

the poorer ridges, this habitat being maintained because the processes of weathering and of plant-decay which have made soil for the lowlands are rendered null and void, owing to the fact that the waste is removed down to the lower levels almost immediately it is formed. Thus on the ridges there is virtually continually exposed the original dry, rocky-soil material which characterized the surface countless ages ago, while the lowland soils have been so improved and added to that other forest-trees have been able to oust the beech entirely from these soils.

As the beech is the remnant of a physiologically dry-condition forest, so the kahikatea is the remnant of a low-lying, wet-condition forest. Development on a stationary land-surface, it would appear,

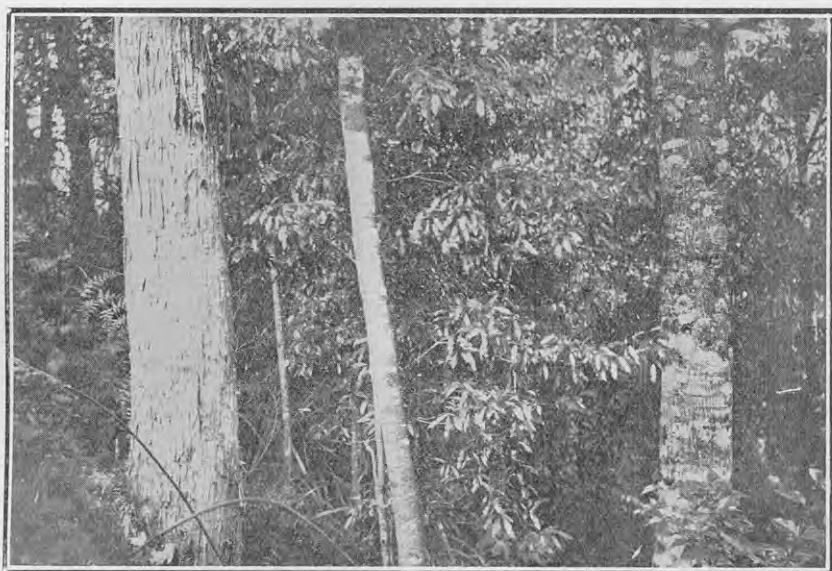


FIG. 5. PRIMARY FOREST OF THE TOTARA, REWAREWA, KAMAHI, BLACK-BEECH TYPE IN PROCESS OF BEING REPLACED BY TAWA.

The tree-trunks to the left and to the right respectively are totara and beech. The sapling-trunk and the willow-like foliage are those of young tawa.

[Photo by E. B. Levy.]

all tends towards the middle or average state—*i.e.*, that state, as far as moisture content is concerned, midway between the physiologically dry-condition forest, on the one hand, and the wet swampy forests of the flats, on the other hand. The tawa is essentially a tree admirably suited to the moderately wet soils, and thus essentially suitable to form the forest climax. One other fact that supports the contention of the tawa climax is that tawa forest can reproduce itself *in situ*, the young tawa establishing well in the shade of the parent forest-tree. There are very few other forest-trees capable of reproducing themselves in this way. Kahikatea, miro, rewarewa, and hinau may successfully establish in their own shade, but most of our forest-trees—rimu, rata, kauri, beech, kamahi, &c.—demand more light than penetrates to the