

A charming little plant, worthily dedicated to its discoverer, who has added more to our knowledge of the New Zealand orchids than any other observer of late years. It is closely allied to the Western Australian *T. variegata* Lindl., principally differing in the much smaller size, in the solitary flowers, and in the column-wing scarcely crested on the back behind the anther. Mr. Matthews informs me that the remarkable spiral twist or coil in the leaves is constant in all the specimens he has seen. This peculiarity is also more or less observable in *T. variegata*.

ART. XXIV.—Contributions to a Fuller Knowledge of the Flora of New Zealand: No. 4.

By T. F. CHEESEMAN, F.L.S., F.Z.S., Curator of the Auckland Museum.

[Read before the Auckland Institute, 22nd November, 1910.]

I. RANUNCULACEAE.

Clematis parviflora A. Cunn.

Common among scrub on the outskirts of the forest, Little Barrier Island; *Miss Shakespear!* *T. F. C.*

Clematis marata Armstr.

Vicinity of Wanganui; *A. Allison!*

Ranunculus geraniifolius Hook. f.

Western slopes of Tongariro; altitude, 5,500 ft.; rare; *T. F. C.* In peaty soil on the summit of Mount Hauhungatahi; altitude, 4,500 ft.; *Rev. F. R. Spencer!*

Caltha novae-zealandiae Hook. f.

I am indebted to *Mr. F. G. Gibbs* for specimens of this in which the leaves are almost devoid of the reflexed lobules so conspicuous in the ordinary state of the species.

III. CRUCIFERAE.

Cardamine bilobata T. Kirk.

Sheltered places in the Hooker Valley, Mount Cook district; altitude, 3,000 ft.; rare; *T. F. C.*

Cardamine and *Nasturtium*.

In the Manual I have alluded to the fact that at least three of the New Zealand species previously referred to *Cardamine* differ from that genus in the seeds being 2-seriate, the species in question being *C. fastigiata*, *C. latesiliqua*, and *C. Enysii*. Schulz, in his monograph of *Cardamine* (*Engl. Jahr.*, 32) excludes all three from the genus, but does not make any other disposition of them. He also removes *C. stylosa*, in this instance

referring it to *Nasturtium*. Whether the above-mentioned three species should also be transferred to *Nasturtium* is not easy to decide, as there are differences in habit and in the shape and structure of the pod which appear to be of considerable importance. Possibly they should form a separate genus, in which case the Australian *C. radicata* should be associated with them. A step of that kind, however, involves an examination of the characters of most of the genera constituting the tribe *Arabidae*, and is preferably left in the hands of some systematist who is able to consult the great herbaria and libraries of Europe. In the meantime it appears best to place the species with *C. stylosa* in *Nasturtium*. They will then stand as under:—

1. *Nasturtium stylosum* O. E. Schulz in Engl. Jahr., 32 (1903), p. 596 ; *Cardamine stylosa* D. C.
2. *Nasturtium fastigiatum* Cheesem. ; *Cardamine fastigiata* Hook. f., Handb. N.Z. Fl., p. 13.
3. *Nasturtium latesiliqua* Cheesem. ; *Cardamine latesiliqua* Cheesem. in Trans. N.Z. Inst., vol. 15 (1883), p. 298.
4. *Nasturtium Enysii* Cheesem. ; *Cardamine Enysii* Cheesem. ex T. Kirk, Students' Fl., p. 28.

Lepidium tenuicaule T. Kirk.

A dwarf form of this plant, which I have elsewhere described under the name of variety *minor*, has been collected by *Mr. B. C. Aston* at Titahi Bay, near Wellington. This is the first record for the species in the North Island.

IV. VIOLACEAE.

Melicytus micranthus Hook. f.

In the Manual I have given the Bay of Islands as the northern limit of this species ; but both *Mr. Carse* and *Mr. R. H. Matthews* inform me that it occurs in several localities near Kaitaia, in Mangonui County.

V. PITTOSPORACEAE.

Pittosporum tenuifolium Banks & Soland.

Variiegated forms of this species and of *P. eugenioides* A. Cunn. are now frequently seen in cultivation.

VII. PORTULACAEAE.

Hectorella caespitosa Hook. f.

Mount Ollivier, Mount Wakefield, Mount Kinsey, and other peaks in the Mount Cook district, ascending to 6,500 ft. ; *T. F. C.*

X. MALVACEAE.

Hoheria populnea A. Cunn. var. *angustifolia* Hook. f.

Not uncommon on river-flats in the Turakina Valley ; *F. R. Field!*

XXII. LEGUMINOSAE.

Corallospartium crassicaule Armstr.

Mr. A. W. Roberts, of Ranfurly, Otago, sends me a yellow-flowered variety. The ordinary colour, to which I have never previously seen any exception, is a pale cream. Both *Mr. Roberts*, and *Mr. McIntyre*, of

Dunedin, assure me that the pod is always indehiscent, the face of the valves slowly decaying after the fall of the pod. I find that it is occasionally 2-seeded.

XXIV. SAXIFRAGACEAE.

Donatia novae-zealandiae Hook. f.

Donatia has been transferred to the *Stylidiaceae* by Milbraed in his recently published monograph of the family (Engler's "Pflanzenreich," heft 35). In this he has followed the late Baron Mueller, who suggested the change as far back as 1879. No doubt the genus agrees with the *Stylidiaceae* in the stamens being placed in the centre of an epigynous disc, in the extrorse anthers, and in the placentation; and the habit is very similar to that of *Phyllachne*. But it differs markedly in the free petals, and in the stamens not being united with the style into a "column." We may expect that systematists will not readily agree as to the position of the genus.

XXVII. HALORAGACEAE.

Myriophyllum pedunculatum Hook. f.

In great abundance by the margins of shallow ponds among the sand-dunes on the west coast near Helensville, Kaipara. I suppose that it is referable to the form which Schindler has distinguished as a separate species under the name of *M. Votschii* ("Pflanzenreich," heft 23, p. 85), but the differences appear to me to be very trivial.

XXVIII. MYRTACEAE.

Metrosideros robusta A. Cunn.

Not uncommon at West Wanganui, to the south of Cape Farewell; *H. J. Matthews!*

Metrosideros scandens Soland.

Dry ridges in lowland forests near Greymouth, Westland; not uncommon; *P. G. Morgan!* The most southern locality from whence I have seen specimens.

XXXIII. UMBELLIFERAE.

Aciphylla Dieffenbachii T. Kirk.

I have to thank *Mr. F. A. D. Cox*, the veteran botanical explorer of the Chatham Islands, for excellent specimens in fruit and a few in flower of this remarkable plant. It is now exceedingly rare, having been destroyed by sheep in most localities to which they have access, but it still lingers on the faces of a few rocky cliffs near Te Tuku, on Mr. Bligh's sheep-station. In this locality it was also seen by *Captain Dorrien-Smith* during his recent visit to the Chatham Islands.

In the "Students' Flora" Mr. T. Kirk hinted at the probability of the plant constituting a separate genus, and I expressed the same opinion in the Manual. Not only does it differ from *Aciphylla* in the flaccid habit and large oblong much-compressed fruit, but a section of the fruit shows that the vittae are of enormous size, quite unlike anything to be seen in *Ligusticum*, *Aciphylla*, or *Angelica*. In the forthcoming "Illustrations of the New Zealand Flora" it will accordingly be figured as the type of a new genus, to which the name *Coxella* will be applied. I have much

pleasure in associating the plant with the name of Mr. Cox, who for very many years has supplied New Zealand botanists with copious suites of the endemic plants of the Chatham Islands, often at considerable trouble to himself.

Angelica Gingidium Hook. f.

Limestone rocks by the Rakanui River, Kawhia; *E. Phillips Turner!*
Not previously recorded from any station to the north of the Taupo country.

XXXVII. RUBIACEAE.

Nertera Cunninghamii Hook. f.

Wangapeka Valley, Nelson; *F. G. Gibbs!*

XXXVIII. COMPOSITAE.

Brachycome Thomsoni T. Kirk var. *membranifolia*.

Cobb Valley, north-west Nelson; *F. G. Gibbs!* A slight northwards extension of the range of this variable plant.

Olearia virgata Hook. f.

Attains its northern limit in the Ohinemuri Valley, Thames, between Karangahake and Waitekauri; *T. F. C.*

Cotula pectinata Hook. f.

Mount Ollivier and other mountains in the Mount Cook district, 5,000–6,500 ft.; *T. F. C.*

XLI. CAMPANULACEAE.

Pratia perpusilla Hook. f.

Outlet of the Waikato River, Lake Taupo; *T. F. C.* Low grounds in the Thames Valley, near Te Aroha; *P. H. Allen!*

XLV. MYRSINACEAE.

Myrsine divaricata A. Cunn.

Mr. F. G. Gibbs forwards specimens of this species, from some locality in the Nelson Provincial District, in which the leaves are coarsely and irregularly toothed or almost lobed.

XLVI. SAPOTACEAE.

Sideroxylon costatum F. Muell.

This appears to be a very local plant on the west coast of the North Island. So far as my own observations go, it is found in only two localities—the first in the vicinity of Maunganui Bluff (between Hokianga and Kaipara); the second on the coast-line north of the Manukau Harbour, when it occurs in scattered localities along a stretch of eight or ten miles of coastal cliffs. On the eastern side of the Island it is much more generally distributed, although nowhere abundant.

The late Baron Mueller separated the New Zealand plant from that found in Norfolk Island, giving it the name of *Achras novo-zealandica* (Fragm. Phyt. Austral., vol. 9, p. 72). In this he was probably right, as has been pointed out by Mr. Hemsley ("Kew Bulletin," 1908, p. 459). Under

this view the name to be adopted for our plant will be *Sideroxylon novozelandicum* Hemsl.

XLVII. OLEACEAE.

Olea montana Hook. f.

Maungataniwha Ranges and vicinity of Fairburn (Mangonui County); *H. Carse*: the most northern locality yet recorded. Vicinity of Cape Brett Lighthouse; *R. H. Shakespear*!

LI. BORAGINACEAE.

Myosotis angustata Cheesem.

Mount Lockett, north-west Nelson; *F. G. Gibbs*! Moraines in the Hooker Valley, Mount Cook district; altitude, 4,000 ft.; *T. F. C.*

LIV. SCROPHULARIACEAE.

Calceolaria repens Hook. f.

Makatote Gorge and other ravines on the volcanic plateau of the North Island, along the course of the Main Trunk Railway; *T. F. C.*

Veronica gracillima Cheesem.

Sea-cliffs a little to the north of Gisborne; *W. Townson*! This is the first record of the occurrence of this species in the North Island.

Veronica rupicola Cheesem.

Hell's Gates, near Kaikoura; *H. J. Matthews*! Most of the specimens have simple racemes, thus departing from the typical state of the species, in which the racemes are nearly always trichotomous.

Ourisia sessilifolia Hook. f.

An abundant plant on most of the mountains in the Mount Cook district, forming large patches on the sides of moist sheltered hollows, 4,500-6,500 ft. altitude; *T. F. C.*

LVIII. VERBENACEAE.

Teucrium parvifolium Hook. f.

On the outskirts of patches of swampy forest by the Thames River, Te Aroha; *T. F. C.* I mention this locality because drainage operations and the destruction of the forest is fast destroying the plant.

LXXII. LORANTHACEAE.

Korthalsella salicornioides Van Tiegh.

Although this stretches through almost the whole length of both the North and South Islands, it is everywhere local and rarely occurs in any great quantity. The following are the habitats known to me:—

I. North Island: Vicinity of Kaitaia (Mangonui County); *R. H. Matthews*! Kerikeri Falls, Bay of Islands (the locality where it was first discovered); *R. Cunningham*, *W. Colenso*! *Hooker*, and many others. Open *Leptospermum* country between the Kerikeri River and Waitangi; *T. F. C.* Whangarei; *T. Kirk*. Little Barrier Island; *Miss Shakespear*! *T. F. C.* Judge's Bay, near Auckland; and by the Manukau Harbour, in the vicinity

of the South Whau Blockhouse; now almost extinct in both localities; *T. F. C.* Near Tararu, Thames; *W. Hammond!* Near Tairua, *J. Adams!* Rotorua; *T. Kirk!* *T. F. C.* Taupo Plains; *T. Kirk.* Humangaroa River, near Martinborough; *Rev. F. R. Spencer!* Waikanae; *Dr. Cockayne.*

II. South Island: Vicinity of Collingwood; *J. Dall!* Banks Peninsula; *J. B. Armstrong.* Vicinity of Dunedin, at Anderson's Bay and Pelichet Bay; *D. Petrie!*

LXXIV. BALANOPHORACEAE.

Dactylanthus Taylori Hook. f.

Pipiriki, on the Upper Wanganui River; *E. Phillips Turner*, who informs me that he noticed several specimens growing on *Geniostoma*, for which as a host I am not aware of any previous record. Kaitoke, near Wellington; *J. S. Tennant* and *B. C. Aston!*, parasitic on *Pittosporum eugenioides*.

LXXVI. URTICACEAE.

Urtica ferox Forst.

Abundant on rich alluvial soils by the Marikopa River, Kawhia County, and attaining a large size; *E. Phillips Turner*. The most northerly station yet recorded on the west side of the North Island.

LXXVII. CUPULIFERAE.

Fagus fusca Hook. f.

This is the only species of the genus that occurs to the north of the Auckland isthmus, and its distribution therein is so local that it appears advisable to quote the known habitats, more especially as it is in danger of extinction in several of them.

Near Kaitaia, Mangonui County; *W. Colenso, R. H. Matthews, H. Carse.* I am informed that only a few trees now remain in this locality. Whangarei; once abundant in several stations, but fast being reduced in numbers; *W. Colenso, R. Maier, T. F. C.* Little Omaha; *T. Kirk, T. F. C.* Little Barrier Island; abundant; *T. F. C.* Kawau Island; *J. Buchanan, T. Kirk.* Waiheke Island; *T. Kirk, T. F. C.*; once comparatively plentiful, now very scarce. Near Chelsea (Auckland Harbour); a few trees only; *T. F. C.*

LXXVIII. CONIFERAE.

Podocarpus dacrydioides A. Rich.

Mr. E. Phillips Turner, Inspector of Scenic Reserves, informs me that he has recently measured a kahikatea at Kakahi (a little to the south of Taumarunui) that proved to be 195 ft. in height. So far as I am aware, this is the tallest tree yet measured in the Dominion. A series of accurate measurements of the chief New Zealand timber-trees, giving both height and girth, is much to be desired.

LXXIX. ORCHIDACEAE.

Spiranthes australis Lendl.

Near Kaitaia; *R. H. Matthews!* Waipapakauri and Rangaunu Heads; *H. Carse.* Sphagnum swamps at Waihi, Ohinemuri County; *H. B. Devereux!*

Thelymitra ixioides Swz.

This has been gathered by *Mr. J. H. Harvey* at Taumarere, Bay of Islands.

Thelymitra decora Cheesem.

Taumarere, Bay of Islands; *J. H. Harvey!* Tirau, Upper Thames Valley; *T. F. C.*

Corysanthes Matthewsii Cheesem.

Mossy slopes in shaded localities near Fairburn, Mangonui County; *H. Carse!* Aponga, Whangarei County; *A. Thompson.*

LXXXII. LILIACEAE.

Cordyline australis Hook. f.

A specimen measured by *Mr. E. Phillips Turner* at Turangaarere was 15 ft. in circumference at a height of 4 ft. above the ground.

LXXXIV. PALMACEAE.

Rhopalostylis sapida Wendl. & Drude.

Another remarkable instance of a branched nikau-palm has been brought under my notice by *Mr. J. R. Lambert*, of Towai, Bay of Islands. It was discovered by *Mr. A. Ingster* in the Ramarama Valley, near Towai, and has no less than seven well-developed branches.

Mr. P. G. Morgan, of the Geological Survey, has supplied me with some interesting information respecting the present southern limit of the nikau in Westland. From particulars obtained from some of the oldest settlers it appears that the most southerly station was near the New River, about eight miles south of Greymouth. In this locality it has been destroyed by the spread of settlement, but it still exists, although in small quantity, at Nelson Creek, about four miles south of Greymouth. North of the Grey River, *Mr. Morgan* states from his own observations that it is still fairly plentiful on both the eastern and western slopes of the Rapahoi or Twelve Apostles Range, which runs northwards from Greymouth to Point Elizabeth. In this locality it ascends to an elevation of from 700 ft. to 800 ft. Northwards of Point Elizabeth it is comparatively abundant along and near the coast, and is in no immediate danger of disappearance through the spread of settlement and cultivation.

XCI. CYPERACEAE.

Mariscus ustulatus C. B. Clarke.

Miss Chase informs me that this occurs in small quantity in Half-moon Bay, Stewart Island. It is not mentioned in *Dr. Cockayne's* list of the flora of the island.

Uncinia caespitosa Boott.

Hilly forests near Kaitaia, Mangonui County; *H. Carse!* The most northern locality yet recorded.

XCII. GRAMINEAE.

Paspalum Digitaria Poir.

Mr. Carse informs me that this is spreading rapidly in the Fairburn-Kaitaia district. No doubt it is a comparatively recent immigrant.

XIII. FILICES.

Hymenophyllum subtilissimum Kunze.

Stretches as far north as the Maungataniwha and Kaitaia Ranges, Mangonui County; *H. Carse!*

Trichomanes strictum Menz.

On the margins of holes dug in extracting kauri-gum in open tea-tree country near Mangatete, Mangonui County; *H. Carse!* A very remarkable locality, as the species is almost invariably a denizen of the deep forest. Shaded mossy places near the summit of the Little Barrier Island, 2,200–2,400 ft. altitude; *T. F. C.*

Davallia novae-zealandiae Col.

Vicinity of Kaitaia, Mangonui County; *H. Carse.* Not previously known to the northwards of the Bay of Islands.

Lomaria nigra Col.

Dark ravines near Fairburn, Mangonui County, and from thence to Hokianga; *H. Carse.* A marked northwards extension of the range of this species.

Asplenium Trichomanes Linn. *

Limestone rocks by the Marikopa River, Kawhia County; *E. Phillips Turner!* Not previously recorded to the northwards of Mount Egmont.

Asplenium umbrosum J. Smith.

Alluvial flats between Fairburn and Kaitaia, Mangonui County; *H. Carse.* The most northern locality yet recorded.

Polypodium dictyopteris Mett. (*P. Cunninghamii* Hook.).

Mr. Phillips Turner has forwarded specimens of a curious crested form obtained at Wilton's Bush, near Wellington.

Psilotum triquetrum Swartz.

Karangahake Cliffs, Western Bay, Lake Taupo; *H. Hill!* A somewhat unexpected locality, all the stations previously recorded to the south of the Waikato River being on soil heated by hot springs.

NATURALIZED PLANTS.

Geranium Robertianum Linn.

Roadsides at Ruatangata, Whangarei; *T. F. C.* Slopes of Mount Eden, Auckland; *F. Neve!*

Soliva sessilis Ruiz and Pavon.

This has increased considerably of late years in light warm soils in the Auckland District, and has become a troublesome weed in some localities, particularly in certain market-gardens at Onehunga.

Tolpis umbellata Bertol.

Sandy soil on the west coast near Helensville, Kaipara; apparently increasing; *T. F. C.*

Lactuca muralis E. Mey.

Wangapeka Valley, Nelson; *F. G. Gibbs!* The first record for the species in the Nelson Provincial District.

Linaria Cymbalaria Mill.

This has become extensively naturalized on the lava-fields surrounding the base of Mount Wellington, Auckland; *T. F. C.*

Verbena bonariensis Linn.

I am indebted to *Mr. T. S. Crompton* for specimens of this collected in the vicinity of New Plymouth. *Mr. Crompton* informs me that he has seen it in several localities within a radius of six to eight miles from the town.

Ottelia ovalifolia L. Rich.

Since I first recorded the existence of this species in New Zealand (*Trans. N.Z. Inst.*, vol. 31 (1898), p. 350) it has appeared in many of the streams and lakes of the Auckland Provincial District, stretching from the Auckland isthmus southwards to the Upper Waikato and Waipa. It has become specially abundant in Lakes Waikare and Whangape, and in most of the slow-running tributaries of the Waikato from Huntly to the mouth of the river. It is difficult to account for its rapid spread, except on the assumption that seeds or young plants have been conveyed by aquatic birds, for although its spread along the Waikato River may be due to floods transferring plants or seeds, that explanation will not suffice to account for the appearance of the plant in such isolated localities as Lake Takapuna, Chelsea, Hunua, Waitakerei River, &c.

Apera spica-venti Beauv.

Mr. Petrie has shown me specimens of this collected by him in the immediate vicinity of Auckland, and informs me that he has observed it in the Provincial District of Otago. So far as I am aware, it has not been previously recorded from the Southern Hemisphere.

ART. XXV. — *Preliminary Note on the Fungi of the New Zealand Epiphytic Orchids.*

By T. L. LANCASTER, Sir George Grey Scholar, Victoria College, Wellington.

Communicated by Professor Kirk.

[*Read before the Wellington Philosophical Society, 7th September, 1910.*]

THE epiphytic orchids found in New Zealand comprise six species, all of which are endemic. The four genera to which they belong are typically tropical, two (*Sarcochilus* R. Br. and *Bulbophyllum* Thouars) being widely distributed in tropical regions. *Dendrobium* Swartz has its headquarters in the Malay Archipelago, while *Earina* Lindl. extends to the islands of the