

Maramarua is an exotic forest of some 14,000 acres, of which about 10,000 acres are in *Pinus radiata*. It is the experience of those farmers whose creeks rise in this forest that, far from producing a better and more regular supply of water, the planting is tending to dry them up altogether, and several have had to put down bores to maintain an adequate water supply. In this forest there is a creek whose catchment has been planted in *P. radiata*. Formerly a certain culvert in it was constantly washing out and the bridge which subsequently replaced the culvert was at times covered by flood waters. Since the trees have grown up the floods have become progressively smaller until now a rise of more than two feet is almost unknown. There is now a heavy canopy in this area and the ground cover of manuka scrub has been almost completely suppressed and a heavy litter of needles has accumulated.

A very similar adjoining catchment was planted in *P. laricio* at the same time. At the age of 16 years when these observations were made, the canopy of *P. laricio* had not yet suppressed the scrub entirely and there was a much lighter accumulation of litter. Observations on the stream flow in these two creeks over a period of two weeks showed that the rise in each after rain began at the same time but was more rapid and reached a greater height in the *P. laricio* catchment.

At Tairua Forest on the Coromandel Peninsula a similar drying up of streams has occurred. Here a water supply was put in some 15 years ago in an area covered with low bracken and manuka. *P. radiata* was planted at about the same time. This water supply has now almost completely dried up, as have other streams flowing out of the opposite side of the same area.

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It is understood that a reduction in the normal flow as well as flood level has been observed in some exotic forests elsewhere in the Dominion. Further information on such occurrences or conflicting experience would be valuable; also any evidence which may indicate whether such effects are permanent or transitory.—Ed.

NATURAL REGENERATION OF MONKEY PUZZLE (*Araucaria imbricata*) IN N.Z.

It may be of interest to know that *Araucaria imbricata*, Monkey Puzzle or Chile Pine, produces fertile seed and in favourable localities is capable of regenerating naturally in New Zealand.

While in the Tapanui District in September, 1946, two small specimen trees approximately 30 feet high and 12 inches D.B.H. were noted in the grounds of the Roman Catholic Church. One of these trees was bearing cones and numerous sound seeds were found in the grass beneath it. Further examination showed that four or more

seedlings were present, one of which had been decapitated some time in the past, probably when the lawn was mowed. This seedling had developed a new leader which at the time of inspection was about 2 inches long. The seedlings had an average height of 4 inches.

The large *Araucaria imbricata* at Tapanui Forest Headquarters also produces sound seed but there were no seedlings round this tree, in all probability these seed are taken by rats etc.

It would be interesting to know if natural regeneration of this species or other *Araucarias* has been observed elsewhere in New Zealand.

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Types of *Pinus radiata*.

Sir,

In Vol. V, No. 1 of the New Zealand Journal of Forestry Mr. Owen Jones in his paper "Some Re-establishment Problems" points out that *Pinus radiata* is a markedly variable tree, with several distinct types or races. With this I agree. The rather rough type of tree with crooked stem and heavy side branches fairly common in the Central Plateau plantations in New Zealand, is much less frequent in those in South Australia. However, there is appreciable variation in types in the latter. The better general type occurring in South Australian plantations may be accounted for in part by restricted growth due to the lower annual precipitation and to the winter rainfall climate; also to the more intensive management practised in South Australia. Early thinnings are possible, since material down to 4 inches diameter, and from some plantations to 3 inches diameter, is saleable. Thus many defective trees can be eliminated early in the rotation. It may be pertinent to add that the rate of growth on reasonably good sites in this State is very satisfactory.

Mr. Owen Jones stresses the importance of collecting seed for preseedling or production of nursery stock from a selected types with certain desirable characteristics. Professor Champion (1) states that it is necessary to select standing crops of good type and to conserve and manage them expressly for seed production. Do any such exist in New Zealand? Something may be gained by collecting seed from trees of the desired type in a stand containing many types, but it is almost certain that some pollen from trees of undesirable types will be carried to the female cones of the mother trees, and, in consequence, at least a proportion of the progeny will vary from the desired type.