

APPENDIX C.

REPORT ON TREE-GROWING OPERATIONS IN THE SOUTH ISLAND.

(By the Superintending Nurseryman, Tapanui.)

A perusal of the various detailed reports attached will show that the afforestation work has advanced creditably, and, notwithstanding the extreme dryness experienced at the Otago stations, highly satisfactory results are disclosed.

During the year 6,300,875 seedlings have been raised at the three nurseries, representing a value of £6,292 10s. 3d., and on the four plantations 2,427,124 trees were permanently planted, occupying an area of 891½ acres. The total area now planted amounts to 4,831¼ acres, containing 12,050,003 trees.

The nurseries contain 13,121,830 trees, of ages ranging from one to four years, and their output to the various plantations during the past year amounted to 2,814,658 trees, which are valued at £8,361 3s. 7d. The total output of trees from the southern nurseries since initiation is 21,286,734, and these are valued at £53,479 1s. 8d., as per Table C.

The expenditure incurred on nurseries and plantations during the year was £8,777 12s. 4d., and the total amount expended since September, 1896, is £100,431 1s. 2d.

An average number of 58·31 men were employed by day and contract labour. At Hanmer Springs 13·53 prisoners were also engaged at pitting and tree-planting, and the average value of work done per man for the year is £60 10s. 6d.

This amount is slightly below the estimated value of the previous year's work, but as the greater portion of the area operated upon was a considerable distance from the camp, more time was occupied in walking to and from work than heretofore.

It is satisfactory to record that good faithful work has been performed by the prisoners generally, although the small number in camp was quite inadequate to undertake the whole of the tree-planting.

The excellent rainfall at Hanmer Springs—totalling 43·74 in.—was the chief factor in bringing about unprecedented results at both nursery and plantation, and instances where larches have increased their height by nearly 5 ft. during the season are numerous. Over the greater part of Otago, however, the want of moisture during the midsummer period was keenly felt, and plantations generally do not possess their customary healthy appearance.

At Dusky Plantation evidence of the partial drought was clearly demonstrated by the blocks of *Larix europæa* assuming autumnal tints fully six weeks before the usual period, and also by the rapid decay of lateral branches that clothe the outside lines of trees to the ground-surface.

Owing to the shortage of labour at Conical Hills Plantation towards the latter part of the season, it was necessary to introduce a combined system of scuffling spots and planting in the one operation. By this method 774,300 trees were dealt with at 11s. 7d. per thousand, and, although we have every reason to be satisfied with results, planting by the grubber-pitting system is preferable, and will be adopted where practicable during the ensuing year.

Trees established at Naseby Plantation, although not growing with the same rapidity as at the more favoured stations, are thriving.

The circumstances connected with the acquirement of the extension area of about 125 acres on Naseby Commonage are somewhat unfortunate, and at the present moment no decision has been arrived at regarding the continuance of tree-planting work in Central Otago.

GENERAL MAINTENANCE OF PLANTATIONS.

It may be readily understood that the growth of tussocks and fern around trees on the greater portion of the land set apart for afforestation is usually so vigorous that the employment of a gang of men is necessary to suppress same. The expenditure on this item, however, ceases immediately the "leaders" of trees are beyond the influence of undergrowth, which is usually two years from time of planting. *Picea excelsa* are proving to be extremely slow growers even in the most favourable situations, and make poor headway for at least four years, after which their rate of progress compares satisfactorily with other varieties dealt with. Pruning, so far, has been confined to the correcting of irregularities of growth caused by unseasonable frosts and gales. The larches require the most attention, whilst pines are the least susceptible to injury.

The keeping of fire-breaks in an effective state continues to absorb the bulk of horsework during the summer months, and the question of converting these breaks into grazing-areas in the near future, and allowing sheep to feed thereon, may be favourably considered.

SYSTEM OF PLANTING AND THINNING.

As many of the trees at Dusky Plantation are now twelve years old, and have reached a height of from 20 ft. to 30 ft., a few words on the above subject will not be out of place.

Our "mixed woods" system of planting has not been altogether successful, and it is fortunate that no large area has been allocated to this method. Trees planted to form the ultimate crop have been quite suppressed by the nurses, whilst in other blocks may be seen specimens of the strong-growing Oregon pine towering high above the pines and larch. In either of these instances success cannot be anticipated. Of recent years, however, our efforts have been directed towards