

used for accumulating the sand is one composed of manuka scrub bound closely together in an upright position to wires stretched between strong fencing-posts. Such a fence erected across a wind-channel on the line of the general summit of the dune causes the sand to accumulate in an astonishingly quick time, but the sand-drift has to be controlled to some considerable extent with open fences made of drift-wood erected about 9 ft. to 12 ft. distant on the windward side. These open fences are really the most vital part of the work, and considerable experience is needed to place them in the proper position. A badly placed fence will probably result in the scouring-out of a fresh wind-channel and do more harm than good. To make any progress at this class of work a gang of about a dozen men is needed, and the results most carefully watched by an officer on the spot, so that an error in the emplacement of a fence can be rectified before any serious damage is done.

There are a large number of cattle still on this run, and these have caused a considerable amount of damage to the sand-catching fences, and have also been responsible for fresh drifts having been started. It is impossible to effectually control the sand until all animals are excluded, because they eat off much of the grass that is binding the sand and break the surface of the ground, thus causing the loose sand to be scoured out by the wind. The experiments made with trees, although by no means conclusive, go to show that the *Pinus radiata* and *Cupressus macrocarpa* are likely to be the two best trees for extensive use here. Throughout this district many fine specimens of these may be seen in a thriving condition, and the plantation of pines growing in what was at one time loose sand adjacent to the Foxton Railway, demonstrates the fact that splendid results may be hoped for from *Pinus radiata*. A fire which damaged a portion of the plantation just mentioned has resulted in some very large trees being uprooted by the wind, and an examination of the roots shows that these have not penetrated the soil to any great depth. There is a great deal of moisture underlaying the sand at no great depth from the surface, which will probably account for the roots keeping so much to the surface. This fact should be noted as a guide to the treatment of plantations in these sand wastes. Two Japanese pines—*Pinus densiflora* and *P. Thumbergii*—have also made good progress in the experimental plot. Both of these pines are of considerable economic importance, but it is questionable if they would prove as profitable as *Pinus radiata*. The Sitka spruce, from which good results were expected, has not so far shown any great promise. This spruce is, however, generally very slow in starting, and it may yet prove valuable here. Douglas fir, Californian redwood, Weymouth pine, Corsican pine, and *Pinus ponderosa* are all being tried, but with each the results so far are not satisfactory. The conditions in this district are somewhat trying, as the strong winds soon dry up the sand, and the continual drift, even if it is actually not heavy, damages the young trees to some considerable extent and retards their growth. It is probable that a number of the trees that are being tried may yet succeed, as the difficulty appears to be in getting the young plants over the first few years.

The expenditure for the year amounted to £185 3s. 6d.

REPORT ON AFFORESTATION OPERATIONS IN THE SOUTH ISLAND.

(By the Superintending Nurseryman for South Island, Tapanui.)

Owing to the abnormal conditions now prevailing the impossibility of being able to present a very progressive report on afforestation generally is apparent. The year was characterized by extreme mildness. At each of the Otago stations the period between October and December inclusive was extremely dry, and at Ranfurly, where water was unprocurable, the young seedlings suffered in consequence. At Hanmer Springs, fortunately, rain was abundant and well distributed; and, in fact, the spring period proved to be an unusually wet one, hindering the progress of several important stages of nursery-work. Little or no damage eventuated from either frost or wind—two agents that rarely fail to interfere with the trees in either the seedling or later stage.

LABOUR PROBLEMS.

Operations have been conducted under extremely adverse labour conditions during the year under review. Gradually the eligible members of the branch are leaving the service to join the Expeditionary Forces, and, contrary to our anticipations, the discharged soldiers have not shown an inclination to accept work on the plantations, where the greatest demand for workmen exists. Some eighteen returned soldiers have from time to time been employed at either nurseries or plantations; but it is obvious that the preparation of pits for tree-planting in Otago, on the rough hillsides upon which afforestation is now being undertaken, unduly taxes men not in possession of their full strength, and rarely have the ex-soldiers remained in the service for any length of time. The usual considerations given to ordinary employees are meted out to the ex-soldiers, who doubtless would resent precedence being given them whilst in receipt of the