

- (5) That the part which these exotic forests will ultimately play in the forest economy of the Dominion, one hundred to one hundred and fifty years hence, is difficult to predict. Experience in foreign countries where forestry has been practised over a period of several centuries indicates, however, that exotic species have definite limitations, and for this reason the national policy must envisage the management of the indigenous forests to secure their maximum possible production of timber.

The State Forest Service has always kept this objective in view, and, coincident with the establishment of the exotic plantations, the silvicultural treatment of the various classes of indigenous forest has been studied. On the early completion of the establishment of the exotic forests as a supplementary resource, more attention will be given to the silvicultural treatment of the indigenous forests.

*Management of Indigenous Forests.*—On one feature of indigenous-forest management the public appears to be misinformed. The idea is prevalent that to preserve the existing indigenous forests to posterity, it is sufficient to fence them against stock and to protect them from fire. The idea is entirely erroneous. The composition of the forest gradually changes, one type of forest growth succeeding another. Generally, the valuable timber-producing species are replaced by weed species such as kamahi (*Weinmannia racemosa*), taraire (*Beilschmiedia taraire*), rewarewa (*Knightia excelsa*), &c. The outstanding example is the remaining kauri (*Agathis australis*) forests. Of all the indigenous softwoods amenable to silvicultural treatment, kauri is outstanding, and the results of investigations have been most promising. In many of the remaining kauri forests the percentage of overmature timber has risen already to as high as 50 per cent. (by volume), emphasizing the urgent need of marketing such timber before it further deteriorates, and of managing the forests to encourage the growth of the immature trees, and to secure re-establishment with young growth. By no other means can the kauri be preserved to posterity. If further neglected, the overmature trees will continue to decay and die, and the healthy ones will follow suit much quicker than otherwise, until ultimately the whole of the kauri growth will be replaced by a climax succession of taraire, rewarewa, &c., which already are commencing to take command. As soon, therefore, as the demand for timber returns to normal, it is the intention of the State Forest Service to bring the whole of the national kauri forests under management plans which will ensure their perpetuation for all time.

Other problems upon which work has already commenced—although admittedly on a small scale—concern the management of the rimu (*Dacrydium cupressinum*) pole-type forests of the coastal plains of Westland and the silver-beech (*Nothofagus Menziesii*) forests of Southland. How to introduce selective logging into the rimu pole-type forests without complete paralysis of the industry operating on these areas is a difficult question. The first step to be taken is the collection of increment data, and the completion of a growth study which has been in progress for six years is now in sight.

In review, the general forest policy may be stated as the perpetuation of the indigenous forests and the provision of a supplementary exotic-forest capital which, by rapid growth, will eke out the supplies of indigenous timber and bridge the gap between the exhaustion of the overmature indigenous forests which otherwise would occur, and their conversion into healthy productive forests. With the establishment of the exotic plantations now approaching completion, it will be possible to give proper attention to the silvicultural treatment of the indigenous forests. The timber-supply position of the future envisages a balanced yield from both exotic and indigenous forests, and the future alone will determine the relative importance of the two sources of supply.

*Composition of the Exotic Forests.*—For the establishment of exotic-forest resources it has been the policy to concentrate upon those species which, from previous experience in New Zealand, appear suitable for growing in the various localities and each of which possesses a diversity of uses. Except on a strictly experimental scale, planting has been avoided of any species which yield timber either of restricted uses or intended for the production of any one type of product. Briefly, the policy is one of diversification of species with diversification of use.

The underlying motive has been to spread the risk of wholesale or epidemic damage by insect and fungal attack, and it is primarily in pursuit of this objective that the current plantings are largely of Douglas fir (*Pseudotsuga taxifolia*), Corsican pine (*Pinus Laricio*), pondosa pine (*P. ponderosa*), Bishop's pine (*P. muricata*), lodge-pole pine (*P. Murrayana*), insignis pine (*P. radiata*), and Lawson's cypress (*Cupressus Lawsoniana*). At the completion of the establishment programme it is anticipated that no one species will form more than 30 per cent. of the total. In search of new species for future work, experimental plantings, of course, are being made every year.

The purpose of avoiding the establishment of species with restricted use or for any one particular purpose is to guard against the failure of the anticipated demand owing to the disappearance or changing of the particular field or fields of use during the growth of the trees. Again, exotic trees may produce timbers quite different to those produced in their native habitat and unsuitable for the purposes anticipated. No risk is incurred, however, if woods of high general utility are produced, since new uses are developed almost as rapidly as old ones disappear or change. A specific instance occurred in California at the end of last century, when Australian eucalypts were established for the production of poles and railway sleepers. The growth of these trees was too rapid, and consequently the wood split and shrank badly while seasoning, and was of poor durability. They proved unsuitable for the purposes mentioned, and commanded only a firewood value.

*Utilization of the Exotic Forests.*—The saw log has always been visualized as the major product of the exotic forests, and no exotic forests have been established for the production of either pulpwood or any other particular product. As the population of the Dominion increases and likewise the consumption of pulp and paper products, it is possible that economically sized pulp-production units may become feasible. Should this prove to be the case, a supply of raw material for the cheaper classes of pulp and paper products, which form the bulk of the trade, may become available from the exotic