

ship, and the enthusiasm of the Engineer in charge—Mr. A. R. Blackwood—will surely be rewarded in the near future by not only the presence of efficient shelter and valuable forest, but the gradual conversion of the whole surroundings from its natural bareness to an attractive spot.

#### THINNING OF PLANTATIONS.

In our southern plantations indications are not yet sufficiently distinct to merit wholesale thinning operations being practised, and in districts where there is ample scope for the disposal of small-sized poles for fencing-stakes, fuel purposes, &c., it is not considered a wise policy to introduce the axe until natural domination is evident generally. Our year's light thinning-work was devoted principally to a small area of 20 acres at Hammer Springs Plantation, where some 240 cords of firewood were cut from 3 acres *Pinus radiata*, 2 acres *Pinus muricata*, 9 acres *Betula alba*, 6 acres *Alnus glutinosa*, at a total labour cost of £119 14s. 6d., inclusive of haulage and stacking. Of this quantity some 48 cords were sold locally at £1 per cord, and there should be little difficulty experienced in disposing of the remainder of the fuel at an equally remunerative price. The net profit on this initial thinning transaction amounts to 10s. 2d. per cord. The *Pinus radiata* block was originally planted for shelter purposes at 4 ft. apart, and after twelve years' growth the trees have reached a height of about 35 ft., with an average girth, breast-high, of 15 in. In removing about 1,100 stems we have now 800 of the more finely developed boles per acre at a spacing-distance that will permit both girth-development and stability. To foster the expansion of laterals on the *Betula alba* marginal belts the removal of over one-half of the trees was effected, and already the wisdom of this act is apparent. There can be no doubt that our original spacing-distance—4 ft.—although in accordance with Continental practices, was excessively close for any variety planted. The fast-growing *Pinus radiata* need not even under the most disadvantageous conditions be spaced nearer than 6 ft. or 7 ft., whilst greatest success might be expected from planting other species at from 4 ft. 6 in. to 6 ft. apart. In continuation of the thinning proposition it is to be hoped that tests in timber-creosoting will be attempted in the State plantations during the approaching winter.

#### WILLOW-GROWING.

The importance given to willow-growing on the Continent, backed up by profitable returns from incontestable statistics, convinced me that our rural industry might be promoted by judiciously cultivating the species of the *Salix* found most suitable for local demands. Although many private tree-growers possess several varieties of the willow, and are in the position to tender valuable information regarding its cultivation, it very frequently happens that much doubt is expressed regarding the correct nomenclature of the genus. Having discussed the matter during my recent tour with Dr. Henry, of Dublin, this gentleman was instrumental in procuring for the Department the following cuttings, which have since been lined out at Tapanui and give every promise of success: twenty-four *Salix alba* (var. *caerulea*), thirty-six *Salix hippophaefolia*, thirty-six *Salix triandra* (black mauls), thirty-six *Salix triandra* (stone rods). The *Salix alba* var. *caerulea* is the true cricket-bat willow, and the value of the wood may be gauged from the fact that in England it is not unusual for cricket-bat makers to pay as high as £100 for a single specimen. The excellence of the timber for making wagon-floors, tool-handles, or for any purpose where strength combined with elasticity is required is universally known, and surely merits well-directed experiments and subsequent extensive planting of the species both by private enterprise and the State. *Salix hippophaefolia* is one of the basketmaking varieties that possess unique characteristics, inasmuch as it is believed to be the only variety with great absorbent powers. It is absolutely superior to all others when growing under sewage conditions, and for this purpose alone should prove to be immensely valuable in the Dominion. *Salix triandra* is one of the finest and mostly used willows for basketmaking, and is admirably adapted for preventing erosion along the banks of watercourses. Although basket-making is carried on fairly extensively throughout the Dominion, recent interviews with gentlemen connected with the industry show that rods of a very inferior quality are often received, and of course greatly influence the value of the manufactured article. There certainly appears to be ample scope for fostering the basketmaking industry, which, however, can only be accomplished by specializing in the cultivation of the more valuable willows. During the current season arrangements are being made to form willow "stools" on selected nursery areas, to facilitate and expedite propagation of the species, and in addition a few plants will be distributed throughout the Island to interested gentlemen willing to co-operate with the Department in acquiring data relating to the growing of the partially neglected *Salix* genus.

#### EXPERIMENTING WITH POPLARS.

It is gratifying to be able to refer to the improved rate of progress made by the fringing poplar-belts on plantations. Hitherto only a very limited measure of success was attained with either *Populus deltoides* or *P. fastigiata* on high altitudes; but by cutting the young tree down to within an inch of the previous year's wood and subsequently disbudding eventuating shoots the result justifies the optimistic opinion formed of the possibilities of these fire-resisting trees.

The advantage accruing from the possession of reliable knowledge pertaining to fast-growing trees of from medium to good quality cannot be overestimated, and the decision to exhaustively test the growing capabilities of hardy poplars under contrasting conditions is worthy of adoption also in other genera, few species of which have been systematically experimented with. Dr. Henry has for years past been engaged in research work associated with the production of distinctly new trees by hybridization, and his labours have been rewarded by raising poplars entirely different in habit and rate of progress to the parent trees. Whilst in Dublin the professor kindly detailed his methods, and showed me the new artificially made specimens, the vigour of which completely outclassed their neighbours—themselves hitherto being recognized as exceedingly rapid growers. A consignment containing 276 cuttings of the following twelve varieties of poplars was received from the Kew Botanical Gardens,