

grower. If size and strength of timber is required, then the gums must be grown on dry and not on moist lands. The different results obtained from the same varieties of trees grown under different conditions is surprising. Trees on the sunny side of a range are better in quality than those on the shady side. Trees near the top of a hill are stronger in texture and sounder in grain than those grown in the moist valleys or flats below. The timber even on the sunny side of a tree is better than that on the shady side, and so on. If the forester, therefore, works upon these known data he can produce with almost certainty the particular quality he desires. Much, however, depends on skilful and judicious treatment of the plantation in the matter of thinning.

Among native timbers most suitable for mining purposes, fortunately for the industry, generally found in auriferous regions, the beech stands pre-eminent. My knowledge of this timber is not extensive, but I think, for works requiring great stability and lasting properties, very few of the native trees are equal to it except kauri, silver-pine, kowhai, and rata. The first-named is too valuable for use except in high-class work; the second and third are scarce, and confined to certain districts; and the fourth, though universal in growth, is not sufficient in quantity to supply any heavy demand. The white-pine rots too quickly; rimu is good, but very variable in quality. The chief drawback to all these timbers, however, is their non-reproductive character and excessively slow growth.

Now, most species of the gum reproduce from stools; hence a plantation once formed may be cut out at any age required, according to the nature of the crop fixed upon. Trees may be cut for 8 in. props at about eight years, 10 in. at ten years. When a complete clearance of the entire area has been made, if the trees are cut quite close to the ground, a new crop comes up with great vigour. Many stools come up strong and healthy. These, of course, require thinning out, and then the young trees replace the old, and the supply may continue for many years in rotation. Of course, in time the crop grows smaller, weedier, and grub-infested, and eventually dies out. Then seedling trees should be introduced, and thus the supply is carried on *ad infinitum*. The stringy bark is probably the most useful tree for mining purposes that we have (three species: See list given under "Tree-growing in Canterbury").

It seems a pity that in the kauri districts that specially valuable timber should be used for mining purposes when other suitable woods are at hand, and I am of opinion that such use of it, except in a sawn or manufactured state for special work, should be prohibited. As, however, the question of timber-supply for mining purposes did not, in consideration of the present limited demand, call for any very great attention on my part, what I have written may be regarded as intended chiefly to insure the matter being considered and dealt with in good time, as in any comprehensive scheme of State forest conservation all interests must be considered. Such a scheme ought to provide for dealing firmly and even severely with forest offenders, and at the same time secure the interests of all who depend upon forest produce for their living, or for use in their trades or business, be they miners, sawmillers, or gumdiggers. Those, however, who use the produce should remember that the State rights of the forest are vested in the nation, and that wanton destruction by fire or otherwise, and wasteful extravagance, are or should be serious indictable offences.

STATE NURSERIES AND FREE TREE-DISTRIBUTION.

In Victoria there are four nurseries for growing trees—viz., Macedon State Nursery, the principal distributing centre for State plantations and the general public; Creswick Nursery, used principally for raising trees to supply the local plantation; Havelock and Gumbower, also for local supply. The three last-named—Creswick, Havelock, and Gumbower—are worked economically, only one man being permanently employed, and though extra men are occasionally put on, the annual cost is merely nominal. Nurserymen in charge are paid from 8s. to 11s. per day; foremen, 7s. to 7s. 6d.; and labourers, 6s. 6d. per day.

The trees raised in all these nurseries are for the most part those generally recognised as specially valuable for particular purposes. The best pines and spruce firs, for instance, are grown and sent for plantation in State reserves, the grounds of public institutions, the surplus being distributed free to the general public on application.

The Macedon State Nursery is, however, the chief centre of tree-cultivation and distribution. It is situated about 1,700 ft. above sea-level, within a quarter of a mile of the Macedon Station on the Bendigo line, so that trees can be sent to almost any part of the colony in a single day. The staff consists of a superintendent (nurseryman), one foreman, and five labourers, the latter being paid 7s. and 6s. 6d. per day respectively. The area of the nursery proper is 39 acres, of which 20 are under trees in all stages of growth. The annual output of trees varies from 50,000 to 120,000, of which at least one-half are planted in permanent lines in the various plantations of the department. The results of free distribution may be observed in the public reserves, gardens, and streets of every town throughout the colony. By adding to the comfort and beauty of localities, especially in hot districts, these trees not only make life endurable by their grateful shade, but have increased the value of neighbouring properties. Tree-planting by municipal authorities and by private persons is yearly increasing in Victoria, which may well be called "the garden colony" of the group.

Should the Government of New Zealand undertake forest reform, replantation is a matter of urgent necessity which must be grappled with promptly. New Zealand forests, unfortunately, do not easily renew themselves, as do those of Victoria. Plantations must therefore be a prominent feature of forestry in New Zealand, and the question of nurseries will therefore call for early attention. In choosing sites, geographical situation, variety of soils and climate, and many other matters must be carefully considered, contiguity to railways being an important factor in the calculation. Without laying down hard-and-fast lines, I would suggest Gore as a central position for a State nursery to supply the Provinces of Otago and Canterbury; also, when the projected railway