

CONICAL HILLS PLANTATION, OTAGO.

(Area, 3,672 acres; altitude, 400 ft. to 1,050 ft.)

Weather-conditions have not favoured afforestation operations in this locality during the past season, and the usual measure of success attained is due principally to the excellent work performed by employees, who on rare occasions require to be reprimanded for careless application of labour.

Tree-growth generally is perhaps slightly below that of the previous year, excepting in sheltered gullies and flats, where annual development of such trees as sycamore, ash, and the spruces is unprecedented. All varieties responded to what appeared to be an early spring; but an unexpected frost not only proved fatal to a number of the more tender Oregon-pine leaders, but seriously interfered with the season's progress of all trees. The uniformity of growth in the *Pinus Laricio* and *Pinus austriaca* blocks is conspicuous, and the former species has again proved its superiority over any other trees operated with here, for succeeding under adverse conditions. An interesting trial planting last season of 10,000 *Thuja plicata* discloses the possibility of raising the tall-growing Pacific red-cedar at this station on the more favoured sites. Since the inception of the Forestry Branch much experimental work has been conducted; and we are now aware that many useful timbers at present neglected could be successfully grown, but only in the most fertile spots, which at the present time, however, are being allocated to the more valuable *Fraxinus excelsior* and *Fraxinus americana*. The larches have made fair headway, although their increased rate of progress at the base of hillsides is becoming more conspicuous with each succeeding year. Over a fair-sized area rocky outcrops have quickly been covered with the sturdy bull and heavy pines, which are undoubtedly the hardiest of the *Pinus* family grown here. Where shelter-belts of *Pinus insignis* and *Pinus muricata* have been formed the beneficial effects on the more delicate trees on the leeward side is apparent, and shows the wisdom of making provision for shelter at the earliest moment.

Pitting and Tree-planting.—Some 1,467,875 trees were planted out during the year, but of this number 357,500 had to be utilized in replacing failures in the previous year's planting. This labour was undertaken by contract at 11s. 6d. per thousand, and employees were thus able to earn between 7s. 6d. and 8s. 6d. per day. An excellent growing-percentage was obtained throughout, and the most minute inspection reveals but few deaths in any of the varieties dealt with. The custom of using at least a small number of trees direct from the seed-beds was not repeated this year, and perhaps this restriction was the chief factor in reducing the losses in transplantation. It was possible to get a sufficient number of pits prepared by contract at 12s. 6d. per thousand, and it is doubtful if the Department could carry on similar work by day-labour at a cheaper rate.

Fire-breaks.—The early possibility of grazing all the unplanted area with sheep was fully discussed, and every effort will be made during the current season to erect light divisional fences fringing the external lines of trees. Opinions are often expressed by farmers to the effect that sheep should be given free access within the planted reserves; but the amount of injury created to the floor of the young forest by excessive tramping makes the fulfilment of the idea undesirable. Some 90 acres of fire-breaks were put into an effective state by either ploughing, disking, or harrowing, as the state of the ground demanded. The surface vegetation has remained in such a moist condition throughout the season that it has not even been possible to conduct the burning-off of tussocks, fern, &c., so essential prior to pitting. This immunity from fires, however, is not enjoyed annually, and special precautions against any outbreak are usually in force during the summer and autumn months.

Divisional Plans.—The revision of records and compilation of reliable plans occupied more time than was expected, but the labour so directed will in future greatly simplify management.

Buildings, Fencing.—A small expenditure was devoted to the erection of two huts for employees connected with our lower plantation, and the extra comfort thus provided is appreciated by the occupants. It was evident from the outset that successful planting could only be accomplished by adhering to the system of divisional fencing, and effecting a clearance of rabbits on the season's planting-ground, before seriously attending to that area not immediately required. This method is still in force; and the dismantling and re-erection of some two miles of wire-netting fencing was carried out by contract, at 3s. 6d. per chain for each operation. The remaining area of some 800 acres will not require subdividing, and ere the ground available has been afforested it will be possible to permanently remove the internal fencing-material for enclosing any newly acquired property.

General Maintenance.—In the supporting statement of expenditure appended hereto it will be noticed that by far the largest sum is written against "general upkeep" of plantation; but it must be remembered that included in this item is such labour as tree-pruning, clearance of coarse vegetation around young trees, attention to roads and fire-breaks, replanting of failures, horse-shoeing, rabbiting, supplying fuel to employees, cutting of noxious weeds, and other minor works.

Economy is introduced wherever practicable; but as the area planted becomes more extensive it is only reasonable to anticipate a correspondingly increased expenditure in the general upkeep. This rabbiting-work has been made all the more difficult through our inability to burn badly infested gullies, as amongst the rank fern and tutu the presence of burrows is often overlooked by rabbiters, and dogs and ferrets hunt reluctantly under such conditions. More labour was incurred in securing fuel for employees this year, as our stock of partially decayed fencing-posts was exhausted, and it became necessary to cut and deliver firewood from Dalvey Bush, a distance of about seven miles from our central camp, over rough roads. The expenditure for the year was £3,217 12s. (an increase of £2 on the previous year), which provided employment for 22.5 men. Since the initiation of the afforestation-work at this station £20,772 16s. 2d. has been expended, the details of which may be seen on reference to the following table:—