

## ON THE FLORA OF MT. WILSON.

BY ALEX. G. HAMILTON.

Mount Wilson, Parish of Irvine, County of Cook, is about 5 miles as the crow flies from Bell Station, on the Great Western Line (83 miles from Sydney). The road from Bell passes along the old stock route known as Bell's Line for 5 miles, and from the point where it diverges from Bell's Line to the Zigzag, which leads up to the summit, is 4 miles.

The highest point is 3,388 feet above the sea, but as the mountain rises from a ridge or table-land, it does not show as a very conspicuous peak. From the lowest point of the Zigzag to the summit, the rise is 275 feet. Seen from the railway line, Mt. Wilson appears as a long hog-backed ridge.

It is topographically a very well defined floral district, as it is bounded by the Wollongambe (a tributary of the Colo), and the Bowen, which flows into the Wollongambe. As the head waters of two tributaries of these streams rise within half a mile of each other, on opposite sides of a narrow ridge, the mountain is almost entirely enclosed by the two streams.

The higher part of the ridge is narrow, the level or comparatively level part being nowhere more than 400 yards across, and in most places it is much less. It is remarkable that the spurs from the main range are usually much wider than the range itself. The general direction is a little north of east, but there are two main spurs, one running nearly east and the other almost west, causing a wide separation of the Wollongambe and the Bowen at this place.

The mountain is one of a group of five—Mt. Wilson, Mt. King George, Mt. Tomah, Mt. Hay, and Mt. Bell—which are all capped with basalt. The basalt overlies the Hawkesbury Sandstone; and it is believed that the cappings on the summits



mentioned are the remnants of a once continuous sheet of volcanic rock which originally probably welled up at Mt. Wilson and overspread the surrounding area to a now unknown extent (6 and 7). Mt. King George is, according to the parish map, 5 miles in a straight line from Mt. Wilson, and Tomah and Bell 4 miles; the intervening country is occupied by an intricate network of ravines with the characteristic precipitous sides found in valleys in the Hawkesbury Sandstone region.

On the eastern side of Mt. Wilson, Waterfall Creek, a tributary of the Bowen, takes its rise and falls over the edge of the basaltic sheet, which there is 275 feet below the summit and about 100 yards wide. Here there is basalt of a massive character, while 50 or 60 yards up the creek it splits into thin flat pieces, which ring like a piece of metal. The rock is also found in roughly prismatic columns in places. It usually weathers irregularly all over, the large crystals decomposing first and leaving hollows like gas bubbles. But in one spot boulders embedded in the soil decompose concentrically, so that the weathered stuff comes off in layers like the coats of an onion. The product of the weathering is a soil usually red, but sometimes approaching a chocolate colour.

Here and there zeolites are found throughout the mass. Mr. George Card, A.R.S.M., has been good enough to examine a micro-section of the rock, and gives me the following description of it:—"The rock is an olivine basalt. The minerals present are olivine, augite, plagioclase felspar (probably Labradorite), magnetic (and other) iron oxides. These are embedded in a light brown glass. The felspar microlites give rise by their disposition to a good fluidal structure, floating round the porphyritic constituent. Olivine is abundant and remarkably fresh. It occurs as porphyritic individuals, presumably from an earlier stage of crystallization, and numerous granules through the rock. The augite has a tendency to assume a purplish tint, and is slightly pleochroic." The basalt of Mt. Irvine is of a similar character.



From the point where the road crosses the neck between the Bowen and the Wollongambe to the foot of the Zigzag, the soil is derived from the weathering of the Hawkesbury Sandstone, which here appears to contain a good deal of iron. At this part, the vegetation is of the ordinary character obtaining all over the Blue Mountains. But at the foot of the Zigzag, the sandy soil is mixed with the basaltic detritus, and the vegetation at once changes. The forest becomes very dense with creepers, sassafras and other brush trees, and tree-ferns. There is a distinct aromatic smell, mingled with that of decaying vegetation and fungoid growths, which I have everywhere noticed as a characteristic of the basaltic brush forests.

The winding road passes through this brush country up to the top of the Zigzag, where there is a patch of sandstone soil again, and, as before, the plants are of the ordinary Blue Mountain type, with one difference, that a number of minute and rare species of the genus *Prasophyllum* occur here, some of which have so far not been collected anywhere else. The road then winds round the highest part of the mountain, with thick growing vegetation of the brush forest type above and below. The houses are scattered along the length of this part of the ridge for about a mile; the ridge running along some six miles to Mt. Irvine, which is the extremity of Mt. Wilson, and some 700 feet lower down than Mt. Wilson proper. Here two or three blocks of land have recently been taken up and are being cleared. The vegetation all along the road is brush, but at Mt. Irvine many plants occur which are not found at the older settlement, and which show an approximation to the flora of the Kurrajong. Unfortunately very little collecting has been done at Mt. Irvine, and from the extremely patchy way in which plants occur all over the mountain it is probable that many additional plants will be found here.

Quite a number of species are found only in extremely limited areas all over the mountain, and continued collecting will be likely to yield other species.



The climate is as a general rule moist, and I have thought it worth while to insert a comparison with some other well-defined localities. For this purpose I have taken Sydney and Cordeaux River as types of coast climate in about the same latitude; Mt. Victoria as a mountain peak of nearly the same height, but not possessing brush forests, and very close in point of distance; and Mudgee as a type of climate on the inner aspect of the tableland. I have taken the yearly rainfall of these for the time during which a record has been kept at Mt. Wilson, viz. :—1876 and 1887 to 1897. I have also taken 1894 as an average year for comparison (as the annual rainfall in that year approaches very near the average for the whole period).

A comparison of the averages brings out the interesting fact that Mt. Victoria, in almost the same latitude and longitude, and with almost the same altitude and distance from the sea, has 11·73 inches less rain, and yet has 8 more rainy days in the year. Sydney has 2·80 inches less rain, but 67 more rainy days annually; Cordeaux River, 3·24 inches more rainfall and 29 more rainy days; and Mudgee, 24·89 inches rainfall and 29 rainy days less than Mt. Wilson. In comparing the figures it is also necessary to take into account the number of wet days as compared with the rainfall. Working these out for the 12 years during which the rain records have been kept at Mt. Wilson the results show that the average number of wet days to each inch of rainfall is as follows:—Mt. Wilson, 2 days to each inch of rain; Mt. Victoria, 2·7; Sydney, 3·4; Cordeaux, 2; Mudgee, 2·8.

These results make plain the fact that it is entirely to its rich soil that Mt. Wilson owes its wealth of vegetation. This is borne out also by the average for Cordeaux River (which has a little more rain), being equal to that of Mt. Wilson. At the Cordeaux the rich brushes are found only in those spots where there are basaltic dykes, the vegetation at other spots being nothing out of the common. I append comparative tables compiled from the Sydney Observatory reports (3).



## ANNUAL RAINFALL for 1894,

(a fair average year for all the stations except Sydney).

Name.	Latitude.	Longitude.	Distance from Coast.	Altitude.	1894.	Av'ge. 12 years
Mt. Wilson ...	33° 25" ...	150° 29' ...	51 miles...	3388 ft. ...	58·72 ..	57·44
Mt. Victoria ...	33° 36" ...	150° 15" ...	61 ,, ...	3490 ,, ...	47·20 ...	48·30
Sydney ...	33° 51" ...	150° 13" ...	5 ,, ...	146 ,, ...	38·22 ...	49·76
Cordeaux ...	34° 19" ...	150° 44" ...	6 ,, ...	1200 ,, ...	67·85 ...	65·70
Mudgee ...	32° 35" ...	149° 35" ...	121 ,, ...	1635 ,, ...	29·11 ...	27·67

## TABLE OF AVERAGE RAINFALL AND NUMBER OF RAINY DAYS

(for the 12 years (1876-97) during which a record has been kept at Mt. Wilson up to 1897).

Mt. Wilson.		Mt. Victoria.		Sydney.		Cordeaux.		Mudgee.	
Inches.	Wet Days.	Inches.	Wet Days.	Inches.	Wet Days.	Inches.	Wet Days.	Inches.	Wet Days.
52·56 ...	106 ...	40·83 ...	114 ...	49·76 ...	173 ...	60·61 ...	122 ..	27· ...	73

By the courtesy of Mr. J. D. Cox I am enabled to add a table of temperatures for the years 1896, 1897 and 1898. From these it appears that the average maximum temperature for the period is 57·7°; minimum, 42·9°; and mean for the period, 50·3°. During the whole period of 1,095 days the temperature fell to or below freezing point on 128 occasions; and rose to 90° or over on 5. The highest recorded temperature was 92°, and the lowest 22°. The average daily variation between maximum and minimum is 10°, but it sometimes rises as high as 54°, and falls as low as 0°. The greatest variations occur in the warmer months, and the least in the colder. The averages for the months of June, July and August are: max., 45·5; min., 33·8; mean, 39·6. And for December, January and February: max., 67·9°; min., 52·4°; mean, 60·1.

The year 1897 was remarkable for the number of times the temperature fell below the minimum, viz., 57. Yet the mean for that year is higher than for either 1896 or 1898, although 1897 had very few abnormally warm days.



## AVERAGE TEMPERATURES FOR 1896, 1897, 1898.

Year.		Max.		Min.		Av'ge Max.		Av'ge Min.		Mean.
1896	...	91	...	22	...	57·7	...	43·6	...	50·6
1897	...	92	...	23	...	59·4	...	42·9	...	51·1
1898	...	92	...	26	...	56·6	...	42·3	...	49·2

The general facies of the flora resembles that of the Illawarra brush-forests, but many plants characteristic of the latter district are wanting, while on the other hand but a few are found at Mt. Wilson and not in Illawarra. Among the important orders and genera not represented at Mt. Wilson are Anonaceæ, Menispermaceæ, Piperaceæ, Meliaceæ, Passifloræ (a seedling plant sent to me by Mr. Cox resembled *Passiflora aurantia*, but he was unable to find a mature plant), Sapotaceæ, and Ebenaceæ, and *Livistona*.

*Livistona* is common on the Kurrajong; *Metrosideros*, *Platy-cerium* and *Asplenium nidus* grow at Mt. Irvine, but not at Mt. Wilson proper.

It is remarkable that of 12 species of *Eucalyptus* growing on the mountain, but two—*E. viminalis* and *E. amygdalina*—are to be found on the basalt. And 10 out of the whole number belong to the section *Renantheræ*, which has only 23 species altogether.

Another remarkable point is the scarcity of Loranthaceæ. Four species occur, but they are rare indeed, except the curious terrestrial, non-parasitic Loranth, *Atkinsonia*. The rarity of *Dicæum hirundinaceum* which feeds on loranth berries would seem to bear out Professor Tate's theory as to the absence of the Loranthaceæ in Tasmania being due to the absence of the bird also, but I do not think the two facts have anything to do with each other. Many of the honey-eaters devour the loranth fruits, and distribute the seeds both in their droppings and by their wiping off adherent fruits from their beaks on the branches of trees.

The absence of *Ranunculus* is strange. In Illawarra *R. lappaceus* is very plentiful in open grassy forests resembling some of the Mt. Wilson country.



Two species of *Peperomia* are extremely common in Illawarra on mossy rocks, but although I looked out specially for them in the same situations I never came across either species. Only one of the Cruciferae is found. Flame-trees, Giant-nettles and Fig-trees are wanting. Of course some of these plants may yet be found as the locality is more closely examined.

In the brush at the top of the Zigzag there are very large numbers of that fine Labiate, *Prostanthera lasianthos*, of greater dimensions, and more profusely flowering than any I have seen elsewhere.

The most striking feature of the mountain is the quantity and vigorous growth of the ferns. They cover the ground, the rocks, and even the tree trunks. The tree-ferns are especially plentiful and well grown. In one creek I measured a *Dicksonia* 8 feet 6 inches in circumference of trunk and with fronds 16 feet in length. *Alsophila* grows to a great height. In the denser parts of the forest *Hymenophyllum* and *Trichomanes* are plentiful, and in Waterfall Creek *Todea Fraseri* flourishes, its translucent fronds sometimes reaching 6 feet in length.

The epiphytal orchids are plentiful in the same places, and every tree is covered with many species of mosses, hepatics, lichens and fungi. There are some very fine black-wood trees in some places, and the Eucalypts grow to an enormous girth and height without branching.

As an illustration of the general moistness of the air mention may be made of the ready germination of various seeds on the stems of the tree-ferns. In Mr. J. D. Cox's garden quite a number of seedlings of Cape heaths, which are cultivated close by, flourish on the trunks. *Quintinia Sieberi* is common on them. It has been said that this tree always begins life as a lodger on the fern-trees, but this is not so, as I have often found seedlings and young trees elsewhere. At Mitchell's Causeway, Mt. Victoria, a fine plant may be seen springing from the joints of the masonry. A healthy Eucalypt sapling is growing in a fern trunk in Mr. Cox's grounds. I have also found *Hydrocotyle*, *Geranium dissectum*, and several species of grasses growing on them.



On the north-western side of the range, where the plants are exposed to drying winds, the brush vegetation extends but a few yards down the slope. But on the east it goes right down to the bottom, and here a splendid soil, partly basaltic in origin and partly vegetable soil, is found. Here earthworms of large size flourish. In such situations there is little undergrowth but ferns; no grasses occur at all. The same thing occurs in the brush forests of Illawarra, and when the land is cleared it has to be sown with English grasses for dairy farming.

One point worth noticing is the much greater diversity of flowering plants on the sandstone.

I have not given the numbers on either formation, as no record was kept in many instances. On the sandstone the plants are seldom restricted to one small area, while it is very much the case on the basalt, some plants being found only in one small patch of but a few square yards in extent. Probably as more attention is paid to collecting in all parts of the volcanic area some additional plants will be found.

A comparison of the floras of the five peaks mentioned would be of interest, but sufficient data are not at present available. Allan Cunningham (1) and Dr. Woolls (8) have recorded their experiences at Tomah, but in neither case was a census of the flora the object in view.

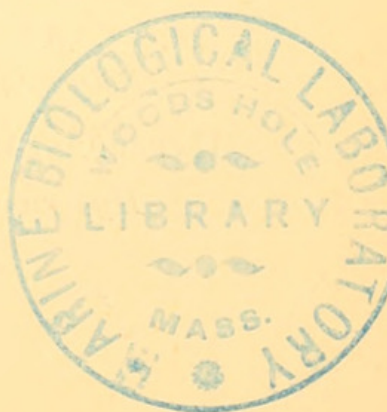
The following list has been compiled from Dr. Woolls' paper (9) and a manuscript list he gave me, from plants collected by Messrs. J. H. Maiden, J. D. Cox, J. Gregson, P. N. Trebeck (5) and myself. Mr. Gregson's plants have been identified by Mr. Maiden, and Mr. Cox's and my own by Dr. Woolls and Mr. Maiden :—

*Note.*—The letter B after the name of a plant denote that it grows on the basaltic area; S on the sandstone; and B & S on both. Where no initial is appended, no record has been kept.

#### RANUNCULACEÆ.

*Clematis aristata*, R.Br. B.

*glycinoides*, DC. B.





## DILLENIACEÆ.

- Hibbertia Billardieri*, F.v.M. S.  
*serpyllifolia*, R.Br. S.  
*saligna*, R.Br. S.

## MAGNOLIACEÆ.

- Drimys dipetala*, F.v.M. B.

## PAPAVERACEÆ.

- Papaver aculeatum*, Thunb. B.

## CRUCIFERÆ.

- Arabis glabra*, Crantz. B.

## VIOLACEÆ.

- Viola betonicifolia*, Sm. B.  
*hederacea*, Labill. B.  
*Ionidium filiforme*, F.v.M. S.  
*Hymenanthera Banksii*, F.v.M.

## PITTOSPOREÆ.

- Pittosporum undulatum*, Andr. B; rare.  
*Marianthus procumbens*, Benth. S.  
*Citriobatus multiflorus*, A. Cunn.  
*Billardiera scandens*, Sm. B. & S.

## TREMANDREÆ.

- Tetratheca ericifolia*, Sm. S.  
*thymifolia*, Sm. S.

## POLYGALEÆ.

- Comesperma volubile*, Labill. S.  
*ericinum*, DC. S.

## CARYOPHYLLEÆ.

- Stellaria pungens*, Brongn. B.  
*flaccida*, Hook. B.  
*Polycarpon tetraphyllum*, Loeff. S.

## HYPERICINEÆ.

- Hypericum Japonicum*, Thunb. B.



## STERCULIACEÆ.

- Lasiopetalum dasyphyllum*, Sm. S.  
*ferrugineum*, Sm., and var. *cordatum*. S.

## TILIACEÆ.

- Elæocarpus holopetalus*, F.v.M. B.  
*reticulatus*, Sm. B.

## GERANIACEÆ.

- Geranium pilosum*, Sol. B.  
*Pelargonium australe*, Willd., var. *erodioides*. B.  
*Oxalis corniculata*, Linn. B. & S.

## RUTACEÆ.

- Zieria Smithii*, Andr.  
*lævigata*, Sm.  
*Boronia ledifolia*, J. Gay. S.  
*microphylla*, Sieb. S.  
*floribunda*, Sieb. S.  
*pinnata*, Sm. S.  
*Barkeriana*, F.v.M. S.  
*anemonifolia*, A. Cunn. S.  
*Phebalium Billiardieri*, A. Juss. S.  
*Eriostemon obovalis*, A. Cunn. S.

## OLACINEÆ.

- Olaæ stricta*, R.Br. S.

## CELASTRINEÆ.

- Celastrus australis*, Harv. et F.v.M. B.  
*Elæodendron australe*, Vent.

## STACKHOUSIEÆ.

- Stackhousia viminea*, Sm.

## RHAMNACEÆ.

- Pomaderris elliptica*, Labill.  
*ledifolia*, A. Cunn.  
*apetala*, Labill.  
*Cryptandra ericifolia*, Sm.  
*amara*, Sm.



## AMPELIDEÆ.

- Vitis antarctica*, Benth. B.  
*hypoglauca*, F.v.M. B.

## SAPINDACEÆ.

- Dodonæa pinnata*, Sm. S.  
*multijuga*, G. Don. S.

## LEGUMINOSÆ.

- Oxylobium ellipticum*, R.Br. S.  
*trilobatum*, F.v.M. S.  
*alpestre*, F.v.M. S.  
*Mirbelia grandiflora*, Ait. S.  
*reticulata*, Sm. S.  
*Gompholobium latifolium*, Sm. S.  
*grandiflorum*, Sm. S.  
*minus*, Sm. S.  
*uncinatum*, A. Cunn. S.  
*glabratum*, DC. S.  
*Huegelii*, Benth. S.  
*Sphærolobium vimineum*, Sm. S.  
*Daviesia umbellulata*, Sm. S.  
*latifolia*, R.Br. S.  
*ulicina*, Sm. B.  
*genistifolia*, A. Cunn. B.  
*alata*, Sm.  
*Phyllota phyllicoides*, Benth.  
*Pultenæa scabra*, R.Br.  
*viscosa*, R.Br.  
*flexilis*, Sm. On margin of B. & S.  
*elliptica*, Sm.  
*Dillwynia ericifolia*, Sm.  
*floribunda*, Sm.  
*Bossicæ heterophylla*, Vent. S.  
*ensata*, Sieb. S.  
*scolopendria*, F.v.M. S.  
*lenticularis*, Sieb. S.



*Hovea linearis*, R.Br.

*longifolia*, R.Br. (Narrow-leaved form).

*Indigofera australis*, Willd.

*Desmodium varians*, Endl.

*Glycine clandestina*, Wendl.

*Kennedya rubicunda*, Vent.

*monophylla*, Vent.

*Acacia juniperina*, Willd.

*asparagoides*, A. Cunn.

*vomeriformis*, A. Cunn.

*linifolia*, Willd.

*myrtifolia*, Willd.

*falcata*, Willd.

*penninervis*, Sieb. (Mountain glaucous form).

*suaveolens*, Willd.

*rubida*, A. Cunn.

*elongata*, Sieb., var.

*melanoxydon*, R.Br.

*implexa*, Benth.

*longifolia*, Wendl.

*linearis*, Sims.

*pumila*, J.H.M.

*elata*, A. Cunn. B.

*discolor*, Willd.

#### ROSACEÆ.

*Rubus parvifolius*, Linn. B.

*rosæfolius*, Sm. B.

*Moluccanus*, Linn. B.

*Moorei*, F.v.M. B.

*Acæna ovina*, A. Cunn. B.

*sanguisorbæ*, Vahl. B.

#### SAXIFRAGÆÆ.

*Quintinia Sieberi*, DC. B.

*Ceratopetalum gummiferum*, Sm. B.

*apetalum*, D. Don. B.



*Schizomeria ovata*, D. Don.

*Bauera rubioides*, Andr.

CRASSULACEÆ.

*Tillæa verticillaris*, DC. S.

DROSERACEÆ.

*Drosera binata*, Labill. S.

HALORAGÆ.

*Haloragis heterophylla*, Brongn.

*tetragyna*, R.Br.

*Callitriche Muelleri*, Sond.

MYRTACEÆ.

*Darwinia taxifolia*, A. Cunn.

*Calythrix tetragona*, Labill.

*Bæckea brevifolia*, DC.

*linifolia*, Rudge.

*virgata*, Andr.

*Leptospermum flavescens*, Sm.

*scoparium*, R. & G. Forst.

*arachnoideum*, Sm.

*lanigerum*, Sm.

var. *macrocarpum*, M. & B.

*parvifolium*, Sm.

*stellatum*, Cav., var. *grandiflorum*.

*attenuatum*, Sm.

*Kunzea capitata*, Reichb.

*Callistemon lanceolatus*, DC.

*Eucalyptus coriacea*, A. Cunn. S.

*stellulata*, Sieb., var. *angustifolia*, Benth. S.

*stricta*, Sieb. S.

*amygdalina*, Labill.

*Luehmanniana*, F.v.M., var. *altior*, D. & M. S.

*piperita*, Sm. S.

*eugeniioides*, Sieb. S.

*capitellata*, Sm. S.



*Eucalyptus haemastoma*, Sm., var. *micrantha*. S.

*Sieberiana*, F.v.M. S.

*viminalis*, Labill. B.

*goniocalyx*, F.v.M. S.

*Tristania neriifolia*, R.Br.

*laurina*, R.Br. On Wollongambe.

*Syncarpia laurifolia*, Sm. Mt. Irvine.

*Eugenia Smithii*, Poir.

#### ONAGREÆ.

*Epilobium glabellum*, G. Forst.

#### UMBELLIFERÆ.

*Hydrocotyle hirta*, R.Br. B. & S.

*asiatica*, Linn. B. & S.

*Trachymene cyanopetalus*, F.v.M. S.

*glaucifolius*, F.v.M. S.

*incisus*, Hook. S.

*ericoides*, Sieb.

*linearis*, Spreng. S.

*Billardieri*, F.v.M.

*Xanthosia tridentata*, DC. S.

*pilosa*, Rudge.

*Atkinsoniana*, F.v.M.

*Actinotus Helianthi*, Labill. S.

*minor*, DC. S.

#### ARALIACEÆ.

*Astrotriche floccosa*, DC., var. *angustifolia*.

*Panax sambucifolius*, Sieb. (Narrow-leaved form).

#### LORANTHACEÆ.

*Viscum articulatum*, Burm.

*Loranthus celastroides*, Sieb.

*pendulus*, Sieb.

*Atkinsonia ligustrina*, F.v.M. S.

#### CAPRIFOLIACEÆ.

*Sambucus xanthocarpa*, F.v.M.



## RUBIACEÆ.

*Coprosma Billardieri*, J. Hook.

*Opercularia hispida*, Spreng.

*aspera*, Gaertn.

*Pomax umbellata*, Sol.

*Asperula oligantha*, F.v.M.

*Galium umbrosum*, Sol.

*australe*, DC.

## COMPOSITÆ.

*Lagenophora Billardieri*, Cass.

*Solenogyne bellioides*, Cass.

*Brachycome graminea*, F.v.M.

*linearifolia*, DC.

*Aster myrsinoides*, Labill.

*ellipticus*, A. Cunn.

*dentatus*, Andr.

*ramulosus*, Labill.

*stellulatus*, Labill., var. *quercifolius*

*Gnaphalium luteo-album*, Linn.

*Japonicum*, Thunb.

*Helichrysum lucidum*, Henck.

*scorpioides*, Labill.

*rutidolepis*, DC.

*elatum*, A. Cunn.

*leucopsidium*, DC.

*Cassinia denticulata*, R.Br.

*aurea*, R.Br.

*longifolia*, R.Br.

*arcuata*, R.Br.

*Humea elegans*, Sm. B.

*Siegesbeckia orientalis*, Linn.

*Centipeda orbicularis*, Lour.

*Senecio velleioides*, A. Cunn.

*dryadeus*, Sieb., var. *macrodontus*.

*Erechthites prenanthoides*, DC., var. near *picridioides*.

*mixta*, DC.

*Crepis Japonica*, Benth.



## STYLIDEE (CANDOLLEACEÆ).

*Stylidium graminifolium*, Sw.

*lineare*, Sw.

*debile*, F.v.M.

## GOODENIACEÆ.

*Brunonia australis*, Sm.

*Dampiera Brownii*, F.v.M.

*lanceolata*, A. Cunn.

*stricta*, R.Br.

*Scævola hispida*, Cav.

*Goodenia decurrens*, R.Br.

*bellidifolia*, Sm.

*ovata*, Sm.

*barbata*, R.Br.

*heterophylla*, Sm.

*Velleya perfoliata*, R.Br.

## CAMPANULACEÆ.

*Lobelia simplicicaulis*, R.Br.

*dentata*, Cav.

*anceps*, Thunb.

*purpurascens*, R.Br.

*Isotoma fluviatilis*, F.v.M.

*Wahlenbergia gracilis*, A.DC.

## EPACRIDEÆ.

*Styphelia læta*, R.Br., var. *angustifolia*, Benth.

*Melichrus urceolatus*, R.Br.

*Lissanthe sapida*, R.Br.

*Leucopogon lanceolatus*, R.Br.

*muticus*, R.Br.

*Acrotriche aggregata*, R.Br.

*divaricata*, R.Br.

*Monotoca elliptica*, R.Br.

*scoparia*, R.Br.

*Brachyloma daphnoides*, Benth.

*Epacris longiflora*, Cav.

*reclinata*, A. Cunn.

*Epacris crassifolia*, R.Br.

*obtusifolia*, Sm.

*robusta*, Benth.

*petrophila*, J. Hook.

*rigida*, Sieb.

*heteronema*, Labill.

*microphylla*, R.Br.

*Woollsia pungens*, F.v.M.

*Sprengelia incarnata*, Sm.

*Dracophyllum secundum*, R.Br.

#### MYRSINACEÆ.

*Myrsine variabilis*, R.Br. B.

#### APOCYNÆÆ.

*Lyonsia straminea*, R.Br. B.

*reticulata*, F.v.M. B.

#### ASCLEPIADEÆ.

*Tylophora barbata*, R.Br. B.

*Marsdenia rostrata*, R.Br. B.

*suaveolens*, R.Br. B.

#### LOGANIACEÆ.

*Mitrasacme paludosa*, R.Br. S.

*pilosa*, Labill. S.

*polymorpha*, R.Br. S.

*Logania floribunda*, R.Br.

#### GENTIANÆÆ.

*Sebæa ovata*, R.Br. B.

*Erythraea spicata*, Pers.

#### BORAGINÆÆ.

*Myosotis australis*, R.Br.

*Lappula concava*, F.v.M.

*Cynoglossum latifolium*, R.Br.

*suaveolens*, R.Br.

*australe*, R.Br.



## CONVOLVULACEÆ.

*Convolvulus marginatus*, Poir.

*Dichondra repens*, R. & G. Forst. B. & S.

## SOLANACEÆ.

*Solanum nigrum*, Linn.

*aviculare*, G. Forst.

*xanthocarpum*, Schrad.

*pungetium*, R.Br.

*campanulatum*, R.Br.

## SCROPHULARINEÆ.

*Gratiola Peruviana*, Linn. S.

*Veronica calycina*, R.Br. B.

*plebeja*, R.Br. B.

## LENTIBULARINEÆ.

*Utricularia dichotoma*, Labill. S.

## GESNERACEÆ.

*Fieldia australis*, A. Cunn.

## BIGNONIACEÆ.

*Tecoma australis*, R.Br. B.

## VERBENACEÆ.

*Spartothamnus junceus*, A. Cunn. S.

*Chloanthes stoechadis*, R.Br. S.

## LABIATEÆ.

*Plectranthus parviflorus*, Willd. B.

*Prunella vulgaris*, Linn. B.

*Prostanthera lasianthos*, Labill. B.

*cœrulea*, R.Br. B.

*linearis*, R.Br. B.

*Hemigenia purpurea*, R.Br.

*Ajuga australis*, R.Br. B.

*Teucrium corymbosum*, R.Br. B.

## PLANTAGINEÆ.

*Plantago varia*, R.Br.

## CHENOPODIACEÆ.

*Rhagodia hastata*, R.Br.

*Chenopodium triangulare*, R.Br.

## POLYGONACEÆ.

*Rumex Brownii*, Campd.

*Polygonum plebejum*, R.Br.

*Muehlenbeckia gracillima*, Meiss. B.

## MONIMIACEÆ.

*Doryphora sassafras*, Endl. B.

*Atherosperma moschatum*, Labill. B.

*Hedycarya Cunninghami*, Tul. B.

## LAURINEÆ.

*Cryptocarya* (probably *glaucescens*, R.Br.). B.

*Litsaea dealbata*, Nees. B.

*Cassytha glabella*, R.Br. B. & S.

## PROTEACEÆ.

*Petrophila pedunculata*, R.Br.

*pulchella*, R.Br.

*Isopogon anethifolius*, R.Br.

*petiolaris*, A. Cunn.

*Conospermum tenuifolium*, R.Br.

*ericifolium*, Sm.

*Symphyonema montanum*, R.Br.

*Persoonia ferruginea*, Sm.

*hirsuta*, Pers.

*Chamæpitys*, A. Cunn.

*salicina*, Pers.

*lanceolata*, Andr.

*lucida*, R.Br.

*ledifolia*, A. Cunn.

*mollis*, R.Br. B.

*myrtilloides*, Sieb.

*oxycoccoides*, Sieb.

*acerosa*, Sieb.

*Lambertia formosa*, Sm.



*Grevillea laurifolia*, Sieb.

*sphacelata*, R.Br.

*Hakea pugioniformis*, Cav.

*saligna*, R.Br.

*dactyloides*, Cav.

*gibbosa*, Cav.

*propinqua*, A. Cunn.

*pubescens*, Sch.

*Lomatia longifolia*, R.Br.

*silafolia*, R.Br.

*Telopea speciosissima*, R.Br.

*Banksia ericifolia*, Linn. f.

*spinulosa*, Sm.

*collina*, R.Br.

*integrifolia*, Linn. f.

*marginata*, Cav., var. *acutifolia*.

*paludosa*, R.Br.

*serrata*, Linn. f.

*aemula*, R.Br.

#### THYMELEÆ.

*Pimelea collina*, R.Br. S.

*linifolia*, Sm. S.

*ligustrina*, Labill. B.

*hirsuta*, Meissn. S.

#### EUPHORBIACEÆ.

*Monotaxis linifolia*, Brongn. S.

*Poranthera microphylla*, Brongn. S.

*ericifolia*, Rudge. S.

*corymbosa*, Brongn. S.

*Pseudanthus pimeleoides*, Sieb. S.

*Amperea spartioides*, Brongn. S.

*Phyllanthus thymoides*, Sieb. S.

#### URTICACEÆ.

*Urtica incisa*, Poir.

## CASUARINÆ.

- Casuarina glauca*, Sieb. S.  
*distyla*, Vent. S.  
*nana*, Sieb S.

## SANTALACEÆ.

- Exocarpus stricta*, R.Br. S.  
*Omphacomeria acerba*, A.DC. S.  
*Leptomeria acida*, R.Br.  
*Choretrum Candollei*, F.v.M.

## CONIFERÆ.

- Callitris Muelleri*, Benth. & J. Hook.

## ORCHIDEÆ.

- Dendrobium speciosum*, Sm. S.  
*æmulum*, R.Br. B.  
*pugioniforme*, A. Cunn. B. & S.  
*teretifolium*, R.Br.  
*striolatum*, Reichb.  
*Sarcochilus falcatus*, R.Br. B.  
*montanus*, R.D.F. B.  
*Dipodium punctatum*, R.Br. B.  
*Gastrodia sesamoides*, R.Br. B.  
*Spiranthes australis*, Lindl. S.  
*Thelymitra circumsepta*, R.D.F.  
*carnea*, R.Br.  
*media*, R.Br.  
*pauciflora*, R.Br.  
*venosa*, R.Br.  
*Diuris sulphurea*, R.Br. B.  
*Orthoceras strictum*, R.Br.  
*Calochilus campestris*, R.Br.  
*paludosus*, R.Br.  
*Cryptostylis longifolia*, R.Br.  
*erecta*, R.Br.  
*leptochila*, R.Br.



*Prasophyllum flavum*, R.Br.

*striatum*, R.Br.

*nigricans*, R.Br.

*rufum*, R.Br.

*fimbriatum*, R.Br.

*intricatum*, C. Stuart.

*densum*, R.D.F.

*ansatum*, R.D.F.

*transversum*, R.D.F.

*longisepalum*, R.D.F.

*eriochilum*, R.D.F.

*Microtis porrifolia*, Spreng.

*parviflora*, R.Br.

*Corysanthes unguiculata*, R.Br. B.

*pruinosa*, A. Cunn. B.

*bicalcarata*, R.Br. B.

*Pterostylis curta*, R.Br.

*nutans*, R.Br.

*hispidula*, R.D.F.

*pedunculata*, R.Br.

*coccinea*, R.D.F.

*reflexa*, R.Br.

*obtusa*, R.Br.

*parviflora*, R.Br.

*longifolia*, R.Br.

*Caleana major*, R.Br.

*minor*, R.Br.

*Acianthus fornicatus*, R.Br.

*exsertus*, R.Br.

*Eriochilus autumnalis*, R.Br.

*Caladenia carnea*, R.Br.

*dimorpha*, R.D.F.

*testacea*, R.Br.

*Chiloglottis diphylla*, R.Br.

*formicifera*, R.D.F.

*Glossodia major*, R.Br.

## IRIDEÆ.

*Patersonia glauca*, R.Br.

*sericea*, R.Br.

## AMARYLLIDEÆ.

*Haemadorum planifolium*, R.Br.

*Hypoxis hygrometrica*, Labill.

## LILIACEÆ.

*Smilax glycyphylla*, Sm.

*australis*, R.Br.

*Dianella longifolia*, R.Br.

*cærulea*, Sm.

*Tasmanica*, J. Hook.

*revoluta*, R.Br.

*Eustrephus Brownii*, F.v.M.

*Geitonoplesium cymosum*, A. Cunn.

*Blandfordia grandiflora*, R.Br.

*nobilis*, Sm.

*Thysanotus Patersoni*, R.Br.

*tuberosus*, R.Br.

*junceus*, R.Br.

*Cæsia vittata*, R.Br.

*parviflora*, R.Br.

*Stypandra glauca*, R.Br.

*cæspitosa*, R.Br.

*Arthropodium minus*, R.Br.

*Sowerbæa juncea*, Sm.

*Alania Endlicheri*, Kunth.

*Xerotes longifolia*, R.Br.

*Brownii*, F.v.M.

*glauca*, R.Br.

*flexifolia*, R.Br.

*Xanthorrhœa hastilis*, R.Br.

## XYRIDEÆ.

*Xyris operculata*, Labill. S.

*gracilis*, R.Br. S.



JUNCACEÆ.

- Luzula campestris*, DC.  
*Juncus planifolius*, R.Br.  
*pallidus*, R.Br.

ERIOCAULEÆ.

- Eriocaulon Smithii*, R.Br.

RESTIACEÆ.

- Lepyrodia scariosa*, R.Br.  
*Restio australis*, R.Br.

CYPERACEÆ.

- Scirpus riparius*, Spreng.  
*Schoenus villosus*, R.Br.  
*melanostachys*, R.Br.  
*deustus*, F.v.M.  
*Lepidosperma exaltatum*, R.Br.  
*Gahnia Gunnii*, F.v.M.  
*psittacorum*, Labill.  
*Caustis pentandra*, R.Br.  
*flexuosa*, R.Br.  
*Carex paniculata*, Linn.

GRAMINEÆ.

- Panicum sanguinale*, Linn.  
*gracile*, R.Br.  
*Anthistiria ciliata*, Linn. f.  
*Ehrharta stipoides*, Labill.  
*Stipa Dichelachne*, Steud.  
*aristiglumis*, F.v.M.  
*Echinopogon ovatus*, Palis.  
*Amphipogon strictus*, R.Br.  
*Agrostis nivalis*, F.v.M.  
*rudis*, Roem et Schult.  
*Solandri*, F.v.M.  
*Anisopogon avenaceus*, R.Br.  
*Danthonia penicillata*, F.v.M.  
*Poa cæspitosa*, G. Forst.  
*Agropyron scabrum*, Palis.

## LYCOPODIACEÆ.

*Tmesipteris Tannensis*, Benth.*Lycopodium laterale*, R.Br.*densum*, Labill.*Selaginella uliginosa*, Spreng.

## FILICES.

*Schizæa rupestris*, R.Br.*bifida*, Willd.*dichotoma*, Sm.*Trichomanes venosum*, R.Br.*Hymenophyllum Tunbridgense*, Sm.*formosum*, Bracken.*flabellatum*, Labill.*Gleichenia circinata*, Sw. S.*dicarpa*, R.Br. S.*flabellata*, R.Br. S.*dichotoma*, Hook. S.*Osmunda barbara*, Thunb. S.*Fraseri*, F.v.M.\**Alsophila australis*, R.Br. B.*Leichhardtiana*, F.v.M. B.*Dicksonia antarctica*, Labill. B.*davallioides*, R.Br.*Davallia pyxidata*, Cav.*dubia*, R.Br.*Lindsaya linearis*, Sw. B.*microphylla*, Sw.*Adiantum æthiopicum*, Linn. B.*formosum*, R.Br. B.*affine*, Willd. B.

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\* Mr. Trebeck in his paper on Mt. Wilson Ferns (5) mentions *O. hymenophylloides*, "a very beautiful membranous fern, 2 to 2 feet 6 inches high, but not so beautiful as at Katoomba." This is probably the young stage of *O. Fraserii*, which looks very distinct from the mature plant.



- Adiantum hispidulum*, Sw. B.  
    *diaphanum*, Blume.  
*Pteris falcata*, R.Br.  
    *umbrosa*, R.Br.  
    *aquilina*, Linn.  
    *arguta*, Ait.  
    *incisa*, Thunb.  
    *comans*, Forst.  
*Lomaria Patersoni*, Spreng.  
    *discolor*, Spreng.  
    *Capensis*, Willd.  
*Blechnum cartilagineum*, Sw.  
    *laevigatum*, Cav.  
*Woodwardia aspera*, Mett.  
*Asplenium nidus*, Linn. Mt. Irvine.  
    *flabellifolium*, Cav., var. *cristatum*.  
    *attenuatum*, R.Br.  
    *falcatum*, Lam.  
    *marinum*, Linn.  
    *umbrosum*, Sm.  
    *flaccidum*, Forst.  
    *bulbiferum*, Forst.  
*Aspidium molle*, Sw.  
    *decompositum*, Sw., var. *glabrum*.  
    *tenerum*, Spreng.  
    *hispidum*, Sw.  
    *aculeatum*, Sw., var. *proliferum* B.  
    *Capense*, Willd.  
    *coriaceum*, Sw.  
*Polypodium serpens*, Forst.  
    *australe*, Mett.  
    *attenuatum*, R.Br.  
    *pustulatum*, Forst.  
    *scandens*, Forst.  
    *tenellum*, Forst.  
    *punctatum*, Thunb.  
*Platycterium alcicorne*, Desr. Mount Irvine.

There are thus 77 Natural Orders, 257 genera, and 545 species.

On tabulating the above species (Mt. Wilson plants only) it will be found that the ferns have 18 genera and 61 species; the Orchideæ 20 genera and 58 species. These Natural Orders, however, on account of their attractiveness, have probably been most assiduously collected. Next come the Leguminosæ with 15 genera, 52 species; Proteaceæ, 11 genera, 38 species; Myrtaceæ, 10 and 30; Liliaceæ, 12 and 25; Epacrideæ, 11 and 22; and a few of the remaining orders have over 10 species.

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