

EXPERIMENTAL WORK IN CONNECTION WITH RECENT RESERVATIONS.

During the year an inspection of several large areas was made with a view to their resumption or acquisition for afforestation purposes, and the authority given to conduct experimental work at Gallo-way and Omarama, Otago—both extremely arid localities, where much data relative to the sylvical characteristics of several commercially valuable trees has not been secured—promises to simplify any future operations that may be undertaken. An early start will be made on each reservation by enclosing 2 or 3 acres, and a sufficient number of well-selected trees planted as will provide the necessary knowledge to permit of the adoption of a general planting-scheme that will meet local requirements, and entail a minimum outlay in establishment and subsequent management. It is gratifying to know that at each experimental area little danger from exterior fires is anticipated, as no vegetation of an inflammable nature clothes the surrounding surface. All work will be carried on precisely after the manner adopted in the more favoured localities, and the artificial application of water to young trees will not be general. The result, then, should furnish ample statistics for the compilation next year of an interesting report on the proposition, and also provide data of a valuable nature to adjacent settlers should they be desirous of undertaking tree-planting work under abnormal conditions.

TREE-RAISING WORK.

In raising 6,658,630 seedlings the germinating-percentage must be regarded with much satisfaction. As seed of our principal tree—*Pinus Laricio*—was unprocurable for the previous year's sowing, the purchase of 398 lb. of seed and raising of some 4,600,000 pines of this species is perhaps the most interesting phase of the season's operations. Another excellent result has been attained in the production of over 750,000 sturdy *Pinus radiata* from 118 lb. of colonial seed. Also included amongst the year's total are the seedlings that have been specially grown for distribution to farmers, although a further year's development in these plants is essential ere the scheme can be launched in its entirety. Equally favourable returns have accrued from comparatively small sowings of the hardier species of gum—*Eucalyptus viminalis*, *E. Macarthuri*, *E. Muellervii*, and others—and in each district where afforestation-work is being conducted experiments with these trees will be made this season on a fairly extensive scale. The drying influence of high winds experienced during springtime caused tremendous losses in lined-out stock at both the Otago stations, but particularly at Tapanui Nursery, where over 30 per cent. of failures in transplantation eventuated. Immediately succeeding the transference to lines strong winds swept across the partially sheltered "breaks," and practically withered up thousands of the tender plants, even before the sap became active. Even those that survived remained in almost a dormant state until very late in the summer, when the prevalence of greater humidity caused extraordinarily vigorous growth. A trial sowing in unprotected drills of *Pinus radiata* seed, which had been immersed in a batter of red-lead and water, has been attended with such encouraging results that the future extension of the practice is justified. It is evident that the treatment is sufficiently effective for some time, as until germination begins the birds show no inclination to break the shell covering. Notwithstanding the complete inattention to the trial lines after sowing, a very fair growing-percentage resulted, and an unquestionably better class of fibrous rooted seedling for permanent planting remains. An attempt will be made in subsequent sowings to render the seed still less enticing to birds, by adding to the batter a more highly poisonous fluid. It is estimated that over 2,500,000 trees will be sufficiently advanced for permanent planting this winter, and, having sown a much larger quantity of seed this year than formerly, the operating nurseries should be in a position to greatly increase the subsequent output. Since the initiation of afforestation-work in the South Island some 26,680,158 trees of various ages have been utilized in extending State plantations, whilst an additional 2,731,773 have benefited domains and public institutions.

PLANTATION-WORK AND GENERAL COMMENTS.

The total expenditure allocated to the general maintenance of the established plantations and extension work reached £6,420 Os. 10d. Some 749½ acres were afforested with 2,022,135 trees, in addition to a further 221,254 for replanting purposes. On a statement preceding the report will be seen details supporting an expenditure of £90,051 1s. 1d. since initiation, and, although 21,367,564 trees were originally used in the planting of 8,223 acres at the various stations, probably 30 per cent. of this number have, since attaining the desired object, been naturally suppressed. The usual measures were adopted in carrying on the various works, although the slightly increased cost in pitting and planting must be attributed to the existence of much less regular conditions. Solely free labour has been directed upon tree-planting work this year. The effect of the war is now being felt, as the gradual exodus for the front of the right type of plantation worker makes it a difficult matter to replace him. Already nine employees have been accepted for active service by the Defence Department, and others are contemplating a similar move. The progress of trees, which is detailed in each of the district stations, may be regarded as equally satisfactory as in previous years, and specially pleasing is the upright development of trees growing at our Canterbury plantation. Thinning operations have begun on a small scale at Hammer Springs, where it has become necessary to give more growing-space to the ten-year-old *Pinus radiata*. It was my intention of referring to this matter at some length; sufficient data, through the incompleteness of the undertaking, not being available, a special tabulated review will be included in a subsequent return. So far the actual expenditure attached to the cutting down, removal, and stacking of a cord of timber for firewood purposes amounts to 10s., and as the disposal of the pinewood at £1 per cord, delivered locally, promises to be an easy matter, the future financial success associated with our preliminary timber-cutting is promising.