

hundreds of thousands of acorns sown *in situ*, after germinating excellently on the sheltered hillsides, subsequently failed to respond to the conditions, and the ground thus occupied was ultimately replanted with pines. During the past two or three years at Tapanui Nursery the testing of various *Eucalypti* has been quietly undertaken, and the success attained has led me to believe that the more favoured positions at our local plantation could be profitably afforested with the hardier gums. There is, however, always a danger through late frosts of fatal injury to even the stronger members of the *Eucalyptus* family in the inland portions of Otago, and bearing this in mind, it would surely be unwise to at least for some years operate on an extensive scale with any of the Australian hardwoods. During the coming spring a trial planting will be made with *Eucalyptus viminalis*, *E. Macarthuri*, *E. coriacea*, *E. Gunnii*, and other species, which the Superintendent at Rotorua Nursery has promised to forward for comparative purposes with those grown locally.

FIRE-PREVENTIVE MEASURES.

Depots of Fire-fighting Appliances.—It is generally recognized that greater immunity from wholesale loss by fire is felt in creating isolated medium-sized plantations than in operating over extensive continuous tracts of country; but there can be no doubt that small plantations possess many disadvantages, which, however, are being partially overcome as new ideas are introduced. No single area now being afforested in the South Island is sufficiently large to merit the engagement of a Forest Ranger at the present juncture; but, by the initiation of a system whereby depots containing fire-fighting appliances are established at various accessible points of each planted area, the problem of reasonable fire-prevention becomes less complicated. At both Conical Hills and Dusky Hill Plantations, neat galvanized-iron boxes (as illustrated), measuring 6 ft. by 3 ft. by 4 ft., have been constructed, and each one is provided with the following appliances, which would likely be invaluable in subduing any outbreak of fire: Ten handled sack fire-beaters; two pipe torches; five shovels; two small axes; four buckets; one water-bag; three pannikins; one oil-bottle and waste. Although the bag fire-beaters are not very serviceable in their ordinary state, owing to their susceptibility to ignition, the information kindly tendered by Mr. A. G. Napier, Superintendent of the Dunedin Fire-brigade, has led to adding greater efficiency by impregnating the sacks with an antipyrène, several of which solutions are now being experimented with. The greatest drawback lies in the necessity of having to keep the bags in a moist state; but probably the beaters will be superseded during the coming year by wire or other non-inflammable appliances. Employees are made conversant with the exact position of each depot, and how to combat an outbreak of fire in the incipient stage. Similar provisions are being made at the Central Otago and Hanmer Springs stations.

Grazing Fire-breaks with Sheep.—Experiments in keeping down coarse vegetation on fire-breaks with the aid of sheep are sufficiently advanced to warrant its adoption on a much more extensive scale. So far no injury to either the growing trees or floor of the young forest is apparent on the fire-break, whilst certain fire-breaks have been kept in an absolutely effective condition. The introduction of the grazing system may be specially recommended for plantations where a rocky surface makes cultivation-work both costly and difficult. It is likely that a small area would require to be put down in turnips in case of a severe winter being experienced; but this would not influence the financial aspect to the extent of making the undertaking less profitable.

Cultivation-work.—In carrying out the necessary cultivation-work connected with the fire-lines throughout our four plantations an area of some 262 acres required to be either ploughed, disked, or harrowed, according to the state of the surface. So far it has been possible to conduct this labour during the spring and early summer months, when teams can be spared; but in the larger-sized plantations the question of keeping at least one team steadily occupied until the advent of autumn is now under consideration. Although the amount of horse-work was reduced as much as practicable, an expenditure of £140 was incurred in this direction.

Fire-resisting Trees.—A feeling of unanimity prevails regarding the necessity of making still greater use of certain fire-resisting trees for not only the outer fringes of plantations, but also for bordering the internal fire-barriers on either side. With this end in view, a number of *Populus deltoides* are being planted in nurseries for stooling purposes, and future propagation of this valuable poplar will be a simple matter. Several attempts at striking the cuttings at fairly high elevations on the plantations resulted in only a small percentage taking root, and it has been decided not to repeat this system in future. An interesting test to disclose the extent to which poplar foliage may be subjected to heat without becoming ignited resulted very satisfactorily, and this demonstration, although on a comparatively small scale, was sufficient to convince one of the advantage that would accrue from the inclusion of *Populus deltoides* where fire-resistance is aimed at. The autumn foliage requires great heat to be applied before bursting into flames, and even then is quickly subdued, so that a surface fire would not be assisted to any extent by fallen poplar leaves.

REMOVAL OF PRISON CAMP FROM HANMER SPRINGS.

In adherence to the decision of the Justice Department to discontinue the utilization of prison labour at Hanmer Springs, operations ceased in October, after consideration had been given to the Department's request to complete the season's tree-planting scheme. As free labour has hitherto been used in conjunction with prison labour on the plantation, little difficulty was experienced in numerically strengthening the free working-gang, for the accommodation of which several prison huts were purchased for the formation of a central camp. Very satisfactory progress was made by the prisoners during the last seven months in camp, when work to the value of £462 12s. 4d. was performed. This