

THE KOHUROA HEATH.

"This is a fern-clad hill surrounded by forest. Small, fastigate manuka, 3 ft. or more tall, rises for about 20 in. above a dense undergrowth, the plants all touching one another and making a close mass, which has the following composition: *Gleichenia circinata* is abundant, its fronds horizontal and the segments arching upwards, yellow-green in colour and flecked with brown, the wiry fronds all entangled together. Above this arches the bracken, which is usually not so tall as the manuka. Standing up for more than 2 ft. above the *Gleichenia* at intervals of 6 ft. or more are the erect, sparsely or moderately branched plants of *Weinmannia sylvicola*, the leaves almost yellow, horizontal and semi-horizontal, pinnate, with four or five segments, and having dark, purplish-brown, brittle stems about $\frac{1}{2}$ in. in diameter. These contrast most strikingly with the dull-green, or at times reddish, small-leaved *Leptospermum* and the dark-green bracken. About the height of the *Gleichenia*, or a little more, are large quantities of the erect, yellow-green, conifer-looking *Lycopodium densum*, with its much divided branches given off abundantly from the main axis. Forming part of the undergrowth is a good deal of the small form of *Blechnum capense*, it also of a yellowish-green hue. In some places, rising even 3 ft. or more above the manuka or rather taller than the *Weinmannia*, are fastigate bushes of darkish-green *Dracophyllum Urvilleanum*, the almost black, and stiff, slender, main stems, and wiry, twiggy, semi-erect branches, contrasting with the nearly vertical green leaves and their dark-purple apices. Dark-green, smooth, terete stems of *Schœnus brevifolius* emerge from the general mass. In places, and covered with its pure-white blooms, is *Epacris pauciflora*, the dull-green and reddish small leaves, which at times are quite reddish-purple, and its white flowers, giving a special character to the scene. Here and there is an upright tussock of *Dianella intermedia*, or a spreading one of bright-green *Gahnia Gaudichaudii*, or a pale yellow-green shrub of *Styphelia fasciculata*, while at the margin of the forest *Cordyline Banksii*, raised on a slender trunk from 3 ft. to 6 ft. tall, is common."

THE HEATH ON SUMMIT OF OMAIA HILL.

"This was probably originally low forest, with manuka dominant, just as now exists on its borders and stretches for a considerable distance to the west. The heath itself shows various stages of burning, and, where water can lie, changes its character altogether and becomes a sphagnum bog. The original formation, or, at any rate, the first growth after one burning near the margin of the forest, consists of dull-green *Leptospermum scoparium* 10 ft. tall, the plants very slender and only a few inches apart, mixed with *Epacris pauciflora*, erect, 5 ft. tall, and of a shining bright-green or reddish colour; bracken (*Pteridium esculentum*) of equal height; young yellow-leaved *Quintinia serrata*; the yellow-green, slender umbrella fern, *Gleichenia dicarpa*, its fronds climbing up through the close undergrowth; dull-green *Lycopodium densum*; *Blechnum capense*; erect *Dracophyllum Urvilleanum*; a little *Weinmannia sylvicola*, conspicuous through its yellow leaves; and some long-stemmed *Nothopanax arboreum*. Here and there are tussocks of the pale-green *Astelia trinerve*.

"Where the heath has been burnt several times and is exposed to sun and wind, bracken, knee-deep, is dominant. The soil in places shows through this covering, and it is dotted about with young *Dracophyllum Urvilleanum*, young *Epacris pauciflora*, and young manuka. Through the whole fair-sized tussocks of *Astelia trinerve* are scattered about at rather irregular intervals of from 3 ft. to 9 ft. apart, forming tufts of pale green, 29 in. tall and 43 in., more or less, in diameter. The *Astelia* is frequently red or reddish-purple near the extremities of the leaves, or these may be bright reddish-purple over the whole surface. There is also an occasional pale yellow-green *Weinmannia sylvicola*, the height of the bracken; and there are some clumps of *Dianella intermedia*, with yellowish-green arching leaves; small plants, a few inches tall, of the brownish-leaved *Gaultheria antipoda* and the erect-growing *Dracophyllum Urvilleanum*, its long, narrow, pointed leaves held vertically and more or less stained with red.

"In another part of the heath the umbrella fern, here not climbing but forming a close mass, its horizontal leaves interlacing and pale-green in colour, replaces the bracken. Tussocks of the sedge *Schœnus tendo* are common. Where the ground becomes boggy the *Gleichenia* is still dominant; there are hummocks of sphagnum, and the small club moss *Lycopodium laterale* forms a mat."

On the east of Puketurahu and close to the forest is a possibly virgin piece of heath formation growing on a steep slope. The tall bushes of juvenile *Weinmannia*, their yellowish leaves giving them a striking appearance, are everywhere, and between them *Dracophyllum*, *Epacris*, bracken, *Dianella*, *Styphelia fasciculata*, *Lycopodium densum*, *Gaultheria antipoda*, *Pimelea laevigata*, *Pomaderris phyllifolia*, the two rush-like species of *Schœnus*, and numerous green clumps of the flat-leaved and -stemmed *Lepidosperma laterale*.

"On the edge of the forest are *Persoonia toru*, *Coprosma robusta*, *Senecio Kirkii*, *Olea Cunninghamii*, *Rapanea Urvillei*, small totara, *Dysoxylum*, *Knightia*, *Litsea calicaris*, and *Cordyline Banksii*, here with a tall and slender trunk. (Photo 18.)

"Between the eastern boundary of the Forest Reserve and the sea the low hills, intersected with many gullies, large and small, are covered everywhere with a dull-coloured mantle of the northern heath, and, although beyond the limits of the forest, a few words as to the vegetation of this area seem necessary. The formation keeps a more or less uniform character, and is made up of all the heath-plants previously noted, together with others, some of which, such as *Epilobium junceum*, *Lycopodium volubile*, *L. cernuum*, *Danthonia semiannularis*, *Geranium microphyllum*, *Drosera auriculata*, *Hydrocotyle asiatica*, *Lindsaya linearis*, *Coriaria ruscifolia*, and *Pelargonium australe*, occur also within the forest-area. The presence or absence of certain plants also, to a greater or lesser degree, changes its physiognomy. For instance, *Pomaderris Edgerleyi* is not everywhere, but increases in quantity as the coast is neared, as also does the parasite *Cas-*