

ART. XXIV.—*On the Vegetation of the neighbourhood of Christchurch, including Riccarton, Dry Bush, etc.* By J. F. ARMSTRONG, Government Gardener.

[Read before the Philosophical Institute of Canterbury, December 2, 1868.]

Introductory Remarks on the Distribution of Plants in the Province of Canterbury. By JULIUS HAAST, Ph.D., F.R.S.

SINCE the appearance of Dr. J. D. Hooker's excellent "Handbook of the New Zealand Flora," it has always been my wish to see the compilation of the names of all the plants which grow in the neighbourhood of this city, undertaken; because I have often observed, that few persons, even those acquainted with the rudiments of botany, know what plants really grow wild near Christchurch, and when they should look for them. Unfortunately my own occupations have not allowed me time to prepare such lists, I therefore induced our member, Mr. J. F. Armstrong, to devote his leisure time to do so, and there is no person here more competent to perform such an arduous task.

I may be here allowed to state, that for more than four years Mr. Armstrong, and his son Mr. J. B. Armstrong, have assisted me in collecting our indigenous vegetation, for the herbarium of our Museum, and for making exchanges; and both have also given me great help in arranging the botanical collections belonging to the province. In fact, whilst I was collecting and investigating the alpine and sub-alpine Flora of New Zealand, my two botanical assistants did the same work in the neighbourhood of Christchurch, and contributed several complete sets of plants to the Museum, which, however, like the great bulk of our botanical collections, have hitherto been inaccessible to the public, for want of space to exhibit them in.

The vegetation of the province of Canterbury, as formerly constituted, may be divided into five main groups or zones, which again can be formed into many sub-divisions.

The five main zones are:—

1. The *Littoral zone*, in which grow, generally, only plants which are peculiar to the sea-shore, from high-water mark to 25 feet above it.

2. *Lowland zone*. This comprises the lower portion of the Canterbury Plains, of Banks' Peninsula, and of Westland. I propose for this group the name of *Pine zone*. Altitude above sea-level, 25 to 800 feet. On Banks' Peninsula, to 1200 feet.

3. *Mountain zone*, formed by the vegetation, mostly Beech or Fagus, which covers, where still existing, uniformly the sides of the mountains bordering the Canterbury Plains, and the foot of the central ranges, both on the east and west sides. It may appropriately be called the *Beech zone*. Altitude from 800 to 4000 feet. In the interior of the Alps, it rises only to 2500 feet.

4. *Sub-alpine zone*, formed by a great variety of shrubs, and a few stunted trees. It ranges from 2500 to 4500 feet, and includes the lower portion of the interior of the province, and the highest summits of Banks' Peninsula.

I propose to call it the *Dracophyllum zone*, as this genus, belonging to the Ericææ or Heaths, is always well represented, and most conspicuous in the regions referred to.

5. *Alpine zone*, on the summits of the mountains bordering the Canterbury Plains, and on the sides of the alpine ranges, growing to the line of perpetual snow, from 4000 to 7000 feet.

It consists of herbaceous plants, often growing in dense, carpet-like swards. I venture to call it the *Kaoulia zone*, from that genus assuming such conspicuous forms in those regions.

There are, of course, many gradations from the one into the other, as all

depends upon the aspect, orographical features, mean altitude, and many other secondary causes.

Banks' Peninsula has, in many respects, a peculiar botanical character, as some of the zones are here, as it were, blended with each other in a very striking manner. Moreover, several species of plants growing here, are not to be met with elsewhere.

The sand-hills near Christchurch are very good examples of the first, or *Littoral zone*, which consists mostly of creeping succulent plants, fond of saline matter, and of sedges, grasses, and a few small shrubs.

The second or *Pine zone*, is well represented in our neighbourhood by the Riccarton Bush, and still better by the forests on Banks' Peninsula.

It contains, from its low position, the most luxuriant portion of the New Zealand vegetation, high, straight trees, growing closely together, interwoven by numerous lianas, their stems covered with mosses and ferns, and with a dense undergrowth of shrubs and fern-trees.

This second, or *Pine zone*, is very rich in species, whilst the third, or *Beech zone* is remarkably uniform, except on the edges of the forest, or along the water-courses, where shrubs and some smaller trees are mixed with it. But once fairly entered into the *Fagus* (or Beech) forests, we find very little undergrowth, and the stems of the trees are remarkably clean.

The vegetation of Christchurch and its neighbourhood belongs to the first and second zones, with which Mr. Armstrong will make us further acquainted.

The Vegetation of the neighbourhood of Christchurch. By J. F. ARMSTRONG.

Before entering into the subject of this paper, I may be allowed to make a few personal observations, and to request that you will kindly grant me your indulgence for this my first Essay.

I should never have ventured to bring these notes before the Institute had not our President urged upon me, that the preparation of the lists would be very desirable.

I have, therefore, occupied my leisure hours with drawing up these lists; in doing which, my son, who for several years has almost exclusively occupied himself with botany, has rendered me most effectual help, in naming the mosses, ferns, fungi, etc.

I am well aware that these lists are still incomplete in many respects; but I have no doubt, that, in the course of next year, much more material will be collected, so that in a short time they will contain the names of all the plants found within a radius of ten miles around Christchurch.

As Dr. Haast has kindly written some introductory remarks to my notes, I need not enter into botanical geography, but simply state that the vegetation of the country, of which I shall treat, belongs to the first, or littoral zone; and to the second, or pine zone.

It is my intention to furnish, at some future day, a complete list of the plants in this district, classified according to Hooker's "New Zealand Flora." I shall at present only give lists of the most prominent localities, in which a great variety of vegetable life gladdens the eye of the friend of nature.

Amongst these localities none is more conspicuous than the Riccarton Bush, which, as the following list will show, is remarkably rich in species. In fact we have there a small remnant of the large forest, formerly, without doubt, covering the Canterbury Plains, giving us an insight into the luxuriant forest vegetation, which, in a bygone age, flourished here.

The principal portion of the forest consists of the noble coniferous trees, *Podocarpus Totara*, *P. ferruginea* (Black Pine), *P. spicata*, *P. dactyloides* (White Pine), *Elaeocarpus dentatus* (Hinau), fifty feet high, with pendulous racemes of white flowers. The bark of this tree yields a permanent dye, used by the

Maoris for colouring mats and baskets. *E. Hookerianus*, similar to *dentatus*, but smaller. *Plagianthus betulinus* (Ribbon Wood), wood of which is worthless. *Pittosporum eugenioides*, a small, beautiful tree, with yellow, sweet-scented flowers, bark resinous, wood white, useful for cabinet work. *Carpodetus serratus*, flowers white, profusely produced; wood tough, useful for axe handles. *Panax crassifolium*, the Ivy tree.

SHRUBS, ETC.

Drimys axillaris, a large evergreen shrub, aromatic and pungent, used by the Maoris for various diseases, the "Winter's bark" of New Zealand, Pepper tree of the settlers, wood used for veneers. *Melicytus ramiflorus*, a large shrub, with soft white wood, useful for cabinet work, leaves eaten by cattle. *Pittosporum tenuifolium*, a large evergreen, pyramidal shrub, with purple flowers, wood hard, yellowish, useful for cabinet work. *P. Colensoi*, similar to the last, but larger, wood useless. *Hoheria populnea*, a large shrub, with abundantly-produced white flowers, the bark affords a demulcent drink, and is also used for cordage. *Aristotelia racemosa*, a very handsome shrub, with large racemes of reddish, nodding flowers; wood very light, said to be good for veneers. *Pennantia corymbosa*, a large, very beautiful shrub, covered profusely with very fragrant white flowers. The wood was formerly used by the Maoris for kindling fires, by friction. *Coriaria ruscifolia*, a small shrub, foliage poisonous to cattle, etc.; the seeds are said to produce delirium and death. A beverage, like elderberry wine, is made from the juice. *Urtica ferox*, the Stinging Nettle, stings most violently; the pain lasts three or four days. *Rhapogonum scandens*, Supplejack. The long under-ground stems have been used as sarsaparilla by the settlers; the stems as cordage, by the Maoris. *Phormium tenax*, the fibres of which are very strong; its roots, also, have been used as a substitute for sarsaparilla.

Another interesting locality, in the neighbourhood of this city, and visible from our streets, is the so-called Dry Bush, which, from numerous fires having passed through it, has a scorched appearance. Although there are some large coniferous trees in this small forest, it has more the characteristics of that portion of our bush vegetation which invariably edges our larger forests, of which the Mount Pleasant Bush is a still more characteristic representative.

The only conifers are *Podocarpus Totara*, and *P. ferruginea*. The other principal forest trees are *Alectryon excelsum* (Titoki), a beautiful tree, with large panicles of reddish flowers; the oil of the seeds was formerly used by the Maoris for anointing the person; wood hard and durable. *Sophora tetraptera*, var. *grandiflora*, a beautiful tree, with large pendulous yellow flowers, wood red, valuable for fencing and cabinet work. *Fuchsia excorticata*, wood white, soft, probably worthless.

There are in this small bush about twenty-eight species of shrubs, enumerated in the appended list; some of them are very beautiful, and worthy of cultivation in our gardens; while others may prove useful for their medicinal properties. The most remarkable among these are *Carmichaelia australis* and *C. juncea*, with beautiful pea-like flowers. *Discaria Toumatou*, the spines of which were used in tattooing. *Myrtus obcordata*, *Piper excelsum* (Kava Kava), the New Zealand Pepper tree: a beverage, called kava, was formerly made from the roots and leaves by the Maoris; an infusion of the leaves is used to cure toothache. *Clematis*, n. sp., a curious leafless climber, with verticillate, yellow, sweet-scented flowers.*

THE SAND-HILLS.

It is evident from the shifting nature of the ground in the littoral zone,

* See List of Plants of Otago, by J. Buchanan, p. 38, "Trans. N. Z. Inst.," Vol. i.

that no large or continuous vegetation can occur ; at the same time, from its diversified appearance, it is peculiarly interesting to the botanist. There we meet with a few shrubs, such as *Cassinia*, *Carmichaelia*, *Discaria*, *Pimelia* *Arenaria*, with its peculiar baccate fruit ; and a considerable variety of herbaceous plants, principally consisting of coarse grasses, *Carex*, *Clematis*, *Ranunculus*, *Scleranthus*, superior to the *Kew grass* for lawns, verges, etc., *Tetragona*, *Pratia*, six species of Orchideæ ; and among Ferns, *Pteris aquilina*, *Botrychium virginicum*, the rare British fern *Ophioglossum vulgatum*, and *Drosera*.

As new plants are discovered every year, we are forced to the conclusion, that the flora of this neighbourhood is imperfectly known.

My best thanks are due to Mrs. Deans for having always given me permission to collect plants and specimens at Riccarton, whenever I required them.

The appended lists contain about 290 species of plants, including 230 flowering plants. As the total number in New Zealand is under 900 sp., we may conclude that the collection is tolerably complete. The number of ferns is 38 sp. ; I believe there is no probability of future additions being made to this number. Of mosses, lichens. etc., only 26 sp. have been collected, but in this class there still remains an ample field for future discovery. Although I consider that the greater part of the flowering plants in the district have now been collected, much remains to be done in tracing the distribution of species ; for, although the area is small, it contains several assemblages of species.

I find that there are five plants in the district which have not been found elsewhere : they are, *Clematis*, n. sp. ; *Carmichaelia*, n. sp. ; *Anquilaria Novæ Zelandiæ*, n. sp. ; *Senecio saxifragoides*, and *Fuchsia Colensoi*.

Riccarton Bush contains—forest trees 13 species, shrubs 27, climbers 10, herbaceous 34, ferns 14, mosses and lichens 20. Total 118.

Dry Bush.—Forest trees 15, shrubs 32, parasites 3, climbers 11, herbs 24, ferns 13, mosses 17. Total 115.

Mount Pleasant.—Forest trees 8, shrubs 20, climbers 11, herbaceous 18, parasites 2, ferns 27, mosses, etc., 14. Total 100.

Port Hills.—Shrubs 18, herbaceous 88, ferns 15, mosses 10. Total 131.

Sand Hills.—Shrubs 11, herbaceous 59, ferns 4, mosses 2. Total 76.

Swamps.—Shrubs 14, herbaceous 86, ferns, etc., 9, mosses, etc., 7. Total 116.

[The following Lists have been compiled from those attached to Mr. Armstrong's paper, as giving the same information in a more connected form : the author gave a separate List for each district.—Ed.]

FOREST TREES.	Native or Settlers' Name.	Season of Flowering.	Riccarton Bush.	Dry Bush.	Mount Pleasant Bush.	Port hills, and Sumner: north side of range.	Swamps.	Sand-hills.
<i>Pittosporum eugenioides</i> .	Tarata	Oct.	1	1				
<i>Plagianthus betulinus</i> .	Ribbon wood	Nov.	1					
<i>Aristolelia racemosa</i> .		Nov.		1				
<i>Elæocarpus dentatus</i> .	Hinau	Nov.-Dec.	1		1			
„ <i>Hookerianus</i> .	Small Hinau	Dec.	1					

FOREST TREES.	Native or Settlers' Name.	Season of Flowering.	Riccarton Bush.	Dry Bush.	Mount Pleasant Bush.	Port hills, and Sumner north side of range.	Swamps.	Sand-hills.
<i>Alectryon excelsum</i> .	Titoki	Nov.-Dec.		1				
<i>Sophora tetraptera</i> , var. .	Kowai	Oct.-Nov.		1				
<i>Carpodetus serratus</i> .		Dec.	1	1				
<i>Leptospermum scoparium</i> .	Manuka	Nov.-Dec.		1				
<i>Fuchsia excorticata</i> .	Konini	Nov.-Jan.		1	1			
<i>Panax crassifolium</i> .	Ivy tree	Nov.-Dec.	1	1	1			
„ <i>longissimum</i> .	Horoeaka		1					
„ <i>simplex</i> .				1				
<i>Schefflera digitata</i> .	White wood	Nov.	1	1	1			
<i>Grisilinea littoralis</i> .	Broad leaf	Oct.-Nov.		1	1			
<i>Myrsine Urvillei</i> .	Matipo	Oct.-Dec.	1	1	1			
<i>Epicarpurus microphyllus</i> .	Towai	Dec.		1				
<i>Podocarpus Totara</i> .	Totara	Nov.-Dec.	1	1	1			
„ <i>ferruginea</i> .	Black pine	Dec.	1	1				
	Mairo							
„ <i>spicata</i> .	Maii	Nov.-Dec.	1					
„ <i>dacrydioides</i> .	White pine	Nov.	1					
	Kahikatea							
<i>Cordyline australis</i> .		Dec. - Jan.			1			
SHRUBS AND SMALL TREES.								
<i>Drymis axillaris</i> .	Pepper tree	Nov.-Dec.	1	1	1			
	Horopita							
<i>Melicytus ramiflorus</i> .	Hina hiua	Nov.-Jan.	1	1	1	1		
<i>Pittosporum tenuifolium</i> .	Karo	Nov.-Jan.	1	1	1			
„ <i>Colensoi</i> .		Oct.-Jan.	1	1				
<i>Hoheria populnea</i> .	Ribbon wood	Nov.-Dec.	1	1	1			
	Hohere							
<i>Aristolelia racemosa</i> .	Wine berry	Oct.-Nov.	1		1			
<i>Melicope simplex</i> .		Nov.-Jan.	1	1	1			
<i>Pennantia corymbosa</i> .		Nov.-Jan.	1	1				
<i>Discaria Toumatou</i> .	Toumatou	Nov.-Dec.		1		1	1	1
<i>Plagianthus divaricatus</i> .		Dec.			1			
<i>Coriaria ruscifolia</i> .	Tutu	Nov.-Jan.	1	1	1			1
<i>Carmichaelia australis</i> .	Makaka	Nov.-Dec.	1	1	1	1	1	1
„ <i>juncea</i> .		Nov.-Dec.		1				
„ <i>nana</i> .		Nov.-Dec.				1		1
„ <i>pilosa</i> .		Nov.				1		
„ <i>grandiflora</i> .		Oct.-Dec.				1		
„ <i>sp.</i> .		Nov.-Dec.				1		
<i>Sophora tetraptera</i> , var. <i>microphylla</i> .		Oct.-Dec.		1				1
<i>Haloragis alata</i> .	Toa toa	Oct.-Jan.		1	1	1	1	1
<i>Leptospermum scoparium</i> , var. <i>ericoides</i> .	Manuka	Nov.-Dec.	1	1	1	1	1	
„ <i>ericoides</i> .		Nov.-Dec.		1				
<i>Myrtus obcordata</i> .	Myrtle	Nov.-Dec.	1	1	1			
„ <i>pedunculata</i> .	Rohutu	Dec.	1					

SHRUBS AND SMALL TREES.	Native or Settlers' Name.	Season of Flowering.	Riccarton Bush.	Dry Bush.	Mount Pleasant Bush.	Fort hills, and Summer: north side of range.	Swamps.	Sand-hills.
<i>Fuchsia excorticata</i>	Konini	Nov.-Dec.	1			1		
" <i>Colensoi</i>		Nov.-Jan.	1	1				
<i>Griselinia lucida</i>	Broad leaf	Oct.	1					
<i>Corokia Cotoneaster</i>		Nov.-Dec.	1	1	1			
<i>Coprosma lucida</i>	Kakaramu	Nov.	1	1	1	1		
" <i>robusta</i>	Karamu	Nov.	1	1				
" <i>Cunninghamii</i>		Sept.-Oct.	1		1			
" <i>spathulata</i>		Sept.-Nov.	1	1	1			
" <i>rhamnoides</i>		Sept.-Oct.	1	1		1		
" <i>rotundifolia</i>		Oct.-Nov.	1	1	1			
" <i>cuneata</i>		Oct.	1					
" <i>parviflora</i>		Sept.	1					
" <i>acerosa</i>		Oct. - Jan.				1	1	1
<i>Olearia virgata</i>							1	
" <i>nitida</i>		Oct. - Jan.		1				
" <i>Forsteri</i>	Akepirau	Nov.-Jan.		1				
<i>Ozothamnus glomeratus</i>		Nov.-Dec.		1				
<i>Cyathodes acerosa</i>	Mingi	Nov.-Dec.			1	1		
<i>Cassinia Vauvilliersii</i>		Dec.-Feb.				1	1	1
" <i>leptophylla</i>		Nov.-Jan.						1
<i>Muhlenbeckia complexa</i>		Nov.-Jan.				1		
<i>Leucopogon Frazeri</i>		Nov.				1	1	
<i>Sophora tetraptera</i> , var.		Oct.-Nov.				1		
<i>Veronica salicifolia</i>		Nov.-Feb.		1	1		1	
" <i>Lavaudiana</i>		Dec.				1		
" <i>Colensoi</i>		Dec. - Jan.		1	1			
" <i>Raoullii</i>		Dec.				1		
<i>Myoporum laetum</i>	Ngaio	Dec. - Jan.	1	1	1			
<i>Teucrium parvifolium</i>		Nov.-Dec.		1				
<i>Urtica ferox</i>	Ongonga	Nov.-Dec.	1	1	1			
<i>Piper excelsum</i>	Kava-kava	Nov.-Feb.		1	1			
<i>Pimelia prostrata</i>		Dec.					1	1
" <i>arenaria</i>	Antetaranga	Nov.-Jan.						1
PARASITES.								
<i>Loranthus micranthus</i>		Nov.-Jan.		1				
<i>Tupeia antarctica</i>		Nov.-Jan.		1	1			
<i>Viscum Lindsayi</i>		Nov.-Jan.		1				
CREEPERS.								
<i>Clematis indivisa</i>	Traveller's joy	Nov.	1	1	1			
" <i>Colensoi</i>		Nov.	1					
" <i>parviflora</i>		Nov.-Jan.						1
" <i>foetida</i>		Nov.		1	1			
" <i>n. sp.</i>		Oct.-Nov.		1				
<i>Rubus australis</i>	Tataramoa	Nov.-Dec.	1	1	1			
<i>Metrosideros scandens</i>	Akakura	Dec.	1	1	1			

CREEPERS.	Native or Settlers' Name.	Season of Flowering.	Ricearton Bush.	Dry Bush.	Mount Pleasant Bush.	Fort hills, and Summer: north side of range.	Swamps.	Sand-hills.
<i>Passiflora tetrandra</i> .	Kohea	Dec.		1	1			
<i>Parsonsia albiflora</i> .	Kaika	Dec.	1	1	1			
„ <i>rosea</i> .		Dec.	1	1	1			
<i>Convolvulus Tuguriorum</i> .		Nov.-Dec.	1	1	1			
„ <i>Sepium</i> .		Nov.-Mar.			1			
<i>Muhlenbeckia adpressa</i> .		Nov.-Feb.	1	1	1			
„ <i>complexa</i> .		Nov.-Jan.	1	1	1			
<i>Rhipogonum scandens</i> .	Supple-jack	Nov.	1					
HERBACEOUS PLANTS.								
<i>Ranunculus pinguis</i> .	Kori kori	Nov.-Jan.	1	1	1	1	1	1
„ <i>macropus</i> .		Oct. - Feb.	1			1	1	
„ <i>lappaceus</i> .	Butter cup	Nov.-Jan.			1			
„ <i>plebeius</i> .		Dec. - Feb.				1		
„ <i>multiscapus</i> .		Nov.-Feb.				1		1
<i>Cardamine hirsuta</i> .	Panapana	Sept.-Jan.	1	1	1		1	1
<i>Viola Cunninghamii</i> .	Violet	Sept.-Mar.				1	1	
<i>Stellaria media</i> .	Chickweed	Aug.-Ap.				1	1	
<i>Colobanthus, sp.</i> .		Nov.		1		1		
<i>Hypericum gramineum</i> .	St. John's wort	Nov.-Jan.				1		1
„ <i>japonicum</i> .		Dec. - Jan.				1	1	1
<i>Linum monogynum</i> .	Flax	Nov.-Mar.				1		
<i>Geranium dissectum</i> .	Pinaki tere	Nov.-Dec.	1	1		1	1	1
„ <i>microphyllum</i> .		Nov.-Feb.		1		1		
<i>Pelargonium australe</i> .	Kopata	Nov.-Dec.		1		1		1
<i>Oxalis corniculata</i> .		Nov.-Feb.	1	1		1	1	
<i>Acæna Sanguisorbæ</i> .	Burr	Nov.-Jan.	1	1		1		
<i>Geum urbanum</i> .	Hutiwai							
<i>Potentilla ansorina, var.</i> .	Kopato	Oct.-Jan.		1		1	1	1
<i>Drosera spathulata</i> .	Sun dew	Nov.-Dec.					1	1
„ <i>binata</i> .		Jan.					1	
„ <i>binata</i> .		Jan.					1	
<i>Myriophyllum variaefolium</i>		Feb.					1	
<i>Gunnera monoica</i> .		Nov.-Feb.						1
<i>Epilobium macropus</i> .		Oct.-Dec.	1	1		1	1	1
„ <i>nummularifolium</i>	Hinatoti	Nov.-Dec.	1	1		1	1	1
„ <i>rotundifolium</i> .		Nov.-Jan.		1	1	1	1	
„ <i>pallidiflorum</i> .		Nov.-Jan.	1	1	1	1	1	1
„ <i>Billardierianum</i>		Nov.-Feb.	1			1	1	1
„ <i>purpuratum</i> .		Oct.-Feb.				1		
„ <i>crassum</i> .		Nov.-Mar.					1	
„ <i>glabellum</i> .		Oct.-Dec.						1
<i>Aciphylla squarrosa</i> .	Spear grass	Nov.-Dec.		1		1	1	1
<i>Eryngium vesiculosum</i> .	Sea holly	Nov.-Feb.				1	1	1
<i>Ligusticum, sp.</i> .		Dec.				1		
<i>Angelica Gingidium</i> .		Nov.-Dec.		1		1		

HERBACEOUS PLANTS.	Native or Settlers' Name	Season of Flowering.	Riccarton Bush.	Dry Bush.	Mount Pleasant Bush.	Fort hills, and Summer: north side of range.	Swamps.	Sand-hills.
<i>Angelica geniculata</i> .		Dec.		1	1	1		
<i>Galium tenuicaule</i> .		Nov.-Dec.				1	1	1
<i>Celmisia longifolia</i> .		Nov.-Jan.				1	1	
<i>Vittadinia australis</i> .		Nov.-Dec.				1	1	1
<i>Daucus brachiatus</i> .	Wild carrot	Dec.				1		
<i>Lagenophora Forsteri</i> .		Oct.-Jan.				1		
" <i>petiolata</i> .		Oct.-Jan.				1		
<i>Cotula coronopifolia</i> .		Nov.-Mar.					1	
" <i>australis</i> .		Sept.-Mar.				1		
<i>Brachycome Sinclairii</i> .	Daisy	Nov.-Jan.				1		
<i>Craspedia fimbriata</i> .		Sept.-Feb.				1	1	1
" <i>alpina</i> .		Oct.-Jan.				1		
<i>Raoulia australis</i> .		Nov.-Dec.				1		
" <i>Monroi</i> .		Nov.					1	
" <i>sp.</i> .		Nov.				1		
<i>Gnaphalium luteo-album</i> .		Nov.-Dec.	1			1	1	1
" <i>bellidioides</i> .		Nov.-Dec.				1		
" <i>filicaule</i> .		Nov.-Dec.				1		
" <i>involveratum</i> .		Dec.	1			1		1
<i>Erechtites arguta</i> .		Dec.-Ap.					1	
" <i>quadridentata</i> .	Pekapeka	Oct.-Jan.				1		
<i>Senecio bellidioides</i> .		Nov.-Jan.			1			1
" <i>saxifragoides</i> .		Nov.-Feb.				1		
" <i>lautus</i> .		Nov.-Jan.				1	1	
" <i>lagopus</i> .		Dec.-Jan.					1	
<i>Microseris Forsteri</i> .		Oct.-Jan.	1			1	1	1
<i>Crepis Novæ Zelandiæ</i> .		Sept.-Feb.				1	1	
<i>Taraxacum dens-leonis</i> .		Oct.-April.	1			1	1	1
<i>Sonchus oleraceus</i> .	Sow thistle	Nov.-Mar.	1	1		1	1	1
<i>Wahlenbergia gracilis</i> .	Blue bell	Oct.-Jan.	1			1	1	1
<i>Pratia angulata</i> .		Dec.					1	
" <i>sp.</i> .		Nov.-Mar.				1		
<i>Lobelia, sp.</i> .		Dec.-Feb.					1	
<i>Selliera radicans</i> .		Oct.-Jan.				1	1	1
<i>Leucopogon, sp.</i> .		Nov.-Jan.						1
<i>Samolus repens</i> .		Dec.-Jan.					1	1
<i>Gentiana montana</i> .		Dec.-Feb.					1	
<i>Sebæa ovata</i> .		Dec.-Feb.				1	1	1
<i>Myosotis Forsteri</i> .	Forget me not	Nov.-Jan.				1		
" <i>australis</i> .		Dec.					1	
" <i>sp.</i> .		Nov.-Jan.					1	
<i>Convolvulus sepium</i> .	Bind-weed	Nov.-Jan.				1		
" <i>tuguriorum</i> .		Nov.-Feb.				1		
" <i>erubescens</i> .		Oct.-Jan.				1	1	
<i>Dichondra repens</i> .		Nov.-Dec.				1		
<i>Solanum nigrum</i> .	Nightshade	Sept.-Jan.	1	1	1	1	1	1

HERBACEOUS PLANTS	Native or Settlers' Name.	Season of Flowering.	Riccarton Bush.	Dry Bush.	Mount Pleasant Bush.	Port hills, and Summer : north side of range.	Swamps.	Sand-hills.
<i>Solanum aviculare</i> .	Koho koho	Nov.-Dec.	1	1	1			
<i>Mentha Cunninghamii</i> .	Mint	Nov.-Jan.				1	1	1
<i>Plantago major</i> .	Plantain	Oct. - Feb.	1			1	1	
" <i>Raoulii</i> .		Nov.-Jan.					1	1
<i>Chenopodium triandrum</i> .	Spinach	Nov.-Jan.				1		
" <i>urbicum</i> .		Nov.-Jan.			1			
" <i>glaucum</i> .		Nov.						1
<i>Atriplex cinerea</i> .		Nov.-Jan.					1	1
<i>Scleranthus biflorus</i> .	Kohu kohu	Nov.-Dec.				1		1
<i>Polygonum aviculare</i> .	Pigweed	Oct. - Mar.	1			1	1	
<i>Rumex flexuosus</i> .	Dock	Nov.-Jan.	1			1		1
<i>Euphorbia glauca</i> .	Spurgewort	Nov.-Dec.				1		
<i>Urtica incisa</i> .	Nettle	Nov.-Mar.	1		1		1	
<i>Farina mucronata</i> .		Dec. - Feb.				1		
<i>Corysanthes macrantha</i> .		Nov.				1		
" <i>triloba</i> .		Nov.				1		
" <i>oblonga</i> .		Nov.				1		
<i>Thelymitra longifolia</i> .		Dec.				1	1	1
<i>Phrasophyllum Colensoi</i> .		Dec.				1	1	1
Four other orchids .								1
One "							1	
<i>Libertia ixioides</i> .	Turutu	Nov.-Jan.	1	1	1	1		
" <i>grandiflora</i> .		Nov.-Jan.					1	
<i>Hypoxis pusilla</i> .		Nov.-Apl.					1	
<i>Anquilaria Novæ Zelandiæ</i> .		Nov.					1	
<i>Typha angustifolia</i> .		Nov.-Apl.					1	
" <i>latifolia</i> .	Raupo	Dec.-Mar.					1	
<i>Lemna minor</i> .							1	
<i>Potamogeton natans</i> .							1	
<i>Cordylina Pumilio</i> .	Tirauriki		1					
<i>Astelia nervosa</i> .		Sep. - Oct.	1	1	1	1	1	
<i>Arthropodium candidum</i> .		Nov.-Dec.				1	1	
<i>Anthericum Hookeri</i> .		Nov.-Dec.				1	1	1
<i>Phormium tenax</i> .	N. Z. flax	Nov.-Dec.	1			1	1	
" <i>Colensoi</i> .		Dec. - Jan.					1	
<i>Juncus vaginatus</i> .		Nov.				1	1	
" <i>australis</i> .		Oct.					1	1
" <i>maritimus</i> .	Wiwi	Oct.				1	1	1
" <i>communis</i> .	Common rush	Oct. - Nov.	1				1	1
" <i>Holoschoenus</i> .		Nov.						1
" <i>sp.</i> .		Oct.					1	
<i>Luzula campestris</i> .		Oct. - Nov.	1	1	1	1	1	1
" <i>Oldfieldii</i> .		Oct. - Dec.	1			1	1	
" <i>crinita</i> .		Oct.					1	1
" <i>sp.</i> .		Oct.						1
<i>Leptocarpus simplex</i> .	Oi oi	Nov.					1	1

HERBACEOUS PLANTS.	Native or Settlers' Name.	Season of Flowering	Riccarton Bush.	Dry Bush.	Mount Pleasant Bush.	Port hills, and Summer : north side of range.	Swamps.	Sand-hills.
<i>Eleocharis gracilis</i>		Nov.				1	1	1
<i>Desmochœnus spiralis</i>	Pingao	Nov.						1
<i>Gahnia xanthocarpa</i>	Cutting grass	Nov.-Dec.	1					
<i>Lepidosperma tetragona</i>		Nov.			1	1	1	1
<i>Carex ternaria</i>	Rautahi	Oct.	1	1	1	1	1	1
„ <i>breviculmis</i>		Oct.				1		1
„ <i>virgata</i> , var. <i>secta</i>		Oct.-Nov.					1	
„ <i>Raoulii</i>		Nov.	1					1
„ <i>sp.</i>		Nov.						1
<i>Microlœna polynoda</i>					1		1	
<i>Alopecurus geniculatus</i>		Oct.-Nov.					1	
„ (<i>Phleum</i>) <i>pratense</i>		Oct.				1		
<i>Hierochloe redolens</i>	Koretu	Oct. - Dec.	1				1	
<i>Deschampsia cœspitosa</i>		Nov.				1	1	1
<i>Agrostis quadriseta</i>		Nov.				1		
<i>Apera arundinacea</i>	Hoomanga-moka	Oct.		1	1			
<i>Arundo conspicua</i>	Toi toi	Nov.-Dec.	1			1	1	1
<i>Poa foliosa</i>		Oct. - Dec.				1		
<i>Festuca duriuscula</i>		Oct. - Jan.				1	1	
FERNS.								
<i>Cyathea dealbata</i>					1			
<i>Dicksonia lanata</i>			1					
„ <i>squarrosa</i>			1		1			
<i>Hypolepis tenuifolia</i>			1		1			
„ <i>distans</i>					1			
<i>Adiantum Cunninghamii</i>					1			
<i>Cheilanthes Sieberi</i>					1	1		
<i>Pellœa rotundifolia</i>			1	1	1	1		
<i>Pteris aquilina</i> , var. <i>esculenta</i>			1	1	1	1	1	1
<i>Pteris scaberula</i>							1	
„ <i>incisa</i>							1	
<i>Lomaria procera</i>			1	1	1	1	1	
„ <i>fluviatilis</i>			1	1	1	1	1	
„ <i>vulcanica</i>					1			
„ <i>lanceolata</i>					1			
„ <i>discolor</i>			1		1			
„ <i>alpina</i>			1	1	1	1	1	1
<i>Asplenium obtusatum</i>					1			
„ <i>lucidum</i>						1		
„ <i>bulbiferum</i>			1	1	1	1		
„ <i>flaccidum</i>			1	1	1			
„ <i>flabellifolium</i>				1	1			
„ <i>Hookerianum</i>				1	1			
<i>Aspidium aculeatum</i>			1	1	1	1		

FERNS.	Native or Settlers' Namd.	Season of Flowering.	Riccarton Bush.	Dry Bush.	Mount Pleasant Bush.	Port hills, and Summer: north side of range.	Swamps.	Sand-hills.
<i>Aspidium oculatum</i> .						1		
<i>Nephrodium velutinum</i> .					1			
" <i>decompositum</i>				1	1			
<i>Polypodium Grammitidis</i> .					1			
" <i>rupestre</i> .			1	1	1	1		
" <i>pennigerum</i> .					1			
" <i>Billardieri</i> .			1	1	1	1		
<i>Leptopteris hymenophylloides</i> .	Heru heru		1		1			
<i>Gymnogramme leptophylla</i>						1		
<i>Ophioglossum vulgatum</i> .						1	1	1
<i>Botrychium virginicum</i> .						1	1	1
MARSILEACEÆ.								
<i>Azolla rubra</i> .							1	
MOSSSES, LICHENS, FUNGI, ETC.								
<i>Leucobryum candidum</i> .			1	1	1			
<i>Dicranum dicarpon</i> .				1	1	1		
<i>Campylopus introflexus</i> .			1	1	1			
<i>Ceratodon purpureus</i> .			1	1	1			1
<i>Macromitrium erosulum</i> .			1	1	1			
<i>Bryum truncorum</i> .			1	1	1	1		
<i>Hookeria pulchella</i> .			1	1	1			
<i>Funaria hygrometrica</i> .			1	1		1	1	1
<i>Isoetecium ramulosum</i> .			1	1	1			
<i>Hypnum relaxum</i> .			1	1	1			
" <i>sp.</i> .			1	1	1			
<i>Sticta aurata</i> .			1		1	1		
" <i>crocata</i> .			1					
" <i>latifrons</i> .			1	1	1			
" <i>filicina</i> .			1	1	1			
<i>Polytrichum sp.</i> .			1	1				
<i>Chara sp.</i> .							1	
<i>Agaricus campestris</i> .	Common mushroom		1	1		1	1	
" <i>sp.</i> .			1					
<i>Geaster fimbriatus</i> .				1				
<i>Ileodictyon cibarium</i> .			1			1	1	
" <i>gracile</i> .			1			1	1	
<i>Lycoperdon Novæ Zelandiæ</i>				1	1	1	1	1
" <i>pyriforme</i> .							1	
" <i>sp.</i> .						1		
<i>Polyporus sp.</i> .			1	1	1			