The primitive forest-plants seem to be manuka (*Leptospermum scoparium*), towai (*Weinmannia sylvicola*), rewarewa (*Knightia excelsa*), toru (*Persoonia toru*), horoeka or lancewood (*Pseudopanax crassifolium*). Then follow totara (*Podocarpus totara*), rimu (*Dacrydium cupressinum*), and kauri (*Agathis australis*), while silver tree-fern (*Cyathea dealbata*) will form the larger undergrowth, together with *Senecio Kirkii* and *Blechnum Frazeri*. *In fact, we must have in many forest formations a gradual progression from the xerophyte to the hygrophyte, and in northern New Zealand this progression is clearly shown in the floristic relationship between the forest and the heath, which relationship may be traced (1) in the primeval formations, and (2) by means of unpremeditated human experiments.*

The above theory is supported to no inconsiderable extent by a comparative study of the Waipoua Forest near its junction with the heath, and it seems to illustrate what may be a fundamental general principle in plant-geography.

As for the details, much also is to be learnt both from the decay and revivication. There are, as may be remembered, for instance, the open kauri association, the pure tarairi forest, the tall tarairi saplings, the almost pure associations of tree-ferns and small groups of the same, the close shrubby undergrowth where the early struggle is in progress and where the gradual weeding-out is taking place. There are in the present forest the processes of its evolution in full play, and these are partly topographical and partly biological. No part, even without topographical changes, can remain permanent, while such changes bring about a new cycle of events. The following is perhaps the procession of events: (1) The heath; (2) the heath-forest; (3) the mixed forest, with many species and much undergrowth; (4) the increasing of the dominant plant and the gradual extinction of the others; (5) the death of the dominant plant and a gradual reconstruction of the forest; finally, a change of climate or topographical conditions, bringing about a more xerophytic state of affairs, and forest may be succeeded by heath. The study of these processes has a distinct economic bearing. They have not as yet been followed with certainty, but they suggest the line for further inquiry, and, on such, forestry operations, even in artificial forests, should probably be based. It is not enough to look for a certain supply from a forest—the forest should be self-supporting, and so constituted that one tree will gradually suppress and replace another.

The whole matter is most complex, and yet it does not seem impossible of solution. My own investigations were made during a comparatively short time, and do not profess to thoroughness in any marked degree.

D. SOME GENERAL CONSIDERATIONS REGARDING THE WAIPOUA FOREST.

The Waipoua Forest and one or two other smaller reserves are the only virgin kauri forests now belonging to the State. The kauri forest, as I have already stated, is the only plant-association of the kind to be found in the world. I have also attempted to show that it is one of great beauty and of extreme scientific interest. The forest reserve contains examples of 241 species of flowering-plants and ferns. It is therefore at present an important forest museum. Before very long, at the rate at which the kauri is being converted, there will be no forests of that kind, and very few examples of the trees either—in twenty years' time, or even less. Thus will pass away for ever from the face of the earth one of the noblest of forests and one of the unique attractions of New Zealand. Our fiords, glaciers, and hot springs have their like elsewhere; our kauri forests are no where else to be seen. What the future of the Waipoua Forest will be I cannot pretend to predict. If it is felled it will give employment for a few years to a certain number of men, who in any case at the end of that time will have to look for other employment, and in its place will be much waste land and a few farms, isolated from other settlement. If it is preserved there will be a magnificent heritage for future generations, and an attraction, constantly increasing in its interest, for the visitors to our shores.

Now, as to the forest itself. It certainly, as has been shown, contains a great deal of milling-timber, both kauri and rimu, together with some kahikatea, totara, miro, and matai. The kauri is found in quantity only to the west of the Toronui Stream, excepting some in the watershed of the Merowharara. Of this kauri belt, which extends from east to west, much of the kauri in the southern part of the forest is scattered, the milling-timber *par excellence* being that on the higher land near Kohuroa and the Huaki. But it must be borne in mind that a large part of the forest contains no milling-timber at all. On the high table-land and in a few other parts is much rimu. The land on which this grows is here of little value for agriculture, and the same remark applies to the continuation of the forest on the table-land. In other words, the present crop is the best the soil will ever yield, and it should surely not be felled merely for purposes of settlement while so much better land elsewhere is at present unoccupied.

The slopes of the Waipoua Forest on the south to the Waipoua River in many parts contain no milling-timber at all beyond some scattered kauris, and yet, though they give not a perfect example by any means of what a kauri forest is, their covering would suffice were no better available, and would make a very fair national kauri park. That such a park should be created seems to me incontrovertible. The only difference of opinion that can arise is as to its size. The Waipoua Forest as a whole would make, of course, the ideal park. It would be one of the great sights of the world, and as the years crept on it would be more and more prized by our descendants. To preserve the forest in its entirety would mean hastening the end of the kauri industry by a very few years; to cut it down would extend that industry for the same number.