of the trees, and often under adverse conditions of soil and climate. The best means of determining the average rate of growth would be to select in the forest several trees of the same age, and note their progress and development on a certain day annually for a series of years. If this were done systematically, I am satisfied the rimu would be found a faster grower than it is now supposed to be.

As observed by me, rimu grows luxuriantly in the north of the South Island, near Havelock, Nelson, Westport, and in Southland. Rimu of splendid quality is also found in the Pelorus Valley, on the Buller, on the coast around the coal-mines of Westport, on the Grey and Arahura Rivers, along the railway to Jackson's, and between Greymouth and Hokitika. Very fine figured rimu is also found at the mills about Kumara; while some of the best I have seen grows in the forests between Waimarino and Taumaranui. Still another extensive rimu forest extends back from the Wanganui at Pipiriki, right through to the volcanic plains beyond Raetihi to Waimarino.

If this country is thrown open for settlement the forest must be sacrificed, and I therefore strongly advise the Government to have it permanently reserved as a State forest.

Rimu, white-pine, matai, totara, miro, and beech are found associated all over New Zealand, and at Dannevirke, Hawke's Bay District, rimu and white-pine grow to very large dimensions. Here also I saw some of the largest rata and totara—immense trees, both as regards bulk and height.

Rimu is not good material for fencing-posts, as it decays quickly in the ground—generally first at the surface; it is, however, the most extensively used of native trees in New Zealand for building and decorative purposes.

WHITE-PINE: KAHIKATEA (*Podocarpus dacrydioides*), A. Richard.

This magnificent tree, with its massive bole running from 40 ft. to 130 ft. in height, ranks next to rimu in distribution and utility. As a general rule, the trees run to 60 ft. or 70 ft., and give mill-logs a little larger than the average rimu, but, like it, easily handled.

The proportion of sapwood is even greater in young white-pine trees than in rimu, and it is therefore the more undesirable that these should be utilised in the building or manufacturing trades before they have matured. To the cutting of trees when full of sap and without regard to age may be ascribed the distrust entertained as to the durability of both rimu and white-pine.

In these days of education, the buyer of timber is much more particular as to the quality of his purchase than was formerly the case. It is, therefore, necessary that sawmillers should abandon the old slip-shod methods, and adopt up-to-date systems in treating timber for the market. This is especially necessary with reference to timber sent to London and other of the world's markets, since Home and foreign buyers are most particular on the very points upon which Australasian sawmillers have been apt to lay little stress.

Now, white-pine has the reputation of being non-durable for outdoor purposes. Yet, if due attention were paid to the selection of mature trees, the cutting of these trees only during the proper season, and possibly the seasoning of the timber by either steam or simple drying, this, like the rimu, would probably be found at least equal to many others that are now held to be of greater value. It is tolerably clear that sawmillers will not be able for much longer to ignore the opinions of experts in this connection, and that the question of the proper season for felling particular species will determine the success or failure of any attempt to establish an extensive export trade in timber with the world's markets.

The white-pine, unfortunately, is very often the victim of a small but persistent foe in the shape of a borer, which tunnels through the wood in its manufactured state. In New Zealand the ravages of this insect are very formidable, but possibly it may be destroyed in the process of seasoning, either by steam or otherwise. If the eggs or larvæ can be so destroyed, and the timber is exported immediately, it is quite possible that under other climatic conditions this pest may be destroyed or escaped from. A similar borer infests the *Eucalyptus* in both Victoria and Tasmania, but is by no means so injurious as to this timber. Though mischievous, in so far that its tunnels admit water, the *Eucalyptus* borer rarely affects the strength or general utility of the timber, though it possibly to some slight extent may reduce its durability. Professor Kirk, I notice, recommends carbolic acid as destructive of this pest, and probably creosote would be equally effective.

Kahikatea, like rimu, is extensively used for cabinet-making, and in the building trade. The timber is light coloured, sometimes pale-yellow, and has been compared by Professor Kirk to the yellow deal of Europe (*Pinus sylvestris*). I concur with the Professor in the comparison, though it must not be forgotten that the New Zealand timber is of much slower growth and more difficult of regeneration than its European prototype.

On account of its toughness, white-pine is extensively used for boat-building, and of late years very large quantities have been shipped to the other colonies for conversion into butter-boxes—a purpose for which it appears to be better suited than any other timber. The fact that the wood is absolutely free from any taint or odour makes it specially valuable for the conveyance of so perishable and easily affected a commodity as butter.

My remarks as to the quantity available, and distribution of rimu, apply also to the white-pine.

According to Blair's "Building Materials of Otago," and Balfour's experiments, the specific gravity of kahikatea varies from 0·459 to 0·557, and Mr. Blair gives the weight of two specimens (green) as 38·921 lb. and 43·899 lb. per cubic foot, and (seasoned) 28·636 lb. and 29·505 lb. Four specimens from Banks Peninsula, Balfour finds, averaged 29·11 lb. The breaking-weight of pieces 2 ft. long and 1 in. square, supported at both ends and loaded in the centre, is set down by Blair, as the result of four experiments, at 308 lb. to 358 lb.; and Balfour states that for pieces 1 ft. long and 1 in. square, supported at one end and weighted at the other, the breaking-point ranges between 90 lb. and 155 lb.

4—C. 8.