of home-grown seed of most of the pine, larch, and *Abies* families. The transportation of certain kinds of seed over long distances, and more especially on sea voyages, often accelerates the decomposition of