NATIVE FORESTS....*Are They Decadent?*

(By E. V. Sanderson)

IF one paid much attention to the opinions of some people interested in timber-production one would be impelled to think that Captain Cook only just discovered this country in time to give Britain the opportunity of colonising it and the timber miller the privilege of turning the trees quickly into board feet. We are told that the forests are decadent; that numbers of the older trees are hollow, and that very little young growth is showing. Immediately, however, those trees which are suitable for milling purposes are turned into cash we are told that the forest is rejuvenated and that seedlings spring up in their thousands, affording a check against excessive water run-off superior to that given by the original forest.

As no run-off experiments or trials have been made in New Zealand as to the capabilities of the various forms of native vegetation, it must be assumed that this assertion is merely an opinion of convenience. The whole question hinges on the degree of porousness of the soil. Is the milled-over forest floor equally capable of absorbing heavy and continuous rainfall as is the non-cut-over forest?

Of course, the answer to this theory of decadence is that a mature forest is in a state of equilibrium or balance. The lifetimes of fully-grown trees extend over hundreds of years. There is thus no need for many seedlings. Indeed if these were present and able to reach maturity, a forest would soon become almost a solid mass of wood. This is, however, not possible, because only those plants can survive which have sufficient light to function.

In a normal forest the soil of the floor is full of a great variety of seeds. This can be demonstrated by putting a few handfuls in a box and providing the essential light conditions. It will be found that there is no need to collect seeds from trees. All kinds of seed, which normally lie dormant in the forest floor, are there in case of some catastrophe happening to the forest. A heavy wind may wreck many acres, or an earthquake, or even an eruption may cause widespread forest damage. Immediately such happenings occur sufficient light is let into the forest floor to enable the dormant seed to germinate, and up they spring in their tens of thousands. Competition then takes place, and the stronger or more suitable plants for the particular conditions overgrow species which are not so well adapted, and go to form a new forest.

When the bush is milled that is a catastrophe to it, and nature promtply functions to undo the damage. From the viewpoint of nature greater harm is, however, done by the miller than by the storm, because the trees are removed altogether. In nature this material would decay together with thousands and thousands of tons of leaves which the removed trees would have annually shed if they had been left to continue their life span and assist in forming a soil credit-balance on the hills—a credit-balance which must be exceedingly difficult to maintain on New Zealand's very large areas of steep country, even when the natural vegetation is not interfered with. When nature was free from man's mischief she evolved a forest which the late Dr. Cockayne said was the finest in the temperate zones for protection purposes.

There is a further matter with reference to so-called over-mature or decadent forests which may be used to offset the statement as to equilibrium. It is that forests are rotational croppers. What is a beech forest to-day will not always be the same type nor will a kauri forest or any other forest remain indefinitely in its present condition. Nature never stands still. However, the process of gradually changing into another form would take a forest many thousands of years.

Some striking research work in Europe and in New Zealand indicates that the dropping leaves of at least some species can eventually so alter the nature of the soil that the seedlings of these species cannot survive in it. These species will in time die out in that particular locality, and other species gradually take their place. This process cannot, however, be classed as decadence or over-maturity. It is merely nature operating in growing that which is most suitable to the conditions at the particular period, and is a process spanning over thousands of years. Never at any period would a forest show any indication of the change going on except to the skilled observer.