

promote a better growth. "The general aspect of resin-tapping in other countries is that whereas formerly it was done indiscriminately, and ruined much good forest, it is now being increasingly done under proper control, to the good of the forest revenue, and without harm to the timber. In France, and latterly in some of the Indian forests, the forest revenue is greater from the resin than from the timber. In Gascony resin-tapping improves the timber undoubtedly, and is believed to improve the growth, acting as a tonic. The industry there goes back to Roman times.

"I see no reason why resin-tapping in the future Kauri forests of New Zealand should not be as lucrative as in Gascony, where as an industry it compares with sheep in New Zealand, affording, however, considerably more employment; in fact, to a large extent it has replaced sheep there. Gascony under sheep was a desert compared to what it is now. Few of the picturesque shepherds on stilts are now seen; but one can travel for a whole day, in a quick train, through an endless succession of farms where, as mentioned above, ordinary farming and resin-tapping work in together; and all this in the climate of the Canterbury Plains!"

#### A Lost Forest.

Puhipuhi Kauri Forest, north of Whangarei, is taken by the author as an example of how the neglect of a systematic forest policy has caused enormous wastage of the country's natural assets. Fire went through this fine area of kauri at various times from 1887, when one-third was destroyed. It was originally 17,000 acres. As the timber became destroyed, dairying came in, and Sir David's comment on the change is this:—

#### Employment: Forestry versus Grass.

Though the forest was so good the soil was mostly poor, and naturally became poorer with the loss of the forest covering. On the best of the soil dairying is in progress, with the result, from inquiries I made on the spot, that 200 acres give employment to one family and bring in about £1 per acre yearly in butter-fat, or 10s. net after deducting about 10s. per acre as the cost of labour.

If the forest had been worked conservatively under trained foresters during the time that the crop of timber in the virgin forest was being cut, there would have been two or three times this amount of employment—in logging and milling the timber, in roading and in organising the forest against fire, and in ensuring the full regeneration of the forest with the maximum Kauri crop.

Mr. F. Mander, M.P., who milled a considerable part of the Puhipuhi Forest, and some others, have informed me that it contained a large proportion of young timber. Thus the timber returns from the Puhipuhi Forest would have been continuous from the start of systematic working. There would have been little or no transition period. The forest by now would have been earning some £7 per acre per year net, taking the present market Kauri royalty at 10s. And Kauri timber is rising so rapidly in

price that in a few years the Puhipuhi Forest would have been in the position of the normal Kauri forest and earning some £10 net per acre per year. Full employment would then have been at the rate of about one man per 75 acres, as against one man per 200 acres under dairying.

#### Money Return.

The money-yield of dairying on this poor soil, impoverished by destroying the forest, is now estimated, as above, to average yearly barely £1 per acre gross, or 10s. per acre net. The yield of the normal Kauri forest, allowing only £1 11s. per acre for Kauri "gum," is estimated at a yearly average of £12 7s. 8d. gross (for timber, "gum," fungus, and all forest produce), or £10 16s. net. This is arrived at by taking Kauri royalty at 16s. 8d. per 100ft. sup. q.g. (2s. per cubic foot)—a fairly high figure, but a figure which it is believed Kauri will ultimately reach, since in the coming timber scarcity it is precisely timbers of the durable softwood class which will become most valuable—timbers such as Teak, Kauri, Cedar, and Mahogany. It may be mentioned here that 16s. 8d. per 100 ft. sup. has already been realised for Cedar in Queensland and for Stinkwood in South Africa. Those who prefer to do so can estimate the future Kauri royalty at half this, and the revenue from the Kauri forest will still be high—viz., £7 17s. 8d. gross and £5 16s. net. The lower figure is about the highest revenue from the most profitable of cultivated forests in Europe; but it must be remembered that such forests yield timber of a lower grade than Kauri—viz., perishable softwood—and that they are open to the competition of other forests at no great distance away. This is not the case in New Zealand. Whether the Kauri royalty be taken at 1s. or at 2s. the cubic foot—which are about the extreme limits—the revenue from a good Kauri forest such as Puhipuhi would be higher than that from all farm lands on such soil.

#### Present-Day Values: Puhipuhi Timber.

Royalty-value: 510 million sup. ft. at 10s.	£
per 100 sup. ft. ....	2,550,000
Sawn timber average net value: 510 million sup. ft. at £1 5s. per 100 sup. ft. ....	6,375,000

These figures represent, in round numbers—two millions and a half lost to the Public Treasury, and an industrial loss of some six millions and a third production in New Zealand; and what is more, production of a raw material—timber.

Against this loss there is nothing to set except the grazing on the burnt forest land and the proportion of timber worked up during and after the burning of the forest—viz., 60 million sup. ft.—together with the saving (a drop in the ocean) of some few thousands a year in the local cost of a Forest Department to look after the timber and protect the forest from fire.

#### Management of Forests.

After discussing in the course of 73 pages, the historical side of forestry, with many interesting