

NURSERY-WORK AND ASSOCIATED EXPENDITURE.

Generally a very fair measure of success has been achieved in the actual raising of some 4,372,500 seedlings in the three nurseries. This result, accruing from 1,015½ lb. of seed, is not up to expectations; but to a second sowing at Tapanui, in consequence of a failure with the main crop, may be attributed the low germinating average. It is gratifying to be able to report, however, on the unprecedented development of the yearlings, which will give plenty of scope for an increased number of transplants during the lining-out period. Although a careful record of costs connected with the purchase of seed and actual labour applied in raising the yearlings shows that an average expenditure of 3s. 6d. per thousand has been devoted to the work, it must be admitted that the subsequent decay of seedlings through the effects of either damping-off, grass-grubs, or frosts tends to make this figure of little value. Each nursery is well stocked with trees, ranging from the yearling to the transportation stage. The grand total, details of which are taken from Schedule V, amounts to 8,906,930 trees, representing a value of £14,006 14s. 9d., and this position is almost equally satisfactory to that of the previous year. The average cost on the present operating nurseries of producing trees sufficiently strong for permanent planting reached £1 16s. 6d., an amount slightly above last year's figure. The probability, however, of in future transferring certain one-year-old pines to plantations should reduce the growing average fully 25 per cent. Since the year 1896 some 24,436,769 trees of various ages have been transported to State plantations, while, in addition, public bodies have benefited by a distribution of 2,528,247, making a total output to date of 26,965,016 trees. An outstanding feature of the season's nursery-work is the excellent results attained with a special strain of *Pinus ponderosa*, which have, on being transferred to lines in the yearling stage, made such phenomenal root and vertical growth that probably 95 per cent. of the number transplanted are now quite robust enough for planting on any situation. For comparative and selection purposes, it would be advantageous if the seed-suppliers were obliged to certify as to the source of the seed, particularly in relation to the Bull pine, the several species of which are causing confusion amongst those associated with the raising.

PLANTATION-WORK AND ACQUIREMENT OF LAND.

The very small output from the Otago Central Nursery, occasioned by the curtailment of seed-sowing two years ago, made the combined output of trees to plantations much smaller than in the previous year; but present indications point to a much better result for the approaching season. Some 1,752,344 two- and three-year-old trees were received at the various plantations, as per Schedule V, and planted as circumstances warranted, either by day or contract labour. Of this number, 320,390 were utilized for replacing failures in previous plantings, while the remaining 1,431,954 trees planted on new area enlarged our plantations by 536½ acres. The total area now planted in the South Island amounts to 7,473½ acres, which contain 19,340,429 trees. As the table showing trees planted to date was included in last report, it is not considered desirable to reprint the publication this year. Detailed in the summary of operations on plantations will be seen how the annual expenditure of £5,681 1s. 11d. has been allocated, and on another form comparative tables over the whole working period have been worked out in support of the total expenditure to date—£83,450 19s. 3d. A comparison with last report will reveal a slightly increased planting-cost all round, which to a great extent is attributable to the granting of an increase in wages to employees, and a similar reason, together with more stringent working-conditions, can be advanced for the rising upkeep-cost per acre. Generally, where the youthful plantation is making the most progress, less maintenance labour is applied, and this economy in the early life of a fast-growing plantation will doubly enhance the prospects of a financial success. As the points relative to the general upkeep-work are elaborated in detailed reports, and the existing conditions do not favour a just comparison of such work, further reference here is not necessary.

The acquirement of suitable planting-areas at each of the stations has now become an urgent matter. Very little planting-ground will remain at either Conical Hills or Naseby Plantations after the present year's output from nurseries has been operated with, while another season's work should complete the block resumed two years ago at Hanmer Springs. Several areas have been examined during the past year with a view to acquirement for tree-planting; but, after careful consideration and comparison with those now being operated upon, an unfavourable report was inevitable. Enthusiasts frequently allude to areas which the Department should afforest, but they generally overlook such factors as altitude and exposure. Wind is a climatic factor of tremendous importance in afforestation-work, and experience gained proves that tree-growth diminishes speedily as exposure becomes greater. The highest altitude at which trees may be planted with prospects of success can only be determined by experiments and a minute observation on the local growth of indigenous timbers; but there can be no doubt that, whilst a sheltered hillside or plateau ranging between 1,500 ft. and 3,000 ft. above sea-level might be expeditiously converted into a revenue-producing forest, only failure could be expected from operating on such an altitude throughout the greater portion of Otago and Canterbury. Although in the sheltered gullies and sidelings lying well to the sun trees such as Oregon pine, ash, &c., are succeeding, a very large extent of the ground now being worked is only adapted for pine-growing.

BRIEF COMMENTS ON PROGRESS OF TREES.

A marked improvement in tree-growth is apparent at each plantation this season, and more particularly so at Hanmer Springs. Both *Pinus Laricio* and *P. ponderosa* are firmly established as our most satisfactory growers, and may be expected to increase their height annually from 12 in. to 3 ft., according to situations occupied. Although *Pinus austriaca* at Naseby are infested with *Chermes aphid.*