

timber-growing unsurpassed in Australasia. In any case, the matter can be tested at small expense prior to the adoption of an extensive system of plantations. Small areas could be fenced off and planted with exotic trees, which, after being carefully watched and tended for a few years, would furnish reliable data upon which to decide as to future operations. There is no reason why some of the more valuable indigenous trees also should not be grown in this district. Totara, kaikawaka, rimu, white-pine, silver-pine, and even kauri, all of which (the last named excepted) grow luxuriantly at no great distance away, would no doubt do equally well here. Of totara, for instance, I feel sure from my observation that the young trees would grow well, as I find in the forests of Wanganui and Taumaranui some of the finest trees of this species in the colony grow freely to large size. In this locality, indeed, the Maoris obtained almost from the date of their arrival in New Zealand timber for their large war-canoes. Mixed plantations of totara, kaikawaka, white-pine, silver-pine, and rimu should be profitable here, and thrive well once the young trees established themselves.

For plantations of indigenous trees on these pumice-lands no doubt some sort of shelter would be required, and the manuka, which grows freely here, could be planted with the better classes of timber, and utilised for "nursing" purposes (*vide* "Tree-planting in the Provinces of Otago and Canterbury"); *Leptospermum scoparium*, *Melaleuca squarrosa*, and other tea-trees common in Australasia, might also be used as "nurses."

The adaptability of the *Pinus insignis* to pumice-lands has been proved, and this tree could also be grown as shelter, with belts and cross-belts of tea-tree and manuka.

Many of the Pittosporums, Olearias, and rewarewa could also provide cover for other trees, and by planting these thickly—that is to say, 8 ft. apart, "nurses" included—the trees would in a short time form their own cover, when the "nurses" could be cut out. Totara, silver-pine, and kaikawaka are trees, it may be noted, that stand transplanting remarkably well.

Considering all the circumstances of the case, I have great hope that the pumice plains will one day be covered with fine forests, and, assuming that such lands as are now in the hands of the Maoris will revert to the Government, that these tracts of country will become a valuable asset.

The question of tree-planting is specially a commercial matter: "But will it pay?" Unquestionably Yes, provided always that it is undertaken on an extensive scale by the Government, and dealt with in a statesmanlike manner. Individuals who plant trees rarely see the result of their forethought and public spirit, though their sons and daughters may do so. Hence tree-planting as a commercial matter does not commend itself generally to private persons. With a Government it is very different, for, though the statesman who inaugurates the enterprise may not live to see its consummation, there is a public always existing, and it knows that money judiciously expended in plantations will enrich the country a hundredfold. It is merely a question of time. If one Government does not gain revenue by such expenditure, another later on will, and the people reap the advantage in the long-run. Apart from the question of direct profit, the means of employment provided by such work must be considered as of some present value. In no case can the money spent in tree-planting be considered as thrown away or wasted, since it provides for an asset growing year by year more valuable, until it becomes marketable at substantial profit, or, properly conserved, continues ever after a source of steady and considerable revenue.

In locating plantations in New Zealand, as elsewhere, the following points *must* be considered: (1) Ready means for transit of timber at lowest rates by water or rail; (2) selection of sites which command one or other or both of these; (3) depth and character of soil, also climatic conditions; (4) protection by fences and fire-breaks; (5) careful supervision of each plantation; (6) method of cultivation to be adopted, whether ploughing or holeing or both; (7) grouping or sectional disposition of growing trees, according to soil, aspect, &c.; (8) the formation of roadways or fire-breaks; (9) contour survey or working-plan; (10) the supply of trees from nurseries. All of these are matters of the greatest importance, which can only be effectively dealt with by an expert.

So far, I have discussed principally the character of the land, the planting of trees (exotic and native) and the transit of timber when grown. Regarding exotics, I think I am quite safe in stating that the Conifer family or order alone point to a great future for timber-growing in this portion of the Auckland Province. I find, as a matter of fact, that the pine already flourishes in and around Taupo, Rotorua, and Wairakei, in which localities spruce firs also thrive.

The altitude of the pumice plains does not exceed generally from 1,700 ft. to 2,000 ft. above sea-level even in the higher portions. The climatic conditions are therefore not severe, and I am satisfied by the success already achieved, albeit on a small scale, that plantations of exotics, especially spruce firs (*Abies*), larches (*Larix europea*), and other American and European woods—the timbers most in demand all over the civilised world—will return handsome profits, while such trees can be grown more readily than the native trees, and will give better results even than the regeneration of existing forests.

Recognising the difficulty of such regeneration, there is little doubt that the cultivation of exotic timber superior for building purposes to white-pine, rimu, and other native woods (such as spruce firs, Baltic pines, and others, which invariably command a ready market) would be much more profitable. Moreover, the climatic conditions of New Zealand are specially favourable to the production of first-class timber, and if exotics such as those referred to are extensively grown, that colony has every prospect of being the timber-producing centre of Australasia. American supplies will not last for ever, and, as mentioned elsewhere in this report a serious shortage is imminent. This must occur within a shorter time than that calculated by experts as the limit of existence for American forests—unless remedial measures are adopted—that is, thirty years. Clear pine is already getting scarce, and has increased in price, results which must shortly be experienced with reference to other American timbers in general use.

Since, then, crass ignorance in America, as in Australia, has resulted in woful devastation of the forests, and American supplies have been further reduced by the terrific fires that have so frequently swept clean thousands of acres of splendid timber, there is, as previously pointed out, all the more reason to seize the occasion, and make such provision as is possible to take advantage of the opportunity for profit to New Zealand which will certainly occur at no distant date.