

## THE INDIGENOUS FLORA AND VEGETATION OF NEW ZEALAND.

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FOR various reasons the plant-life of New Zealand is of peculiar interest, especially its extreme isolation from other land-masses, its flora of diverse origin but with an astonishing number of endemic species and group after group of wild hybrids, the numerous and often peculiar life-forms of its members, its having developed unmolested by grazing and browsing mammals, and its vegetation, so diversified that only a continent extending into the tropics can claim an equality.

### The Flora.

The flora, considering in the first place the *Ferns*, *Fern-allies*, (lycopods, &c.) and *Seed-plants* (trees, shrubs, herbaceous plants, grasses, &c.) consists of about 1,848 species—including under this term a good many well-marked varieties—of which 148 are ferns, 19 fern-allies, 20 conifers (only 1 with a cone in the usual sense), 426 monocotyledons (grasses, sedges, liliaceous plants, orchids, &c.), and 1,235 dicotyledons (mostly trees, shrubs, herbaceous and semi-woody plants), and they belong to 109 families (groups of related genera) and 382 genera (groups of related species). Nearly 79 per cent. of this flora is found wild in no other land (endemic), and the remaining 392 species are chiefly Australian (236), and the balance subantarctic South American (58), cosmopolitan in a wide sense (most also Australian), Norfolk Island, Lord Howe Island, and Polynesian; while a good many of the families and genera are Malayan, which tropical element found its way to New Zealand during a great extension of its area northwards in the early Tertiary period.

The high endemism of the flora is not confined to the species, for there are 39 purely New Zealand genera, some of which are only very distantly related to genera elsewhere—e.g., *Tupeia*, *Dactylanthus*, *Pachycladon*, *Ixerba*, *Carpodetus*, *Myosolidium*, *Teuclidium*, and *Alseuosmia*. The specially large families and genera, together with the number of species each contains, are as follows: Families—*Compositae* (daisy family), 258; *Filices* (ferns), 148; *Cyperaceae* (sedge family), 133; *Gramineae* (grass family), 131; *Umbelliferae* (carrot family), 89; *Orchidaceae* (orchids), 71; *Ranunculaceae* (buttercup family), 61; *Rubiaceae* (coprosma family), 55; *Onagraceae* (willowherb family), 45; *Epacridaceae* (Australian-heath family), 44; *Leguminosae* (pea family), 38; *Boraginaceae* (forget-me-not family), 33. Genera—*Hebe* (koromikos), 66 at a low estimate; *Carex* (sedges), 59; *Celmisia* (mountain-daisies), 56 at least; *Coprosma* (karamus), 48; *Ranunculus* (buttercups), 47 at least; *Epilobium* (willowherbs), 41; *Olearia* (daisy-trees), 35; *Senecio* (groundsels, mostly ligneous), 35; *Poa* (poa grasses), 33; *Myosotis* (forget-me-nots), 32; and there are 10 other genera with 20 or 30 species, and 11 with from 13 to 19 species. It is not of necessity the large genera which dominate the landscapes, for some of the smallest are of particular moment in this regard—e.g., *Arundo* (toetoe grass), 2 species; *Desmoschoenus* (pingao), 1 species, which clothes unstable sandhills in the three main islands and extends to the