HIGHER FORESTRY EDUCATION FOR THE FOREST PRODUCTS INDUSTRY

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Wood is very wonderful — and it is probably the cheapest, most versatile, self-renewable basic raw material known to man. In this address, I want to show how important the forest-based industries are to New Zealand's future prosperity, and how completely their future is linked to the educational qualities of the men who will grow the trees and of the men who will use them. I want to press for a better appreciation by the tree grower of the problems of the wood industry, and show how higher forestry education could help to overcome mutual problems. I want to press for a closer integration in all fields of our vast industry.

To establish the necessity for higher forestry education for the benefit of the forest products industry, it is necessary to prove that the importance of wood and the wood products industry is increasing; that the capital invested is such that the industry is vital to the stability and growth of the national economy; that the versatility of its products lends itself to higher education, and demands research into all phases, including the study of soil, climate, seed, tree, and log.

Statistical forecasts show that for exotics alone, requirements for both home market and export will need to be trebled by the turn of the century. This requires the staggering total of 500 million cubic feet per annum, and the establishment of at least double the present-day exotic forest area. The present-day value of the New Zealand forest estate is some £370 million, and represents a vast capital investment by the nation. By the year 2000, this figure is forecast to rise to £750 million, but I believe it could rise to the grand total of at least £2,000 million, and possibly much more — and within the planned acreage.

Official statistics show that the annual output of the forest-based industries has risen in value from £76 million to £105 million in the past five years, that the factory door value of wood last year was £40 million, that the industries added a further £60 million in value, and that these industries had an annual wage bill of £25 million. Again, by the turn of the century, I believe the annual output will rise to £400 million: the fourth largest primary industry in New Zealand offering more scope for expansion than possibly any other.

I attach little importance to the future of the indigenous forest industry. Unfortunately, the speed of world progress and development will not allow time to grow these magnificent species. They represent today a static or diminishing and embarrassing necessity to a large section of the forest products industry. The tremendous impetus in the next 35 years will be in the exotic timber industry. The consequent dependence on exotic species highlights the need for meticulous forestry planning, a complete understanding of all

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sciences related to the soil, the climate, and aspects of good farm forestry, including greater attention to applied silviculture.

“The wood specialist appears to be condemned to dissecting the dead carcass instead of moulding the living body,” J. S. Reid said at an international forestry conference recently. A very accurate summing up of the past, and a pretty good forecast of the future for practically all countries in the world. However, New Zealand is a notable exception. At the last World Forestry Congress in Seattle, a large part of the proceedings was given to papers dealing with the upgrading of, and finding uses for, low-grade timber. By the end of the Congress, the New Zealand solution was very apparent to me, and I wrote across the top of almost every paper just three words — grow better trees.

At this Congress, too, it was clearly demonstrated that there was an increasing world shortage of clear timber, and no major wood-growing country could offer hope of supplying the increasing demand. If we accept the fact that there will, in the future, be greater reward for skill, and that there will be greater value for quality trees, we start to put the problem in its true perspective.

The growers of the future must have a much better appreciation of the problems of the users, and the users must develop a better appreciation of the problems of the growers. The forester will need to be intimately conversant with almost every end use of the product which he grows. What are the requirements of the saw-miller, the timber merchant, the plywood manufacturer, the pulp and paper manufacturer, the builder, the furniture manufacturer, and even the housewife?

I wonder if the forester realizes that just one small bark-encased knot in the board decreases its value by up to 60s. for 100 board feet; that, in pruning, just one incorrectly cut branch in the tree often nullifies the whole pruning operation; or that if the pruning timetable is just twelve months delayed, it is probably not worth while pruning at all. I wonder if it is generally realized that bark damage to the growing tree will often result in gum pockets so permeating the tree for the balance of its lifetime that quality drops to zero; that compression wood and spiral grain cause huge losses to the manufacturer; and that oval trees or trees with out-of-centre pith result in considerable degrade to the veneer manufacturer.

My own Company has recently commenced to utilize some of its own silviculturally-treated forests. These pitfalls are being brought home to us very clearly indeed and highlight the need for more scientific perfection in silviculture. So I say to foresters: “Grow us ‘plus’ trees; grow them round; grow them straight; grow them with small branches, straight grain, even density and well pruned; grow them with long fibre, with small straight pith; and grow them quickly.”

Of course, after thirty years of rigid price control we in New Zealand do not know the real market value of our clear timber. The rewards for growing more clear wood are very great. On present-day values, to change only 30% of the yield from box-grade to clears will give an added value to the forests of something like £500 million per million acres, and to produce first-class veneer peeler logs from even half of our forests will add another £500 million. So that by the turn of the century, we could have in our forests additional assets of £1,500 million — treble
the forecast value. Is not that a worthwhile objective? This is a possibility within our grasp just from tree breeding and silviculture.

Arising from this aim to produce the perfect tree, the services of research must be enlisted to ensure proper utilization. We must endeavour to determine the main usages of wood and wood products in the next twenty to thirty years. In other words, why do we grow trees—for round produce, for timber, for plywood, for pulp?

How much of the tree is at present wasted? The recent Conference on the Burning of Wood Waste, held in Auckland, established that of the 736 million board feet of timber produced last year, there was a 50% loss in conversion or a 67% loss including branches. Of this 67% loss, only 8% was utilized in reconstituted materials and firing for productive energy. Ninety-two per cent. of our waste is, in fact, true waste today—what vast possibilities this represents. The utilization of even a portion of this waste could double the value of our forests. The grassland scientists recently stated that grass not eaten was absolute waste, and the same is no doubt true of the forest industry. Two of the questions which might aptly be asked are: “Can research give better methods of sawing?” “Can research give an economic method of producing timber from a tree without any loss by way of sawdust?” Encouraging progress is already being made.

Our forest industry is developing into one of the world’s most exacting sciences, and will demand men of the highest calibre to guide and control its future successfully. In case it is thought that I am pressing for unnecessary luxuries, let me say that the very opposite is true. If we think we are marching to progress, let us remember that other industries are marching too. Consider the inroads of aluminium into our industry; look at the inroads of plastics into some of our traditional markets. We are fighting for the preservation of our industry. As the Americans aptly say: “You have to run full speed forwards to avoid going backwards.”

The great expansion of the forest products industries has been helped very much in recent years by the research carried out in New Zealand, and the industry wishes to place on record a debt of gratitude to those scientists who have done such an outstanding job under difficult conditions. When one considers the advances made in such fields as preservation, plywood, adhesives, lamination, seasoning, particle boards and other reconstituted boards, and pulp and paper; when one considers that the Forest Products Division of F.R.I. has at present over 100 major projects under way, and contemplates the vast expansion that will take place in the future, it is realized how important it will be to have forestry scientists available.

Emerson once wrote: “We think our civilization is near its meridian—but we are only at the cock-crowing and the morning star.” How true is this today of our forest and forest utilization industry? Every effort must be made to improve research and technical knowledge in order to assault the difficult problems on an ever broader front, so that New Zealand may emerge, within our time, as the greatest nation in the world for the growing and utilization of trees. I have every faith that this can be achieved, and I would like all foresters to share that faith. A very wise
philosopher has truly said: "The man who has faith not only can see further, but he holds the light for others to follow."

The new Faculty of Forestry will, I believe, be as the rising sun. I am delighted with its aims, and I quote: "Establishing course and research work in Forestry as part of an integrated academic development concerned with the study of timber production and utilization. The University Council envisages the study of timber from its beginnings as a seed in the soil, through to its use in the building, furniture, pulp and paper, and associated wood product industries in New Zealand" — a complete and magnificent concept.

I hope that the curriculum of the Faculty will have a heavy bias towards the practical side, that a demonstration forest will be attached to it and that demonstration utilization facilities will be available. This would give students the opportunity of studying in the field and in the factories, and of becoming conversant in a practical way with the problems confronting the industry. Those who will graduate and achieve success will be in the van of progress — they will be the future leaders of the forest industry, and many powerful citadels will fall under their devotion and skill. They will not only mould the "living body", but will be the architects of its dissection.