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DR W

James Drummond's ²⁰Letters } to The Editor Inquirer 4 May 1842
On the Botany of Western Australia } to 6 Sept 1843

1. 4 May '42 - Blackberry etc. - Wiprang Yam. - native uses.
2. 11 " " - Fungi - Lichen - Seaweeds - Mosses - Ferns
3. 13 July '42 - Edible fruits - Epacrid - Santalum - Mesembryanthemum - Vasea spp.
4. 27 " " - Grasses - indigenous & introduced - soil studies suggested.
5. 3 Aug '42 - Reeds & Rushes - introduced & pests - uses for embankments - Trypogon (Calcearias) etc.
6. 10 " " - Silicaceae - Hypanotis - Syppandra - Sowerbaea - Conostylis - native foods.
7. 17 " " - Orchids - many roots used for food by natives.
8. 28 Sept '42 - Typha - Water plants - Alismaceae - Vallisneria - Zamia - native foods.
9. 5 Oct '42 - Santalum - Thymelaeae - Proteaceae - Petrophila + Posopon stenanthus Conosyris
10. 19 " " - cont. Proteaceae Franklandia - Persea - Grevillea Hakea Strobilites etc.
11. 22 Feb. '43 - Chenopodiaceae, Elysiaceae, Plantaginaceae, Primulaceae, Scutellariaceae, Scrophulariaceae, Solanum, Gentianaceae, Asclepiadaceae
12. 1 Mar '43 - Convolvulus - Hemionia - Myoporum - Epacridaceae - Campasulaceae Stylis + Goodeniaceae
13. 8 " " - Compositae - everlastings - Thistles - Loranthaceae - Myrtaceae - Myrtia - Umbelliferae Mesembryanthemum - Portulacaceae - Haloragaceae - Lardizabaceae Knott
14. 15 " " - Myrtaceae - Calystegia - Verticordia - Melaleuca - Callistemon - Callistemon
15. 22 " " - cont. Beaufortia - Hypocalymma - Munera - Eucalypt - Leguminosae - Hossea - Hardenbergia - Rauwolfia - Chorizanthe - Acacia etc.
16. 19 Apr. '43 - acacia cont. Labiata - Gutierrezia - Dupontia - Boragin
17. 6 May '43 - Euphorbiaceae - Phyllanthus - Rutaceae - Boragin - Chorizanthe - Geraniaceae - Labiata - Thymelaeae - Maliaceae Hydrangea
18. 17 " " - Pittosporaceae - Protea - Manarctus Sollya - Introduced plants - transported indigenous plants - naturalised
19. 24 " " - Plants likely to be lost to flora of country - grazing
20. 6 Sept '43 - Polygalae Conosperma Droseraceae - Violaceae Dilleniaceae Ranunculaceae

For 5 letters on Botany of Northern Districts - ^{Port} Gazette Apr. 16. 23. 30
published also in Hookers Journ. Bot + New Miscell. V. 1853. May 7. 14 1852
p. 115-122, 139-145 & 177-182

To Engineer

See also - in New collection

x not publ.
thorship.

26 May 1841 - on Brown Plant
21 Sept 1842 - expansion to Northward of Moore River
2 Oct 1842 - on

x 3 Oct 1842 - Management of Public Gardens
15 Feb. 1842 - do do

x 8 1/2 x 11 1/2 - with Gilbert & Wase River

29. April 1946 - Growth of *Loranthaceae* = H. small. F. poor

7 + 14 Apr 1947 - Journey from Jangin To K g s.

3 Nov 1947 - 2nd Meeting

6 Dec 1948 - To G. Cooke - Surling Range in New Mount 1 p 30

To Red Granite

21 + 28 May 1876 New Bond to Northham

5 + 12 Dec 1840 Report on Botany York & Albany

May 1841 Agric Soc. Report on Poison Plant

Letters on the Botany of Western Australia.

To the Editor of the Inquirer

Letter 1.

4 May 1842.

Dear Sir,

I agree with you in thinking that a knowledge of the Botany & vegetable productions of our Colony might be useful, and an account of some of the more remarkable plants interesting to some of our readers. Minds of men, as well as their bodies, require exercise & surely nothing can be found more rational or better calculated "to lead from nature up to nature's God."

The Flora of Western Australia is as rich & varied, perhaps as any to be found under the same latitude & where the mountains are the same altitude, but none of the mountains in the vicinity of the Swan River are high enough to produce Australian Alpine plants. I must observe that many of our plants are yet unnamed: Baron Hugel published about 200 species collected at the Swan River & King George's Sound. Dr Lindley in his Botany of the South West Colony described about 300 new species: & Sir William Jackson Hooker is now describing & publishing many of our new & interesting plants.

The genus *Lanchoe* (sic), called gum rush at Sydney & Blackboy at Swan River forms one of the most remarkable features in our landscape. It belongs to the 64th class & 1st Order Hexandria Monogynia of Linnaeus & to the natural Blackboy Asphodelaceae of Gussone, which takes its name from the Baneful Asphodels of the Poets. It appears however that our Swan River Baneful plants belong to a very different family. The common Blackboy grows 15 ft high with a stem over 3 to 4 feet in circumference, sometimes repeatedly branching & producing a flower stalk almost as high as the plant itself. It grows in good ground. The underground Blackboy, as it is called by the settlers, is common about Guildford & on high ground near the banks of the Swan River above Guildford. It grows in large tufts, branching much underground. The flower stalks are 6 or 8 ft high. The third, an arborescent species of *Zanthoxylum* grows in very poor ground: it is common.

Letter 1 2

between Jerguon's house & Betty's cottage going through Guelphford up the Swan on both sides of the road. The leaves are greener & tougher than the common sort & the plant never throws out branches; the flower stalk is shorter than in the common kind. The fourth a stemless species with very slender flower stalks is found on the ironstone gravel formation on the top of the Darling Range of hills.

The glaucous leaved York blackboy, observed only to the East of the hills, & well known to the settlers in the York district as the best for thatch, grows to the height of 30 feet without a branch. I have observed a species of *Zanthoxa* between Northam town hill & Mr Hind's residence which I think different from the underground blackboy of the Swan & the sort which grows to the South of the Dale River seems somewhat different to both.

I observed a broad leaved arboreal *Zanthoxa* between Mt Barker & King George's Sound, different from any of our Swan River sorts. The young tender leaves of the blackboy, especially the white part next to the stem, has been used as a vegetable by the settlers, & they have been used for food by persons who have accidentally lost their way in the bush. Goats sheep cattle & horses eat them. The genus is of very slow growth: a full grown specimen must be several hundred years old. The natives sometimes refuse all sorts of sustenance but the leaves of the blackboy, as, for instance, when dangerously wounded. Several of the species furnish them with a favourable article of food in the larva of a large brown species of *Cerambyx*. It is with an old but sound flower stalk of the *Zanthoxa* that they make fire by friction when they happen to be without it in the bush. The process is well worth learning from them by the settlers.

But to give an account of all the uses & benefits which the natives derive from this interesting genus of plant would extend this letter to a very inconvenient length.

Natives
uses
for
blackboy

The interesting *Kingia Australis* is now in full flower about a mile from the Mission House in the Gooday Road. It differs from *Lanthorea* in bearing many round heads of flowers. It grows full 30 ft high with the habit of the York blackboy. The common *Kingia* has heavy leaves but I observed a remarkable variety that appeared quite silvery, to the South of Mt Barker. It may be a distinct species. We have another plant with something of the habit of *Kingia* but smaller heads of flowers on longer flower stalks with broader leaves; I suppose it to be a new *Artocarpus* species of Mr Brown's Genus *Dasygogon*, & we have also a new genus nearly allied to *Lanthorea* but with solitary flowers & seed vessels as large as a hazel nut & round seeds. The flowers were past when I found the plant but the seed vessels were crowned with the style 2 inches long, the flowers were surrounded with short prickly leaves. They are produced close to the ground & it is probably on that account that the plant has so long escaped observation. It grows in the very middle of the town of Albany, King George's Sound. The native Yarn, called Wyrang, by the natives, the finest esculent vegetable the colony naturally produces is now beginning to flower: It belongs to the class *Diocoeae* of Linnaeus; the male is a yellow sweet scented creeper, the female inconspicuous at this season. I may probably send you more about the Wyrang for your next.

I am etc etc

James Drummond.

To the Editor of the Inquirer.

Letter 2. 1
11 May 1842.

Dear Sir, One of the objects I have in view, in writing to you on the Botany of these parts of Australia, is to point out, as far as I am able, the plants used by natives as food. Although they may not all be palatable food for white men, they would at least support life in cases of emergency.

In order that I may not overlook any plants of that description I will examine our Flora according to Mr Brown's arrangement of the natural orders, beginning with the Acotyledonous plants, the extensive 94th class Cryptogamia, of Linnaeus, which contains perhaps, as many plants as all his other classes put together. This class contains several extensive natural orders viz. Fungi, mushrooms, Lichens, algae, or seaweeds, the beautiful order of mosses and ferns. The natives use several of the first named as food. particularly 2 species of Boletus, which they call Numar & Woorda. The Numar is parasitical on the roots & trunks of our mahogany trees. The Woorda is now beginning to make its appearance. It grows on sandy & poor gravel land, in size & appearance it resembles the common mushroom but it has pores instead of gills underneath. When bruised & exposed to the air it soon changes to a bright blue in colour by which it may be known from the other species of the same genus. I have observed a gigantic species of Boletus from 4 to 5 feet in circumference, & the pileus 9 inches thick, but the natives do not esteem it as a food.

The beautiful orange Boletus, common on dead trees, which stains the fingers to the same colour, cannot fail to attract notice & the large white species which grows on the different species of Eucalyptus, is remarkable for having the properties of German linder, without any other preparation but that of being well dried.

The Agaricus Campestris, the common mushroom & several nearly allied species are indigenous at the Swan River, & the European variety was introduced & is now naturalised about Perth. The natives do not use any of the Agaricus as food. I have not observed any of the species with white acrid juice, known to be poisonous in our colony.

but I have discovered two remarkable species which give out light in the night. The first I found nine or ten years ago when passing near the old jetty in the town of Perth on dark night. I observed, what I thought an extraordinary light, from the situation in which it was in the swamp, surrounded by water. On examining it, I found it was produced by a species of *Agaricus* which grew in clusters on the stump of a dead *Banksia* tree. When out collecting plants on the top of the ironstone hill in the Goodway District in the month of June last, I was struck with the appearance & great size of a species of *Agaricus* & without knowing of its extraordinary light producing properties I carried it home & put it in the chimney to dry. Happening to have to pass through the room in which it was, after the fire & candles were out, I was much surprised to observe a light, which I found was produced by the fungus: when the light fell on the hands & face of any person it gave them an extraordinary appearance, like a light produced by phosphorus. In a late number of the *Journal of Botany*, there is an account of a phosphorescent *Agaricus*, discovered by Mr Gardner in the interior of Brazil, & the *agaricus leucarius* of Decandolle is known to possess the same qualities.

The beautiful Lichen, nearly allied to the reindeer moss, with a stem perforated like lace, grows near the Halfway House, on the York Road. Many of the Algae or Seaweeds are used as food in various parts of the world & Western Australia produces one which I consider of great value. It is thrown on the coast in great abundance as far to the north & south of Fremantle as I have been & also at King George's Sound. It is probably the *Fucus anaylocous* of Algaeologists. When boiled it dissolves into nutritious Jelly & when sweetened with sugar & flavoured with spices it might be introduced, with advantage, to the

tables of England's nobility. The jelly prepared from it is a beautiful rose colour & as the plant when dried may be kept without deteriorating for years, it may perhaps form a valuable export from Swan River.

Our climate is too dry to be rich in the mosses & Jungermannia; the *Funaria Hygrometrica*, famed in every country yet examined by Botanists is plentiful here. Many years ago I discovered that the seeds of the plant would, if germinated in water produce the *Conferva Bullosa*, & that the first state of *Polytrichum* is *Conferva velutina*, of Botanists. I observed a species of *Splachnum* on the dung of cattle near King George's Sound.

The beautiful family of Ferns are not common in Western Australia. I have not found more than nine or ten species. A fine *Adiantum* grows on the alluvial banks of the Helena & on the banks of the brook near Cape Naturaliste. The gigantic *Lem. of Frager*, Mr Brown's *Pteris Esculenta*, is common here in rich moist land near the banks of the Swan, & on the alluvial flats of the Helena River, but the natives here never use the roots as food.

(Continued to Letter 1.)

To the Editor, the Inquirer, 15 July 1842. Letter No 3.

Dear Sir,

It is a just charge made against our adopted country,

that we have no esculent fruits, and certainly when we remember the 'bonny Highland hills' with their blackberries, raspberries dewberries and cloudberries - the latter found on the confines of perpetual snow - our catalogue of Western Australian fruits is a very meagre one, and even of the few we have, but few of

the settlers know anything. Many of the fruits belonging to the natural order Rhamnaceae, bear esculent fruits, which are fed upon by the emus, and which were at one time sort after by such of the settlers as were young and lighthearted enough to go into the bush and collect them.

One fruit known by the settlers at the Vasse, as the "Vasse Apple", a species of Santalum, is a stone fruit, the largest variety of which are about the size of a peach, and of a deep

orange colour; it has long been known when boiled with sugar, to

form a delicious sweet meat. The same plant grows in the vicinity of Fremantle, and I have seen it on Ironstone hills in the Toodyay district, and I am inclined to think that the Kojonup peach is

the same tree. The latter variety should be well worth cultivating in gardens, it only for the great beauty of its orange coloured fruit, in many of the trees as large as a full grown peach. The tree grows from 20-30 feet high, with a handsome bushy top and the trunk is from 9 inches to a foot in diameter. In the

early years of the colony when fruits of foreign growth were not established in our gardens the greater interest was taken in our native fruits and the people knew all about them; but in

these days when we have Wattle Hall seedling Grapes, and all other sorts of Grapes, figs and other fruits in abundance, the native fruits of the Colony pass unnoticed.

We have several species of Mesembryanthemum which bear excellent fruits, but like Cape Hottentot figs which we have naturalised about Clarence and elsewhere, they are generally shy bearers and when the fruit is produced it is so enveloped with fleshy leaves, full of saline juice, that the flavour is generally spoiled in eating. When out last summer collecting seeds on the bank of the Salt River about 20 miles east of Roodepoort, I found a species of Mesembryanthemum covered with a yellow fruit about the size of a Gooseberry, and I think it little inferior as a fruit to the English Gooseberry. I was in want of water and ate freely of the fruit and I think it is well worthy of being introduced and cultivated in our gardens.

In a late journey to the Ironstone hills to the south of Vassar inlet, I discovered a curious and beautiful fruit, which so far as I know is undescribed. It is a dioecious shrub, growing to the height of 4 to 5 feet. It creeps at the roots and so appears to grow in groups or patches, the leaves are acetose, glaucous, bearing some resemblance to the Common Yew. The male flowers are borne in branched racemes, from the axils of the upper leaves: they consist of a number of round clusters of anthers which resemble a single male catkin of Yew or Fir. The female two specimens I found, they grow as large as a medium sized plum of a beautiful purple colour and covered with a rich glaucous bloom. The stone as in the Excelsior, is borne at the end of the fleshy receptacle which forms the fruit.

A soldier found these fruits on the River Blackwood and brought some to Mrs. Molloy at the Vasse. According to this lady's statement the fruit is very good. I cannot afford to eat any of my specimens.

I am, Sir,

Your obedient servant,

James Drummond.

Drummond's letters to the "Inquirer" 27. July 1842.

Letter 4

Sir,

of the very natural & highly important order of Gramineae of Jussieu & have gathered in Western Australia about 70 species; many of these are described by Dr Brown as found in other parts of New Holland. & it appears that a few of our grasses as the Anthistria australis our Kangaroo grass, are common to the tropical parts of this vast island as well as on Van Diemen's Land. Mr Brown describes above 200 grasses, & about half that number are confined to the tropical parts of the island. We have a few interesting grasses which are not described by Mr Brown, the lemon-scented grass of the ^{distinct} "Goodyay" is one of these; it is a true perennial of the habit & appearance of Anthistria but with the inflorescence of Panicum, the leaves when trodden upon or rubbed between the fingers, smell like lemon thyme. & I consider it the best adapted for ornamental grass plots, edgings for garden walks etc, of any of our grasses or native plants. I have lately detected a very remarkable grass on the top of a hill in the Goodyay district with inflorescence much resembling the hairy caterpillars, common here. & the banks of the Salt River produce several remarkable nondescript grasses. The genus Stipa produces several species which are very troublesome to sheep when the seeds are ripe: they make their way into the wool & sometimes into the carcasses of sheep, in such numbers as to cause their death. The best way to prevent the mischief is to shear the sheep & lambs before the grass seeds are ripe.

The beautiful Stipa elegantissima of Labillardiere is one of the most interesting grasses. When cut before the seeds are ripe it forms an elegant ornament for our rooms in winter, & it would form, perhaps, a too cheap, but certainly beautiful substitute for some of the nondescript forms, which are sported in the head dresses of our belles. It is a curious & beautiful sight to see the full grown panicles of this grass, carried up in clouds in the air by whirlwinds & borne along on the breeze, as Bessian beautifully described the down of the thistle to be conveyed by the winds of Autumn.

Of the cultured grains, rice, sugar cane, Indian corn etc. are grasses, & perhaps there is no country known, where the return from wheat, the most valuable plant in cultivation, can be reckoned upon with a greater certainty than the Swan River.

It is thought by some, that when the country comes to be settled upon & grazed over by flocks of sheep, that many of the indigenous grasses disappear, & such may be the case with a few of the animal species, but for one grass lost in that way I have no hesitation in saying, that six new ones are introduced. Indeed a large proportion of the grasses in the vicinity of all the old settlements are foreigners, & like wheat, barley, & oats, & other cultivated grains, which exist under the protection of man, & in their turn, entitle him to exist, when he becomes a civilized being, will be said to have no particular habitat or place of abode. Were I to enumerate all the foreign grasses that are to be found even at this early ~~at~~ ^{little} age of the Colony. I would have to give a list of nearly all grasses which are found in the

To "Inquirer"

27.7.1842

in the cultivated parts of Europe. But I shall notice Letters 4 p. 3
only a few of the most common.

The elegant Briza maxima & minor are common, the latter particularly as far as the wild cattle have penetrated into the interior. Wheat, Barley & particularly oats, easily become naturalised here: I know several places where only a few grains were accidentally dropped, three or 4 years ago, & I always know where to get a feed for my pony, whenever I happen to be in the neighbourhood.

When these oats are in a green state, & before the seeds are shed, the Festuca Bromoides are more abundant at Swan River than any other native grasses. The Phalaris aquatica produces our heaviest crops of Hay, & Poa annua is as common about most of the settlements as in the neighbourhood of London.

I have long thought that the want of true grasses in our Mahogany forests is a very remarkable feature of the natural history. I cannot for a moment suppose that it is the want of fertility in the soil, & the antipathies of plants is a subject which I have never studied; but at this time in the district of Baylup is covered with the most beautiful grasses, under the shade of the Red Gum & Black Butted gum trees, & the Mahogany forests in the neighbourhood, apparently of the very same description of soil, do not produce a single blade of grass. I would like to see the soil of Baylup, taken 6 inches under ground & the soil of Wallup, taken at the same depth & analysed; It would be a subject worthy of the attention of the Members of the Agricultural Society. I am
Yours faithfully,
James Emu

Sir,

In my last letter on the Grasses, I forgot to state that the Guinea grass, originally introduced from India, by Mr Little, & sown in Cook's garden, under Mount Eliza, is now abundantly naturalised in that neighbourhood. It is a most productive grass & should be spread as much as possible over the colony.

In this letter I shall notice only those of the Natural orders viz. Cyperaceae of DeCandolle, Restiaceae of Brown & Junciacae of DeCandolle. These orders are extensive & produce many new species in Western Australia, but they are generally plants of no great interest to the settler. We have several species of the genus *Cyperus*, which gives the name to the first of this order, & which is famous in botanical story for producing in the river Nile the ancient papyrus the magnificent *Cyperus papyrus*. It should thrive well here, in our lakes & rivers, & deserves to be introduced. The large jointed rush that grows in the lakes near Perth, which formed the walls of several of the first settlers' houses, & for several years formed the walls ~~round~~ of the first Church of Perth, is one of our finest plants belonging to this order. The bull-rush of Scripture, *Scirpus lacustris*, variety *Glauca*, is found at Swan River, & it is used by our coopers for staunching their work. The plant, described by Mr Brown as *Scirpus maritimus* of Linnaeus, is found here, but it has tuberos roots, much sought after by pigs, which I do not remember to have seen on the plant in Pontian. One of the most

troublesome weeds in the colony is the species of Cyperus, which was introduced here from Java in the "Parmelia": when once introduced into a garden it is scarcely possible to eradicate it: the roots are lustrous & every bit of them grow & form a new plant. The genus Leptodermis contains many remarkable species at the Swan River. The Square-Rush found only near perpetual springs is a strongly marked species of this family. In travelling to the South, the large two-sided rush, another species of the same genus, which grows 15 feet high, with a stem about an inch broad, first makes its appearance near the ford on the Serpentine, & it is afterwards common in swamps where the soil is rich, all the way to Australind & the Vasse.

Some of our Restiaceae are very curious & beautiful: they are dioecious, & grow, many of them, in swamps, which are dry in summer, near the foot of the Darling Range; many of them make the best description of thatch, & they have been used for that purpose by Mr Oakley at Pinjarra.

Plants belonging to the natural order Juncaceae, which takes its name from the common rush, have much the same appearance here that they have in Pontari; abounding in the same situations, namely salt marshes, & being used for the same purposes. One species, excellently adapted for embankments, is fast gaining ground on the water at the flats. Many of our settlers may remember that the landmark called "Canoe" was, at the time of the formation of the Colony, at a considerable distance from the banks, & it is now long since surrounded with rushes.

Mr Brown includes in Juncaceae two genera which which certainly appear to have little relation to the rush which grows where water flows, namely Dasygogon, & Caledasia; he describes & figures them both in Plenden's work. His Dasygogon bromeliifolius is common near the coast from the Swan to the King George's Sound: & one of our most remarkable plants is a second species of Dasygogon which is found among the ironstone hills to the south of the Vasse Milt, also among the hills near the Blackwood or Beaufort River, & also among the hills near the headwaters of the Preston. This plant grows 15 feet high, with leaves two inches broad near the stem; it creeps at the roots & so appears to grow in groups or patches. it is one of the most striking & remarkable plants in Western Australia.

Mr Preiss, the German botanist, appears to have overlooked Mr Brown's excellent description of the Caledasia, & he named the genus (certainly the most beautiful indigenous one we possess) after His Excellency Governor Hutt.

We have 3 species, & Mr Brown's figure seems to me to belong to the large flowered one. which I call calectasia grandiflora. At the Swan it is the rarest of the two. it grows in swamps on both sides of the Goodyay road about half way between Guildford & the foot of the Hills. The elegant Caledasia cyaneae, better known here as Huttia Elegans, is common everywhere on sandy ground, near Perth.

I am etc.

Hawthornden Farm July 16th. Jane Drummond.

Dr. Inquirer

Letter No 6. 10 Aug. 1842. P. 1.

Sir,

The next natural order of much interest to the settler & general reader is given by Mr Brown as Asphodelaceae. I have already in my first letter, noticed the interesting genus *Xanthorrhoea*. *Arthropodium paniculatum* of Mr Brown, a plant with leaves like a tuberose, is common in our best pastures & much relished by sheep & cattle. We have several fine species of the genus *Coesia*; the *Hirsuta* & *Varicolor*, are described in Dr Lindley's Swan River botany. *Stypandra grandiflora* of Lindley is a fine Swan River plant belonging to this order. *Diarella berulea*, the native Buttack which they use for tying, is useful in that way. Of the fine genus *Thysanotus*, called Fringe flower & lace plant by the settlers we have many species, one of the largest & finest, the *Thysanotus triandrus* of Mr Brown, is common on the banks of the Helms, near the rocky pass; the common ~~fringe flower~~ is a triandrous species, the *Thysanotus hispidulus* of Brown.

The natives in the vicinity of the Moore River use the remarkable climbing species of *Thysanotus* as food; it is different from the volubilis of Brown, & I do not at present, know their name for it.

We have a very pretty species of *Sowerbaea*, the *Sowerbaea laxiflora* of Lindley, common in our pasture land; & we have several species of *Laxmannia*, which Dr Lindley says is the form, in botany, most characteristic of our colony. The *Laxmannia grandiflora* is the largest & showiest species. The *Borgia Scirpoides* is common everywhere on the sides

of our hills; its rigid grasslike leaves are much relished by sheep & horses.

The *Johnsonia lupulina* the largest & finest species of the genus, first makes its appearance southwards to the South of Capel River, but we have two pretty species the *Johnsonia nicta* & *pubescens* of Lindley Swan River Botany, common in our forests. *Haemodoraceae* of Brown, according to Dr Lindley, have their headquarters on the west coast of New Holland, & the expression "Nullibi Copiosio" is no longer applicable, for at the Swan River he observes, they seem to form one fiftieth of the species of the genus *Haemodorum*. Dr Lindley appears to have seen only three from Swan River, but we have at least 6 distinct species. The natives distinguish five of them by the following names Bhon, Madge, Quarandine, Gnoally, Jagget, and there is another which I forget. The Bhon, is the root of *Haemodorum Specatum* of Brown, & it is the plant alluded to by Dr Lindley under *Drosera*, but it is a mistake. The natives do not use the roots of any species of *Drosera* as food. The Madge is the roots of *Haemodorum paniculatum* of Lindley, & Quarandine, the roots of *Haemodorum planifolium*. The other I cannot refer with certainty to any described species. The whole genus is of the greatest importance to the natives, for from any or other of the species they can, at any time, & in any place, where they are likely to be, produce a meal of nutritious food with very little trouble.

There are two sorts of round white roots called gitta & cara, by the natives, which they sometimes eat; pigs are also fond of them. I cannot refer these plants to any described.

The genus *Conostylis*, contains many species, several of them are very beautiful, particularly *Conostylis setosa* & *Conostylis aurea* of Lindley. Swan River; produces two new genera belonging to this natural order, the *Blancoa Canescens*, an elegant plant found on sand hills to the south of the Guildford Lakes, & ~~it~~ one *Andropogoneae Juncea* rather a pretty cushionlike plant common on the sides of our steep hills; & finally, Dr Lindley says, in writing of this natural order at Swan River of the well known genus *Amigozanthus* there are not only the *Amigozanthus Manglesii* & *Amigozanthus Flavida* with their beautiful green & purple variety, but there is a dwarf species, still handsomer than they are, & which Dr Lindley names from dried specimens *Amigozanthus Annalis*. This is an early orange flowered species found on the sandhills near the coast. It varies with cream coloured flowers in the sandy country to the east. The *Amigozanthus Manglesii* is perhaps our largest species, the *Latifolia* of Forster, but our dwarf green & crimson species, the *Amigozanthus Moorei* of Breiss as well as the dwarf green variety are not noticed by Dr Lindley although they are quite distinct, as species from the large green & crimson.

In travelling to the South, the *Amigozanthus Flavida* first makes its appearance at Puyarrak; the large green variety & it produces at Cape Naturaliste a variety with brick coloured flowers my son Johnson has lately found a new species of this beautiful genus at the Moore River.

Yours, Dummer

17 August 1842.

Sir,

Of the beautiful & interesting order of Orchideae, I have gathered between seventy & eighty species in our colony. Dr Lindley, in his Botany of the Swan River Colony, describes fifty five new species, & in writing of them he says: "If we regard either their singular structure, or their beautiful forms, or the fragrance, large size & gaudy colours of many of them, it is impossible to say that they do not all yield in interest to the Orchideae of tropical countries."

One of the finest & most numerous genera is *Thelymitra*, the species of which are stout herbaceous plants with the habit of the European *Orchis* or *Serapias*, but with much gayer colours & larger flowers. *Thelymitra villosa* of Lindley is one of our finest species. *Thelymitra campanulata* grows 4 ft high with very fragrant blue flowers; it is not uncommon about Green Mount. Against the *Thelymitra* in point of beauty are two species of *Glossodia* *Bivris* & *Caladenia*, among which Dr Lindley remarks, that we have numerous species of the most exquisite form & gayest colours. Of *Glossodia* we have three species, with pink, blue & purple flowers; pretty yellow scented *Orchis*, so common about the settlements of the Swan is *Macdonaldia antennifera* of Lindley; & the *Macdonaldia variegata* is the beautiful spotted purple *Orchis* found in our Mahogany forests. The beautiful yellow *Orchis*, so common everywhere in our forests is *Caladenia flava* of Brown. *Caladenia longicauda* of Lindley is one of our most striking Swan River plants: it is generally to be found in our white gum forests.

One of our most curious & sensitive plants is a small orchid, the *Calceana nigrita*, to be found near the roots of our Mahogany trees. The part of the flower called the column is a boat shaped box & the labellum forms a lid that exactly fits it, & is hinged as a claw which reaches the middle of the column: when the flower opens, the labellum turns round within the column & falls back so that the flower being inverted, it stands fairly over the latter. The moment a small insect touches its point, the labellum makes a sudden revolution & makes prisoner any insect which the above mentioned box will hold.

Of the curious Swan River genus, *Drakea* of Lindley, we have two species which I distinguish by the names of *Drakea livida* & *Drakea lucida*: they are nearly as curious in their economy as the *Calceana*: the labellum, which resembles an insect, has a curious elbow-like joint in the middle, by which it moves with every breeze. *Spiculca ciliata* of Lindley is another Swan River Orchid, with a curious moveable labellum. The *Protophyllum giganteum* produces the roots called tubae by the natives many of the orchideae produce roots which are much sought after by them as food.

The *Dipenthus suaveolens* of Brown is a native "Carra", & the natives use the roots of the *Thelymitra fusca lutea* of Brown, which is common in our white gum forests, & also the roots of *Thelymitra villosa* & *Thelymitra campanulata*, as food. Dr Lindley remarks that *Glossodia Brunonis* & *emarginata*, have large roots, enveloped in numerous coarse skins, & as sweet as a chestnut even when dried he observes they should certainly afford a delicate article of food.

The Salep of commerce is prepared from the roots of several European species of the Orchid by dipping the roots in boiling water so as to destroy the living principle & afterwards drying them. They may be kept for any length of time. I am, Sir,
your obedient servant
Hawthornden Farm Goodmay Valley, July 26. 1842 James Drummond

Letter N^o 8.

Dear Sir

The natural order *Araceae* & *Typhae* of Jussieu united by Dr Brown. contains in the tropical parts of Australia several interesting species, but the only plant which I observed which requires notice with us is the plant which Mr Brown gives as the *Typha angustifolia* of Linnaeus, but with the mark of doubt. This plant is as important one to the natives, as it furnishes them with, at one season of the year, with a large portion of their food.

When the white man first settled in this Colony, the natives of Canning, Upper Swan, Lower Swan & Perth districts, were in the habit of meeting annually in the autumn, in the vicinity of the Swamp or Grave Farm, now the property of Mr John Hardy. This meeting lasted for several days. & I observed that on this occasion, the principle food was roots of the *Typha*, which they call Yandi-jut. They strip off the outer covering of the long creeping roots, reserving the pith, which contains a large quantity of starch: they generally cut the roots into convenient lengths & roast them in the ashes & chew the whole, spitting out the fibrous parts; but sometimes they split up the roots,

28.9.1892

collecting the starch in their cloaks & bake it into cakes. The plant is abundant in most of our lakes & rivers, but it is only in the autumn months, when the plant is in a state of rest, that it contains much starch in the roots.

The natural order, Alismaceae of Brown, produces with us, a very remarkable annual plant. I have observed it principally in pools of water in the Gooday district, which dry up in summer. The leaves are seven or eight inches long & two three broad; floating on the surface of the water, the true flowers are produced late in ^{the} summer. They are more than three inches in diameter, snow white, with a crimson eye, & very fragrant. The inner division of the perianthium consisting of three leaves. But this plant has an extraordinary property of producing numerous seeds, enclosed in large seed vessels, which never produce any flowers; some of these seed vessels are 4 or 5 inches in circumference, containing numerous seeds imbedded in a sort of gelatinous substance. These seeds readily reproduce the species; indeed, it is only a few of the plants which happen to grow in deep water, which produce the true flowers, but every plant produces abundance of seed which are a favourite food of the wood ducks of this district.

The curious *Vallisneria spiralis*, I have observed only in one place in this colony: it belongs to Hydrocharitaceae of Brown: it is dioecious: the male flowers are sessile, born on plants at the bottom of the water, & when mature they break off & rise to the surface & are carried down by the stream, or,

letter 8 Sept 1842

3. when there is no stream. they are blown about by the wind. at that time the female flowers, which are on curious spiral footstalks coil themselves up again. This plant appears to have a very wide range; it is found in Europe, Asia, & New Holland, but it is very rare with us. I have seen it only in one pool under Duedjee latta, & there it was soon destroyed by our cattle.

Our only palm, the *Zamia spiralis* belongs to the natural order, Cyadeae of Peron; it grows with us, 12 or 15 feet high, & has been supposed by some to be a different species from the *spiralis* of Brown. But although he says his plant grows only from 2 to 4 feet high near Port Jackson, he observes that the same plant, in other places, grows 10 feet high. The *zamia* is dioecious, the heads of the male flowers are about the size of the common pineapple and the heads of the female plant are four times as large, they contain numerous nuts, larger than a chestnut, & when ripe, they are covered with a beautiful red covering, generally about 2 lines thick. this covering is a favourite food of the natives & they call the nuts "bojas". Before they use the red covering of the nuts, as food, they bury them in the ground for several weeks, or steep them in water, which has the same effect in a shorter time: when eaten without that preparation, they cause violent vomiting & very distressing symptoms. The nuts, when deprived of their red covering, are not used by the natives as food, but they contain a large quantity of starch, which is easily prepared by

by grating them down in a tub & pouring water over the mass. The vegetable matter, with a large quantity of a gelatinous substance separates, & leaves the starch pure, at the bottom of the tub. This starch appears to have all the properties of arrowroot. I have heard that a substance resembling sago may be procured from the Zamia, but I do not know the process. The natives strip off the bark of the fronds for many purposes, & it is easily manufactured into light & durable baskets.

In this letter I conclude my observations on the Monocotyledonous plants; the first and the seven last letters refer to them, the second letter refer to the Acotyledonous plants. In my next letter I shall go on with the large & most important order of Dicotyledonous plants.

I am, Sir,

Your obedient servant,
James Oronumund.

Hauchoaden Farm.

September 12th 1842

Dear Sir, The natural order Santalaceae contains, with us, two genera, of which we have interesting species. In my letter on the native fruits, I noticed the Kojonup peach. & I have since observed that the same plant is common to the north. The nut tree of the York district is a species of *Santalum*, the nuts are sometimes eaten by the settlers but they have very little flavour. The natives use the nuts for greasing themselves, they appear to contain a large proportion of pure vegetable oil, which may perhaps be turned to account, in seasons when they are abundant. I have observed a very narrowleaved species of *Santalum* among the ironstone hills near the Beaufort River. The *Exocarpus*, the Van Diemen's Sand cherry, belongs to this order. We have several species quite the largest & showiest is the *Exocarpus capressiformis*, which appears to be found all over this vast island.

Of the natural order Thymaleae we have many fine species. Of *Pinetia*, the *Decussata* & *Rosa* are both common from the Swan to King George's Sound, in the vicinity of the coast: the large yellow flowered species is common among the hills; it is so fragrant, that in the evening or on a dull cloudy day it is delightful to travel among the hills when this plant is in flower. We have many rather pretty plants of this genus, & the *Pinetia Spectabilis*, a remarkably fine one, was described by Dr Lindley from Swan River.

July 9. 5.6.1842

specimens. If grown on the hills & hills between the Western Country River. The natural order Proteaceae, which is almost peculiar to Australia, abundant at Swan River. Dr. Lindley remarks, in his history of the Swan River colony, that native is the most frequent appearance, from which these plants derive their name, were conspicuous than with us. After they are extremely numerous. & to a great extent different from the rest of the continent. When Dr. Lindley made these remarks, he said have only seen about 140 species of Proteaceae from Swan River. our list now amounts to upwards of 150 species.

The two first genera described by Mr. Brown, *Proteolobos* & *Boopogon*. Dr. Lindley just remarks, were better suited, & our Swan River species confirm his view, in that respect. The species of the genera are so much alike & mix so much into each other that I have long given up trying to distinguish them. Dr. Lindley describes nine new species in these two genera: several were our home by Dr. Brown & described in the Supplement to the Proteaceae. Dr. Brown *Proteolobos* *Boopogon* species, the *Proteolobos* *Boopogon* is common on the sandy ground about Perth. in size & shape the flowers resemble the English *Hamamelis*. Another fine species of the *Proteolobos* *Boopogon* of larger growth among the rocks near the foot of the hills.

Dr. Lindley remarks of the *Proteolobos* *Boopogon* - a species which he describes from Swan River - that it has flowers which when infused in hot water give out so

brilliant a yellow, that it is worth examination is a probable source of a dyeing material. The species is common in the sandy country to the east of the Gooday district. The finest *Petrophila* I have seen, with heads of flowers as large as some of the round flowered *Banksias*, a very fragrant grows on sandy ground near the Beaufort River. It belongs to Brown's first division of the genus.

Next to *Petrophila* & *Osopogon*, Mr Brown describes the *Adenanthos*, of which Dr Lindley remarks. that the only beauty is in the leaves, which almost hide the flowers. but we have several species to which that character does not apply. a pretty rose flowered, boxleaved species of *Adenanthos*, grows on the road between Perth & Guildford. & another with red leaves, which from its being almost always in flower, I have named *Adenanthos Semper florens*, grows on the top of the hills. There is also a beautiful rose coloured *Adenanthos*, which covers the ground as with a carpet of that colour, found on the sandy land to the south of the Beaufort River.

Of the genus *Conospermum*, we have many interesting species at Swan River; Dr Lindley remarks of it that no one would suspect the genus at Swan River to belong to the order at all until after minute examination while the majority of the species with their long woolly-panniced, irregular flowers, have altogether a peculiar aspect. the *Conospermum acrosum* may be mistaken

5 Oct 1842

for a *Colletia* & *Conospermum glumaceum* has altogether the appearance of some *Bupleurum*. with great membranous bracts. The *Conospermum acerosum* grows between the Guildford dunes & the foot of the Darling Range. and *Conospermum glumaceum*, which is very fragrant, grows on the Footyay Road side close to the foot of the hills. Dr Lindley remarks of the genus *Synaphea* from Swan River, that they are in many cases, ragged looking plants, whose leaves seem as if they were intended to be larger, but staved into hard dry lobes.

Synaphea Decorticans is a strange oak-leaved plant, whose bark is strom of in numerous thin brown layers. *Synaphea Brachystachya* seems clothed with the leaves of an *Eurygnem*, & *Synaphea Pinnata* has large regularly pinnate leaves, glaucous on the under side.

Besides these species described by Dr Lindley, we have his *Gracillina*, and several of Dr Brown's species of this curious genus. The *Franklandia fucifolia* is common about King George's Sound, and I observed it on travelling to the South, soon after passing the Capel River. It will take another long letter to notice the interesting plants belonging to *Proteaceae*.

I remain Sir,

Yours etc

James Drummond.

Hawthornden Farm,

12 Sept. 1842

19th October 1842

Dear Sir,

After Franklandia, the next genus of Proteaceae described in Brown's Prodrum, is the Symphionema; the curious plant, so common in the woods about Perth, which grows about 3 feet high, with panicles of brownish yellow flowers, and divided strap-shaped leaves is a species of Symphionema, and we have several others one of which grows about 2 feet high in the sandy country to the east, with round heads of golden yellow fragrant flowers, is the first.

Of Agastachyus we have two species, distinct from the Odorata of Brown; one of them is found to the South of the Capel River, and both among the hills to the South of the Vasse Inlet; they are both beautiful fragrant plants. The Persoonias, Dr Lindley observes, are plants of little beauty; Trageri, which is common about Perth and near the coast, he observes, is the handsomest. Personia Macrostachya, like Petrophila brevifolia, seems to possess dyeing properties, which deserves investigation.

The Personia lauricola is a small bushy tree, not uncommon in our woods, with leaves like Laurel, from which it takes its name; and Personia Drummondii, described by Dr Lindley, from specimens collected among the hills between the Helena & Canning Rivers. plants being common in the woods throughout the Leschenault district - forms sometimes rather a handsome small tree, its long grained falcate leaves and drooping branches being ornamental; its bark, formed of

numerous layers of cuticle of a red colour, is very characteristic. The *Anadenias*, by Lindey remarks, consist of plants whose leaves are their chief ornament, the flowers being small & inconspicuous. *Anadenia flexuosa* is a small curious species with remarkable zigzag reflexed leaves: it is found on the top of Gooday Catta. *Anadenia aquifolium* when not in flower, bears a great resemblance to a holly; and *Anadenia Hakeoides* has broad-toothed reticulated leaves, so much like those of *Hakeatundulata*, that it might be taken for that plant, if it were not for the absence of the Hypogenous gland.

Of the order of *Grevillea*, we have many species, the *Grevillea Thulmanniana*, a splendid scarlet flowering species grows on the ironstone gravel formation on the top of the Darling Range of hills. *Grevillea Eriostachya* bears long yellow spikes of yellow flowers. A remarkable black flowered *Grevillea*, not yet named, grows on the banks of the Salt River: it grows in a pyramidal form, with bejagious branches, to the height of 10 or 12 feet.

Of *Manglesia*, a new genus, lately separated from *Grevillea*, we have 7 or 8 species, I believe all the known species of the genus are from Swan River; the finest of them, a *Grevillea tridentifera*, now in full flower in the York-Gooday district, and called by the settlers the Swan River Hawthorn, has, from the number of its snow white flowers and the size of the plants, some resemblance to the favourite English Hawthorn.

Of the genus *Hakea* I have collected over fifty species in the colony, but I shall notice only a few of the most striking species. The *Hakea glauca* of Forster, common about every settlement, produces a large quantity of a beautiful, transparent gum: it forms a low bushy tree with leaves bearing some resemblance to holly. The *Hakea Mixta* of Lindley, is remarkable for bearing semper filiform leaves, also trifid filiform leaves and entire oval leaves on the same plant. It varies as much in height & habit as it does in the form of its leaves. In the Swan River District to the West of the Darling Range it forms a shrub from 4 to 6 feet high with white downy flowers; on the top of the ironstone hills to the East of the Darling Range it has long spreading branches and bears yellow flowers; in the Kojonup District it is a tree 30 feet high with the habit of the evergreen cypress. I can find no difference between the leaves and seed vessels of these plants by which I can distinguish them as species. The *Hakea Basteri*, a remarkable species with fan shaped leaves, and seed vessels as large as a common russet apple, grows to the south of the Beaufort River, and it has lately been found near the Moore River. A yellow flowered species with round prickly leaves grows in clay on the banks of the Avon. In drying this plant for specimens, the leaves all drop off; on that account I think the species is not yet named, although it well deserves to be known; it is, when in flower, one of the finest species: it grows to the size of a small tree.

4 Letter to S. Huguier 19 Oct 1842.

We have also a beautiful crimson flowered *Habea*, which I think is not named yet. It grows in such abundance on some parts of the hills that they appear, when the plant is in flower, of a crimson colour, from its numerous blossoms; it is a small prostrate growing species with ovate, acuminate glaucous leaves, which end in sharp points, the plant is abundant near the Mission House on the Swan.

We have a curious species of *Habea*, with filiform sulcate leaves, 9 inches long & a very remarkable one, with round pointed leaves, and large pear-shaped seed vessels, found abundantly on the banks of the Salt River, about 20 miles to the east of Mr Monnell's residence.

Dr Lindley remarks that *Sambertia* occurs with us in the form of a most beautiful species, with orange coloured flowers, & it is, moreover of great botanical interest, from its flower heads consisting each from 13 to 19 flowers neither more nor less. When Dr Brown described the genus in his *Prodrromus*, he only knew species with either one or 3 flowers in a head, and with his habitual sagacity, he ascribed that number to the circumstances of the flower heads being formed in whorls equal in power to that of the leaves; & that as the latter grew in threes, the flower head, would necessarily consist of one flower or of 3×1 , or of six + one; the first & third cases he knew, & he conjectured that the second one would be one day discovered. Although the Swan River plant

5 Letter to. to Inquirer 19 Oct 1842

is not referable to the second case yet it confirms the correctness of Dr Brown's views, for the increased number of flowers found in its heads is constantly some new power of three; in some species it is 3 multiplied by 4 plus 1 = 13 & in others 3 multiplied by 6 plus 1 = 19. & of this I perceive no exceptions.

Lambertia multiflora of Lindley grows on both sides of the Gooday Road near the foot of the hills, & it is particularly abundant on the left of the Road.

Since Dr Lindley wrote of the botany of the Swan River Colony I have found ⁱⁿ it four additional species of *Lambertia*; two of these are described in the Supplement to Dr Brown's Prodrromus, & a third with beautiful silvery obovate leaves & straw coloured flowers found to the South of the Gordon River, agrees with Dr Brown's *formosa* in the number of its blossoms. In my late journey to the South of the Vasee, I found a species of *Lambertia* growing 30 feet high, with a trunk 3 feet in circumference which although sometimes bearing twin flowers, is, no doubt, probably referable to the one flowered section of the genus. In my journey to King George's Sound about two years ago I found what I considered a new genus, nearly allied to *Lambertia*, & like it, bearing the leaves in threes, in that plant the flowers were very numerous, borne in whorls in the axils of the leaves. It grows on hills to the north of the Beaufort River.

Xylomelum occidentale, found by Grazer on the shores of the Geographical Bay, is plentiful throughout the

Leschenault district, and may be seen in flower & fruit every season on the banks of the Swan, a little before Mr Joseph Hards house. I have found a new species of *Xylomelum*, with long narrow leaves on the way to the South, to the Spring called Bibachgoin, by the natives.

Of the genus, *Banksia*, I have gathered 24 species in our Colony, but as this letter on the Proteaceae is getting to an inconvenient length, I can only notice a few of the most remarkable. The finest of the whole genus, the *B. grandis* Linneus we may well call the pride of the Swan, where it is very common, & grows sometimes 30 feet high, with a trunk 2 feet in diameter. As reported by Forster, in healthy young trees the foliage is beautiful and the flower spikes from 14 to 16 inches long; it is the native Mangite, and when the natives are left to their own resources, men women & children live for weeks together, probably, on the honey which they suck from the flowers of this fine tree. *Banksia calayi* & *B. Menziesia* are both abundant, and form the principle firewood used at the town of Perth. *Verticillata* is common in our swamps, and grows to a large size; I have observed it on the banks of the Murray River with shorter, broader & nearly entire leaves. The *Banksia Aquifolia* of Lindley common about Perth, which produces flowers like a *Hakea*.

I Letter to Dr. Engelman 19 Oct 1842

at first yellow but soon turning red appears very distinct from *Elaeagnus*, as it is found at King George's Sound. But observations which I made in my late journey to the South convince me that these plants are the same species and not even varieties. There is as much difference between *B. Aleutica* & *B. grandis* as they appear here at the Sound.

Cunningham observes that *B. Coccinea* & *B. grandis* are the pride of King George's Sound, there the *grandis* is a mere shrub compared to how it grows at the Swan River, but the *Coccinea* which they use for firewood there is a splendid plant. I found a fine new red flowering species on the banks of swamps & brooks between the Sound & Mt Barker, but I must leave a description of the fine *Banksias* found in the Sound to another opportunity.

Dr Lindley, in his Botany of the Swan River Colony, observes that "Dryandras abound in addition to *D. floribunda*." (a name which I had given to a fine new species lately found by my son Johnston but I perceive it is preoccupied) "nervosa, Bipinnatifida, & the elegant *D. Fraseri*, whose leaves are divided into fine awl shaped lobes, there are the following new ones, viz., *D. Favosa*, a species near *armata*, but the leaves have no hairs on their lacunae except when very young.

and the flower head rare, much smaller, & the stigma is obtuse, not subulate. *D. Carduacea*, a charming species, with leaves like those of a *Carthamus*. *D. stuposa*, a plant near Formosa, & quite as handsome. *D. nobilis* a most splendid plant in the way of *longifolia* & *tennifolia* with leaves from a foot to a foot & half long, & finally *D. Proteoides* which has much the look of a Cape *Protea*.

Since Dr Lindley wrote I have seen at least ten new species of *Dryandra*, more of them I think, finer than any before described, but I have not room to notice them here. The *D. Fawcettii* makes the best substitute for the Holly in making hedges; it may be seen in Mr Devenish's garden at Guildford. *D. nobilis* grows to the right hand side of the old Loodyay road, just before beginning to descend into the valley of the Avon, & also near St Roman's Well on the York Road; *Proteoides* is found a little to the south of the Loodyay Road about half a mile before travelling so far to the east as the grove of the *D. nobilis* before mentioned. The natives seek honey from the flowers of the *Grevillea eriotachya* & *G. ^{lychnostachya} bifurcata*; from several *Dryandras*, & from *Bankia Caleyi*, *Menziesia* & *Verticillata*. It is worthy of remark that no genus of *Proteaceae*, with more than 3 seeds in their capsules has yet been discovered in Western Australia. The celebrated Warrata of Sydney, *Telephea speciosa* of Dr Brown & his genera *Somatia* & *Stenocarpus* have many seeded capsules. I am, Sir, Your obedient servant

Hanthonden Gern. Sept. 15th 1892

James Drummond

Sr,

Of the natural order Chenopodeae, of Decandolle we have, in Western Australia, several genera, & many species. An oak leaved *Chenopodium* found on alluvial soil near the banks of the brooks in the Toodyay District resembles in appearance, the Mexican *C. Ambrosioides*, & probably, like that species, contains an essential oil. I have observed a scrubby species, with linear leaves, near the Government Store in Perth, the seeds of which have a powerful penetrating odour. Like the *C. Anthelminticum*, almost all the plants belonging to this order are esculent, & several of which indigenous species were used in the first years of the colony as vegetables. I have observed that two of the English species which are in England, troublesome weeds, have found their way to the Swan River. Our extensive salt marshes on the banks of the Swan River are mostly covered with plants belonging to this order; they all contain carbonate of soda, & it would be worth enquiring at what price we could afford Cavilla as an export.

Of Amaranthaceae of Jussieu, we have plants which form or perhaps two genera. One plant which forms a new genus grows near the foot of the Darling Range between York Road & the brook which falls into the Swan at Strelley; it grows about 2 feet high, & is remarkable for the thick cloth like appearance

appearance of the leaves. Like the preceding order, almost the whole of the Amaranthaceae are esculent, and we have one genus, nearly allied to the globe amaranth of which some of the species are very beautiful.

Of the natural order Polygonaceae, of Jussieu, we have but few species; I have observed an indigenous species of Polygonum in the ditch by the roadside under Mt Eliza; & we have two indigenous species of Rumex. ^{oo. e. 17. 18} Rumex pulchellus stem with leaves like Rumex pulcher is common in many parts of the Colony & a long narrow leaved species grows on the flats of the Goodway near Captain Sculley's residence.

The Polygonum Aviculare, an introduced species, is a troublesome weed. & I have observed both Rumex crispus & R. obtusifolius in the same state.

One of the most troublesome weeds we have is a plant of this order, now common about Perth. The seeds with their envelopes are large triangular, with sharp points, which run into the hands & bare feet; the plant is an annual, spreading on the ground with the leaves resembling a dock; the male flowers are borne ~~on~~ distinct from the female, but on the same plant. I strongly suspect that this plant is an introduced species although I do not know from what country.

Of the natural order Plantaginaceae, of Jussieu, we have two species of Plantage, one a perennial like a common rib grass & a smaller annual species - both found in the best land. Of Primulaceae, I fear we have a poor

substitute for the English primrose + cowslip, but I have observed a curious & beautiful black flowered shrub of the order on the banks of the Salt River: & we have Mr Brown's *Samolus litoralis* & *Samolus junceus*, in our salt marshes.

The common red Pimpernel, our Poor man's weather glass is frequently met with in a naturalised state, & the blue variety of it *Anagallis caerulea*, is commonly & often met with here than in England.

Of Lintulariae we have seven or eight species.

Utricularia are pretty plants found generally in swampy ground and remarkable for the bladder-like appendages which are found mixed with their roots. Of the natural order Scrophularineae of Jussieu our Colony produces some fine plants, a beautiful herbaceous plant, with lilac flowers resembling a foxglove is found between Gullford Lakes & the foot of the Darling Range of hills & I have seen a scarlet flowering species of the same genus between the Williams River & King George's Sound. One of the most beautiful shrubs we have, which is found on the laminar quartz stone hills near Gulongine, will probably form a new genus of Scrophularineae: it grows 4 or 5 feet high with many branches which terminate in large thyrses of dark purple flowers, each flower is surrounded by a permanent white calyx which gives the plant something of the appearance of the Chinese Hydrangea, the leaves are lance shaped, about 3 inches long and cut at the edges: the whole plant is clammy.

4 Letter 11

22nd Feb 1843

To Inquirer.

I found an interesting blue & yellow flowered shrub belonging to this order in my late journey to the ^{Wongan?} Wogin hills which I cannot refer to any of Mr Brown's genera, & we have several *Veroneas*, *Gratiolas*, *Euphorasias* etc etc.

Mr Brown does not notice the natural order *Grubbeae* which is nearly allied to *Scrophularineae*, perhaps from his not having seen any distinct species; but I have found at least one species of *Grubbea* which is not uncommon on the sand hills near the coast & I gathered one perhaps not distinct, growing out of the crevices of rocks on the top of Mt Bakewell.

Of *Solanum*, of Jussieu, we have two native species of *Solanum*, the *S. laciniatum* which is a native of garden Isles & I have seen it in the interior, but where it grows so common about Perth & Fremantle it is an introduced species; we have also a most beautiful plant of this order on the banks of the new river which we lately discovered to the north of the Moore River. The *Solanum Capense*, a yellow fruited prickly oak leaved species common about Perth & several of the old settlements on the Swan & the *Solanum nigrum*, a troublesome weed & included in Dr Brown's *Prodromus*, are certainly introduced plants in Western Australia where the Cape Gooseberry has already become a native in the same way.

We have one indigenous species of tobacco a larger & stronger plant than *Nicotiana undulata*, & three species of *Anthocereis*, including the *viscosus*, which is found at King George Sound. One of our species of this genus

5

Letter II.

22 Feb 1843.

To Enquirer

appears to be nondescript, a slender prostrate species which grows on the islands of the Helena near the Rocky pass.

Of Gentianeae, of Jussieu, the Australian forms generally are not very conspicuous & Swan River seems to be no exception we have one rather showy white plant like Campanula which turns black in drying which I suppose belongs to this order, & we have Mr Brown's *Erythraea australis* which forms our best substitute for the hop brewing. There is an early yellow flowered *Erythraea*, not described by Dr Brown which is an interesting species. Of *Vellaria* allied to the Gentianeae we have 5 or 6 species; one species common in the Vasse district has leaves so large that the settlers put them round pots of butter to keep them adhering to anything they come in contact with.

Of *Asclepedaceae* we have a brown flowered plant which runs up the blackboys in the Loobyay district, but it is very rare & I have never seen the seed vessels; & there is a strong growing climbing plant of this order which runs to the tops of the trees in the Murray district. The flowers are villous inside of a brownish colour & sweet scented. The seed vessels are the follicles 3 inches long.

I remain, Sir,

Yours truly,

James Drummond

Hawthornden

January 24th 1843.

Sir, of the natural order *Convolvulaceae* of Jussieu, we have two small species of *Convolvulus* found on the alluvial banks of our rivers the seeds of which are much sought after by the bronze winged pigeons at one season; & we have Dr. Brown's *Calypogeia Sepium*, a beautiful plant with us only found in salt marshes, about Australind, the Vasse etc. In our late journey to the South I saw it in flower in great perfection near the mouth of the Sabina river, the flowers a beautiful rose colour with five broad white stripes. This plant certainly comes very near the *Convolvulus Sepium* of Linnaeus but I think it may be distinguished from it as a species by its more slender habit. and from its only growing in salt marshes. Dr. Brown's *Wilsonia Humilis* is plentiful near the Vasse Inlet, and we have several species of *Cuscuta* & other nearly allied plants which belong to this order. Of *Boraginaceae* of Jussieu we have a species of *Heliotrope* a rare plant, sometimes found in the bed of the Gooday River, when the pools are dried up. We have two species of *Myosotis*, a species of *Cynoglossum* which as far as I have observed is confined to the cluster of rocks near Mr. Lukins residence (now Mr. John Mackies farm) the principal habitation of the rock Kangaroos, & in my late journey to the Wargen Hills I found a small plant like a *Myosotis* with four prickly seeds which I think will form a new genus in this order. Of *Labratae* of Jussieu we have

1st March 1843.

To Enquirer

several fine species of *Hemandra* & *Hemigenia* of Dr Brown & we have several species of Dr Lindley's genus *Atelandra*. We have a species of *Westringia*, a *Mintha*, nearly allied to *Penningtonia*, & several showy plants with a calyx like *Scottellaria* belonging to this order. Of *Myoporinae* of Brown, we have 2 species of *Myoporum* one of them inhabiting inland swamps on the banks of the Swan & one found near Fremantle, & on the sandhills near the coast. Of *Epacridae*, Dr Lindley remarks that they are numerous at Swan River, but generally species belonging to genera which are found in other parts of the continent. Dr Lindley describes two species of the new Swan River genus of this order which he calls *Conostephium pendulum* & *Conostephium imus* of which he says they are both rather pretty shrubs with one-sided spikes of flowers whose pallid calyx strikingly contrasts with their conical corollas. These plants are both common near, or in the town of Perth, flowering in autumn. Dr Lindley remarks that of *Lissanthus* we have a noble form already introduced into England & known in the gardens by the false name of *Leucopogon verticillatus*, whereas it should be *Lissanthus verticillatus*. This is the beautiful plant with broad leaves in distant whorls, which grows among the hills by the side of the York Road sometimes called the native currant. a beautiful plant of this family the *Cosmelia Redra* is found in swamps near Albany King George's Sound.

Letter 12. 1. March 1843.

"To Inquirer"

I observed in my letter on our native fruits that several of this family bear fruits that may be eaten when nothing better are to be had. Dr Lindley describes *Andersonia Anstata*, *Stenanthura Ciliata*, *Styphelia tenuifolia*, *Syzsena Curvatum*, *Syzsena Spicata* new plant of this order from Swan River, the ^{two} last he observes are very beautiful. I have added many species to our list of *Epacridaceae* since Dr Lindley wrote his Botany of the Swan River colony. I have noticed a very beautiful *Sprongelia* which we met with in our journey to Mt William. *Campulacae* including according to Dr Brown the genus *Lobelia* we have many species, but, as remarked by Dr Lindley we have only three of much beauty; these are the *Lobelia Heterophylla* & *Lobelia Ramosa* & *Isotoma Brownii*. The latter is one of our most beautiful plants. it varies with snowwhite, deep purple rose colour. & every possible intermediate shade of colour; it has the extraordinary property of growing & flowering, bringing to seeds to maturity in our hottest & driest weather, without receiving any nourishment from the roots which are generally dead before the plant begins to flower. This plant is extremely acid & I long wrongfully suspected it for poisoning sheep & goats it was formerly known as *Lobelia Hypocrateriformis* of *Stylidaceae* of Brown. Dr Lindley observes "that the abundance of this singular order at Swan River is most remarkable judging from the specimens hitherto received, they must be among the most common plants, indeed, this

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Letter 12.

1 Mar 1843. To Inguener.

colony. seems to produce a greater proportion of species than any other country yet examined; in Brown's Prodr. 46 species only are named for all New Holland, if ten are added for those of other countries, we shall have only 56. but I possess from Swan River alone at least 40 well marked species & there are some of Baron Hugel's with which I am unacquainted. Up to this time I have gathered over 60 Swan River, or rather Western Australian *Stylidium*.

Dr Lindley remarks that by far the larger part of these are plants that would be well worth introducing into cultivation into the greenhouses of England, for independently of the singular instability of their column, they have in most cases, ^{beautiful} gaily coloured flowers, the abundance of which compensates for their smallness. their tints are by no means confined to pink which generally has been the colour of the species seen alive in Europe. We have many yellow & purple species. One beautiful climbing species has deep scarlet flowers.

Dr Lindley describes 15 of the showiest of our new species of *Stylidium*, but it would extend our account of this order to too great a length to give his descriptions of them. The *Stylidium hirsutum* of Dr Brown is the largest flowered species yet seen in flower in Western Australia but the species with by far the finest foliage grows on an ironstone hill to the south of the black snake creek. I have observed the old seed vessels on the plant, but the flowers are not known.

1 March 1843

To Inquirer

Stylidium Drummondii of Lindley, an inhabitant of the rocky pass on the Darling range, growing 18" to 2' high, with ^{large} nearly white flowers is a very fine species. Of Goodeniaceae, Dr Lindley remarks that our species of this order are very numerous & are chiefly blue flowered the proportion of yellow flowered species being inconsiderable. The prettiest of the latter is a *Velleia* which he describes as *Velleia lanceolata* it grows on the borders of the sandy country east of the Toodyay district. Dr Lindley describes 3 new species of *Scaevola*, the *Scaevola multiflora* the *Scaevola platyphylla* & *Scaevola squarrosa* which he considers of some beauty but he observes that it is among the *Leschenaultias* & *Dampieras* that the fine plants of this order are to be sought in this part of the world. Of the former genus he observes five if not six have already been discovered. I have noticed our beautiful red & yellow *Leschenaultia* in our journey to the South. My Celestial blue *Leschenaultia* Dr Lindley's *Leschenaultia grandiflora* is common near the foot of the Darling Range. My *Leschenaultia linguica* which sports into endless varieties of shades of purple & scarlet is one of the most beautiful plants our colony can boast of. the *Leschenaultia formosa* is common near King George Sound but rare at the Swan. Dr Lindley describes 5 new species of *Dampiera*, viz *Dampiera triloba*, *D. coronata*, *D. alata*, *D. parviflora*, *D. teres*. We have a fine yellow flowered plant of this order, common about Augusta which grows 5-6' high. One of our finest annuals is a species of our *Poronotus* genus *Poronotus*. it grows in large patches in the grassy districts & forms with its beautiful sky blue flowers a fine contrast with the beautiful pink & yellow everlasting flowers.

Hawthornden, Jan 24. 1843

I remain Sir
Yours truly
James Drummond

Sir, Of the extensive natural order Compositae or Asteraceae Dr Searley remarks that the species of this order at Swan River are numerous & in some cases beautiful; a few of them are curious but the greater part are neither one nor the other. I never mention our gigantic sow thistle which was used as vegetable by our first settlers & I have seen the plant blanched by gathering up the leaves & laying sods of earth over them when they are little inferior to endives in a salad; it is eaten by all the domestic animals & is now becoming scarce in the settled districts.

The family of everlasting flowers are very numerous & very beautiful; our common heart-leaved pink everlasting flower *Rhodanthe Moutanensis*; the red-leaved pink called, *Saurmuthia Rosea*, the lance-leaved pink & several other new plants of this family are exceedingly beautiful; our large white everlasting flower the *Helichrysum Macranthum* is common about the Rocky Pass & on the limestone hills is near the coast & the large yellow & nearly white species is common among the rocks in the Loobyng District & I have seen it in one place to the west of the Darling Range. A very large white flowered *Helichrysum* was common in the Vasse Inlet when that district was first settled 7 or 8 years ago but it is now scarce. The plants of this family are generally annual or biennial & they are much relished by horses who destroy the whole head of seed at one mouthful. They consequently get scarce in the settled districts. The beautiful *Morina rubra*, at one time very common

in all the grassy districts now require to be looked for at some distance in the bush: this plant is fed upon by goats sheep & cattle, as well as horses. Many of our species of everlasting flower bear white & yellow flowers equally common in different situations, & there is an annual species of *Graphalium* common in the Gooday District which varies with iron red, orange, golden yellow, straw coloured & white flowers. & although many of the species of everlasting flowers are small and inconspicuous when taken individually yet when seen in the mass as they occur in the grassy district, they form one of the most striking characters of our flora. A small plant of the natural order *Compositae* the *Brachycome Iberidifolia* which sports into a great variety of colours when it occurs with deep purple flowers & a dark brown disk, several of the varieties are beautiful but the white & light coloured varieties of the same plant, with yellow coloured disks have the appearance of mere weeds. We have several rather showy plants of the aster family, or allied to aster. & Dr Lindley remarks that the nearest approach to the vegetation of the Cape *Compositae* is met with here in the case of *Ericladium Pyramdatum*; there is even an imitation of the American *Labiatae Compositae* in the form of *Amblysperma Sapigera* of Benthams - a very handsome plant with large pale yellow, or rather cream coloured flowers, placed on a scape from a foot to a foot & a half high. Dr Lindley remarks that this plant which is common about Goulford & on the lower slopes of the Darling Range is one of the finest plants of

3 Letter 13. 8 March 1893. To Inquirer

of the order found on the Australian continent. I found a large Compositae & to me, quite a new form, near Lake Dalman. It seems to be an annual & it was not far enough advanced when I was in that country to ascertain its structure. We have a strong growing species of *Picris*, indigenous here, the large heads of which full of seeds, are a favourite food of the horses. We have many species of *Senecio*, & nearly allied plants. Some of them of large growth; & we have a small plant with narrow serrated leaves, common in swamps, which causes sneezing when the leaves & the flowers are bruised & smelled to. Many of the most troublesome weeds we have are introduced plants of this order. The English sow-thistle which was quite unknown here when the colony was first established is now spread over the whole face of the colony being found in the crevices of rocks where the soil is rich far from any habitation. The *Hypochaeris glabra*, which in the British Flora by Sir W. J. Hooker is given as a native of Pontium (in fields & gravelly soils in many places, but not very common) is here so common that many acres on the banks of the Swan that would but for this plant produce fair crops of hay, are almost useless. It covers the ground in such a way with its flat spreading leaves that no grass can grow, & although cattle & horses eat the plant when fresh, they refuse it when dry. This plant has spread all over settled districts even as far as the wild cattle have penetrated into the interior.

4 Letter 13. 8 March 1843. To Enquiry.

The *Centaurea Solstitialis* has become a very troublesome weed on the Peninsula Farm & about Guildford. & there are several other plants of this family which are becoming troublesome as weeds which were not known at least as weeds in England. Of Loranthaceae, we have 6 species of *Loranthus* & the *Myrica floribunda*; the latter is the most magnificent of our forest trees. Dr Lindley in his Swan River Botany calls it a beautiful shrub, but with us, although rather a low growing tree it attains a diameter of 4 feet, it appears when in flower at a distance, like a fire in the woods, & when in that state is the favoured haunt of many of our most beautiful coleopterous, dipterous & hymenopterous insects, also of several butterflies, & the insect-eating & honey sucking birds; it is a singular instance of the parasitical order Loranthaceae growing in the ground. We have a fine species of *Loranthus* with lanceolate leaves, which grows on several, but not all the species of *Eucalyptus*; the leaves are so like the green that the plant is generally taken for a diseased branch of the latter. We have also two species of the same genus which grow on the swamp oak the leaves of which much resemble the jointed branches of the *Casuarina*; & we have a fourth species of the nut tree with beautiful scarlet flowers, but with leaves very like the nut tree. One of the most common but most beautiful of the *Loranthus* grows on the Manna, the Mangrove & common Green Wattle, it is also one of the easiest species to find the leaves of the *Loranthus* bearing but little resemblance

to any of these species of *Acacia*. I have observed a sixth species of *Loranthus* on a *myrtaceus* tree on Garden & Rottneest Island, but I have not seen the flowers.

Of the natural order *Umbellifera*, Baron Hugel in his enumeration describes fourteen species from Swan River & King George's Sound & we have several which are not included in his work. The *Didiscus Caeruleus* of Sir W. G. Hooker, common about Fremantle & the banks of the Swan is rather a showy annual plant, but our most beautiful plant of the order, also an annual grows about Guildford & on the lower slopes of the Darling Range. The *Involucrum*, as in *Astrantia* is coloured, the divisions downy, the outer ones tipped with green; it grows about a foot or 18 inches high & it is thought by some to be our most beautiful Swan River plant. We have a fine plant of this order, also with a coloured involucre like *Astrantia*, but I think with only 4 divisions, now in flower in our mahogany forest & the *Senecolena Pettigera* of S. W. G. Hooker is common here in the same situations. The native *Celery* is a plant well known to the settlers to form no bad substitute for the European *celery* in soups & I am acquainted with 2 plants of this family which are of much importance to the natives as food. The native *Venna* is a curious umbelliferous plant found in strong clay ground,

6 Letter 13. 8 March 1843 To Inquirer

generally in our white gum forests, the stems are very small, seldom reaching a foot high, the leaves narrow & setaceous, the whole of the plant which appears above the ground is so inconspicuous that it requires a close inspection to be able to find it even though walking among them. But the roots of this plant, which is the part eaten by the natives are large & tuberous, sometimes 2 or 3" in diameter & born several together. Before the natives eat them they strip off the outer covering of the root which is about the thickness of the rind of a turnip they commonly eat them raw, & when they put them in the fire they scarcely allow them time to get warm. Though the Coma abounds with a sweet watery juice with a slight flavour of celery, & it is very grateful to European palates when travelling in the bush, yet I suspect it contains but little nourishment. The native Kukine is another umbelliferous plant which grows in plenty in the vicinity of the Wangan Hills it grows in tufts (the ~~is~~) lower part of the stems having something of a half shrubby character, the leaves multifid, the flowers or seed vessels not seen, the roots are several in size & shape, having some resemblance to horn carrots but having the colour smell etc of the parsnip. As an article of food they are held in high esteem by the natives.

We have three species of the genus *Eryngium*; the *Eryngium bonum* of Cunningham & Decandolle, called here the wild carrot is an excellent vegetable when treated like the garden carrot, & Mr Devenish of Guildford has made a very rich wine from the root. in the same way that wine is made from Parsnips. our other species are nondescript but I have no doubt from the similarity in taste & smell that they possess the same property. The candied roots of a species of *Eryngo*, by no means superior to our native species have long been in repute for their restorative powers. We have a small annual plant of this order, worth cultivating for the beauty of its numerous snow-white inflated seed vessels the size & shape of small peas. Of the natural order *Sicordeae* we have several interesting plants: the fruit bearing *Mesembryanthemum* I have noticed in my letter on our native fruits & we have several interesting species which do not bear esculent fruits. A very remarkable plant of this order grows near the spring called Batabagoun, by the natives about 12 or 15 miles to the east of Hawthornden.

Contrary to the nature of most plants the seed vessels of this open when wet & shut when dry, they expand with every shower of rain or even when the dew falls at night in damp weather when open they bear a considerable

Letter 13. 8 March 1863 To Inquirer

resemblance to & they are almost as beautiful as the flowers of *Hoya carnosa*. By this extraordinary provision of nature the seeds of this plant are exceedingly minute can only find their way to the earth when it is in a moist state fit to receive them. The plant in habit resembles the Hottentot fig, & grows in large patches. The flowers I have not seen. Baron Hugel gives *Tetragonia expansa* the New Zealand Spinach as a native of Swan River, but I have not seen it here except in a cultivated state. Of *Portulacaceae* we have several species, no, rather a pretty annual plant, the *Calandrinia polypetal.* of Hugel, is common about Perth, a prostrate plant with deep rose coloured flowers remarkable for their bronze colour on the underside of the petals, we have in the white gum forests of Toodyay distinct a remarkable plant nearly allied to the *Calandrinia* but very different in habit. It has several lengthened tuberous roots which support the plant & enable it to bring its flowers & seeds to maturity in the dry season, long after the leaves which make their appearance with the first rains & lie on the ground in the form of a star, have passed away. The stems are slender & upright & instead of leaves they are covered with minute scales, the flowers & seeds resemble *Calandrinia Polypetala*.

I Letter 13. 8 March 1843 To Enquiries

of Haloragaceae, Baron Hugel describes ³ species of Haloragis but our most interesting plant of this order belongs to the new genus which Dr Lindley has named *Sandonia*, as a tribute to the eminent services rendered to Horticultural Botany by John Claudius London, Esq. author of *The Arboretum Britannicum*, & of many other valuable works, well known in every part of the civilised world. Dr Lindley had seen only one species which he named *Sandonia aurea* it first makes its appearance on the lower slopes of the Darling Range, but it is more common to the east of the hills, where it sports from a golden yellow to a deep red in the flowers, & seed vessels, & I have since found another species with differently shaped leaves & seed vessels which I have named *Sandonia flavescens*: it grows in a flat piece of land where water stands in winter about 12 miles to the east of Hawthornden

I remain Sir

Yours truly

Hawthornden Jan 24. 1843.

James Drummond

Dear Sir,

Of the extensive natural order Myrtaceae, Western Australia contains a large number of species, amongst which Dr Lindley remarks, the subclass Chamaelaucieae are extremely interesting. These chiefly consist of bushes with small heath like leaves, and white, yellow or purple flowers of great brilliancy, more or less collected into heads. Although scarcely noticed in the reports of either Brown or Fraser, they form a most striking object in the vegetation. Of the genus *Calytrix* alone, Dr Lindley remarks that he had ten species in his collection; he considers the finest to be *Calytrix flavescens* of Cunningham, which grows on the "Cut Hill" on the road from Perth to Guildford. The *Aurea*, a new species which Dr Lindley figures, grows on the Gooday Road, about two miles from where it turns from the Upper Swan road, towards the hills, & his *Sapphirina*, a beautiful plant with flowers of a deep violet which grows between the Guildford lakes & the foot of the hills. A tall growing crimson flowered species, not inferior to any in beauty, grows on the road from Perth to Guildford. Still more remarkable than these Dr Lindley observes is the magnificent *Chrysorrhoea nitens*, whose yellow flowers of metallic lustre form masses of golden stars,

Letter 14 on Botany of W. G. Sanguier 5 Mar 1843

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some feet in diameter; this elegant plant is common in swamps about two miles to the north of Guildford near the back road to the head of the Swan. Dr Lindley ~~describes~~ ^{describes} another species of *Chrysorrhoe* with serrated leaves, which grows in the sandy country to the East & on a hill a little to the south of the road from St Bonar's Well to Mr Dods farm, of Cobham Hall. another splendid & as yet nondescript species grows on the top of a quartz stone hill near Gulongine. Of the nearly allied genus *Verticordia* I have found nine or ten species; the elegant *Verticordia insignis* is common on the side of the road to the head of the Swan, just where the Loodyoy road turns off to cross the brook a little to the west of Ferguson's residence. The *Verticordia grandiflora* found in the sandy country to the east is a beautiful plant & we have several nondescript species of this group which are amongst ~~the~~ ^{our} most beautiful flowers. Dr Lindley's *Hederoma latifolia* is an interesting plant of this order, of which he observes that the leaves, or rather the half ripe fruit, preserve their fragrance so well that they might be worth collecting for the use of a perfumer, & if so, they would furnish a new & most agreeable article of luxury to Europe. & a small aid to the natural resources of this colony.

Letter 14 On the Botany of W. A. To Inquirer 5 Mar 1843
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The plant is abundant on the banks of all the natural brooks which fall into the Helena, for several miles to the South & east of the rocky path. Amongst the Myrtaceae with polydelphous stamens there are many remarkable species; Frazer frequently mentions the beauty of the species of *Melaleuca* of which there is a great variety, some of which, Dr Lindley observes are handsomer than any yet introduced into the gardens of England. *Melaleuca senata*, *Melaleuca parviflora*, *Melaleuca tricophylla* are bushes every twig of which are terminated by haemispherical heads of a brilliant pink. *Melaleuca Callistemon* which he observes has all the beauty of a red stamened *Callistemon* is the species so common in all our swamps; *Melaleuca strata*, *M. Minorea* & *M. Hugelii*, have spikes of white, the latter is the fine species I noticed in the journal of our journey to the south, as growing on the limestone hills to the south of Lake Munster. *Melaleuca Adnata* is a shrub with long linear leaves rough with tubercles, among which are scattered a few fine lilac flowers with large capitate stigmas, & stamens disunited almost to the base of their phallanges; this latter species which grows among the hills of the Darling Range & as far to the east as I have been is always used by the natives for making the hooks they call *Numbats* with which they pull out the carcase of insects etc.

Letter 14. on Botany of W.A. to Inquirer. 5 Mar 1843.

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Of the splendid genus *Calothamnus*, Dr Lindley remarks that we have four species of which the sanguinea of Labillardiere & *Calothamnus Eriocarpa* are remarkable for the abortion of a part of their stamens & the combination of the remainder into an irregular sheath slit open at one side. *Calothamnus purpurea* rivals the crimson *Callistemon* in appearance; this is the scarlet plant so common on the limestone hills near the ferry at Preston Point. *Callistemon lateralis* has long terete leaves & rows of flowers, so embedded in long lines on one side of the branches, that only the tips of the calyx & the long blood red stamens can be seen, beyond the bark, in which the inflorescence takes its rise. In this plant, Dr Lindley remarks, that the inflorescence is so peculiar that it deserves to become the subject of special enquiry. This plant grows in swamps on the road side between Perth & Guildford. Since Dr Lindley wrote his Botany of Swan River Colony, I have found ten or twelve new species of *Calothamnus lateralis*; some of them larger & finer than any before described & several of them remarkable for having the flowers produced as as *Calothamnus lateralis*; one species, which grows on limestone hills in the vicinity of Moore River has lanceolate leaves, three inches long, the swellings on the stem from which

Letter 14. on Botany of W.A. to Enquirer 5 Mar 1843.

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from which the flowers are afterwards produced, are
visible on the young branches several years before the
flowers make their appearance. In this species,
these swellings are covered with a white woolly
substance, which has a remarkable appearance. The
colour of the flowers is deep purple, the anthers united
as in *Calothamnus sanguinea* & *C. Ericarpa*. DeCandolle
makes a new genus of this section which he calls
Conothamnus trinervis: it differs from *Melaleuca*, by
having three seeded instead of many seeded capsules;
the plant grows near the Guilford Lakes & to these forms
he observes, have to be added some shrubs which
constitute a group, not perhaps distinct from *Beaufortia*
but distinguished from that genus, as represented by *Beaufortia*
decussata, by the capitate inflorescence, & by having the
dehiscence of their anthers lateral, rather than vertical. Of these
bushes, all of which, DeCandolle observes, are extremely pretty
his *Beaufortia Purpurea* is very common on both sides of the
road near the habitat before given for *Verlicordia Insignis*
the furthest north station in which I have observed the beautiful
Beaufortia decussata is in swamps to the south of the Capel
River & I have observed another fine species of the same genus
on the hills to the north of King George's Sound. I must leave
the Myrtaceae with distinct thanks for another letter
Hawthornden Jan. 24th 1843. & remain Sir -
Yours truly James Drummond

Letter 15 On Botany of W.A. To Enquirer 22 Mar. 1843

Sir. of the Myrtaceae with distinct stamens, Dr Lindley in his Swan River Botany. observes that the species of known genera are numerous, but not in general so handsome as those already mentioned. But there is one species of *Calistemon* with rich crimson stamens which is perhaps the finest of the genus: this is *C. phoeniceum* which grows at the Rocky Pass and abundantly on the plains near the head of the Helena River. Frazer speaks of the two species of *Metrosideros* growing on the banks, the fragrance of which exceed anything he had experienced; one of these is the common peppermin which grows especially in the Vasse district into a very large tree. In our late journey to the South of the Blackwood, we observed in the swampy country lying between the Scott River & the coast, a remarkable tree, apparently of the genus *Metrosideros*, but having much the habit & sombre appearance of the evergreen cypress. A pretty pink flowering shrub of this family is common in the town of Perth; I suppose it is the *Hypocalymma Robusta* of Baron Hugel's work; although scarcely requiring such a specific name; it is the only plant of the family at Swan River that has flowers in the least resembling the peach which Dr Lindley says is the case with *Hypocalymma Robusta*. My son John brought me fragments of a splendid plant of this family which

Letter 15. On Botany of W.A. 22 Mar. 1843 To Enquirer.
P. 2.

which was pointed out to him by the natives, growing in the crevices of rocks about 12 miles to the east of Mr Morrell's residence. The only leaves I saw were close to the flower they were small & silvery. the flowers were cup shaped.

like some of the species of genus *Eucalyptus* but they were furnished with blood red petals, which are wanting in that genus; the anthers were very long, deep scarlet. The natives suck the honey from the flowers which are borne in small corymbs at the ends of the branches. Dr Lindley describes two new genera of this section of Myrtaceae from Swan River. *Salisia pulchella* he observes has large deep purple flowers, with long stamens; it grows on ironstone hills on the borders of the sandy country to the East. The other, he observes, has the structure of *Melaleuca* in a slight degree, but the stamens are irregularly polyadelphous or altogether distinct. This genus, of which we have several species, common in various parts of the country. Dr Lindley calls *Bremaea*, lonely, the flowers being born singly at the ends of the branches. The numerous genus *Eucalyptus*, of which Dr Brown in his observations on the vegetation of New Holland, published in the supplement to Hinder's work, records his knowledge, at that period of 100 species, is well known to form a large proportion of the forest trees of the south & east coasts of Australia & the whole of Tasmania; and it seems even more

Belle, 15. In Botany N.W.A. Dr. Hargrave 22 March 1843

p. 3.

were exclusively to produce the forest trees of the west coast for here we have no cedars, Hem pines, Am cypresses etc. The only coniferous trees we have are three species of *Coumaria*, which form but a very small portion of our forests and the Garden Island cypresses (I have discovered) Two other species of the genus but they are only (shrubs) which is principally confined to that Island & to Rottnest. The *Amantaceae*, which furnish the oaks of Europe, Asia & America & which have representatives in *Stagnum* *Cunninghamii*, & *Antarctica*, on the south coast are quite unknown here & *Rosaceae* which furnish many small trees in other countries has no evidence here, unless in the form of a very curious *Forficaceae* plant, the *Cephaloto* *Dilluculans*, the Australian pitcher plant, which in travelling to the south point makes its appearance at Mt Barker; it is afterwards common, in boggy ground all the way to King George's Sound. Pretendably remarks, that the barren hill of Point Frey are said to produce the magnificent *Eucalyptus* *Cataphyllus*, but as that species is not defined, he assumes that he cannot tell whether he possesses it or not. Baron Hugel appears to have been equally at a loss to know what Frey's means by *E. Cataphyllus*. The only species he described & defined he assumes the *Mount Eliza* gum, his *E. occidentalis* & a species he calls *E. Jerniunda*. His *E. desipens*

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4 E ^{udas} rudis are given as natives of King Georges Sound.

The truth is, it is extremely difficult to make out the different species of this by descriptions, or even by figures unless they are done in the style of willows or grasses by the late Duke of Bedford, or the quires by Mr Lambert. I shall therefore just enumerate the arboreous species of the genus, and when I can will give the native names & first the species which grow between Perth & Fremantle: - The Mt Eliza Gum, the E occidentalis of Hugel, supposed but incorrectly to be the native Quart. the red gum, the Angophora macrocarpa of Frayer, the native Curdan, the mahogany the native Gerald. Between Perth & the Darling Range we have a few trees of a low spreading gum, the native Wandoo. To the East of the hills there is a black barked gum common at Warrilow and Baylip; The York Gum, the Deatta of the natives, common in the valley of the Avon, and throughout the whole grassy country to the east, North & South; The Urac of the natives, a tree resembling the white gum, but with yellow coloured bark the Morel of the natives, ^{which is said to} a tree resembling the stringbark of Van Diemen's Land. The tree called "twisted gum" by the settlers found in the country to the east. I have also observed a beautiful red and yellow flowered arboreous Eucalyptus in the vicinity of the Wangan hills.

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I noticed several tree growing Eucalyptus in the account I sent you of our journey to the south of the Blackwood, with a smooth bark, like that of the white gum which Mr Gilbert thought resembled the blue gum of Sydney; the seed vessels are much larger than any of our smooth barked gums before noticed. Besides these treegrowing Eucalypti we have many shrubby species; the *E. macrocarpus* of Swt. & Hooker is a remarkable species with large red flowers, & seed vessels like drawer handles & there is a nearly allied species with greener leaves and fine rose coloured flowers. The natives use the bark of the Goatta as food, chewing it until they separate the saccharine matter which the root contains when they spit out the residue, which is generally to be seen in quantities near their bivouacs. They collect the flowers of the red gum which they call "mumbet" and washing them in their cloaks, drink the water which is sweetened by the honey they contain.

The trunk of the red gum produces a remarkable saccharine substance which they call Mumbela and esteemed much as food. They also collect a saccharine substance resembling manna, which they call "womela" from the leaves of the York Gum.

The Leguminosae or Fabaceae are as far as we know the most numerous family found in the ~~west~~^{east} continent of Australia. Baron Hugel in his enumeration of the plants which grow at Swan River & King George Sound, gives 65 species & ten are given by Dr. Endlicher, in a work published in Germany. In addition to these Dr Lindley describes 34 new species in his Botany of the Swan River Colony. Numerous new species have been found since the date of these publications recent as they are, and it appears that this family of plants is quite as common in other parts of New Holland. The late Mr Allan Cunningham in an exploring expedition where he accompanied the late Surveyor General, Mr Oxley, in which they travelled over 1200 miles, within the parallels of 34 deg 30 deg & 32 deg. South latitude & the meridians of 149 deg & 143 deg & 140 deg east. observes that the amount of the botanical collections from that expedition amounted to about 450 species, principally of families Leguminosae, Proteaceae, Epadnaceae & Rutaceae. Of Leguminosae Mr Cunningham remarked that they vie with all ^{the} others in number, in variety & in beauty. Of their several species Dr Lindley remarks that one of the most curious characters of a secondary value connected with the Australian Fabaceae is the general presence of yellow in their flower, & its very general stain of red & crimson.

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& crimson found on the keel & alae, while the vexillum remains yellow, in these respects the Swan River flora accords with that of other parts of the continent, there are however, some cases of a peculiar blue in the whole of the flower. as in *Hovea pungens*, a beautiful plant which grows near Mr Andrews villa grant, & the *Hovea celsiana* which is common about Perth: a distinct species allied to the *Hovea pungens* a stronger growing plant with glaucous leaves grows in the crevices of granite rocks on the ascent to the Darling Range, both on the York and Goodyay road. Two species with holly like leaves are frequently among the hills but the finest of the genus in Western Australia is my *Hovea grandiflora* which grows on the side of one hill to the east of the twelve mile spring on the Goodyay road. & it is plentiful on Mount William & the hills in the vicinity. A very beautiful plant of this family with light purple or lilac flowers grows near the stream of water which runs through Mr Tanners land that portion of it which was formerly Mr Johnstons, but few plants are more beautiful than our common blue creeper which I perceive in Baron Hugel's work has got a new generic as well as a new specific name viz *Hardenbergia Hugelii*. but our plant is assuredly not distinct as a species from the old *Kennedyia Comptoniana*. We have several

Letter 15 On Botany of U.S. To Inquirer 22 March 1843
p. 8.

Beautiful red flowering plants of this order, our common prostrate Kennedy, the *K. arenaria* of Hugel, is a very beautiful although a very common species & our many flowered scarlet Kennedy found on the coast & a variety of it on ~~the~~ Green Mount & others of the Darling Range, called in Baron Hugel's work *Zeechia Molly*: the Baron in his *Swan River Botany* gives no explanation of the name but I believe the generic name is given in honour of an Italian lady a patroness of Botany. In the journal I sent you of the our journey to the South I observed a fine large dark red Kennedy as growing near the spring on Mrs Turner's land at Augusta. I should have stated that the plant was first discovered by Mrs Molloy & long cultivated in Captain Molloy's garden at Augusta where it now remains. The holly leaved *Chorizema* found at the rocky pass, the holly leaved *Chorizema* found at Fremantle & on the Clarence Road & the red crenate *Chorizema* which grows near the residence of Mr John Scott at Preston seem all three to be distinct species & with the lance leaved *Chorizema* are not uncommon among the hills. Four of our finest Leguminous plants, a large proportion of this family as described by Dr Lindley, have a considerable proportion of yellow in the flower. Of that description is *Callistachya* which is found on the banks of the Murray & Blackwood rivers & grows

Letter 15. Botany of W.A. To Inquirer 24 March 1843
p. 9.

to the size of a small tree. The *Jacksonia Hardenbergia*, a species of *Daviesia*, which grows near Perth & Minumania, *Dendrolata*, may be considered the largest growing of the Swan River Leguminosae they have trunks a foot in diameter. The *Jacksonia Hardenbergia* & *Minumania Dendrolata* are freely fed upon by sheep & goats & Dr Lindley describes ten new species of *Gastrolobium* from Swan River & six new species of *Daviesia* & he observes that the latter genus at Swan River rivals *Acacia* itself in the strangeness of their foliage. *Daviesia Quadrilata* he observes has leaves which look more like objects prepared to puzzle the geometrician than anything already known in the vegetable Kingdom.

of *Acacia*. Dr Lindley observes numerous species occur among which are *Acacia alata* & *pulchella*, both of brown. varying with smooth & hipped foliage; but the most interesting species of *Acacia* to the settlers at the Swan River is the common green wattle which grows on the alluvial flats of the Swan & the richest land in various parts of the colony. The glaucous leaved *Acacia* or gum wattle of the settlers, the native manna, is common in the valley of the Avon, & produces a large quantity of gum which might probably answer to collect as an export. The native Mangart called raspberry jam used by the settlers from the smell of the wood has been sent from the Valley of the Avon to Fremantle for export but I fear the expense of land carriage will prove too much for the price that can reasonably be expected for the wood of the raspberry jam in England. All these species of *Acacia* grow to the size of small trees. Other Leguminosae I must refer to another letter.
Hawthornden 16 Dec. 1843

19. Apr. 1843

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I finished my last letter with an account of the tree-growing acacias of the York district; & there is a species of the genus which grows to the size of a small tree, common in the Vasse district, and remarkable for bearing annually a large quantity of galls on the leaves, similar to the galls of the oak. As the astringent properties of this family of plants may be concentrated in the galls produced on the leaves of this plant, as they are in the oak, it is well worth trying experiments to ascertain if such is the case; it would be very easy to collect them in large numbers and they may probably form a valuable export. One of our most remarkable species of acacia, sometimes called the black wattle, the acacia *Decurrens* of Ventenat, is a small tree of very rapid growth, with beautiful double pinnate leaves found near permanent springs of water. It has long been known in England having been introduced in 1790. The shrubby species of the genus acacia at Swan River are numerous; Dr Lindley describes six, the acacia *Diptera* found on limestone hills near the coast: the *A. Squamata*, found on the limestone hills near Guelongue. Both these species are figured in the *Icones Plantarum* of Sir W H Hooker, & also the *A. Incrassata* - a species so fragrant that it perfumes the air, when in blossom, it is frequent on the limestone hills of the Loddon district. Dr Lindley describes *A. extensa*, *A. auronitens*, which is the low bushy species so common in the town of Perth, the *oncinophylla* & the *A. Drummondii*.

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Of many nondescript species of this genus two are particularly deserving of notice. The apple leaved acacia forms a bushy shrub about 12 feet high, & forms, from its numerous blossoms and large leaves for this genus, a striking object on the ironstone hills of Goodyay district. The plant called the myrtle by the settlers is a fine species of acacia, which grows to the size of the myrtle with a good deal of its habit, & its deep green leaves are about the size of the common myrtle; it grows upon the grassy hills on Mr Leake's grant in the Goodyay district. Dr Lindley remarks that there is one species of the beautiful *Salage*, and two of *Labichea* both of which are peculiar to the colony: these plants although bearing legumes, have little resemblance to the form of the inflorescence to other sections of this extensive family. A few tabacous genera seem confined to this colony.

Mr Bentham, in Baron Hugel's work, describes two species of *Isotropis*, and three more have since been added to the genus *Roea* of Bentham, established in Hugel's enumeration of Swan River plants. in honour of the Surveyor General of Western Australia, Hon. J. S. Roe. The *R. Lycophylla* grows on the Peninsula Farm and about Guildford; and in our late journey to the South I found two new species, which I have named *R. glauca*, an upright growing leafy glaucous plant, found on a swampy plain to the South of the Blackwood River

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and the *R. aphylla*, a remarkable leafless plant, bearing beautiful racemes of deep scarlet flowers, the racemes about two inches long, hanging from the slender naked branches - this plant grows on the right bank of the Black huck Creek, about a hundred yards from where the path to Augusta crosses it; but this is very rare.

Stychozema pusillum of Mr Bentham, is as yet known to grow only in one spot - on Mr John Hardup's land, Grove Farm, although I have known it there for the last ten years. The

Cyrtogene Canescens of Bentham is one of our most interesting plants of this family, and Dr Lindley remarks, quite a new form for Australia, and calls to mind the European species of *Grobrychis*; the plant is not uncommon in the Valley of the Avon, where it is called by some of the settlers Swan River lupin.

But the most extraordinary form of Leguminosae I have seen we found abundantly on the bank of the Scott River; the plant is a branching shrub, five to six feet high, with opposite somewhat heart shaped greyish green leaves, about an inch and a half long and an inch broad at the widest part: the flowers grow four together, in a sort of common calyx of twelve divisions, three of the divisions evidently belonging to each flower, which has a standard perfect, forming a tube, in which the germs, style and anthers are enclosed; the eight alae also exist belonging to the four flowers but they do not appear without dissection; the keels of the four flowers appear like nectaries surrounding a filament which stands up in the middle; the two lower divisions of the calyx in this flower are altogether

wanting, or only represented by the filament before-mentioned; the flowers before they expand, are curiously enclosed by four bracts, or floral leaves, of a brown colour, and villous; they are permanent, and in one or two cases which I observed six flowers, these bracts are six in number; the tubes were blood red & the plant altogether very beautiful; each germen contained several miniature seeds.

The public are well aware that by a series of experiments, carefully conducted, we have ascertained that several plants belonging to Leguminosae and of the subdivision Pulteneae of Benthams, are the most dangerous poisons known to exist as simples among the vegetables. It is not necessary here to go into the details of these experiments, they are already before the public, & they have been so conducted as to leave no room for doubt as to the cause of the death of so many of our flocks & herds in the early years of the colony; and it is satisfactory to observe, that since the true cause was known, the loss of animals from poison is seldom heard of. Much has yet to be learned as to the operation of the poison on the animal system, but the best antidote etc, & I may here observe that the existence of the poisonous plants of the family of Leguminosae is not a new discovery. in Persoon's synopsis published in Paris in 1807 page 329, he describes a plant of this family, the *Leprosia Toxicaria*, a plant known to Willdenow Swartz and Plumier, and figured in the two latter, a native of the West Indies; and in the second volume of the Journal of Botany. page 25, there is a description of a poisonous plant of the same order, the *Sonchocarpus Floribundus* of Benthams

Letter-16. I Belang N.W.A. Inquirer 19 April 1842

found by Dr Schomburg on the upper banks of the Esquido.

The natives use the gum of the Manna, the green wattle, and mangrove, as food: and they use the seeds of the latter by grinding them between two stones as they do wheat, & baking the ground seeds into cakes as they do flour.

Many species of Lucerne, Clover, & some of the Vetches, have become naturalized in Western Australia; they are particularly abundant about Augusta, Mr Turner having introduced many of the artificial grasses & sown them there.

I remain Sir,

Yours truly

James Drummond.

Letter 18th 17

To the Editor of the Inquirer

Sir, of the Natural Order Euphorbiaceae we have a species of Euphorbia with the habit & appearance of Viminaria Denudata which grows on the banks of the Hellenia, near the rocky gap passes, & on the Preston & Vasse rivers, and we have a small prostrate Euphorbia found in the bed of the Avon & its tributary streams. The Euphorbias are well known to be acid poisons. The Phyllanthus cygnorum of Hugel a small glaucous leaved white flowering shrub is very common on the banks of the Swan of the natural Order Rutaceae I have described one of our finest Western Australian plants in the journal I sent you of our journey to the South. The Boronia Spathulata of Lindley a pretty & very fragrant plant is abundant near the habitat I pointed out for Verticordia viridis on the road to the head of the Swan. Boronia viminea of Lindley found at the rocky passes & Boronia crenulata found near the Canning are the only plants which as far as I know are held in estimation by the natives on account of their smell. The Boronia alata a very strong scented plant grows on Gardner's Rottneest Islands & on the rocks on the right bank of the river close to the ferry at Preston Pt. We have several nondescript species of Boronia and a nearly allied genus which Dr Lindley has named Cyananthus, he describes two species the C. ramosus and C. tenuis and several other finer species have since been found. The Diplopeltis Dampieri is a curious shrub of this order with nodding flowers in heads, it grows on the rocks near the cantonment Fremantle and on the Clarence road, and a second species I have found near the rocky pass. The Chorilaena Quercifolia given in Lindley's Swan River Botany I have not seen nearer than Augusta the Eriostemon Racemosum a pretty strong smelling heathlike plant of this order is common about Perth and the E. nodosum of Lindley, a very rare species grows in the bed of the brook to the east of Baylyup and in the same brook where it crosses Captain Whitfield's road. I have added many interesting nondescript plants Rutaceae to our flora since Dr Lindley wrote his Botany of our colony. of Geraniaceae we have four species of Pelargonium: a remarkable one with large thick fleshy leaves grows on the exposed limestone rocks at Cape Lewin, but the only species

worth cultivating for its beauty has tuberous roots with small heart shaped leaves lying flat on the ground, the flower stalks grows about 9 inches height bearing several large flowers for an Australian species, white striped with purple. it grows in the sandy country to the east where it was first discovered by my son Johnston. We have a *Geranium* with leaves like the European *G. columbinum* and carrot like tuberous roots which are eaten by the natives who call them very or vere but I think they seldom make use of them when they have a choice of food unless when or on a journey when they have not time to spare to look for other sorts. The roots of the *geranium* being easily got it grows on all the grassy hills of the Toodyay district. We have three species of *Erodium* found in the grassy districts, the seeds of the large purple *Erodium* are troublesome to sheep when not shorn the *Erodium moschatum* an introduced species is naturalised on the Peninsula farms. Dr Lindley considers the abundance of the natural order *Lasiopetalae* as one of the most characteristic features of the Swan River flora not fewer he observes than four genera and fourteen species of this very small group being already known as its inhabitants. Of these the greater part belong to the genus *Thomasia*. The *T. stipulacea* the *T. paniculata* *T. glutinosa* & *T. grandiflora* of Lindley are the finest species. They are all found between Guildford and the Rocky Pass. The *Corethrostylis bracteata* of Endlicher is a beautiful shrub with crimson flowers growing from the axils of crimson bracts, it is found on a rocky hill near Goolongine. The *Sarcotodes ledifolia* of Lindley figured in the Journal of Botany (at least) the rose coloured variety is a very beautiful plant. The *Leucothamnium montanum* the fourth genus alluded to by Dr Lindley grows by the waterfall between the Hellena & Canning rivers. The genus *Macarthuria* referred to this order by Hugel is a curious shrub with numerous white flowers common in the Mahogany forest near Perth. Of the natural order *Malvaceae* we have several fine species of *Hibiscus*. The *H. lilacinus* of Lindley, a splendid plant, growing 15 feet high was first discovered by Mr William Burges in the country to the East of his residence, and from seeds which he kindly presented to me the first plants were raised in England.

The *Hibiscus Hugelii* grows among the rocks by the Cantonment at Fremantle the *H. Hakefolius* which grows on the banks and islands at the head of the Swan was produced with double flower from seeds in my garden another species of *Hibiscus* nearly allied to *H. lilacinus* grows on the Beaufort and a fine white flowering plant nearly allied to the tree mallow grows at Carnac, & the islands of the coast, and a plant sometimes of the appearance of European Marshmallow, is found near our springs. We have also three species of *Sida* found on hills in the Goodyay district. Sir W. G. Hooker's *Lawsonia* a curious genus of *Malvaceae* is plentiful near the residence of Thomas Peel Esq. at Mandurah. & we have at least another species of the genus on the banks of the Salt River a small white *Malvaceae* plant is a common weed on our rich alluvial flats and the *Mahoe Rotundifolia* an introduced species is naturalised in Perth & on the Peninsula Farm. Of *Pittosporaceae* we have a small arboreal species of *Pittosporum* I think the *P. Salignum* of Brown found on Rottnest & Garden Island the *Campigianthera Fraseri* the plant which bears lemon (scented?) berries and the beautiful *Sollya linearis* the shrub which bears the berries called *Cumac* by the natives. are plants of this order. of *Pronaya* or *Marianthus* we have four or five species: the *Pronaya elegans* of Hugel grows by the rocky pass and bears large corymbs of white flowers with a crimson eye like a beautiful Phlox: a blue climbing sp. of the same genus also beautiful grows with it, & I observed in my Journal that a fine cream coloured species grows among the hills near Cape Leewards. The *Marianthus pictus* of Lindley is the favourite food of the Emus. they are so fond of the leaves that it is very rarely that perfect specimens are to be found, & the natives, who are well aware of the circumstance often watch near the plants when they know Emus are in the neighbourhood, to spear them. Of the Natural order *Fremandreae* and the genus *Tetrathese* we have many

species. Dr Lindley describes the *T. vininea* *T. Rubra*, *T. Nuda* *T. hirsuta* & *T. pilifera* new species there are all beautiful shrubs with deep purple flowers, which Dr Lindley observes would be great acquisitions to the English gardens. several species have since been discovered one of them my *Tetratheca speciosa* which grows among the hills near Gulorgine I consider by much the finest of the genus.

I am
yours James Drummond.

Note:

Letter to the Editor of the Enquirer 20 Feb. 1843.

The *Leucothamnus montana*, the fourth genus alluded to by Dr Lindley, grows by the waterfall between the (? Helena) Helena & Canning Rivers. *Hibiscus Hugelii* grows by the rocks by the Cantonment at Freemantle. Sir W. Hooker's *Lawrenciæ*, a curious genus of Malvaceæ, is plentiful near the residence of Thomas Peel Esq at Mandurah. 1 x x x
x x *Clematis*, a third, purple flowered species grows to the east of Boegaming.

Sir,

Ever since the illustrious traveller Humboldt published his admirable treatise "*De Distributione Plantarum Geographica*"; the distribution of plants on the Earth's surface has been a subject much attended to by botanists in various countries. The Rev. J. S. Henslow, M.A. Professor of Botany in the University of Cambridge, in his catalogue of British plants, besides 114 species or varieties which he considers ought to be expunged from the British flora, marks with a cross 119 species or varieties now mostly common in England which he supposes have been introduced by the agency of man, & in my opinion, the Professor might have at least doubled the number of the latter; indeed to the British botanist, who is also a practical cultivator of plants, it is very evident that many plants found as weeds in the cultivated fields are not only introduced by the agency of man but they depend on his annual or biennial agency for their very existence. In the natural grassy fields of Britain or Green Erin many of these plants, that barely exist in Britain are no doubt natives of a warmer climate & we naturally refer them to the south of Europe, but if we examine carefully & impartially we shall soon see that many of the common weeds are not confined to Europe, Asia or Africa—they appear to follow civilised man, wherever he takes up his abode. (See note.)

The aboriginal inhabitants of Western Australia cultivate no corn, consequently they introduce no foreign plants. But even they exert a certain influence on the vegetation of their native country. The Mangart either is, or was, growing near Ferguson's residence & I have no doubt it was brought there from the valley of the Avon by the natives who use the seeds as food. The Zamia seem, naturally a hill plant, fruiting in the greatest perfection about one hundred feet above the level of the sea, & it is probably owing to their agency in active operation for ages past, that it is so generally spread over the sandy land near the coast. I observe that it is always abundant near their favourite bivouacs & although growing to a large size in such situations, it bears but little fruit. The Kojonup peach found on the coast in the interior & far to the north & south, is often carried from ^{one} district to another by the natives. They are also most active agents in spreading the fruit bearing Mesembryanthemums, & they lend a willing hand in propagating the Cape Gooseberry, originally introduced into the colony by your humble servant.

(Note) It appears to me that we know just as little of the native country of *Lolium Temulenrum*, *Poa Annua*, *Festuca Myurus*, *Nordenum Maritimum*, *Pennisetum Minor*, & many other grasses as we do of Wheat, oats & Barley.

Bruce considers the cat a native of Abyssinia but we know that it readily becomes naturalised in such

in such a climate, & it could not fail to find its way along the fertile banks of the Nile from lower Egypt. I have observed in my letter on the grasses that the oat readily becomes naturalised in Western Australia, & I observe, in a note by the late A. Cunningham, under *avena*, in his *Flora of New Zealand*, published by Sir W. G. Hooker, *Avena Sativa* Linnaeus, enumerated by D. Richards, was originally introduced by Europeans, but thought now perfectly wild in the neighbourhood of the Bay of Islands, he observes that it is not an indigenous plant.

We found many of the common weeds of England almost immediately make their appearance in our cornfields of Western Australia, although their opportunities of reaching this clime in the early years of the colony were few & far between. Indeed I have observed that they principally found their way here from the Cape of Good Hope & Van Diemen's land. *Eleusine Anglica*, which judging from the name is not a common plant, in England, is a common weed about every settlement in Western Australia, to which it was introduced in a cargo of oats from Van Diemen's land. *Anagallis Arvensis* is a common weed here & all over Europe; I observed it also naturalised about Cape Town, & I observe it in the list of plants sent from the West Coast of America by my late brother, which

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is published by Sir W. H. Hooker, & I observe it also in the late Mr Allan Cunningham's flora of New Zealand. But the history of the introduction of *Hypochaeris glabra* to Western Australia, will prove much better than anything else I can say, the great difficulty - I had ^{almost} said impossibility of ascertaining the native country of many plants that are now little suspected to have been introduced into the countries where they are found, by the agency of man. When Captain Stirling & the other Government Officers were on their way to establish this colony, we called at the Cape of Good Hope & took on board a Mr Revelly, as Civil Engineer. Mr Revelly was a native of the South of Europe & where he unpacked some of the boxes he brought from the Cape in Perth, Western Australia, several foreign plants sprang up from the seeds of the hay he had used as packing. The *Hypochaeris* was one of them. & Mr Revelly told me that in his country they used that plant as a salad & as esculent vegetables were scarce at that time he encouraged the growth of the *Hypochaeris*: It was however right in the way of the horses of his friends when they called to visit him & it was soon carried by them to several of the settlements of the Swan, from which in fifteen years it has spread itself over several hundred square miles of Western Australia in a way that no botanist that

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had not seen the thing take place could form any just conception. The horse is the greatest agent in spreading many plants over the face of the earth; the curious natural wing of the seeds in Compositae, to which the *Hypochaeris* belongs, no doubt acted to a certain extent, but it would have been long before the plant could have crossed the Darling Range by their means, while it is well known that a portion of the seeds of various plants pass through the horse in a state fit to reproduce the species. The operation of *Scarabeus Stercorarius* the Sherd born beetle of Shakespeare, is well known in Europe & we have several species of a nearly allied genus here, with curious horny processes projecting from the thorax that immediately on finding a fresh heap of horse dung, dig holes. found it burying their eggs, & man himself, with all his implements could scarcely take more effectual means to secure & encourage the growth of seeds which happen to be in it. Who can say at this date that *Hypochaeris glabra* was not introduced into Europe on the return of the Crusaders? or that *Solium Lemnulentum*, which is supposed to be the tare of the Scripture mentioned in the 13th Chapter of St Matthew, was not introduced into Europe at the same time? Indeed we may safely conclude that it was cultivated. From the great luxuriance of the *Solium Lemnulentum* at Swan River

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at Swan River we may ~~safely~~ ^{reasonably} infer that it is a native of a warmer country than Britain, & we can only judge of what plants are likely to have been introduced into the Flora of Britain or Europe by observing what takes place in countries of nearly equal temperatures when first visited by civilised man. In the present enlightened age we can get no information from ancient writers - the early writer on botany - who in the 16th Century supposed there might be in all from eight to nine hundred plants, & before the close of that Century they were raised to 2000; at the end of the next Century Linnæus supposed there might be 10,000, but Linnaeus reduced them to 7,000 species: Gussieu rated them at 20,000. & there are now 80,000 known. The natural order Compositae alone. in DeCandolle's great work, contains over 8,000.

I am, Sir,

Yours etc.

Hawthornden. April 12th 1843

James Drummond.

To the Editor of the "Inquirer" 24 May 1843.

Dear Sir,

I sent you some observations on certain plants, now naturalised which we know have been introduced into Western Australia by the agency of mankind & now I send you a few observations on ^{plants} which are likely soon to be lost to the flora of our adopted country by the same agency, however unwillingly it may be exerted. The European botanists generally say but little on that subject although we know that several plants recorded by Dillenius, Hudson etc as natives of England & by Lightfoot, as natives of Scotland are not now to be found, but the habitats given for particular plants by the first writers on botany were generally so indefinite & the idea that certain plants may have been submitted as natives of England or Scotland entertained on such insufficient grounds as render it very difficult to come to a satisfactory conclusion on the subject.

Several plants were admitted into the English flora such as *Swertia perennis*, the marsh gentian, & *Stipa pinnata*, the feather grass. - the former given by Persoon as an inhabitant of the alps & in boggy places among the mountains of Europe, the latter as an inhabitant of dry pastures in Germany & Sweden. Neither of these plants are likely to have been accidentally introduced & naturalised nor are they likely to be mistaken for anything else, & it is impossible to say how many bogs have been drained or high pastures ploughed up from the time they were recorded as native

of England & the time that any ^{of the} botanists of the present day went to look for them. Sir W. J. Hooker, in his English flora acknowledges that *Eclimophora spinosa* was found many years ago in Lancashire, although it appears that it is now lost, & *Eriophorum alpinum* has been found & lost to the Flora of Scotland in our time. Fortunately these plants are common in other parts of Europe; nature is generally so bountiful that although thousands of plants are annually destroyed, tens of thousands remain; but every practical botanist is ^{well} aware that some plants are very local. When out botanising on the south west coast of Ireland, some twenty five years ago, I gathered for the first time, & as far as I know, the only time it has ever been seen in a growing state the *Neottia Gemipara* of English botany; it was growing in a boggy spot near Castle Town, Bearhaven; about a dozen plants were found & about half that number dug up. On visiting the spot about two years afterwards it was found converted into a potato garden & the plant destroyed, although numerous situations were in the neighbourhood, the plant was nowhere to be found. The *Hookeria Lactevirens*, a beautiful Irish Moss ~~was~~ only known to grow in a single spot in a wood near the left bank of the River Lee, where I originally discovered it although thousands of similar situations in the neighbourhood were searched for it in vain. The *Hookeria Lactevirens* & also the *Neottia Gemipara*, are not known as inhabitants of any other country. The changes which necessarily take place in

in a country when passing from a state of nature to a state of civilisation must be many & important, & it is probably because many of these changes ~~take~~ place in Europe before there were any botanists to take notice of them.

Indeed the oak itself associated as it is with the history of Britain & celebrated in the songs of her bards even venerated as the temples of her earliest inhabitants can scarcely be now said to exist in a large portion of the country as an indigenous plant. But to return to Western Australia. Dr Lindley says that an Hibiscus with pellate leaves was found by Fraser growing on the beach, but he observes that he has seen nothing which answers this description. If pellate is not a misprint for palmate I cannot solve the enigma: no pellate hibiscus is now to be found on the beach. Close to our first residence on the Swan I discovered four or five plants of a very remarkable genus which I named, from its appearance *Poa guncaea*. One of them had the appearance of being many years old, the others were probably seedlings from it; they were all growing in a space of ten yards square. For ten or eleven years this grass was observed to flower annually but it was always eaten down by the cattle before it could perfect its seeds. For the last three years I have been watching it for the purpose of procuring specimens but it has not even been allowed to flower, & unless I can save it by removing from under the hooves of the destroyers, the plant may be said to be lost. It is not described by Mr Brown, & although I have searched much

for it up & down the Swan & other rivers I have not been able to find another station for it.

I have noticed in one of my letters to you the curious & useful *Corynephorus Scoparia*, which grows on Mr Burg's land: the natives know of no other habitat for that very remarkable plant, & from the use so generally made of it by the settlers it is likely itself soon to be swept from the face of the earth. A native once informed me that it grew in the sandy country to the east & I took the trouble to walk with him for about 10 miles when he pointed out to a species of the same genus, indeed nearly allied to it but not a quarter so large & otherwise inferior as a broom. These appear to me to be the plants that are in the greatest danger of slipping altogether from among our hands: but a constant change is taking place in our pastures, many of the grasses & grass-like plants unable to bear the constant cropping of sheep & especially their walking on them, are dying away & their places are filling up with plants of a different habit, but remember Mr Editor, that I am not one of those croakers who maintain that our grass is all turning into parsley, which I heard Mr Isaacs, who was one of our earliest settlers, ^{seriously} declare was one of his principal reasons for leaving our colony, where he had been very successful, considering the means he brought out with him. The plants which Mr Isaacs calls parsley are two species of *Erodium*. one of them apparently not distinct from *E. cicutarium* of Linnaeus. These plants grow everywhere.

over the best grassy land of the York district. & before the pastures were eaten down by the sheep these plants, which are annual, were perfectly efficient to reproduce their species. They were also the very first plants to take advantage of the sheep dung, which they find lying about the settlement in every direction - but these plants themselves are greedily eaten by the sheep wherever they find them.

There is no doubt that the grazing of large flocks alters the face of the country. In the first volume of the companion to the Botanical Magazine, page 212, are some interesting letters from M. Durieu, a distinguished French Officer on half pay who had visited many of the southern provinces of Spain during the Peninsula war, & after the peace, went on a botanical excursion to the Alpine chain of Asturia, which form the continuation of the Western Pyrenees. He observes "In the beginning of June, I established myself at Grado, a small town a few leagues to the west of Oviedo, where I remained twenty five days exploring the neighbouring mountains, but these are covered during the whole year with such myriads of sheep & cows that it is absolutely impossible to find a single spot which is not cropped, grazed & shaven as bare as ones hand: not a single plant can develop its flowers under the hoofs of the destroyers, no spot is so retired as to be secure from their all-devouring teeth." Again he says, "Myriads of sheep from Leon & the two Castilles devour even the roots of those few vegetables which these masses of schist produce: those which I have collected have been obtained with extreme difficulty most of them being produced from perpendicular slopes, inaccessible to the goats whose ravenous teeth have even mutilated several of my specimens." I fear the poor

poor botanist will meet with little sympathy among our sheep
farmers here. Indeed Mr Durieu seems rather unreasonable
to abuse the poor sheep & cows so unmercifully, for in the
list of ^{the} plants which he collected in the Asturias, I observe
the two Brizes, Maxima & Minor, & other plants which
these poor animals assisted by the horses, have been the
principal agents in distributing over Western Australia, & in
all probability the sheep, horses & cows of former days introduced
them into ^{the} Asturias.

That it is only a change which takes place in our pastures
& not a diminution of produce will be apparent to any persons
who will take the trouble to examine the grass under the big gum
trees about half way up the ascent to Green Mount, for that spot
being the only grass on the road for some distance, well adapted
for the numerous flocks of sheep which travel to & from the York
district, the sward of grass, though closely shaven, will be found
as thick, I may say much thicker than it was before a
sheep cropped it, but I observed that half the grasses & plants
which grow there are introduced species.

I am Sir

Yours etc

James Drummond

Hawthornden April 17 1843.

To the Editor of the Enquirer.

Sir, of the natural Order Polygalae we have several species of *Comesperma* that are beautiful. Baron Hugel describes five. The *C. uricula* found at King Georges Sound, the *C. simplex* found at Fremantle, the *C. conferta* of Labillardiere, which Dr. Lindley remarks is a beautiful herbaceous plant, or undershrub clothed with narrow rigid leaves and loaded with erect racemes of violet flowers succeeded by the curious spatulate, emarginate fruit of the genus. *Comesperma flava* of Decandolle is common here in swamps but the most remarkable plant of the genus is the one called the Swan River Broom, which from the use made of it I have named *Comesperma scoparia* this plant which is well known to most of the settlers forms an excellent ready made broom. The root forming the handle, the only habitat on which I have seen it is on a sand hill on Mr Bourges' grant formerly Mr Edget's where it will soon be extinct unless some care is taken to preserve it. The natives carry off such numbers to supply the settlers of Droseraceae. Dr Lindley remarks that if there were no other evidence of the springy nature of the soil at Swan River, the abundance of plants of this order would attest it. It would however be a very fallacious evidence for of the 25 species of *Drosera* found at Swan River the *D. bulbosa* the *D. macrophylla*, the *D. Erythrorhiza*, *D. macrantha* & *D. pallida* & several nondescript species are found on dry stony hills & in the dry pasture land of the colony. the *D. Bulbosa* is the little whiteflowering sweet scented plant common about the settlement & well known from its being the first plant that makes its appearance in flower after the rains which fall in May. All these it is true are bulbous rooted plants species & only appear above ground from May to October when the ground is moist but there are five or six species of *Drosera* small fibrous rooted plants that grow with the *Stylidium* in the most arid situations on the sides of our Monstone gravelly hills & with their curious glandular apparently dew covered leaves (^{bird} ~~land~~ defiance)

as it were to the sun in all his strength I have often knelt down to admire the beautiful scarlet satiny looking flowers of these plants when the soil in which they were growing was so hot that I could scarcely bear my hands upon it, the *D. Gigantea* of Lindley, & one or two other species & the *Byblis Gigantea* of Lindley are found in ground that are swampy in winter from the rains which lodges in the hollows which have no outlets, but these places are exceedingly hard & dry for several months in the dry season. The *Byblis* is not a bulbous rooted plant & we have few plants that can resist the dry weather so well as the *byblis*. Indeed the only species of *Drosera* we have which grow near permanent springs & on the banks of streams which run throughout the year are one or two very small red flowering species with a flattened footstalk something like *Dioncaea muscifala*. Dr Lindley remarks that these *Drosera* plants appear likely to be in some cases of commercial value as dyers plants. Every part of *D. gigantea* stains paper of a brilliant deep purple. & when fragments are treated with ammonia they yield a clear yellow, the bulbs of *D. Erythrorhiza* & *stolonifera* possess the same property in these there is a deep scarlet powder secreted by the scales of the bulbs which is instantly dissolved in ammonia, forming at first an orange coloured fluid of great richness but it soon changes to the rich purple above mentioned which is more like the colour obtained from Ardeal than anything else to which I can compare it. The roots of *D. Gigantea*, *stolonifera* & *D. Macrophylla* could be obtained in large quantity at Swan River. Of *Violaceae* we have three or four species of *Pigeae* rather pretty plants & of *Cruciferae* the Cabbage family we have several species of *Cress* *stenopetalum* & c

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To the Editor of The Inquirer Sept 6 1843.

species of *Cress*, *Stenopetalum* etc. The *Stenopetalums* are not very showy plants, but they perfume the air in the summer evenings, their smell is sometimes rather too powerful to be pleasant. The *Nasturtium officinale*, the common water cress, is completely naturalised at Swan River, the *Matthiola Incana* grows wild in every lane in Fremantle the *Sinapis Nigra* I have observed completely naturalised for the last ten years & the *Sinapis Murale* grows plentifully in a naturalised state at Augusta. The plants recorded in my letters on the botany of the colony as naturalised at Swan River - a colony not 15 years old - where several of them are far more abundant than they have ever been in England, the climate, in all probability being more congenial to them will show the great difficulty there is at this date, of determining the native countries of many of the plants found in the cultivated parts of Europe. Of *Dilleniaceae*, I have gathered about 20 species of *Candollea* & four of *Spiblastia* (~~Heisteria~~?). The *Candollea Racemosa* of Hugel is, perhaps, the commonest of all Swan River plants, exclusive however, of some of the interlopers, the *Hypochaeris Glabra* for instance. Several of the species are rather showy plants, their seeds are eaten by the bronze-winged pigeons, and the plants themselves are often eaten by sheep & cattle. Of *Ranunculaceae*, we have three species of *Clematis*, The *C. Rubescens* of Hugel,

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which is our common broadleaved virgin's bower—the narrow leaved species found at Tremante, and a species with similar leaves, but with purple flowers, found in a valley to the east of Boegarring. We have three or four small species of Ranunculus & the R. Colanorum of Hugel, which I strongly suspect is the plant which proves so fatal to horses & goats at the Murray.

This letter concludes my observations on the botany of the colony for the present.

I am, Sir

Your Obedient Servant.
James Drummond.