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VOL. IV.
NOW READY, AND TO BE CONTINUED QUARTERLY.


OF THE

ICONES PLANTARUM;

OR,

FIGURES WITH BRIEF DESCRIPTIVE CHARACTERS AND REMARKS OF NEW AND RARE PLANTS,

SELECTED FROM THE AUTHOR'S HERBARIUM.


VICE-PRESIDENT OF THE LINNÉAN SOCIETY, AND DIRECTOR OF THE ROYAL GARDENS OF KEW.


NOTES

ON THE BOTANY

OF

THE ANTARCTIC VOYAGE,

CONDUCTED BY

CAPTAIN JAMES CLARK ROSS, R.N. F.R.S. &c. &c. &c.

IN HER MAJESTY'S DISCOVERY SHIPS

EREBUS AND TERROR;

WITH OBSERVATIONS ON

THE TUSSAC GRASS

OF THE FALKLAND ISLANDS.

BY

SIR W. J. HOOKER, K.H. L.L.D. F.R.A. & L.S.

VICE-PRESIDENT OF THE LINNÉAN SOCIETY, AND DIRECTOR OF THE ROYAL GARDENS OF KEW.

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SERTUM PLANTARUM;

OR,

DRAWINGS AND DESCRIPTIONS OF RARE AND UNDESCRIPTED PLANTS

FROM THE AUTHOR'S HERBARIUM.

BY H. B. FIELDING, F.L.S. & R.G.S.

ASSISTED BY

GEORGE GARDNER, F.L.S.

SUPERINTENDENT OF THE ROYAL BOTANIC GARDENS, CYLON.
THE
LONDON
JOURNAL OF BOTANY;
CONTAINING
FIGURES AND DESCRIPTIONS
OF
SUCH PLANTS AS RECOMMEND THEMSELVES BY THEIR
NOVELTY, RARITY, HISTORY, OR USES;
TOGETHER WITH
BOTANICAL NOTICES AND INFORMATION,
AND
OCCASIONAL MEMOIRS OF EMINENT BOTANISTS;
BY
VICE-PRESIDENT OF THE LINNEAN SOCIETY; HONORARY MEMBER OF THE ROYAL IRISH
ACADEMY; MEMBER OF THE IMPERIAL ACADEMY CAESAR-LEOPOLD, NATURAE CURIOSORUM;
OF THE IMPERIAL SOCIETY CAESAR; NATURAE CURIOSORUM OF MOSCOW; OF THE ROYAL
ACADEMIES OF SWEDEN, PRUSSIA, LUND; OF THE ACADEMIES OF PHILADELPHIA, NEW
YORK, BOSTON; OF THE NAT. HIST. SOCIETY OF MONTREAL, &c. &c.
AND DIRECTOR OF THE ROYAL GARDENS OF KEW.

VOL. IV.
WITH TWENTY-FOUR PLATES.

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A Note upon the Genus Sarcobatus, Nees. By Professor Lindley, Ph. D. &c. &c.

A figure of this remarkable plant having been published lately in the Botanische Zeitung, (p. 758, 1844,) with a short account of it by Dr. Seubert, it may be interesting to Botanists to be informed that it is the Batis vermiculata of Sir William Hooker, who so called a plant gathered by Douglas at the junction of Lewis and Clarke's River and the Columbia. That plant was supposed to be a male; and I had entertained the same opinion until the appearance of Dr. Seubert's figure, which has taught me how to find good female flowers in Douglas's specimens. They are extremely minute, buried in silky hairs, and completely hidden by the base of the leaves. Their examination has enabled me to determine the internal structure of the ovary, which Dr. Seubert does not mention.

The ovary of Sarcobatus is one-celled, and it contains one ovule only, rising from the base of the cavity by a very short funiculus, and curved downwards, so as to assume the condition to which modern Botanists have given the name of campylotropal; whether, however, this condition is eventually altered I am unable to say: but I presume that the flowers I have been able to examine are unimpregnated, for the apex of the nucleus projected considerably beyond the mouth of the foramen.

Of the perianth figured by Dr. Seubert I can find no trace, unless a brownish transverse line, which was observable on
one of the oldest flowers should have been so considered. The stigmata are two, but very unequal, one of them being rudimentary, and this I found to be so universal, that I cannot suppose it to be the result of accident; they stand right and left of the axis. It should also be observed that connected with this inequality of the stigmata is a great obliquity in the ovary, one side being very convex, while the other is almost straight.

As to the affinity of Sarcobatus, the probability is that the genus belongs to the diclinous plants associated with Chenopodiaceae. Indeed I had at one time laid my specimens into Kochia, so much does it resemble that genus. Until, however, seeds can be examined, this point must necessarily remain unsettled.

It is certainly very like Batis in its male flowers, especially as they are described by Willdenow; but it can have no real affinity with that ill-understood plant,* which must remain in a great measure a puzzle until the ripe seeds of it shall have been examined. Without, however, venturing just now to offer any suggestion as to its station in the Natural System, I may mention that it has no such "involucrum diphyllum" as is to be met with in books, and I do not think that its ovary is one-celled as it is described by Endlicher. Some good specimens, which I owe to the kindness of Sir W. Hooker, enable me to state that the female inflorescence consists of a spike of naked, fleshy, four- to six-celled ovaries, completely consolidated into a succulent cone; each ovary has a single roundish sessile emarginate stigma on the upper edge. In each cell there is a single erect ovule. At least, so I interpret the structure, which, from its succulence, is extremely difficult to make out. I believe the scales which Endlicher describes as belonging to each ovary, to be nothing more

* It is necessary to observe that the observations upon Batidea in the Natural System of Botany, ed. 2, p. 175, were made in the belief that Dr. Wallich's Batis awantiaca belonged to the genus. It, however, being a widely different plant, the remarks offered in the work referred to have no application.
than the back of the ovaries; this, at least, seems certain, that if they are scales, they are completely consolidated with the ovaries at an early period. The seeds of authors appear to me to be the cells of the ovary, very easily separated no doubt. My reasons for entertaining that opinion are, first, that they evidently cohere around their axis by the whole of their inner edge; secondly, that they have that tough fibrous horizontal texture, which is a characteristic of the endocarp, but which I do not remember having observed in seeds; and thirdly, that they are invariably empty of any thing except a small brownish corpuscle at their base, which I take to be the abortive ovule. And this seems to explain why nobody has been able to make out the structure of Batis seeds; empty carpels, containing an abortive ovule having been the parts examined, and not the seeds themselves. It is very much to be desired that ripe seeds should be obtained, and any West Indian botanist who would send them home would be rendering a good service to science. That British botanists should be ignorant of the structure of one of the commonest plants in one of their oldest colonies is certainly not a thing to be proud of.

PLANTAE CELLULARES quas in insulis Philippinensibus a cl. Cuming collectae recensuit, observationibus non nullis descriptionibusque illustravit, C. Montagne, D.M.

(Continued from p. 662 of Vol. III.)

LICHENES, Fries.


32. O. rigida Fée, Essai, p. 29 et Suppl. p. 23, t. 35. f. 5.

O. crusta hypophlaede lavigata fulva linea nigra limitata; apothecii erumpentibus (plerisque) simplicibus elevatis elongatisque rigidiusculis aet et flexuosus utroque apice obtusius marginibus patulis medio sulcatis interdum pulvere albo (an peregrino?) prismosis; perithecio atro opaco mere supero
nucleum griseum canaliculatum, hinc sectione transversali reniformem obtegente; sporidiis mature liberis primo hyalinis bisporis, tandem faliginosis transversim octies annulatis, annulis trisporis. Nob.

Cum. cl. Fee Graphidem elongatam, Zenck. (Pharm. Warenk. p. 165, t. 22. fig. a—f.), huc referente, facillime sentio. Liceat tirones unum illud monere, ne nimir sporidiorum secundum atatem perquam dissimilium formæ confidant. Sectio transversalis nuclei, quæ reniformis est, nec non perithecium subitus deficiens, notae eximiae ad hanc speciem distinguendam, cum huic propriæ videantur.


34. Glyphis heteroclitæ, Montag. l. c. tom. 19, p. 83. Pl. 2, fig. 1.—var. orbicularis. Coll. n. 2166.

Si formam stromatis non ramosi excipias, nullum inter typum et varietatem adest discrimen.

**STEGOBOLUS, Montag. Nov. Gen.**


Hujus generis, quod autem lichenologis maxime commendo, analogia perquam manifesta, hinc cum Eustegia, illinc cum Craterio, quamvis ad ordines valde diversos pertineant, non potest non omnes percellere.

35. Stegobolus Berkeleyanus, Montag. ms.; crusta membranacea tenui (limitata?); apothecis prominulis tympaniformibus, aperture amplæ disco albo lenticulari caduco primo occlusæ, margine elevato lacero disco concolori, excipulo crasso nucleum uni ant pluriocularem cinglete.—Coll. n. 2185.

HAB. In cortice rugoso.

Juvat quasdam addere notas absolutiori ejusdem cognitioni

Unicam speciem insignis hujusce generis in testimonium gratissimi animi Reverendo M. J. Berkeley, amico generosisimo, qui mecum suam cryptogamarum Philippinensium collectionem dividere dignatus est, dicare liceat.


Hab. In cortice arborum. Coll. n. 2170.

40. T. areolatum, Montag. ms.; crusta areolata cervina, stromate depresso concolori tandem elevato deformi nigrescente apotheciis immersis et protrusis aggregatis, ostiolo crasso astro instructis.

Hab. In cortice indeterminato.—Exsic. n. 2164.

Thallus crustaceus sulcis verrucas peritheciorum segregantibus areolatus, colore cervino per madorem intensiore distinctus. Verrucae depressae, interdum elevatae, conice deformes, apice nigrigentes. Stroma corticali et stratis tenuissimis pallidis luteisque alternatim formatum, tandem (an
colore atro peritheciorum inquinatum?) sursum nigricans. Perithecia pauc[.] 
(2—6) in eadem verruca, semimillimetro minora, ovoidea, erecta ant paululum inclinata, parietibus crassis insignia, nucleo albo farcta, ostiolo brevi atro ad superficiem verrucæ spectantia. Asci clavati, ampli, mature evanescentes, sporidia octona serie duplici disposita includentes. Sporidia tandem gelatina religata, fusiformia, limbo lato cincta, novies annulata, h. e. nucleum hyalinum in sporas denas divisum foventia, inter paraphyses tenuissimas ramosas intricatas nidulantia. Asci sporidiaque T. Sprengelii, Ach.

Hæc species, affinitate T. T. erumpenti et deiformi, Fée, magnopere conjuncta, a priori verrucis ut plurimum depressis, crusta areolata, sporidiis non tetrasporis, a posteriori iisdem notis nec non stromatic albida diversissima videtur. Cum nulla alia confundenda.

44. Parmelia applanata, Fée. Montag. Crypt. Cuba p. 223, t. 8, fig. 1.—Coll. n. 2186.
46. P. Sandwichiana, Pers. l. c. p. 199.—Coll. n. 2179. An a sequente revera distincta?

BYSSACEÆ, Fries.

Crypt. p. 115, t. 146, fig. 3.—Coll. Webb. et Deless. n. 2177.
52. Leptogium phyllocarpum, Montag. Lib.—Collema phyl-
locarpum, Pers. l. c. p. 204.—Coll. n. 2180.
Species mihi prorsus ignota, cujus characteres cum nostro
lichene congruere videntur.

HEPATIAE, Juss.
66, t. 13, f. 1, et t. 17, f. 1.—Coll. n. 2191. Ad corticem
crescit.
vel species eidem affinis.

HAB. Ad terram.
Omnibus notis cum illa convenit, nisi quod flagella deficere
videntur. Surcula quidem inveni tenuiora, laxifolia et om-
nino libera, inter caules serpentina, imo eorum radicellis intri-
cata, quae huic alia ducere fas est. Quamobrem an a caule
originem ducant valde incertum est.
Cum Racopilo tomentoso ad cortices habitat. Coll. n. 2196.
Hook. Musc. Exot. t. 47. Sub Jungermannia. Ad corticem
arborum crescit.—Coll. n. 2192.
59. Mastigophora dichados, N. ab E. l. c. p. 18.—Coll. n.
2194.
Deless.
61. Frullania (Bryopteris) spathulistipa, N. ab E. l. c. p. 211.
Ad corticem.—Coll. n. 2190.
62. Phragmicoa Cumingiana, Montag. ms.; caule arcte
repente dichotomo, foliis densissime imbricatis verticalibus
orbiculatis concavis margine infero plicatis, plica undulata
basi prope caulet, siccitae cauli circumvolutis subsquarrosis; amphigastri folio triplo minoribus imbricati cuneatis apice retusi, angulis obtusis, medio rhizophoris; fructu terminali, foliis involucralibus majoribus bifidis, laciniiis inaequalibus sinuque acutis amphigastrium oblongum canaliculatum apice breviter bifidum aequantibus; perianthio obovato involucralia vix superante, basi laevi, apice quinqueplicato, plicis obtusis cucullatis, stylo longo exserto apice excavato.

**HAB.** Ad cortices. Exsicc. 2189.


Species eximia pluribus aliis affinis at ab omnibus plane diversa. A Phragmicona bicolori perianthii terminali non plicato; a P. nodulosa forma amphigastriorum lobuloque foliorum; a P. P. juliformi et polycarpa tandem bulbo dentato foliorum nec non aliis notis maxime recedit.

**MUSCI, Dill. Linn.**

63. Leucophanes squarrosum, Brid. Bryol. univ. 1, p. 764.—

Coll. n. 2213.—A Syrrhopodone candido et octoblephari, Schwgr.; planta valde diversa.

4. Macromitrium incurvifolium, Schwægr. Suppl. 11. p. 2,


67. Campylopus.......


69. Pterogonium squarrosum, Montag. ms.; repens, caule alterne ramoso, ramis simplicibus teretibus ascendentibus, foliis dense imbricatis ovatis sub apice acuminati, acumine patenti, enerviis subintegerrimis, perichaetialibus oblongis filiformi-acuminatis intimis longe crinitis reflexis; capsula cylindracea.......


Pterogonio urceolato, Schwægr. proxima species a quo tamen foliis in humido patentibus siccitate vero strictis, acumine solo patente, ad augmentum maximum microscopii sub apice manifeste denticulatis, in medio laxe lineari-areolatis, perichaetialibus omnino diversis, capsula tandem minime urceolata, sed exacte cylindrica, recedere videtur, si fides iconi saltem et descriptioni, cæterum incompletae, tribuenda. Insuper in ejus habitu alicui P. hirtelli profert, sed foliis non utitur ciliatis.

Caulis sescuncialis, fasciculis radicellarum validarum arcte cortici totus adrepsens, distiche ramosus. Rami alterni, brevissimi, longitudine lineam parum superantes, adscendentes vel madore ad moto erectiusculi, teretes, myuroides, seta porcina vix crassiores (in sicco). Folia confertim undique imbricata, concava, ovata, apice acuminata, acumine brevi recurvo, madore patenti-erecta, siccitate cauli appressa, vix sub vitris maxime augentibus denticulata, prorsus enervia. Areolatio insignis: nervi vice cernuntur cellulæ lineares a basi ultra medium flabellatim irradiantes et undique aliis cellulis quadratis opacioribus circumdatae. Folia perichaé-


71. Hookeria *Philippinensis*, Montag. ms.; caule primario repente ramoso, ramis pinnatis approximatis teretibus brevibus, foliis caulinis ovato-lanceolatis acuminatis, rameis oblongis cochleariformibus apice recurvo obtuso subacuminulato undulato crispso tenuissime denticulatis, breviter binervis, perichaetialibus lanceolatis apice dissectis dentato-spinulosis; calyptra piloso-hirta, pilis lanosis albis; pedunculo scabro; capsula elongata horizontali operculo convexo longe rostrato.


Caulis repens, biuncialis, pinnatim ramosus. Rami approximati, breves, in specimine Cumingiano secundi incurviusculi, in Miquelianio patuli, teretes. Folia dense imbricata, cauliæa ovato-lanceolata, concava, ramea oblonga cochleariformia, omnia binervia, nervis brevibus divergentibus, apice recurvo undulato-crispo acuminata, subtiliter denticulata, linearis areolata. Perichaetialia sena octonave enervia, exteriora
PLANTAE CELLULARES.

breviora ovata, levia, interiora longiora ovato-lanceolata acuminata, plicis longitudinalibus notata, spicis laciniatis, lacinulis dentato-spinulosis.

Pedunculus e vaginula cylindrica fusca in caule primario lateralis, 3 lineas longus, validus, scaberrimus, purpureus, non tortilis. Capsula cylindrica, elongata, basi attenuata, lineam longitudine superans, horizontalis aut tantum nutans, brunea. Operculum e basi hemisphaerica longe rostratum, cum rostro tenui obliquoque capsulam fere adaequans, dilute luteolum. Calyptra mitraeformis alba pilis crispis erectis onusta. Peristomii exterioris dentes 16 lanceolati, subacuminati, transversim subtilissimeque trabeculati linea longitudinali media exarati, rubri, siccitate inflexi; interius, membrana lutescens in cilia 16 lanceolata, carinata, non lacunosa, fissa, ciliolis nullis interpositis.

Hancce speciem ab omnibus congeneribus, quamvis numerosis, perbelle distinguunt forma foliorum propria et insignis. Anictangium planifolium, Hedwig (Spec. Musc. t. 6. f. 6-9) non male nostram plantam refert, quae foliis bivertiis concavis, non autem planis et enervis, nec non capsula levi, diploperistoma, foliis perichaetialibus dissectis et denticulato-spinulosis utens non potest non esse diversissima.


* In the title of this paper for Plantae collectae, read Plantas collectas.
Characters of Two New Plants discovered in British Guiana; by the Chevalier Robert H. Schomburgk, K.R.E., Honorary Doctor of Philosophy of the University of Konigsberg, &c. &c.

1. Alexandra Imperatricis, Schomb.

Nat. Ord. Leguminosæ.


Genus e tribu Sophorearum, Diplotropodi et Dibrachio quodammodo affine; sed abunde distinctum, floribus amplis, staminibus subæqualibus, ovario longe stipitato, legumine et inflorescentia.

Alexandra Imperatricis, Schomb.

Hab. British Guiana; between the 5th and 6th parallel of north latitude, along the southern tributaries of the river Cuyuni, chiefly on the banks of the Wanunu. I understand it is likewise found near the River Pomeroon.

A tree from 90 to 120 feet in height, with a trunk 5 feet in diameter; but who shall attempt to describe the beauty of the flowers, so gorgeous that no painter can do justice to them! These spring in great number from the woody
branches and are succeeded by large seed-pods, 18-20 inches long. The Indians call the tree *Koa-toi*. The genus it is my wish to dedicate to Her Imperial Majesty the Empress of Russia. It belongs to a group of *Papilionaceae*, the *Sophoreae*, which form a connecting link with the *Cassapinaceae*, in some respects approaching *Swartzia*.


Caudice frutescente, foliis ensiformibus subulato-acuminatis integerrimis sericeis, scapo foliis breviore apice glabulus subsessilibus verrucoso, perigonii tubo (5-6 poll.) ovario longiore glanduloso-hirtro, staminibus 18 in phalanges 6 dispositis.

Hab. Roraima range of mountains, British Guiana, in about 5 degrees of north latitude, growing on sandstone hills, at an elevation of between 3-4000 feet above the level of the sea.

This fine species of *Barbacenia* I likewise propose should be honoured with the name of Her Imperial Majesty the Empress of Russia, the sister of the present King of Prussia. It is remarkable in the group of plants to which it belongs, for the great size of the stem and of the flowers: the former is 10 or 12 feet high with dichotomous branches, and the latter are 5-6 inches long. It has the habit of some frutescent *Vellosia*, but the perigonal leaves and petals are united into a tube above the ovary, as in *Barbacenia*. It differs however from the species of that genus hitherto described in the number of stamens, which are 18, all fertile; whilst in the Brazilian *Barbacenia* the two lateral stamens of each series are sterile, usually described as branches of the filament. These flowers, of which several rise from the middle of a fascicle of leaves which covers the dichotomous branches, have their slender tube covered with callosities, are of a purplish tint, within of a snowy whiteness and the fragrance resembles that of the Narcissus.
BOTANICAL INFORMATION.


(Continued from p. 533, Vol. III.)

We reached Fairy Hill, a good deal fatigued, the day having been very hot, thermometer at noon 90°.

Friday, 21st. July.—We left Fairy Hill for Bath, by the same route; there being no other road over the mountains. In pastures, near Fairy Hill, I found a species of Arum, which the Negroes call Jumbe Coco, from a supposition that it is the food of Duppy, a spirit or ghost, believed to haunt Jamaica, and of which the Negroes stand in great dread. They rarely go to the woods without a trumpet, consisting of a large marine shell, perforated at one end, with which they contrive to make a most unpleasant noise, and by blowing it occasionally, they think they succeed in keeping this terrible personage at a respectful distance. To the astonishment of some negroes who were passing and whom nothing could induce to touch the plant, I gathered several specimens. One remarkable feature of the scenery of the North side of the Island consists in the entire absence of Cacti, which are so numerous on the south. As we approached Port Antonio, I observed a few solitary plants of Opuntia communis, probably introduced from the southern side. We reached Golden Vale by five o'clock P.M., having felt the heat very oppressive, from the concentrated rays of the sun on the coast, for the mountains had been visited with thunder and rain the whole day, as was evident on our crossing the Rio Grande, already much swollen. We slept at Golden Vale, intending to reach Bath the next evening.

Saturday, 22nd July.—The night had been a dreadful one of thunder, lightning and rain, which rendered it very doubtful as to our being able to cross the river, which was, by this time, rolling at a tremendous rate, carrying immense entire trees on its angry surface. This prevented our starting
before twelve o'clock. The rain had long ceased, and the river considerably subsided. Crossing the river with some difficulty, three times in about two miles, the rain again set in and lasted sufficiently long to give us a good soaking. In the moist woods here, I found some large masses of Balanophora Jamaicensis, a singular plant which, I fear, is not capable of cultivation; it is parasitical on the roots of living trees. We reached Bath by seven in the evening, having experienced considerable difficulty in crossing the rivers, and met with several heavy showers of rain.

Monday, 24th July.—After arranging my seeds, and dried plants, and filling one of Ward's cases with my collections from Portland, we started for Golden Valley to explore the lofty mountains in its vicinity. The road was along the bed of the Plantain Garden River in a rich and romantic valley, sometimes so narrow as to become a perfect ravine abounding with the lovely Mountain Pride (Spathelia simplex) thousands of which in flower presented a lovely appearance. I also saw and collected a showy Melastoma with glaucous foliage and white flowers. On moist rocks grew an elegant Dicksonia, with Xylophylla latifolia and angustifolia. After crossing this romantic river thirty times in eight miles, we reached Golden Valley, and were kindly received by Mr. Tasker.

Tuesday, 25th July.—I set off early, accompanied by Mr. Tasker and the Rev. Mr. Wharton; my servant followed with two mules laden with paper, saw, trowel, hampers, &c.; the latter articles are my constant companions. We reached Dunrobin Castle to breakfast; this is an obscure residence, but situated in a most romantic spot, surrounded by lofty mountains and deep ravines, alike clad with a highly luxuriant vegetation. After breakfast we proceeded by a narrow pass, having left our mules behind, there being no footing for them any farther, and after traversing some newly planted coffee fields, which were thriving admirably in a rich black mould, we reached a grand forest. Tree-ferns were abundant, prickly Yellow-wood (Xanthoxylon Clava-Herculis) Hadsonia arborea, Clethra arborea attaining a considerable size, Psidium montanum, and Hog-gum, (Moronoea coccinea). The
latter singular and beautiful tree inhabits the Lagunes on the coast, no less frequently than the deep dank woods of the interior. As we ascended, I observed a few scattered trees of a gigantic species of *Podocarpus,* and these became more numerous as we proceeded, till the wood consisted chiefly of them towards the summit of the range, which here does not exceed 3,000 feet above the level of the sea. The thermometer indicated at mid-day, 83° in the shade. This noble *Podocarpus* is among the largest forest-trees of Jamaica, and a fallen specimen I measured had been of the following dimensions. At 6 feet from the ground, diameter 3½ feet; at 40 feet, where it was still without a branch, it measured 2 feet 9 inches, and many of the boughs, which all sprung forth above that elevation, were individually no insignificant trees. The whole height of this specimen exceeded 100 feet, and it is by no means a solitary instance of such dimensions. I afterwards saw many, much loftier and of equal diameter, covered with the thick dark green foliage, so peculiar to the genus, but which this species displays in a more than ordinary degree. I caused two moderately sized individuals to be cut down, for the sake of seeds and specimens, which I obtained of the female tree, but was unsuccessful in endeavouring to procure male catkins. I was much amused in this neighbourhood with the dexterity of a Whip snake, contriving to ascend a large tree of *Psidium montanum,* which, although as smooth as marble, the reptile climbed with extraordinary rapidity, making a successful escape. The day was by this time considerably advanced, and it was necessary to retreat, carrying back however a quantity of young plants of *Podocarpus.* I did not observe *P. coriacea,* but its absence is easily accounted for, that species never inhabiting a less elevation than 5000 to 6000 feet. We reached Golden Valley about two hours after dark.

Wednesday, 26th July.—Returned to Bath and planted another of Ward’s cases and packed some Orchideae with two large specimens of Tree Fern, simply using the fronds and a

little grass for the purpose; the whole being protected with splines of *Bamboo*.

Tuesday, 1st August.—After dispatching them to Port Morant, the morning being wet, it was late before we started, the Rev. J. Wharton kindly accompanying me by the moun-
tain road to Kingston. To this gentleman, I am much indebted for many kindnesses, both during my illness and stay at St. Thomas in the East. The rain which had been falling in the mountains rendered our progress tedious, as the river was much swollen; however, after crossing it about thirty-five times, we reached Whitehall, and were hospitably received by the excellent proprietor, A. Hodgson, Esq.

Wednesday, 2nd August.—A fine and clear morning, and the lofty mountains of the interior showed to advantage. We were early afoot, and took our course through a richly cultivated district, entirely of sugar; passing the several estates of the Spring, Serge Island and Mount Ida, all in a fine state of cultivation. In the gravelly bed of Morant river, I found two species of *Crotalaria*, growing with a remarkable *Melastoma*, an erect and elegant shrub, bearing inconspicuous flowers; also a small shrubby *Eugenia*, of which I secured seeds. On our right lay the beautiful Blue-Mountain Valley, bounded on all sides, except the south, with lofty and well-wooded mountains. The district we traversed was for the most part cultivated, and presenting hardly any plants in flower. It, however, afforded me a few species of *Ferns* I had not before seen, a showy *Solanum*, with large purple flowers and of which I gathered seeds, also a striking species of *Cestrum*, and seeds of *Passiflora rotundifolia*. Ascending the mountains, we quickly attained the coffee district, which occupies all the southern face of this gigantic range, between the elevations of 3000 and 6000 feet. Above that height the coffee bush itself thrives, but does not bear any fruit; a circumstance, I should suppose, attributable to the extreme fertility induced by the atmosphere above that elevation, keeping vegetation constantly excited. In the woods higher up, which are enveloped in clouds, for at least
twelve hours out of the twenty-four, there is not a particle of wood or a decayed leaf, but what is instantly covered with an extraneous growth, to such an extent, that it may be truly said there is more parasitical vegetation than original, the former consisting chiefly of Mosses and Ferns. On approaching Windsor Forest plantation, the mountains present an extraordinary aspect, in their immense fields of Rock, almost perpendicular, and of a blueish-slate colour. This phenomenon, I believe, took place during the great storm of 1815, when whole mountains were carried away, which now present frightful ravines and precipices, many hundred feet deep. This romantic spot gives peculiar grandeur to the well-wooded and lofty mountains of the vicinity. Here I procured roots of a beautiful species of Ipomoea covered with a profusion of slaty-blue blossoms. We then ascended a steep hill, to Wobourn Lawn, where we were kindly accommodated with beds by A. Barclay, Esq., the owner of several fine coffee properties in St. David’s Mountains, and an excellent cultivator of European fruits, grapes, figs, apples, &c.

Thursday, 3rd August.—Leaving early, we descended to the river, which is rocky like all the steep mountain rivers in Jamaica. Two species of Psidium form quite a forest along the bed of this stream, mingled with Bocconia frutescens and two kinds of Indigofera; I also gathered a few more plants of the Blue Ipomoea, noticed the day before on rocks. Several species of Peperomia and Piper form almost the entire vegetation of the abandoned coffee plantations, which have become exhausted and where the land is too steep to be successfully manured. On a loose rock I observed a large and remarkable snake striped like a zebra, but on my attempting to capture the creature, it disappeared among the rocks. Proceeding, we reached Agley Gap, the rain rendered travelling very unpleasant, for the steep roads soon become intolerably slippery. While busily engaged in putting up some specimens of a showy terrestrial Orchideous plant, I heard a noise and looking round descried a boy and horse, hanging in a tree, many feet below the road! The boy appa-
ently had not chosen to wait to let us pass quietly and the road is so narrow that it is with much difficulty two people can cross. Had not the tree caught them, they must have been both dashed to atoms. The boy, after climbing off his horse’s back into the tree, was safely assisted to reach Terra Firma, though shaking with fear; but we had greater difficulty in extricating the poor beast, which we effected, though with some bruises. The continued rain rendered our progress difficult; at the Botanic Garden we stopped to feed our mules, and reached Kingston about six o’clock in the evening, having had a pleasant ride over the plain of Liguanea, which we found quite destitute of verdure, for although rain had been so abundant in the mountains, not a drop had fallen on these arid plains.

At Kingston I was closely occupied for some days in preparing my collections for shipment. The heat became intense, the thermometer averaging 90° in the twenty-four hours during several days. My packages not arriving from Bath, it was necessary to take only short excursions and I accordingly started early on the 9th August to St. John’s. At the Ferry, I made arrangements for exploring the Lagoons of the vicinity, on my return. The plains afforded me but a few species of Cassia and three of Mimosa; a gigantic Fern formed impenetrable brakes beneath the shade of the Mangroves; the open salt marshes (or saline) are complete fields of Balis maritima, imparting a lively hue to these otherwise barren tracts. The quantity of dead cattle lying on this road form a perfect nuisance, their carcasses swarming with that loathsome but useful bird, the John Crow. Notwithstanding recent deaths, the road is literally strewed with the bones of departed generations of cattle, the heat of the plain destroying them in great quantity and none of the bodies are ever removed from the roads. To day I counted six, that had died in the preceding twenty-four hours, and it is only astonishing that more disease is not generated. At the Ferry I was much struck with a noble Palm, probably a species of Cocos, but presenting its leaves edgewise to the
sun, and about 90 feet in height, it is an introduced plant and very rare in the Island. I reached Twickenham Park, and was kindly received for the night by Alex. Finlay, Esq.

Thursday, 10th August.—Off early in the morning, for the interior of St. John’s; about five miles of the plains brought me to the gently undulated Red Hills of that name. Two small ponds by the road-side were full of *Pistia*, a singular little aquatic plant; its seeds are sessile at the base of the leaves, and enclosed in a little transparent bag, not unlike a nest of *Chigres* well advanced, (an annoying companion, I am now but too familiar with). The vegetation of the Red Hills is principally shrubby, and I obtained several plants in flower on isolated rocks; near Lloyd’s estate grew *Portlandia grandiflora* in abundance, and larger than I had before seen it; this plant delights in rocks destitute of soil, and preserves an astonishingly vigorous growth, attaining 20 feet in height, and displaying its large bell-shaped and fragrant flowers most profusely. I next came to an extensive negro settlement, apparently of recent date; the houses were more commodious and comfortable than these poor creatures’ dwellings generally are; a bed is a luxury they do not know, and their little hut consists of but one apartment with the fire in the middle, the door and palm-thatched roof serving as an outlet to the smoke. Four sticks set in the ground, with crosspieces, gridiron fashion, form their bed, and from custom they consider this all that is necessary. My servant is perfectly satisfied to lie on the floor, in the same apartment with myself, without the luxury of one feather or blanket, and he appears to sleep as sound as I do. The summit of a hill afforded a fine view of Lloyd’s and Retreat estates, the *Sugar Cane* occupying a rich valley in the bosom of the gently undulated hills of St. John’s. On *Logwood* fences I found *Limonodorum finale*, and *L. filiforme* (a singular little Orchidaceous plant), also *Oncidium pumilum* and the beautiful *Ianthë pallida* in great plenty. *Oncidium Carthago- ginense* was so abundant as to threaten the destruction of the fences, producing its beautiful panicles in the utmost profu-
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sion. We saw several small ponds overrun with Arum seguinum, the Dumb Cane (so called from the cruel use to which it was applied in the punishment of the negroes), and several Cyperaceous plants. I have everywhere observed the comparative want of aquatic plants in the ponds and lagoons of Jamaica. We arrived at Lloyd's estate about six o'clock P.M., and I was obligingly lodged by the intelligent overseer, Mr. Reid. This place is famous for its large Shaddock Trees, which are certainly very fine and show beautifully, laden with their large globular fruit. The pulp is of a lovely pink colour, but in my opinion very coarse eating, though many people are fond of it; these trees are called Queen Charlotte's Shadders, the reason for which name is not correctly known.

Friday, 11th August.—This day was clear and warm, I set out early for the woods to the north of Retreat estate, and arrived there about eleven o'clock A.M., thermometer 85° in the shade. The whole of this picturesque district was suffering much from want of rain, the Mountain River, a considerable stream flowing through the dense woods, about three miles from Retreat estate, altogether vanishes after a rapid and rocky course of several miles, to appear again in the same ravine, about four miles lower. I obtained several beautiful Ferns in this wood that I had not before seen, with two fine plants of the rare Goenia uriculata, a singular terrestrial Orchideous species. Trees on the banks of the river afforded me Oncidium triquetrum, a pretty species flowering profusely, along with several leafy kinds of Epidendrum, not conspicuous for beauty. The bed of this river is remarkable for large masses of isolated rock, kept constantly moist from the foaming stream dashing from rock to rock and acting as a shower-bath. These rocks are covered with a beautiful tapestry of Ferns, protected from the vertical rays of the sun by a noble forest, upwards of a hundred feet in height, but although consisting of the finest timbers of the West Indies, it is extremely difficult to obtain specimens of them. A simple leaf can scarcely be detected from
a pinnated one at so great a height, and woven into such a dense mass from the various creepers, among which *Marc-graavia umbellata* and *Mimosa scandens*, with its large sword-shaped legumes, are peculiarly conspicuous, their cable-like stems rendering it almost impracticable to fell trees, to obtain specimens.

Having made arrangements to visit the lagoons behind the Ferry, in hopes of finding the *Nelumbium Jamaicense* of Brown, I returned after taking some refreshment at Retreat, the overseer of which, Mr. Ingram had kindly accompanied me to the woods. My mules meanwhile made the most of the time, exercising their digestive organs in a fine field of *Guinea-grass*. The introduction of this luxuriant and excellent grass has been a great boon to the Island. The native *Gramineae* of Jamaica are coarse and generally rejected by cattle, at least when *Guinea-grass* can be obtained. Here, occurred two species of *Melastoma*, this tribe of plants consisting for the most part of handsome shrubs, appears confined to the lower mountains, altogether disappearing in the arid plains. The church at Guanabo is a neat and elegant building, agreeably situated on a gentle undulation, commanding a view of a rich and well-settled valley where the negro houses seemed much more commodious than any I had seen. These for the most part, contained three apartments, with a well cultivated garden, while the usual negro huts have but one very small room; the door, as I said before, serving for a chimney, with the fire in the middle of the floor. They are a cheerful race of people and are very fond of singing, which to my ear is somewhat discordant. Proceeding towards Spanish Town, it soon became dark. I however secured a quantity of growing plants of *Pistia Stratiotes*; that I had observed the previous day. The whole of the lower part of St. John’s Parish is destitute of springs, so that the inhabitants are dependent on rain to fill their tanks, which are open and ill adapted for the purpose. It was about ten o’clock at night before I got to Spanish Town and found the night air of the plains very cold, although the
thermometer was not below 70°. At Twickenham Park, Mr. Finlay, a gentleman to whom I am indebted for much personal kindness, as well as his kind endeavours to forward my views in the interior mountains, extended to me his wonted hospitality.

Saturday, 12th August.—This not being a working-day with the negroes, I was compelled to put off my visit to the Lagoons till Monday; so, after arranging my specimens, I started to the Caymanas, a fine sugar estate, situated on the margin of the Lagoons. This rich and beautiful spot forms a striking contrast with the arid plains bounding it to the south, and probably owes its luxuriance to the great moisture below, for about three yards digging is sufficiently deep to obtain an excellent spring of water. At Taylor’s Caymanas I was kindly received by Mr. Dundas, who obligingly offered me the use of his boat, to traverse the Lagoons.

Monday, 14th August.—After breakfast (the most prudent time to traverse these Lagoons) I started, taking with me three negroes, armed with long bamboos, the intersecting ditches being too narrow for the use of oars. This part of the Lagoon is about 4000 acres in extent, and incapable, in its present state, of cultivation, for it is closely cut up in all directions with a net-work of ditches, about 10 feet wide, which are cleared out annually to take off the surplus water, otherwise the estates would soon be inundated. The whole of these Lagoons are covered with one continued field of *Typha latifolia*, and bounded on the north, east, and west by rocky hills, some 500 feet high. The Lagoon is but a few feet above the sea: we found the boat anchored, and although there was abundance of water, in some places 30 feet deep, we experienced a difficulty in moving through the dense mass of vegetation and the spongy bottom which we had no means or inclination to fathom. *Nymphaea Lotus* was abundant, also *Sagittaria lancifolia*, a very showy species, its delicate white flowers contrasting beautifully with the dark green foliage of the *Typha latifolia*, *Alisma cordifolia* was also very abundant; two *Ipomoeas*, with a large *Amaranthaceous* plant, used as
spinach, for which it certainly proves a good substitute *Potamogeton natans*, with two species of *Myriophyllum*, completely choke up the water-courses rendering it difficult to obtain a passage with all our exertions, the heat was intense, thermometer 100° in the shade, not a breath of air could reach us through the dense mass of *Typha*. I gathered plants of *Nymphaea Lotus*, which was the only Nymphaeaceaeous plant I saw. I was somewhat disappointed in not finding the *Nelumbium* of Brown, which from the frequent cleanings may have been destroyed, for I could not detect a vestige of it; in shallow parts of the stream *Hydrocotyle vulgaris* abounds; also along the margin of the Lagoon, I observed *Bucida Buceras*, with some fine specimens of *Canella alba*, (*Jamaica Cinnamon*); this interesting plant, the bark of which is highly pungent, is found in the higher mountains, as also occasionally on the coast. The Lagoons abound with *Ducks, Teal, Coots*, and a curious water-fowl, called by the negroes *Crab-catcher* for it watches the crab with death-like stillness, its body hidden in the grass ready to pounce on its unconscious victim. A small species of *Turtle*, about a foot in diameter, is also plentiful. One, lying entangled in the aquatic weeds, was easily caught; but it more than once tried to escape. These creatures are remarkably quick-sighted and instantly dive on being approached. This manœuvre, however, does not protect them from the negroes, who make it their business to catch them, and I saw one man, who had taken six in a very novel way. The moment a turtle made its appearance this negro instantly dived after it, and invariably brought it out, but this is an acquirement not common among the negroes. After traversing these extensive Lagoons, we reached the Ferry, about 4 o’clock P.M., through which the main canal runs, a deep heavy running stream. A short distance below the Ferry, the water becomes brackish and consequently no aquatic plants are to be found. My mules meeting me at the Ferry, I proceeded to Kingston; the evening was pleasant and cool, thermometer at 8 P.M. 8.3°. Although the temperature ave-
rages so much higher than in Europe, the heat is not so oppressive as might be supposed, particularly at a slight elevation above the sea.

Tuesday, 15th August.—On inquiry, I was informed that my plants had arrived from Bath by the Drogher, a small class of coasting boats, which keep up the communication between the different towns along the shore; there is no land-carriage for goods or luggage, except by special contract, which is notoriously expensive. The former mode of conveyance is remarkable for nothing, except carelessness, and my experience does not disprove the charge; for I found the plants in glass-cases, which I had carefully packed at Bath and disposed them in groups, some on the soil, but the greater part beneath it. Part of the glass was broken and a few of the plants dead; indeed they must have been turned over several times, to have produced such an effect. One box of Orchideae was quite destroyed by rats, from the boards being broken. This induced me to refuse paying the freight; a line of conduct, which, if repeated by other persons, would, I doubt not, bring them to a sense of their duty. As the steamer sailed next day, there was no time to lose, and fortunately I had spare cases with me to repair the damage. A few days were devoted to arranging my specimens and I then took my passage in the steamer Anglesea, for Port Henderson, about ten miles from Kingston and parallel with Port Royal.

August 23rd.—Accompanied by my servant and a small quantity of paper, as I expected to return the next day, we left Kingston at 7 A.M., and after a cool and pleasant sail, landed at Port Henderson by 8 o’clock, just in time for breakfast. The harbour of Kingston has a very rich appearance, and is on all sides beautifully fringed with groves of Mangrove. The bark, branches and leaves of this tree are chopped up together, and used with success in tanning leather, which is then considered equal to English. Beneath water, the roots are encrusted with oysters, and other shellfish; so that by detaching about 6 feet in length of the
roots, you have more oysters than one person can carry. They are smaller than European oysters, but equally good. Port Henderson is the shipping port between Kingston and Spanish Town; a wharf and a small inn are the only objects to preserve its name. Our breakfast consisted of coffee not polluted with milk, bread, biscuits and butter; in using the latter, which is perfectly liquid from the intense heat, a spoon is substituted for the knife. Fish would have been provided, but they were not yet caught, and we all exhibited too much impatience to wait: for this provision we had the pleasure of paying three shillings each, and thus ended our breakfast at Port Henderson. An arid range of rocky hills, rising abruptly about 200 feet from the sea, extends about thirty miles. Behind these stretches an extensive plain terminating at the base of the central range of Blue Mountains. These hills are rarely visited with rain, and the vegetation is consequently different from anything I had seen, composed chiefly of Cacti, which give a very singular appearance. The few shrubs interspersed are quite leafless from the intense heat. Two very pretty species of Turnera were adorning the rocks with their showy yellow flowers. At the Apostle's Battery, a small fort opposite Port Royal and mounting about half a dozen guns on a very commanding spot, I met the Captain of the fort, Captain Carey, who kindly offered to accompany me. The Captain armed himself with his gun, in case we should meet with any game, as Wild Goats, Guinea Fowl, and Guanos, the latter is a large kind of lizard, and is considered a great delicacy, and we proceeded over the rocks, for there is no soil on them, through a dense forest of Cacti, but confined to a few species, C. repandus, Peruvianus and paniculatus, 20 to 30 feet high, and forming a dense green mass, so that I found a cutlass I had brought with me very useful in effecting a passage. Two species of Opuntia (common in our collections) and Melocactus communis (Pope's Head), form the under-growth; the latter have a very pretty appearance, with their tufts of soft red spines, thickly dotted with delicate pink fruit and flowers;
the fruits are agreeable and allay thirst. A few sheep are
the only domestic animals that exist here, and they are kept
alive and in tolerable condition during the long droughts,
which Captain Carey informs me have this time continued
for nine months without a shower, by the *Melocactus com-
munis*. This *Melocactus* is simply slit open with an hoe or
spade, when the sheep eagerly eat it, carefully avoiding the
spines. My man Edward, having no shoes, kept up a
constant grumbling at the spines of the different *Cacti*, as
we threaded our way from rock to rock, any mistake in our
footing would, as a matter of course, have been attended
with painful consequences. In a deep cavern, Captain Carey
shot a fine *Guano*, the first I had ever seen; this animal is
not unlike a small *Alligator*, and lives in holes and rocks;
*Wild Goats* are also abundant, we saw a flock of about fifty,
but they were too shy to get near them. They certainly veri-
ﬁed their proverbial activity, for we no sooner beheld them,
than they were out of sight. *Gossypium Barbadense* is abun-
dant among the *Cacti*, casting its delicate produce to the winds,
in considerable quantities. The day being advanced and a
great sameness existing in the plants, we commenced our re-
treat by the same route, securing some good specimens of *Me-
locactus communis*, and *Cactus Peruvianus*, a species, I believe,
not in our collections, and reached the Battery by 5 o'clock,
just half an hour too late for the steamer. The Captain had
succeeded in killing two Guinea Fowl, which, with the *Guano*,
made us an excellent dinner; the latter was very tender, but
I must confess, among so many good things, I could not
give it the preference. It appears sharp work to kill and
eat poultry on the same day, but there is no keeping provi-
sions in the tropics; it is no uncommon thing at times in
Jamaica, to catch the fowls, after the traveller arrives, and
have them on the table in half an hour. The land-breeze
setting in, made the atmosphere cool and pleasant, for the
day had been intensely hot; the radiation from the rocks
was sometimes overpowering, thermometer 96° in the shade
at mid-day.

*(To be continued.)*

At p. 127 of the last volume of our Journal, we noticed the contents of the six first fasciculi of this work, and we have now to record the publication of two more fasciculi. We have still to complain, as before, of the non-appearance of a single description, or indeed, of a single line of text, to this costly undertaking; farther than the little brochure from the pen of the talented Montagne on the Algae and some of the Hepaticæ and Mosses, in the Annales des Sciences Naturelles. The want of letter-press, for which no apology is offered, (or, if made, it is not issued with the work), is the more felt at this time by one whose labours will be next noticed, and who is now engaged in publishing the botany of similar regions. For ourselves, too, Messrs. Hombroux and Jacquinot must excuse us, if, judging from their figures alone, we pass too severe a criticism on some of the genera or species. The authors may, in their descriptions, if such are ever intended to appear, adduce reasons in favour of their views which might influence our own. Under present circumstances, we only pronounce upon the plates, which, it must be confessed, exhibit a great array of names at the bottom of each, connected with their publication: "Dessiné par Mesdames Bory et Borromée;” "Dirigé par Borromée;” "Gravé par Mademoiselle Mégissier;” "Gide, Editeur;” and again, in a neat stamp, "Gide, Editeur, Paris."

Of the two additional numbers above mentioned, one is devoted to the Algae, Lichens (which is peculiarly well executed), Hepaticæ, and Mosses, and is alike honourable to the author and to the artist. The last number contains five plates of Phanerogamic plants; of which Tab. 4 is occupied by a composite plant, forming the genus Albinea, and bearing the uncouth specific name of oresigenesa. This is the Plerophyllum
species, Hook. fil. described in the July number of the "Flora Antarctica," and figured in the August number. Tab. 7 is devoted to two plants: 1, Calucechinus antarctica, Hombr. et Jacquinot, a form of the old Fagus antarctica (status proceà); and 2, Calusparassus betuloides, Hombr. et Jacquinot. If by this latter is meant the Fagus betuloides, Mirbel, we have already expressed a doubt, in the first series of this Journal, vol. ii, p. 157, if it be distinct from F. Forsteri, Hook. (Betula antarctica, Forst.), and we see nothing to alter our opinion in the present figure. Tab. 8 exhibits: 1, Calusparassus Pumilio, Hombr. et Jacquinot; and 2, Calucechinus Montagni, Hombr. et Jacquinot; and we must be pardoned, if in the absence of any descriptive matter, we venture our belief that we have here again representations of our old friends, the former, Fagus antarctica, and the latter, Fagus Forsteri. Thus, if we are correct in our views, the six figures on the three folio plates, all from the Straits of Magelhaens, only exhibit forms of two different plants. Such variations may even almost be seen on one and the same tree, depending much on the age and the several modifications of the leaf and capsule, and the number of divisions at the mouths of the male perianth. Tab. 9 exhibits an admirable figure of the well-known (even in cultivation) Veronica decussata, Wllld., from Magelhaen’s Straits (V. elliptica, Forst.), in flower and fruit; and on the same plate, Veronica fins之前,* Hombr. and Jacquinot (Auckland Islands), which is identical with Veronica Benthami, Hook. fil. in the September number of the "Flora Antarctica." Excellent as are the figures of the natural size, we cannot pay the same compliment to the reduced representations of the entire plant, whether on this or other plates. Tab. 4, though headed "Monocotylédones Phanérogames," contains, besides the Monocotylédones, Phanérogames," contains, besides the Monocotylédones, Phanérogames,” contains, besides the Monocotylédones, Phanérogames,” contains, besides the Monocotylédones, Phanérogames,” contains, besides the Monocotylédones, Phanérogames,” contains, besides the Monocotylédones, Phanérogames,” contains, besides the Monocotylédones, Phanérogames,” contains, besides the Monocotylédones, Phanério-
ledonous species, a composite plant of Magelhaen's Straits, *Lasiorrhiza purpurea*, Lessing. The other plant is the glory of the Auckland group of Islands, here referred to *Melanthaceae*, and called *Veratum Dubouzetii*, but in the October number of the "Flora Antarctica," it stands as *Chrysobactron Rossii*, Hook. fil. The insertion of the leaves, where they are supposed to be represented of the natural size, and still more, the reduced figure of the entire plant (f. g, 7), are extremely unlike the noble specimens now before us, where the leaves are much sheathing around a stout and very succulent stem.

*The Botany of the Antarctic Voyage of H.M. Discovery Ships, Erebus and Terror, in the years 1839-43, under the command of Captain Sir James Clark Ross, Kt. R.N., &c., by Joseph Dalton Hooker, M.D., R.N., F.L.S., Assistant Surgeon of the Erebus, and Botanist to the Expedition.*

**Part I. Flora Antarctica.**

1. *Botany of Lord Auckland's group and Campbell's Island.*

As announced in our 2nd vol. p. 275, the first number of this voyage was published on the 1st of June, 1844, and it has, with the interruption of one month only, on account of the great labour on the plates, continued to appear regularly to the present period. Consequently six numbers, or parts, are issued, and it is incumbent upon us to give some account of them. The *Flora Antarctica*, properly so called, as distinguished from the *Floras of New Zealand* and *Van Diemen's Land*, which will form part of the "Botany of the Voyage," is divided into two portions: viz. 1, the *Flora of Lord Auckland's group and Campbell's Island*; and 2, the *Flora of the Falkland Islands, Tierra del Fuego* (with the adjacent portion of the continent of South America,) and the other antarctic islands. The first of these two sections is here treated of; and the work opens with a summary of the voyage, accom-
panied by a coloured chart of the South Circumpolar regions, showing the discovery tracks of Cook, Weddell, and Ross. The subjects of the first part were mentioned at p. 148 of our last volume of the Journal; and in future we must, in general, content ourselves with a notice of such species as are figured, they being the most novel and the most remarkable. Tab. 9-10 represents a second species of the new genus *Anisotome*, *A. antipoda*, Hook. fil. (*Ligusticum antipodum, Hombr. et Jacquinot*). Tab. 11. *Pozoa reniformis*, Hook. fil., a peculiar genus of *Umbelliferae*, hitherto supposed to be confined to extra-tropical South America, unknown to the Floras both of New Zealand and Australia. Of *Araliaceae*, a *Panax* (*P. simplex*, Forst.), and an *Aralia* (*A. polaris*, of Hombron and Jacquinot, Voy. au Pole Sud, Botan. t. 2, without description, a not very appropriate name, seeing that the islands where it grows are no nearer the South Pole than London and Paris are to the North Pole). This our author describes as "one of the most handsome and singular of the vegetable productions in the group of islands it inhabits, which certainly contain a greater proportion of large and beautiful plants, relatively to the whole vegetation, than any country with which I am acquainted. Growing in large abundant masses, on rocks and banks near the sea, or amongst the dense and gloomy vegetation of the woods, its copious bright-green foliage and large umbels of waxy flowers, often nearly a foot in diameter, have a most striking appearance." Tabs. 13, 14, 15, and 16 are devoted to four *Coprosmas*, and no less than six species are described as inhabiting these islands. Tab. 17. *Trincuron spathulatum*, Hook. fil., a singular little composite plant, which grows on the summits of the mountains; while Tab. 18, *Ceratella rosulata*, Hook. fil., is a no less remarkable plant of the same order and from the same localities, though confined to Campbell's Island. Tab. 19, *Leptinella lanata*, Hook. fil. Tab. 20, *L. plumosa*, Hook. fil. Tab. 21, *Helichrysum prostratum*, Hook. fil. Tabs. 22 and 23, *Pleurophyllum speciosum*, Hook. fil., a name it well merits (Albinea oregenasa, *Hombr. et Jacquinot*). Tabs 24 and 25, *P. cri-
niferum, Hook. fil.; a still more noble species, 5 and 6 feet high, with leaves often 2 feet long and 1 foot wide. It covers a great extent of ground, and forms the larger proportion of the food of the hogs which run wild upon the islands of Lord Auckland’s group. Tabs. 26 and 27, Celmisia vernicosae, assuredly one of the most lovely of all composite plants, with rosetulate leaves looking as if varnished, and flowers having white or pale rose-coloured rays and a deep purple disk, or eye. Tab. 28, a second species of Forstera (Ord. Stylidiceae), and constituting a subgenus, “Helophyllum,” the F. clavigera, Hook. fil. Tab. 29, Pratia arenaria. Tab. 30, Androstoma (nov. gen. of Epaecideae) empetrifolia, Hook. fil. Tabs. 31 and 32, Dracophyllum longifolium, Br., a noble species, with long, narrow, fasciculated leaves, like those of a Monocotyledonous plant, and a stem or trunk from 15 to 25 feet long. Tab. 33, D. scoparium, Hook. fil. Tab. 34, Suttonia divaricata, Hook. fil. (Myrsine divaricata, A. Cunn.) Tab. 35, Gentiania concinna, and 36, G. cerina, two exquisitely beautiful species. Tab. 37, Myosotis capitata, Hook. fil. Tab. 38, M. antarctica, Hook. fil. The well known Veronica decussata of our Gardens, we find changed to V. elliptica, on the authority of Forster’s Herbarium. Tabs. 39 and 40, Veronica Benthami, Hook. fil. (V. finaustrina, Hombr. et Jacquinot), a splendid shrub, with large dark blue flowers, worthy of bearing the name of one who has laboured so successfully in the family of plants to which it belongs. Tab. 41, V. odora, Hook. fil., remarkable for the delicious fragrance of its flowers. Tab. 42, Plantago Aucklandica, Hook fil. Tab. 43, Plantago carnosa, Br. Tabs. 44 and 45, Chrysobactron Rossii, Hook. fil. (Veratrum Dubouzetii, Hombr. et Jacquinot). Since the plate has been known to the author, and finding that Messrs. Hombron and Jacquinot had referred this plant to Melanthaceae, he has been led again to examine its claims to be placed in Veratrum, and he has to remark upon it that “the abortive ovaria of the male flowers, bearing three points or styles, constitute the only ground of resemblance. As, however, in the fertile ovaries, the style is distinctly a solid, elongated column,
never divided, nor even in any of the specimens I have examined, exhibiting three grooves, as in the plate of the Voy. an Pole Sud, I cannot think that character of any weight. On the other hand, the estivation of the perianth, introrse anthers and crustaceous testa to the seed, and the size and form and arrangement of the latter, are all characteristic of Asphodeleæ, while the plant is, in habit and generic affinities, so nearly allied to Bulbinella, Kunth, that I long hesitated whether or not to unite it to that genus. In my more advanced flowers the perianth is invariably deciduous." Tab. 46, Juncus antarc-
ticus, Hook. fil. Tab. 47, Rostkovia gracilis, Hook. fil. Tab. 48, Luxula crinita, Hook. fil. Tab. 49, Oreobolus pecti-
natus, Hook. fil. Tab. 50, Isolepis Aucklandica, Hook. fil. Tab. 51, Uncinia Hookeri, Boott. The three last-mentioned plants, though described in the sixth Part, will not be figured till the succeeding (January) number. The author does not confine himself to bare descriptions of the genera and species, but gives copious remarks on their history, and on their geo-
ographical distribution. Four more Parts will complete the account of the Flora of Lord Auckland’s group and Campbell’s Island. The readers of our Journal need not be told that its pages already contain brief characters of all the Australian Lichens and Hepaticæ, and of the new species of Mosses.

Systema Piperacearum; exquisivit F. A. GUIL. MIQUEL, l vol. 8vo. Rotterdam.

Botanists are infinitely indebted to Dr. Miquel* for what has long been a desideratum, a Monograph of the family of the Peppers. This our author has happily accomplished in one volume, 8vo, which is dedicated to one of the best of men and one of the most distinguished patrons of science, especially of botany, Baron Benjamin Delessert. In the preface, Dr. Miquel acknowledges the numerous sources whence he

* Not Miguel, as printed by an error of the press, at p. 114 of our second volume.
has derived the valuable and extensive materials for his work, and an introduction, showing great learning and research, treats on the history of the family under the following heads:


The *Conspectus Generum* exhibits twenty genera, arranged in two Tribes.

**Tribus prima: PEPEROMIÆ.**


**Tribus altera: PIPERÆ.**


A list of corrigenda et addenda follows, and the work combines with a *Tabula Phytogeographica*, in which the 563 species are enumerated according to countries; from which it results that Europe possesses no one species, Australia, 1-27th; Africa, 1-27th; Asia, 1-5th or 1-6th; America, 3-4ths.

Wherever the genera are extensive, numerous in species, the author has given a *Conspectus Specierum*. The specific characters are drawn up, and the synonyms selected, with much care; the descriptions are full, and so far as we have tested them extremely accurate; and the whole work may be held up as a model for a Monograph. We understand that a Supplement to the volume is preparing, and we have been informed that it is Dr. Miquel’s intention to prepare a History of the Genus *Ficus*, and we trust of the allied genera, on the same excellent model.
Planta Preissianaæ, sive Enumeratio Plantarum quas in Australiæ occidentali et meridionali-occidentali annis 1838-41, collegit Ludovicus Preiss, Ph. Dr.; partim ab aliis partim a se ipso determinatas descriptas illustratas; edidit Christianus Lehmann. vol. 1, fasc. 1. Hamburg, 1844.

The botanical treasures of Western Australia have lately been rendered available to the botanists of Europe by the indefatigable exertions of two distinguished collectors, one a native of Scotland, the other of Germany. Of the former, Mr. James Drummond, whose collections are best known to the British botanist, our pages bear ample testimony to the great extent and value of his discoveries. Of Mr. Preiss, the great circulation of his extensive collections has naturally been upon the continent. Both are sent with numbers, and we hail with peculiar pleasure the appearance of a work which will enable the possessors of both the one and the other collections (seeing they are nearly from the same localities), to determine their species, whether by aid of the numbers (for many of Drummond's numbers, though a very limited proportion of them are here indicated), or by the specific characters and descriptions, which seem to be done with much care and attention. Indeed, the names of the contributors to the determination of the different families are a guarantee for their competent execution; for besides the names given us of the authors of the respective families, published in the first fasciculus, we find that S. Endlicher undertakes the Alismaceæ, Commelinaceæ, Haëmodoraceæ, Irideæ, Liliaceæ, Orchideæ; C. G. Nees ab Esenbeck, the Amaranthaceæ, Chenopodaceæ, Chrysobalanaceæ, Crassulaceæ, Cyperaceæ, Dioscoreæ, Frankeniaceæ, Gentianaceæ, Geraniaceæ, Gramineæ, Haloragaceæ, Hypericaceæ, Laurinceæ, Nyctaginaceæ, Ænotheraceæ, Plantaginaceæ.

* Several equally complete sets have been sent over to the care of the Editor of this Journal; the first series, consisting of 1000 species, and a second series, of 400 additional species, at the price of £2 the 100 species. Two, and only two, sets yet remain undisposed of. (W. J. H. Dec. 1844).
Portulaceae, Primulaceae, Restiaceae, Rosaceae, Solanaceae, Urticaceae; F. A. G. Miquel, the Apocynaceae, Avicenniaceae, Casuarinaceae, Cupressinaceae, Gnetaceae, Loranthaceae, Malvaceae, Olacineae, Santalaceae, Sapindaceae, Zygophyllaceae; E. T. Steudel, the Büttneriaceae, Dilleniaceae, Oxalidaceae, Polygaleae, Ranunculaceae, Rhamnaceae; W. H. de Vriese, the Convolvulaceae, Goodeniaceae; F. T. Bartling, the Caryophyllaceae, Diosmeeae, Labiatae, Myoporineae, Rubiaceae, Scrophularineae, Verbenaceae; Joach.Steetz, the Compositeae, Tremandreae; A. Bunge, the Cruciferae, Stackhausiaceae, Umbelliferae; O. Guili. Sonder, the Epecriddaceae, Stylidae; J. F. Klotzsch, the Euphorbiaceae; G. Kunze, the Filices; E. Fries, the Fungi, Lichenes; E. Meyer, the Junceae; C. F. Meisner, the Mimoseae, Papilionaceae, Polygoneae, Proteaceae; E. Hampe, the Musci; J. C. Schauer, Myrtaceae; A. Putterlich, Pittosporae. The other orders, not now mentioned, are undertaken by the editor, Professor Lehmann.

The first Fasciculus commences with the Leguminosee, which occupy ninety-four pages; then follow Rosaceae, Chrysobalanaceae, Myrtaceae, Haloragaceae, Cenothereae, and part of Oxalidaceae; the Leguminosee and Myrtaceae, as may be expected, filling the greater part of the one hundred and sixty pages. We are glad to see our Macro stigma australis, Ic. Pl., referred to Stylobatum of Desf. under the name of S. lineare; and no doubt correctly so; and placed in Chryso-balanaceae. This name is therefore to be preferred to ours.

We shall look anxiously for the continuation of this important work.

BENTHAM, Botany of the Voyage of H.M.S. Sulphur.

The third and fourth Fasciculi of this valuable work are published; and much as the earlier numbers were entitled to our praise, the present are still more so. There is a manifest improvement in the plates: those in the last number are quite beautiful; and any defect in the preceding ones can
only be attributed to want of experience in lithography on the part of the talented artist, Miss Drake.

In the third Fasciculus, the Californian plants are brought to a conclusion. A new species of *Pedilanthus* is figured, *P. macrocarpus*; and two new *Euphorbiae* are represented, out of eight new ones that are described. Plate 25 is *Moxima canescens*, Benth. *Serophyton* is a new genus of *Euphorbiaceae*, which, besides the Californian species *S. lanceolatum*, is made to include two Texian ones of Mr. Drummond's collections. *S. Drummondi* (Texas, 2nd Coll. n. 245; 3rd Coll. n. 317), and *S. pilosissimum* (Texas, 2nd Coll. n. 263, and 3rd Coll. n. 222). *Eremocarpus* is another new Euphorbiaceous genus founded upon *Croton setigerus*, Hook. Fl. Bor. Am. 2, p. 141, and figured at 26 as *E. setigerus*.

The third portion of this work describes the plants of western tropical America, collected between Mexico and Guayaquil. This is prefaced by some general remarks from the pen of Mr. Hinds. Of this extensive line of country, a very great proportion of the plants collected are well-known species. Among the new ones, figures are given of *Capparis* (Cynophalla) *Sinclairii*, *Triplandron lineatum*, *Ruschia bicolor*, and *Planarium latissilicium*: the three latter are not at present described, but will be so in the ensuing number.

*Synopsis Hepaticarum; auctoribus C. M. Gottsche, J. B.G. Lindenberg et C. G. Nees ab Esenbeck &co., Hamburg, 1844. Fasc. I.*

A work of this kind has long been a desideratum; and whatever may be the opinion regarding the limits of genera and species in the family, there cannot be a doubt, from the names of the authors, that this will prove an important addition to the library of the cryptogamic Botanist. We could have wished the authors had commenced with a table of the
tribes, sub-tribes, and genera; but they have probably found, as we did, in the case of the "Species Filicum," that this is better accomplished at the close than the beginning of so laborious a work, in which our ideas are liable to alter as we proceed. The present number comprises one hundred and forty-four pages, and commences with the first tribe of Hepaticae, the Jungermanniae. The first tribe is, Gymnomitraria, Nees, including the genera,—1. Haplotrichium, Nees; 2. Gymnomitrion, Nees; 3. Acrobolbus, Nees; 4. Sarcomscyphus, Corda; 5. Allicaria, Corda. Sub-tribe II: Celocausles, Nees, including 6. Gottshea, Nees; Sub-tribe III: Jungermannoidææ, Nees, including 7. Plagioschila, Nees et Mont.; Scapania, Lindbg; and 9. Jungermannia, L., which breaks off at the 131st species.

On Azolla and Salvinia, by W. Griffith, Esq.

This is the title of a long and most elaborate and profound Memoir on Azolla and Salvinia, by Mr. Griffith, published in the number for July, 1844, of the Calcutta Journal of Nat. History. To it we must refer our readers; for it would not be easy, within the limits of our notice, to give a summary of the result of the author’s observations. In some degree, however, it is expressed in his character of the family Salvinidæ, Bartl.: “Planta natantas ramosæ. Radices plumose. Folia opposita, pagina supera papillosa. Organa mascula: pili articulati, pedicelli ovuligeri 3 vel filamenta moniliformia partium novellarum. Organa fem.: Ovula atropa (submersa) solitaria v. per paria. Capsula submersa, apicis micropyle notata;—alice (infima cujusque paris vel

* A new genus of Nees, founded upon a plant detected by Mr. Wilson in 1829, near Killarney, Ireland, Jungermannia Wilsonii of Dr. Taylor’s Flora. But we do not find any such plant in the Flora Hibernica, published in 1836, and to which we have reason to know that Dr. Taylor communicated all the native Jungermanniae then known to him.
Flora Rossica; sive Enumeratio Plantarum in totius Imperii Rossici Provinciis Europaeis, Asiaticis et Americanis hucusque observatarum; auctore DR. CAROLO FREDERICO A LEDEBOUR, vol. 2, part 1; Stuttgart, 1844.

We are glad to be able to announce the appearance of the first part of the second volume of this laborious undertaking, of which we gave a brief notice at p. 126 of our last Volume of this Journal. This second volume commences with the Amygdaleae; and the first part closes with Dipsaceae. All the specific characters, and synonyms, and descriptions, are done with great care. Each volume commences with a "Conspectus Generum et Specierum," and at the close of each order are tables divided into three heads: 1. "Ranunculacearum (or whatever the order may be) distributio in Imperio Rossico." 2. "Ranunculacearum Flore Rossicæ distributio quoad durationem." 3. "Tabula comparativa Ranunculacearum Flore Rossicæ et Germanicæ;" and 4, "Tabula comparativa specierum e Ranunculacearum ordine, quæ singulis Flore Rossicæ regionibus cum aliis et cum Germania communes sunt."

The first volume of this charming work is now completed and it is in every respect worthy of the authors. It contains, besides the elaborate maps, one hundred beautifully executed figures of new or little known Oriental plants. We have, in the first volume of the present Journal, p. 147, detailed the motives which induced the noble author to undertake this important publication and in our subsequent volumes is given a brief notice of the contents of the Livraisons as far as Part 10; with the omission of only one part, which had not then come to our hands. We shall now mention the species figured in that portion as well as in the remainder of the volume. Tab. 83, Asperula sherardoides, n. sp. t. 84. Cytisopsis, a new genus, C. dorycniifolia, n. sp. t. 85. This and the three following plates are devoted to some very remarkable forms of the genus Statile; the present one St. Arabica, n. sp. t. 86. St. Bovei, n. sp. t. 87. St. sisymbriifolia, Jaub. et Sp. (St. spicata, Hohen.), with leaves, as the name implies, resembling those of a Sisymbrium; but with denser spikes of flowers, at first sight more like some Valeriana, than a Statile; t. 88. St. plantaginaeflora, n. sp. (St. spicata, Wild. ?), very nearly allied to the preceding; t. 94. St. acerosa, Willd. (not Bieberst.), t. 95. St. lepturoides, Jaub. et Sp. (St. acerosa, Hohen.), t. 96. Ononis Aucherii, n. sp. t. 97. Aristolochia hirta, L. t. 98. A. Botte, n. sp. t. 99. Arist. Aucherii, n. sp. t. 100. Arist. Billardieri, n. sp.

We shall look anxiously for the rarities that are to appear in the second volume.

Heldreich’s dried Plants.

We have much pleasure in giving publicity to the following announcement.
1. Collection de Plantes desséchées de la Morée et de l'Attique.

M. Théodore de Heldreich, jeune botaniste connu par ses voyages en Sicile, et maintenant établi en Grèce, vient d'envoyer à Genève un petit nombre de collections de plantes provenant de la Messénie, de la Laconie, surtout des chaînes du Malévo et du Taygète, où il a passé tout l'été de 1844 ; une faible portion de ces plantes a été récoltée en Attique, dans l'automne de 1843 et au printemps de 1844. Ces collections, séchées avec soin et intelligence, et dont les espèces Méditerranéennes communes ont été exclues, comprennent la plupart des bonnes espèces de ces contrées, décrites soit dans la Flora Græca, soit dans celle de Morée de Bory et Chaubard, et venant représenter dans les herbiers la Flore d'une partie presque inexplorée de l'Europe, combleront ainsi une lacune importante. Les déterminations ont été faites par M. E. Boissier. Le nombre des espèces varie de 400 à 200 d'après le numéro d'ordre des collections. Le prix est de 28 francs par centurie.

S'adresser, franco, à M. Reuter, rue de Coutance, No. 136, à Genève.


M. Théodore de Heldreich se proposant de continuer l'année prochaine ses excursions botaniques et ayant besoin, pour parcourir des contrées plus lointaines, de ressources supérieures à celles dont il a pu disposer jusqu'ici, vient proposer aux botanistes et aux Musées d'histoire naturelle, des actions payables d'avance pour un voyage dans lequel, suivant les circonstances, il explorera Candie ou Chypre, ou le littoral opposé et les montagnes de l'Anatolie, contrées si intéressantes par la richesse de leur végétation et de leur position intermédiaires entre les Flores Européene et Asia-tique. Il récoltera des plantes desséchées et des graines. Chaque action est de 100 francs. Les souscripteurs ne paieront la centurie que 25 francs au lieu de 32, prix auquel elle sera portée pour les non-souscrivants : la priorité pour
The subjects of the present decades were sent to Sir W. J. Hooker, by Mr. Drummond from the Swan River. It will be observed that a large proportion are either entirely new species, or common European forms; the few remaining species are, with scarce an exception, not tropical forms. The collection is very rich in species belonging to the *Lycoperdaceae* and *Podaxineae* group and we have reason to believe that new discoveries will be made in these families. The list of *Agarics* would be much larger had not the notes belonging to many species been lost, and the specimens themselves much corroded by insects. It is certainly the finest collection which has yet been received from Australia, and we have good reason to believe from Mr. Drummond's anxiety to be useful, that we shall be able at some future time to give a far more complete list.


The Swan River specimens are decidedly bulbous at the base, and the gills when fresh, have a slight sulphur tinge.

Ileodictyon gracile

Clathrus cancellatus

Myotroporium pulchrum

Peziza Drummondii (ascus)
Dacrymyces rubro-fuscus

Secotium coarctatum

Secotium melanoperum

Gaster Drummondii

Metremyces Lucidus
Fig. 1

Dacrymyces rubro-fuscus

Secotium cordatum

Secotium melanocarpum

Geaster Drummondii

Metremyces Lucidus

Clathrus pusillus
Clathrus cancellatus.

Peziza Drummondii (ascus)

Mystrosporium pulchrum
On the ground. Much eaten by the smaller marsupial animals.

Pileus 1-6 inches broad convex fleshy, shining, adorned especially in the centre with pyramidal wart-like scales, veil at first rather thick, soon vanishing from the stem and attached to the inflected edge of the pileus. Stem about 1 inch high with a very thick bulbous base which is elongated below into a thick pyramidal root. Gills free or only adnexed, broadish with their interstices smooth, white. Spores white, broadly elliptic when seen from behind, but when viewed laterally the inner side is nearly straight.

A magnificent species which comes near to Ag. Vittadini, Morett.

*A. nudus, Bull. Drumm. n. 128.

22. A. (Tricholoma) muculentus, n. sp.; cæspitosus; pileo convexo subcarnoso umbonato glabro albido, stipiteque subæquali solido viscosissimo; lamellis tenuibus distantibus ventricosis rotundatis dente attenuato a stipite remotis acie integris. Drumm. n. 43.

On the ground amongst moss.

Cæspitose forming small tufts about 1½ inch high. Pileus 1-1½ inch, white, thickly coated with a transparent jelly, convex slightly fleshy, umbonate not scaly. Stem 1-1½ inch high, 1½-2 lines thick, viscid like the pileus nearly equal expanded above solid. Gills ventricose, thin, distant, entire, rounded behind with a narrow tooth and leaving a free space round the top of the stem. Spores subglobose, white.

The colour of the whole when fresh is apparently white. It approaches very near to Ag. mucidus, but that has a strong persistent ring and belongs to the section Armillaria. The habitat too is different.

*A. gikutus, P. Drumm. n. 115.

On the ground amongst little twigs &c., with a branched white mycelium.

Messrs. Tulasne showed me one in a similar state gathered on very sandy ground in France.

23. A. radicatus, Relh. var. superbiens, Berk.; pileo con-
vexo fusco viscidulo; stipite radicato longissimo subcavo intus strigoso, extus præsertim ad basim furfuraceo-velutino, lamellis distantibus adnato-decurrentibus. *Drumm.* n. 119.

Pileus 1 ½-3 inches broad, convex, dark brown (when dry), slightly viscid, smooth, sometimes lobed; stem 5-6 inches high, ½ inch thick, attenuated upwards, minutely furfuraceous especially at the base, rooting deeply. Gills distant adnato-decurrent, yellowish at length orange in dry specimens.

It is possible that this may prove distinct, but if so it is allied to *A. radicans*. The colour of the gills in the largest specimens is nearly that of the hymenium of *Stereum hirsutum* which seems to indicate a specific difference.


On decayed wood.

Gregarious; pileus ½-1 line across, very delicate, hemispheral, smooth, striate, membranaceous, white. Stem about an inch high, flexuous, yellow-brown, farinaceous, attached by a few strigæ. Gills 8-10 white, arcuate, decurrent.

This minute species belongs to the section *Filopodes* of *Mycena*, but there is none with which it can be confounded.

*A. fibula*, Bull. On the ground.


On the stems of sickly but living plants of *Grevillea Drummondii*, Preiss. near the roots.

Fasciculate. Pileus 4 inches across, convex in the centre with the margin plane at first, quite entire and pale, then deeply lobed and gradually passing through various tawny shades into deep brown or black, perfectly smooth, margin involute. Stem 2 inches high, ½ an inch or more thick, solid, perfectly smooth, sometime splitting. Gills narrow, yellow
when dry, very decurrent, quite entire with their interstices even. Spores white.

Allied to Ag. nidiformis, Berk., which is also a phosphorescent species. See vol. 1, p. 215, and vol. 2, p. 173.
*A. atro-caruleus, Fr.—Drumm. n. 131.
*A. applicatus, Batsch.—Drumm. n. 224, 286.
*A. perpusillus, Fr.—Drumm. n. 132.

On dry dung.


On the ground.

Pileus 1-2 inches broad, convex, sometimes umbonate, subcarnose with the margin very thin, varying from bright orange to golden yellow spotted by the volva. Stem 1-2 inches high, 2-3 lines broad, strongly bulbous at the base, slightly dilated above, furnished at the base with an adnate volva whose borders are free of a beautiful cream colour. Gills of the same colour as the stem, moderately broad, but not ventricose, much attenuated behind and leaving a circular space round the top of the stem. Ring none.

The specimens of this species are not so perfect as could be wished, especially as regards the gills, so that I am not absolutely certain as to the colour of the spores, but as far as I can judge from their appearance under the microscope and especially from the circumstance of the gills being remote, I think myself justified in considering it a *Volvaria*. Without the assistance of Mr. Drummond's notes, I should not have ventured to describe it, but the characters are so marked, that there can be no difficulty in recognizing it, and I shall hope shortly to obtain more perfect specimens.

27. A. (Pholiota) allantopus, Berk.; pileo carnoso aureo innato-squamuloso; stipite subtenui basi elongatae bulbosā; annulo fugaci; lamellis ferrugineo-aureis adnatis.—*Drumm. n. 100.*
On the ground.

Pileus 3½ inches broad, fleshy, umbonate, golden yellow with minute innate scales. Stem 4 inches high, 1-3rd of an inch thick above, swelling at the base into an oblong rooting bulb which collects the earth with its fibrillose mycelium after the fashion of a Scleroma, ring fugacious. Gills bright ferruginous-yellow adnate rather broad, spores elliptic, golden-yellow when seen by transmitted light.

This species is closely allied to *Ag. aureus*, but differs very much in the nature of the stem. It is a very noble species.

* A *lanuginosus*, Fr. (non Bull.)—*Drumm.* n. 229.


On rotten wood.

Pileus ½ of an inch broad, convex, subhemispherical, very thin even in the centre, smooth, viscid. Stem ⅔ of an inch, ¼ a line thick, nearly equal fibrillose below, farinaceous above from the remains of the white marginal furfuraceous fugitive veil, clothed at the base with white down which spreads in a round patch over the matrix. Gills argillaceous, rather distant, ventricose, adnate with a slight tooth, margin white, denticulate, spores argillaceous, elliptic. The young plant is perfectly white.

Allied to *Ag. myosotis*.


On bark.

Pileus 2 lines broad, attached at the vertex by a little down, convex not at all striate, tawny ochre, densely pruinose. Stem obsolete, or if present extremely short and pruinose like the pileus. Gills broad, ochraceous, bordered with a pruinose white edge. Spores elliptic with a large nucleus, flat when dry.

There are several other Agarics in the collection, some of which are probably new, but which do not admit of being determined without notes.

*Bolbitius fragilis*, Fr.—*Drumm.* n. 118.

On dung.


On the ground.

Of this well-known species Mr. Drummond finds two varieties which he names maximus and varius. The former of these, which even in middle sized specimens attains the diameter of a foot, is found in poor clay land in the white gum forests. The stem is about two inches thick and very short; the cuticle thick and tough and projecting over the gills and forming a distinct border. The gills are whitish with a tinge of rose colour, turning to deep rose colour, when bruised and the flesh when exposed to air changes to deep rose colour. It is said to be as much superior to the common form as Knights Marrow Fat Pea is to the Hotspur.

The other variety is much smaller and is covered with a delicate iron-red scaly cuticle, with a purplish tinge, but so thin that the flesh appears white through it. The gills are of a beautiful rose-colour, cream-colour, or white, scarcely two individuals being found alike; it grows under the York gum trees.

The cultivated plant, Mr. Drummond writes, was introduced into the colony, and soon became naturalized about Perth. It may be indigenous in Western Australia, but in ninety-nine places out of a hundred where it is now found, he has no doubt it is introduced, being carried from farm to farm by the domestic animals.

"Few orders of plants," says Mr. Drummond, "appear to contribute more to the support of animal life than the Fungi in Western Australia. Many species, particularly of
the genus *Boletus*, are used as food by the natives, and directly supply no inconsiderable portion of their support for several months in the year; but since I began to make my collection with the intention of sending them to you, I have often been surprised at the large number of fungi that are eaten by almost the whole of the marsupial animals. Of many species, I am satisfied that scarce a hundredth part escapes them; so assiduous are they in watching them, that of several sorts which are common in the ground, they rarely allow one to appear above the surface. They are directed to them apparently by smell and the cracking of the ground over them, and dig them up and devour them, leaving only some fragments to tell where they grew, and several of our fungi I only know from fragments seen of them in that way.

"The most delicious of our *Fungi* for the table is a plant nearly allied to *Boletus*, but the pores instead of being placed side by side, on the under side of the pileus, run in all directions through the mass, at least through that part of it which is elevated on a stem. The whole plant is white, the lower part farinaceous like a mealy potato; the shape of the upper part is irregular, generally angular uneven above. It is common in a particular sort of land, but it is so eagerly sought by the fungivorous animals, that it was with great difficulty I could procure a few specimens. The only thing which generally remains to show where they have dug it up and eaten it, is a little of the white powdery part."

Unfortunately, no specimens of this species arrived; but if a fragment, which I picked out from some other fungi, belong to it, it should seem to be a species of *Secotium* with the spores similar to those of *Secotium Gueinzi*, Kze.

30. *Cortinarius* (Myxacium) *erythreae*, n. sp., parvus sanguineus; pileo convexo glabro stipiteque brevi viscoso; lamellis adnexus ventricosis; mycelio flavo.—*Drumm*. n. 112.

On the ground.

Pileus 1-1½ inch broad, blood red, clothed with a thick gelatinous coat, smooth, often lobed; veil consisting of strong
fibres, covered with a mucous coat. Stem $\frac{4}{4}$ of an inch high, 2 lines thick, slimy, like the pileus; root and mycelium yellow; gills ventricose, adnexed. Spores of a red ochre.

31. Paxillus Eucalyptorum, n. sp.; cæspitosus pileo convexo carnoso compacto flavo-fusco; stipite deorsum attenuato transversim squamuloso; lamellis distantibus decurrentibus flavis; sporis elongatis.—Drumm. n. 111.

Under the York gum trees.

Cæspitose. Pileus 3-9 inches across, yellow brown, convex, very thick and fleshy, compact, with a very minute, mealy pubescence, especially near the margin. Stem 2$\frac{1}{4}$ inches high, 4 of an inch thick above, attenuated below, marked with flat, minute, transverse scales. Mycelium white, reticulate. Gills of a fine yellow, thick, scarcely at all ventricose, slightly decurrent, sparingly forked, separating from the pileus. Spores large, oblong, colourless, at least when dry. Antheridia conical, giving the gills a pubescent appearance.

32. Cantharellus viscosus, n. sp.; pulcherrime flavus; pileo infundibuliformi repando subundulato viscoso; stipite deorsum attenuato flavo-pruinoso; plicis lamelliformibus furcatis decurrentibus; sporis laete ochraceis.—Drumm. n. 114.

On the ground, amongst little twigs, &c.

Whole plant of a beautiful yellow. Pileus 1$\frac{1}{4}$ inch across, infundibuliform with the margin, repand, subcarnose. Stem 1 inch high, gradually increasing towards the part where the gills are given off, where it is 1-3rd of an inch thick, attached by a white anastomosing mycelium to twigs, &c., covered above with yellow meal. Folds decurrent, gill-like, but rather thick forked. Spores of a bright ochre, oblique under the microscope, of a beautiful golden yellow.

A very beautiful species, of which I have seen only a single specimen, accompanied fortunately by notes. It agrees in the colour of its spores with Cortinarius, but is distinguished at once by its thick, lamellar processes. I do not know any
species of *Cantharellus* allied to it. The habit is that of *C. cibarius* and *aurantiacus*.


In this variety the hairs of the pileus are more distinctly fasciculate, the gills almost uniform in colour, and there is no trace of the peculiar band at their base. In other respects the specimens agree, and certainly indicate only a single species.

* Schizophyllum commune, Fr. — Drumm. n. 280, (in part).

33. Boletus *marginatus*, Drumm. mss; pileo convexo compacto subtiliter velutino margine tenui ab hymenio discreto involuto; stipite brevi turbinato-tuberoso subradicato nigro non reticulato subvelutino; tubulis libris fuscis intus pallidis; sporis subrotundis pallide ferrugineis.—Drumm. n. 155.

On the ground, but rare.

Pileus 5 inches across, convex, very fleshy, compact, black, with a fine velvety down, which is of a golden brown under the microscope, furnished at the edge with a thin, almost membranous border, distinct from the hymenium and involute. Stem 1½ inch high and thick, very much swollen, and incrassated from its commencement, rooting, black and velvety like the pileus, not at all reticulate. Pores brown, without pale, within free, not in the least decurrent. Spores broadly elliptic, very pale, ferruginous.

34. Boletus *alliciens*, Berk.; pileo glabro luteo viscoso; carne fractâ caeruleâ; stipite subtiliter tomentoso deorum incassato; non reticulato; tubulis flavis irregularibus adnexis.—Drumm. n. 156.

On the ground, called by the natives Woorda.

Pileus 2½ inches across, convex, fleshy, smooth, slimy, yellow.—Stem 1½ inch high, ½-1 inch thick, minutely tomentose, not in the least reticulated. Pores yellow, irregular, adnexed, so that the cavity of those nearest to the stem is exposed. Spores pale, oblong. Distinguished at once by its
slimy surface and changeable flesh.—It is much esteemed by the natives as an article of food.

35. Polyporus (Mesopus) oblectans, n. sp.; pileo tenui coriaceo depredo inciso repando centro presertim zonato, strigoso-striato nitidulo late cinnamomeo; stipite centrali velutino rubro-fusco; poris parvis dentatis cinnamomeis.—Drumm. n. 157.

On sandy ground.

Pileus 1½ inch across, deeply depressed, with the margin spreading and laciniated, thin, coriaceous, rough, with linear radiating, somewhat strigose, bundles of flocci more or less zoned, especially in the centre, slightly shining, of a rich cinnamon brown, except in the centre, where it is frequently cinerous; sometimes crested with flat, laciniate processes, or laterally confluent. Stem central, about 1 inch high, 1-2 lines thick, clothed with a rich, red-brown velvety pubescence. Pores small, very irregular, and jagged, with thin dissepiments, often very shallow, or quite obsolete towards the margin, of the same colour with the pileus.

This species resembles Pol. perennis, but differs in its bright colour, more flexible substance, and in the peculiar appearance of the pileus. It is also very near to P. cinereus, which has however much larger pores, as well as being of a duller tint. It accords with P. Montagnei in this latter respect, but that is a much smoother and neater species.

36. P. (Mesopus) Cladonia, n. sp. minuta; pileo cyathiformi tenuissimo fasciculato-tomentoso fulvo-cinnamomeo demum glabrescente nitido negro; stipite sursum incrassato velutino. Hymenio tarde evoluto; poris brevibus irregularibus.—Drumm. n. 220.

On common soil.

Pileus ½-¾ an inch across, cyathiform, very thin, of a tawny cinnamon fasciculato-tomentose, at length becoming perfectly smooth, black, shining, and zoned. Stem ½ an inch high, gradually swelling upwards into the pileus, and of the same colour with it. Hymenium for a long time barren, and of the same colour with the stem; pores small, shallow, irregular.
This agrees in many respects with *P. oblectans*, but perfect specimens are scarce; an inch in diameter, and there is a peculiar habit about the species like that of Cantharellus sinosus. The colour of the stem also is different, and the whole plant much more delicate. It changes when old very much, and becomes black, like many *Agaricus*. The name is intended to indicate its resemblance when young to some of the cupbearing lichens.

*P. gilvus*, Schwein.—*Drumm.* n. 247, 278.


In Mr. Drummond's specimens the hairs are collected into short setiform processes. The species is very closely connected with *P. gilvus*. This is not the only instance in which Uitenhage species occur in Australia.


Pileus innate-squamulose at first minutely velvety. A single specimen only found on the flooded gum.

37. *P. (Apus) demissus*, n. sp.; pileis imbricatis cucullatis suberosis dependentibus spongioso-tomentosis pallidis postice flavis fulvis; hymenio demum griseo-fusco margine sterili; poris subrotundis, acie albis subobtusis.—*Drumm.* n. 150.

On decayed partly charred wood.

Pilei imbricati ¼ an inch long, 1 inch broad, effused behind, arched, with the neck inclined or even vertical, cory, clothed with spongy down, which is sometimes disposed in little hispid fascicles, pale ochre in front, behind yellow or tawny. Hymenium not at all visible externally, grey brown, not extending to the extreme margin, sometimes of a pale reddish tinge behind; pores suborbicular, minute, irregular; edge obtuse, white.

This species is sometimes quite resupinate, and the pores have no grey tinge, but are just of the same colour as those of *Pol. ulmarius*.

Allied to *Pol. adustus*, but different from any state I have seen of that variable species.

This species makes tinder without any preparation.


Bursting through the bark of decayed branches.

Pileus 1½ inch broad and long, angulate, corky, at first minutely tomentose, but soon nearly smooth, with four or five convex zones, whitish ochre, rather tawny in the older portion; margin obtuse, barren. Hymenium flat or slightly convex; pores small, round, with obtuse dissepiments, as if pricked with a pin, rather darker than the pileus, yellowish within, sometimes slightly angular, arranged regularly in quincunxes, stratose. Substance white.

There is a strange resemblance between this species and the Philippine P. ochreo-laccatus, Mont., but not only does it want the laccate coat, but the substance of the pileus is white instead of brown. It is curious that, as in that species, the orifices of the pores are often blocked up. I cannot point out any species to which it is really very closely allied, but it will take its place near Pol. marginatus.

39. P. (Apus) compressus, n. sp.; minor, oblique compresso-ungulatus; pileo zonato lineato-rugoso primum albido-fulvo demum brunneo-nigra; contextu angustissimo albido; hymenio obliquo albo; poris stratosis parvis punctiformibus subintegris.—Drumm. n. 141.

On hard dead wood.

Pileus 1 inch broad, ½ inch long, hard, obliquely ungulate and compressed at first, of a tawny white and occasionally slightly tomentose, passing through different shades of brown to black, zoned, marked with raised rugged lines, paler towards the margin. Substance whitish, extremely thin. Mycelium white, penetrating deeply into the wood. Hymenium for the most part extremely oblique, so that the pileus and hymenium are almost in the same plane white. Pores stratose, 1-100th of an inch in diameter, forming almost the
whole substance of the pileus, whitish, wood-coloured within, punctiform; disseipments obtuse, nearly entire. In a very young state there is probably a slight silky appearance.

Allied to the foregoing species and to Pol. annosus also, but on a much smaller scale.


On gum-trees and manna-trees; much preyed on by the larva of a small moth.

Pileus 3-4 inches broad, 1½-2½ inches long, 2-4 inches high, very hard and slow of growth, zoned, the older portions much cracked, brown and scabrous, the border of a pretty cinnamon, elegantly marked with silky lines, with the edge acute, but in old specimens occasionally very obtuse. Pores rhubarb-coloured, small, irregular, their edge velvety. Substance ferruginous.

This I formerly considered as a variety of Pol. igniarius, but perfect specimens before me do not confirm this notion. The pores are larger, and the whole aspect of perfect specimens very different. In old specimens a very thin stratum is deposited every year.

* P. igniarius, Fr. Drumm. n. 143, 146.

On the Mangart living to a great age, and on the Man- glesia Drummondii.

Mr. Drummond considers the two forms indicated by the above numbers as distinct though closely allied, but I can see no distinctive marks in the specimens before me.

41. P. gryphaeaformis, n. sp.; durissimus; pileo hemi- sphericco-conchæformi cinnamomeo; margine subtenui lineato- rugoso badio; hymenio concavo porisque minutis stratosis badiis intus rhabarbarimis.—Drumm. n. 149.

Pileus 5 inches in diameter, 2½ inches high, nearly hemi- spherical conchæform, attached by the convex vertex, and
marked with patches of the rhubarb-coloured mycelium; margin alone free, obscurely zoned, rather thin and acute, bay marked with linear wrinkles. Hymenium extremely concave, bay; pores minute, stratose, forming indeed the whole mass of the pileus, rhubarb-coloured within. The growth of this species is extremely slow, a very thin layer only being deposited annually, which barely reaches the margin.

This species was not gathered by Mr. Drummond himself, but brought to him by a native on account of its curious form, which is like that of some large Gryphaea or Productus. The specimen, indeed, resembles much in form the upper fig. tab. 321 of Productus personatus in Sowerby’s Mineral Conchology. It is allied to Pol. igniarius.

P. cinnabarinus. Fr.—Drumm. n. 148.

* P. Feei, Fr. Pol. lilacino-gilvus, Berk. — Drumm. n. 147.

This species, like many others, varies extremely as regards the surface of the pileus, which in some specimens is nearly smooth, in others, clothed with a spongy coat. I therefore refer the Australian plant to P. Feei, of which I have a specimen from M. Fée’s herbarium.

42. P. (Apus) venustus, n. sp.; pileo reflexo coriaceo zonato albido; zonis obscurioribus; antice fasciculato-tomentoso hispidulo, postice subcalvescente, margine subfusco; hymenio purpureo; poris mediis variis, dissepimentis tenuibus laciniatis.—Drumm. n. 135.

On dead wood of some Conifera or allied family, probably Casuarina.

Forming elongated patches, consisting of numerous, often imbricated individuals, attached laterally and effused behind, with the margin broadly reflected or entirely resupinate; pileus thin, coriaceous, dirty white, with a few dark zones gradually becoming smooth behind, in front clothed with fasciculate down slightly hispid; extreme margin brown. Hymenium of a beautiful purple when fresh, purple-brown when dry; pores about 1-30th of an inch in diam.; disse-
piments thin, laciniate, often breaking up into fine lamelliform processes.

Allied to Pol. abietinus, but at once distinguished by its far larger pores, which break up into lamelliform plates, so as to present the appearance of a Deodalea, and the different aspect of the pileus. It is also nearly allied to P. Menandianus, Mont., pergameneus, Fr., arcticus, Fr., laceratus, Berk.; but it is on a larger scale than any of these. Individuals occur in which the zones are scarcely visible, and the whole aspect of the pileus different, but they have evidently been affected by some external causes.

* P. ferruginosus, Fr.

On dead wood.

43. P. (Resupinatus) tardus, n. sp. albus; mycelio ceraceo corticiiformi, margine angusto tomentoso; poris tarde evolutis parvis integerrimis.—Drumm. n. 130.

On dead wood.

At first resembling Corticium molle, at length producing pores, and forming large patches with a narrow tomentose margin; orifices of the pores, which are about 1-100th of an inch in diam., quite entire, rather obtuse. The hymenium is at first white, but in drying assumes an ochraceous tint.

This species, if the pores were not well-developed, would almost belong to Merulius. It is a very distinct species, but difficult to characterise in words.

* P. vaporarius, Fr.—Drumm. n. 136.

On dead wood.

Two other allied forms occur on dead wood; one, n. 137, which changes very little in drying, but has no other prominent character though possibly distinct; and another, without any number, on very rotten wood, which has the pores precisely like those of P. vaporarius, but scattered in patches, the interstices having a peculiar glistening appearance, as if powdered with some kind of secula. This under the microscope is found to consist of innumerable crystals, and possibly may be entirely independent of the fungus.
* Trametes Pini, Fr.—Drumm. n. 145.
Some of the smaller specimens are regularly zoned.
44. Hexagonia decipiens, n. sp.; pileo horizontali duro suberoso plus minus zonato rufo-fusco velutino margine quandoque ferrugineo: hymenio griseo-brunneo, poris mediis irregularibus, dissepimentis crassiusculis.—Drumm. No. 151, 152.

On Casuarina, penetrating through the bark.
Pileus \( \frac{1}{4} \) of an inch long, 1\( \frac{1}{2} \) inch broad, hard, corky, horizontal, sometimes much effused at the base, with either about three equal convex zones, clothed with a rich, red-brown, velvety pile, or with many zones, in which case either the whole pileus or the margin is ferruginous; mycelium and substance ferruginous, but where it enters the matrix nearly white. Hymenium horizontal, greyish brown; pores 1-30 of an inch in diam., irregular; dissepiments rather thick.

Some specimens are perfectly resupinate, in which case the pores are far wider, and sometimes there are pores on the pileus 2 or 3 lines broad, probably from the specimens having been accidentally reversed. This is one among the many instances which show how necessary it is to have Polypori in various stages of growth. In the present case those specimens which have grown slowly could scarcely be determined, from the specific character drawn up from the few zoned individuals, though the relation is evident at once to the eye.

* H. Gunni, Berk.—Drumm. n. 153.
On flooded gums. A rare species.
* Merulius Corium, Fr. Drumm. n. 249.
* M. lacrymans, Schum.—Drumm. n. 269.
On decayed wood.
45. Hydnum investiens, n. sp.; totum resupinatum, latisime expansum, subiculo primum tomentoso, demum compacto glabro; aculeis mediis compressis acutis penicillatisque.
—Drumm. n. 138.
Lining the inside of decayed "Black-boys."
Subiculum rather thick, at first white, tomentose, consist-
ing of loosely interwoven, cottony threads, at length more compact and smooth. Aculei \( \frac{4}{4}-1 \) line long, compressed, sometimes very acute, sometimes very obtuse and obscurely penicillate, of a pale ochre.

This species resembles somewhat resupinate forms of H. ochraceum; it has, however, the habit of H. farinaceum, but the aculei are much larger. In one specimen the aculei are much elongated, darker, and extremely acute. "It grows," says Mr. Drummond, "inside of decaying trunks of Black-boy. The outer crust of the Black-boy, charred as it always is and cemented together with gum, affords little nourishment to any vegetable, but the pith is of a different description. The fungus arranges itself inside of the outer covering, but receives its nourishment from the pith. Where it grows it is entirely in the dark."

46. H. dispersum, n. sp.; totum resupinatum; subiculo tenui ceraceo demum evanescente; aculeis mediis basi fasciculatis compressis apicibus subulatis.—Drumm. n. 207.

On very decayed wood.

Forming long patches. Subiculum very thin, ceraceous, but frequently obsolete or entirely evanescent. Aculei fasciculate at the base, compressed, subulate above, about \( \frac{4}{4} \) a line long, tawny when dry, but probably white and transparent when fresh.

It appears to be a very distinct species. The aculei follow the lines of the cellular tissue of the wood, and form more or less distinct rows. Hence it has somewhat the habit of an Irpex.

47. H. Isidioides, n. sp.; totum resupinatum subiculo crustaceo albo margine sublimbriato è matrice frustulatim separabili; aculeis brevibus obtusis primum distinctis, dein confluentibus.—Drumm. n. 149.

On the Hymenium of Pol. gryphaeiformis.

Forming a thin crustaceous stratum about 4 inches across, cracking only where the matrix cracks, and separable in small fragments, especially towards the centre. Aculei short, cylindrical, obtuse, at first scattered, at length crowded. This
species at first somewhat resembles *Polyporus vaporarius*, but it is a true *Hydnum*, and very distinct, though difficult to define in words.

* Thelephora *caryophyllea*, Fr.—*Drumm.* n. 200.

48. Stereum *illudens*, n. sp.; coriaceum subrigidum, pileo effuso reflexoque zonato radiato-plicato hirsuto spadiceo, hymenio lævi glabro carneo rufo.—*Drumm.* n. 158.

On sticks, &c. Common.

Pileus effused behind, with the margin reflected, about 1 inch long and several inches in breadth from the confluence of many individuals. Coriaceous, rather rigid zoned clothed with a short hairy pile, often plicate in young specimens, of a rich brown, becoming grey in the older parts, or when the outer coat has vanished dark brown. Hymenium cracked, smooth, reddish-brown, with frequently a flesh-coloured bloom.

This species is intermediate between *S. purpureum* and *S. spadiceum*, but is distinct from either. The hymenium is nearly of the same colour with that of *S. quercinum* with a beautiful flesh-coloured bloom.

* *S. purpureum*, Fr.—*Drumm.* n. 281.
* *S. hirsutum*, Fr.—*Drumm.* n. 159, 208.
* *S. rubiginosum*, Fr.—*Drumm.* n. 161.

49. Auricularia *minuta*, n. sp.; gregaria; pileis minutis effuso-reflexis lobatis; extus fulvo-umbrinis hispidulis; hymenio lævi flavo-griseo.—*Drumm.* n. 163.

On dead sticks.

Pilei 3 lines broad, effused behind, with the lobed convex border reflected, tawny umber, zoned clothed with short, hispid pubescence. Hymenium smooth, pruinose, of a yellowish grey, frequently proliferous. It is only in perfect specimens that the zones are visible. This is a minute and obscure species, but cannot be confounded with others. The specimens, though so small have passed through every stage of growth. In age it becomes bleached.

50. Corticium *radicale*, n. sp.; pileo crassiusculo intus
albo reflexo plano strigoso albido-fulvo; hymenio glabro rimosulo pallidé fulvo demum fusco; margine sterili tomentoso.—Drumm. n. 162.

At the base of living shrubs.

Pileus $\frac{3}{4}$ of an inch long, 1½ inch broad, effused at the base, and surrounding the matrix, broadly reflected above, clothed with fasciculate, tawny, strigose hairs; substance rather thick, white margin slightly lobed, thin. Hymenium minutely cracked, tawny when fresh, pale brown when dry; not extending to the edge, which is pale and tomentose.

A very distinct species from any with which I am acquainted.

51. C. vinosum, n. sp.; resupinatum vel breviter reflexum purpureo-fuscum tenue, medio rimoso-areolatum subtiliter setulosum: margine pallidiore angusto velutino.—Drumm. n. 160.

On bark.

Forming broad confluent patches many inches long and broad, when fresh of a dark claret-purple, purple brown when dry; generally altogether resupinate, but occasionally slightly reflected, with the free surface grey and fasciate, thin, but partially separable from the matrix, much cracked in the centre, and exposing in the cracks the pallid internal stratum, clothed with very fine minute bristles; margin waved, velvety pale, scarcely byssoid.

This species, which is apparently quite new, resembles somewhat the resupinate forms of Thel. rubiginosa. The matrix is deeply penetrated and decomposed by the pale mycelium.

* C. incarnatum, Fr. Drumm.

* C comedens, Fr.

52. Guepinia Pezizaformis, n. sp.; minuta, miniata; stipe brevi velutino: hymenio oblique cupulæformi parce rugoso... Drumm. n. 205.

On dead sticks.

Plant of a beautiful orange red, 1½ line high; stem short; pileus lateral externally as well as the stem minutely velvety;
hymenium obliquely cup-shaped, slightly lobed, sparingly wrinkled and pitted within. Spores oblong, sometimes curved.

A very distinct species, with the habit of a *Peziza*, but a most decided *Guepinia*.

53. Clavaria setulosa, n. sp.; ochracea, pusilla, stipite brevi irregulariter diviso; ramis compressis furcatis obtusis vel flabellatis pubescentibus.—*Drumm*. n. 199.

On the ground.

About 1 inch high. Stem short and indistinct, compressed with two or three irregular main divisions, and again forked or flabellate, with the tops obtuse; ochraceous, clothed with patent, scattered, hispid pubescence, which under a lens is found to consist of little bundles of filaments, which are compact at the base, but penicillate above.

In habit it resembles *Clavaria pratensis*.

*C. Botrytis*, P.—*Drumm*. n. 197.

54. Calocera *Guepiniodes*, n. sp.; pusilla, erumpens, variabilis, stipite compresso, sursum palmato.—*Drumm*. n. 204.

On rotten wood.

Bursting forth from the decayed wood, in which it makes a little round hole. Stem compressed, divided above in a palmate manner, with a few very short obtuse branches, and those of a red-brown; or divided at once into two or three spathulate branches, which are yellowish and the stem very dark.

These two forms, however different at first sight, belong to one species. There is a state exactly intermediate. The resemblance of the second especially to *Guepinia* is very great; but the hymenium goes quite round the branches, and there is no velvety down.

* Tremella mesenterica, Retz.—*Drumm*. n. 193.

* T. foliacea, P.—*Drumm*. n. 93.


55. Dacrymyces rubro-fuscus, n. sp.; pusillus rubro-fuscus; stromate sinuato gyroso; sporis magnis globosis ovalibus.
simplicibus vel uni-biseptatis (Tab. 1, f. 1.)—Drumm. n. 212, n. 225 (in part).

On decayed branches, either on the wood itself or growing from some Sphaeria.

Stroma scarce 1 line high, of a rich red-brown when moist, black when dry: flocci slender, short, very sparingly branched; spores globose or oval, often distorted, simple or with a single transverse septum, and sometimes one of the cells is divided by a vertical septum.

Allied to D. moriformis, in which also the spores are large, more or less globose, and either really or spuriously septate.


56. Secotium melanosporum. n. sp.; pileo irregulari sub-globoso umbilicato; primitus infra furfuraceo, superne glabro; margine rotundato; velo appendiculato marginali; stipite elongato subaequali; hymenio stipite percurso; sporis nigris. (Tab. I. f. 2.)—Drumm. n. 180.

On the ground.

Growing in clusters. Pileus 2-3 inches or more in diameter, subglobose, umbilicate at first, sparingly furfuraceous except at the apex, margin very obtuse and rounded; veil attached in laciniate fragments to the margin. Stem 2-2½ inches high ½-½ an inch thick, solid, passing completely through the hymenium, which forms the whole mass of the pileus, exhibiting on the base traces of the volva-like veil. Spores minute, obliquely ovate when seen laterally, furnished with an extremely short peduncle, of a dark-chocolate brown. In the largest specimen, towards the top of the stem within, are two little cavities which exhibit traces of an hymenium. These, however, do not appear to be constant.

This species agrees with S. erythrocephalum, Tul., in the dark-coloured spores; but it is a much larger and coarser species.

Tab. I. f. Secotium melanosporum; nat. size.—a spores; highly magnified.
57. *S. coarctatum*, n. sp.; minutum. oolidum; pileo obovato umbilicato, margine acuto coarctato; velo marginali lacerato appendiculato; stipite gracili; hymenio stipite percurso; sporis ochraceis minutis demum cinereis. (Tab. II. f. 3)—Drumm. n. 181.

On the ground.

Pileus ¼ of an inch broad, ¼ an inch high, obovate, umbilicate, much constricted below, and pressed to the stem; margin acute; veil marginal, appendiculate. Stem ¼ of an inch high, scarce a line thick, solid, passing completely through the mass of the hymenium, expanding above. Hymenium pressed close to the stem, but unconnected with it except above, lined with a delicate silky stratum. Spores minute, obovate with a globose nucleus, and a very obscure peduncle, at first ochraceous, at length cinereous.


A third species apparently of this curious genus is found in the Swan River district, and is considered a great delicacy for the table. Of this I have seen no perfect specimen. If a little fragment which occurred among other fungi belongs to it, the spores (as mentioned above) agree in form with those of *S. Gueinzii*; and from a rough sketch sent by Mr. Drummond, it must differ very greatly from the other species; but in the uncertainty whether the fragment alluded to really belongs to it, I do not venture to describe or name it. There is also a fragment of what appears to be a species of *Hymenogaster*, with oblong yellowish spores. It occurred amongst some duplicates, without any indication or notice whatever, and I am therefore obliged to wait for further information.

*Geaster striatus*, D.—Drumm. n. 173.

On the ground. A very large variety.

*G. minimus*, Schwein.—Drumm. n. 175.

58. *G. Drummondii*, n. sp.; peridio exteriori simplici rigido explanato multipartito intus brunneo; laciniiis squalibus; interiori sessili, disco plano, ore conico plicato. (Tab I. f. 4).

On the ground.
Exterior peridium rigid, multipartite, lined with a dark-brown smooth coat. Divisions about 8, mostly equal acute. Interior peridium perfectly sessile, very minutely scabrous, pale; disc plane, aperture conical, plicate. Capillitium and spores brown.

This species differs from G. umbilicatus in its rigid outer peridium, larger spores, and the disc of the aperture not being so decidedly umbilicate. It is more nearly allied to G. ambiguus, Mont.; but in that the outer peridium is not equally divided, and the lining of it thicker and pale. It agrees with it in the size of the spores. The peridium of G. ambiguus, in the only specimen which I possess, is very scabrous. I have no doubt, from a series of specimens which I have seen in Dr. Montague’s herbarium, of the distinctness of the two species, though it is difficult to indicate the exact differences. It is a small species, scarcely exceeding an inch in diameter when expanded.

Tab I. f. 4. Geaster Drummondi; nat. size.

*G. rufescens, P.—Drumm. n. 174.

At once distinguished from G. hygrometricus by its smooth, minute spores.

59. Bovista lilacina, Mont. and Berk.; turbinata subtus plicata primum pallide ochracea demum subilacina; capillitio sporisque lilacinis.—Drumm. n. 167.

On the ground.

Turbinate 2½ inches in diameter, plicate below, smooth; at first cream-coloured, but gradually acquiring a pale lilac tinge; outer coat very thin; inner at first firm; apex at length expanding and lobed, exposing the elliptic lilac capillitium and minute, globose, smooth spores, which at length vanish, and leave a Pezizæform base. The cells are not persistent in this species as in the genus Hippoperdon. In an early stage of growth a section of this species resembles very much Lycoperdon caelatum. The stem is hollowed out into little sinuous cavities, but those which are destined to be fertile form a distinct elliptic mass. In some specimens the stem is very decided, in others almost obsolete.

On the ground.

In an early stage of growth the whole internal mass to the very base is formed of little sinuous cavities, which do not exhibit the least trace, as far as I can find, of the threads which are so peculiar in a later stage of growth. The European species appears to be figured by Sterbeeck, tab. 28, D.

* Lycoperdon gemmatum, Fr. Drumm. n. 172, 250.
* Tulostoma fimbriatum, Fr.—Drumm. n. 179.
* Scleroderma geaster, Fr.—Drumm. n. 168.
* S. vulgare, Fr.—Drumm. 169.
* Polysaccum Pisocarpium, Fr.—Drumm. n. 170.
* P. crassipes, Dec.

Var. australis.—Drumm. n. 171 (in part).

This agrees in every respect with European specimens, except that the spores are paler, with a slight tinge of yellow. It is equally variable in form, the stem being sometimes nearly obsolete. It is possible that it may be a distinct species, but the only difference visible in the dried specimens is that just mentioned, and that may depend on extraneous circumstances.

* P. turgidum, Fr.—Drumm. n. 171 (in part).

On the ground with the last.

Distinguished by the stem being divided at the base and the brown spores.

61. Mitremyces luridus, n. sp.; pusillus subsessilis; peridio externo subsessili, ore nigro. (Tab. I. f. 5).—Drumm. n. 182.

On sandy soil.

Outer peridium globose 1-3rd of an inch in diameter, of a dingy yellow brown, scabrous, with small black scattered granules, supported by a short, black, anastomosing mass of tendon-like bodies, which collect the grains of sand amongst which it grows. Aperture with about 4 or 5 teeth, which are not coloured as in the other species. Inner peridium
pale yellow, or sometimes pure white. Spores elliptic with one or two nuclei, mixed with a few filaments.

Resembling much Mitremyces fuscus, Berk. a Tasmanian species. It is, however, very much smaller, and bears nearly the same relation to it that M. Junghunii does to M. lutescens. The teeth have not, as in the other species, the slightest tint of cinnabar.

Tab. I. f. 5. Mitremyces luridens; nat. size.—a. Section showing the internal sac, still full of spores: magnified.—b. Spores and flocci; highly magnified.


On charred wood.

62. Didymium scrobiculatum, n. sp.; sessile subconfluent difforme; peridii compressis albis scrobiculatis subsurfuraceis; floccis albis, sporis compactis nigris.—Drumm. n. 263.

On the charred surface of "Black-boys."

Forming little scattered tufts, peridia when solitary sub-globose, but more frequently crowded, though not densely, compressed and irregular, sessile, but not adnate, wrinkled, white slightly furfuraceous; flocci membranous, white, spores globose, compact, jet-black; columella wanting.

Allied to Didymium cinerum, but far less adnate. Indeed there is occasionally a spurious attempt at a stem. Sometimes the surface is covered with raised dots rather than wrinkles.

* Physarum nutans, P.—Drumm. n. 282 (in part).

63. P. flavicomum, n. sp.; peridio cernuo subitus umbilicatis tenuissimo iridescenti; floccis anastomosantibus juncturis triangularibus sporisque globosis luteis stipite gracili apice attenuato fusco.—Drumm. n. 208 in part).

On very decayed wood.

Gregarious. Peridia very broadly umbilicate beneath, extremely delicate and evanescent, especially above, iridescent. Capillitium attached to the lower part of the pileus, without any trace of columella, forming a loose, yellow network, with the points of juncture frequently triangular.
Spores globose, yellow. Stem attenuated upwards, very slender where it gives off the peridium.

A very elegant species, remarkable for its yellow flocci.

* Craterium pedunculatum, Trent.—Drumm. n. 259.

On decayed leaves.

* Stemonitis funca, Roth.—Drumm. n. 209, 272 (in part).

* Arcyria incarnata, P.—Drumm. n. 282 (in part).

64. Licea appianata, n. sp.; conglomerata, peridiis brevissimis arcte connatis rufis; sporis magnis crocatis.—Drumm. n. 188.

On dead sticks.

Forming roundish patches which are scarlet when young, but of a bright liver brown when mature, consisting of minute very short crowded peridia, invisible to the naked eye, which contain saffron-coloured spores, intermixed with a few filaments; spores globose, much larger than in L. fragiformis and cylindrica.

* Cyathus vernicosus, Dec.—Drumm. n. 228.

On rotten wood.

64. Clathrus pusillus, n. sp.; pusillus, elongato-obovatus, columnis præcipue ad apicem reticum amplum efforman- tibus. (Tab. I, f. 6.).—Drumm. n. 176.

On the ground.

Volva nearly cylindrical or obovate \( \frac{1}{2}-\frac{4}{4} \) of an inch in diameter; columns \( 1\frac{4}{4} \) inches or more high, wrinkled transversely, of a beautiful bright ruby red, springing from four to eight together from a point at the base, and forming by their juncture above a net with subpentagonal meshes, extremely brittle and scarce able to support their own weight. Hymenium attached to the inner side of the columns and network through their whole extent, except occasionally at the base. Spores minute, oblongo-elliptic.

This beautiful species resembles in many respects Colus hirundinaceus, Caval. and Sech. and goes very far to prove that their genus is not well founded, for there is no reason to think that any material difference would be presented by the young plant. The specific difference consists in the
much more ample meshes, and the fructifying mass is in the Toulon plant confined to the network, whereas in the present case it extends more or less down the columns.

The specimens vary extremely. In the larger the network resembles closely that of Clathrus cancellatus; in the smaller specimens it is confined to the apex, but specimens occur in which the six ribs merely unite above, and thus form five oblong meshes, as in Laternea. The most perfect form Mr. Drummond considers to be that in which a single pentagonal mesh is formed at the confluence of the five columns.

Tab. I, f. 6. Clathrus pusillus; nat. size.

An opportunity has lately been afforded, through the kindness of Dr. Broomfield, of examining a young specimen of Clathrus cancellatus from the Isle of Wight, (Tab. I. f. 7). This shows the correctness of Micheli's figure, the substance of the volva being divided into compartments answering to the meshes, so that in a vertical section a septum answers more or less accurately to each column, as represented by Micheli. The fructifying mass is not confined, as in Clathrus crispus, to the angles of the meshes, but extends over the whole of the internal surface of the columns and network, being interrupted only here and there by obscure passages running from the central mass of jelly. Clathrus cancellatus and C. crispus, then, are generically distinct, and the sectional denomination Clethria must be raised to the rank of a genus. The difference will be seen at once on comparing the present figure with that given of Clethria crispa in Ann. and Mag. of Nat. Hist. vol. 9, tab. xv. It is observable that in the egg state Clathrus presents an appearance very similar to the stipitate Phalloideae. In the case of Clathrus, however, the pileus only is developed. I find the spores and sporophores as represented by Brongniart in his Introduction to Botany, p. 546. A late opportunity of examining a very young Phallus, related to P. Daemonum, from Ohio, has shown me that the reticulate frill in an early stage of growth exactly lines the pileus, and gradually detaches itself at the base as the pileus increases.
Tab. I. fig. 7, a, section of young *Clathrus cancellatus* slightly magnified; b, portion of hymenium springing from one of the sides, highly magnified.

66. Ileodictyon *gracile*, n. sp.; costis tenuoribus laevibus. (Tab. II. fig. 8).—*Drumm*. n. 177.

On the ground.

Volva globose, showing, as in *Clathrus*, probably from internal partitions, traces of the reticulations, splitting into about four lobes, furnished at the base with a few fibrous roots; about 1¼ inch in diameter; network far exceeding the volva; meshes obscurely hexagonal; ribs ¼-1 line broad, flat, smooth, white, entirely covered internally by the hymenium; spores minute, oblong, elliptic, larger than in *Clathrus pusillus*, with a linear nucleus.

The genus *Ileodictyon* is distinguished from *Clathrus* principally by the tubular not cellular ribs, and certain differences in the volva, which are not evident in the dried specimens before me. The Swan River species is much less, and the ribs scarcely more than one-fourth as thick as those of the New Zealand species, nor are they crisped and wrinkled. The size of the meshes varies. *Measrs*. Tulasnes have made a beautiful analysis from specimens in spirits of the edible species, which will I hope soon be published. I do not know that this species is eaten by the natives.

Tab. II. f. 8. Ileodictyon gracile; nat. size.

67. Phallus *curtus*, n. sp.; capitulo adnato cum stipite flavo subaequali volvam oblongam vix excedente.—*Drumm*. n. 178.

On the ground.

Volva oblong, furnished with a few fibrous roots at the base bursting by two or three irregular lobes; stem ¼ of an inch high, with a little membranous cup at its base. Head ¼ of an inch high, oblong, rising scarcely ¼ an inch above the volva, smooth, not reticulated. Spores minute, oblong-elliptic. Extremely festid.

Allied apparently to *Phallus caninus*.

* Stilbum *erythrocephalum*, Ditm.

On dung.
* Excipula strigosa, Fr. Drumm. n. 215.
* Trichoderma viride, P.—Drumm. n. 212 (in part).
* Sepedonium chrysospermum, Lk.—Drumm. n. 225 (in part.

68. Mystrosporium pulchrum, Berk. and Corda. Effusum olivaceum; floccis albis rugosis furcatis trifidisque; aliis tenuioribus fertilibus; sporis oblongis et lobis globosis efflatis, scabriusculis. (Tab. II. f. 9).—Drumm. n. 270.

On rotten wood, accompanying Merulius lacrymans.

Forming olive patches, about an inch broad. Flocci of two kinds; some irregularly branched, forked or trifid, often paler, irregular, and ending in two or three little tubercles, others finer, sparingly branched, sometimes septate, giving off short erect threads, which bear the spores. Spores compound, consisting of a number of globose slightly-scabrous lobes. In an early stage of growth, they consist of a single row of cells, which gradually becomes double; ultimately, the cells swell out and become globose. It does not appear that the lobes separate, as the old decayed spores are to be found amongst the flocci.

The habit of this plant is exactly that of Helicosporium vegetum.

Tab. II. f. 9. Mystrosporium pulchrum, magnified; a. spores, highly magnified.

Amongst the spores of the plant occur others, precisely like those of Helicoma, Corda, but without any flocci belonging to them. It is possible that they are more nearly of the nature of Helicosporium, and are parasitic on the threads of the Mystrosporium. I have not, however, sufficient data to determine this point.

* Fusarium lateritium, Nees.—Drumm. n. 192. (in part).
* Antennaria scoriacea, Berk. in Bot. of Ant. Voy. ined.—Drumm. n. 192 (in part).

On branches of shrubs, with F. lateritium.

A description of this will shortly be given from good specimens, in the Botany of the Antarctic Voyage. The Swan River specimens are very imperfect.
69. Peziza Drummondii. n. sp.; media, cupulaeformis sessilis, subtus costis validis terram intrantibus suffulta, spadicea; hymenio brunneo. (Tab. II. f. 10).—Drumm. n. 183.

On the ground.

Cup ¼ of an inch broad, sessile, bright brown, farinaceous, supported beneath by strong compressed ribs, which penetrate into the soil, and when dry are exceedingly hard and almost horny. Hymenium brown. Asci linear elongated slightly attenuated below; spores elliptic.

Tab. II. f. 10. Ascus of P. Drummondii, with sporidia; highly magnified.

A very pretty species, allied to Pez. Acetabulum. A species on wood, marked n. 210, was found by Mr. Drummond, allied to P. cochleata, and possibly a form of it.


On burnt earth and charcoal.

* P. rutilans, Fr.—Drumm. n. 190.

On the ground.

There is also another Peziza, n. 186; apparently P. applanata, Fr.

* Peziza scutellata, L.

* Ascobolus surfueaceus, P.

On cow dung, with another very minute species, which I cannot determine.

* Sphaeria punctata, Sow.—Drumm. n. 187.

On horsedung.

The disk in the Swan River specimens is reddish, and the perithecia more prominent than usual, but there is no specific difference.

* S. rubricosa, Fr. El. 2, p. 63.—Drumm. n. 201.

On dead wood.

As the specimens grew on dead wood, they are more freely developed than those which I possess on bark from Guiana. The wood is tinged of a pale lilac; there is a cottony lilac mycelium, and the stroma is flat. In old specimens the ostiola are much elongated, and project beyond the stroma. There is no difference in the asci or sporidia.
* S. multiformis, Fr. 

70. S. (Lignosæ) capnodes, n. sp.; effusa interrupta applanata lævis fuliginea intus nigra, ostiolis punctiformibus pro- 
minulis; perithecis immersis oblongis; sporidiis ellipticis fuscis.—Drumm. n. 218. 

On dead wood. 

Forming elongated, more or less interrupted, erumpent patches, many inches long, plane, slightly raised, black, with 
a smoky bloom; black within, brittle and carbonaceous, sur- 
rounded by a portion of the elevated wood; perithecia crowded, immersed, oblong; ostiola minute papilate; sporidia elliptic, dark brown; wood marked within by a 
deeply-penetrating black line. 

Resembling in habit Sphaeria stigma, but differing in its 
dark stroma, smoke-like bloom, and above all, in its elliptic, 
brown, not curved, and pellucid sporidia. The whole plant 
looks exactly as if it had been smoked over a candle. 

A very curious new genus was sent by Mr. Drummond 
amongst the Fungi, allied to Collema, but with the outward 
habit, and in some respects the structure, of a Dothideæ. One 
species is identical with a plant gathered by Dr. Montagne 
many years since, without fructification, in the department of 
the Eastern Pyrenees, on the white mulberry, and has lately 
been found in Algiers on the Lentiscus; the other species has 
at present been found at the Swan River only. 

Myriangium, Mont. et Berk. 

Thallus pulvinatus, cartilagineus madore turbescens inæ- 
quabilis tuberculatus intus pallescens. Apothecia tuberculi- 
formia primo clausa, tandem aperta plana immarginata. Tha- 
lantium (lamina proligera) crassum fuscum multiloculare; 
singulo loculo ascum unicum fovente, tandem fatiscenti- 
pulverulentum. Sporidia oblongo-cylindrica octona, octies
DECADES OF FUNGI.

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annulata, annulis interdum quadrate cellulosis, pellucida, ascis sphaericis inclusa.

1. Myriangium Durieu, Mont. and Berk. majus, haemisphericum, subnitidum.

HAB. In Pyr. Or. (Montagne), ad corticem Mori albi. Lentisci in Algeriā (Durieu); in Australia in Prov. dictā Swan River (Drummond).


HAB. Ad corticem in Australia in Prov. dictā Swan River. Drummond.

The second species resembles extremely Dothidea examinans, Berk. and Mont.; but not only are the sporidia quite different, the cells containing a single ascus only, but the whole structure of the plant is that of Collemaceae.

The genus bears a certain external resemblance to Tympanis, without, however, the least affinity. It is more nearly allied to Arthonia, but differs from it in the structure of the thallus and nucleus. It is again allied to Paulia, Fée (Linn. vol. x. tab. 4), but the fructification is different; and also to Omphalidium, Mey. and Flotw., in which the asci and sporidia have a very dissimilar form, and the structure of the thallus is quite unlike. Complete figures will shortly be published by Dr. Montagne.

Description of a New Genus of Papaveraceæ, detected by the late Dr. Coulter, in California; by W. H. Harvey, M.D., M.R.S.A., &c.

With a Plate.—(Tab. III.)

In the collection brought by the late lamented Dr. Coulter from California, I was immediately struck by the singularity of a fine Papaveraceous plant, which I soon ascertained to be distinct from any hitherto recorded from that country; and a closer examination and conference with Sir W. J. Hooker, proved it to belong to a new and curious genus, closely allied
Characters of two New Genera of Cruciferae, discovered by the late Dr. Coulter, in California.—By W. H. Harvey, M.D., M.R.S.A., &c.

With Plates.—(Tabs. IV. and V.)

Lyrocarpa. Hook. et Harv.


Lyrocarpa Coulteri. Hook. et Harv. (Tab. IV.)

In California legit T. Coulter, 1832. (No. 40).

v. a latere compressus, stellato-pilosus; sepalis lateribus convexis basi saccatis, antico posticoque planis, angustioribus, basi simplicibus. Petala unguibus latis, spathulatis, membranaceis, uninervis, calycem excedentibus, laminis angustis elongatis, lanceolatis, acutis, siccitae sepe a latere involutis, spirali ter tortis. Stamina tetradyname, ovario multo longiora. Ovarium parvum, obovarum, densè stellato-pilosum, stigmatibus valde hirsutis divergentibus coronatum. Silicula ½-4 unciam, oblonga, panduriformis, a latere valde compressa, basi rotundata, apice biloba, lobis patentibus obtusis, juxta margines laterales constricta? Semina testâ hyalina e cellulis magnis conflata, plano-compressa, margine subalata, in loculis 6-8, biseriata.

This genus is sufficiently characterized by the remarkable fiddle-shaped silicule and the singular petals. The specimens consist of branches broken off within a few inches of the apex; and it is impossible to judge from them what may be the proximate size or the habit of the plant.

Tab. IV. Lyrocarpa Coulteri, with flowers and fruit. Fig. 1. Flower. f. 2. Petal. f. 3. Stamens and pistil. f. 4. Fruit, scarcely mature, from which the valves are removed. f. 5. Seed. f. 6. Transverse section of ditto; more or less magnified.

Dithyrea. Harv.


Dithyrea Californica. Harv. (Tab. V.)

In California legit T. Coulter (N. 37.)

This genus scarcely differs from Biscutella, with which it might perhaps, without much violence, be united. It is distinguished by the erect sepals, forming a close calyx, the absence of claws to the petals (which in Biscutella are often very short) and the minute style. These, I confess, are but trivial characters. From Cremolobus, to which genus we might expect a Californian plant would have more affinity, it differs by the far more important character of the direction of the radicle, and by the sessile silicule. On the whole, I have thought it best, taking into consideration the geographical position of Biscutella, to assign to the North American plant a distinct place in the system, though possibly a provisional one. The generic name is compounded of Æs and θυκός, and is therefore nearly synonymous with Biscutella.

Tab. V. Dithyrea Californica, with flowers and fruit. Fig. 1. Flower. f. 2. Petal. f. 3. Stamens and pistil. f. 4. Fruit. f. 5. Seed. f. 6. Embryo.—magnified.

W.H.H.

Dec. 13, 1814.
HEPATICA ANTARCTICAE, Supplementum: or Specific Characters, with brief descriptions, of some additional species of the Hepatica of the Antarctic Regions, New Zealand and Tasmania, together with a few from the Atlantic Islands and New Holland; by J. D. Hooker, M.D. R.N., & Thos. Taylor, M.D.

(Continued from Vol. III. p. 582.)

(Plagiochila, Nees.)

1. Jungermannia connexa, n. sp.; caule subæspitoso, surculis erectis compressis apice incrassatis incurvisque, foliis arcte imbricatis erectis oppositis basi subconnexis apice subrecurvis orbiculatis supremis subdentaticulis cæterum intergerrimis, perigoniiis terminalibus oblongis spicatis.

HAB. New Zealand. (A. Cunningham.)

Tufts loose, yellowish-olive. Stems scarcely one inch high; shoots simple, consisting of leaves in a rapidly increasing series, nodding or incurved at the top; margins of the leaves subreflexed at their summits, slightly joined at their bases. Perigonal shoots nearly equalling in breadth the barren. No calyx observed. The present can be confounded only with Plagiochila Brauniana, Lind. The leaves are more closely imbricated, the shoots are wider and the perigoniius more considerable.

2. J. anisodonta, n. sp.; caule cæspitoso erecto subsimplici, foliis distabantibus erecto-patentibus oblongis arcuatis deflexis inæqualiter emarginato-bifidis segmento inferiori apice dentato superiori durrente margine recurvo.

HAB. St. Helena.

Tufts wide, dense, pale olive-green. Stems 1½ inch high, sparingly branched, the branches erect. Leaves rather distant, complanate, obovate, emarginate, the segments acute, entire except near the top of the inferior margin which is subdentaticulate. This species may be known from Plagiochila
securifolia, Lind., by the more distant and longer leaves, which are decidedly emarginate, with acute segments.

3. *J. campylodonta*, n. sp.; caule laxe cæspitoso erecto sub-simplici, foliis distantiibus erectiusculis obovato-rotundatis inæqualiter emarginato-bidentatis segmentis subincurvis acuminatis cæterum integerrimis margine superiori vix decurrente.

HAB. St. Helena.

Tufts loose, dark brown, the younger olive-coloured. Stems scarcely 1 inch high, very sparingly branched. Leaves from a narrow base rotundato-quadrate; divided by an oblique sinus into two unequal spines, of which the anterior is much the larger, the segments pointing to one another.

This is very like our *Jung. anisodontia*, from the same island. The leaves are shorter, wider above, by no means decurved, while their superior margin is scarcely decurrent, and less recurved.

(Jungermannia, Nees.)


HAB. St. Helena.

Tufts loose, wide, purplish-red. Stems slender, about 1 inch high, sparingly branched; branches upright. Leaves closely imbricated, tumid, all pointing to one side, their tops deflexed, their bases amplexicaul. Very nearly related to *Jung. schismoides*, Mont.; but our plant is smaller, and its leaves are less imbricated, more obtuse, quite entire, with their segments obtuse.

5. *J. obvoluta*, n. sp.; caule cæspitoso adscendente vage ramoso, ramis erectiusculis, foliis imbricatis patentibus di-midiato-ovatis involutis margine undulatis emarginatis hic illic dentatis subdecurrentibus, stipulis majoribus rotundato-ovatis concavis emarginatis utrinque unidentatis.
Hab. Falkland Islands.

Dusky pale-olive. Leaves involute along the upper part of the stem. Stipules with a very shallow notch. Allied to our Jung. otophylla, (vid. vol. 3, p. 466) whose leaves and stipules, however, are entire.


Hab. Ascension Island.

Stems loosely caespitose, rising erect among mosses, slightly curved above, pale olive-green, but the very young shoots sometimes dark green; branches few. Leaves nearly squarrose, yet homomallous, suddenly apiculate, their cellules very minute, the bases of the leaves concave and loosely embrace three fourths of the stem. Perichaetial leaves erect, closely adpressed to the calyx.

Very closely allied to Jung. piligera, Nees, from Java, which has the segments of its leaves more unequal, their apiculus less considerable, while the cellules are still more minute.

(Lophocolea, Nees.)

7. J. multipenna, n. sp.; caule procumbente implexo ramoso, foliis distichis imbricatis patentibus obovatis margine antico gibbosis subemarginatis decurrentibus, stipulis bifidis segmentis lanceolatis basi hinc dentatis, calyce oblongo acutissime trigono ala superiori latissima ciliato-dentato.*

Hab. Lord Auckland’s group.

Tufts flattish, pale dusky brown. Stems about 1 inch long, irregularly branched. Leaves somewhat in the shape

* By an accidental error, this character and description, which ought to have appeared under (J. Lophocolea) multipenna, vol. iii. p. 381, were replaced with a repetition of the character and description of J. intortifolia.
of a bird’s wing, that is, oblong with a shoulder in front, their outline towards the top very irregular; scarcely notched, an odd obtuse tooth is sometimes visible, each pair is decurrent to the same point of the stem. Stipules subquadrate. Of the upper leaves, near to the calyx, the margin on one side is often confluent or connate with the stipule. Perichaetal leaves erect, dentate.

Our plant bears so strong a resemblance to Jungermannia heterophylla, Schrad., that it is with some distrust now separated, on account of the more rotundate figure of the leaves, and their larger cells and because of the longer calyx whose lips are more frequently and more deeply toothed, as are the perichaetal leaves.

8. J. inflexispina, n. sp.; caule cespitoso adscendentе flexuoso, foliis laxis erecto-patentibus oblongis concavis emarginato-bifidis segmentis lanceolatis acuminitis introflexis integerrimis, stipulis lanceolatis bipartitis utrinque subunidentatis.

Hab. King George’s Sound, (A. Cunningham.)

Tufts dense, short, the older parts purplish-brown, the younger paler. Stems scarcely half an inch high, slender, variously bent. Leaves with an amplexicaul base, concave, the summits bent in towards the stem, the margins of the segments slightly recurved. Stipules scarcely wider than the stems. The present may be known from our Jung. perpusilla by the narrower leaves, with segments more deeply divided, more acuminate and introflexed, and by the somewhat wider stipules which have occasionally a tooth exteriorly on each segment, near to the base.


Hab. St. Helena.
Plants in straggling, prostrate, pale patches. Stems scarcely 1 inch long, but slightly and irregularly branched. Leaves touching one another at their bases, rounded at their tops or with a very shallow indentation, nearly patent, the opposite pairs joined behind the stem by the ovato-lanceolate bifid stipule. Perichëstium nearly as long as the calyx, its leaves upright, adpressed. Calyx acutely trigonal, having a considerable fissure down one side. The present may be distinguished from our Jung. reclinans by the far larger and less imbricated leaves, by the stipule being simply bifid, (not quadrifid) and by its connecting the leaves behind the stem.

10. J. alternifolia, n. sp.; caule implexo procumbente vage ramoso, foliis laxis alternis patentibus planis triangulari-ovatis emarginatis decurrentibus segmentis spinoso-acuminatis caeterum integerrimis, stipulis minutis quadripartitis segmentis setaceis, calyce terminali triangulare cylindreaco ore trilabiate ciliato.

Hab. New Zealand.

Patches dark lurid-green, shoots nearly straight. Leaves with large cells, decurrent, so that the base of one passes the upper insertion of the one next below. Perichëstial leaves about half the length of the calyx, erect, concave, subciliated. Capsule roundish-oblong. Related to our Jung. humifusa, (vol. 3, p. 472); the emargination of the leaves, however, is far more deep, their segments longer, their bases more decurrent, and the segments of the stipules wider.

It may be here noticed of our Jung. humifusa, that the calyces and perigonia have been observed, since the publication of that species, on Kerguelen's Land specimens. The former are oblong-ovate, trigonal, one of the angles alate, subdentate. The perigonia are ovato-lanceolate spikes, which occur in the course of a shoot, each ventricose imbricating leaf containing an anther.

(Chiloscyphus, Nees.)

11. J. retusa, n. sp.; caule implexo procumbente subsim-
plici rectiusculo, foliiis patentibus planis oblongis obtusis retuisisque integerrimis hinc stipulæ minutæ setaceo-bipartitæ conjunctis.

Hab. New Zealand.

Patches loose, pale yet dusky olive-green. Stems about 1 inch long. Leaves rather remote, broadly oblong, slightly notched, on one side united with the stipule, which is not broader than the stem. Allied to Ch. integrifolius, Gottsche; but the leaves are more distant, shorter and wider, the stipule more compounded and the colour of the plant darker.

12. J. biciliata, n. sp.; caule procumbente subsimplici, foliiis complanatis imbricatis erecto-patentibus late ovatis rotundatis apice biciliatis, stipulis bipartitis segmentis lanceolatis divaricatis subintegerrimis.

Hab. New Zealand.

Patches wide, pale (sometimes dusky) olive green. Stem exceeding 1 inch in length, usually simple. Leaves more curved anteriorly, having large cellules, ciliæ setaceous, usually two, very rarely with the rudiments of a third. Stipules large, their segments commonly entire, sometimes with a cilia on one side. This differs from Chiloscyphus Endlicherianus, Nees, by the greater size, the larger cellules, the longer and fewer cilia and by the larger stipules which are entire at their bases.

(Lepidozea, Nees.)

13. J. nemoides, n. sp.; caule tenuissimo implexo procumbente vage ramoso, ramis paucis brevibus patentibus, foliiis subapproximatis erecto-patentibus stipulisque ex ovata basi trispinosis spinis articulatis, fructu ventrali, foliiis perichaetalibus erectis imbricatis ovatis bifidis segmentis subdentatis, calyce ovato-lanceolato hinc tumido ore plicato acuminato laciniato.

Hab. St Helena.

In dense pale green or brownish tufts, the parts scarcely to be distinguished by the naked eye. Stems one quarter
of an inch long. Leaves with patent bases, but erect points. Perichaetium and calyx pale and large in proportion to the plant.

(SENDTNERA, Endlicher.)


HAB. Ascension Island.

Tufts brownish-black, loose. Stems scarcely 2 inches high, pinnate with alternate branches, smooth or destitute of scales. Leaves loosely imbricated, the upper and more convex lobe broadly ovate, with a more remarkable linear spur or appendage at the base than that of the lower lobe. Stipules oblong, with rather an obtuse sinus, furnished with spurs at their bases, of which one is usually longer than the other. From Junc. diclados, Weber, this species may be known by its smaller size, less imbricated leaves, by their obtuse segments and above all by the stems being destitute of scales.

(Radula, Nees.)

15. J. fulvifolia, n. sp.; caule dense implexo procumbente subpinnatim ramoso, foliis imbricatis patentibus integerrimis lobo superiori rotundato concavo inferiori trapezoideo basi caulem versus gibboso erecto.

HAB. St. Helena, (Dr. Greville's Herbarium.)

Patches wide, flat, of several layers one over the other. Stems scarcely 1 inch long, subpinnate, branches distant, patent. Leaves tawny-yellow, nearly round, the upper lobe very fragile, so that on several shoots the inferior lobes alone being left cause such to appear flagelliform. Structure of the leaves dense. The inferior lobe has an ovate exterior part parallel to the stem and an interior rotundate process crossing
the stem. It is difficult by characters to separate this from *Jung. complanata*, L. although it differs widely in habit. The present is smaller in all its parts, while the stem itself is thicker in proportion to the entire width of the shoots, the leaves are more round, the lower lobe, lying parallel with the stem, is longer, and by a round process embraces the stem, the cells of the leaves are more minute.


**HAB.** Tasmania. On *Metzgeria fuscata*, L.

Creeping, scattered, pale olive-brown. Stems scarcely half an inch long, branches very slender, their leaves minute. Leaves cup-shaped, with an obtuse angle at the point most distant from the stem. The lobule has a tumid base, whilst its top lies flat on the inner part of the leaf and has a single angle pointing outwards. The perigonii occur in the course of the shoots, and are remarkably long and large in proportion to the size of the stems. The present is the minutest of the *Radulae* of Nees yet observed, and is readily distinguished by its peculiar perigonia.

(Frullania, Nees.)

17. *J. cranialis*, n. sp.; caule implexo procumbente subpin-natim ramoso, foliis laxe imbricatis patentibus rotundatis concavis integerrimis lobo inferiori galeiformi, stipulis ovatis bifidis utrinque extus unidentatis.

**HAB.** King George's Sound, (Cunningham.)

Patches brownish-olive. Stems nearly two inches long, branches erecto-patent. Leaves, except at the summit, approximated, but scarcely imbricated, the upper lobe rounded, the lower large or nearly one third of the size of the upper, skull-shaped. Allied to *Frull. elongata*, Lind. et Lehm., from the Cape of Good Hope; which, however, has but few
branches, and these nearly parallel to the stem, with the
leaves apiculate. Again *Frull. Aitchifulage*, Hampe, from
Pennsylvania, is more minute in all its parts and has
subacute leaves.

18. *J. rostrata*, n. sp.; caule exiguus repente subpinnatim
ramoso, foliis subapproximatis patentibus rotundatis sub-
apiculatis integerrimis lobo inferiori oblongo interius lan-
ceolato-appendiculato, stipulis minutis rotundatis, periches-
tiis rotundato-oblongis, calyce ex angusta lineari basi
obovato tubifero.

HAB. Lord Auckland's group. On *Parmelia enteromorpha*,
Ach.

Patches 1-2 inches wide, reddish-brown. Stems minute.
The auricle is one third of the leaf in size. The diameter of
the perigonia three or four times that of the full grown
shoots. Perichaetial leaves oblong, incurved, apiculate, the
sides of their lesser lobes reflexed, as are those of the stipular
leaf; but the margins of all are entire; except that on the
lesser lobe, and between it and the stipule, are one or two
very short processes. Calyx twice as long as the perichaet-
tium. The present greatly resembles *Junger. lobulata*, Hook.
It differs by the minuter size, by the narrower base of its
calyx, by the less decidedly triangular shape of the calyx,
which too is wider above and by the acute and even apiculate
leaves of the perichaetium.

19. *J. fugax*, n. sp.; caule procumbente pinnato gracillimo,
foliis erecto-patentibus rotundato-oblongis subimbricatis
integerrimis convexis, lobo inferiori majori oblongo basi
truncato, stipulis minutis rotundato-ovatis bifidis perichaet-
tialibus hinc unidentatis, calyce terminali ex angusta basi
obovato obtuso tricostato tubifero, perigoniiis lateralibus
oblongo-rotundatis.


Minute, reddish-purple, scattered or in loose patches.
Stems scarcely exceeding one quarter of an inch. The
auricles nearly as long as the leaves and about half as wide.
Perigonia short, twice as wide as the shoots. Stipules scarcely wider than the stems.

20. *J. squarrosula*, n. sp.; caule procumbente subpinnatim ramoso, foliis imbricatis erecto-patentibus integerrimis rotundatis margine inferiori reflexo cellulis basilaribus majoribus lobo inferiori minuto lanceolato tumido spice deflexo, stipulis rotundato-ovatis bifidis integerrimis, calyce ex angusta basi obovato triplicato, perigoniiis lateralisibus rotundatis.

HAB. New Zealand. On Lichens.

Patches loose, reddish-brown. Stems scarcely 1 inch long. Leaves with the edges frequently scarioso and whitish. Calyx large in proportion to the diameter of the shoot, with two acute folds above and one ventricose below, half immersed in the perichaetium. Allied to *Frullania crassiuscula*, Tayl., from Demerara. It is, however, smaller, less green, and the auricles are far more slender, acuminate and deflexed.

21. *J. clavata*, n. sp.; caule procumbente vague subpinnatimve ramoso, surculis spice incrassatis, foliis imbricatis patentibus rotundato-oblongis convexis integerrimis lobo inferiori majore galeiformi acuminato decurvo, stipulis rotundatis emarginato-bidentatis subdenticulatis, calyce subimpresso obovato biplicato tubifero, foliis perichaetialibus margine ventrali dentatis.


Sarcely one quarter of an inch long, pale green, sometimes brownish-purple. Stipules large, their emargination shallow and rounded. Auricles large, compared with the leaves. The calyx, rising little out of the perichaetium, is widest near the mouth, below which it is rather suddenly contracted. The lateral perichaetial leaves have, besides a segment corresponding to the auricle of the leaf, an inner one which is lanceolate and dentate. Allied to *Frull. trinervis*, L. et L., but this is of a dark brown colour, has a more exerted three-nerved calyx, the auricles are less acuminate, and the stipules more entire.
22. *J. monocera*, n. sp.; caule implexo prostrato vage ramoso, foliis subimbricatis patentibus oblongo-ovatis rotundatis planis integerrimis lobo inferiori galeiformi unispinoso deflexo, stipulis ovato-acuminatis bifidis dentatis, calyce terminali obcordato trigono angulis hirtis ore tubifero.

HAB. Van Diemen’s Land. Growing among patches of *Jungermannia*.

Patch small, whitish-green. Stems nearly half an inch long, irregularly branched. Leaves loosely imbricated, patent, very thin, quite flat, elliptical; the lobulus helmet-shaped, with a single subreflexed horn or spine. Stipules wider than the stems. Perichaetium on a short branch, (nearly covering the calyx), the three pieces of which it is composed are united at their bases, dentate, erect, the lesser lobe lanceolate. Angles of the calyx with variously curved spines, which are sometimes confluent so as to form a wing. This species approaches nearest to the North American *Pul lania Atchafalage*, Hampe. The leaves are whiter and more imbricated, the spine of the lobulus is longer and more de-curved, while the stipule is dentate.

(Phragmicoma, *Nees.*)

23. *J. rotalis*, n. sp.; caule implexo procumbente debili vage ramoso, foliis imbricatis patentibus concavis oblongo-rotundatis integerrimis lobo inferiori minuto involuto ovato, stipulis subimbricatis rotundatis integerrimis, calyce laterali obovato tumido basi inflato-costato ore minuto depresso.

HAB. St. Helena.

Creeping among *Musci* or *Hepaticae*, pale olive. Stems 1 inch long, variably branched. Leaves wide, their tops broadly rotundate, quite entire. Stipules four or five times as wide as the stems. Perigonia lateral, linear-oblong, spicate. Perichaetial leaves erect, the lesser lobe lanceolate, acute. Pedicel exserted, as long as the calyx. Capsule pale yellow, split half-way down. This has a strong affinity to *Jung. appianata*, *Nees*, from Java; our plant, however, is more
minute, paler, has leaves less deflexed, while the stipules are nearly circular and not kidney-shaped as in the Javanese species.

24. *J. acutiloba*, n. sp.; caule laxe implexo prostrato ramoso, ramis brevibus patentibus, foliis arcte imbricatis patentibus oblongo-rotundatis concavis integerrimis lobo inferiori minute ovato subdentato involuto, stipulis majoribus imbricatis rotundatis subemarginatis, foliorum perichaetialium lobo inferiori acuminato, calyce oblongo-cordato.

**HAB.** St Helena.

Patches closely adhering to bark, wide, blackish-green, the younger pale olive. Stem more than 1 inch long, irregularly branched. Leaves crowded, slightly deflexed; the perichaetial dentate, erect, the stipules emarginate.

Allied to the European *J. Mackaii*, Hook. Its stems are thicker, the lower lobes more minute, the stipules far larger, while the lesser lobe of the lateral perichaetial leaves is acuminate.

25. *J. microscypha* n. sp.; caule procumbente vage ramoso, ramis patentibus, foliis imbricatis patentibus rotundatis concavis integerrimis margine inferiori loboque minori oblongo involutis, stipulis majoribus oblato-rotundatis integerrimis, perigonii oblongis, calycibus in ramos brevissimis terminalibus oblongo-cordatis tumidis triquetris tubiferis.

**HAB.** St Helena, with *Parmelia leucomela*, Ach.

Stems straggling among Mosses; shoots pale olive, scarcely half an inch long; branches few, leaves densely and minutely cellular. Perigonia twice the length of the full grown leaves. Calyx on a short perichaetial branch and so appearing lateral, about as long as a full grown leaf, several may be seen on the same shoot in a close series. From *Phragmicoma Mackaii*, Nees, this is readily distinguished by the smaller cells of the leaves, by the more concave leaves, by the greater length of the lesser lobe, by the larger stipules, and by the narrower, mere tumid and less exserted calyx.

Hab. St. Helena.

Patches one or two inches wide, dusky brown. Stems scarcely one inch long, weak, flexuose, with short, irregular branches. Leaves scarcely imbricated, obtuse yet with a minute apiculus. Stipules large, broadly elliptical, lying close on the stem. Calyces several on the same stem, obovate, with five considerable folds or wings. Perigonium a lateral, obtuse, oblong spike. The present is very like *Lejeunia sor-dida*, Nees, from Java, but may be recognised by the apiculate leaves which are less imbricated, and by the longer and narrower stipules.


Hab. Ascension Island.

Patches three or four inches wide, pale brown. Stems an inch long, irregularly branched. Leaves somewhat imbricated. Cellules of the leaves rather large. Stipules broad as long. This closely resembles our *J. pterota*, and may be distinguished by the greater size, paler colour, by branching principally towards the base of the stem, by the decurved leaves, which too are not so regularly apiculate, and, above all, by the larger cells of the leaves. Calyces have not been observed on this species, yet they are frequent on the other.

28. *J. marginalis*, n. sp.; caule exili prostrato vague ramoso, foliis laxis patentibus concavis ovato-acuminatis margine
inferiori reflexis integerrimis lobo inferiori ovali involuto, 
stipulis obcordatis minutis segmentis obtusis.

HAB. Cape Horn. On Sphaerophoron coralloides, Ach.

Patches about one quarter of an inch wide, very pale. 
Branches erect. The tops of the leaves always acuminate, 
sometimes incurved. This differs from our Lejeunia latilans, 
(vol. 3, p. 399), by the greater size, by the less waved leaves 
being more patent, and by the obcordate stipules.

29. J. plicatiloba, n. sp.; caule implexo procumbente vage 
ramoso, foliis laxis erecto-patentibus concavissimis rotundato-quadratis subtruncatis integerrimis, lobo inferiori 
subaequali basi tumido incurvo apice angulato adpresso, 
stipulis exiguis emarginato-bipartitis segmentis linearibus 
subincurvibus.

HAB. Lord Auckland’s group. On Parmelia intestiniformis, 
Ach.

Patches minute, loose, pale. Stems scarcely one quarter 
of an inch long. Leaves distant, very much resembling 
in the position of their inferior lobes those of a Radula, Nees. 
Stipules very minute. The shoot looks like two rows of the 
minutest alternate beads, between and along which the fine 
stem is scarcely perceptible.

30. J. primordialis, n. sp.; caule exili implexo vage ramoso, 
ramis subpatentibus, foliis laxis erectiusculis anguste obl-
ovatis obtusissimis concavis integerrimis, lobo inferiori 
ovato involuto, stipulis minutissimis emarginato-bipartitis, 
segmentis linearibus obtusiusculis divaricatis.

HAB. Lord Auckland’s group. On Sticta flava, Tayl.

In small, pale, olive-green patches. Stems about one 
quarter of an inch long, branches often going off at right 
angles. Leaves distant, nearly erect, narrowly obovate; the 
inferior lobe has a blunt tooth at the exterior part just where it 
begins to be inflected. The minuter size, more erect, nar-
rower as well as more distant leaves, will readily distinguish 
this species from small tufts of Lejeunia serpyllifolia, Dicks. 
even in the absence of fructification, which has not hitherto 
been observed.

**HAB.** St. Helena.

Patches several inches wide, pale sap-green. Fronds about one inch long, simple, yet sometimes appearing branched by a young shoot arising from the nerve below the frond. Male flowers aggregated in a linear series extending at each side of the nerve near the top of the frond, consisting of minute imbricated scales, under which sometimes the teguments of the anthers may be detected. Sometimes the frond increases by a new narrow shoot from the broader summit of the older. The simple fronds and the linear series of clustered male flowers may serve to distinguish the present from its congeners.

*(Pellia, Raddi.)*


**HAB.** Lord Auckland's group.

No fructification present, but analogy suggests the genus. Tufts quite black when dry, when moistened the younger parts assume a dark olive-green colour. Fronds nearly two inches long, lobes scarcely one tenth of an inch wide, all nearly in the same plane; pinnules very short and obtuse; the substance carnose and tough. The bilobate termination of the fronds, with a dark point at the bottom of the sinus corresponding to the place of the receptacle of the fruit, induces us to prefer placing this species under *Pellia*, Raddi, than under *Aneura*, Nees.

*(Symphyogyna, Nees.)*

33. *J. rhodina*, n. sp.; fronde minuta oblonga dichotoma
tenerrima pellucida uninervia margine dentata calyptraque lineari longissima rosaceis, capsula lineari-oblunga.

Hab. Van Diemen's Land. (Dr. Lyall)

Fronds two or three lines long, much shorter than the calyptrae. Involucral scales around the base of the calyptra four or five-toothed, setaceous above, erect. Capsule often emitting the seeds and spiral filaments from one lateral opening, but the pieces into which it dehisces are various in number and size, the top of the capsule remaining entire. There is no green colour in any part of the plant.

34. *J. convoluta*, n. sp.; fronde tenui elongato-oblunga uninervia subdichotoma margine undulato-involuta ex frondis disco proliferis, fructi in frondis discum sessili, calyptra subulata apice pistillifera, perigoniiis lineatim supra frondis nervum congestis squamis minutis acuminatis laciniiatis.

Hab. Ascension Island.

Patches some inches wide; fronds scarcely half an inch long, sparingly branched, their margins variously twisted, frequently involute. A new frond has been observed to rise with a narrow base from the disk of the old, from over the nerve and towards the apex. The frond, sometimes, sends out a linear process at the summit which radicates. The pedicellated oval anthers are free, (that is, not immersed) each covered by a perigonal scale pointing forwards.

(Aneura, *Nees.*)


Hab. Cape Horn. In water.

One to two inches long. Some stems quite simple, others sparingly branched, all with alternate, marginal perigonia. Structure of the frond of close longitudinal cells. No fruit has been observed. Our European species is more carnose, is pinnated and of a deeper green colour.
Var. \( \gamma \) nana is far minuter, more branched, the mode of branching is intermediate between that of var. natans and of J. multifida, L.; the cellules are shorter and wider.

These two varieties may turn out to be distinct species when their fructification is known.

(Fegatella, Cæsalpinus.)

36. J. limbata, n. sp.; fronde implexa prostrata lineari-oblonga spicis biloba margine elevata corrugate nigricante, receptaculis fœmineis subrotundis subbilocularibus disco rugoso loculis incrassatis verticaliter fissis, pedunculis epiphyllis.

HAB. Ascension Island.

Fronds collected into flat patches several inches wide, canaliculate, sometimes bilobate at their tops, often simple with a very shallow sinus; pale green when moistened; their surface beset with numerous pores in the form of whitish elevated points of the cuticle. Rootlets pale brown, along the axis, exterior to which on each side is a row of imbri-cated, dark blood-red scales, which are semi-ovate with a linear appendage or apiculus; exterior again to these, the cuticle of the under-side of the frond is much wrinkled and of the same colour as the scales. The fruit, both male and female, is truly ephiphyllous, sometimes two or three receptacles occur along the axis on the same plant. The indusium, which in the young state envelopes the receptacle and in maturity lies expanded beneath it, consists of several lanceolate, scarioso, dark red scales with pale or colourless summits. The female receptacle is sometimes sessile, sometimes pedunculated, it is roundish and has a wrinkled carnose disk above; the loculi are usually two, with thick valves that appear marginal at the vertical opening. The male receptacle has an indusium similar to that of the female. The disk of the male receptacle is nearly round, carnose, imbedded in the frond; it has above from eight to ten hemispherical elevations, beneath each of which is a conical cavity reaching down through the entire depth of the receptacle, in which
the anthers are respectively placed. Capsule sessile. Seeds angulato-rotund. Elateres minute.

Our *Fegatella australis*, (vol. 3, p. 572), from New Zealand, has likewise an epiphyllous inflorescence; a circumstance which, in the absence of any other character, is scarcely sufficient to distinguish such species by placing them into a new genus. It is very much to be doubted if the genera *Plagiochosma* and *Antrocephalus* of Lehman's Pugilli, or even the *Rebouilla* of Raddi, are truly and naturally different from *Fegatella*. The present species may be known from our *F. australis*, by its more linear fronds, by the semiovate scales of the inferior surface and by the wider disk of the female receptacle.

Monoclea, *Hook*.

37. Monoclea *adghutinata*, n. sp.; fronde imp lexa lineari te-nuissima dichotoma uninervia prostrata lobis integerrimis, calyce elongato lineari spice bilabiato, capsula spice apiculata integra.

HAB. St. Helena. On trees on Diana's Peak, at an elevation of 2000 feet.

Patches minute, scattered, dark green. Fronds scarcely one quarter of an inch long, narrow, repeatedly dichotomous, most minutely cellular, very thin, adhering closely to the subjacent bark, the ultimate lobes have a shallow sinus at their extremities. Male receptacles semi-globular pale brown elevations, irregularly opening at their tops. Capsule linear. Seeds greenish, angulato-rotundate, mixed with spiral filaments. The columella is an excessively fine thread. The linear and repeatedly dichotomous one-nerved frond separates this species at once from its congeners.

Riccia, *L*.

HAB. Lord Auckland's group.

Fronds scarcely half an inch long, about one tenth of an inch high. The concave frond, with entire connivent lobes, reminds one of Collema granulatum, Ach.; but, in the absence of buds and of any fructification, the structure of the frond seems to ally this species to Riccia; along the longitudinal axis the frond is thick, carnose and of a very spongy texture.

Contributions towards a Flora of Brazil, being the distinctive Characters of a Century of New Species of Plants from the Organ Mountains, by George Gardner, Esq., F.L.S. Superintendent of the Royal Botanic Gardens, Ceylon.

Continued from p. 355 of Vol. II.

Bixaceae.

Raleighia. Genus novum.*


* This remarkable plant is unlike Bixaceae (i. e., Flacourtiae or Procketiae of Bennett Pl. Jav. Rar. p. 190), and so near in habit to Belangeria, that I have carefully compared my specimens with the above description. It appears in all essential points to be accurate, except that Mr. Gardner had overlooked the interpetiolar foliaceous stipules, which had probably already fallen off in his specimen. The leaves are strictly opposite, and the petioles connected by a transverse prominent line, after the fall of the stipules; the racemes are usually terminated by a tuft of leaves, as in many Canoniaceae; the divisions of the calyx are slightly unequal and decidedly valvate in aestivation, and are united at the base in a short, broadly turbinated tube; there are no glands; the staminal disk adheres to the calyx up to the base of the divisions; the ovary is sessile, but perfectly free and unilocular, with the ovules arranged in a double row along linear, nerviform, parietal placentæ, of which I have generally observed three, but I have also met with two only. My seeds are not quite ripe; but, as in Canoniaceae, I find an outer integument, thick and somewhat coriaceous, and an inner membranaceous one. Thus the whole of the characters would place Raleighia among Canoniaceae, near Belangeria; excepting
filiformia, libera, aequalia: antherae introrsae, subglobosae, bilocularis, loculis longitudinaliter dehiscentibus. Ovarium sessile, liberum, uniloculare. Ovula in placentis parietalibus tribus circiter viginti, anatropa. Stylus terminalis, cylindricus: stigma brevissime trilobum. Capsula stylo indurato superata, subglobosa, adpresso-pilosa, unilocularis, trivalvis, valvis medio placentam nerviformem gerentibus. Semina 3-6, subglobosa, angulata, epidermide membranacea, testa crustacea. Embryo in axi albuminis carnosi orthotropus; cotyledones breves, semiteretes; radícula tereti, brevissima, umbilico proxima.—Frutex in Brasilia montibus crescent, Weinmanniae facie; ramis dichotomis; foliis oppositis (estipulatis) petiolaris, oblongs, penninervis, serratis; racemis terminales, elongatis, multifloris; floribus parvis.

5723.* R. Americana.

Hab. Organ Mountains, at an elevation of nearly 7,000 feet above the level of the sea. Fl. March.


the placentation and the number of carpels; but in other groups belonging to the same Order (or sub-class) of Saxifragaceae, there are genera with more than two elementary carpels, one with incomplete dissepiments; and even in Belangera, although the semi-dissepiments meet in the centre, they do not cohere, and the placentation is therefore, strictly speaking, parietal. I should, upon the whole, be disposed to consider Raleighia as forming with Belangera a distinct sub-tribe of the tribe (or order) Convolvulaceae.—G. Bentham.

*The numbers refer to my General Catalogue of Brazilian Plants.—G.G.
The shrub on which I have established this genus, and have named it in honour of Sir Walter Raleigh, the celebrated American voyager, has very much the habit of some species of **Weismannia**; but in the structure of its flower and fruit it comes near to **Prockia** and **Banara**. It seems to be the only plant belonging to the Order which has opposite leaves.

**POLYGALACEAE.**

5679. Polygala *revoluta*; caulibus suffruticosis ramosis pubescentibus, foliiis glabris brevissime petiolatis lineari-oblongis mucronatis margine revolutis, racemis terminalibus laxis paucifloris, sepalis exterioribus 3 inequalibus acutis, interioribus ovato-rotundatis sub-5-nervis, carinae lobo medio cristato, petalis lateralis basi concretis, capsula compresso-rotundata utrinque emarginata glabra.

**HAB.** Dry places, on the summit of the Organ Mountains.

**Fl.** March.


**LINACEAE.**

5682. *Linum palustre*; glabrum, caule suffruticoso ramoso, ramis oppositis angulatis, foliiis oppositis v. ramulorum interdum alternis linearibus vel linearis-lanceolatis acutis, floribus terminalibus, sepalis ovatis acutissimis pellucido-punctatis, petalis flavis, stylis ad basin usque liberis, capsula globosa, valvulis dorso planis.

**HAB.** In moist grassy places, near the summit of the Organ Mountains. **Fl.** March.


Near *L. junceum*, St. Hil. from which it differs by having opposite leaves and branches.
5683. Linum **Organense**; glabrum, caule suffruticoso ramoso, foliis oppositis brevissime petiolatis exacte ellipticis, floribus axillaribus terminalibusque, petalis flavis, stylis ad basin usque liberis, stigmatibus capitatis, capsula ovata obtusa, valvulis dorso planis.

**Hab.** Dry bushy places, near the summit of the Organ Mountains. *Fl.* March.


**Ternstroemiaceae.**

5681. Ternstroemia **cuneifolia**; foliis petiolatis coriaceis cu-neato-obovatis indistincte glanduloso-dentatis apice emarginatis margine revolutis uninerviis supra nitidis subtus punctato-scabriusculis, pedunculis axillaribus solitariis, foliolis calycinis valde inaequalibus rotundatis margine glanduloso-ciliatis, petalis rotundatis integris.

**Hab.** Open places on the Organ Mountains, at an elevation of about 6,000 feet above the level of the sea. *Fl.* March.


Near T. *carnosa*, St. Hil. but differing in the emarginate leaves and ciliated calycine segments.

**Melastomaceae.**

5709. Davya **excelsa**; arborea, glaberrima, ramis teretibus, ramulis compressis, foliis petiolatis oblongo-lanceolatis acuminatis basi cuneatis grosse serrato-dentatis 3-nerviis, pedunculis axillaribus terminalibusque compressis trifloris, calycis tubo campanulato, limbo integro membranaceo extus infra marginem 5-dentato, antheris calcare bifido in stam. 5 in aliis capitato-bilobo.
HAB. In virgin forests on the Organ Mountains, at an elevation of between 3,000 and 4,000 feet above the level of the sea. Fl. March.


HAB. Organ Mountains, at an elevation of about 6,000 feet. Fl. March.


MYRTACEÆ.

5716. Myrcia buxifolia; fruticosa, ramulis dense foliosis, pedunculis axillaribus 3-floris folia æquantibus, foliis ellipticis vel elliptico-ovatis obtusis margine revolutis glabris vel junioribus ramulis pedunculisque albo-tomentosis, floribus sessilibus, calyce dense piloso, lobis ovatis acutis.

HAB. Organ Mountains, at an elevation of about 6,000 feet. Fl. March.

5715. Calyptranthes caudata; frutescens, glaberrima, ramulis angulatis, foliis brevissimae petiolatis lanceolatis longe obtuse acuminatis, pedunculis axillaribus solitariis unifloris folio duplo fere brevioribus, alabastro globoso apiculato.

HAB. By the sides of streams on the Organ Mountains, at an elevation of about 3,000 feet. Fl. March.


5718. Eugenia virgata; fruticosa, pedunculis axillaribus terminalibusque solitariis racemosis 6-12-floris folio brevioribus rufo-pubescentibus, bracteis linearibus obtusis, bracteolis acutis, foliis oblongo-lanceolatis obtuse acuminatis basi subcuneatis glabris coriaceis.

HAB. Woods, by the sides of streams in the Organ Mountains, at an elevation of about 3,000 feet. Fl. March.


Near E. Candolleana, DC.

5714. Eugenia pumila; fruticosa, glaberrima, pedunculis axillaribus solitariis 3-floris folio quadruplo brevioribus, floribus sessilibus, foliis petiolatis oblongo-lanceolatis longe acuminatis basi attenuatis, calycis lobis rotundatis demum deciduis.

HAB. Organ Mountains, at an elevation of about 4,000 feet. Fl. March.

Frutex 2-3-pedalis. Folia 14-2 poll. longa, 6-7 lin. lata, supra glabra, nitida, subtus pallida, pellucido-punctata. Ovarium biloculare, loculis biovulatis.

5717. Eugenia cinerascens; glaberrima, caule fruticosa, foliis breviter petiolatis oblongo-lanceolatis utrinque attenuatis obtusis margine subrevolutis obscure pellucido-punctatis, pedunculis axillaris folio brevioribus 1-4-floris, pedicellis
unifloris apice bibracteatis, calycis lobis rotundatis demum reflexis petalisque glabris.

**HAB.** Organ Mountains, at an elevation of from 5,000 to 6,000 feet. *Ft.* March.


5712. Eugenia Miersiana; fruticosa, ramulis subcompressis, petiolis pedunculis foliisque subtus dense rufo-tomentosis, pedicellis axillaribus solitariis vel rariter binis folio quadraplo et ultra brevioribus, foliis lanceolatis vel lanceolato-ellipticis cuspidatis supra glabris, calyce dense piloso- tomentoso 4-lobato, lobis ovatis acutis reflexis, petalis late ovatis acutis epunctatis.

**HAB.** Woods in the Organ Mountains, at an elevation of about 3,000 feet. *Ft.* March.


Near E. tomentosa, Camb.

**Passifloraceæ.**

427. Passiflora (Cieca) Vellozii; tota piloso-hispida, foliis basi cordatis 5-nerviis trilobatis eglandulosis, lobis ovatis acutis apiculatis lateralibus medio duplo brevioribus divari-catis, petiolis versus apicem biglandulosis, glandulis longe stipitatis pilosis, stipulis dimidiatis semiorniculatis pro-funde lacerato-ciliatis, pedicellis solitariis petiolo subæ- quantibus, bracteis semiuncialibus grosse pinnatifidis, calyces segmentis 5 oblongis obtusis infra apicum setaceis trinerviis, petalis nullis, coronæ filamentis seriei exterioris fili-formibus sepala subæquantibus, seriei interioris breviter connatis fimbriatis.
Passiflora *fetida*, Vellozo, Fl. Flum. 9, t. 86. (non Cavan.)

**HAB.** Organ Mountains, at an elevation of about 3,000 feet.  
**Ft.** Feb.

**Folia** 2½ poll. longa, 15-18 lin. lata. **Cirrhi simplices.**  
**Ovarium** dense piloso-tomentosum.

428. Passiflora (Decaloba) *Organensis*; glabra, foliis latis  
basi rotundatis eglandulosis subpeltatis 3-nerviis divari-  
cato-subtrilobis, lobis lateralibus ovatis obtusis, medio lato  
obtusissimo, petiolis eglandulosis, pedicellis geminis  
petiolo longioribus, calycis segmentis oblongis obtusis,  
petalis brevioribus, corone filamentosis seriei exterioris com-  
planato-petaloideis petalis brevioribus, seriei interioris  
connatis.

**HAB.** Organ Mountains, at an elevation of about 3,000 feet.  
**Ft.** Feb.

**Folia** 2½-3 poll. longa, 3-4½ poll. lata. **Petioli pollicares.**  
**Cirrhi simplices.** **Ovarium glabrum.**

**Cunoniaceæ.**

722* et 5721. Weinmannia *Organensis*; albo-tomentosa, foliis  
impari-pinnatis 4-7-jugis, foliolis oblongis vel acutiusculis  
serratis, alis petiolorum obovatis, ramulis compressis apice  
dilatatis, racemis folia superantibus.

**HAB.** Organ Mountains, at an elevation of from 5,000 to  
6,000 feet. **Ft.** March.

**Arbor** 10-20-pedalis. **Foliola** pollicem longa, 5-6 lin.  
lata, supra demum glabriuscula. **Racemi** 3-4 poll. longi.  
**Flores** quinquepartiti, decandri.

5722. Weinmannia *discolor*; glabra, foliis trifoliolatis vel in-  
terdum impari-pinnatis 2-jugis, foliolis oblongo-lanceolatis  
versus apicem attenuatis basi cuneatis grosse serrato-dent-  
tatis, alis petiolorum semiobovatis, ramulis compressis an-  
gulatis superne foliisque junioribus subtus pilosiuculis,  
**racemis** folia subæquantibus, rachi villosa.

**HAB.** Organ Mountains, at about 5,000 feet elevation.  
**Ft.** March.

* 723 in my set.—G. B.
Arbuscula 10-12-pedalis. Foliola majora 2-2½ poll. longa, 6-8 lin. lata, supra viridia, subtus pallida. Flores quadripartiti, octandri.

**Umbelliferae.**

5725. Hydrocotyle *alpestris*; villosiuscula, foliiis orbiculatis cordatis 6-7-lobatis subduplciato-crenato-dentatis supra adpressae pilosiusculis subtus ad nervos pubescentibus, petiolis villosis pedunculo glabriusculo brevioribus, umbella 25-30-flora, floribus distincte pedicellatis, fructibus late ovatis truncatis basi subcordatis ecostatis.

**Hab.** On moist shady rocks, near the summit of the Organ Mountains. *Ft.* March.


**Araliaceae.**

433. Hedera *triloba*; glaberrima, caule fruticoso erecto inermi, foliiis longe petiolatis membranaceis, aliis indivisis uninnervis aliis trinervis trilobatis majoribus lobis acuminatis margine obscure dentatis, pedunculis terminalibus umbellatis 10-12-floris, pedicellis flores subæquentibus.

**Hab.** In virgin forests, on the Organ Mountains, at an elevation of about 4000 feet. *Ft.* January.


My no. 5726, also from the Organ Mountains, is Hedera *capitata*, Smith.

**Loranthaceae.**

436. Viscum *nitidum*; ramis ramulisque compressis, foliiis lineari-lanceolatis obtusis nitidis basi attenuatis tenuissime 5-nerviis, spicis axillaris solitariis folio triplo brevioribus articulatis, vaginis bifidis, baccis ovatis basi rachi immersis.

**Vol. IV.**
HAB. On trees in forests in the Organ Mountains, at an elevation of about 4000 feet. Fl. February.
Folia 3 poll. longa, 3-4 lin. lata. Spicæ pollicem longæ.
Near V. affine, Pohl.
437 et 5727. Viscum ellipticum; ramis teretibus junioribus compressis striatis, foliis ellipticis vel obovato-ellipticis breviter petiolatis obtusis 3-nerviis, spicis axillaribus solitariis folio triplo fere brevioribus, baccis ovatis rachi immersis.
HAB. On the branches of a species of Gaylussacia, in open rocky places on the Organ Mountains, at an elevation of about 5000 feet. Fl. March.

Rubiaceæ.

5737. Hindsia ramosissima; fruticosa, ramosissima, ramulis glabris, foliis breviter petiolatis lanceolatis obtuse acuminatis basi acutis margine subreflexis venis utrinque 6-8 vix prominentibus supra glaberrimis nitidis subitus ad nervos pilosis, axillis venarum barbatis, calycis laciniiis parum inæqualibus, corollæ tubo 8 lin. longo, laciniiis oblongo-lanceolatis obtusis.
HAB. Open rocky places on the Organ Mountains, at an elevation of about 5000 feet. Fl. March.
Allied to H. longiflora (my n. 457 and 5738), from which it is principally distinguished by being about one half smaller in all its parts.

5736. Declieuxia caerulea; suffruticosa glabra, caulibus teretibus prostratis, ramis fastigiatis erectis tetragonis foliosis, foliis oppositis petiolatis oblongo-lanceolatis obtusis margine revolutis, cyma terminali pedunculata trichotoma subfastigiata, staminibus lobos corollæ æquantibus.
HAB. In broad masses on flat rocky places, near the summit of the Organ Mountains. Fl. March.


Frutex 3-pedalis, ramosus. Folia ad apices ramulorum approximata, pollicem longa, 5-6 lin. lata. Calyx tubo ovato piloso cum ovario connatus, limbo supero 4-lobato, lobis ovatis acutis. Corolla infundibuliformis, tubo tereti, fauce villosa extus puberula 3 lin. longa, limbi quadrifidi laciniis lanceolatis tubum subæquantibus, æstivatione valvatis. Stamina

5763. Faramea (Tetramerium) rivularis; ramulis compressis, foliis ovalis vel elliptico-oblongis abrupte acuminatis basi acutis membranaceis, stipulis in aristam subdorsalem desinentibus petiolo longioribus, corymbis terminalibus trichotomis, floribus alaribus pedicellatis, calycis limbo brevi 4-dentato.

HAB. In moist woods, on the Organ mountains, at an elevation of upwards of 8000 feet. Fl. March.


This species agrees somewhat with the technical character of F. odoratissima, DC., but is certainly different from Jacquin’s figure, which represents the central flowers of the ultimate trichotomy as sessile. On my plant the flowers are all borne upon pedicels of equal length. The leaves are besides more acuminated.

5764. Faramea (Tetramerium) caudata; ramulis subcompactis, foliis oblongo-lanceolatis utrinque attenuatis longe acuminatis membranaceis petioliatis, stipulis in aristam subdorsalem desinentibus petiolo brevioribus, corymbis terminalibus trichotomis paucifloris, floribus longe pedicellatis, calycis limbo brevi 4-dentato.

HAB. In woods by the sides of streams on the Organ Mountains. Fl. March.


446. Psychotria pallens; ramulis compressis, foliis elliptico-obovatis breviter acuminatis basi attenuatis glabris, stipulis utrinque bipartitis laciniiis subulatis deciduis, cyma terminali subsessili trichotoma folio multo breviore, radiis compressis, bracteis bracteolisque ovatis acutis, floribus brevissime pedicellatis minute albido-lepidotis, calycis limbo
quince-lobo, lobis ovatis acutis, corollae tubo cylindrico intus glabro lobis 5 oblongis obtusis reflexis, staminibus inclusis, stylo glabro exserto.

HAB. In woods on the Organ Mountains, at an elevation of about 3000 feet. Fl. April.


454. Psychotria nemorosa; glaberrima, foliis anguste lanceolatis acuminatis utrinque attenuatis coriaceis, stipulis subconcretis utrinque bipartitis, laciniis subulatis persistentibus, cyma terminali breve pedunculata, ramis subcompressis verticillatis, bracteis subulatis, floribus pentameris, calyce breviter dentato, dentibus acutis, corolla tubo cylindrico, lobis oblongis obtusis, staminibus inclusis, stigmatet bimellato.

HAB. In dense virgin forests on the Organ Mountains, at an elevation of about 4000 feet. Fl. April.


Near P. leiocarpa, and P. intermedia.

448. Palicourea longepedunculata; glaberrima, ramis ramulisque teretibus, foliis petiolaris oblongo-lanceolatis acutis vel acuminatis basi acutiusculis, venis venulisque subtus prominentibus, stipulis utrinque binis late ovatis, panicula longe pedunculata, ramis angulato-compressis, corolla cylindrica glabriuscula, staminibus inclusis, baccis ovatis compressis.

HAB. In dense forests in the Organ Mountains at an elevation of about 4000 feet. Fl. January.


451. Suteria Hookeriana; glaberrima, foliis petiolaris ellip-
tico-lanceolatis acuminatis basi acutis, floribus terminalibus sessilibus ternis, calyce membranaceo 5-dentato, dentibus late ovatis obtusis, corolla calyce duplo longioribus hypocraterimorpha 5-fida, laciniiis oblongis acutis incrassatis, genitalibus inclusis, fructibus ovatis.

**Hab.** In woods common at an elevation of about 3000 feet on the Organ Mountains. *Ft.* February.


This species differs from *S. Brasiliensis*, Mart. and *S. terminalis*, Mart., in its smaller flowers, and more acuminated leaves.

452. Suteria parviflora; glaberrima, foliis petioloribus oblongo-lanceolatis acuminatis basi acutiusculis, floribus terminalibus sessilibus ternis, calyce 5-fido, laciniiis lanceolatis acutis, corolla calyce duplo et ultra longiore 5-fida, laciniiis lanceolatis acutis apice incrassatis reflexis, antheris exsertis, fructibus globosis.

**Hab.** In woods on the Organ Mountains at an elevation of about 4000 feet. *Ft.* February.


5734. Suteria macrantha; glaberrima, foliis petioloribus oblongo-lanceolatis acuminatis basi acutis, floribus terminalibus sessilibus ternis, calyce magno membranaceo 5-fido, laciniiis late ovatis acutiusculis, corolla hypocraterimorpha 5-fida, laciniiis lanceolatis acutis incrassatis, genitalibus inclusis.

**Hab.** In dense forests on the Organ Mountains, at an elevation of about 4500 feet. *Ft.* March.

442. Borreria Organensis; caulibus basi fruticosis prostratis, ramis ascendentibus teretiusculis glabris fistulosis, foliis anguste-lanceolatis acutis vix petiolatis venis 4-5 obliquis supra nervo medio pubescentibus marginibus scabriusculis, dentibus stipularum 5-7 in setas absuntibus vaginæ longitudine, capitulis terminalibus hemisphaericis foliis 4 involucris, genitalibus exsertis, capsule oblonga pilosa dentibus calycinis 4 linearibus hirtis coronata.

HAB. Open grassy places on the Organ Mountains at an elevation of about 3000 feet. Fl. January.

Near B. scabiosoides. Cham. et Schl., but besides other differences is distinguished by its pilose capsule, and the want of long hairs on the involucral leaves.

438. Rubia affinis; tota pilosa, caule acute tetragono, foliis quaternatis obovato-oblongis obtusis mucronatis margine revolutis uninervii supra glabriusculis subtus longe pilosis, pedunculis axillaribus oppositis unifloris folio longioribus, bracteis lanceolatis acuminatis, baccæ sessili dense pilosa.

HAB. In open places, in forests among bushes, at an elevation of about 4000 feet on the Organ Mountains.


5765. Rubia rupestris; piloso-hirta, caule acute tetragonon, foliis quaternatis uninervii supra glabriusculis nitidis subtus pilosis, pedunculis axillaribus oppositis unifloris folio duplo fere brevioribus, bracteis ovato-oblongis acutis, baccæ sessili glabra.

HAB. Procumbent on the rocky summit of the Organ Mountains. Fl. February.

Herba. Caules diffusi, ramosissimi. Folia breve petiolata, 2½-3 poll. longa, 1½ lin. lata. Corolla rotata, 4-lobata,
lobis ovatis acutis trinerviis, glabra, alba. Ovarium pilosum.

5767. Rubia *glabra*; glabra nitida, caule tetragono, foliis quaternatis ellipticis membranaceis obtusis mucronatis subtus nervo medio pilosiusculis, pedunculis axillaribus solitariis unifloris folia subæquantibus, bracteis lanceolatis mucronatis, ovario glabro, bacca ovoidea glabra in involucro sessili.

**Hab.** Open bushy places near the summit of the Organ Mountains. In fruit in March.


My number 5766, also from the summit of the Organ Mountains, is *Rubia noxia*, St. Hil.

**Valerianæ.**

461. Valeriana *Candolleana*; glabra, herbacea, scandens, ramis teretibus, foliis ovatis cordatis acuminatis grosse dentatis, paniculis axillaribus dichotomis laxis, staminibus inclusis, fructo ovato glabro.

**Hab.** In bushy places near the summit of the Organ Mountains. **Fl.** April and May.


5768. Valeriana *Organensis*; caule fruticoso erecto, ramis subquadrangularibus glabris, foliis longe petiolatis angustis
lanceolatis utrinque attenuatis glanduloso-serrato-dentatis margine subrevolutis glabris, panicula trichotomo-corymbosa compacta, foliis floralibus sessilibus pinnatifidis, staminibus inclusis, fructibus ovato-ellipticis plano-convexis late marginatis linea longitudinali elevata antice notatis glabris.

Hab. In bushy places near the summit of the Organ Mountains. Fl. March.


Compositae.

478. Vernonía (Lepidaploa) Hilairiana; caule suffruticoso, ramis angulatis pubescentibus, foliis petiolatis longe et anguste lanceolatis utrinque acutis margine revolutis minute denticulato-serratis supra rugosis scabris subtus tomentosis, panicula ramosissima pubescenti-tomentosa, capitulis pedicellatis 20-floris, involucri squamis oblongis pungentibus puberulis, achenio striato glandulososo, pappi ser. ext. brevi setosa.

Hab. Open bushy places on the Organ Mountains, at an elevation of about 3000 feet. Fl. April.

Suffrutex 8-10-pedalis. Folia alterna, 6-7 poll. longa, 10-12 lin. lata. Corolla glabra, violacea.

477 (bis). Vernonía (Lepidaploa) paludosa; caule suffruticoso,
tereti striato ramoso pubescente, foliis petiolatis lanceolatis utrinque attenuatis minute denticulatis supra scabridis sub-
tus pubescenti-tomentosis, paniculis terminalibus aphyllis pubescentibus, capitulis 10-12-floris, involucri squamis
puberulis obtusis, achenio striato piloso, pappi ser. ext. brevi setosa.

HAB. Open marshy places on the Organ Mountains, at an
elevation of about 3000 feet. Fl. May.
Suffrutex 4-6-pedalis. Folia alterna, 4 poll. longa, 15 lin.
lata. Corolla glabra, violacea.

My number 477 from the same locality, is Vernonia denti-
culata, DC. In the general distribution, these two species
were mixed up with each other.

476. Vernonia (Lepidaploa) densiflora; arbores, ramulis suba-
lato-angulatis tomentosis, foliis petiolatis lanceolatis acumi-
natia integerrimis basi acutis supra scabriusculis sub tus
dense fulvo-tomentosis, panicula ramosissima pubescenti-
tomentosa ramis scorpioideis aphyllis, capitulis sessili-
bus sub-12-floris, involucri squamis tomentosis obtusis,
achenio piloso, pappi ser. ext. paleacea brevi.

HAB. In woods in the Organ Mountains, at an elevation of
about 3000 feet. Fl. May.
Arbor 10-15-pedalis. Folia alterna, 5-7 poll. longa, 1-1\(^{\frac{1}{2}}\)
lata. Corolla glabra.

Near Vernonia polyanthos, Less.

5771. Vernonia (Lepidaploa) rupestris; caule fruticose, ramis
elongatis teretibus subangulato-striatis tomentosis, foliis
sessilibus oblongo-lanceolatis acutis basi auriculatis ob-
lique amplexicaulisibus minute crenulatis supra piloso-
pubescentibus subtus tomentosis, panicula elongata stricta,
capitulis confertis pedicellatis 30-floris, involucri campanu-
lati squamis pubescentibus acutis interioribus acuminatis,
achenio piloso, pappi ser. ext. brevi paleaceae.

HAB. Open rocky places on the Organ Mountains, at an
elevation of about 4500 feet. Fl. March.

Frutex 6-10-pedalis. Folia alterna, 4-5 poll. longa, 1-1\(^{\frac{1}{2}}\) poll.
lata. Corolla glabra, violacea. Pappus violaceus.
5769. Vernonía (Lepidaploa) Miérsiana; caule herbaceo erecto adpressae villosae simplici tereti striato apice in ramos angulatos diviso, foliis petiolatis lineari-lanceolatis elongatis acutis integerrimis supra piloso-scabridis subtus villosae-tomentosis, capitulis 2-5-floris sessilibus subgeminis folio florali multo brevioribus, involucri squamis imbricatis exterioribus pungentibus interioribus longioribus acutis, achenio villosa, pappi ser. ext. brevi setosa.

Hab. Moist open places in woods on the Organ Mountains, at an elevation of about 3500 feet. Fl. March.
Herba 4-5 pedalis. Folia alterna, 5-6 poll. longa, 8-10 lin. lata. Corolla glabra. Pappus albus.

5717 et 5770. Vernonía (Lepidaploa) decumbens; caule basi fruticoso, ramis decumbentibus teretibus striatis villosae-tomentosis vel glabriusculis, foliis sessilibus longe lineari-bus acatis basi obtusiis margine integerrimis revolutis supra scabriusculis subpilosis subtus villosae, cymis axillarisbus terminalibusque bifidis scorpioideis, capitulis sessilibus 20-floris conflortis, involucro campanulati squamis villosae, exterioribus in acumen setiforme patulum productis, intimis rectis acutis, achenio piloso, pappi seriei externa brevi paleacea.

Hab. Open rocky places on the Organ Mountains, at an elevation of about 5000 feet. Fl. March.

512. Stevia (Paleaceo-aristata) Organensis; caule herbaceo erecto apice ramoso glandulosos-pilosopus-pubescente, foliis oppositis sessilibus rhomboideo-ovatis obtusiusculis basi subcordato-inscophilibus amplexicaulibus infra medium trinerviis dentato-serratis utrinque villosae-hirsutis, corymbis axillarisbus terminalibusque fastigiatis in paniculum dispositis, pappa paleacea et 4-6-aristato.

Hab. Moist rocky open places on the Organ Mountains, at an elevation of about 5000 feet. Fl. May.
Herba bipedalis. Folia 3½-4 poll. longa, 1½ poll. circiter
lata. Involuta et pedicelli glandulosa, squamis 5 lineari-oblungis obtusis. Flores rosei. Aristae achenio ad angulos piloso æqualibus, corolla breviores.

519 et 5775. Eupatorium (Imbricata) roseum; fruticosum, erectum, ramosum, ramis teretibus striatis pubescentibus, foliis breve petiolatis oblongis vel elliptico-oblungis utrinque obtusis basi subattenuatis superne glabris subtus pubescentibus crenato-serratis uninerviis, corymbo terminali composito densissime conferto, capitulis oblongis 5-floris, involucri squamis imbricatis 3-seriatis oblongis obtusis glabris ciliatis, achenio glabro.

HAB. Open bushy places on the Organ Mountains, at an elevation of about 5500 feet. Fl. March.


5776. Eupatorium (Imbricata) alpestre; fruticosum, ramulis teretibus triatis fusco-pubescenti-tomentosis, foliis oppositis breve petiolatis lanceolatis acutis vel subacuminatis basi acutis grosse serratis penniveniis supra glaberrimis subtus ad nervos pilosisculis caeterum resinoso-punctatis, corymbo composito terminali, capitulis brevissime pedicellatis confertis 5-floris, involucri squamis pubescentibus imbricatis, exterioribus lanceolatis acutis, interioribus oblongis obtusis striatis ciliatis, achenio angulato glabro.

HAB. In bushy places on the Organ Mountains, at an elevation of about 6000 feet. Fl. March.

494. Eupatorium (Imbricata) confertum; fruticosum, erectum, ramis ramulisque striatis puberulis, foliis oppositis breviter petiolatis lineari-lanceolatis utrinque acutis regulariter serratis uninerviis superne glabris nitidis subtus pubescenti-hirtellis resinoso-punctatis, corymbo terminali composite dense conferto, capitulis oblongis 5-floris, involucri squamis 8-10 imbricatis oblongis obtusis striatis ciliatis, acheniis glabris.

HAB. Moist open places in the Organ Mountains, at an elevation of about 3500 feet. Fl. April.

Frutex 3-4-pedalis. Folia majora 3½ poll. longa, 7 lin. lata.
Near Eupatorium *comptoniaefolium*, DC.

518 et 5774. Eupatorium (Imbricata) *tectum*; fruticosum, ramis teretibus striatis pubescenti-hirtis fastigiatis, foliis oppositis petiolatis lanceolatis vel ovato-lanceolatis obtusiusculis integerrimis triplinerviis supra glabris subitus tomentosis, corymbis terminalibus compositis fastigiatis, capitulis pedicellatis 20-floris, involucri squamis arcte imbricatis obtusis striatis glabris, achenio angula toad angulos pilosiusculo.

HAB. Bushy places on the Organ Mountains, at an elevation of about 5000 feet. *Fl.* March.


Near E. *hypericifolium*, H. B. et K.

862. Eupatorium (Subimbricata) *dispalatum*; fruticosum scandens, ramis teretibus striatis glabris, foliis petiolatis oblongis acuminatis basi obtusis utrinque glabris margine revolutis subdentatis penniveniis reticulatis, corymbis axillaribus et terminalibus rufo-pubescenti-hirtis in paniculam dispositis, capitulis pedicellatis 5-floris, involucri squamis imbricatis striatis ciliatis exterioribus late ovatis interioribus oblongis, achenio piloso.

HAB. In woods on the Organ Mountains, at an elevation of about 5500 feet. *Fl.* July.

Frutex scandens. Folia opposita, 3½-4 poll. longa, 16 lin. circiter lata. Flores albi.

5786. Eupatorium (Eximbricata) *baccharifolium*; fruticosum, ramis ramosisque teretibus pubescentibus, foliis breve petiolatis ovato-ellipticis utrinque obtusis versus medium pauci-dentato-serratis glabris subitus punctatis trinerviis, corymbo terminali oligocephalo laxo, capitulis pedicellatis circiter 11-floris, involucri squamis 2-seriatis subaequalibus ovatis obtusis pubescentibus, achenio glanduloso.

HAB. Near the summit of the Organ Mountains. *Fl.* March.

Frutex bipedalis. Folia 6-9 lin. longa, 3-4½ lin. lata.

5777. Eupatorium (Eximbricata) *Organense*; suffruticosum,
caule erecto sulcato glabro ad apicem corymboso-ramoso, ramulis pubescenti-tomentosis, foliis oppositis petiolatis ovatis acutis vel subacuminatis basi obtusis trinerviis serratis utrinque glabras, corymbis axillaribus terminalibusque fastigiatis pubescenti-tomentosis, capitulis pedicellatis circiter 25-floris, involucris campanulatis squamis biseriatis lanceolatis acuminatis ciliatis dorso puberulis, achenio angulato resinoso-punctato.

HAB. Open rocky places on the Organ Mountains, at an elevation of about 5000 feet. Fl. March.

482. Mikania (Stipulatae) *punctata*; suffruticosa scandens, ramis angulatis puberulis, petioli ala foliacea repando- undulata marginatis basi in auriculam semireniformem dilatatis, foliis ovatis acuminatis basi et apice integris caerulei dentatis penniveniis supra glabras subtus puberulis pellucido-punctatis, paniculis axillaribus terminalibusque puberulis, ramulis oppositis angulatis, capitulis sparsis subsessilibus, bracteola minima ovata, involucris squamis oblongo-linearibus obtusis extus puberulis, achenio glabro.

HAB. Woods, Organ Mountains, at an elevation of about 3500 feet. Fl. February.

Folia 4-6 poll. longa, 2 circiter lata.

Near M. *pteropoda*, DC. from which it differs chiefly by the capitula not being crowded together, and having very obtuse, not acute, involucral scales.

484. Mikania (Ecordatae) *subcordata*; fruticosa scandens, ramis teretibus striatis fulvo-tomentosis, foliis petiolatis ovatis subacuminatis basi plus minusve cordatis subdentatis supra scabrido-strigoso-pilosis subtus dense fulvolanuginosis, panicula terminali, capitulis confertis pedicellatis, bracteolis ovatis obtusis, involucris squamis linearibus extus ad apicem pilosis, achenio pilosiüscolo.

HAB. Woods, Organ Mountains, at an elevation of about 3500 feet. Fl. February.

Folia 4-5 poll. longa, 2 circiter lata. Capitula 6 lin. longa.
861. Mikania (Ecordatae) conferta; fruticosa scandens, ramis teretibus striatis fulvo-lanuginosis, foliis petiolatis ovatis acutis basi subcordatis supra scabrido-strigoso-pilosis subitus fulvo-lanuginosis integerrimis aut vix subdentatis, pedunculis axillaribus terminalibusque in paniculam magnum dispositis, capitulis confertis ad apices ramulorum ternis breve pedicellatis, bracteis involucrum subaequantibus late ovatis obtusis extus tomentosis, involucri squamis obovato-oblongis obtusis striatis extus pilosis, achenio angulado glabro.

HAB. Woods, Organ Mountains, at an elevation of about 4000 feet. Fl. July.
Folia 4-4½ poll. longa, 2 circiter lata. Capitula 3-3½ lin. longa.

485. Mikania (Ecordatae) strigosa; fruticosa, scandens, ramis teretibus striatis tomentosis, foliis petiolatis ovato-lanceolatis acutis basi rotundatis integerrimis supra scabrido-strigoso-pilosis subitus fulvo-lanuginosis, paniculis axillaribus terminalibusque, capitulis confertis ad apices ramulorum subternis breve pedicellatis, bracteolis ovatis striatis obtusis pilosisculis, involucri squamis linearibus extus ad apicem pilosis, achenio piloso.

HAB. Woods, Organ Mountains, at an elevation of about 3500 feet. Fl. April.

5780. Mikania (Cordiformes) ambriata; volubilis, tota canopubescentis, ramis angulatis, foliis longe petiolatis cordatis subacuminatis minute dentatis supra scabriuscule-pilosis subitus pubescentibus, stipulis interpetiolariibus fimbriatis, pedunculis apice corymbiferis, capitulis pedicellatis, involucri squamis lineari-lanceolatis acutis puberulis, achenio glabro.

HAB. Open bushy places on the Organ Mountains, at an elevation of about 4000 feet. Fl. March.
Petioli 2 poll. longi. Limbus 3½ poll. longus, 2¼ poll. latus.

483. Mikania (Cordiformes) umbellifera; volubilis, glabriuscule, caule tereti striato, ramis subangulatis, foliis petiolatis
cordatis obtusis crenato-dentatis junioribus serrato-dentatis
acutis pedunculis apice umbellatis, umbellis compositis,
capitulis pedicellatis, involucri squamis lineari-lanceolatis
acutis glabris, achenio glabro.

Hab. Bushy places, Organ Mountains, common at an ele-
vation of about 4000 feet. Fl. March.
Petioli 1½ poll. longi. Limbus 2 poll. longus, 2 poll. latus.
Flores albi. Pappus rufescens.
Near M. opifera, Mart.

5779. Mikania (Cordiformes) affinis; fruticosa, scandens,
ramis teretibus albo-lanuginosis, foliis petiolatis cordatis
acutis sub-5-nerviis minute dentatis supra dense pilosis
subtus albo-lanuginosis, pedunculis axillaribus terminali-
busque in paniculam coarctatam elongatam dispositis albo-
lanuginosis, capitulis secus ramulos breviter racemosis
pedicellatis, bracteola late ovata apice lacerato-ciliata,
involuci squamis-oblongis obtusis extus pilosisculis,
achenio angulato glabro.

Hab. Woods on the Organ Mountains, at an elevation of
about 5000 feet.
Petioli 1½ poll. longi. Limbus 4 poll. longus, 3½ poll. latus.
Capitula 3 lin. circiter longa.
Near Mikania lanuginosa, DC.

496. Baccharis (Trinervata) depauperata; suffruticosa, erecta,
ramosa, glabra, viscosa, ramis ramulisque teretibus striatis,
foliis longe petiolatis lanceolatis utrinque attenuque acute
serrulatis triplinerviiis subtus punctatis, paniculis axillaribus
terminalibusque laxis oligocephalis, capitulis masculis parvis
pedicellatis, involuci campanulati squamis oblongis obtusis
subæqualibus.

Hab. Open bushy places, Organ Mountains, at an elevation
of about 3000 feet. Fl. February.
Suffrutex bipedalis. Folia tripollicaria, 8 lin. lata.
Flores masculi infundibuliformes, 5-fidi. Antheræ subex-
sertæ.
Near B. Lundii, DC.

5784. Baccharis (Trinervatae) stylosa; fruticosa, ramosa,
erecta, glabra, viscosa, ramulis teretibus striatis, foliis ellipticis obtusis basi attenuatis quintauplinerviis utrinque glabra serrata, corymbis terminalibus laxis, involucri campanulati glabri squamis oblongis obtusis, acheniis glandulatis pilosis.

HAB. Summit of the Organ Mountains. Fl. March.

Frutex bipedalis. Folia bipollicaria 10-12 lin. lata. Flores feminei tubulosi, apice truncato-pilosi, stylo longe exserto, masculi ignoti.

497. Baccharis (Trinervatae) laxa; fruticosa, subscandens, glabra, ramosa, ramis ramulisque teretibus striatis, foliis oppositis petiolaris oblongo-lanceolatis acutis basi obtusis trinervis integerrimis superne glabris nitidis subtus lepidoto-pubescentibus, corymbis axillaribus terminalibusque in paniculas magnas dispositis, involucri campanulati squamis exterioribus ovatis obtusis interioribus oblongis obtusis, acheniis striatis pilosiusculis.

HAB. Woods, Organ Mountains, at an elevation of about 3000 feet. Fl. April.

Frutex subscandens. Folia subtripollicaria, 8 lin. lata. Flores feminei tubulosi, basi dilatati, apice truncati, stylo exserto, masculi ignoti.

5782. Baccharis (Cuneifoliae) vaccinioides; fruticosa, erecta, ramosa, glabra, subviscosa, ramulis teretibus striatis, foliis oblongis obtusis basi cuneatis triplinerviis a medio ad apicum dentato-serratis utrinque glabris, capitulis in axillis superioribus solitariis breviter pedicellatis, involucro, masculo ovato, femino oblongo, squamis exterioribus ovatis obtusis interioribus oblongo-linearibus acutiusculis, acheniis angulatis glabris.

HAB. Organ Mountains, at an elevation of from 5000 to 6000 feet. Fl. March.

Frutex 4-6-pedalis. Folia 10 lin. longa, 4 circiter lata. Flores feminei tubulosi, basi dilatati, apice breviter 5-fidi, stylo exserto; masculi tubulosi, 5-fidi, laciniiis revolutis, antheris exsertis.
5783. Baccharis (Cuneifoliiæ) ciliata; fruticulosa ramosa subprostrata, ramulis teretibus sulcatis glabriusculis, foliis ellipticis obtusis basi cuneatis integerrimis vel versus apicem subserrato-dentatis subcoriaceis penniveniis superne nitidis utrinque resinoso-punctatis margine tomentoso-ciliatis, corymbis fœmineis terminalibus laxis, involucri campanulati glabri squamis linearibus acutis apice ciliolatis, acheniis angulatis glabris.

HAB. Bare rocky places, on the very summit of the Organ Mountains. Fl. March.

Frutex subprostratus, vix pedalis. Folia sessilia, 1-1½ poll. longa, 6-8 lin. lata, ad apicem ramulorum approximata. Flores fœminei basi tubulosi, apice dilatati 5-fidi, laciniis revolutis, stylo exserto; masculi ignoti.

5785. Baccharis (Cuneifoliiæ) alpestris; fruticosa, ramosa, erecta, viscosa, glabra, ramulis teretibus striatis, foliis vix petiolatis obovatis obtusis basi cuneatis penniveniis serratis utrinque glabris margine junioribus præsentim tomentoso-ciliatis, corymbis terminalibus congestis, involucri late campanulati multiflori squamis linearis-lanceolatis acutis, acheniis angulatis glabris.

HAB. Summit of the Organ Mountains. Fl. March.


5781. Baccharis (Oblongifoliiæ) pyramidalis; fruticosa, erecta, ramosa, ramis teretibus apice angulato-striatis ramulisque piloso-pubescentibus dense foliosis, foliis sessilibus lineari-lanceolatis acutis glabris margine revolutis unineriis, capitis dense racemoso-paniculatis, pedicellis basi foliolosis, involucri campanulati squamis imbricatis ovato-oblongis glabris ciliolatis, interioribus longioribus, acheniis glabris angulatis.

HAB. Moist bushy places, Organ Mountains, at an elevation of about 5000 feet. Fl. March.
Frutex 4-6 pedalis. Folia 15-18 lin. longa, 2-2½ lin. lata. Flores feminei flavi, truncati, basi dilatati, stylo longe exserto; masculi ignoti.

507. Erigeron (Euerigeron) palustre; caule herbaceo erecto ramoso sulcato-striato puberulo-scabido, foliis radicalibus longe petiolatis oblongo-lanceolatis acuminatis grosse mucronato-dentatis utrinque setulis sparsis aspero-scabris, caulinis similibus sed minoribus sessilibus et semiamplexicaulis, summis lineari-lanceolatis integerrimis, capitulis ad apices ramorum solitariis corymbosis, involucrit squamis lineari-lanceolatis acuminatis striatis subglanduloso-pubescentibus margine fimbriato-ciliolatis, ligulis disco duplo et ultra longioribus.

HAB. In maraes, common on the Organ Mountains, at an elevation of about 3000 feet. FI. March and April.

Herba 4-6-pedalis. Folia radicalia sesquipedalia 2½ poll lata. Ligulae angustae lineares, apice 2-3-dentatae, albae. Corollae disci flavae. Antherae ecaudatae.

This species comes nearest to E. sulcatum, DC., from the Province of San Paulo; but is distinguished by its oblong-lanceolate, not oval, cauline leaves, pubescent, not glabrous, involucral scales, and shorter ligulae.

5787. Erigeron (Euerigeron) alpestre; caule herbaceo erecto ramoso sulcato-striato hirto, foliis radicalibus longe petiolatis oblongo-lanceolatis acuminatis mucronato-dentatis supra pilosiusculis subtus glabriusculis, caulinis sessilibus amplexicaulis ovato-lanceolatis acuminatis grosse mucronato-serrato-dentatis utrinque piloso-pubescentibus, summis lineari-lanceolatis integerrimis, capitulis ad apices ramorum solitariis corymbosis, involucrit squamis lineari-lanceolatis acuminatis striatis glanduloso-pubescentibus et sparse villosis margine ciliolatis, ligulis disco duplo longioribus.

HAB. Moist bushy places on the Organ Mountains at an elevation of about 6000 feet.

Herba 2-3 pedalis. Folia radicalia 1½-pedalia, 2 poll.
circiter lata. Ligulae lineari-subspathulatae obtuse integrae vel emarginatae, albae. Corollae disci flavae. Antherae ecaudatae. This species is distinguished from both E. sulcatum and E. palustre, by its hairy stem, very different cauline leaves, villous involucral scales, and its broader and shorter ligules.

377. Conyza (Dimorphanthus) rivularis;* rhizomate suffruticoso, caule erecto subsulcato scabriusculo simplici, foliis sessilibus lanceolatis acuminatis distanterruncinato-serratis utrinque glabris uninerviis subtus punctatis, summis amplexicaulisibus, paniculis corymbosis polypehalis, capitulis pedicellatis, involucri squamis lineari-lanceolatis acutis serrulatis.

Suffrutex 1½-2-pedalis. Folia 3½-4 poll. longa, 6-9 lin. lata. Flores masculi 8-10.
Near C. arguta, Less., but has much broader leaves, and a greater number of male flowers.

LEUCOPODUM. Genus novum.

Char. Gen. Capitulum multiflorum heterogamum, floribus radii multiserialibus fœmineis sæpe abortinentibus, corolla tenuissima filiformi apice truncata pilosiuscula, disci paucis hermaphroditis fertilibus tubulosiis apice dilatatis 5-fidis. Involucri squamæ biseriales, inaequalis, lineares, obtuse, scar-riosæ, demum deflexæ. Antheræ vix exsertæ, appendiculatæ, basi bisetosæ. Stylæ rami inclusi, divericati, truncati, hispidi. Achænum cylindricum, scabriusculum, longe rostratum. Pappus uniserialis, setis filiformibus scabriusculis.—Herba peren-

* No. 502 in my set. I have the same species amongst a set of Sello’s Composite, which would induce a belief that it is the same as C. arguta, Less., a plant very vaguely described in the Linneæ, v. 6, p. 138; but it is certainly very unlike the C. triplinervia, Less., nor does it at all agree with De Candolle’s character of C. arguta.—G. B.

5787.* Leucopodium campestre.

Hab. Open grassy places, Organ Mountains, at an elevation of about 3500 feet. *Fl. March.

The little plant on which I have established this genus is related to Conyza and its allies, but differs from them all in its caudate anthers, terete and rostrate achenia, and opposite leaves.

499. Pluchea (Styllumus) Organensis; herbacea, tota rufo-tomentosa, caule sulcato, folii amplexicaulisibus cordatis oblongis acutis serratis venoso-reticulatis, corymbo composito conferto, involucri squamis ovato-lanceolatis acutis dorso dense villosa-tomentosis disco brevioribus.

Hab. Open marshy places, Organ Mountains, at an elevation of about 3000 feet. *Fl. April.


Near P. oblongifolia, and P. bifrons of DC. but abundantly distinct from both.

506. Wedelia (Cyathophora) scandens; caule fruticoso scandente, ramis albo-piloso-tomentosis teretibus, folii peti- latis oblongo-lanceolatis acuminatis basi rotundatis remote serrulatis triplinerviis supra piloso-scabridis subtus velutino-villosis, pedicellis solitariis elongatis, involucri

* There is some mistake in this No., as 5787 is properly described above as a new Erigeron. The present plant may perhaps be 5788, of which I have no specimen.—G. B.
squamis ovato-lanceolatis, achenio calyculo minimo piloso.

Hab. Organ Mountains, in bushy places by the sides of streams. Fl. February.


Near W. subvelutina, DC., but differs in being fruticose and scandent, and in having much longer pedicels. My n. 5523, from the Serra d'Estrella, is the same species, a little more villoses.

511. Bidens (Psilocarpæa), speciosa; caule fruticoso scandente tereti, ramulis teretibus striatis glabris vel pubescenti-tomentosis, foliis petiolatis pinnati-vel tri-sectis ovato-lanceolatis acuminatis minute et acute serratis supra glabriusculis subtus plus minusve pubescentibus, segmentis lateralisibus sessilibus basi valde inæqualibus medio maximo petiolato basi acuto, capitulis pedicellatis paniculatis radiatis, involucri squamis subæqualibus acutis, exterioribus reflexo-squarrosis ciliatis, acheniis compressis ad angulos laterales dense piloso-ciliatis biaristatis.

Hab. Woods, Organ mountains, at an elevation of about 3000 feet. Fl. March and April.

Near B. tereticaulis, DC. but well marked by its decidedly striated stem, and laterally ciliated achenia. From B. rubifolia, H. B. et Kunth, it is distinguishable by its round, not tetragonal stem. My n. 510, also from the Organ Mountains, is a tomentose variety of this species. It has, besides, smaller leaves, and the ligules are much longer and narrower.

5791. Senecio cuneifolius; suffruticosus, erectus, glaber, caule simplici, foliis breve petiolatis subcarnosis oblongis obtusis basi cuneatis supra medium serratis, corymbo terminali conflerto 12-15-cephalo, pedicellis ex axilla bracteæ lineari-lanceolatæ ortis, involucro campanulato circa 13-phyllo calyculato, flosculis 25-30, ligulis 5, acheniis sulcatis glabris, pappo corollam disci subæquante.
HAB. Summit of the Organ Mountains. Fl. March.


514 et 5792. Senecio Organensis; glabriusculus aut subarachnoideo-tomentosus, caule erecto simplici valde sulcato, foliis petiolatis oblongis vel elliptico-oblongis utrinque acutiusculis grosse subduplicato-dentato-serratis, corymbo composito tomentoso, involuco turbinato cylindrico 10-12-phyllo, squamis accessoriis 5-6 linearibus ciliatis, flosculis 20-25, ligulis 5, acheniis glabris, pappo corollam disci subsequante.

HAB. Moist bushy places near the summit of the Organ Mountains. Fl. March and April.


252. Senecio valerianaefolius; herbaceus, glaberrimus, rami erectis striatis, foliis petiolutis profunde pinnatifidis, laciniiis sub-5-jugis lineari-lanceolatis acutis serrato-dentatis, panicula ramosissima laxa subcorymbosa, involucro calyculato circiter 12-phyllo, floribus circiter 40 tubulosis, acheniis glabris.

HAB. Open bushy places, Organ Mountains, at an elevation of about 3000 feet.

Herba annua, bipedalis, ramosa. Folia 4-5 poll. longa, laciniiis 1-1½ poll. longis, 3-lin. circiter latis. Flores lutei.

863. Flotovia (Erineaia) quinquenervis; foliis breve petioliatis inermibus oblongis acutis vel subacuminatis basi acutis quinquinerviis supra glabris nitidis subts adpressæ villosis, capitulis thyrsoideis 23-floris, involucri squamis inermibus, exterioribus ovatis dorso pubescentibus margine tomen-
toso-ciliatis, interioribus linearibus reflexis apice extus
tomentosis, corollis basi extus glabris.
Hab. Woods, Organ Mountains, at an elevation of about
3500 feet. Fl. July.
longae. Folia 3½-4½ poll. longa, 18-21 lin. lata. Pedunculi
1-4-cephali pubescenti-tomentosi, 6-9 lin. longi, basi bracteati,
bracteis lineari-lanceolatis, pungentibus.
5794. Flotovia (Erinesia) leptacantha; foliis breve petiolatis
apice spinosis elliptico-oblongis utrinque obtusi supra
glabris nitidis subtus ramulisque villosis, involucri squamis
inermibus, exterioribus ovatis margine tomentoso-ciliatis,
interioribus linearibus reflexis apice extus villosis, corollis
basi extus glabris.
Hab. In ravines, near the summit of the Organ Moun-
tains. Fl. March.
Frutex ramosissimus, spinosus 8-12-pedalis. Folia trinervia,
My n. 516, also from the Organ Mountains, but at a lower
elevation, is a variety of this plant, with leaves nearly
double the size, and less villous beneath.
5793. Achyrophorus (Oreophila) Brasiliensis; caule glabro
striato ramoso foliis duplo breviore, foliis radicalibus longe
petiolatis lineari-oblongis subsinuato-dentatis acutiusculis
supra sparse pilosis, summis linearibus integerrimis, pedun-
culis elongatis bracteatis unifloris, involucri subtomen-
toso-pubescentis squamis lineari-lanceolatis, intimis longe
acuminatis, acheniis glabris vix rostratis.
Hab. Moist open places, summit of the Organ Mountains.
Fl. March.
Herba perennis. Caulis erectus, ramosus, 1½-pedalis.
Folia radicalia 8-9 poll. longa, 4-5 lin. lata, basi in petiolum
attenuata. Involucri squamæ biseriales, basi calyculæ.
Pappus uniserialæ, setis filiformibus, plumosis.

Lobeliaceæ.
5798. Lobelia (Rapuntium) Organensis; glaberrima, caule
stricto simplicissimo, foliis sessilibus superne confertis longe lanceolatis acutis basi subattenuatis minute denticulatis, racemo pyramidalis terminali densifloro, bracteis foliaceis deflexis lanceolatis acuminatis pedicello deflexo-curvato longioribus, tubo calycis hemisphaerico, lobis lineari-ribus acuminatis basi latis tubo corollæ dimidio et ultra brevioribus, lobis corollæ omnibus angustis acuminatis, labio inferiore trifido, antheris laciniiis brevioribus, 2 inferioribus apice barbatis.


GESNERIACEÆ.

470 et 5799. Gesneria salviafolia; caule fruticoso erecto ramoso teretiusculo glabro, ramis junioribus fulvo-tomentosis, foliis oppositis petiolatis oblongis utrinque acutis serratis supra strigoso-pilosis subitus tomentosis, pedicellis axillaribus geminis unifloris calycibusque tomentosis folio brevioribus, calycis lobis lanceolatis acuminatis, corolla tubulosa subventricosa extus minute pubescenti-tomentosa, lobis patulis rotundatis subæqualibus.


471 et 5800. Gesneria leptopus; caule fruticoso erecto ramoso teretiusculo glabro, foliis oppositis petiolatis obovatis aut ellipticis acuminatis basi acutis serratis utrinque pilosiusculis subitus pallidis, pedicellis axillaribus solitariis unifloris folio brevioribus, calycis lobis lanceolatis acuminatis pilosiusculis, corollæ cylindraceæ extus pubescentis lobis patulis rotundatis subæqualibus.

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HAB. Rocky bushy places, Organ Mountains, at an elevation of about 3500 feet.


VACCINÆ.

5804. Gaylussacia bracteata; caule fruticoso ramoso, ramis villosis, foliis petiolatis oblongis junioribus præsertim utrinque acutiusculis calloso-mucronatis margine revolutis subserrulatis utrinque villosiusculis vix pollinaribus, racemis pallidis axillarisbus solitariis folio longioribus, bracteis ovato-lanceolatis acutis apiculatis ciliatis, laciniiis calycinis subulatis villoso-ciliatis, corollis ventricoso-tubulosis glabris.

HAB. Summit of the Organ Mountains. Fl. March.

Frutex bipedalis. Folia supra viridia, subitus pallide ferruginea.

5805. Gaylussacia villosa; tota incano-villosa, caule fruticoso ramoso, foliis petiolatis oblongo-ellipticis obtusis calloso-mucronatis basi subattenuatis acutiusculis margine revolutis subcrenulatis reticulatis pollinaribus, racemis pallidis axillarisbus solitariis folio longioribus, bracteis ovato-lanceolatis apiculatis, laciniiis calycinis brevibus ovatis acutis pilosis, corollis ventricoso-tubulosis villosis, fructibus villosus.

HAB. Near the summit of the Organ Mountains. Fl. March.

Frutex 4-pedalis. Folia reticulato-venosa, venis utrinque prominentibus.

474 et 5806. Gaylussacia octosperma; glaberrima, caule fruticoso, foliis oblongis obtusis breviter calloso-mucronatis basi cuneato-attenuatis integerrimis aut versus apicem vix crenulatis penniveniis subitus punctatis, racemis axillarisbus solitariis folio longioribus, bracteis parvis lanceolatis acutis ciliolatis, laciniiis calycinis brevibus ovatis acutis ciliatis.
HAB. Organ Mountains, at an elevation of from 5-6000 feet.  
Fl. March.
Frutex bipedalis. Folia 8-10 lin. longa, 3 circiter lata.  
Corolla ignota. Drupa globosa, in sicco 8-sulcata, 8-locularis, loculis monospermis.

5807. Gaylussacia parvifolia; fruticosa, ramosa, ramis villosotomentosis, foliis petiolulatis ellipticis utrinque obtusiis callosos-mucronatis margine reflexis minute crenulatis utrinque villosus supra demum glabriusculis semipollucaribus, racemis terminalibus abbreviatis 2-4-floris, bracteis ovato-lanceolatis acutis ciliatis, laciniiis calycinis acuminatis tuboque villosus, corollis ventricoso-tubulosus angulatis pilosiscululis.

HAB. Summit of the Organ Mountains.  Fl. March.
Frutex vix pedalis. Corolla alba, laciniiis oblongis obtusis reflexis.

5808. Gaylussacia angulata; glaberrima, caule fruticoso ramoso, ramis angulatis, foliis oblongis obtusiis breviter mucronatis basi attenuatis minute crenato-serrulatis supra nitidis reticulato-venosis, racemis axillaribus solitariis angulatis folio longioribus, bracteis oblongo-lanceolatis apiculatis ciliatis, laciniiis calycinis brevibus ovatis obtusiis ciliatis.

HAB. Organ Mountains, at an elevation of about 6000 feet.  
Fl. March.
Frutex 4-pedalis. Folia 12-15 lin. longa, 4½ circiter lata.  
Corolla ignota. Drupa subglobosa, 10-locularis.

5809. Gaylussacia fasciculata; caule fruticoso apice fasciculato-ramoso, ramis glabris, foliis petiolaris oblongo-ellipticis obtusiis apiculati apiculo obtuso calloso basi subcuneatis margine revolutis supra medium subserialis utrinque glabris coriaceis pollfaribus, junioribus utrinque pilosis, racemis pallidis axillaribus solitariis folio brevioribus calycibusque pubescentibus, bracteis membranaceis ovatis ellipticis obtusiis ciliolatis, laciniiis calycinis brevibus ovatis acutis, corollis ventricoso-tubulosus glabris.
HAB. Organ Mountains, at an elevation of about 4000 feet.  
Fl. March.

ERICACEÆ.

475 et 5802. Leucothoe (Agastia) Organensis ; glabra, ramis dense fastigiatis, ramulis angulatis, foliis petiolatis ovato-ellipticis obtusis mucronatis basi cordatis margine valde revolutis integerrimis coriaceis reticulato-venosis, racemis axillaribus trifloris puberulis folio brevioribus, floribus pedicellatis, corollis ovato-cylindricis, ovario glabro.
HAB. In Sphagnun bogs on the Organ Mountains, at an elevation of about 6000 feet. Fl. January.

ILICINEÆ.

5696. Ilex buxifolia ; glaberrima, foliis parvis elliptico-lanceolatis acutis vel interdum obtusis coriaceis uninerviis integris margine subrevolutis breve petiolatis supra viridibus nitidis subtus pallidoribus, pedunculis axillaribus trifloris, calyce 4-6-fido, corolla 4-6-partita, drupa 4-6-pyrena.
HAB. Bushy places near the summit of the Organ Mountains. Fl. March.
LABIATEÆ.

5827. Salvia (Calosphace) macrocalyx;* caule fruticoso erecto ramoso, ramis tetragonis viloso-subtomentosis, foliis brevissime petiolatis oblongo-lanceolatis acutis minute serratis supra villosis subtus tomentosis, floralibus parvis sessilibus ovato-rotundatis acutis supra glaberrimis subtus tomentosis deciduis, racemis simplicibus, verticillastris 4-8-floris, calycibus campanulatis dense fulvo-lanatis, labio superiore integro obtuso, inferiore bifido dentibus acutis, corollis calyce dimidio longioribus extus lanuginosis, labio superiore erecto, inferiore breviore integro apice bidentato, connectivis postice deflexis linearibus longitudinaliter connatis, stylo barbato.

HAB. Woods between the Organ Mountains and Novo Friburgo. Fl. April.


VERBENACEÆ.

5829. Lippia triplinervis; fruticosa, erecta, ramosa, ramis piloso-pubescentibus, foliis confertis oppositis brevissime petiolatis ellipticis obtusis basi subcuneatis triplinerviis supra medium crenato-serratis utrinque adpresse pilosiusculis subtus punctatis, pedunculis axillaribus solitariis folia subaequantibus, capitulis hemisphæricis laxis pauci-floris, bracteis ovatis obtusis pilosis tubo corollæ brevioribus.

HAB. Summit of the Organ Mountains. Fl. March.

Frutex bipedalis, ramosus, ramis fastigiatis. Folia ad apicem ramulorum conferta, subpollicaria, 6 lin. lata. Flores

*This is a perfectly distinct species, allied to S. Mariana, Mart.—G. B.

5830. *Ægiphila lanuginosa*; tota pagina superiore foliorum excepta fulvo-tomentosa lanuginosa, amis compresso-te-tragonis, foliiis breve petiolatis oppositis oblongo, lanceolatis acuminatis basi acutis margine revolutis integerrimis supra glaberrimis nitidis, cymis axillaribus multifloris pedunculatis, calycibus bilabiatis labiis utrinque bidentatis, corolla glabra.

HAB. Woods, Organ Mountains, at an elevation of about 4000 feet. *Fl.* March.


**Begoniaceæ.**

602. *Begonia confertiflora*; suffruticosa, erecta, ramosa, ramis pedunculis petiolisque hirsutis, foliiis subinequaliteris oblongis acuminatis basi subcordatis minute serrato-dentatis supra glabris subtus nervo medio hirsutis, stipulis magnis oblongis obtusis basi attenuatis, cymis axillaribus dichotomis multifloris, capsule alis subæqualibus rotundatis.

HAB. Organ Mountains, in virgin forests, at an elevation of about 3000 feet. *Fl.* March.

Suffrutex 3-4-pedalis. Folia 8 poll. longa, 2½ poll. lata, supra viridia, subtus pallida. Flores conferti. Capitula 3 lin. circiter longa, subglobosa.

Near B. *ulmifolia*, H. B. et K., but with leaves more than twice the size, and nearly equal capsular wings.

605 et 5844. *Begonia reticulata*; herbacea, erecta, ramosa, glaberrima, foliiis valde obliquis cordatis oblongis acuminatis angulatis irregulariter serrato-dentatis basi 3-4-nerviis, stipulis membranaceis eleganter reticulato-venosis,
panicula dichotoma, floribus roseis fœmineis basi bibracteatis, bracteis coloratis ovatis acutis, petalis 5 subinæqualibus ovatis vel ovato-oblongis obtusis, capsulæ alis duabus parvis, tertia majori rotundata.

HAB. In dry woods on the Organ Mountains, at an elevation of upwards of 6000 feet. Fl. March.

Herba basi suffruticosa, bipedalis. Folia 4 poll. longa, 15 lin. lata, supra viridia, subtus pallida.

Apparently near B. pulchella, Raddi, but distinguished by the unequal wings of the capsule.

606. Begonia Hookeriana; fruticosa, erecta, ramosa, minute rufo-lepidoto tomentosa, foliiis valde inæquilateris fere pedalibus acutis basi subcordatis duplicato-dentato-serratis, stipulis coriaceis oblongo-lanceolatis, cymis axillaribus dichotomis multifloris, floribus parvulis, fœmineorum petalis 5 oblongis obtusis æqualibus, capsula subglobosa, alis 3 æqualibus rotundatis.

HAB. In dense virgin forests in the Organ Mountains, at an elevation of about 3000 feet. Fl. February.

Frutex 5-6-pedalis. Folia 10-12-pollicaria, 4-5 poll. lata, pennivenia.

PROTEACEÆ.

615. Rhopala Organensis; arborea, ramulis compresso-angulatis, petiolis spicis floribusque pubescenti-tomentosis, foliiis alternis pinnatis, foliolis 4-5-jugis oblongis vel ellipticis acutis basi inæqualibus acute serratis supra glabris subtus pubescentibus reticulatis, spicis axillaribus folio brevioribus.

HAB. Rare, in forests on the Organ Mountains, at an elevation of about 3500 feet. Fl. February.


THYMELACEÆ.

5849. Lagetta alpestris; dioica, frutica, subdichotomo-ramosa, foliiis alternis breve petiolatis elliptico-oblongis obtusis
basi subcuneatis margine revolutis utrinque glaberrimis, pedunculis axillaribus solitariis bifloris folio brevioribus, floribus subsessilibus, perigonio 4-vido, lobis rotundatis utrinque pubescentibus.

**Hab.** Bushy places on the Organ Mountains, at an elevation of from 5-6000 feet. *Fl. March.*


**Monimiaceae.**

5863. Tetratome *cinerea*; foliis oblongo-ellipticis acuminatis basi acutis versus apicem distantier argute serratis marginè subrevolutis, pedunculis masculis axillaribus fasciculatis vel subracemosis trifloris, perigonio campanulato extus cinereo adpresse pilosiusculo quadrifido.

**Hab.** Woods in the Organ Mountains, at an elevation of about 4000 feet. *Fl. January.*


Kandy, Ceylon, Sept. 22, 1844.

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**A Brief Description of a New Species of Mamillaria, in the Royal Botanic Gardens of Kew; by Frederick Scheer, Esq.**

**Mamillaria Voburnensis, Scheer.**

(Distributione Horti Voburnensis percognita).

M. lactescens cylindrica vertice convexa basi et superne prolifera: axillis mox lanatis et setosis; mamillis brevibus
Dacrydium Franklinii
On The Huon Pine, &c.

subovatis, ad basin latis confertis, superne repandis, faciebus superioribus polyédris cum inferioribus rotundatis, obscure viridibus et versus apicem rubris; areolis apicem mamillarum positis, albo-lanatis mox nudis; aculeis exterioribus sub 9 (8° longis) subœqualibus irregulariter patentibus incurvatus eburneis 4 inferioribus nec non longioribus, centralibus 1-2 duplo longioribus, nascentibus brunneis deinde etiam eburneis brunneo-sphacelatis rectis erectis, omnibus rigidis subulatis.

Patria Guatimala. Flores nondum vidi.
Altitudo Plantæ 2°.
Diameter 1½°.


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On the Huon Pine, and on Microcachrys, a New Genus of Coniferæ from Tasmania; together with Remarks upon the Geographical Distribution of that Order in the Southern Hemisphere; by Joseph Dalton Hooker, M.D. R.N., Botanist to the Antarctic Expedition.

(With a Plate. Tab. VI.)

Long as the Island of Tasmania has been colonized by Europeans, its noblest trees, and those too belonging to that most readily recognized and important Natural Order (the "Pines"), have, until quite lately, been little understood by Botanists. Whilst the continent of Australia was known to possess numerous species of *Callitris* and *Podocarpus*, and New Zealand has been celebrated as yielding a remarkable proportion of Coniferæ, Tasmania was generally supposed to produce much fewer of these most useful trees. Such, however, is not in reality the case; for the island in question is now proved to contain a greater number of species in proportion to its area, and these of more peculiar forms, than any other country. The fact of their having so long remained unknown, or at least unrecorded, is mainly owing to the individuals of each species being either very few in number, or
else remarkably local, and consequently confined within narrow areas; and further, to the want of an intelligent class of natives, such as inhabit New Zealand, who may direct the man of science, or the settler, to what tradition and experience have taught the aboriginal inhabitant to value in his savage state. Many of the species, also, are limited to the more remote and almost inaccessible parts of the island; only bearing flowers after attaining a considerable size, and they are not easily procured in a state fit for examination. Such is eminently the case with the Huon Pine: it is confined to the western and southern parts of the colony, growing in dense forests, or amongst mountains covered with a vegetation the most difficult to penetrate. It has been seen by few Europeans, save the wood-cutter or the convict; itself being the only inducement for a Botanist to visit that tempestuous and rainy quarter of Tasmania. Mr. Gunn, to whom the botany of this part of the globe is so greatly indebted, and to whose zeal and perseverance we owe the discovery of nearly one half of its Coniferae, never found the Huon Pine in its native state; and of the three men of science who have done so, Sir J. Franklin, Mr. Backhouse, and Mr. A. Cunningham, the latter alone has been able to procure fructification, and that but imperfect.

Next to the Huon Pine, the species called the Celery-topped or Adventure-Bay Pine, is the best known to the colonists, as well as the most widely diffused; and until these very few years, none other was described by Botanists. It is the Podocarpus asplenifolia of its discoverer, Labillardière, the distinguished naturalist and historiographer of D'Entrecasteaux's Voyage.

The Oyster-Bay Pine, a species of the widely distributed Australian genus, Callitris, is the only other coniferous plant commonly known amongst the colonists of Tasmania. It is true that a large district in the interior is called the Pine-marshes; and a river given off from it bears the same name; but, unless a species of Arthrotaxis which I procured in its bed, at a considerable distance from its source, and
far from the locality of the Pines themselves, can be considered as a voucher for the vegetation of the marshes in question, we must confess ourselves still ignorant of any plant so abundant as to have suggested an appellation for an area perhaps as large as Middlesex, though in an island smaller than Ireland.

In 1825, Mirbel’s Paper on the Geographical Distribution of the Coniferae appeared, in which Mr. Brown enumerated, besides many other new individuals of this Order, two from Tasmania: the Podocarpus alpina, Br., which inhabits the summit of Mount Wellington, and Calitris Australia, Br., or the Oyster-Bay Pine. These, with the Podocarpus aspleniifolia of Labillardière, were the only Coniferae known to grow in this island, until the collections of the late lamented Mr. Lawrence arrived, containing a species of Podocarpus? which has been seen by no subsequent Botanist. In 1810 Mr. Cunningham gathered the Huon-Bay Pine in an imperfect state, and from his specimens the fructification will be here described. Lastly, in 1836, Mr. Gunn discovered no fewer than three species of the genus Arthrotaxis, and another Pine belonging to a new genus to be here described (Microcachrys, nob.); since which he has added a second Calitris, increasing the number of Coniferae from four to ten. Arthrotaxis was founded by the late Professor Don,* on two of Mr. Gunn’s plants contained in Dr. Lindley’s herbarium.

Before proceeding to an enumeration of the Tasmanian Coniferae, I may be allowed to offer a few remarks on the distribution of that Order in the southern portion of our globe, seeing it has been so greatly augmented since the publication of Mirbel’s valuable Memoir.†

One of the most striking features of the Coniferae in the Southern Hemisphere is their general dissimilarity to those of the Northern. Yet, although the genera be fewer in number, they have an equally wide range; while their species, though bearing a larger proportion to the genera, are confined

* Don in Linn. Trans. v. 18, p. 171.
† Vide Mirbel, in Mémoires du Muséum. v. 13, p. 38.
within much narrower limits. Thus, out of the ten genera, and between fifty and sixty species, scattered over the surface of the globe south of the Equator, *Arthrotaxis* and *Microcachrys* (Hook. fil.) are the only two that are restricted to a single locality. Of the first of these there are but three species, all limited to an area not greater than Yorkshire. *Araucaria*, on the other hand, of which there are five known species, has them very widely dispersed, only one country, Australia, presenting two of them.

Although some uncertainty still exists respecting the kinds of *Conifera* inhabiting the vast tracts of the Cape Colony, and the rarely visited mountains of Chili and Patagonia, those of Australia and New Zealand are now so well understood, that the following notices may be considered as probable approximations to their actual distribution.

1. *Araucaria*, *Juss*. This genus includes five known species, each with a remarkably narrow range, though together they form a widely diffused genus: 1. *A. excelsa*, Aiton, the *Norfolk Island Pine*, is probably confined to that island; one of the Australian species (*A. Cunninghamii*) which had been supposed the same, having proved very distinct from it, and the New Caledonian one not being fully authenticated. 2. *A. Bidwillii*, Hook. (in Lond. Journ of Bot. v. 1, p. 503, t. X.) is a noble and recently discovered tree of the Brisbane Mountains, near Moreton Bay, New Holland. 3. *A. Cunninghamii*, Aiton, the *Moreton Bay Pine* grows on the shores of the waters of the same country. 4. *A. imbricata*, Pavon, the "* Banksian*" or "*Chili Pine*," is confined to the Chilian Andes, between the parallels of 37° and 46°. 5. *A. Brasiliensis*, the *Braziliam Pine*, is indigenous on the mountains of South Brazil, in the neigh-

* This genus has lately been broken up into two; the first containing the Brazilian and the Chilian species, for which the name *Araucaria* has been reserved; to the other, which includes the *A. Cunninghamii* and *A. excelsa*, Salisbury's name of *Eutassa* is given. The *A. Bidwillii* would belong to *Araucaria*, as thus limited. The validity of these genera has hardly been acknowledged by Botanists.
bourhood of Rio de Janeiro, and is more abundant in the province of St. Paul's (as I was informed in that country). It is not improbable that the species, stated to have been found in New Caledonia by Cook, may prove distinct from any of the above.

II. DAMMARA, Lam. 1. D. australis, Lamb. the Kaudi, Cowdie, or Kauri Pine of New Zealand, grows on the mountainous regions in the Northern Island of that group. Mr. Hinds, in his description of the vegetation of the Fejee Islands, mentions a species said to exist there. (vide Lond. Journ. Bot. v. 1, p. 671.)

? III. JUNIPERUS, L. 1. J. uvisera, is described by Don as a native of Cape Horn; this, however, must be considered a very doubtful species. A second is mentioned by Mirbel, J. Capensis, Lam.


? V. CUPRESSUS, L. 1. C. Africana, Mill. mentioned also by Mirbel, is probably a species of the following genus.

VI. PACHYLEPIS, Brongn. Three species are enumerated by Brongniart, who founded this genus.† 1. P. Commersonii, from Mauritius. 2. P. cupressoides, and 3. P. juniperoides, both from the Cape; the latter is doubtful, and perhaps not distinct from the former. Besides these there is another Cape plant in the Hookerian Herbarium, named Cal-ëtryis stricta, Schlect. mss. (Drège); but as the scales of this genus vary much in form with age, I could not pronounce the imperfect specimens distinct. Dr. Wallich has sent

another *Pachylepis* from South Africa certainly distinct from *P. cupressoides*, which may however be the *C. stricta*.

**VII. Callitris, Vent.** Of this genus there are probably at least twelve or fifteen individuals in Australia. The North African C. *quadrivalvis*, is still retained in *Callitris* by M. Brongniart, who removes the S. African species to *Pachylepis*. I am, however, inclined to think that the forms from these three widely separated localities will eventually prove to belong to one and the same genus. Spach more recently breaks up *Callitris* into three genera, confining that name to the original N. African plant, and applying Mirbel’s name of *Frenela* to the Australian species.

**VIII. Arthrotaxis, Don.** Founded on two Tasmanian plants, 1. *A. selaginoides*, and 2. *A. cupressoides*; to these another has been added, 3. *A. laxifolia*, Hook. (Ic. Plant. t. 573).

**IX. Microcachrys, Hook. fil.** vid. infra, comprising a single species, discovered by Mr. Gunn in the interior of Tasmania.

**X. Podocarpus, L’Hér.** The most extensive of all the southern genera of *Coniferae*, upon which Mr. Bennett has published an excellent dissertation.* There are three species from Australia, 1. *P. elata*, Br. 2. *P. spinulosa*, Br. 3. *P. ensifolia*, Br.;—and two from Tasmania, 4. *P. alpina*, Br., 5. *P. Lawrencii* (vid. infra). Six inhabit the New Zealand Islands. 6. *P. spicata*, the *Mai* or *Matai*. 7. *P. ferruginea*, Don, the *Miro* or *Maira*. 8. *P. Totarra*, Don, the *Totarra*. 9. *P. dacrydioides*, A. Rich., the most abundant of the New Zealand species in the neighbourhood of the Bay of Islands, “*Kai-kata*” of the natives. 10. *P.? biformis*, Hook. 11. *P. nivalis*, Hook. (Ic. Plant. t. 582), this is possibly a variety or alpine state of the *P. Totarra*. In Chili there are also several species, perhaps not less than three: 12. *P. Chilina*, Rich.; this, and two others, are in the Hookerian Herbarium.

* Plantæ Javanicae rariores, p. 40.
There are two Brazilian, and lastly, three Cape species of this genus, making about thirty southern species in all.


From the above list it will be seen that four genera are peculiar to the Southern Hemisphere, *Araucaria, Phyllocladus, Microcachrys*, and *Arthrotaxis*. Three others have their maximum to the south of the tropics, *Callitris, Podocarpus*, and *Dacrydium*. *Dammara* has one species in each hemisphere. *Thuja* is equally divided between the two; whilst *Juniperus* and *Cupressus* are barely, if at all, represented, except perhaps the latter by *Arthrotaxis*.

*Dacrydium laxifolium*, Hook. fil.; caule humili fruticoso, ramis prostratis laxe ramosis gracilibus, foliis undique insertis sparsis patentibus linearibus obtusis coriaceis supra concavis supremae imbricatis ovatis multo brevioribus dorsi carinatis, fructibus terminalibus solitariis erectis.

HAB. New Zealand, near the summit of Tongariro. Mr. Bidwill (No. 5), *Colenso* (No. 60.)

Whether or not the present be an alpine form of some larger species, I am unable to say. It is marked by Mr. Bidwill as "Rima," from which I suppose that gentleman considered this plant to be a state of the *D. cupressinum*; but it is a wholly different species from that, in no way resembling what might from analogy be assumed as the mountain form of that tree. I am indeed more inclined to suppose it a strictly alpine species, like the *Podocarpus alpina*, Br. of Tasmania, which is only known as a small mountain plant. The leaves of the present are very lax on the stem, like those of a *Sedum*, patent and more flaccid than is usual amongst the *Conifera*; the largest are not above two lines in length, convex or keeled below, and more or less concave above; they are contracted at the base and not decurrent on the branches: those at the apices are much smaller and closely imbricated. The whole length of our specimens of the entire plant, which are very good, does not exceed a span. The fruits are abundant, terminal, and erect.
If we divide the regions which these Coniferae inhabit into four, namely Australia, New Zealand, South America and South Africa, it will appear that they are very unequally diffused, and that their relative abundance is not regulated by the extent of surface, which might be expected to be the case with a group composed of peculiarly local species. Only one of the genera is common to them all, Podocarpus, it is in all respects the most widely diffused genus of Coniferae, as it is one of the most extensive. Araucaria comes next, being found in three of the regions, Australia, New Zealand,* S. America. Thuja has been detected in two only, America and New Zealand; Callitris, including Pachylepis, in Australia and Africa; Dacrydium and Phyllocladus in Australia and New Zealand. Juniperus is confined to America, if indeed it really exists in the Southern Hemisphere, and Arthrotaxis and Microcachryis to Tasmania.

In conclusion, I shall arrange the genera in the order of their relative abundance in the countries specified above.

I. Australia is by far the richest, containing as it does seven genera and probably twenty-six species, thus: Callitris 12, Podocarpus 6, Arthrotaxis 3, Araucaria 2, Microcachryis 1, Dacrydium 1, Phyllocladus 1. It also exhibits the most striking coniferous vegetation, and is the only country possessing any two peculiar genera.

II. New Zealand contains of Podocarpus 6, Dacrydium 3, Thuja 1, Phyllocladus 1, Dammara 1, Araucaria 1; six genera and thirteen species. In Phyllocladus and Dacrydium it partakes of the Flora of Australia, and in Thuja that of America.

III. America; Podocarpus 4, Thuja 2, Araucaria 2, Juniperus 1; four genera and eight or perhaps nine species.

IV. Africa; Podocarpus 2, Callitris (Pachylepis) perhaps 3, Juniperus 1; three genera and six species; the affinity to the Coniferae of Australia, through Callitris, is manifest.

From this it appears that the number of species

* I include Norfolk Island in the New Zealand division.
increases in proceeding to the westward from the African continent in the southern hemisphere; and in another point of view, Australia may be considered the centre of their development, as they are not only most abundant there, but the forms of New Zealand on one side, and of Africa on the other, resemble more those of Australia than those of America, or one another.

The Tasmanian species of Conifera, so far as is at present known, are peculiar to that island, and more local there than in any other part of the globe. If Pachylepis be regarded as a subgenus only of Callitris, then this island has representatives of all the genera peculiar to the southern hemisphere, except Araucaria; besides possessing the only two that are not common to two of the regions enumerated above. I have before considered Tasmania as part of the Australian region; but if we go on to compare it with the vast country lying to the north, it will be found still more peculiar in its Coniferous vegetation, as a part of that tract, than the latter as a whole was shown to be; for whilst Australia has only three of the genera, Tasmania has six.

Although, in a measure, anticipating the "Flora of Tasmania," for which ample materials are in my possession for publication, under the authority of the British Government, I shall here offer a few remarks on the different species of that island, before proceeding to describe the noblest of them all, the Dacrydium Franklinii, or Huon Pine.

1. Callitris, Vent.

This genus, which was divided by Mr. Brongniart into two, has been further modified by Spach, who separates from both the North African C. quadrivalvis, for which alone Ventenat's name of Callitris is retained. The differences between these are excellently displayed by Spach in the "Suites à Buffon" (Hist. Nat. des Végét., v. 11, p. 345), though I should not attach the same importance to them as does that acute observer. The numerous scales of the Australian group are certainly a remarkable character.
Yet that number and their relative size are so variable as considerably to diminish their value as a diagnostic mark. The ternary arrangement of the seeds, much dwelt upon by Brongniart, as typical of the Australian form, is a striking and prominent character in our Cape species, whose seeds are hardly winged. The tuberculated receptacle is not constant in the Australian species, nor are the scales of the cones always alternately smaller. The wings of the seeds differ much in size, some being quite as broad as those of Callitris or Pachylepis; the seeds themselves are not always osseous; one species of the latter genus having the seed much more osseous than any Australian Callitris, and almost wingless. I have not been able hitherto to detect any difference, except that they bear three anthers or pollen-thece, between the male amenta of Callitris and Pachylepis, though Brongniart suggests that such may exist. The leaves of the Cape species are sometimes decussately opposite, and regularly so throughout a great part of the branches; those of the northern plant are arranged in fours, and of the Australian in threes. The latter is the most remarkable number amongst Coniferae, and is accompanied with two cotyledons, which is also the case in one species of the Cape Pachylepis. The pollen grains in Callitris, Frenela, and Pachylepis, are small, spherical, transparent, perfectly smooth spheres, with an irregular, darker nucleus; in a young state they appear more flattened, resembling disks, and are larger. The two Tasmanian species belong to Brongniart’s genus Frenela, its most evident character lies in the ternary arrangement of the leaves. Spach rightly supposes that these, in a young state, are acicular, like those of Thuja, &c.

1. C. australis, Br.; strobilis glomeratis solitariisve breviter pedunculatis globosis (magnitudine coryli avellanae), valvis lignosis crassis late ovatis valde obtusis v. sub-acutis laxeibus v. longitudinaliter rugosis, receptaculo vix rugoso, columna centrali brevi tricruri vel nulla, seminibus osseis late ovatis alarum marginibus membranaceis.

“Oyster-Bay Pine,” incolarum.
HAB. Tasmania, on the east coast; Mr. Backhouse; Gunn, n. 543. Flinders's Island, Bass' Straits; Backhouse.

Were it not for the noble suite of specimens sent by Mr. Gunn, under the same number, I should certainly have been led to make at least two species of this, so different is the character of its extremes. The cones when mature are either smooth or much corrugated, their angles acute or blunt, the colour pale grey and shining, or brown and opaque; in the centre of the cone there is generally an elevated woody body, with three divergent arms, one opposite each of the smaller scales, these sometimes fork again; in other cases this is reduced to a single short style, or may be wholly wanting; it appears formed of three abortive, confluent ovaria. The seeds vary much in size, and in the shape and breadth of their wings.

This species forms a large tree (according to Mr. Backhouse) 50-70 feet high, and 6-9 in girth, sometimes giving a peculiar feature to the landscape from its pyramidal form. Mr. Gunn states its height to be 25-30 feet, and its trunk a foot in diameter, whence there may be another species yet undescribed.* I have never seen much use made of the wood, which is alleged not to be durable. It is very fragrant; and according to Mr. Backhouse, obnoxious to bugs.

2. C. Gunnii, Hook. fil.; strobilis subsolitariis v. glomeratis breviter pedunculatis ovatis, valvis lignosis linearibus obtusis v. subacutis dorso convexis laevibus v. longitudinaliter rugosis, receptaculo laevi, columna centrali brevi simplici v. tricruri v. nulla, seminibus late ovatis osseis ala plerumque brevissima.

"Native Cypress," incolarum.

HAB. Tasmania, South Esk River, Mr. Gunn (n. 542).

* In Mr. Backhouse's "Narrative of a Visit to the Australian Colonies," in mentioning the vegetation of Oyster Bay, he enumerates the Oyster Bay Pine and also the Callitris pyramidalis among the native trees of that locality; from which remark, and the discrepancy between his own and Mr. Gunn's dimensions of the timber, it is more than probable that there are three Tasmanian species of Callitris.
Mr. Gunn says this species forms a small tree, 6-10 feet high, called the "Native Cypress." It is very distinct from the former, especially in its ovate, generally larger, but very variable cones, and the harder, narrower, and unwinged seeds.

2. **Arthrotaxis, Don.**

Mr. Don's excellent description of this genus is published in the 18th volume of the *Linnaean Society's Transactions*; the character is not, however, complete, owing to the absence of perfect specimens. The embryo, which was wanting, I have found to be inclosed in a rather thin coat of albumen; it is stout and cylindrical, occupying nearly the whole length of the seed, and furnished with two cotyledons, which Mr. Don rightly presumed it would possess. The *A. laxifolia*, Hook., is the only other known species, *A. tetragona* proving, on examination of its fruit, to belong to a different and new genus, *Microcachrys* (nobis). The pollen of *Arthrotaxis* is, like that of *Callitris*, formed of transparent spheres, generally, if not invariably depressed, with a central, more opaque nucleus; in the young plant it is larger, much more depressed, and hence discoid.


**HAB.** Tasmania, Falls of the Meander River, *Gunn*, n. 368.

The seeds represented in the "*Icones Plantarum*" probably belong to the following species, in this that organ is nearly orbicular, deeply notched at the apex and base, the wings broad and membranous.

2. *A. cupressoides*, Don, *l.c.* p. 173, t. 13, fig. 2; *Hook. l.c.* t. 559.


The seed of this species is smaller than that of the last, broadly ovate, or somewhat deltoid, with thick spongy wings, formed of two membranes inclosing the seed in their centre; the latter is also smaller than, but quite similar to, that of *A. selaginoides*. The only native living specimen of this tree
which I have seen was in the bed of the Pine River, down the course of which it had been washed, and, grounding, had formed the nucleus of a small island; it was about 15 feet long, and though prostrate quite alive, having shot up several erect branches, to the height of 8 or 10 feet, covered with a lively green foliage, and bearing abundance of fruit. Mr. Gunn describes it as growing at Lake St. Clair to the height of 25-30 feet, with trunks 18 inches to 2 feet in diameter; one very old one, hollow in the centre, measured 15 feet round, at 3½ feet from the ground, from whence it tapered rapidly upwards.


Hab. Tasmania, Falls of the Meander River, Gunn, (n. 369?)

Some doubt was expressed in the "Icones Plantarum" of the validity of this species, neither the flowers nor fruit being known. Another specimen, with cones, received from Mr. Gunn, seems to establish its claims to specific distinction. The cones are nearly the size of those of A. selaginoides, with the seeds smaller and of a different form, being (including the wings) broadly oblong, their sides parallel, and the base and apex emarginate; the wings are thick, and formed of two membranes inclosing a spongy substance, as in A. cupressoides, but they are broader above than in that plant; the embryo is altogether like that of the two former. The leaves are as represented in the "Icones Plantarum," in fewer series, shorter, smaller, and more lax than in A. selaginoides.

3. Microcachrys, Nov. gen.

patentibus, apicibus acuminatis recurvis, medio concavis. Se-
mina solitaria, erecta, omnino nuda, squama submajora, ovata,
compressa; testa scariosa, membranacea, hyalina.—Arbus-
cula procera, 15 ad 25 ped. alta, facie verosimiliter Cupressi,
sed foliis Dacrydii. Folia in plantis junioribus quadrifariam
inserta, in senioribus, imbricata, ramo appressa, rhombeo-ovata,
dorso carinata. Amenta ad apices ramorum plurima; mas-
cula erecta, sub 2 lin. longa, cylindracea; feminea curvata,
cernua, repandula, e squamis 8-10 formata.
1. Microcachrys tetragona, Hook. fil.; Arthrotaxis tetra-

HAB. Tasmania, on the banks of Lake St. Clair, abundant,
Gunn (866).

This genus is distinguished from Arthrotaxis by the very
different form and structure of its amenta, which are not
broader than the branches; by the solitary, exposed seed;
and by the hyaline membranous testa surrounding it: from
Cupressus the same character will also separate it. The pol-
len is of a different form from that of either of those genera,
and the foliage also.


1. P. alpina, Brown, in Mirbel, Essai sur la Géographie des
Conifères in Mém. Mus. d'Hist. Nat. v. 13, p. 75. Bennett,

HAB. Tasmania, on the summit of Mount Wellington and
near Marlborough, in the elevated central parts of the
island, Gunn (n. 226).

This is one of the few species of Coniferae which, except-
ing the Junipers, never attains the size even of a shrub; it
is allied to the P. Totara of New Zealand, but is a very dis-
inct plant. The Marlborough specimens are larger than
those from Mount Wellington; in the former habitat it
grows at about 3000 feet above the sea, and near the summit
of the latter mountain at 4,000 feet. The pollen-grains of
all the Podocarpi which I have examined, except P. dacry-
dioides, namely those of P. Totara, P. ferruginea, and the
present, are, as Mr. Bennett describes in his able paper, of a curved oval form, with dark granular extremities. Of *P. dacrydioides* I have seen only very old and perhaps mutilated grains, which were certainly trigonous with three opaque nuclei, very much like those of *Microcachrys*.


**Hab.** Tasmania, *Lawrence*, n. 218.

This is a very distinct species, though possessing neither flower nor fruit; still the habit and appearance are altogether like *P. spinulosa*, Br., and the woody tissue presents a single series of minute glandular dots. The twigs are slender, the leaves nearly half an inch long, slightly curved, about two lines broad, of a pale green, somewhat glaucous underneath.

I have been anxious so far as materials exist for that purpose to record in this Natural Order the names of those individuals who have done most for the Botany of this island. Since the days when Mr. Brown collected his extraordinary herbarium, and first brought to light a host of Tasmanian plants in the "Prodromus Florae Novaee Hollandiae," there has been no more successful Botanist for the time than the late Mr. Lawrence, who commenced forming a herbarium of the whole island, a work which Mr. Gunn has almost concluded.


**Hab.** Tasmania, in the mountainous and humid parts of the colony.

This elegant tree, like its New Zealand congener, seldom exceeds 50-60 feet in height; the trunk is slender and quite erect, very useful for small masts. The bark is also used to tan leather with, for which purpose it is well adapted. The pollen-grains of this species are similar to those of *P. trichomanoides*; they are less curved, much broader than in *Podocarpus*, and also flatter and more transparent.

1. D. Franklinii; Hook. fil.; ramis cum foliis tetragonis ramosisissimis, foliis parvis cruciatim oppositis ramo appressis rhombeo ovatis subacutis dorso carinatis, amentis femineis terminalibus curvatis cernuis v. pendulis 5-7 floris, fructibus laxe spicatis minimis, squama parva, squamula fructisfera concava antice fissa, semine parvo erecto elliptico-compresso subdrupaceo (Tab. VI.)

"Huon Pine" of the Colonists.

Hab. Tasmania, Huon River; Gunn, n. 1248; McQuarrie Harbour, Mr. A. Cunningham.

This is certainly the most interesting and valuable tree of Tasmania; but it has been seen by few scientific persons. Mr. Cunningham's specimens are very imperfect, consisting merely of the ends of branches, about four inches long, much divided in a fasciculated manner, the ultimate divisions, which are exceedingly numerous, are about one quarter of an inch long and a line in diameter, very brittle, and covered with the leaves. The latter are quadrifariously imbricated, less than half a line in length, dark-green, and shining when dry, acutely keeled at the back, having a depression on each side of the keel. The spikes of fruit are inconspicuous, at the apices of the branchlets, either drooping or curved downwards, about one line long, consisting of a central axis or stalk, which gives off 6-8 horizontal scales or bracts; the latter are ovate, plane or concave on the upper surface, and very convex or rounded beneath; upon each is situated a shallow cup (the fruit-bearing scale) open towards the axis of the spike, formed in the old and dried specimen of two membranes, with an interposed hollow; the edges of this cup are obscurely crenated, and turned rather outwards, and they surround the base of the seed. The majority of the seeds of Mr. Cunningham's specimens are in a very bad state; the most perfect are broadly ovato-oblong, or somewhat elliptical, compressed from back to front, the sides rather acute or blunt, the apex notched, with a small tubercle
in the notch; the outer coat was probably fleshy, but now shrivelled, and contains a loose hard nut, attached at its base and apex to the outer withered coat, and containing an erect seed of the same shape as the seed, fixed by the base, and with a black apex; the testa is very thin and delicate, the albumen fleshy and apparently copious, with a central hollow for the embryo, which was not seen in those very unfavourable specimens, but is probably very small; the whole length of the seed is under half a line; most of them appear abortive, and many contain the larva of a small coleopterous insect, which is probably deposited before the closing of the foramen, and which feeds on the albumen, perhaps the embryo also, which was never found.*

Mr. Cunningham remarks of it, that it forms a tree of irregular growth at McQuarrie Harbour, from 60-70 feet high, and 6-24 in circumference.

Mr. Backhouse, in his valuable ms. notes, in our possession, (and he is one of the few scientific persons who have seen this plant) says of it, that "it forms a noble tree, growing in swampy places, of a widely pyramidal form; the branches rather droop, and the ultimate ones are pendent, like those

* In one respect, namely, the maturation of many seeds at the apex of each fruit-bearing branch, this species differs remarkably from any of its congenera, and from Podocarpus. The plurality of the ovuliferous scales, and their arrangement on an axis, in all respects analogous to that of the ordinary strobilus, and particularly similar to that of Microcachrys, is a further confirmation of the view Messrs. Brown and Bennett have taken of the place of the Podocarpi and Dacrydia in the Nat. Order Coniferae. They remove them from the Tazinæ, and associate them with the True Pines (vid. Brown and Bennett in Plant. rar. Jav. p. 37). The arrangement of the female inflorescence in the form of a strobilus being the ordinary one amongst Coniferae, the Huon Pine may in this particular be regarded as the most fully developed of the little group, including Phyllocladus, Podocarpus, and Dacrydium, to which it belongs. D. Colensoi, to which the present bears a considerable resemblance, produces also several terminal female flowers, but one only ever arrives at maturity. Phyllocladus has often several mature seeds; but the foliaceous nature of the parts very much marks the resemblance of its inflorescence to an ordinary strobilus, which is sufficiently evident in Dacrydium Franklinii."
of Cypress or White Cedar; the trunk attains a height of about 100 feet, and is from 22-26 in girth. The wood burns briskly, giving out a pleasant aromatic smell; it is close-grained, valuable for ship-timber, and all purposes to which pine-wood is applied, and may be obtained in logs 40-50 feet long." Mr. Cunningham's specimens do not present any of the pendulous branches; such are, however, sent by Mr. Gunn; they are nearly two feet long, and covered with longer and more slender and flaccid twigs than the others.

The most interesting account of the Huon Pine that I have ever seen, was written by my friend Mr. Lemprière, to whom I am indebted for much kindness showed during a short visit I made to him, in company with Sir John and Lady Franklin. In* Mr. Lemprière's account of McQuarrie Harbour, he says:

"The Huon Pine unites great beauty to extensive utility. It attains the height of seventy feet; in circumference it seldom exceeds fifteen. It grows in a pyramidal form, extending its limits to a great distance, when smaller branches droop, something in the same manner as the Weeping Willow; the colour of the foliage is rich green. The Huon Pine affords an excellent substitute for deal; and is, indeed, in many respects superior to that wood. For ship's decks and interior, for boat-building, and innumerable other purposes, its qualities are unequalled.

"Huon pine forms the principal article of export from McQuarrie Harbour: two thousand eight hundred and sixty-nine logs were collected in one year (1827) from different spots in the vicinity of the settlement, principally from the Gordon River. Sometimes the timber was found at some distance inland; in that case, a road was made to the water-side, by felling the intermediate trees, and placing the trunks transversely across the road, so as to form ways over which the pine logs,

* Tasmanian Journal of Natural Science, &c. v. 11. p. 110. It were much to be desired that a similar organ to the Tasmanian Journal, for recording the valuable and otherwise lost knowledge possessed by the colonists, were established in some of our other colonies.
cut to proper sizes, were rolled into the river, with hand-spikes or levers. The next process was to fix a hundred or more of these logs together, in the form of a raft, the outside logs being attached to the centre ones by iron chains. The raft was towed to the settlement by a launch or two. Sometimes in bad weather the chains gave way, and the logs drifted about in every direction. Such accidents always occasioned much trouble; and indeed it seldom happened that the whole number of logs was recovered. When the raft arrived at the settlement, the unfortunate prisoners' severest test began: for they had to wade to their middles for hours at a time with hand-spikes, to roll the timber up. The logs were piled in stacks, sometimes thirty feet high. Whenever the men were so employed, the Commandant used to allow them to receive a small quantity of spirits. We recollect seeing one of these logs, which measured twelve and a half tons. The best of the logs were shipped to Hobart Town; some were cut up by the sawyers, of whom there were constantly nine or ten pairs at work, into boards, also for Hobart Town; the remainder were either reserved for use in the settlement, or, if too short, or otherwise objectionable, they were thrown in to fill up the quays and other places. Many a log have I seen thus employed, which would now be of the greatest service in the Government timber-yards, but at that time they were considered of little or no value. Gum, myrtle, and other woods, which would not float, were brought to the settlement two at a time, lashed one to each side of a large launch. There is also a tree which grows on Philip's Island, called the 'Hard Wood,' which would answer many of the same purposes for which Lignum Vitæ is now used. Huon Pine, however, is the staple commodity of McQuarrie Harbour, and no doubt, if thrown open to the public, would not only enrich speculators, but prove a general benefit to the colony: it is a wood much sought after for its quality, and is far superior to the pine imported from New Zealand; and for many purposes to the cedar of New South Wales. Although an immense draught on the stock of Huon Pine at McQuarrie
Harbour took place during the time that the settlement existed, there remains sufficient to supply the whole colony for years to come. I am informed by Mr. Hoy, late master-shipwright at McQuarrie Harbour, and now filling the same important situation at Port Arthur, and who was the last person to leave the place, that from ten to twelve thousand tons might be obtained within one mile of the waterside, and a considerable part of that within one-half the distance. As a proof of the capabilities of McQuarrie Harbour, we would state, that during the period (about seven years) Mr. Hoy filled the situation of master-shipwright at the settlement, the following work was performed in the dockyard alone.

"The brig *Cyprus* was rebuilt. The brigs *Tamar*, *Isabella*, *Frederick*, *Adelaide*, averaging about one hundred and thirty tons each, were built; also the barque *William the Fourth* of two hundred tons; the cutters *Charlotte*, *Clyde*, and *Shamrock*, of about fifty tons each; the schooners *Penelope*, *Shannon*, *Badger*, *Kangaroo*, *Industry*, of about twenty-five tons each; twenty-two launches, of from five to ten tons each; forty-six small boats. Previous to Mr. Hoy's arrival, the brig *Derwent*, schooners *Sorell* and *Despatch*, sloop *Opossum*, lighter *James Lucas*, and several launches and whale-boats had been built. This does not include the boats for the use of the settlement, repairs to sundry vessels, &c.

"I have no doubt that, could an individual, or a company, obtain from Government a lease of McQuarrie Harbour, for a certain period, say seven years, to engage in procuring timber, and at the same time building a few vessels, such as are most required in the colony, it would be found a most lucrative undertaking.

"I have been favoured by Mr. Hoy, who, in addition to great experience in his profession, possessed much practical knowledge, with the following calculation. He adds, that he is of opinion, that twelvemonths' work, agreeably to the subjoined calculation, could be obtained at King's River alone, independently of what might be procured higher up the river:
BOTANICAL INFORMATION.

<table>
<thead>
<tr>
<th>Description</th>
<th>£</th>
<th>s.</th>
<th>d.</th>
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<tr>
<td>Maintenance, &amp;c., of eight sawyers and twenty-</td>
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<tr>
<td>two labourers for twelve months</td>
<td>547</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Saws, piles, axes, wedges, &amp;c.</td>
<td>250</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Freight of ten cargoes, at an average of one</td>
<td>1500</td>
<td>0</td>
<td>0</td>
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<tr>
<td>hundred tons each</td>
<td></td>
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<td></td>
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<tr>
<td>Total</td>
<td>2297</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>36,000 cub. feet of pine, at 2s. 6d. per foot</td>
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<tr>
<td>140,000 superficial ditto, at 4d. per foot</td>
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<tr>
<td>£2333</td>
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<td>4536</td>
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"So valuable was Huon Pine in Hobart Town, that in 1827 the Commandant was informed by Government, that it was more profitable to send supplies of that wood up, than to build vessels. Good oars were made at the settlement; tre-nails were also shipped in great quantities."

I am much gratified in being able to attach the name of the late excellent Governor of Tasmania to so remarkable a tree, and one, too, quite peculiar to that island, and belonging to a most interesting Natural Order. The services of Sir John Franklin as an officer, a traveller, and man of science, are too well known and appreciated to require comment here; but to his zealous cooperation in all the objects of the Antarctic Expedition, to the kindness shown by him, Lady Franklin, and their family, towards the officers of the Erebus and Terror, and to the unwearied zeal and unexampled liberality of both those enlightened individuals in forwarding the cause of science in that colony, it behoves me in duty and in gratitude to record my obligations.

TAB. VI. Dacrydium Franklirii. Fig. 1. Fructiferous branchlet. f. 2. Fruit with its scale. f. 3. Side view of the same. f. 4. Fruit, cut through vertically: magnified.


(Continued from Vol. I. p. 411.)

Malaga, like Valence, still shows its Arabic origin in the labyrinths of narrow crooked streets, lanes without any thorough-
fare, and numerous odd turnings which puzzle the stranger, and render long practice necessary to enable him to find his way about the city; but here the general aspect is brighter and clearer, the pavement better laid, and the houses freshly painted, and almost all of them equipped with balconies. In the Merchants' Quarter the style of the shops is perfectly oriental. They are long and narrow, and separated from the street by the bench or counter, which a customer never passes, but across which the goods are shown and sold to him.

The public promenade or Alameda, is planted with Melia Azedarach (Pride of India) Gleditsia and Oleanders. There are also several shrubs of the beautiful Mimosa Farnesiana, called Carambuco by the Andalusian women, who adorn their lovely black tresses with its bunches of yellow and highly-scented flowers. Hither, in the evening, come all the population of Malaga, to enjoy the refreshing sea-breeze, and to meet their acquaintances. The aguadores may be seen in all directions, lauding their iced-water and Azucarillos, large lumps of porous sugar, which are dipped in the cold liquid, and eaten before they melt. There the pretty Malagueñas appear to the greatest advantage, and prove their right to that character for beauty which is assigned to them preeminently among the fair ones of Spain. It were no easy task to describe their light and graceful carriage, and the pleasing contrast presented between their dark uniform costume, and the sparkling animated countenances of its wearers. I cannot but think that such an unobtrusive style of dress is far more simple, dignified, and becoming, than the bright colours and variegated materials in which our northern ladies take so much delight.

I was present, the day after my arrival, at a review of the National Guard of Malaga. There might be about a thousand men, well equipped, and fairly trained; but I could not behold them without indignation, when, remembering the scandalous poltroonery of their behaviour during the insurrection, which had taken place the previous year. It was under the governorship of Count Donadio, who was accused
(most unjustly it would seem) of being in collusion with the Carlists. The rebels, not finding him at home, surrounded a dwelling where he had taken refuge; they dispersed the guards, dismissed them to the castle, and detecting the Governor, who sought to escape under the disguise of a soldier, raised the cry of "Here's the man we want!" and immediately hacked him to pieces; thence these ruffians hurried to the Hotel de Ville, where the military chief advanced courageously to meet them, pointing to the wounds he had recently received in the northern provinces while defending the Liberal cause; and they actually replied by falling upon him with their bayonets! When General Quiroga at last arrived from Grenada, and quelled the insurrection, he dared not make a proper example of the wretches who had committed these atrocities: but simply banished some of the most guilty to the Canary Islands, whence they were presently recalled by the Radical ministry, which succeeded; and now they walk boldly and openly in the streets of Malaga! There is probably not a city in Spain where the populace so much require to be treated alike with justice and inflexible severity. The Liberal party is very strong, but ignorant, and addicted to disturbance. A certain African ferocity of disposition exists amongst the lower classes, and is sure to break forth on such commotions, manifesting itself too on many trivial occasions. The dagger generally ends a quarrel, and the very children exhibit the same Moorish temperament. Outside the gates of Malaga there is a dry watercourse, called Guadalmedina, the theatre of many sanguinary juvenile encounters, and which I never passed without seeing these youthful worthies engaged in stone battles, and often wounding the passers-by, without the police once offering to repress this undesirable propensity.

The first few days after my arrival were taken up by a troublesome, though not very important piece of business, to which I shall allude for the benefit of those Botanists who may hereafter visit Spain. I had brought with me from France a stock of plant-paper, of a quality which is not pro-
curable, and is even prohibited, in this country. It would have been an easy matter enough to smuggle it into Malaga; and I might have been warned to do so, by all the plague this paper had already caused me at Valence. But I was so foolishly honest as to exhibit it at the custom-house, feeling sure that the letters I was carrying to all the chief authorities in the city must needs remove every difficulty. I however found that I was in the hands of a host of officials, who had no greater delight than to annoy a stranger, headed by an old rogue of an Administrador, who, anticipating but little profit on the occasion, was pleased to entrench himself in high formality and unimpeachable character! Applications, backed by the Gefe Politico, attestations and representations, were alike ineffectual. After scrawling and signing sheet after sheet of stamped paper, I had no resource but to leave the unlucky subject of litigation in their hands, and finally received it five months after, exactly when I was leaving Spain; thanks to my petition having been transmitted to Madrid. Very fortunately, I found that the common Spanish paper might be made to serve my purpose, though it is so small that every sheet required to be opened out before I could lay my specimen upon it.

Being very eager to obtain every information, and to see all such individuals as might assist me in my researches, I was particularly fortunate in making the acquaintance of Don Felix Hoenselaer. This worthy man, a native of Germany, had early settled in Spain, and in spite of numerous obstacles, and the absence of any assistance, his ardent turn for scientific subjects had enabled him to obtain much knowledge of Ichthyology and Botany, in addition to an intimate acquaintance with Pharmacy, which is his profession. He had long corresponded with La Gasca at Madrid, Cabrera of Cadiz, Schousboe at Tangier, Mertens and Agardh in Germany. To him we are indebted for a knowledge of many plants, published in various pamphlets, and for an Essay on the Mineral Waters of Calatrava. M. Hoenslear had laid aside for some years his favourite study; but the presence
of a Botanist renewed all his early ardour; and I cannot be too grateful for the valuable information which his perfect knowledge of the country enabled him to give me, and for the zeal with which he laboured to collect such materials as might render my work complete. A herbarium formed by him several years ago was exceedingly useful to me, and it is from that collection that I cite many of the species growing in the environs of Malaga, and which I was not myself so fortunate as to find.

I may be allowed, too, to mention my obligations to another resident in Malaga, Don Pablo Prolongo, a young gentleman of great intelligence and information, who took a most hearty interest in my pursuits, and materially aided my researches, both during my journey and after my return.

Sometimes alone, and sometimes accompanied by one or both of these friends, the first fortnight of May found me constantly engaged in short excursions through the environs of the city. All the country is a vast garden at this season, and not a spot can be seen, even in the Arroyos, which is not adorned with the silvery tufts of Paronychia argentea and nivea, mingled with Astragalus hypoglottis, Leobordea, Andryale Ragusina, Scrophularia canina, and the elegant purple-flowered Cleome violacea. The fields and cultivated lands exhibit a still more varied vegetation. There we may observe, amid abundance of Fumaria, Medicago and Scorpiurus, the Garidium Nigellastrum, Salvia viridis, Amberboa muricata, and Picridium Tingitanum, growing along with many other plants, which we cultivate to adorn our flower-beds, as Anthemis Arabica and Chrysanthemum coronarium. The banks of the little streams, and similar damp spots, are covered with other species, Linum angustifolium, Cyperus junciformis, Silene muscipula, Lythrum Greffieri, and that plant Samolus Valerandi, which may be found in almost every part of our world.

Very near the city, and on the sea-shore, stretches for three miles and more, up to the mouth of the Guadalhorna, a great uncultivated plain; it is called the Dehesilla. On its
shifting sands I gathered several pretty plants, the *Erodium hirtum*, *Linaria pedunculata*, *Lotus aurantiacus*, *Plantago albi-
cans*, and *Delphinium peregrimum*. The *Ononis ramosissima*
grew in great abundance, and here and there I saw the
magnificent *Orobanche fistida* parasitic on its roots. A
delicate grass, *Festuca Alopecuros*, seemed to be used as corn
by large families of ants, for I observed them collecting its
seeds in their nests in the sand, and prudently leaving be-
hind the covering which surrounds the seeds.

Among those plants which prevail in the low and culti-
vated parts of the country, the most characteristic, and those
that by their size and abundance give the chief features to
the vegetation, are *Agave Americana*, the *Prickly Pear*, the
*Ricinus* or *Palma Christi*, and *Arundo Donax*; also two *La-
biate, Phlomis purpurea*, and *Ballota hirsuta*; and lastly a
gigantic *Thistle*, producing yellow flowers and herbaceous
stems, and growing from five to ten feet high, *Kentrophylum
arborescens*. These plants may be found everywhere, in all
the fallow spots and in the hedges and waysides.

The vegetation of the hills presents a different aspect still;
a few of the above species may be seen, but much more of
*Thymus capitatus, Lavandula multifida, Genista umbellata,
several kinds of Cistus*, and particularly the picturesque *Pal-
metto, Chamarops humilis*. This dwarf *Palm* covers large
spots, and its roots are so strong, that fire cannot destroy
them, but it sprouts up in all parts of a field, and often
baffles the labour of the agriculturist.

A peculiar charm belonging to the cities of the south
consists in the solitudes which may be found at their very
gates, contrasting so strikingly by their silence and desertion
with the bustle and confusion that prevail within the walls.
Ten minutes’ walk from Malaga brings you to such a spot,
the *Cerro Coronado*, some rocky hillocks, that lie to the west
of the city, across the dry bed of the Guadalmedina. The
springs of water, that gush from the rocks, keep up a perpe-
tual verdure in the little intervening spots; while, higher up,
there are only rough slopes, intersected by ravines, and over-
topped here and there with calcareous rocks. I paid many visits to this locality, and found it rich in plants despite its arid aspect. Among hundreds of other productions, I gathered *Asperula hirsuta*, *Helianthemum marifolium*, *Convolvulus linearis*, and *saxatilis*. From the clefts of the rocks sprung *Campanula velutina*, with downy foliage, *Dianthus serrulatus*, *Hyacinthus serotinus*, *Polygala saxatilis*, and a fine yellow-flowered *umbelliferous* plant, *Elaeselinum Lagascae*; and finally, at an elevation of 500 feet, I began to find *Putoria Calabrica*, very common throughout the mountainous region of Andalusia, and which clothes the shelves of the rocks with a close carpet of elegant pink and white blossoms, shaped like those of jessamine. From these heights a noble view is obtained over the Valley of Guadalmedina, dotted with the country-houses of the citizens, and also of Malaga itself, stretching along the sea-shore, and surmounted with its gigantic cathedral.

Another and still more interesting excursion, which I accomplished several times, was to the Cerro or Peak of St. Anthony. This mountain, about 1500 feet high, is surrounded by a rifled and conical rock, and forms one of the culminating points in the chain of hills which fringe the coast between Malaga and Velez. To reach it, an hour's walk is required first in the direction of the latter town; and shortly before coming to the village *Del Palo*, the traveller turns to the left, along the bed of an *Arroyo*, which soon opens into a delightful valley, enclosed between mountains, where the Botanist may reap a rich harvest. Among the plants that rejoice in the moisture and coolness of the little brook, and grow there with peculiar vigour, *Anthyllis cytisoides*, *Genista umbellata* and *sphaerocarpus*, divide the soil with three species of *Cistus*, viz. *Monspeliensis*, *albidus* and *crispus*, the latter display unnumbered hybrid varieties, and open their lovely crumpled petals in the early hours of every morning. *Aristolochia Boetica*, *Ruscus*, and other twining plants climb over the bushes of *Prickly Pear* and *Evergreen Rose*, and form an impenetrable thicket. At the very brink
of the stream I noticed the rare Poterium agrimoniiifolium, and some tufts of Ononis speciosa, the finest individual of the genus, and which had probably been brought down with the rivulet from the heights of Colmenar, its almost exclusive place of growth. Pursuing the ascent, about half-way up, a kind of natural terrace is formed among the steep slopes, and here are two farms surrounded with gardens, planted with Orange and Lemon Trees, a smiling oasis amid the barren rocks. In my excursions I often rested at one or other of these farms, and was always received with kindness by the worthy inhabitants, who regarded me as a friend after my second or third visit, and showed me that frank hospitality which is almost peculiar to the Labradoros of Spain. I shall never forget the rustic courtyard, the springs gushing from a fern-clad rock, and the lovely peeps of country view, which were seen through the trees. Between this place and the summit, there are steep ascents and rocky shelves, covered with Chamaerops, Ephedra distachya, Rhamnus lycioides, Cytisus Malacitanus, Olea Oleaster, Quercus coccifera, and Cistus Clusii. Amid this vegetation a few plants occur, indicative of a subalpine region, Phlomis lycioides, Biscutellax saxatilis var. angustifolia, Leuzea conifera, Serratula flavescens, and Sideritis linearisofila. Everywhere grows the useful Sparteria (Macrochloa tenacissima) with its tufts of curled leaves, and graceful silvery spikes that wave in the wind. I also gathered, for the first time, Minuartia montana, Sedum glanduliferum and Umbilicus hispidus, the latter with purple corollas; it may be seen here and there, on the thin stratum of vegetable soil that covers the surface of the rocks.

From the summit of the mountain I surveyed with delight the extensive panorama of open sea, and the whole coast stretching even to the Sierras of Mijas and Ronda; in the extreme distance northward, the view is soon shut in by other summits, equally high as the Peak of St. Anthony, but not so steep, and cultivated to their very tops with vines and olives. There, in a north-east exposure, grow stunted bushes of the Ulex australis, with plants which affect shade and coolness,
such as *Arenaria montana*, *Helianthemum origanifolium*, and the elegant *Iris fugax*, whose petals shrivel up with extraordinary rapidity. Thick tufts of *Silene velutina*, having a woody and twisted rhizoma, adorn the perpendicular and inaccessible faces of the rocks, at the foot of which I gathered a scarce and new species of *Fumaria, F. macrosepala*; I also noticed plenty of *Cytinus hypocistis*, a singular parasite, growing upon the roots of several kinds of *Cistus*.

And now, after having given a general idea of the indigenous vegetation of the environs of Malaga, it may be well to say a few words about the interesting plants which are cultivated there. In this climate, where frost and snow are nearly unknown, most of the tropical productions would succeed admirably; and the very few which have been already introduced, are enough to show what may be done when a greater taste for flowers and horticulture shall prevail in the country.

The plants in most general cultivation for adorning the balconies and terraces (or *Azoteas*), are *Phaseolus Coracalla*, and *Hoya carnosa*; they bear the winter perfectly well, as do some parasitical Orchidea, brought to Cadiz, and often seen growing suspended from the trellisses and gratings of the windows; they are called air-flowers. In the gardens thrive the *Schinus Molle*, *Mimosa Farnesiana*, *Datura fastuosa*, and several kinds of *Lantana* and *Jasmine*. I much admired, in an enclosure near Guadalmedina, a *Dracena Draco*, upwards of twenty feet high, and a group of magnificent *Bananas* which could not be excelled by any in their native country. The people called them *Platanos*, and assured me that their fruit ripens yearly. A much commoner tree is the *Chirimoya*, or *Anona squamosa*; it is raised in many gardens, both at Malaga and Churriana, whence its delicious fruit is sent, as a rarity, to the interior of Spain, and even to France. A lack of water for irrigation must ever forbid the profitable culture of the *Sugar-cane*, in the environs of Malaga; but this district possesses, in amends, a peculiar growth, that of the *Sweet Potato* (*Convolvulus Ba-
tata). These tubers are exported in great quantities and of excellent quality, and called Malaga Sweet Potatoes (Patatas dulces de Malaga). There is also a commencement made towards the production of Cochineal in a few gardens, planted on purpose with several kinds of Cactus, allied to Opuntia, and I noticed the same branch of industry pursued at Valence and already yielding an ample return.

To be continued.

Observations on a New Genus of Ferns; by J. Smith.

With a Plate, Tab. VII, VIII.

On referring to the enumeration of the Ferns collected by Mr. H. Cuming in the Philippine Islands, published in the third volume of the Journal of Botany, it will be there seen that I have placed six species under the genus Callipteris; but at page 178 of the fourth volume of the same journal I have, for reasons there stated, removed four of them from Callipteris, and arranged them in the genus Oxygonium, believing one of them (Cuming, n. 116) to be the Diplazium alismaefolium first described and figured by Presl, in Reliquiae Haenkeanae; and which that author afterwards, in his Tentamen Pteridographiae, adopted as the type of his genus Oxygonium, a genus distinguished from Diplazium by the circumstance of the venules anastomosing near the margin and forming one series of marginal areoles. Under that character I added three additional species, viz. Oxygonium vitæforme, O. ovatum and O. elegans. At the time I did so, I had little doubt, but that these species were quite characteristic of the genus, not only in venation, but also in their sori being furnished with indusia, as in Diplazium. The only doubt I had, regarded Oxygonium vitæforme (Cuming, n. 329); the evidence of its being an indusiate fern, not proving so satisfactory as could have been desired; but on making due allowance, for
the often fugacious nature of that organ, and judging from analogy and habit, I was led to the conclusion that the sori were furnished with indusia, and that it was an undescribed species of *Oxygonium*. I had no reason to doubt this view being a correct one, till lately, when my attention was again directed to this genus, by having received perfect specimens of a fern from Singapore, gathered by Mr. T. Lobb, which I at first took to be *Oxygonium alismafolium* of Presl; but, on examination, I was surprised to find the sori destitute of an indusium, the sporangia quite compact and occupying the sides and centre of the receptacle (or venule), forming perfect and truly naked linear sori, presenting much similitude to the naked sori of *Gymnogramma Javanica* and *serrulata*. On further examination, I found these specimens to agree with an authentic specimen (lately come into my possession) of *Diplazium alismafolium*, which specimen, although old and with but imperfect remains of sori, it is evident, from the nature of the sporangiferous receptacle, never had an indusium. From this circumstance, I cannot but conclude that Presl must have confounded two distinct, but yet very similar species, under the name of *Diplazium alismafolium*; one with the sori furnished with indusia, as figured at tab. 8 in *Reliquiae Haenkeana* (which, as I have already noticed, is probably the same as my *Oxygonium alismafolium*, Cuming's specimens, n. 114); the other, with naked sori, which he (Presl) might have considered to be the same as the first, but in an imperfect state of fructification, his own specimen, lying before me, being an example. That specimen, however, is now proved by my Singapore plant, not to belong to the tribe *Aspleniaceae*. On this discovery I was led again to examine my *Oxygonium vitaeforme*, and I find that I was wrong in considering it an indusiate fern, the soriferous receptacle being of the same nature as in *Gymnogramma*, and only specifically different from Presl's and my Singapore specimens. It therefore becomes evident, that these two species must be excluded from *Oxygonium*, and placed near
Gymnogramma in the tribe Polypodiceae. I therefore propose to associate with them another undescribed Asplenium-like fern from the island of Jobia, and to form of them the following genus, Syngramma, which will bear the same relation to Gymnogramma, that Oxygonium does to Diplazium. Seeing, therefore, that it differs from Gymnogramma, only by the anastomosing venation, it will, on that account, come under the second section of the tribe Polypodiceae, and immediately before Stenosemia.

**Syngramma, J. Sm.**

Veins forked; venules usually direct and parallel till near the margin, then anastomosing, forming one or more marginal areoles. Sporangia medial. Sori linear, oblique, simple, forked or unequally reticulated, destitute of an indusium.

Fronds 1 to 2 feet in length, rising from a cespitose or short creeping rhizoma, smooth, simple and entire or pinnate, pinnae entire 6—8 inches long.

1. Syngramma vittiformis; fronds simple membranaceous slightly undulate, the sterile ones oblong-lanceolate, the fertile linear-lanceolate, (much larger than the sterile), both attenuated downwards, the sporangia occupying the whole length of the parallel venules and the marginal anastomosing ones. (Tab. VII. VIII.) Callipteris vittiformis J. Sm. in Hook, Journ. Bot. vol. iii, p. 409. Oxygonium vittiforme, J. Sm. in Journ. Bot. vol. iv, p. 178.

*Hab.* Island of Samar, Cuming, n. 329.

2. S. alismaefolia; fronds simple oblong-elliptical and acuminate rounded or slightly cordate at the base, stipes slightly tuberculate, sporangia occupying the whole length of the parallel venules, the marginal anastomosing venules being sterile. (Tab. VII. VIII. B). Diplazium alismaefolium, Prestl in Herb. Nostr., (but not Prestl in Reliquiae Hænk.).

*Hab.* Singapore.—Lobb, 1843. Island of Sorzogon; Prestl.

3. S. pinnata; fronds pinnate, pinnae (6-8 pair) linear-
lanceolate, obliquely cuneate at the base, margins cartilaginous and slightly undulate, sori somewhat reticulated usually interrupted. (Tab. VII, VIII. C.)

Hab. Island of Jobia, Barclay, 1839.

Obs. On account of the pinnae of this species being narrower than the simple fronds of the two first species, the venules are consequently shorter and therefore anastomose sooner, exhibiting a more uniform reticulated character: in that respect possessing some of the reticulated venation and sori of Hemionitis; but in other particulars it bears no affinity to that genus.

On several Mosses, new to the British Flora. By Richard Spruce, F.B.S.

The mosses described in this and the following pages, for the first time as British, comprise the whole of my additions to the Bryology of Great Britain (with the exception of those included in my paper on the "Musci and Hepaticæ of Teesdale," in the 2nd volume of the Transactions of the Botanical Society), together with five species and one variety discovered by my excellent friend, Mr. Borrer, and now published with his kind permission. Of the twenty-one species detected by our joint researches, four have never before been described; those which have been figured in the "Bryologia Europæa" have all been authenticated by comparison with specimens from the learned authors of that work; and the remaining species have been ascertained by means of examples received from Messrs. Bruch, Wilson, Taylor and Montagne, and in most cases confirmed by the personal examination of those distinguished cryptogamists themselves.

1. Bryum erythrocarpum, Schwaegr.: "dioicum; caule humili, innovando ramoso; foliis erecto-patentibus vel patulis, lanceolatis, cuspidatis, apice dentato-serratis subintegrisve, costa ultra apicem producta, cum vel sub eo desinente, margine revoluto-retroflexis; capsula oblongo-
pyriformi, brevicolla, inclinata vel pendula, operculo magno mammillari, purpurascente instructa, annulo magno—

_Bryol. Europ._


**Hab.** In moist sandy stubbles, between Barmby and Woodhouse-Moors, near Pocklington, Yorkshire. Stockton Forest, with _Br. annotinum._

I have never had any difficulty in distinguishing this species from _Br. caespiticium_ by the narrower, serrate leaves, and their scarcely excurrent (sometimes not percurrent) nerve. On Barmby Moor the plants are closely tufted and send forth slender innovations about half an inch long, the leaves of which are smaller and proportionally broader than the stem-leaves, but all decidedly serrate upwards. Where the plants grow scattered, the leaves are longer, loosely set and spreading. Capsule pyriform, elongate; when mature, of a scarlet hue.

The only moss with which _Br. erythrocarpum_ can be confounded, is a large variety of _Br. atropurpureum_, W. and M., which has been found near Tonbridge Wells by Mr. Jenner, and near Bristol by Mr. Thwaites. The latter may, however, be distinguished by the following characters. The leaves, though narrow, have a decided acumination; they are quite entire or faintly denticulate near the apex, and the nerve is considerably excurrent. The pedicel is more opaque. The capsule is regular (mostly slightly curved inwards in _Br. erythrocarpum_), and, though unusually elongated, the collum, sporangium, and operculum, are all ventricose. The operculum is larger, and terminated by a scarcely perceptible umbo; but in _Br. erythrocarpum_ there is always an apiculus, which sometimes equals the rest of the lid. The inner perisome is white, and contrasts strongly with the deep vinous red of the outer paries of the capsule.

2. _Bryum lacustre_, Brid.; "Hermaphroditum; caule ramoso, erecto, radiculoso, infra foliis destituto; foliis inferioribus
ovato-acuminatis, superioribus ovato-lanceolatis, concavis, margine revolutis, integerrimis, costa cum vel sub apice evanida instructis, perichaetialibus angustioribus; capsula nutante vel pendula, pyriformi, annulata; operculo parvulo, convexo, apiculato; peristomio interno ciliis rudimentariis seu nullis.”—Bryol. Eur.


HAB. “Gathered at Ealing, forty years ago, by Mr. Eagle.”

Borrer in litt., Apr. 1844.

I have compared this moss (which was given to Mr. Borrer by Mr. Eagle without name) with specimens of Bryum lacustre (Bryol. Eur.) from M. Bruch, and find them to correspond exactly, except in the smaller size and the somewhat broader and firmer leaves.

Stems not exceeding three or four lines in length, slightly branched, reddish, and as well as the branches, leafless towards their base, but densely radiculose. Leaves patent (on the innovations erecto-patent), yellowish-green, not closely imbricated, ovate, apiculate or acuminulate, very concave, keeled, recurved at the margins; the perichaetial leaves ovato-rotund; all widely areolate (not margined with two or three rows of narrow cellules as in Br. cernuum and inclinatum), nerved nearly (more rarely quite) to the summit. Inflorescence hermaphrodite; antheridia numerous. Vaginula small. Seta very long in proportion to the size of the capsule. Capsule pendulous, pyriform, widely areolated, often abortive (as remarked also by B. and S.) Annulus broad. Peristome short; the inner very fragile, partially glued to the outer, pohlioid, the processes perforated. Lid conical. Spores large, slightly exceeding those of Br. cernuum, B. and S.
3. Bryum *torquescens*, B. et S. "Hermaphroditum, dense caespitosum; caule ramoso, ramuloso, toto radiculoso; foliis inferioribus ovato-lanceolatis, cuspidatis; superioribus ovatis, cuspidatis, caulinis haud longioribus; omnibus integerrimis, margine reflexis, costa percurrente instructis, siccitate tortilibus; capsule obconica, magna, inclinata, operculo convexo, acuminulato."—*Bryol. Eur.*

**Hab.** "Among *Bryum nutans* on a small rock on the shore of Gormire Lake, near Thirsk, Yorkshire."—*Mr. Borrer.*

This species may be distinguished from *Br. capillare* Hedw. and *Br. obconicum* B. and S. by the *hermaphrodite inflorescence* (the fertile flowers including numerous antheridia), the incurved capsule and the narrower leaves. From the former it differs also in the *clavate capsule* and the longer apiculate lid, and from the latter in the *leaves being much twisted when dry.* Mr. Borrer's specimens differ from Sardinian ones, given me by M. Bruch, in being smaller and more delicate, the leaves obovato-lanceolate, and the capsule paler. It is perhaps the same form as that mentioned by B. and S. from New Holland, "où...il est plus tendre, à capsule plus pâle et munie d'opercule plus pointu."

4. Bryum *uliginosum*, B. et S. "Monoicum, caespitosum; caule brevi, radiculoso, innovationibus brevibus ramoso; foliis ovali-lanceolatis, margine e cellulis angustioribus obscurius tinctis reflexo, superne plano, inferioribus minoribus, erectis, superioribus in comam digestis patulis; capsula annulata, inclinata, pendula, subirregulari, operculo mammillari, peristomii dentibus subito subulatis."—*Bryol. Eur.*


**Hab.** Heisington Fields, near York, where I first observed it in Nov. 1841, but the fruit is mature in August and September. On tufa under the New River Bridge at Castle-Howard. Sea-shore at Scalby Mills, near Scarbro', often nearly buried in sand. "About Whitby and Sandsend, plentiful;" *Mr. Ibbotson.* "Broken Brow, Pilking-
ton, near Manchester, growing with Br. pallens;"* Dr. J. B. Wood and Mr. Buxton. "In one of the highest branches of the Wythburn Beck, near the junction of Cumberland and Westmoreland;" Mr. Borrer.

This is most nearly allied to Br. pallens, Swartz, (Br. turbinatum, Musc. Brit.), but may be distinguished by the following characters.

Leaves much larger, more erect, proportionally narrower and tapering more towards the point, very distinctly margined, the upper of a bluish-green hue, those towards the base gradually assuming a tinge of red, especially on the nerve; but the redness of the foliage in Br. pallens is quite characteristic of the species. Inflorescence monoicus, (dioicus in Br. pallens); male flowers much smaller and containing fewer antheridia, the outer perigonal leaves not recurved. Capsules usually larger, irregular, the sporangium proportionally not so wide, and the collum quite equalling it in length; the mouth in Br. pallens is oblique, but less so than in Br. uliginosum, which resembles in this respect Br. Zierii and demissum. Operculum distinctly apiculate. Teeth of outer peristome acuminate. Inner peristome destitute of cilia or with merely rudimentary ones; that of Br. pallens normally ciliate, yet not uniformly so.†

The capsules of Br. uliginosum vary in direction from horizontal to pendulous; in Mr. Ibbotson’s specimens they are quite pendulous, regular, and the mouth is scarcely oblique. When just mature they are usually of a milk-white hue; but in my Castle-Howard specimens, which grew exposed to the dripping of water, they are deep brown on the upper, and greenish on the under surface.

* The Bryum turbinatum of Hobson’s British Mosses is a mixture of Br. uliginosum and pallens from this locality.

† Instances have been found by Mr. Wilson among Dr. Wood’s Pilkington specimens of Br. pallens, of capsules whose inner peristome is furnished with merely rudimentary cilia, and I have myself gathered a var. on Stockton Forest, in which they are entirely wanting.
New British Mosses.

Bryum uliginosum also approaches closely to Br. inclinatum; but as B. and S. remark: "Notre plante se distingue également bien du Br. inclinatum par la couleur pâle de sa capsule, par le dos bombé de cette dernière, et enfin par les dents fortement inclinées par la dessication, laissant sortir dans leurs interstices les processus redressés."

5. Hypnum elodes, nov. sp.; caule tenui, ramoso, ramis pin-natis; foliis laxe imbricatis, cauliniis patulis, lanceolatis, longe acuminatis, ramulinis erecto-patulis vel subsecundis, subulatis; omnibus integerrimis, nervo perdurante.

Hab. In wet places on Stockton Forest, near York; growing with H. scorioides and lycopodioides, Schw. (H. aduncum, var.); Aug. 1842.

Stems about 3 inches long, procumbent or (where closely tufted) erect, irregularly branched, the branches pinnate. Leaves brownish, the terminal ones assuming a tinge of green, loosely set; the cauline ones patent, narrow-ovato-lanceolate with a long acumination and a slightly excurrent nerve; those of the branches erecto-patent, very straight, (except the upper ones which are subsecund, especially when dry), subulate or even subulato-setaceous, nerved to the point; all entire.

Although I have not met with the fruit of this Hypnum, its habit is so distinct from any other with which I am acquainted, that I venture (with the sanction of M. Bruch) to propose it as new. Its nearest ally is perhaps the nerved-leaved variety of Hypnum stellatum (H. chrysophyllum, Brid.; H. polymorphum, Musc. Brit., nec Hedw.); but this differs in the far more closely set, squarrose leaves, which are much broader (ovato- or cordato-acuminate), the nerve not extending beyond the middle, and more slender, and the areolation wider (cellules shorter and broader). H. H. fluviatans, filicinum and fluviatile approach it on the other hand; however, they all differ from it in the form of the leaves. From the first of these the constantly percurrent nerve will assist in distinguishing it, and from the second the entire leaves and the
absence of radicles on the stem; while the striated leaves of \textit{H. fuscifolia}, their looser texture and far stouter nerve, afford characters sufficiently distinctive.


\textbf{Hab.} On wet limestone at Crambeck, and on the ruins of Kirkham Abbey, in the Vale of the Yorkshire Derwent; the fruit mature in May.

That the \textit{Hypnum polymorphum} of the "Muscologia Britannica" is distinct from the species of Hedwig (which is figured and described with a nerveless leaf) has always been maintained by continental botanists, and Bridel in the "Bryologia Universalis" has referred it to his \textit{H. chrysophyllum}. To me it appears a mere variety of \textit{H. stellatum}, as indeed Hooker long ago suspected (see "Eng. Flora," vol. V, part I, p. 90). In a specimen of \textit{H. stellatum} given me by Mr. Borrer from Schimper's "Bryologie Europææ Stirpes Normales," I find \textit{nerved and nerveless leaves even on the same branch}; and in Ascham Bogs, near York, the large form of that species frequently shows leaves nerved almost quite to the summit. Besides, in undoubted examples of \textit{H. polymorphum}, H. and T., \textit{the nerve is sometimes short and forked, and not seldom altogether wanting}; and Dr. Taylor has remarked to me, "I find a specimen sent to me of \textit{H. chrysophyllum} by Kunze (a most accurate musciologist) to have leaves intermediate, especially as to the nerve, between \textit{H. stellatum} and \textit{H. polymorphum}.” Now as no other character has ever been insisted on for the separation of these two than the nerved leaves of the latter and the nerveless ones of the former, and experience has amply shown the invalidity of this difference, I feel quite justified in considering them forms of the same species.
The true H. polymorphum, Hedw., as represented by the specimens of M. Bruch, is a small species with the habit of H. serpens (as remarked by Hedwig himself), and distinguished from H. stellatum by good though minute characters. It is stated to be rare on the continent, and I have not seen it from any British stations, except those above-mentioned. The following is the result of my observations upon it.

Stems prostrate, much branched and intricate. Leaves squarroso-patent, the upper often subsecund, slightly twisted in drying, pale green or brownish, tapering into a long acumenation from an ovate base, entire, nerveless, the margins incurred from a little above the base to near the summit, so as to cause the leaves to appear channeled; they taper to a longer point than in H. stellatum, and the incurvation of the margins makes them appear much more suddenly acuminate; the reticulation very nearly as wide as in that species, but the cellules shorter. Inflorescence monoicus; male flowers gemmiform, seated at the base of the fertile flower, and also (though more rarely) here and there along the stem; the inner perigonal leaves minute, broadly lanceolate, and including few antheridia. (The inflorescence of H. stellatum and var. chrysophyllum is dioicus). Female flower: perichaetial leaves subdenticulate, scarcely plicate (strongly so in H. stellatum). Capsule cernuous, oblongo-cylindrical, by no means ovate, pale-coloured, when just mature yellowish-green, rarely tinged with brown on the upper side (that of H. stellatum, deep reddish-brown), the mouth with a pale red margin, wanting in H. stellatum, the neck longer, the outer paries remarkably thin and delicate; when dry, much contracted below the mouth, like that of H. serpens. Operculum conical, obtuse (that of H. stellatum acute), very fugacious. Calyptra white, as in H. serpens. Teeth of outer peristome reddish (those of H. stellatum pale yellow), marked with a medial line, tapering less than those of H. stellatum, when dry incurred between the processes of the inner peristome.

It is possible that the authors of Musc. Brit. may have included our H. polymorphum in their H. stellatum β. minus;
however, all the specimens I have seen under that name belong truly to H. stellatum.

Mr. Wilson, to whom I am indebted for the synonym of Myrin, and who thinks he has found “H. Sommerrueltii somewhere in Wales,” observes “the Yorkshire Hypnum Sommerrueltii does not exactly correspond with Myrin’s original specimen, which has the leaves more decidedly patulo-recurved, but on the whole I am inclined to think them only states of one species.”

7. Hypnum pratense, Koch, caule subramoso; foliis laxe imbricatis, secundis, deltoideo-lanceolatis, subacuminatis, integerrimis, enerviis; capsula cernua, oblonga; operculo conico.

H. amœnum, Drummond’s Musci Americani, No. 196, (nec Hedwieg).

Hab. “Road-sides, among thin grass, near Capel, Surrey, and Henfield and Shindon, Sussex; without fruit;” Mr. Borrer, who adds, “I sent this moss when I first found it, nearly forty years ago, to Dawson Turner, whose note on it, preserved in my collection, is: ‘I have no moss like this in my herbarium, nor do I find any description of it. Its characters are few and plain.

‘Caule indiviso, ramo uno alterove brevi erecto; foliis circinalibus deltoideo-acuminatis striatis enerviis.’

“Hooker also thought it new.—Arnott (without examination perhaps) thought it H. aduncum.—Wilson has called it a var. of H. cupressiforme, and remarked: ‘It is, I believe, the same as H. amœnum of Drummond’s Musci Americani, No. 196, but certainly not H. amœnum, Hedw. Sp. Musc. t. 77, which represents a much smaller moss with decidedly falcate leaves, and very like H. incurvatum.’”

By means of specimens received from M. Bruch, I have been enabled to identify Mr. Borrer’s moss with Hypnum pratense, Koch, and to decide that it is truly distinct from H. cupressiforme, as will be seen by the following diagnosis.

Plants resembling H. aduncum in habit, and often presenting the brownish hue usual in that species. Stems very spar-


*L. subenervis*, *Schwaegr. Suppl. Prim.*, *Sect. posterior*, p. 176, Tab. LXXXV. (*fide Wilson et Taylor*).

**Hab.** On trees and shrubs in situations exposed to inundations from the Ouse, in the neighbourhood of York, where I first observed it on the 30th of October, 1841. On willows by the Cock, near Tadcaster, sparingly. "On willows by the Mersey, near Withington, 'four miles from Manchester, April 16th, 1843?" *Mr. Novell and Dr. J. B. Wood.*

From the circumstance of this species always growing along with *L. polycarpa*, Hedw. (H. medium, *Dicks.*), and bearing considerable external resemblance to it, both Dr. Taylor and myself were formerly induced to consider it a mere variety; in consequence of this, I undertook a complete analysis of the two species (the principal results of which are here given) and succeeded in proving them truly and abundantly distinct.

Plants forming extensive cushions or patches on the bark of trees. Stems procumbent; branches slender, but varying in the degree of tenuity,* erect or ascending, level-topped, slightly and irregularly subdivided, save in the circumference of the tufts, where there occur prostrate subpinnate shoots.

In *L. polycarpa* the stems are for the most part pinnately branched, loosely spreading, and frequently intricate, rarely

* Wahlenberg's specimens are far more slender than most of the Yorkshire ones.
with ascending sub-parallel branches; shoots incrassated towards the extremity.

Leaves of a fine lively green, imbricated, ovate, concave, patent, their apexes pointing upward, appressed when dry, with a tendency to become secund,* widely areolate, the margins plane; nerve faint, seldom reaching the middle of the leaf, often forked and occasionally altogether wanting.†

In *L. polycarpa* the leaves are lurid green or brownish (rarely of a full green colour), opaque, more loosely set, ovato-acuminate, but subobtuse at the summit, their apexes pointing outwards or to one side, keeled with the strong nerve, which either reaches quite to the point or vanishes just below it; the margins strongly reflexed; the areolation obscure, the cellules being scarcely half the size of those in *L. pulvinata*.

Inflorescence monoicous. Male flowers numerous, axillary, gemmiform. Female flowers: outer perichaetal leaves ovate shortly acuminate, inner oblong-lanceolate; all nerveless and diaphanous.

In *L. polycarpa* the male flowers are fewer, proportionally much smaller, and include fewer antheridia. The outer perichaetal leaves are ovato-lanceolate, tapering to a narrow point, the inner lanceolate-subulate and plicato-striate; all nerved nearly quite to the summit.

*Capsule* olive-coloured when mature, after the emission of the seeds reddish-brown, scarcely inclined, elliptic-oblong,‡ tapering gradually into the pedicel (spuriously apophysate), and also narrowed at its junction with the lid. Seeds green. Seta smooth erect. Vaginula oblong.

In *L. polycarpa* the mature capsule is greyish, erecto-arculate, subcylindrical, more slender and usually much longer

* This is peculiarly apparent in Wahlenberg's specimens; yet he says "foliis siccatis adpressis, nec subsecundis."
† Perhaps it would be more correct to say with Wahlenberg "foliis nervo orbatis;" for although the so-called nerve is quite as apparent in his own specimens as in mine, it consists merely of one or two rows of cellules narrower than the rest, and not of any absolute thickening of the leaf.
‡ So Wahl. "Capsulæ oblongis, nec subcylindricis."
than that of *L. pulvinata*, not tapering into the pedicel. Seeds yellowish, only half the diameter of those of the other. Seta longer.

Peristome delicate and fugacious: outer teeth equal to the inner, marked with 16-19 trabeculae; inner peristome reddish, the processes slender (only one third the breadth of the intermediate spaces) obscurely marked with a medial line, united into a narrow basal membrane, through which the medial line is distinctly produced. Annulus none.

In *L. polycarpa* the teeth are more numerously trabeculate, and traversed by a medial line; the processes of the inner peristome are pale-coloured, firmer and broader than in *L. pulvinata* (very nearly as broad as the intermediate spaces) marked with a very distinct medial line, not unfrequently with rudimentary cilia between them; the membrane into which they are united twice as broad as that of *L. pulvinata* and more widely areolated; central line of the processes not continued down into the membrane. (In *L. polycarpa* the outer peristome is most fugacious, in *L. pulvinata* the inner: it is very common to find empty capsules of the former with the outer peristome fallen away, while the inner remains quite perfect.)* Annulus present, consisting of a single series of cellules.

Operculum pale yellow, hemispherical below, tapering upwards into a short oblique point. Calyptra dimidiate.

In *L. polycarpa* the operculum is red at the base and apex, slightly inclined, conical and somewhat obtuse, half as long again as that of *L. pulvinata*.

9. Leskea *Sprucii*, Bruch MSS., caule erecto, tenuissimo, dichotome ramoso; foliis laxe imbricatis, tam madore quam

* The explanation of this appears to be that in *L. pulvinata* the outer teeth are incurved from the very base, and after the emission of the seeds so strongly so as to cause the destruction of the inner peristome, while they themselves remain uninjured; but in *L. polycarpa* the outer teeth are recurved at the base then bent upwards and incurved into an almost circular form, and they finally break off at the base, leaving the inner peristome quite entire.
siccitate erecto-patulis, anguste-ovatis, acuminatis, enervibus, sparsim denticulatis, perichætialibus spinulososerratis; seta levi; capsula parva, ovali, suberecta; operculo conico, obtuso.

_Hypnum confervoides_ Drummond's _Musci Americani_, No. 190; (nec Bridel).

_Hab._ Growing intermixed with _Jungermannia trichophylla_ on basaltic rocks in a shaded situation by the Tees' side below Winch Bridge. I observed only a single patch, destitute of capsules, but possessing perichaetia.

Guided by the authority of Drummond's _Musci Americani_, I published this moss in my "Musci and Hepaticae of Teesdale" as _Hypnum confervoides_, Brid., not, however, without adding a mark of doubt, for I perceived that it differed in some points from the character given by Schwaegrichen. I have since received from Dr. Montagne and Mr. Borrer (ex Schimper) specimens of the _true_ _H. confervoides_, which enable me to decide that my moss is a very distinct (though allied) species. M. Bruch, in the London Journal of Botany, has referred Drummond's moss to _Leskea subtilis_, Hedw., and a similar opinion was formerly entertained by Dr. Taylor; but both these distinguished Cryptogamists now declare themselves convinced of its being a new and undescribed species. The former has observed to me, "entre _Hyn. confervoides_, _Leskea subtilis_ et votre _Leskea_ il y a une telle affinité dans le habitus, la forme et le tissu réticulaire des feuilles et dans l'inflorescence, qu'elles doivent être placées dans une disposition naturelle à la même section. C'est pourquoi je proposerais, pour éviter de l'erreur, de changer le nom et de donner à cette belle espèce celui de _Leskea Sprucii._" I am happy to add also the testimony of two such able botanists as Mr. Wilson and Dr. Montagne, who have from the first maintained the same opinion respecting this moss as myself.

_Leskea Sprucii_ differs from _L. subtilis_ in being still smaller and more delicate; _the stems erect and very sparingly branched_ (but in _L. subtilis_ procumbent and much branched); the
leaves smaller and paler, and not running out to quite so long
a point, *unchanged in direction when dry* (but in *L. subtilis*
closely appressed and subsecund), sparingly and minutely
denticulate at the margins, more rarely entire: *those of the*
perichaetium remarkably serrate*, but entire in *L. subtilis*; the
capsule slightly inclined, shorter than that of *L. subtilis*, when
dry contracted from below the mouth, assuming the form
of a cornucopiae; operculum shorter and not apiculate;
inner peristome excessively fragile, with or without rudimen-
tary cilia.

*Leskea conservoides* (Hypnum conservoides, Brid.; H. Con-
serva, Schwgr.) is to be distinguished from *L. Sprucii* by the
prostrate pinnately-branched stems, often denuded below;
the leaves more spreading and with a tendency to become
secund, appressed when dry; *those of the perichaetium entire*;
the stouter pedicel; *the much larger capsule*, of a darker
hue, oblong and cernuous; the operculum much larger and
*terminating in an apiculus* which equals one-third of the
whole; the teeth of the outer peristome marked with a medial
line; the inner peristome firmer and the cilia perfect. The
inflorescence of all three species is monoicous, and in *L.*
*Sprucii* the female flowers are remarkably numerous.

erectis, sterilibusve decurvis; foliis decurrentibus, ovali-
oblongis, acuminatis, immarginatis, serratis, costa sub
apicem evanescente; capsula solitaria nutante, subinclinata,
ovali-ovata, operculo hemisphærico vel conico-hemisphæ-
rico.” *Bryol. Eur.*

Schwaegr. *Suppl.* I. P. 2, p. 128; Bryum Polla stellaris,
*T. p. 294;*” (fide B. et S.)

HAB. Gilla Leys Wood, Castle Howard, where it grows at
the roots of trees and on masses of tufa, chiefly near the
stream called Crambeck; Jan. 1841. Mowthorpe Dale,
with perichaetia, Jan. 1844. Lover's Walks, Matlock Bath.
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"Dennant, near Castle Conway; June, 1844;" Mr. Wilson.
"Todmorden;" Mr. Nowell; "Teesdale;" Mr. Ibbotson.
It is very probable that this species has often been passed
over for Mn. hornum or serratum (Bryum marginatum, Dicks),
between which it is intermediate in size and appearance. It
may, however, be distinguished from these, and from every
other known species, by the leaves being distinctly serrated
and at the same time destitute of thickened margins. During
the process of drying it often assumes a bluish tinge, which
in old specimens passed off into yellowish-brown. On slender
innovations the leaves are bifariously arranged.

11. Orthotrichum coarctatum, Pal. Beauv., "monoicum, pul-
vinatum; caule erecto vel basi decumbente, ramoso, foliis
patulis, siccitate crispatis, lineari-lanceolatis, costato-carin-
natis, margine subplanis; capsula alte exserta, ovali-oblonga,
8 striata, siccitate ore coarctata 8 costata; calyptra conico-
campanulata, pilosissima, margine laciniata; ciliis rariss-
Hook. et Grev. Journ. of Sc. 1824, p. 125; Ulota Bruchii,

Hab. Frequent on trees in the Castle-Howard Woods.
This may be distinguished at sight from O. crispum by the
leaves being much less crisped when dry; they are besides
narrower and more widely areolate. Vaginula larger, usually
more hairy. Pedicel longer. Capsule larger, less clavate,
more widely areolate, the striae narrower and deeper-coloured.
 Operculum larger, and mostly tapering more suddenly from
a shorter base, yet certainly variable in this respect. Cilia
fimbriata, from an expanded base, (in O. crispum, subulate,
broad, and composed of two rows of cellules).

12. Orthotrichum fastigiatum, Bruch. in Brid., "monoicum,
subpulvinatum; caule ramoso, ramis fastigiatis; foliis
erecto-patentibus, patulisve, siccitate imbricatis, ovato-
lanceolatis, costato-carinatis; capsula pyriformi-oblonga,
longicolla, late striata; calyptera campanulata, straminea, pilosa." *Bryol. Eur.*


**HAB.** "On trees by a footpath between Greta Bridge and Rokeby; 1810;" *Mr. Borrer.*

Leaves shorter and broader than in *O. affine*, evidently acuminate, more widely areolated, strongly revolute at the margins. Calyptera slightly pilose, *straw-coloured, tipped with deep brown* (but greyish-green in *O. affine*). *Vaginula smooth.* Pedicel not exceeding the vaginula, tapering into the collum. Capsule wider and rather shorter than in *O. affine*, more widely striated. *Cilia linear, of a double series of cells*, scarcely equalling the teeth. Operculum equalling or exceeding that of *O. affine*.

*O. stramineum* (described in the Bot. Society's Transactions) bears great external resemblance to *O. fastigiatum*, but differs in the greener, narrower leaves; *the scarlet-tipped calyptera* (which indeed distinguishes it from all its allies except *O. patens*); the very hairy vaginula; the shorter capsule, when dry usually emersed or even exserted beyond the perichætal leaves, and with the sporangium less, the collum *more* contracted; the much shorter operculum, not margined with red; finally in the subulate cilia, composed of a single series of cells, and more frequently 16 than 8 in number.


**HAB.** Growing with *O. Sprucii* in Clifton Inns near York; June, 1842.
Plants forming very small, compact tufts. Stems short (3 or 4 lines in length), each bearing a capsule, simple or once dichotomous. Leaves imbricated, suberect (appressed when dry), ovato-lanceolate, much broader than in O. affine, sub-obtuse, sometimes apiculate, concave, often subuplicate, navicular at the apex, the areolation slightly wider than in O. affine. Vagninula and calyptra smooth, the latter greyish. Capsule emersed, pale-coloured when just mature, elongato-pyriform, with a long neck tapering into the pedicel (which a little exceeds the vaginula), the outer paries rather widely areolated, and marked with 8 broad striae. Peristome of 8 bigeminate teeth, arched into a hemisphere when moist, though slightly turned up at the apices; when dry reflexed, rarely separate. Cilia 16, the alternate ones usually not more than half the length of the others, yet sometimes equalling them, filiform, composed of a single series of cellules. Operculum convex, shortly rostrate.

O. pallens is difficult to separate from O. tenellum by the eye; the best field-characters are afforded by the subcylindrical capsule of the latter, the collum not tapering into the pedicel, and the much larger, straw-coloured and slightly pilose calyptra.

14. Orthotrichum pumilum, Schwægr., "monoeicum, pulvinatum, humile; caule dichotome ramoso, dense folioso; foliis patulis, siccitate imbricatis, lanceolatis, obtusiisculis, costato-concavis; capsula ovata, brevicolla, late striata; calyptra campanulata, nuda." Bryol. Eur.


HAB. On an ash-tree in Clifton Ings, near York; April, 1843.

This is very distinct from O. affine (of which it is made a var. in Musc. Brit.) by the following characters. Leaves shorter and wider, the upper slightly apiculate, not recurved as those of O. affine most commonly are, the margins strongly
revolute, the areolation something wider, less distinctly dotted and scarcely papillose, their hue a deep dull green, with none of that yellow tinge usual in O. affine. Pedicel shorter (barely equalling the vaginula) not tapering at all into the collum, but in O. affine passing gradually into it. Capsule much shorter and rounder, more widely areolated, the striae reddish, in O. affine pale yellow. Operculum shorter, conical; that of O. affine always decidedly rostrate. Calyptra more convex, covering two thirds of the capsule. Peristome shorter; the cilia about half the length of the teeth.

O. fallax, Bruch., is the nearest ally of O. pumilum, and is to be distinguished from it by the longer and sharper pointed upper leaves, the longer capsule, constituted of a more delicate membrane, the much paler striae, the longer inner peristome, and the pedicel tapering into the collum.

I may add that British Botanists appear to have been in the habit of referring to Orthotrichum affine β. pumilum any small Orthotrichum with an immersed capsule and 8 cilia; and I have seen O. pumilum, O. fallax, O. tenellum and O. stramineum preserved in herbaria under this name.

15. Orthotrichum Sprucii, Montagne in litt., monoicum, subpulvinatum; caule subramoso; foliis erecto-patulis, ligulato-oblongis, apice rotundatis minute apiculatis, carinatis, laxe areolatis, margine recurvis, nervo pone apicem evanescente; capsula obovato-pyriformi, brevicolla, angustius 8-striata; calyptra campanulata, nuda; peristomii dentibus bigeminatis, madore horizontalibus, siccitate reflexis.

Hab. “Near Glasgow, 1824;” Dr. Walker-Arnott. Frequent on trees and shrubs on the banks of the Ouse, near York, where it grows in company with Leskea pulvinata and Tortula latifolia; first observed in January, 1842. Banks of the Wharfe and Cock. By the Derwent near Matlock Bath. “On rails, stumps, &c., within the reach of floods about Henfield, Sussex, and Burford Bridge, Surrey (and doubtless common in these counties); very often accompanied by Tortula latifolia;” Mr. Borrer. “Near Bristol;” Mr. Thwaites. “Banks of the Sence, near Twycross, Leicestershire;” Rev. A. B. Bloxam.
Stems simple or sparingly dichotomous. Leaves blackish-green (probably owing to the locality), erecto-patent or patent; the lower oblong, with or without an apiculus, concave, with plane margins, destitute of chlorophyll, the nerve seldom reaching above the middle; the upper more elongated, oval- or oblong-ligulate, minutely apiculate, with broadly recurved margins, chlorophyllose, the nerve longer, yet failing decidedly below the summit and more suddenly than usual in the genus; all very obtuse, keeled, the perichaetial ones so strongly so as to be almost conuplicate, the areolation wider than in any other European species except O. diaphanum, the nerve slender in proportion to the breadth of the leaf. Pedicel scarcely exserted beyond the vaginula, tapering into the neck of the capsule. Capsule brownish, overtopped by the perichaetial leaves, obovato-pyriform, short-necked, the outer paries rather thin, closely areolated near the mouth, marked with 8 narrow yellowish striae (of 4-5 rows of cellules, the interstices of 11-14). Operculum convex, apiculate. Calyptra large, greyish, campanulate, convex, naked. Outer peristome when moist nearly horizontally connivent over the mouth of the capsule, when dry reflexed, the teeth rarely separated. Cilia 8, composed of a single (more rarely of a double) series of cellules, dilated at the base, equalling the teeth or nearly so, when moist horizontal, when dry erecto-arcuate. Seeds deep olive, minutely granulated, slightly smaller than the pale green seeds of O. affine. Male flowers terminal or pseudo-axillary, gemmiform, perigonial leaves ovate, or even suborbicular, very concave, with a slender nerve; antheridia on a rather long pedicel, destitute of paraphyses.

As above stated, Dr. Arnott gathered this species near Glasgow in 1824; at that time he considered it a var. of O. affine, corresponding with the O. Rogeri of Bridel. On the authority of Dr. Arnott's Glasgow specimens, Mr. Wilson referred my moss to O. Rogeri, and the same opinion has been adopted by Bruch, neither of these eminent Botanists possessing an original example of Bridel's moss. From the
first, I have disputed the correctness of this decision, and on communicating my doubts to Dr. Montagne, he perfectly agreed with me in regarding the moss a nondescript, and bestowed upon it the name under which it is now published. Very lately, I have received from Dr. Arnott a scrap of an original specimen of *O. Rogeri* (gathered by Roger and named by Bridel himself) which has convinced me that *O. Sprucii* is truly distinct from it, and to this opinion Mr. Wilson now cordially assents. I am not disposed even to consider *O. Rogeri* its nearest ally; the leaves of the latter are yellowish (as Bridel describes them), rather widely areolate, yet much less so than in *O. Sprucii*, far longer and narrower (not differing much in form from those of *O. affine*) and by no means apiculate; the capsule is very different in form ("elongato-oblonga") and the cilia, according to Schweiggerich: "externis dimidio fere breviores." In the field, small specimens of *O. Sprucii* might be mistaken for *O. pumilum*, which seems to me to be the species most closely related to it; but a comparison of the characters given above of these two mosses will show that they may be readily distinguished on examination. In fact, there is no European species with which *O. Sprucii* can possibly be confounded. Dr. Montagne remarks to me: "Ses feuilles la feront distinguer de tous les autres, même de l'O. Rogeri....Je n'ai pas vu une seule feuille sans apicule. C'est, avec la forme ligulée, le caractère spécifique le plus constant."

16. *Orthotrichum tenellum*, Bruch. in Brid., "monoicum, minute pulvinatum; caule brevi, parce ramoso; foliis patulis, siccitate laxe imbricatis, lanceolatis, acutiusculis, carinatis; capsula emergente subcylindracea, late striata, siccitate costata; calyptra conico-campanulata, subpilosa."


HAB. Very fine on trees by the river Cock, near Tadcaster, Yorkshire, as also by the Derwent at Matlock Bridge, Derbyshire. In several stations near Castle Howard, yet nowhere abundant. "Beaumaris," *Mr. Borrer.* "On an apple-tree, Dundry, near Bristol;" *Mr. Thwaites.*
This may be distinguished from O. affine, which it somewhat resembles, by its much smaller size; the smaller and cylindrical capsule, which is more widely areolate and marked with broad orange-coloured striae; the shorter almost conical lid; the much larger straw-coloured calyptra, and the proportionally smaller and less opaque peristome.


HAB. In a stubble-field on the S. side of Bulmer Hagg, near Castle Howard, growing with Pottia minuta.

Leaves much narrower than in the normal form, brown, the nerve rather strong, the margins subdenticulate upwards and reflexed. Calyptra conical, quite erect, generally with two or more fissures at the base.

Phascum Floerkeanum is frequent in the autumn in stubble-fields on a clayey soil in the neighbourhood of Castle Howard, where I have found specimens uniting it with the var. α.

18. Phascum triquetrum, n. sp., monoicum, subacaule; foliis trifarum dispositis, conniventibus, obovatis, apiculatis, carinato-nawicularibus, margine reflexis, costa excurrentie; capsula magna, horizontali, sphærica, immerse.


HAB. In bare spots among short grass on the summit of the cliffs between Brighton and Newhaven, where it was discovered by Mr. Borrer in April, 1844.

Plants appearing to the eye like little triangular bulbs, equalling those of Ph. muticum in size, about 9-leaved, green at the time of flowering but assuming a reddish-brown tinge as they advance towards maturity. Leaves trifarious, closely imbricated and connivent; the three lowest minute, ovate, nerveless, occasionally cloven; the three uppermost (those of the perichaetium) broadly obovate, apiculate, sharply carinate, remarkably boat-shaped, being hollowed out upwards as it were for the reception of the capsule (which they closely em-
brace), and having the nerve bent almost at a right-angle at
the point of greatest concavity, their margins reflexed above
and denticulate, their points recurved and diaphanous, their
nerve slightly excurrent; the intermediate leaves resemble
those of the perichætium except in being smaller and less
concave. Inflorescence monoicous; male flowers gemmiform,
one or two arising from near the base of the plant, each con-
sisting of 3 or 4 minute obovato-lanceolate nerveless leaves,
sometimes unequally bifid or even trisid, including 2 antho-
ridia, destitute of paraphyses. Vaginula small. Calyptra
minute, diaphanous, covering a very small portion of the
capsule, subdimidiate, usually remaining in adhesion to the
capsule by its entire side. Pedicel very slender, curved at an
early stage, but gradually raising itself erect as the capsule
advances towards maturity, suddenly bent at a right angle at
its junction with the capsule. Capsule large, obsoletely
rostellate and the axis considerably depressed when young,
but when fully grown spherical and the axis very nearly ho-
izontal. Seeds rather large.

The only species for which this beautiful and interesting
Phascum can be mistaken is Ph. muticum. The latter is,
however, admirably distinguished by the perichætial leaves
being only two (not three) in number, strongly convolute and
not keeled, their margins plane, their nerve never running be-
yond the point, and their areolation closer than that of Ph.
triquetrum. Besides, the pedicel is shorter and stouter, the
calytra campanulate, the capsule smaller and quite erect, the
seeds are smaller, and the inflorescence is monoicous.

To Mr. Wilson I am indebted for the information that
Phascum triquetrum is published in Drummond’s Musci
Americani as Ph. muticum: he says “Your new Phascum I
have never seen before, as British, but I know it partially as
No. 8, (Ph. muticum), of Drummond’s Musci Amer., though I
had not ventured to separate it from Ph. muticum.” He has also
kindly examined the mosses preserved under the name of Ph.
mutilum in the Hookerian Herbarium, and finds Ph. triquetrum
“gathered near Cagliari by Müller and distributed by the Unio
Itineraria under the name of ‘Ph. muticum,’ many years ago.
NEW BRITISH MOSES.

It is also given under that name by Moug. and Nestler as No. 802 of their Stirp. Crypt. Vogesio-Rhen., 1826."

19. Tortula ambiguа, B. et S., "dioica; brevicaulis; foliis patulis, ligulato-lanceolatis, obtusis, apice subincurvis, capsula cylindrica erecta, annulo simplici subpersistente instructa; operculo breviori, elongato-conico, margine integro; calyptra brevi, solum operculum obtegente; peristomio brevi, semel contorto." Bryol. Eur.


HAB. On a mud capped wall by the side of the road leading out of New Malton towards York, where I found a single patch growing along with abundance of T. rigida, Nov. 19. 1844.

This new species belongs to the small group of Aloid Tortula, which comprehends besides it only three species, viz. Tortula rigida Schultz (T. enervis Musc. Brit.) T. aloides B. et S. (T. rigida Turn., Musc. Brit.) and T. brevirostris Hook. et Grev. Between the two former of these it is almost intermediate, but differs from both in the more spreading leaves, with usually cucullate spices. From T. rigida, it differs further in the longer leaves, the longer and cylindrical (not ovato-oblong) capsule, the shorter operculum, the much narrower annulus, the peristome only once twisted (in T. rigida 3 or 4 times), and the calyptra merely covering the lid, but in T. rigida sheathing half the capsule. From T. aloides it may be distinguished by the broader and less acute leaves, with a much broader and thinner nerve, the capsule erect and of a uniform colour, while that of T. aloides is curved and of a deeper hue on the upper than the underside, the subulate (not rostrate) lid, the broader basal membrane of the peristome and the smaller seeds.

I have attentively studied Tortula ambiguа and believe it a good species; for although I have now and then found a capsule of T. rigida with the peristome equally short and only
once twisted, yet the other characters (and especially that derived from the calyptra) were always constant and unequivo-

cal.

20. Tortula marginata, B. et S. “humilia, simplex, gregaria
vel caspitulosa, dioica; foliis late oblongo-lanceolatis, mar-
ginatis, costa excurrente mucronatis; capsulae oblongae oper-
culo brevirostro; peristomii membrana basilari angusta.”
Bryol. Eur.

“T. caspitosa (Hook. et Grev.) Montagne, Archives de bo-
No. 11. Nec Schwaegr;” (fide B. et S.)
Hab. On walls and rocks of soft sandstone in the neighbour-
hood of Castle-Howard, most abundant in the park quarry.

“Stone-pits, Henfield;” Mr. Borrer.

When I first found this moss I hesitated to refer it to the
Barbula marginata of the Bryol. Europ., because of its differ-
ing in some respects from the figure and description in that
work. Mr. Wilson, however, whom I consulted on the sub-
ject, remarks to me, “Your Barb. marginata, if not exactly
like the figure, etc. of Bruch and Schpr., is quite as much so
as what I suppose to be the original in Herb. Hook. which
has the leaves quite erect, and more linear than in Bryol.
Eur.” Through the favour of the same gentleman, I have
lately had the opportunity of comparing it with Algerian spe-
cimens of B. marginata, from Bové, and the differences ap-
pear so slight that I do not scruple to consider them the same
species.

Tortula marginata differs from T. muralis, with which it
frequently grows associated, in its laxer mode of growth, never
forming dense cushions as in that species; in the shorter stems,
which are either simple or furnished with one short innova-
tion; the concave, acute leaves (which in my specimens vary
from broadly lanceolate to lineari-spathulate, but are always
broadest where the plants are most crowded), of a paler green,
less opaque, the margins diaphanous and thickened, and by no
means revolute, the nerve very slightly produced; in the smaller
and paler capsule; in the broader basal membrane of the
peristome and the slenderer teeth; in the double annulus (single in *T. muralis*); and finally, in the dioecious inflorescence. The male and female plants grow intermixed and do not differ at all in appearance; the perigonal leaves are precisely similar to those of the perichœstium, and enclose about 3 antheridia.


HAB. On old elms at Huntington near York; May, 1843. Castle-Howard park. "Near Llansaintffraid, N. Wales; June, 1844;" *Mr. Wilson.*

This resembles small specimens of *T. leavipila* Schwgr. in habit and essential character; it forms, however, more lax and spreading patches, and frequently grows intermixed with *Orthotricha*, especially *O. diaphanum*, from which it is not readily distinguished by the eye. The stems are short, branched near the base. The leaves are spreading but not recurved, shorter than those of *T. leavipila*, usually less obtuse, their nerve much less produced and towards the apex of the leaf beset with short articulated filaments, as in *Tortula membranifolia*, Hook.; they are besides more hyaline and brittle, far more widely areolated, and papilllose on their under surface. They do not twist in drying, but the margins speedily become involute and the apices connivent.

22. *Tortula squarrosa* De Notaris, laxe pulvinato-caespitosa; foliis lineali-lanceolatis e basi vaginante, squarrosis, subtortilibus, alis inflexis et undulatis, subitus granulosis, margine subdenticulatis, costa crassa cum apice evanida.

*T. squarrosa De Notaris Specim. de Tort. Ital. No. 31.*

HAB. "On the beach at Hastings and in Beeding Chalk-pit, Sussex; in both stations without fruit;" *Mr. Borrer.*

In the ‘Bryol. Europ.’ this is considered a variety of *T. tortuosa*, W. and M., but I believe incorrectly. It differs from that species in the less compact tufts; the far shorter and decidedly squarrose leaves (not patent or suberect), less
opaque and furnished with a narrow diaphanous border (of empty cellules) at the expanded and semiamplexicaul base, *papillose*, especially towards the apex, where they are for the most part *truly*, though minutely, *denticulate*;* the margins more strongly inflexed and undulate; the nerve *not* paler than the pagina, *not* produced beyond the summit, and *plane* or *slightly concave* on the upper surface, but *convex* in *T. tortuosa*.

In habit and in the shape of the leaves *Tort. squarrosa* bears considerable resemblance to *Trichostomum Barbula*, Schwgr.; but the latter may be distinguished by the *broner* and *more rigid leaves*, which are patent but not squarrose and twisted, their margins more strongly incurved, *their nerve broader and stronger*, and their point less attenuated.

Respecting *Tortula squarrosa*, Dr. Montagne has observed to me that it fructifies in Sicily and at Algiers. "Elle vient aussi aux Canaries où M. Webb l’a récoltée, et elle figure page 35, de la Cryptogamie de ces îles. C’est bien à tort que Bruch et Schimper, qui n’ont pas vu le fruit, ont rapporté cette jolie Mousse au *T. tortuosa*, nam ab eâ toto coelo diss-tat."


" *Tortula insulana De Notar. Specim de Tortul. Ital. No. 28;*" *(fide B. et S.)*


*Hab.* "On a stone by the Keswick road just out of the village of Ireby, where it formed one large patch;" *Mr. Borrer*.

By means of original specimens from Dr. Taylor, I have ascertained the synonym of ‘Flora Hibernica.’ The white

* Of this I have convinced myself by repeated examination, and I cannot doubt that B. and S. err when they say “feuilles... à bords souvent un peu plus grossièrement granulés que cela ne se voit ordinairement, mais jamais denticulées comme on les a indiqué.”
peristome of T. *vinea*itis affords a good field-character for distinguishing it from T. *fallax*, and I mention it here because I omitted to record it in my paper on the 'Musci and Hepaticae of Teesdale.'

Richard Spruce.

Welburn, near Whitwell,
Yorkshire, March 8, 1845.

Description of a new British, and a new American species of Fissidens; by W. Wilson, Esq.

(*With a plate, Tab. IX.*)

Fissidens *Bloxami*, (Wils.) caule simplici brevissimo declinato, foliis oblique lineari-lanceolatis acutis immarginatis denticulatis, lamina dorsali supra basin desinenti, seta terminali, capsula erecta, operculo et basi conica oblique rostrato, annulo revoluti. (Tab. IX. A.)

Hab. Orton Wood, near Twycross, Leicestershire, on clayey banks with F. *taxifolius*, found in April, 1844, by the Rev. A. Bloxam. Fruit ripe in January.

Caules perpusilli, tenerrimi, subcæspitoso-gregarii, vix lineam metientes. Folia 4-6, infima minima, fere squamiformia, late ovata, acuta, remota, squarrosa, dehinc sensim longiora et confertiora, distiche patentia; superiora oblongolanceolata, ad medium usque conduplicata, toto ambitu praecipue ad basin anticam denticulata, nervo valido viridique sub apicem dissoluto instructa, lamina dorsali longe supra basin desinenti; hinc folia obliquata et quasi undulata videntur; amoena viridia, siccitate haud crispabilia, laxe hexagonosubinde pentagono-areolata, sicca guttulata. Flos masculus ad caulibus basin, gemmiformis, tetraphyllus. Seta ascendens, basi fere geniculata, 2-4 lineas longa, gracilis, subflexuosa, pallide rubella. Vaginula sub-elliptica, fuscidula. Capsula erecta vel suberecta, oblongo-elliptica, basi attenuata, ore vix contracta, sicca sub ore constricta, olivacea. Operculum e

From its nearest ally F. Hornschuchii, Mont. (F. Brasilien-sis et serrulatus, Hornsch.) this is distinguished by its much smaller size and by the paucity of its leaves, which are of a different shape, more evidently denticulate, and with larger areolæ. In the peculiar conformation of its leaves, and in the presence of a distinct annulus it differs perhaps from all others of the genus. In aspect it is not unlike Dicranum viridulum, Eng. Bot., t. 1368, but that is a state of Fissidens bryoides, essentially distinguished by the margined leaves. F. Bloxami is one of the smallest of the genus.

Tab. IX. A. Fissidens Bloxami. Fig. 1. Plants; nat. size. f. 2. Plants; magn. f. 3. Operculum. f. 4. Calyptra. f. 5. Portion of the peristome. ff. 6—11. Leaves, from different parts of the stem; all magn. f. 12. Apex of a leaf; more highly magn.

Fissidens obtusifolius, (Wils.) dioicus; foliis 6—10 (in caule sterili 20) subovalibus brevissimis obtusis evanidinerviis integerrimis immarginatis, seta terminali, capsula erecta sub-elliptica, operculo conico brevi. (Tab. IX. B.)

HAB. On the hedges of a dripping rock, Cincinnati, J. G. Lea, Esq., 1843.


Tab. IX. B. Fissidens obtusifolius. Fig. 1. Plants; nat. size. f. 2—5. Plants; magn.
BOTANICAL INFORMATION.

Swan River Botany.

Our botanical friends will be glad to know that the indefatigable Mr. James Drummond, of the Swan River, with the assistance of one of his sons (Johnston Drummond, who evinces the same ardent love as, and we trust he will have the same degree of success in Natural History pursuits which has so eminently distinguished the father and the uncle) has again explored a very interesting district in the interior of that colony, and has sent, in continuation of his former series, sets of three hundred and fifty species numbered and in very excellent condition, consisting of many rare and new plants. Mr. Robert Heward, No. 5, Young Street, Kensington, has undertaken the distribution of these plants, and to his letters may be addressed by those wishing to possess sets. It may be observed that in the thirteen sets now sent, there is no difference in regard to number or condition; they are all equally good. These plants, as the former ones, are charged by Mr. Drummond at £2 the hundred species; to which will have to be added the share of expenses.

Mr. Spruce; Plants of the Pyrénées.

We rejoice to hear that Mr. Richard Spruce, of York, has the intention of spending the ensuing spring and summer in the Pyrénées, for the purpose of collecting and publishing specimens of the rarer Flowering-plants, Mosses, Hepaticæ, and Lichens of those mountains; and we know of no one, who, from education and experience in preserving plants with the utmost care and neatness, is better calculated for such a task: and how well qualified he is for acquiring a knowledge of the Cryptogamic plants of the region in question may be inferred from his valuable Memoir on some new British Mosses, which appears in the present number of our Journal.
The researches of Mr. Bentham and Dr. Arnott, among the accomplished botanists of our own country, have demonstrated the Phanerogamic riches of the Pyrénées, and even since the visit of these gentlemen several interesting novelties have been detected, especially in the western mountains. There remain, however, some extensive and promising districts, especially on the Spanish side of the chain, about which little is known, and therefore many discoveries doubtless still remain to be made. But it is in Cryptogamia that the richest harvest, or at least that productive of the most novelty, may be expected; for certainly no competent Cryptogamist has ever yet devoted sufficient time and attention to the search of these obscure tribes. Lichens are known to be numerous and beautiful in the Pyrénées, and some rare and interesting Mosses have been detected. The whole of the specimens collected by Mr. Spruce will be preserved in the best possible manner; the flowering-plants will be dried entire, whenever practicable, and the Mosses, &c., with their fructification as perfect as it is possible to procure them. He proposes to devote a period of not less than six months to the task, commencing with the month of April, and he trusts to have the phanogamic portion of his collection ready for sale in London by the end of autumn, and perhaps the first Century of Pyrenean Mosses will appear at the same time, but he does not expect the whole of the Cryptogamia will be in a fit state for publication before the spring of 1846. We may add that Mr. Spruce intends to collect in the departments of the Basses Pyrénées and the Hautes Pyrénées, and as much on the Spanish side as the state of affairs in that country will admit.

The Pyrenean collection being concluded, this Botanist contemplates devoting the ensuing winter and the summer of 1846 to the exploration of the South of Spain, and especially the Sierra Nevada. Under favourable circumstances, his collections in this, the richest and least known country in Europe, cannot fail to be of unusual interest. Until the recent researches of Boissier, Andalusia was nearly a "terra incognita." That eminent botanist has done little more.
BOTANICAL INFORMATION.

than break the ground for those who shall follow him in exploring it, and yet his collections comprise much that is new and nothing but what is interesting, while those very plants are in the hands of so very few botanists, that even the same that he gathered will not fail to be generally acceptable. The precise time of the appearance of the Spanish plants cannot at present be assigned; but we may add that like those of the Pyrénées, they will comprise a large proportion of Cryptogamia.

Botanical Geography of Britain.

Mr. Hewett Watson is induced to address a Circular to his botanical friends, in consequence of repeated inquiries, whether it is his intention to proceed with the enlarged edition of his work on "The Geographical Distribution of British Plants." After long hesitation, and not without much reluctance, he has finally resolved to discontinue that work, as being on a scale too extended for completion within any moderate time. Such a treatise must be comparatively useless, until the whole series of Natural Orders becomes complete; and the experience acquired in preparing some of the other Orders for the press, which should have next followed those already printed, has clearly convinced him that too many years of close application would be required for bringing the whole work to a satisfactory conclusion. He has therefore resolved to begin afresh, under such an arrangement of the subject, as will give to each successive volume the character and usefulness of a work complete in itself; bearing reference to preceding volumes, indeed, but independent of those which may (or may not) follow. It is now proposed to divide the general subject into the three following heads, which may be taken either as three separate works, or as three divisions of a more comprehensive work:

1st. Botanical Geography—intended to embrace those apparent connexions which may be traced between the floral productions and the physical geography of countries; and in
tracing which the plants are viewed collectively, with reference to each other and to their places. A first volume will describe the Botanico-geographical features of Britain. Succeeding volumes will compare the botany of other parts of the globe with that of Britain.

2nd. Areas of British Plants—intended to show how far the various plants have been ascertained to extend over the surface of Britain and other parts of the world; each species being here taken singly, in rotation, and traced through Britain and the rest of the earth's surface. A first volume will show the Topographical Areas; the species being traced through those eighteen Districts of Britain, which were explained in the discontinued edition before referred to. A second volume will be devoted to their Geographical Areas, the species being traced through larger sections of the earth generally.

3rd. Localities of British Plants—intended to be a compilation of local lists and localities; the precise plan of this work being left undecided at present.

[N.B. It may be well to mention here, that manuscript localities are no longer wished from other botanists, unless they can be accompanied by specimens in confirmation.]

It will be more easy to understand this proposed change in the arrangement of the subject, after glancing over the subjoined pages, which are given as explanatory examples of the different volumes. The "Topographical Areas" will probably be first ready for press; and this will be followed by the "Botanical Geography of Britain." Some further delay becomes unavoidable under the change of arrangement, which makes it necessary for all the Orders to be equally advanced, one as another; before the species of any of them can be printed. The former plan might have produced the better work in the end, if all the Orders could have been completed; but with great uncertainty of completion, it seems more advisable to make each volume a whole by itself. Should the author's labours be terminated abruptly, even after printing only a single volume, the curtailed work, though rendered less
comprehensive than the design, may be held something better than a mere fragment of a large work.

[The following fragments are given by Mr. Watson, as examples of the proposed volumes.—Ed.]

*Botanical Geography of Britain.*—"Climatic or Ascending Zones of plants are designed to indicate their relative distribution under the joint influence of altitude and latitude, with other conditions of a more local character, such as proximity to seas or mountains, the state of exposure or shelter, &c. It has been explained, that connexions may be traced between each of these conditions singly; but that everywhere the influence of any one is more or less disturbed and modified by that of others. Their effect upon the flora or general vegetation is mostly indirect or remote; that is, the flora varies with the climate, and the climate varies with altitude, latitude, and other conditions of place and surface. On a single isolated mountain the ascending zones of vegetation are very strongly marked, in accordance with altitude; some species disappearing, other species appearing, one above another, as we gradually ascend from base to summit. Yet on a single mountain we may see that local changes in the character of its surface, and the differences of aspect on its declivities, whether facing to or from the sun, will disturb the regularity of its ascending zones. On an extended range of mountains the disturbing effect of local peculiarities will become much more obvious. And when we have to adapt our zones to several groups of mountains, dissimilar in extent, elevation, latitude, maritime proximity, and other circumstances, it then becomes difficult to define them with any exactness. We experience this difficulty in tracing the ascending zones of plants in Britain. The absolute elevation at which the same species will grow, varies by many hundred feet on different mountains. And as this variation is by no means uniform with different species, we find local changes in their relative elevation also, the limit of one being compared with the limit of another. Notwithstanding such local exceptions, however, the general rule will be
found true, that a species which rises higher than another on
one range of mountains, will usually be found higher on other
ranges; and the commoner the species, the more exact is the
rule found to be.

It is upon the prevailing regularity of this fact or rule, that
the climatic zones of plants are founded and defined; the pre-

essence or absence of some common and conspicuous species
being made the test of the zone. The primary division which
I have proposed, as one best applicable in Britain, is osten-
sibly founded upon an artificial character; namely, the pre-
sence or absence of cultivation. It is by this character that I
would distinguish the lower from the upper zones of plants;
giving to the former the common designation of Agrarian,
and calling the latter by the name of Arctic Zones. Or, to
prevent confusion with subordinate divisions, it may be well
to say, in the first instance, Agrarian Region, and Arctic
Region.

In the spontaneous vegetation of Britain, we can find no
character equally obvious and general with that afforded by
the cultivation of grain. The interests of mankind are so
intimately connected with the production of corn, that we
shall every where find cultivated fields as far up the valleys
and acclivities of the mountains as their climate will allow.
No doubt we may see many spots where the nature of the
soil or surface, rather than the climate, forbids success in
cultivation. But a correct observer can scarcely be misled in
such instances, since he will usually find cultivation suffi-
ciently near these spots, to show that it has not been prevent-
ed by inferiority of climate. Moreover, nature will afford us a
second test of the Agrarian region, by the presence of a very
common and conspicuous fern, the Pteris aquilina. This fern
is distributed throughout the region, and from one extremity
of our island to the other. I have observed it in many places,
and always found its upper limit running nearly uniform with
the limit of corn cultivation; so that the two characters in
connexion form a very satisfactory test of the region. The
plough is soon fatal to the Pteris, nor can it long resist the
annual attack of the scythe in early summer; but we require its presence, as a character, only in those spots which remain uninvaded by scythe or ploughshare; and in such spots we seldom seek it in vain, until arriving about the line where climate itself arrests the ascent of agriculture.

These two regions may be again divided, each into two subordinate zones. For a suitable division of the agrarian region, we must again look to the artificial characters impressed upon its surface by the industry of man, who has so extensively changed those antecedent characters which were given by nature. Accordingly, I take the presence or absence of wheat-fields, as the leading test of distinction between a Lower Agrarian Zone and a Higher Agrarian Zone; the upper portion of the region, for a considerable breadth, being wholly without wheat-fields. The limit of wheat appears not to correspond with the limit of any very conspicuous native plant. So far, the former may be deemed less suitable to the object in view; but it is a more general test, and therefore more applicable in practice, than any single native plant would prove.”

* * * * *

British and Polar Botany.—“From the preceding enumeration of their species, it appears that the frigid coasts of the Polar seas, beyond the seventy-second degree of north latitude, support an extremely scanty flora, including only a hundred and thirteen species, so far as hitherto ascertained. Most of these are perennial herbs, of dwarf stature. If they attain any considerable size, it is only in the horizontal direction, by forming tufts, or by branching and spreading over the surface of the ground. Nothing is seen to rise with tall stems, like those of our Butomus or Digitalis; nor are there any slender climbing plants, like the Tamus or Bryonia. Trees are utterly unknown; and the few shrubs which exist here, are those of the most humble growth, belonging to the orders of Amencææ and Ericaceæ. The general character of the floral landscape must be widely dissimilar from that of the British
coasts: we may find the nearest approximation towards it around the bleak summits of our Highland mountains.

It would be tedious to write down the many species, or even the genera or orders, of the British flora, which are wholly absent, and many of them far absent, from the Polar lands. These negative characters of the latter are too numerous for specification. Let us adopt the opposite course, and seek for resemblances between the productions of countries so widely distant. All the nineteen orders, under which the plants of the Polar flora are arranged in preceding pages, are common to the two sections—the Polar Coasts and the British Isles. So far there is a strong affinity; the difference on the side of the Polar botany being negative, or shown only by the absence of other orders more liberally supplied to the British Isles. But sameness in the orders of plants is of course compatible with much less similitude in the subordinate groups; and when we look to the fifty-seven genera of the Polar flora, we arrive at positive characters of difference, since eleven of these genera have no species to represent them in the British flora. And on coming to the more exact comparison of species, we see that nearly two-thirds of the Polar species are unknown among the native plants of the British Isles. Apparently, somewhere between thirty-five and forty species are common to the two sections; that is, more or less, according to the ultimate decision respecting the identity of some undetermined species, the individuals of which differ so much in Polar and British latitudes, that their identity, as species, is rendered doubtful.”

* * * * * * *

British and Azoric Botany.—“On thus comparing the lists of species, now found wild in the two groups of islands, and seeing that more than one-half of those which have been ascertained to grow in the Azoeres, are native or naturalized in the British Isles, it might at first appear that the botanical features of the two countries must bear a much closer resem-
blance than is really the case. Although half the species of the Azores may be truly indigenous in the British Isles, it is to be recollected that the converse of this by no means holds true: the British species are so much more numerous, that one-half of the Azoric flora is equal only to about one-sixth of the British flora, taking them in round numbers; and hence it may readily be conceived, that the many additional species of Britain will cause a predominance of dissimilar forms in the floral physiognomy of our own island. This dissimilitude is yet more widened by the different degrees in rarity or prevalence of those species which are found in both countries; many of those which are accounted the rarities of one country being the vulgarities of the other. For example, many English botanists may pass their lives without meeting with plants of Polycarpon tetraphyllum, Senebiera didyma, Lotus diffusus, Cyperus longus, Briza minor, &c. &c., in a state of nature: they are found to be among the common weeds of the Azores.

It likewise happens, in numerous instances, that the species which are peculiar to one of the countries, constitute an important, or leading character of the vegetation. In example of this, it may be remarked, that not one of the trees or larger shrubs of Britain can be held certainly indigenous in the Azores; and the same remark would be equally true, if extended to a large proportion of our commonest and most conspicuous herbaceous plants. In turn, those shrubs and herbs which give a character to the Azoric landscape, belong usually to species, and often to genera, quite different from those of Britain. Erica Azorica, the most generally distributed shrub of the Azores, and one which frequently attains the form and dimensions of a small tree, bears little resemblance to any British species of Erica, unless it be to the Irish E. Mediterranea. A second very abundant shrub in some of the islands, and also one of arborescent stature, is a variety of the Juniperus Oxycedrus, which is far larger and more ornamental than the wild juniper of our own isles. In these two characteristic shrubs there is, at least, a generic
similarity to those of the British Islands; as there is also in the beautiful Vaccinium cylindraceum, and the very peculiar and much less plentiful Euphorbia Stygiana. In the Myrica Faya, the resemblance scarcely amounts to generic;”

* * * * *

"Topographical Areas.—It will be observed that no authority is quoted after the names of those districts, in which I have myself collected or seen the species. In all other instances, the name of the district is followed by that of some authority; a preference being given to the labels of specimens preserved in my own Herbarium. The note of certainty ‘!’ indicates the possession of a specimen from the district, and when it follows the name of the authority, it indicates also the person to whom I was indebted for such specimen. Names in *italics* imply the supposition of the species not being indigenous. Those enclosed [ ] require confirmation.

**Ranunculaceae.**


* * * * * * *

"Geographical Areas.—On the whole, in the present state of botanical knowledge, the best course appears to be that of simply enumerating such of these eighteen Sections of the earth's surface, in which the species has been recorded to grow wild; the authorities for the fact being usually omitted, in order to keep down the bulk of the volume. To those sections, from which I happen to possess specimens in my herbarium, the names of the collectors or donors of the specimens are added, with the note of certainty "!". And in some other instances, more particularly where there is a want of certainty, an authority is likewise given, by way of clew towards confirmation or correction.

**Ranunculaceae.**


Botanic Rambles in Braemar; by William Gardiner

Dundee.

In our last volume, p. 138, we noticed the intention of Mr. Gardiner, the intelligent Botanist of Dundee, to prepare sets of specimens of Scottish and chiefly Highland plants for sale. These are now in circulation, and we can truly say they are highly creditable to Mr. Gardiner, and deserve encouragement from the Botanists of this country. We then announced also the "Botanical Rambles in Braemar in 1844," to be sold for one shilling. This little and entertaining volume has just appeared, and we can confidently recommend it to all lovers of British Plants, and to all lovers of nature also. As a brief specimen, we give the commencement of his rambles to the "Reeky Linn, Craighill, Braemar." "A June morning in the country, to one who has just escaped the noise and smoke, and bustle of a populous town, is a luxury indeed! It is like entering upon a new state of existence, where all is changed to purity and peace. The air one breathes is fresh, and sweet with the perfume of
flowers; the verdant hue of the fields and woods invigorates and delights the eye; the ear is soothed with the happy sounds of innocence and love; and all around are thousands of blossoms, arrayed in their varied robes of loveliness, to gladden the heart and awaken its holiest thoughts and feelings; for

"A flower is not a flower alone,
A thousand sanctities invest it;
And as they form a radiant zone,
Around its simple beauty thrown,
Their magic tints become its own,
As if their spirits had possessed it."

Such a delicious morning was the 24th of June; and I could have lingered by the fragrant hedge-rows, where the merry bee was sipping the honied treasures of the wild rose, to admire the beautiful structure of Flora’s more common productions, and hold sweet converse with such humble gems as the daisy and the violet; but as the purpose of my present mission was to search out her rarities, all tendency to loitering, where these were not to be found, had to be subdued."

In this agreeable state of mind does Mr. Gardiner set out upon his excursion, and notes down the scenery and the vegetation, and strong impression they made upon him. The second ramble is to the “Linn of Corrymuirzie;” the third to “Ben-na-Board,” rich in rare Alpine plants, especially Cryptogamia; the fourth to “Morne” mountain; the fifth to “Craig Koynoch and the Lion’s Face;” the sixth to “Glen Callater,” where, as our author observes,

"Boon nature scattered free and wild
Each plant or flower, the mountain’s child;"

the seventh to “Cairn-a-Drochel;” the eighth to “Ben Beck;” the ninth, “Canlochen;” the tenth, “Glen Quoich;” the eleventh, “Falls of the Garrawalt, and forest of Ballochbowie;” the twelfth, “Ben Avon.” These are all mountain excursions, and are followed by an appendix on the plants of the low grounds of Forfarshire, and especially those of the
coasts; spots that have been rendered classical by the previous researches of a Don and a Drummond.

Hooker, Species Filicum.

The third part of this work has recently appeared, with its accompaniment of twenty plates, representing thirty-six species hitherto unfigured, and indeed in general new. The extensive genus Trichomanes is brought to a conclusion, and embraces eighty-seven species. Some remarks are given on the "Hymenophyllaceae" of Dr. Presl, with the new genera of which our author expresses himself at variance. Next to the Dicksonieae, the third sub-order, Davallieae, follows. Davallia itself occupies the whole of the remainder of the forty-one pages, and yet does not include all the species. One hundred are at present enumerated, the rest will follow in the succeeding number. But let it be observed, the author preserves the original genus of Sir J. E. Smith nearly entire. "After a careful investigation," he observes, "of numerous species, I cannot but come to the conclusion that the original Davallia of Sir J. E. Smith should remain entire as a genus, of which the type may be considered the well known D. Canariensis. It is quite true, if we look only to certain species of the many new genera that have been separated from it, such as Humata, Odontoloma, Saccoloma, Leucostegia, &c., we may find apparently sufficient indications of generic difference; but when taking a comprehensive view of the respective species, we shall observe that, in point of generic marks, they gradually pass one into the other, so that I cannot even satisfy myself of the efficiency of them as sectional characters or subgenera." Out of respect to their founders, however, those genera, with some modifications, when they can be employed with propriety, generally constitute the grounds of his subgenera: of which the first is Humata, Cav. (fourteen species). 2. Leucostegia, Pr. (nine species). 3. Prosopatia, Pr. (three species, and one dubious one). 4. Eudavallia,

Musée Botanique de M. Benjamin Delessert, par A. Lasègue.

This is a work of no ordinary interest: comprising, as it does, "Notices sur les Collections des Plantes et la Bibliothèque de M. Benjamin Delessert; contenant en outre des documents sur les principaux Herbiers d'Europe et l'exposé des voyages entrepris dans l'intérêt de la Botanique." Paris, 1845.

It is well known that the distinguished individual, whose magnificent Herbarium and Library are the principal theme of the volume now before us, has long held that place in the scientific, but especially in the botanical, world at Paris, which was filled with so much credit to himself and with such immense service to mankind by the late Sir Joseph Banks, in London. His Museum is, in a similar manner, liberally opened to all whom it may interest or to whom it can be useful, and his own valuable book, the "Icones Selecte," of which four volumes, large 4to., have already appeared, (and a fifth is on the eve of publication) and the "Florea Senegambia Tentamen," but, above all, the various works of MM. De Candolle, father and son, testify to the services this collection has rendered to the cause of Botany. Few persons, if any, could be equally competent with M. Lasègue to execute the task in question; that gentleman having, for a long time, had the charge of M. Delessert's Herbarium and collections: and he is already known to the scientific world, not only as so employed, but as the author of a "Memoir on the Life and Writings of M. Guillemin," of which a translation appeared in the first volume of the present Journal, p. 411.

Of the motives that induced the publication of this volume M. Lasègue thus speaks:

"Our object was, in the first instance, to make known, by
a short but complete notice, the botanical collections of M. Benjamin Delessert; namely those Herbaria, and the library, which collectively form what we term his Botanical Museum; pointing out the origin of the principal portions of this rich museum and thus facilitating to naturalists those researches and comparisons which are indispensable in Science. And to this labour we were the more impelled, because it seemed to possess, in addition to its peculiar value, a degree of general usefulness which could not belong to the study of a less extensive cabinet.

M. B. Delessert, actuated by the same feeling as induced him to amass these treasures, is most desirous of enlarging the circle to which they have been confined; and is of opinion that it would be advantageous to concentrate, in a single volume, those scattered details which it is sometimes impossible, and always difficult, to obtain when immediately wanted; also to give, along with a history of all his own collections, an account of the principal Herbaria existing elsewhere; and adding a description of the more important expeditions which have been made for the furtherance of Science.

The importance of this work will be best understood by an enumeration of the heads into which it is divided, and a few remarks on the several subjects treated under them. The whole is arranged in three parts, and these again in chapters or sections.

**Part I. General Collections.—Herbaria of M. Delessert.**

1. This is an Introductory Chapter.

11. *On Museums and Cabinets of Natural History.* This is divided into two heads; 1. On the utility of Collections; 2. On private Museums of Natural History, which appear to have originated in Conrad Gesner of Zurich, who died in 1565. This chapter concludes with the mention of the Museum of Sir Joseph Banks, the first that was especially devoted to Botany, and to which was added a Botanical Library, the richest and most complete that ever had been formed.
III. On the Progress of Botany; including Vegetable Statistics. This is a chapter of very great interest. In regard to amount of species, Lonicer in 1546 indicated 879; Lobel in 1570, 2,191; Dalechamp in 1587, 2,751; Linnaeus, in 1753, enumerated 5,938 species; Persoon in 1807, 25,949; Steudel in 1824, 50,649, and the same author in 1844, 95,000. M. Laségue mentions it as a singular fact, that the proportion of the family of Compositae, with the total of the vegetable kingdom, has continued the same to the present period, that is about one-tenth. In 1838 M. De Candolle described 8,523 Compositae. Linnaeus estimated the total number of plants on the surface of our globe at 10,000; an amount now assuredly known to be equalled (if we consider the undescribed species actually in our Herbaria), by the Compositae alone; Adanson at 25,000, De Candolle at 120,000, Roemer and Endlicher at 250,000 and upwards; M. Laségue, with more probability, at from 130, to 150,000; for it must be borne in mind that of the 95,000 reckoned by Steudel as described in books, allowance must be made for species described twice, or even oftener, under different names, and a great amount of bad species.

IV. On Herbaria and their preparation.

V. On Botanical Travels:

VI. On typical Herbaria (des Herbiers-types).

VII. Botanical Museum of M. Benjamin Delessert.—In 1788 M. Stephen Delessert, eldest brother of the present possessor, began to form a Herbarium, of which the first materials were collected during his travels on the continent of Europe, also in England and Scotland, and the United States; to these were added plants from Japan, India, the Cape and Ceylon. Dying in 1794 at the early age of 23, of yellow fever, in New York, his younger brother, who from his earliest youth, occupied himself with plants, inherited his brother's collection, a part of which was indeed formed by himself, when he accompanied that brother in his travels through France, Switzerland, England and Scotland. His taste for Botany could not but have derived an additional impulse from
the letters of Rousseau on Botany, which, as is well known, were addressed to M. Delessert's mother, and "la petite," for whose improvement these letters were more immediately written, was his sister, afterwards Madame Gautier.

There is still preserved in the family the Herbarium formed by Rousseau expressly for Madame Gautier. Each specimen is beautifully preserved, fastened upon ornamented paper with gilded straps or bands, and the names written in French and in Latin by Rousseau's own hand.

M. Benjamin Delessert soon resolved to increase the collection by every means in his power, to form likewise a library rich in works of botany in all languages, and to render his noble museum available to all who study this part of Natural History. In 1817, M. Achille Richard was charged with the care of these collections till 1827, and in 1820, M. Guillemin was appointed Assistant Curator, an office he held till his lamented death in 1842; since which period, the author of the work now under notice has performed these important duties.

VIII. Botanic Galleries of M. Delessert.—1. Arrangement and Classification of the Herbarium. The specimens are fastened down with small straps and pins (not glued) on folio paper, being each enclosed in an envelope or doubled sheet, and the whole are placed in light cabinets, and arranged according to the Systema Vegetabilium of Sprengel, the only work that professed to be a tolerably complete catalogue of the plants known at the time the chief arrangement took place. The great mass of the specimens form one vast general Herbarium; others, however, it is found desirable to keep separate. 2. Number of Plants in the Museum. This is reckoned at about 86,000 species, represented by 250,000 specimens. Many apartments ("galeries") are devoted to this vast collection, where they are arranged in the most convenient manner for consultation. 3. Collection of fruits and seeds. Of these, 400 different fruits, of a large size, and remarkable for their structure or the uses to which they are applied, are arranged in glazed cabinets. Fruits of smaller size and seeds, amounting to 6000 kinds, occupy 102 drawers. Specimens of
woods also, and various useful vegetable productions, constitute another part of the Museum.

ix. Under this head come remarks on the different herbaria which may be considered as the bases of the grand general collection. 1. One of the most remarkable of them is that of M. Lemonnier, of Versailles, purchased in 1803, and which consisted, besides the general collection of 10,000 species formed by that gentleman, of those of Commerson, Billardiè, Desfontaines, and André Michaux. 2, Herbaria of the two Burmanns; 3, Thunberg’s Herbarium of Japan; 4, that of Ventenat; 5, those of Palisot de Beauvois; 6, that of Thuiller; and 7, many collections from the sale of the late Mr. Lambert’s herbarium. Very interesting particulars are here likewise given, respecting the circumstances under which, and the countries where, these collections were made.

x. Expeditions and Travels, the botanical collections of which are preserved in M. Delessert’s herbarium. This is a chapter full of valuable information and research, and we have: 1, under the head of General Expeditions and Travels; those of Billardiè, Gaudichaud (three voyages, those in the Uranie, the Herminie, and La Bonite), Beechey, D’Urville, Perottet and Sieber. 2, under Particular Voyages or Travels; Norway and Spitzbergen, Martius; Lapland, Linnaeus; Russia, Fischer and Sanson; Crimea, Leveillé; France, and in the rest of Europe;—here names crowd upon us, so as to render it impossible to extract them for our limited space. Asiatic Russia, Arabia and Persia; Patrin, Hohenacher, Kotschy, Chesney, Bové, Schimper. Laborde, Wellsted, Aucoc-Eloy, Jaubert, Boissier, Pinard, Roe. East Indies; Wallich and other collectors from the E.I. Company, &c., Belanger, Jacquemont, Law, Adolphe Delessert. China and Japan; Macartney, Callery, Thunberg. From the vast continent of Africa, we can only mention some of the more remarkable of the collections; those of Delille, Schimper, Kotschy, Bové, Salt, Webb, Durieu and Bory, Leprieur, Heudelot, Brunner, Beauvois, Masson, Verreaux, Ecklon and Zeyher, Drège,

x1. Particular Collections, forming Part of the Museum. Among these are enumerated plants received from different Botanic Gardens, and various general collections in volumes, particularly of Cryptogamic plants and especial collections, which are numerous and valuable. Under this head is mentioned a very touching legacy, of a hundred species, left by De Candolle to M. Delessert. This bequest bears date in the year of his death, 1841; "Je prie mon fils de choisir dans mon herbier cent plantes que j’ai décrites le premier, et de les adresser de ma part à mon bon et ancien ami, Benjamin Delessert, comme témoignage de mes sentiments pour lui et pour sa famille."—Here too are enumerated the many distinguished botanists who have furnished types or authentic specimens to the herbarium, which are doubtless of great value.

xii. This contains a Geographical Table of the extensive regions, visited by travellers and botanists, which have contributed to the increase of the herbarium.

Part II. — Herbaria of Europe, and Botanical Travels.

xiii. Notice respecting the grand and principal herbaria that exist in Europe. These are: 1; France, those of Paris, the Museum of Natural History, M. Adrien de Jussieu,
M. Webb, M. Achille Richard, M. J. Gay, M. le Comte Jau-bert, M. le Dr. Mérat, M. Maire, M. Bory de St. Vincent, M. le Dr. Montagne, M. le Dr. Leveille, &c. 2, England: a brief enumeration is given of those which are in public establishments, especially the British Museum, including the herbaria of Sir Hans Sloane, Plukenet, Kämpfer, Sir Jos. Banks, &c., and the Linnaean Society (where the herbarium of Linnaeus and of Sir Jos. Banks, and of Dr. Wallich shine pre-eminent), and then the private herbaria are mentioned; those of Sir W. J. Hooker,* Dr. Lindley, Mr. Brown, Mr. Bentham, Dr. Arnott, and Mr. Fielding. 3; In Germany are the herbarium of the Museum of Natural History, of Vienna, of Prague, Berlin, Munich, of Dr. Martius, &c. 4, In Russia; those of the Imperial Academy of St. Petersburg, and of the Imperial Garden of Plants of Moscow, that of Bunge at Dorpat, Steven at Simferapol, Turczanianow in Siberia, of Meyer and Dr. Fischer at St. Petersburg, of Ledebour, late of Dorpat, &c. We must pass over those of minor countries for want of space.

xiv. Botanical Travels. This chapter, together with the information already given when speaking of the travellers who have contributed to M. Delessert's herbarium, is intended by the author to complete the account of travels in general which have promoted the cause of botany. They are arranged according to countries, and include a great deal of valuable information, which cannot have been collected without much labour.

* The mere catalogue of the names of persons who have contributed to enrich an Herbarium from different countries, even when most accurately stated, can, we are aware, convey but an imperfect idea of the actual extent or value of a collection. In describing the British Herbaria, M. Lasègue has, however, made some very important, but, assuredly, accidental omissions. Under the head of "Brazil," for example, in the mention of Sir W. J. Hooker's Museum, the almost unrivalled collections of Mr. Gardner, those from the Imperial Museum of Vienna, from Dr. Martius, from Saltzmann, those purchased from Moricand, (including those of Blanchet and Vautier), and the very extensive ones from Claussen, &c., &c., are unrecorded.—[Ed.]
xv. A general list of the expeditions and of botanical travellers whose routes are described in the preceding chapters: this too is very full.

**Part III. Botanical Library of M. Benjamin Delessert.**

Of the varied matter contained in this, the last Part, we must content ourselves with observing that the library in question consists of 4350 volumes, enumerated under the following heads:

- Works on elementary botany . . . . . 270
- Anatomy and vegetable physiology . . . . 290
- General phytography (descriptions and figures) . . . 940
- Special ditto { Floras . . . . . 640
- { Monographs . . . . . 260
- Botanical Geography . . . . . 40
- Officinal botany (botanique appliquée) . . . 640
- Botanical literature . . . . . 180
- Works on cryptogamic plants . . . . . 360
- Works on fossil plants . . . . . 20
- Dictionaries, journals, memoirs of academies . . . 210
- Treatises and dissertations upon nat. history in general 50
- Natural history of countries and voyages . . . 360
- Works not coming under the above heads . . . 90

4350

The volume concludes with a most full and complete index of the names of persons, and of countries, and of the titles of works contained in the volume.

We trust we shall have shown the value we place upon the work, by the copious extracts here made from it, and we congratulate the author on having completed so laborious, yet so interesting a task.—Heartily do we wish that M. Lasègue would give to the scientific world a "Catalogue Raisonné," if not of the whole of this Library, yet of such parts of it as would make it an important Supplement to the Bibliotheca Banksiana of the learned Dryander.
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CISTOPTERIS MONTANA.

It is well known that Mr. Wilson, of Warrington, discovered on Ben Lawers, in 1836, the Cistopteris montana, Link, (Aspidium montanum, Sw.) Swartz quotes under it, Pluk. Phyt. t. 89, f. 4, "Felix alpina Myrrhidis facie Cambro-Britannica, &c.," from which some have inferred that it had been previously detected in Wales. We have, with the kind assistance of Mr. Brown and Mr. Bennett, searched the volumes of Plukenet in the British Museum, but no corresponding specimens exist there. Buddle's Herbarium and Petiver's Herbarium, however, contain Welsh specimens (gathered by Mr. Llwyd, in one instance) corresponding with Plukenet's figure, whose synonym is quoted; and these plants are Aspidium spinulosum, so that to us it appears clear that that is the species intended by Plukenet. Mr. Wilson will therefore remain the first discoverer of it in Britain. We may add, that it is a native of the Rocky Mountains, in North America, and, as such, is described in Hook. Fl. Bor.-Amer.


Of the importance of this work and of the manner in which the author has accomplished the first Part of it, our opinion is recorded in the 1st vol. of this Journal, p. 418, and in the 2nd vol. p. 156. The 2nd fasciculus, now before us, is executed with the same skill, and the same care is bestowed on the preparation of the specimens as in the former one. The synoptical table is not given with this, but is reserved for the third and last fasciculus, towards which some materials are already collected. The species are as follows: No. 50. Salix decipiens, Hoffm. 51—53. S. fragilis, E. Bot. 54, 55. S. Russelliana, Sm. 56—59. S. alba, L. 60—66. S. caprae, L. 67. S. hirta, Sm. 68—71. S. rupestris, Donn. 72. S. tenuior
Borr. 73. S. laurina, Sm. 74. "sent to Mr. Borrer as S. Davalliana, Sm., who remarks, 'aments much like it, but the leaves indicate one of the Nigricantes.'" 75. S. propinqua, Borr. 76—79. S. Weigeliana, E. Bot. Suppl. 80, 81. S. Croweana, Sm. 82. S. nitens, And. 83. S. Croweana, Sm. 84—? "Style as in S. petraea; gathered for S. Davalliana; but as Mr. Borrer remarks, the catkins are quite different. 85. S. tetrapla, Walker. 86. S. fusca, var. repens, Sm. 87. S. fusca, var. prostrata, Sm. 88. S. fusca, var. ascendens, Sm. 89. S. fusca, var. argentea, Sm. 90. S. arenaria, L. Nearly the whole of these Willows, (except S. arenaria, from Scotland), are from Richmond, Yorkshire, and chiefly gathered by Mr. Ward, "who has observed them for many years in their places of growth, and very few persons have bestowed more patient study upon this tribe of plants, or attained to greater skill in discriminating them."

The editor has been surprised, in the course of his investigations, to observe the number of monstrosities, or rather of more or less perfect changes of sex, in the specimens collected, and this subject he thinks highly worthy of careful attention. "According to Fries, the female sex is only found as you approach the northern or cold, and the male towards the southern or warm, limits of the different species; and that author is disposed to consider the circumstance as the result of climate, a singular instance of which he quotes from the Fl. Ratisb. 1829, p. 422. From a female tree of S. Babylonica, a male branch was produced, after the very hot summer of 1826, and from this a male tree has grown."

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Of this work we have already noticed the scope and object, to the conclusion of the second volume. It follows the arrangement of De Candolle, and, excluding the Supplement, terminates with the 130th Order, *Monotropae*. Thus far the work may be considered supplementary to the Prodromus of De Candolle. It now assumes a different
character. The Orders which follow next, 131—151 inclusive, being those that were about to appear in the eighth and ninth volumes of De Candolle, the author has judiciously suppressed, seeing that he could add little or nothing to what would appear in the Prodromus; and these Orders are merely enumerated, with a reference to the respective volumes of De Candolle. The remainder of the work we presume is to proceed so rapidly, and being, from the very nature of it, a compilation from other works, it will have so completely the start of the Prodromus, as to be no longer in any way connected with it: and seeing the very imperfect nature of all other "Systemata," (those of Persoon and Sprengel, for example), the author has judiciously made of the continuation a "Species Plantarum," in which all the species, described in books, are intended to be introduced, with brief characters and references to figures. The characters of the Orders and Genera are omitted, references being given to them in works which are in the hand of every Botanist. Such a work has its merits and its usefulness, and we are thankful to Dr. Walpers for the labour he has employed upon it. The first fasciculus includes Solanaceae and part of Scrophularineae; the second, and part of the third are occupied by the continuation of that family; then follow Orobancheae and Labiate, which are yet unfinished, in the fourth fasciculus.


The second and concluding portion of the seventh volume of this work appeared during last autumn, and it now includes 700 figures and descriptions of new or rare species of plants existing in the Author's Herbarium, procured from different parts of the world: a number we believe much greater than was ever attained in any miscellaneous botanical work. Nor is the present fasciculus wanting in species of great novelty and interest. Among them we may mention,—the first plate, Tab. 651, which is the Euploca convolvulacea of Nuttall, a new genus of Boraginaceae, allied to Schleidcnia, Endl.
Tab. 652, is another New Zealand and Evergreen Beech, *Fagus Menziesii*, Hook.; having been first detected by Mr. Menzies, in 1791. Tab. 654. Representations of two species of *Apo-

The whole of the 50 plates for Part 15, or the first part of
the 8th Volume, are prepared, and the descriptions in the press; so that that part may shortly be expected.

De Candolle's *Prodromus*, Vol. IX.

The publication of this important work, so long interrupted by the illness and lamented death of the elder De Candolle, is now proceeding under the direction of his son with great regularity. The arrival in the country of the 8th vol. was announced in our number for May of last year, and since then (February of the present year) the ninth volume has also reached us. From the forward state of the manuscript of some of the rest, and the assistance secured by Professor Alphonse De Candolle for several remaining Orders of plants, we may confidently expect the appearance of at least one volume in every year, and thus, ere long, we may hope to see completed this the first general "Species Plantarum" undertaken according to the natural system.

The parts recently published, with all the merits of arrangement and completeness as to species and references given to the preceding ones by the methodical mind and the excellent mechanical arrangements of the elder De Candolle, show also a continuation of that gradual improvement in scientific detail which may be traced from the first to the latter volumes. When the work was originally commenced, it was merely intended as a brief summary of the known species, for the purpose of facilitating their arrangement in the natural series; whilst detailed descriptions and synonyms were reserved for a *Systema Vegetabilium* on a larger scale which the author had commenced; and general observations on points of structure, affinity, &c., were intended to be published in a series of detached memoirs. But as he gradually found himself obliged to relinquish the hope of continuing the larger work, he devoted more time and space to the *Prodromus*; and becoming gradually aware that the efforts of a single man could make but slow progress in the elucidation of the total number of plants known, (now above 100,000 species), he accepted the offers of several friends to undertake
the elaboration of distinct portions: thus the work has now become a collection of independent Monographs, placed in order by a common editor, and reduced to a uniform system of typographical arrangement. The result is a considerable, though unequal, improvement as to detail, and the only drawback is the occasional omission of a genus, expelled from one Order by having been improperly associated with it, and not taken up by the author of that one to which it should be referred. But these cases are few; nor are they of so much importance in a "Species;" for such a work must now be much too bulky to dispense with the use of a Genera Plantarum, where repeated references to anomalous genera slightly connected with various orders can more easily be given. In a Species Plantarum, the anomalous genera are best placed at the end of the classes or large groups to which they certainly belong, with a mere reference from those orders to which they have been or are likely to be assimilated.

In the two volumes before us, Professor Alphonse De Candolle, editor of the whole work, is himself the author of the Myrsinaceae, Sapotaceae, Ebenaceae, Apocynaceae, Loganiaceae, and some other lesser Orders, and has revised his father's manuscripts of the Oleaceae, Jasminaceae, Bignoniaceae, Boraginaceae, (in part published), and a few small Orders; M. Duby has contributed the Primulaceae, M. Decaisne the Asclepiadaceae, Prof. Grisebach the Gentianaceae, M. Choisy the Convolvulaceae, and Mr. Bentham the Polemoniaceae. The manuscripts are printed as received from the authors under their responsibility, except as to typographical correction, (which now, as before, is done with remarkable care) and the name of each author appears in the running titles on the top of each page.

The eighth volume commences with those Corolliflorous Orders which have the stamens opposite to the lobes of the corolla, and a truly central placentation without dissepiments, and of these the Lentibulariaceae are the first. This small order is worked up by Alph. De Candolle for this occasion, having previously been the subject of a detailed memoir of Auguste
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St. Hilaire, as to the Brazilian species. There are but three genera, easily distinguished from each other; but the numerous species of Utricularia are rendered more difficult by the excessive delicacy of their flowers, making it often scarcely possible to describe them accurately from dried specimens. De Candolle's first divisions of the genus are derived chiefly from the remarkable differences in the organs of vegetation, and, in good specimens, are only attended with one rather singular inconvenience, the difficulty of distinguishing between their roots and leaves. Taking all these drawbacks into consideration, De Candolle's characters very much facilitate the determination of those Utricularia (above 100 species) which he was enabled to describe; but there are many in our herbaria which he did not then possess; amongst others the splendid U. Humboldtii, figured in the 15th vol. of the Transactions of the Berlin Horticultural Society.

The materials of which Prof. Alph. de Candolle has chiefly availed himself for those Orders which he has elaborated are, besides his own very rich botanical library and extensive herbarium, those of MM. Edm. Boissier and Phil. Dunant, of Geneva, both of which, and especially M. Boissier's, are now becoming very important. Amongst the collections generally distributed, to which Prof. de Candolle is thus enabled to make special reference, so as to facilitate the arrangement of those herbaria which also contain them, may be mentioned very full sets of those of Berlandier from Mexico, Salzmann, Blanchet, Lund, and generally of Martius from Brazil, A. Gay and Bertero from Chile, and more or less perfect sets of those of Schomburgk from British Guiana, Leprieur from French Guiana, Hostmann from Dutch Guiana, Gardner and Vauthier from Brazil, Andrieux from Mexico, Mathews from Peru, Hartweg from Mexico, Guatemala and Columbia, Heudelot from tropical Africa, Drège and Krauss from South Africa, Bojer from Madagascar and Mauritius, Cuming from the Philippine Islands, Kotschy and Schimper from N.E. Africa, Zollinger from Java, and a set, in some cases complete, in others considerable, of the East Indian
herbarium distributed by Wallich, besides a great number of either less important collections or named ones, which are quoted for all but common species, and even in these the numbers of the unnamed collections are generally given. The value of these unnamed but numbered sets is thus very considerably enhanced, and it would be of great use to science, and very advantageous to the interests of collectors, if they were to transmit to Prof. de Candolle, complete sets of those portions of their collections, which are not yet contained in the Prodromus.

The Primulaceae by M. Duby (editor of De Candolle and Duby's "Botanicon Gallicum") follow the Lentibulariae; they had long been the object of his special study, so far as other avocations permitted, and residing at Geneva, he could avail himself of the materials possessed by De Candolle; so that whatever may be the opinion of local botanists on the limits he may have ascribed to some of the much contested species of Primula, Cyclamen, etc. the enumeration he has here given will be found to afford a natural distribution and intelligible characters both for genera and species. Excluding the two doubtful plants or rather riddles of Mr. Bowditch, mentioned at the end, the Order consists of twenty-three genera (numbered by a misprint as 21), and among them the only two of which the propriety may be doubted are Pelletiera, St. Hil, which is so exactly like Asterolinum that it ought perhaps to be considered a reduced form of it, and Micropyxis, Duby, not sufficiently distinct from Centunculus, the habit being precisely the same, and the number of parts in the flower, four or five, does not appear to be quite constant in some species. Among the species enumerated, a Javanese Hottonia (H. sessiliiflora, Vahl) is extraordinary, and it would be well for those who have an opportunity of examining the plant to ascertain whether there is not a slender dissepiment to the ovary; and four, not five, stamens and valves to the capsule, in which case it must, like the H. indica, Linn. be referred to Limnopilia.

The Myrsineaceae were originally undertaken by Alphonse
de Candolle, several years since, on the occasion of receiving for publication a complete set from the East Indian herbarium distributed by Wallich. The result of his researches was then published in an excellent paper (the prefatory part written by himself in very good English) printed in the 17th vol. of the Transactions of the Linnean Society, and on taking up the Order again for the *Prodromus*, he published two additional memoirs in the "Annales des Sciences Naturelles," of Paris, vol. 15 and 16 of the second series. The chief alterations now made, are, an increase in the number of genera, and the separation as distinct orders of *Ægicera* and of the *Theophrastaceae*. Additional genera were perhaps rendered necessary by a corresponding increase in the number of species known, and by the more accurate discrimination of those previously established, which he has been enabled to make by means of better or additional specimens. But here much remains still to be done, two hundred and fifty species, distributed into seventeen genera, form the tribe of the *Ardisieae*, which is so natural that, were the species less numerous, they might well have been considered but as a single genus, and consequently the generic characters, independently of inflorescence, are often difficult to appreciate, by one less accustomed than himself to examine them. They are given with great accuracy of detail, but, being very long, might have been rendered much easier by a short summary, or some indication of the most important points to be observed, as is done in the last of the above mentioned memoirs. The new characters introduced by the author, especially those derived from the estivation of the corolla, are generally important, it is doubtful however whether farther investigation may not show that too much reliance is placed on the number of parts of the flower, and even on the number of ovules. A good subdivision and distinction of species in the genus *Myrsine*, are also still a desideratum.

The separation of *Ægicerae* and *Theophrastaceae*, as distinct orders, must be regretted. There is no greater inconvenience attending the practical use of the natural system, than the
modern habit of multiplying small orders consisting of a very few species. The *Aegicereae* have here but five species, and the *Theophrasteae* no more than twenty-nine, both are nearer to *Myrsinaceae* than to any of the succeeding ones, and with them might, easily have been distinguished from others by a common character, their present ordinal characters being in that case considered as those of suborders. This course would, systematically, have been quite as correct, and much more practically convenient. Indeed, were it not perhaps that we are not in the habit of associating our humble *Prim- roses* with anything arborescent, it might have been a more natural plan to have included them also in a distinct suborder of the same group, which would then have been marked by a character perfectly distinct and easily ascertained, and the *Lentibulariae* would then have borne the same relation to them that *Scrophularineae* do to *Solanaceae*; nor would the association of *Primulaceae* and *Myrsinaceae* have been at all more unnatural than that of *Viola* and *Alsocidae*, or of any herba- ceous with arborescent genera, which occur in most large orders.

Next come three very distinct orders with a pluricarpellary (very seldom bicarpellary) ovary divided into cells, and an axile placentation: *Sapotaceae*, approaching *Myrsinaceae*, by the presence of the inner series of stamens, opposed to the lobes of the corolla, with or without the addition of others; *Ebenaceae* with dioecious flowers and stamens some multiple of the lobes of the corolla and often scarcely epipetalous, showing an approach to the polypetalous orders; and *Styra- caceae*, with hermaphrodite flowers, stamens more numerous than the lobes of the corolla (except in one species) and the ovary usually more or less adherent, also allied almost as much to some *Polypetala* as to the *Corolliflorae*. These three orders, which had long been in a state of great confusion, have been worked up by Alph. de Candolle with all the care his materials allowed him, and are reduced to a definite intelligible form.

*Sapotaceae* contain twenty genera (besides the doubtful
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Rostellaria) distinguished in the first place by the relative number and position of the stamens, the lobes of the corolla and the petaloid scales, characters in some cases artificial, but in so natural an order not the less useful, as being generally clearly defined and easy to be seen. Even characters derived from the seed (for instance the abundance or absence of albumen which separates Servalisia from Sideroxyton, Diplois from Bumelia) in most cases of great importance, would appear here to be artificial; that is, unattended by any other perceptible generic difference, and consequently, where the seed is unknown, the genus is uncertain. Possibly when the structure of the seed shall have been ascertained in a greater number of species, some corresponding differences may be detected in other respects; in the mean time, it is productive of no small practical inconvenience to divide a natural genus into two by a character which has only been observed in a small proportion of the species. The establishment of sections might have answered the same scientific purpose and obviated the evil of having so many species with doubtful names.

Of the eight genera of Ebenaceae three are new, all well distinguished, and in these instances, as well as in that of most newly established or defined genera in orders worked up by Alphonse de Candolle, besides the detailed character (sometimes rather long), a few very useful words are added, pointing out the most striking points in which they differ from other genera with which they are likely to be confounded. Diospyros itself, consisting of seventy-three species, besides twenty-three less known, is divided somewhat artificially, but that was the only course to be pursued under our present imperfect acquaintance with many of the species.

Styracaceae, after weeding out many heterogenous plants which had at different times been associated with them, have become, under Prof. De Candolle, a small but natural and well defined order. The affinities with Ebenaceae, Humiria-ceae and Alangiaceae are well pointed out; the connexion with Olacaceae is perhaps not so close, on account of the remark-
able structure of the ovary in the genuine genera of that order. The various groups often separated from *Symplocos* are here very properly referred back to it as sections, and the two principal genera, *Symplocos* with fifty-six species, and *Styrax* with forty-five, from being amongst the most confused are now amongst the best defined, although our collections already contain a considerable number of additional species. In the ordinal character there is a slight omission, that of any allusion to some of the anomalies of *Pamphilia*, especially the reduction of the number of stamens to five.

*Oleaceae* and *Jasminaceae* form together a small group (formerly and perhaps more conveniently considered as one order) distinguished amongst *Corolliflorae* by the stamens constantly reduced to two, regularly inserted with relation to the bicarpellary ovary (alternating with the carpels?) and not in relation to the divisions of the corolla, unless where, as in *Oleaceae*, this is tetramerous; and also regular in its relation to the ovary, whereas in all the succeeding orders, when any reduction takes place, the remaining stamens are irregularly placed with reference to the ovary, which is neither opposed to nor alternating with them. These Orders were prepared by the elder De Candolle in 1840 (or early in 1841?) from the materials he possessed at the time, and a few notes with two new genera, *Nathusia* and *Kellaea*, have now been added by his son. There does not, however, appear to be any quotation of Cuming’s or other more recent collections, and the set of East Indian *Jasminae*, sent to the author by Dr. Wallich, was very far from complete. The enumeration is, therefore, less comprehensive, and the species not so well extricated as might now be done; still the general arrangement is good.

The remaining orders in the two volumes, with those which will occupy the two or three succeeding ones, have all epipetalous stamens, always alternating with the lobes of the corolla, whether equal to them in number, or more or less reduced. Of these orders, two large ones closely allied to each other and formerly considered as one, the *Apocynaceae* and *Asclepiadaceae*, close the eighth volume. Both are known
by their milky juice, their regular isomerous flowers, the contorted or valvate motion of the corolla, the bicarpellary pluriovulate ovary, with a placentation never truly axile, besides the opposite extipulate leaves, the ovaries distinct at the base of the style, with the styles joined at the apex, the follicular or baccate fruit, and several other characters which, though not without exception, are so prevalent in the two orders as generally to enable the botanist to recognise them at first sight. They are separated from each other on account of the singular structure of the stamens in Asclepiadaceae which does not exist in Apocynaceae; moreover, the corolla is generally valvate in the former, always contorted in the latter.

The Apocynaceae, by Alphonse de Candolle, contain ninety-four genera (besides two doubtful ones) of which twenty-three are here first established. The generic characters are given with accuracy and detail, and are taken chiefly from those organs, whether reproductive or vegetative, which have appeared in each case the most constant, without so much reference to preconceived notions of the absolute importance of certain modifications as is too frequently the case; the characters have moreover been carefully verified in all the species of which the author possessed specimens, and the general principles which guided him are fully explained in a memoir published in the first vol. of the third series of the Annales des Sciences Naturelles. We have thus a complete concise and satisfactory monograph of the order brought down to the commencement of 1844, and singularly facilitating the determination of its species.

The principal division of the order is taken from the degree of coalition of the ovaries, and the presence and situation, or absence, of a coma or tuft to the seed; the latter character has the inconvenience of being observable only in the ripe fruit which is seldom to be seen in herbaria, but M. de Candolle has satisfactorily shown in his memoir, that it is the best which has yet been proposed. He there gives the fol-
lowing synopsis of his seven tribes which would have been usefully placed in the Prodromus.

Semina calva,

Semina comosa,

With regard to the affinities, there is one excellent principle mentioned in the memoir (p. 255) which, however, appears to us rather too absolutely stated, "Si vous ne pouvez pas dire en quoi deux familles se distinguent d'une manière permanente et universelle, ces deux familles n'en font qu'une: deux terres qui se touchent forment une île, et non deux iles; tandis que deux terres séparées par un bras de mer, forment deux iles, et non une seule." We botanists cannot be so mathematically exact as geographers, and where the isthmus is very narrow we must class the peninsula with the island. How often does it happen that two large orders, say of five hundred to two thousand or three thousand species, totally distinct from each other in all these species by a series of constant characters, are yet connected together by some small isolated genus of a dozen, half a dozen, say a single species in which these very characters are so inconstant, uncertain or variously combined, as to leave no room for the strait, through which we ought to navigate between the two islands! Yet the general principle, as we have al-
ready observed, is excellent, and if properly attended to would prevent much of that multiplication of petty orders, which only tends to confusion.

In the special case before us, it is remarkable how easy it is to distinguish one of the orders nearest allied to Apocynaceae, the Gentianae, without either Grisebach or Alph. de Candolle, than whom none could have better investigated the matter, having been able to detect a single constant tangible character, except the milky juice of the former, and the bitter taste of the latter, a physiological difference which may affect colour or other points, which the eye can appreciate, but the pen cannot delineate. The relation to Loganiaceae will presently be adverted to.

Amongst the generic characters hitherto little attended to in Apocynaceae, considerable assistance has here been derived from the modification of the calycine glands and nectarium, and the twisting of the corolla, whether from left to right or from right to left, which is shown to be often, though not always, constant in genera, and nearly so in the tribes.

The Asclepiadaceae had been for several years studied by Decaisne and some excellent papers were published by him in the Annales des Sciences Naturelles for 1838. The nice and complicated characters furnished by the sexual apparatus in this order are well known from the valuable works of Robert Brown. The extreme difficulty of ascertaining them in dried specimens may be at once experienced by any one who attempts their determination, who will readily appreciate the tedious labour of examining specimens more or less numerous of almost eight hundred species (out of near one thousand enumerated), which has been done with the greatest care and accuracy on the present occasion by Decaisne. His materials were the rich collection in the Museum du Jardin du Roi, at Paris, together with the Asclepiadaceae from De Candolle's herbarium, transmitted to him from Geneva, and some species from the herbaria of Benj. Delessert, P. B. Webb, and G. Bentham. He had thus at his disposal the most important of the collections above mentioned as made use of by De Candolle, and besides valuable authentic specimens of
old species, nearly complete sets of Blume's Javanese and Galeotti and Linden's Mexican plants received by the Museum from Holland and Belgium.* He had also access to the most complete botanical libraries in existence; and when we consider in addition to these advantages, the high authority of Robert Brown, whose principles the author generally follows, his own well known scientific views, ability and accuracy, and his admirable talent for botanical delineation, we should think it vain to attempt a criticism of his work without having followed him through it step by step. And if on taking up an Asclepiadeous plant to determine, we are alarmed on observing in this very natural order, one hundred and thirty-three genera, of which many appear to us exactly alike in habit, inflorescence and general aspect of their minute flowers, and are tempted to exclaim against them as artificial and fanciful, we may at least rely upon their definitions being accurate, and provided we do not fail in our own powers of observation, we shall be safely led to the genus we are in search of.

The Loganiaceae (partly by the elder De Candolle, partly by his son) with which the ninth volume commences, present, at first sight, an anomalous assemblage of genera, expelled from other orders; but, if we strike out three or four genera, which may possibly find their place elsewhere, and reduce the Loganiaceae to those limits which were probably originally contemplated by Brown, we shall have an intelligible group, well designated as "Rubiaceae with a free ovary." Brown originally said they might be either considered as an independent order or be united with Rubiaceae; Torrey and Gray adopted the latter course, De Candolle has preferred the former; and this appears to us the most convenient, there being nothing to interfere with drawing a positive line of demarcation, even between the semi-free ovary of Hedyotis (Houstonia) caerulea, and the supposed partial adherence of the ovary in Mistreola, which we confess escapes our observation. The

* Of Gardner's Brazilian collections, those from Goyaz and Minas Geraes appear to have reached him too late for insertion.
distance from *Apocynaceae* is really greater, though not so easily defined, the absolute character must be drawn from the strictly valvate estivation of the corolla in some genera, from the presence of interpetiolar stipules in others, and, in all, the placentation is much more, if not absolutely, axile. There is also no follicular fruit, and probably no milky juice. The connexion with *Gentianaceae* need scarcely be adverted to, because it only exists through the *Apocynaceae*.

Three genera, *Polypremun*, *Lachnopylys*, and *Gelsemium*, must, however, absolutely be excluded; the first, *Polypremun* has the estivation of the corolla imbricate, not valvate, it has been placed by some among *Rubiaceae*, but the ovary is entirely free, and we see no one character, by which it can be distinguished from *Scrophulariaceae*. The structure of the flower is very near that of *Microcarpae*, and as in that genus and the whole of the *Buddleiacae*, the leaves are connected by a membrane which in some species of *Buddleia*, expands into a foliaceous appendage very like a stipule, if not a real one. *Lachnopylys* has not been seen by us, but from the character given, we have little doubt that it is the same as *Nuxia*, an undoubted *Scrophulariaceae*. *Gelsemium* has been singularly unfortunate; anomalous enough in itself, it has been thought still more so from the mistake made by Fenzl (and pointed out by De Candolle) in describing for its fruit, the follicles of an *Apocynum*, which had been distributed with the flowering specimens of *Gelsemium* in Drummond's New Orleans (1833) collection. The placentation in this genus is axile, the estivation of the corolla is imbricate, and differs only from the most common form of bilabiate imbrication, by having one of the upper lobes overlapped on one side by one of the lateral lobes, instead of having both the upper lobes outside of all; in habit and many other characters, it is also not unlike the tribe *Cheloneae* of *Scrophulariaceae*, but the five perfect equal stamens are very unusual in that order, and the quadrifid apex of the style is not known to exist in any one of its numerous genera. It must, therefore, be rejected as an anomalous genus (or rather plant, for there is but only spe-
cies) differing from all the great corolliflorous orders, but much nearer to Scrophulariaceae than to any other.

The anomalies of Usteria and of the Potaliaceae are singular, but do not interfere with the technical limitation of Loganiaceae and the habit of Potaliaceae is very near that of Fagraceae; that of Usteria is unknown to us. Including these genera and all the remaining genera of the Prodromus (except the two last doubtful ones) we shall find the axile placentation, free ovary, valvate or contorted aestivation, with interpetiolar stipules, constant in the latter case, though sometimes evanescent with the valvate aestivation, good characters to distinguish the order from its allies, and affording exceptions only in a very few species of one genus, which is unfortunately that which gives its name to the order. One species of Logania has no stipules, and it appears that the aestivation of the corolla which we have generally observed to be contorted is not always so; still the genus is too natural a one to be broken up, the stipules and contorted aestivation are too prevalent for it to be referred to Scrophulariaceae, and this must be considered as the narrow isthmus which connects the latter order with the remainder of the Loganiaceae, and through them with Rubiaceae.

The ovary and fruit of Loganiaceae afford nearly all the varieties of structure observed in Rubiaceae. Thus the Spigeliceae and Euloganiaceae correspond with the Hedyotideae, the Strychnaceae and Fagraceae with the Gardeniaeae, the Gardnereae and Gaertneraeae with the Cofeeaceae, the Antoniaceae and Usteriaceae with the Cinchoneae, the Labordiaceae probably with the Hameleae. In the character of Pagamea, the fruit is inadvertently stated as, "bilocularis, loculis monospermis," and again, "semina, ex Benth. numerosissima, minuta." The fact probably is that both are in some measure wrong; that, as in several Gardeniaeae, the thick fleshy placentae look like large peltate seeds, and have been described as such, that the numerous minute seeds observed by Bentham were all abortive, and that the real fully formed seeds are as yet unknown.

The Gentianaceae, by Grisebach, are an abridgement and a
revision up to Feb. 1843 of the excellent monograph of that order published by him 1838,* from the ample materials contained in his own and other German herbaria, as well as Sir W. J. Hooker's rich collection, of which he had the loan, and it is only to be regretted that through his conscientious activity in remitting his MS. by the time originally stipulated, he had not the means of including some of the later received collections, quoted in other parts of the volume. Taking the two works together, the exposition of the structure, affinities, geographical distribution and systematic arrangement, show so thorough an acquaintance with the subject, and views so sound, as to leave but little to remark on them. The only thing to be regretted is perhaps too great a multiplication of genera. In a very natural order like Gentianaceae, the characters by which it can be divided become necessarily so much the less important as well as more difficult to appreciate. Some of those even on which the primary divisions are based, the deciduous or persistent style, the presence or absence of a connectivum, require nothing less than the experienced eye of the author to ascertain them with precision, although the general arrangement resulting from their adoption appears unexceptionable.

Amongst the species we may observe that Grisebach must have received a wrong plant for Excavum sulcatum Roxb.; at least specimens, so named by Roxburgh, have the anthers as described by him in the Flora Indica, and are not different from E. pedunculatum; Eustoma (Urananthus, Benth.) chironioides is probably a Gyandra; Coutouba lutea, Steud. (p. 562 of the Prod.) is an accidentally aberrant form of C. densiflora. As to Voyria nuda, it is surprising Grisebach should have overlooked the strange anomalies described and figured by Splitgerber; the alternate (squamiform) leaves, the simple perianth, the position of the stamens, the structure

* For commercial reasons, the publisher post-dated this work, "1839." The manuscript was dismissed from the author's hands before the middle of 1838, and the work had actually reached the London booksellers, near a month before the close of 1838.
of the capsule and seeds are totally unlike anything else in Gentianaceae. If (and it is a likely mistake to make in examining so very delicate a plant without sacrificing several specimens) Splitgerber has only miscounted the number of parts of the flower, and that there are really six instead of five, then we have a Burmanniaceous plant, very near Apteria, of which there are several in similar situations in tropical America.

The differences in habit between Ophelia and Swertia are said not to exist by those who have seen them growing, and since there are exceptions to all the other distinctive characters, even to that derived from the style, the two genera must probably be reunited.

The three next orders, Bignoniaceae, Sesamaceae and Cyrtandraeae, by the elder De Candolle, with notes and additions by his son, are perhaps rather out of place here; but as there is great difficulty, not to say impossibility, in arranging the monopetalous orders in a natural linear series, it was considered on the present occasion preferable to publish what were ready for the press in some kind of order, though not the best that could have been suggested, rather than wait till the whole of the orders were finished, which alone could have given an opportunity of combining them in the best manner. There is no doubt, however, that the group now in question should include Gesneriaceae (to which Brown has satisfactorily reduced Cyrtandraeae as a tribe) and Orobancheae. These are all among bicarpellary Corolliflora, allied to Scrophulariaceae and Acanthaceae by their irregular flowers, either positively irregular by the abortion of the upper stamen and the so-called bilabiate estivation of the corolla, or in a few cases with the irregularity indicated only by the estivation, and (excluding the true Pedaliaceae) by the cells of the ovary containing more than two ovules, or if two only, not collateral. On the other hand, they all differ from Scrophulariaceae and other allied orders, by the placentation, which is not truly axile, but more or less parietal;* that is to say, that in the

* We do not here take into consideration the venata questio whether in-
Scrophulariaceae or axile group, the four placentae are united together in the centre of the ovarium, whilst in the Bignoniaceae or parietal group, they are more or less removed from the centre in pairs, the interval being either empty or occupied by a spurious cellular dissepiment. This distinction is of little or no importance in some calyciflorous orders, while among Corolliflorae it appears to be usually connected with great general differences.

The main difficulty experienced by De Candolle in the Bignoniaceae consisted in the very imperfect state in which specimens are usually sent home by collectors. Most of the species are large climbers, which attract the notice of travellers by their handsome flowers, but are difficult to gather or to dry well when gathered, and the fruits are generally entirely neglected, or what is worse, mismatched. Yet it is the fruit and seed which appear to afford the best characters, and are accordingly endeavoured to be made use of for the demarcation of the tribes and genera. Unfortunately, however, after establishing genera from the structure of the fruit of one or two species, the author has been obliged to associate with them many other species from similarity of aspect, and notwithstanding the excellent eye for a natural group possessed by the late Professor De Candolle, it is probable that considerable alterations will hereafter require to be made in the circumscription of several of the genera; we have not indeed as yet sufficient data to determine satisfactorily the validity of the primary divisions derived from the dehiscence of these plants the placentae proceed from an elongation of the floral axis, or from the inflexed margins of the carpellary leaves, for however we might in the case of some of these orders (or perhaps only in some genera) incline to the former opinion, much sound argument may also be adduced on the other side; and practically speaking, for systematic purposes, the decision is of little or no importance. Under both theories, the placentae must be admitted to be always double in number to the carpellary leaves, often intimately connected with each other (with or without the intervention of a central column), and with the margins of the carpellary leaves or with the latter only—or, as the fruit ripens, more or less detached or detachable.
of the fruit, and the number of rows of seeds on each side of the dissepiment.

Among the more special observations which have occurred to us are the following: from *Bignonia* (which is still a receptacle for every species that will suit no other genus, and consequently remains yet to be defined) it is probable that all simple-leaved species will have to be excluded. *B. castaneaefolia* is most likely the *Tecoma Gaudichaudi*, so common about Guayaquil. *B. obovata* is an apocynous plant. *Pachyptera* can scarcely be yet considered as a genus, being established upon two fruits without flower, to which are added four species of which the fruits are unknown, no generic character being given which can show any reason for their being so included. The *Delastoma latifolium*, described by Splitgerber, appears to us to be the same species as *Tubebuia rufnervis*. If the glands on the calyx and general habit of *Adenocalymna* indicate a real genus, it will not be confined to South America, an unpublished species having been sent from Port Essington, in tropical Australia. The digitate-leaved *Tecoma* and *Tubebuia* are probably congenerous, and very different from the simple and pinnate-leaved tree *Tecoma*. *Spathodea* is at present an equally heterogeneous an assemblage with *Bignonia* itself. *Platycarpum*, only known from Bonpland's figure and description, (from which the structure of the ovary and seeds is omitted), is evidently no Bignoniaceous plant, but must remain a puzzle till it shall have been examined by a botanist.

The *Sesamaceae* are not at present in a very satisfactory state, although so large a portion of the few species enumerated (twenty-five species in twelve genera) have been the subject of detailed descriptions, figures, dissertations or observations from botanists of great authority. The true *Sesamaceae*, including De Candolle's six first genera, and probably also the three last, are all bicarpellary, with pluriovulate placenta, and are closely allied to *Bignoniaceseae* and *Cyrtandreae*, whilst *Pedaliunm* and *Josephinaceae* have long since been shown by Brown to bear that analogy only to *Sesamum* which *Myopo-
rinceae and Verbenaceae respectively bear to Scrophulariaceae. These two genera cannot, therefore, be included in Sesameae without interfering too much with the ordinal character; but whether they should prove to be the nucleus of a small distinct order, or whether (which is more probable) they ought with Myoporineae to be included among Verbenaceae, can only be determined when the latter order shall be completed.

The Cyrtandraceae were prepared by De Candolle before the appearance of Brown's Memoir (in Horsfield's Pl. Jav. Rar.), but his son has made additions derived from that source as well as from what few materials he had since collected. Unfortunately he appears to have possessed very few of the published species, and Brown had only enumerated species in some of the genera; so that, for our herbaria, this order is still incomplete, in this respect. The genera included in Brown's paper are, of course, well defined, but there are six at least upon which we have not his opinion, viz.: Conandron and Napeanthus, published since his paper, Rehmannia and Isanthera, which had been described erroneously as having bilocular ovaria, and therefore his attention was not called to them, and Ramondia and Haberlea, both known to him, but excluded from Cyrtandraceae for reasons which we cannot but regret he has not published.

Recurring to the general arrangement of the orders we have just now been viewing,—were the structure of some anomalous Orobancheae but better known to us, we should not hesitate in suggesting the formation, under the name of Bignoniaceae, of one large Order, of which Bignoniae, Crescenticae, Orobancheae, Gesnericae, Cyrtandraceae and Sesameae would constitute so many tribes. This order and Scrophulariaceae consisting, the one of about 1000, the other of about 1800 species, would then be alike in the structure of the flower, but different in the placentation; they could in all cases be distinguished from each other in flowering specimens or in fruit, and would also always be known from the allied orders when in flower, and in most cases when in fruit.

Hydrophyllaceae, by Alphonse de Candolle, are placed next,
because of having a bicarpellary unilocular ovarium with the placenta either parietal, or at any rate not in the axis, and a flower more allied to the Convolvulaceae and Boraginaceae than to the preceding orders. From an observation in p. 564, it appears that had he sooner observed them, he would have included the greater portion, if not all Hydroleaceae in the present order; and it would appear correctly so; but too great faith has been hitherto placed upon Choisy's monograph, who distinctly states that all the genera have a bilocular ovary, whereas De Candolle finds it always unilocular, except in Hydrolea itself, where the dissemination is of the same nature as that of Bignonia.

In the details of the order the author has carefully revised the monograph published by G. Bentham in the 17th vol. of the Linnæan Transactions, made several corrections and additions, and attaching generic importance to the presence or absence of the squamae in the tube of the corolla, has established three new genera, the validity of which remains perhaps yet to be tested.

The Polemoniaceae had, perhaps, been better placed between Boraginaceae and Solanaceae. They are, however, anomalous among Corolliflorae by the constancy (unless in accidentally abnormal flowers) of the tricarpellary ovary. They possess the contorted aestivation of Apocynaceae and Gentianaceae, the axile placentation of Solanaceae and Scrophulariaceae, with the inflorescence also, if not the habit, of some groups in the two latter orders. They are worked up by Mr. Bentham from the materials contained in his own herbarium, and in those of Sir W. J. Hooker, the British Museum, and some other London collections down to the spring of 1843, since which time but little has been added to the order. The genus Cyrananthus, usually referred to this order, has been omitted, for reasons which the author has forgotten to give in the Prodromus. The insertion of the stamens, the structure of the ovary and fruit, the milky juice, the habit, &c., all indicate the close affinity of these plants to Wahlenbergia among Campanulaceae, from which they only differ, as Lobelia Xala-
pensis does from L. Cliffortiana, by the ovary scarcely adherent, though not wholly free.

The two last orders in the volume, Convolvulaceae and Boraginaceae, belong, as to placentation, to the same group as Labiatae, and perhaps some other orders not yet published, having a bicarpellary (rarely tricarpellary) ovarium, with two collateral ovules in each carpel; the ovary being sometimes unilocular, but more frequently divided by more or less complete disseipments, either between the carpels only, or transversely also between the ovules. The disseipments, when they exist, are generally, if not always, free from the ovules which have an independent insertion; thus affording a strong argument to those who advocate the attachment of ovules to a prolongation of the axis, and not to the margins of the carpellary leaves.

The Convolvulaceae, by M. de Choisy, are the least satisfactory portion of the volumes before us. The author, working at Geneva, had the full command of De Candolle's materials, including several sets of Convolvulaceae communicated expressly for his use; he was known to have applied himself for many years with great zeal to their study, and we had confidently expected to have seen the confusion which has prevailed over the extensive genera of that order, in a great measure dissipated; but we have been disappointed. There are great difficulties, it is true, arising from the number of similar-looking but very distinct species, as well as of dissimilar forms assumed by one and the same species, from the very incomplete specimens usually sent home by collectors, and from the unusually large number of species imperfectly or incorrectly described; yet, if we are authorized in asserting that many of the genera as here circumscribed are not natural, that they contain species which do not agree with the artificial character given, that some of the more important characters are incorrectly expressed, that the principles adopted are often unphilosophical, we may well add that the monograph of Convolvulaceae remains to be done. We would further express a hope, that when that is at length accom-
plished, it may not be necessary to beg the reader who has
an *Ipomoea* to determine not only "ut patienter inter plures
sectiones investigationes suas dirigat," but, when he has
laboured through the diagnoses of 282 species, "sin plantam
suam inter *Ipomoeas* reperiat, quaerat inter *Argyreias*, (35 spe-
cies), quaerat inter *Jacquemontias* (18 more) fors an felicior
erit." The author might have added,—if luck does not yet
assist him, he may still have a chance among a hundred other
species, distributed into a dozen so-called genera.

A few details taken from the species which we have had
occasion to examine, will, we fear, bear us out in these
statements, which we confess, we should much rejoice to see
refuted.

With regard to the general division; *Cuscuta*, no
doubt, forms a distinct tribe, and the deeply-lobed ovary of
*Dichondra* and *Falkia*, analogous to that of *Labiateae*, is also a
sufficient distinction to justify their separation as a tribe,
though so very small a one. There exists also a considerable
difference between the berry of *Argyreia* and the capsule of
*Ipomoea*, but we doubt much if the consistence of the fruit can
distinctly—and certainly it cannot naturally—separate the
two first tribes of *Argyreiae* and *Convolvuleae*. Species be-
longing to the two tribes are often so similar that they can
scarcely be otherwise discriminated from each other; and abso-
lutely as the character is given of *Argyreiae*, "Pericarpium
indehiscens," how comes it to include *Maripa spectabilis*,
"fructu 4-valvi;" and what idea are we to form to ourselves
of the "indehiscent baccate woody capsule" of *Humbertia*? The
fact is, several of these plants have capsules with fleshy
valves, which are more or less separable at their maturity,
according to their species, and probably also according to atmo-
spheric influences, and scarcely sufficient is yet known to
establish even generic characters on the consistence of the fruit.

There is scarcely more accuracy in the next subdivision,
which is propounded absolutely without reference to any excep-
tions, and would appear to be among the easiest characters to
ascertain. "*Convolvuleae*: Subtribus 1. Stylus unicus. Subtri-
bus 2. Stylus divisus aut styli plures." In the first subtribe, however, we have several Poranae, with a style confessedly semi-bifid, and some Convoluti in which it is really so, whilst in the second, there is also Breweria, where the style is described as "1, semi-bifidus;" and the two subtribes thus characterized, are therefore not distinct. The fact is, sufficient attention has not been paid to what portion of the style is or is not stigmatic. The bifurcation of the style is more or less apparent in the great mass of Convolutaceae (as well as of a great many other bicarpellary orders); in numerous cases it is only so at the summit, and the very short branches are entirely covered with the stigmatic papillae. In these instances the branches of the style and the stigmata are synonymous terms; in most Convoluti, however (as well as in several Jacquementia, and perhaps a few Ipomaeae), the papillae cease at some distance (however small) from the bifurcation, when it manifestly becomes incorrect to designate the style as simple with two stigmata; and since the order of Convolutaceae exhibit a great diversity in the form of the stigmatic surface and the proportion it bears to the branches or to the whole style, and as from these variations some of the best generic characters are derived, it is most essential that whatever nomenclature be adopted, it be at least correct and precise.

The third and last division, also expressed with true Linnaean brevity, will still less bear a close scrutiny. Divisio 1, (subtribus 1), ovarium 3-4-loculare. Divisio 2, ovarium 2-loculare. Divisio 3, ovarium 1-loculare aut junius tantum 2-loculare. From what has been above said of the nature of the transverse disseipments in Convolutaceae, they being merely cellular expansions between the collateral ovules of each carpel, we might almost predict, a priori, that they would prove of little importance; and we find not only that they are present or absent in species which can scarcely otherwise be distinguished, but that they, like other so-called spurious disseipments, are often incomplete, the transverse section of the upper portion of the ovary showing it to be four-celled,
whilst in the lower part it is two-celled only. This I have observed in several species of Choisy's *Batatas*, and he himself admits it in *Calonyction*. That the absence of the dissepiment between the carpels in some convolvulaceous fruits is of no greater importance, is proved by Alphonse de Candolle, who (in a note, p. 463 of the same vol.) states that the supposed unilocular ovary of *Porana* and *Shutereia* at least, is in fact bilocular.

The only real difference with regard to the ovary lies in *Pharbitis*, where there is an additional carpel with its two ovules, and sometimes it would appear, two additional ones. Whether or not this character be found sufficiently constant to retain the genus (for it is variable in some species), it cannot at any rate be placed in the same category as the development of a spurious dissepiment between the seeds.

Attaching, however, no more than generic importance to all these modifications, and considering it necessary to adopt them, if not as natural, at any rate as artificial distinctions, in so very numerous a group of species, they may be useful or even the most useful, provided (in the absence of all vegetative characters), they really exist in the species supposed to possess them; but even in the few Convolvulaceae we have had leisure to compare, we have found several (and those well known to the author by specimens or good figures), arranged in genera from whose character they completely differ. Thus:

*Ipomoea muricata*, Roxb., a common East Indian plant, has a corolla nearly the shape of that of the common *Pharbitis purpurea*, with stamens shorter than the tube; we find it in *Calonyction*, of which the character is "Corolla infundibuliformis (which is not incorrect), stamina exserta," and moreover reduced as a synonym to the *Ip. bona nox* of Linnaeus, where the corolla is twice the size and almost hypocrateriform, with the stamens really exserted.

*Ipomoea longifolia*, well figured in the Botanical Register, a species found in the elevated regions of the interior of Mexico, having a two-celled fruit, without any trace of transverse dissepiments, as shown in the figure, is placed in
Batatas, which has a four-celled ovary, and reduced to the common B. acetosaefolia, only found in maritime sands.

Ipomea purga, Wender, well known by good descriptions and by Zuccarini's figure, quoted by Choisy (we have not seen Nees's figure), possesses a hypocrateriform corolla and exerted stamens. It is placed in Ipomea, of which part of the character is "Corolla campanulata, stamina inclusa."

This same genus Ipomea, "nunc, speramus, stricte definitum," of which the corolla is stated to be "campanulata," without any explanation or exception, is made to include twenty-six species "corolla tubulosa" (one of them, I. pilosa, has it in fact remarkably broadly campanulate), ten species "corolla infundibuliformi," six "corolla tubuloso-infundibuliformi," besides innumerable others with a long tube, a hypocrateriform limb, an inflated, ventricose or urceolate tube, &c., which may all be modifications of the campanulate; but to be intelligible as such, the generic character would surely have required some explanation.

Moorcroftia is admitted as a genus, from an innate conviction of the author that it is a genus; the reasons for which he does not impart, as it confessedly waits for a character.

The subdivisions of Ipomea and Convolvulus are derived chiefly from the duration of the plant, the volatility of the stem, and the form of the leaves, the most uncertain of all characters; whilst the striking variations in the calyx, the anthers, &c., are neglected.

We must, moreover, protest against the constant use of positive dimensions in the specific diagnoses, especially when drawn from those parts of the plant most subject to variation in this respect.

Passing over the anomalous genus Erycibe, which we regret to see established as an order (on account of the few species it contains), but which we have not had leisure to examine, we come to the Boragineae from De Candolle's manuscripts, but enriched with additions and most important notes by his
son. On revising his father's papers for the press, he re-examined a considerable number of species, was enabled to correct some errors that had crept into the manuscript, and considerably to modify and improve the generic and sectional characters, chiefly by the introduction of those modifications in the aestivation of the corolla, which had previously been little attended to or wholly neglected. The principles which have guided him have, we believe, been explained in a paper read at the scientific meeting at Milan, last autumn. Since we have not yet seen this memoir, and a considerable portion of the Boragineae remains yet to be published, we defer any further observations till the appearance of the tenth volume.

In conclusion, we must congratulate Professor Alphonse de Candolle on his success in following his father's footsteps, and on the improvements, both scientific and practical, which he has introduced into this important work. Whatever we have said in praise or dispraise of particular portions of it, has been the result of impressions received during the hitherto partial use we have made of it. We have no doubt that had we had time and ability to follow the respective authors through the whole of their tedious labours, we should have found many more grounds for commendation, and might probably on the other hand, have seen reason for softening down the apparently severe remarks we have on some occasions thought ourselves compelled to make.

LINDLEY'S Vegetable Kingdom.

An important work may soon be expected from the pen and pencil of Dr. Lindley, which although nominally a third edition of that author's "Natural System of Botany, or a systematic view of the Organization, Natural Affinities, and Geographical distribution of the whole Vegetable Kingdom," will be in reality a new work. It will form, we under-
stand, a stout octavo volume, full of wood-cuts, illustrative of the Natural Orders. Such a book was much needed by the botanical student, and few persons are so competent to the task as Dr. Lindley.

*Algae Antarcticae*, being characters and descriptions of the hitherto unpublished species of *Algae*, discovered in Lord Auckland's Group, Campbell's Island, Kerguelen's Land, Falkland Islands, Cape Horn and other southern circumpolar regions, during the voyage of H.M. discovery ships "Erebus" and "Terror" by Dr. J. D. Hooker and W. H. Harvey, Esq. M.D.

**Melanospermeae of Fucoidae.**


*Hab.* Hermite Isl., Cape Horn and the Falkland Islands.

A very distinct species, which may readily be recognised by the fibrous root, that of *D. utilis* being always scutate. The frond is of a much thinner texture (though covered with fructification) and never, even in its largest state, has been found incrassated or filled with transverse inflated cells; it often attains a length of six feet and upwards.

2. Desmarestia *chordalis*, nobis; fronde coriaceo-cartilaginea compressa anguste lineari tri-quadripinnata, pinnis pin-nulisque lengissimis oppositis distantibus apice longe nudis, pinnulis axe alternis elongatis inermibus chordiformibus.

*Hab.* Christmas Harbour, Kerguelen's Land.

This forms a verdant mass under the sea in 2-5 fathom water, growing on the rocks. The fronds are several feet in length, a line or a line and a half in diameter in the principal stems, and half a line in the pinnae. The long whip-like naked apices of the branches are a very striking specific character.

3. Desmarestia *Rossii*, nobis; fronde coriaceo-cartila-
ginea compressa linearis bi-tripinnata circumscriptione anguste lanceolate, pinnis pinnulisque omnibus oppositis basi apiceque attenuatis acutis erectis v. ultimis appressis margine integerrimis.

HAB. Falkland Islands, abundantly, and Hermite Island, Cape Horn.

Fronds many feet in length, of a singularly narrow-lanceolate outline, dipinnate in the lower and upper part, triply pinnate in the middle. Stems 2-3 lines in diameter, branches 1 line, all remarkably tapering to the base and apex, and all inserted at a very acute angle, so as to be nearly erect. It most resembles a very narrow form of D. ligulata, but is of a much coarser and thicker texture. Besides these new species, D. ligulata, media and viridis, were found abundantly in the Antarctic Seas.

4. Dictyosiphon fasciculatus, nob. in Flor. Antarct. v. 1, p. 178, t. 69, f. 1.

HAB. Lord Auckland's Group.

**STEREOCLADON, Nov. Gen.**

Fronds solida, olivacea, filiformis, ramosissima, et cellulis endochromeate repletis longitudinaliter seriatis formata. Sporidia solitaria, sparsa, in frondis peripheria immersa, nigro-olivacea, elliptica.—Genus dubie affinitatis, vix in tribu Dictyotearum includendum.

5. Stereocladon Lyallii, nobis.

HAB. Cape Horn and the Falkland Islands.


This remarkable plant resembles to the naked eye Dictyo-
siphon faniculaceus, but the stem and branches are solid throughout, and the seeds are immersed endwise, in the substance of the branch.

6. Adenocystis Lessonii, nobis in Flora Antarct. v. 1, p. 179, t. 69, f. 2.

Hab. Cape Horn, Falklands, Kerguelen’s Land, Lord Auckland’s Group, Campbell’s Islands, and in the sea at Cockburn Island.

7. Sphacelaria obovata, nobis; pusilla, stup̣ā nulḷā, fronde circumscriptione obovata, caule tenui articulato basi longe nudo in parte superiore ramis elongatis crebris erecto-patentibus laxe pinnatis distichis ornato, apicibus sphace-latis.

Hab. St. Martin’s Cove, Cape Horn, in deep water only.

Fronds 1-1½ inches high, very slender, articulate throughout. If our specimens be fully grown their outline is sufficient to characterise the species.

8. Mesogloia linearis, nobis; virescens, circumscriptione linearis, caule indiviso tenui, ramis abbreviatis flexuosis crebris alternis, ramulis subsecundis.

Hab. St. Martin’s Cove, Cape Horn.

Fronds 4-6 inches long, ⅛ line in diameter, pale olive green. Stem undivided, but densely covered throughout with short flexuous branches, which are from ¼ inch to an inch long, and either naked or sparingly furnished with ramuli, which generally issue from their lower or outer margin in a second manner. The filaments of the periphery are moniliform, and not much protruded beyond the gelatine.

Rhodospermeæ of Florideæ.


10. Ectocarpus geminatus, nobis; cæspite basi intricato olivaceo v. virescente, filis (majusculis) tenuibus ramosissimis apice liberis plumosis, ramis ramulisque patentibus oppositis v. quaternis ultimis brevibus, utriculis conicis
sessilibus oppositis basi sæpius ramulo brevi bracteæformi fulcratis.

HAB. Cape Horn and the Falkland Islands.

A beautiful species, 4-5 inches long, having the habit of *E. granulosus*, but amply distinguished by the constantly opposite, sessile, conical capsules, or utricles, very generally subtended by a minute ramulus half their own length. The main branches are frequently in fours; the ultimate very short ramuli, are constantly opposite, and issue at an angle of 75° or 80°. Besides the present species, the European *E. tomentosus* and *E. siliculosus* are found at Cape Horn.

11. Delesseria *Davisi*ii, nobis; caule cartilagineo alato, lami- na profunde pinnatifida v. pinnata, laciniiis v. pinnis disti-chis cultrato-lanceolatis obliquis costatis penninervis (nervis alternis) demum inter nervos alterne v. secunde lacerato-laciniatis, lacinulis erecto-patentibus costatis.

HAB. St. Martin’s Cove, Cape Horn.

Stem, or original leaf 5-6 inches long, winged or widely margined with a membranous frond, sending out numerous alternate distichous simple or forked midribbed branches. These are rarely found entire, being generally deeply cleft, especially along the outer margin, in an oblique direction from the margin to the midrib. Colour a fine rosy red, and substance delicately membranous. This species presents us with the characters of *D. alata* and *sanguinea* strangely combined, differing from the most luxuriant specimens of the former in colour and substance; and from the latter in the alternate disposition of the nervures, the division of the frond, &c.


HAB. Kerguelen’s Land, and Falkland Islands.
Primary leaf in the Kerguelen's Land specimens nine inches, in those from the Falklands 4-5 inches long, from an inch to an inch in width, rising from a cylindrical petiole or stem, oblong, round-topped, furnished with a strong midrib, and penninerved with opposite veins, having the substance of the frond thickened along the sharply serrated, but not sinuated margin. This primary leaf emits from the apices of the lateral nerves other leaves in all respects similar to itself, and all of them distinctly petiolate, and by no means rising (as in *D. sinuosa*) from sinuatures of the margin, and these in their turn send out others which are at first obovate, and afterwards linear-oblong. The margin in all is sharply serrated rather than ciliate. In some very old specimens the membrane of the old leaf has perished, and there remains but a slightly winged midrib from which new leaves sprout proliferously in an irregular manner. Colour rather a dark blood red, inclining to purplish. This is so like *D. sinuosa*, that on a hasty inspection it might pass for the ciliated variety of that species. The colour and substance are very similar; but the margin of our plant is not sinuous, but proliferous, the new leaves not proceeding from deepened laciniations as they do in all the specimens of that species we possess, but being, from their origin, stalked and leaf-like. The margin of the frond also is sensibly thickened, the old leaf remains of its original form until it decays, and the situation of the fruit is different in the two species.

13. Nitophyllum *lividum*, nobis; fronde e stipite cartilagineo filiformi brevi late expansa basi vix venosa livido-purpurea tenerrima fercata v. dichotoma margine undulato, lacinias oblongis patentibus obtusis, soris minutissimis punctiformibus coccidiisque perplurimis per totam frondem sparsis.

HAB. Falkland Islands.

Stem cartilaginous, filiform, half an inch to an inch long, vanishing in a few faint nerves at the base of the widely spreading frond. Frond, save at the extreme base, perfectly veinless and delicately membranous, four inches long, six or
more wide, divided into a few broad, forked, obtuse segments which spread at wide angles. Colour a livid purple, resembling that of some *Porphyra*, but not so glossy. The hue of this species is sufficient to distinguish it from all others, except *N. Gunnianum* of Tasmania, but the substance of that plant, the fruit of which is unknown, is very much thicker and less lubricous.

14. *Nitophyllum fusco-rubrum*, nobis; stipite elongato filiformi nunc dichotome ramoso nudo, ramis in fronde flabeliformi crasso-membranacea fusco-rubra lobata v. sēpe longitudinaliter fissa exeuntibus, frondis basi cuneato-attenuata tenuiter venosa; marginie plano subintegerrimo, apicibus laceratis?; soris minutissimis punctiformibus coccidiisque numerosissimis per totam frondem sparsis.

**Hab.** Kerguelen’s Land.

The specimens of this plant are very much torn and battered, but sufficiently perfect to show that they belong to a new and distinct species. The stems are from one to three inches long, and either simple or irregularly branched; the branches terminating in fan-shaped fronds, cuneate and somewhat veiny at the base. They are of a thick substance, veinless above, and have a dull brownish-red colour, darker than that of any other species known to us. The sori of granules are exceedingly small, sometimes so much so, as to be reduced to nearly solitary sphærospores which are densely powdered over the whole frond. The nearest affinity of this species is with *N. ulvoideum*, Hook. (*N. Hillie*, Grev.) from which it abundantly differs in colour, in the very remarkable and often extensively branched stem, the much more numerous capsules, and so far as we can judge, in outline also.


**Hab.** Auckland’s Group and Campbell’s Island.

16. *Nitophyllum Crosieri*; nobis nobis; fronde stipitata basi longe attenuato-cuneata tenerrima rosea enervosa latolanceolata v. ovato-lanceolata nunc integerrima nunc in laciniis pluribus lanceolatis longitudinaliter fissa, soris majusculis oblongis coccidiisque per frondem sparsis.
HAB. Cape Horn.

Frond 8-12 inches long or more, rising from a minute disc, with a cartilaginous filiform stem that becomes winged at about a quarter inch above the base, and thence is gradually lost upwards in the long narrow cuneate base of the frond, the traces of the stem gradually becoming fainter as the lamina widens, but not breaking up, as in some other species, into numerous veins. The normal form of the frond seems to be broadly lanceolate, gradually tapering to an acute point, and with an entire but wavy margin; sometimes however it is cleft from the apex downwards into a number of linear-lanceolate ribbon-like segments, which though they acquire proper margins, appear to originate in splitting or injury, more than from a natural division of the frond. This species is undoubtedly closely allied to N. punctatum, from which it is chiefly distinguishable by the long cuneate base of the frond passing into a filiform stem, and by the absence of dichotomous division, with wide axils.

17. Nitrophyllum multinerve, nobis; fronde stipitata elliptica
   v. ovata subintegerrima v. lobata tenerrima rosea nervosa,
   nervis pluribus distinctis parce dichotomis subparallelis
   apicem versus frondis evanescentibus, soris. . . ?

HAB. Cape Horn and the Falkland Islands.

Stem from ½ inch, as in most of our specimens, to nearly an inch long, simple, breaking up at the commencement of the frond, into numerous rib-like dichotomous veins, which are continued through the major part of the frond and vanish towards its apex. Frond delicately membranous, rose-coloured, ovate or elliptical, but probably much modified as the plant advances. Our specimens are all young, and perhaps we are injudicious in founding a species upon them. Their nervation is, however, very remarkable, and much resembles that of our Delesseria dichotoma, but the nerves are much fainter, less distinct from the lamina, and they vanish at a greater distance from the apex, nor is there any indication in the present plant of a disposition to form distinct leaves.
18. Nitrophyllum *Smithii*, nobis; fronde stipitata basi cuneata flabelliformi lobata demum lacerata rubra membranacea nervosa, nervo basilari crasso centrali, lateralis radiantis tenuibus nunc obsoletis, omnibus sensim evanescentibus, soris minutis rotundatis in frondis laciniiis marginem versus densissime sparsi.

**Hab.** Falkland Islands.

Fronds 4-7 inches long, narrow in proportion, stipitate; the stipes from half an inch to an inch long, filiform, becoming winged and passing into the cuneate base of the frond, but continuing upwards as a strong midrib for a considerable way, in some individuals for nearly three quarters the length of the frond. From this central vein a number of others radiate in an oblique or arching direction towards the several segments of the margin. These, in some specimens, are very strongly marked; in others they are much fainter, and in some scarcely obvious. The outline of the frond is also extremely variable, and sometimes it is so much lacerated or cloven into ribbons, that it is difficult to trace the original form.

19. Nitrophyllum *lacinatum*, nobis; fronde stipitata flabelliformi infra crassa subvenosa supra tenui-membranacea rosea profunde digitatim lobata vel subdichotomo-pinnatifida, laciniiis lato-cuneatis inciso-dentatis, dentibus latissimis oblongis truncato-obtusis, sinibus angustis, marginibus crispulis, soris parvis per frondem sparsi.

**Hab.** Cape Horn and the Falkland Islands.

Our specimens are mostly young and all but one (from Berkeley Sound) without fruit, and therefore doubts rest on the validity of this species which we cannot clear up. We feel confident, at least, that it is distinct from any of the Antarctic species known to us, but are not sure that it may not be referable to *N. Bonnemaisonii*, which occasionally is found nearly as much laciniated. Still our plant appears different from any state of *N. Bonnemaisonii* that we have seen, though it is not easy to express the differences in words. Stipes to ½ an inch long, terminating in the cuneate thickened base
of the frond, which is 4-5 inches long, and deeply cleft into 5-9 segments either radiating from a centre in a digitate manner, or springing like pinnules, from a lengthened rachis. Colour at the base brownish-red, becoming rosy upwards.

20. Plocamium* Hookeri, Harv.; fronde anguste lineari cartilaginea compresso-plana decomposito-ramosa disticha, ramis primariis subdichotomis patentibus, secundariis alternis flexuosis alternè folia et ramulos emittentibus, foliis planis aveniis obliquis obovato-lanceolatis obtusis basi attenuatis, nunc cultratis integerrimis v. margine exteriore crenatis, ramulis linearibus alternè et secundè pectinato-multifidis, stichidiis lateralibus densè fasciculatis brevibus digitatis laciniis obtusis simplicibus, coccidiis lateralibus sessilibus sparsis.

HAB. Christmas Harbour, Kerguelen's Land.

Frond 8-10 inches long, not quite a line in diameter, plano-compressed, cartilaginous, very much branched in an irregular manner between dichotomous and pinnate; the main branches spreading widely. Lesser branches with a linear outline, alternate, flexuose, furnished throughout both with flattened nerveless leaves, and with decompound ramuli, the larger of which resemble the branches in bearing a second set of leaves and branchlets; the ultimate divisions being generally secund and pectinate, as in P. coccineum. The leaves, which are peculiar to this species and at once distinguish it from every other, are about ¾ an inch long, and from 1½ to 3 lines broad, narrow-obovate or lanceolate in shape, obtuse, nerveless and generally quite entire, but sometimes their outer margin is slightly crenate. They are always more or

* Plocamium Magellanicum, H. and H. (Thamnophora Magellanica, Mont.) was found abundantly at Kerguelen’s Land, the Falkland Islands, and Cape Horn. Most of our very numerous specimens are covered with coccidia, but not one solitary individual bears stichidia, which is the more remarkable because, in other species of the genus, this latter description of fruit is much most generally produced.

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less oblique. The axils are all rounded. The stichidia densely tufted and laterally disposed on the ultimate ramuli. Colour a dark and rather dull red.


Hab. Kerguelen's Land, the Falklands and Cape Horn; abundant.—A most protean species, of which the following varieties were collected:

α, *flabellata*; fronde stipitata rosea v. sanguinea flabellata, fere ad basin partita, laciniiis distincte flabelliformibus, basi cuneatis repetite di-tri-vel palmatim-dichotomis, laciniiis linearibus ¼ ¼ unciam latis, margine lacinulis brevissimis truncatis quadratis alternis ornato, axillis rotundatis.

Some specimens of this variety bear a striking likeness to *R. Lamberti*, but are of a different substance.

β, *atrosanguinea*; fronde substipitata atrosanguinea palmatifissa, laciniiis lineari-cuneatis erectis subdichotomè vel alterne divisis margine proliferis, spice obtusis, axillis rotundatis.

At the Falklands, near Cape Pembroke.

Of a much darker colour than var. α, and nearly destitute of marginal tooth-like lacinii. But the specimens have a sea beaten appearance, and there are some evidently connecting the two forms, although the extremes are so different that we had, at first, supposed them to belong to different species.

γ, *latissima*; fronde 10-12 uncias longa, laciniiis parum divisis 1-4 uncias latis (l), apicibus truncatis.

This so little resembles the other states that had it not
been examined and compared whilst fresh, we should scarcely venture to refer it to the same species. It was found at Kerguelen's Land, accompanying α, δ.

δ, lacerata; inter α et β, media.

At Kerguelen's Land. The root is accompanied by fibres, and the frond is subsessile.

ε, prolifera; fronde 1½-2 uncias longa subdichotoma, laciniarum marginibus proliferis lacinulas numerosas angustissimas furcatas v. irregulariter ramulosas acutas emittentibus.

At Kerguelen's Land, on sea-weeds cast up.

ζ, pulcherrima; laciniiis angustis decomposito-ramosis, pinnulis ultimis elongatis emarginatis.

Berkeley Sound, Falkland Islands.

This variety is remarkable for having few and but little divided principal segments, about ½ inch wide, suddenly passing into narrow much divided minor segments not a line and sometimes not half a line in breadth. It bears no resembo to β or γ, but through α it is joined to them.


HAB. Kerguelen's Land.

Frond 7-8 inches long, divided nearly to the base into several segments, which vary from $\frac{1}{2}$ an inch to an inch in breadth, taper to the base, are broader upwards and are either forked or twice or thrice dichotomous, with widely spreading angles. The margin is simple, or sparingly proliferous. Over the surface of the laciniae, on one or both sides of the frond, papillæform bodies, containing granules, but not exactly similar in structure to the coccidia usual in the genus, are very densely scattered. They are fixed to the surface by a central point, and may very easily be detached with a slight touch, leaving behind them a minute puncture. These
form the most striking feature of the species, which otherwise resembles some of the aspects of R. Hookeri. In structure the frond has an affinity with that of R. polyeparpa, but the fructification is abundantly different. Some of the specimens are very much smaller, being only two inches high, with segments a quarter inch broad.

Hab. Campbell’s Island.

23. Phyllophora cuneifolia, nobis; fronde stipitata latocuneata v. flabelliformi integra v. emarginata, e disco v. apice frondes consimiles emittente.
Hab. Falkland Islands: rare.

Frond stipitate; stipes flattened, short, gradually expanding into the broadly wedge-shaped, or inversely deltoid frond, which is of a horny membranous substance and pinky red colour, about 1½-2 inches long, an inch or 1½ inches broad, either truncate and entire or obtusely emarginate, or sometimes erose. From the disc or apex of this primary frond, others exactly similar arise, and these in their turn produce others, so that the plant finally becomes an irregularly branched chain of fronds several inches in length. Fruit unknown. This may only be a very broad state of Phyllophora Brodiei (Fucus Brodiei, Turn. t. 72) a point which cannot be fully determined till the fruit be discovered. It is at least a very strongly marked variety, and coming from the Southern Ocean we deem it safest to give it a distinctive name.

24. Gracilaria? obtusangula, nobis; radice fibrosa, frondibus purpurascentibus cæspitosis à basi ramosissimis intricatis gracilibus subcylindricis subcompressis flexuosis flaccidis carnoso-membranaceis irregulariter dichotomis, axillis obtusis sæpissime latis, ramis decompositis sensim attenuatis, ramulis filiformibus v. subulatis acutis, ultimis sæpe secundis, fructu...?

var. β. tenuior, ramis minus flexuosis pec intricatis, axillis patentibus vel divaricatis.
Hab. Cape Horn and the Falkland Islands.

Frond 4-6 inches high, ½ line in diameter at base, filiform
or slightly compressed, tufted, rising from a mass of creeping fibres. Colour dull purplish, similar to that of *G. purpurascens*. This may possibly be Agardh’s *Sphaerococcus subulatus β nigrescens*, a point which cannot be determined without comparison with his specimens.


HAB. Falkland Islands.

Frond 3-4 inches high, scarcely half a line in diameter, springing in dense tufts from a common fleshy scutate base, which is nearly an inch broad, irregularly branched; sometimes the lower half is simple, the upper part of the frond only being branched; sometimes it is nearly regularly dichotomous. The axils are obtuse, and all the divisions remarkably erect. The colour is blackish purple; the substance cartilaginous; and in drying it scarcely adheres to paper. The habit of this species has some resemblance to that of *Polyides rotundus*.

**ACANTHOCOCUS, Nov. Gen.**


HAB. Cape Horn and the Falkland Islands.

*Fronds* 4-8 uncias alta, compressa, anguste linearia, basi semi-lineam vix ad lineam latitudine, sursum sensim angustata, distiche ramosissima. *Rami* patentess vel divaricati, nunc flabellatim multifidi, nunc pinnati et bipinnati; secundarii nunc breves subsimplices, nunc longissimi, ramosissimi.

We cannot satisfactorily include this plant under any established genus. It belongs unquestionably to the Delesserieæ, and will stand near Plocamium, from which it differs in the structure of the frond, as well as in the fructification. The densely cellular axis, surrounded by large empty cellules or tubes, is quite unlike Plocamium. Outwardly there is a close resemblance between our plant and Heringia rostrata, J. Ag. (Gelidium ? rostratum, Griff. Fucus alatus, a, angustissimus, Turn.), but besides the difference in fructification, the structure of that plant is uniformly dense, without a trace of large cellules or tubes. Again, our plant may be compared with Microcladia, to which it approaches in habit, and to a certain extent, the spinous coccidia may be considered analogous to the involucrated favella of that genus; but in Microcladia the axis, far from being the densest part of the frond, is tubular.

27. Iridæa dichotoma, nobis; stipite brevi cartilagineo mox cuneato furcato vel pluries dichotomo sensim in frondem membranacem ample cuneatam vel obovatam desinente, segmentis frondis vel simplicissimis integris vel furcatis vel dichotomis, ad marginem denticulatis vel grosse dentatis vel lobatis vel frondes novas emittentibus, substantia tenui nitente lubrica demum fructibus immersis numerosissimis verrucosa.

HAB. Falkland Islands.

Notwithstanding the repeatedly branching, sometimes excessively dichotomous frond and other characters above noticed, we are not sure whether there be any exact limits defineable between this form and I. micans, which, like most
species of this difficult genus, varies extremely in all its characters.

28. Iridea micans, Bory.

\[ \beta. \text{ciliolata}, \text{nobis; stipite brevi cartilagineo cuneato ciliato-} \]
\[ \text{dentato mox in frondem ovato-lanceolatam simplicem} \]
\[ \text{desinente, fronde latissima basi ovata apice obtusa v.} \]
\[ \text{acuta v. emarginato-bifida membranacea vel cartilagineo-membranacea rubra plana, nitente levi margine vix} \]
\[ \text{undulata.} \]

HAB. St. Martin’s Cove, Cape Horn.

Fronds 6-12 inches long, 3-6 broad. This is a distinct looking form, but we fear not entitled to rank as a species. The common state of \textit{I. micans} was found in plenty at the Falkland Islands, and accompanying the present individuals.


HAB. Campbell’s Island.


HAB. Lord Auckland’s Group.


HAB. Lord Auckland’s Group and Campbell’s Island.


HAB. Campbell’s Island.

33. Rhodomela? comosa, nobis; ramosissima atro-rubescent, caule cylindraceo frondem percurrente ramis alternis crebris onusto, ramis elongatis pluries alternate divisis erecto-patentibus sensim attenuatis basi subangustatis cylindraceis, ramulis ultimis setaceis acutis abbreviatis vagis, capsulis ovatis breve pedicellatis.

\[ \text{var. } \beta. \text{fibrillifera; fronde tenuiori laxius ramosa, apicibus fibrilliferis.} \]

HAB. Both varieties common at the Falkland Islands.

Stem cylindric, 6-9 inches long, in var. \( \alpha \) from a line to nearly a line in diameter at base, in var. \( \beta \) very slender, either undivided, or branching from the base into 3-4 principal stems, which are throughout their length thickly set with minor branches, again and again similarly divided. All
parts of the frond are opaque and seemingly inarticulate; but a section of the stem shows an articulated axis similar to that of many *Polysiphonia*, a central tube being surrounded by about seven others with a thick external stratum of smaller cells. The capsules (or *keramidia*) are abundantly produced on our specimens. Colour dark reddish brown. Substance flaccid and closely adhering to paper.

34. Rhodomela *patula*, nobis; fronde cylindracea brunnea cellulis irregularibus notata vagè bipinnatim ramosa, ramis alternis elongatis horizontalibus vel suberecto-patentibus, minoribus elongatis patentibus subsimplicibus attenuatis nudis.

**HAB.** Falkland Islands.

Frond 4-6 inches long, 1⁄4 a line in diameter at the base. Stem undivided, set with alternate patent branches 4-6 inches long, which in our specimens bear a second series. Colour blackish or dark brown. Substance membranaceous. The axis of the frond exhibits four large tubes surrounding a central one, with an external stratum of small cells.

35. Rhodomela *Gaimardi*? (Ag.) fronde cylindracea flabel-latim ramosissima, stipite simplici filiformi, ramis primariis divaricatis, secundariis bipinnato-multifidis patentibus, laciniiis alternis, ramulis brevibus setaceis simplicibus et furcatis vel quadrifidis sēpe secundis per totam frondem sparsis.

**HAB.** Falkland Islands and Cape Horn.

Frond as thick as a bristle, 4-6 inches high, simple at the base, above divided into 3-4 flabelliform portions. Primary branches subdichotomous or irregular, divaricate, again and again bifurcously branched; secondary and tertiary branches long, subsimple and filiform, laxly set with short ramuli. Ramuli 2-3 lines long, frequently secund, very slender, colour dark. Structure similar to that of the last species, from which the present is, possibly, not distinct. We refer to Agardh’s synonym with much doubt, as he pointedly describes his plant “fronde *compressa,*” whereas ours is clearly cylindrical. Nothing more nearly resembling *R. Gaimardi* than the pre-
sent, has come under our observation, and we think it possible that Agardh may have been deceived by a badly dried specimen in the compression attributed to the frond.

36. Polysiphonia _anisogona_, nobis; _atro-rubescens_, _flaccida_, _madeacta_ _fragilima_, frondibus _cespitosis_ setaceis _articulatis_ equalibus _vix_ attenuatis irregulariter _ramosissimis_, ramis _ramulisque alternis_ _v. subdichotomis_ erectis _v. appressis_, _axillis_ _angustissimis_, _articulis_ _varii_, inferioribus _diametro sextuplo_, _superioribus_ _duplo-triplove longioribus_, _ultimis_ _sesquilongioribus_ _v. quadratis_, _omnibus striis sex notatis_, _e tubulis_ _12_ _radiantibus tenuibus endochromaticis_ _formatis_, _keramidia_. . . . ?

_HAB._ Cape Horn and the Falkland Islands.

Tufts extremely dense, 4-5 inches high, intricate. Articulations unequal in length, the lower ones very long, the upper very short, all marked with six straight or spiral striæ, being composed of twelve slender coloured tubes surrounding a central cavity. Colour dark red. The impossibility of removing without breaking the specimens of this plant from the paper on which they have been dried renders our account of the ramification imperfect, but we have no hesitation in pronouncing it a distinct species. In many respects it accords with the British _Pol. atro-rubescens_, but the substance is very much more frail and tender.

37. Polysiphonia _microcarpa_, nobis; _atro-rubescens_ _cespitosa_, frondibus _tenuibus membranaceis_ _flaccidis_ _tenacibus_ _oligosiphoniis_ _equalibus_ _vix_ _attenuatis_ irregulariter _repetite dichotomis_, _ramis_ _ramulisque erecto-patentibus crebre divisi_, _articulis_ _bistiatriis_ _e tubulis_ _quatuor_ _formatis_, _iis ramorum majorum diametro multiplo_, _minorum_ _3-4_ _plo_, _ramorum_ _1½_ _duplo_ _longioribus_, _keramidiis_ _pusillis_ _ovatis breve pedicellatis_.

_HAB._ Hermite Island, Cape Horn.

Filaments 3-4 inches long, capillary, flaccid, but not fragile, densely tufted and branched in an irregularly dichotomous manner from the base, of nearly equal diameter throughout. Keramidia very small. Colour dark red. This nearly re-
seems *P. formosa*, Suhr, but differs in the form and size of the capsules.

38. *Polysiphonia abscissa*, nobis; coecinea, frondibus tenuibus membranaceo-gelatinosis flaccidis tenacibus oligosiphoniis, caule primario parum diviso, divisuris frondem percurrentibus, ramis secundariis alternis multifidis circumscriptione obovatis, minoribus alternis erectis subdichotome divisis, ramulis apice multifidis fastigiatis (quasi abscissis) fibrilli-feris, articulis ramorum diametro 4-6 plo, ramulorum 2-3 plo longioribus bistriatis, keramidiis pusillis ovatis breve pedicellatis.

**HAB.** Cape Horn.

Filaments 3-4 inches long, purplish rose-coloured or nearly crimson, with a principal stem and branches. The ramuli remarkably fastigate. Nearly related to *P. microcarpa*, but the branching is more regular and the colour different.


**HAB.** Cape Horn, in deep water.

4.6 inches long, capillary, subsolitary (not tufted?), growing on the larger Algae. Allied to *P. amisogona*, but much more slender, and not fragile when moistened after having been dried: besides the differences in ramification.

40. *Polysiphonia flabelliformis*, nobis; pusilla setacea badia rigidula, fronde brevi basi simplici stipiteformi apice flabellatim ramosa, ramis irregulariter dichotomis multifidis apice subfastigiatis, ramulus ultimus erectis longè simplicibus, axillis angustis, articulis multistriatis, inferioribus diametro multuplo superioribus sesquilongioribus.

**HAB.** On *Macrocystis pyrifera*, off the Crozets.
Frond an inch high, solitary, rigid, as thick as a hog's bristle, simple at base, and rising with a stipes, distichously branched above in a flabellate manner; the outline circular. Branches multifid, irregularly dichotomous, fastigiate, ramuli erect. Joints of the stem very long, 6-8 times their diameter, of the branches 2-3 times, and of the ramuli one and half as long as broad, all marked with numerous narrow striae. Colour dingy brown, scarcely rufescent. It imperfectly adheres to paper. Of this very distinct species we have seen but a single specimen.

41. Polysiphonia *Davisii*, nobis; punicea, caule articulato basi ultrasetaceo sensim attenuato frondem percurrentem subindiviso per totam longitudinem ramis alternis decompositis ornato, ramis erecto-patentibus sub-bipinnatis divisis, ramulis ultimis brevissimis crebre alternis erectis furcatis vel raro bifurcatis axillis angustis, articulis omnibus brevissimis, ramorum diametro equantibus, ramulorum brevioribus, e tubulis octo (duobus lateralis majoribus) tubum centralem amplum cingentibus formatis.

**HAB.** Cape Horn.

This is a handsome plant, though perhaps too closely related to *P. punicea*, Mont. which was found abundantly at Kerguelen's Land, the Falklands, and Cape Horn. Our present plant has a different aspect, from having a more regular primary ramification, with more erect, denser and less divided ramuli. As far as we are able to judge by an imperfect specimen, *Heterosiphonia Berkeleyi*, Mont. is also a nearly allied form; and if the genus *Heterosiphonia* is to be retained, the present plant, with *P. punicea*, and probably some others, should be referred to it.

42. Polysiphonia (*Heterosiphonia*) *pectinata*, nobis; setacea rigida, fronde purpurea distichè decomposito-pinnata, ramis alternis articulatis tri-striatis pectinato-pinnatis, ramulis (vel pinnulis) simplicibus alternis brevibus subulatis monosiphoniis (!) articulatis, articulis diametro sesquilongioribus.

**HAB.** Cape Horn, very rare.

Frond 2-3 inches long, setaceous, rigid, distichously branch-
ed, decompound in a repeatedly pinnate manner, with much of the habit of *Bonnemaisonia asparagoides*. Stem subsimple, jointed, tristriate, compressed or angular, beset throughout with alternate patent branches; which are in like manner furnished with a second series. All the branches are regularly pectinated, with alternate patent subulate single-tubed (!) short ramuli. The joints throughout the whole frond are short. Those of the stem are formed of four unequal tubes, the two lateral ones largest, surrounding a central cavity, exactly as in *Heterosiphonia*, Mont.; those of the ramuli have the structure of the joints of *Callithamnion*. The colour is a beautiful purplish rose-red.


_Hab._ Lord Auckland's group.


_Hab._ Lord Auckland's group.


_Hab._ Campbell's Island.


_Hab._ Lord Auckland's group.

47. *Polysiphonia ceratoclada*, Mont.


_Hab._ Lord Auckland's group.

*BosTyrYCHia*, Mont.

*(Stictosiphonia, Harv. MSS.)*

_Frons purpurea, filiformis, cylindrica, ramosa, tubulosa, extus stictis quadratis notata, intus diaphragmatibus septata._

_Peripheria_ e cellulis coloratis quadratis tubum centralem

*M. Montagne, in proposing this genus, assigns to it the following character:

"Frons violacea, continua, filiformis, cylindracea, distichè pinnatim vel vagè ramosa intus filis elongatis coloratis farcta, ramellis ultimis articulis secunde versis convolutis. Fructus: 1°. stichidia silique-
cavum, radiatim cingentibus formata. *Kerami decis*....

*Stichidia* lanceolata ramulos terminantium, tetrasporas pluriseriatae includentia.—*Algae* pusillae cæspitosae et filis repentibus ortæ, rupes marinæ *Antillanas, Antarcticas et Austro-Atlanticas*, vix demersas, vel ad limitem pleni maris costus sitas, incolentes.

A very natural little group, which occupies in the Southern Ocean the same position with respect to high-water mark that *Lichina* and *Catenella* do in the Northern.

48. *Bostrychia Hookeri*, Harv.; caulibus indivisis apice involutis, ramis lateralibus abbreviatis alternis subquadri-fariis erecto-patentibus, inferioribus subulatis simplicibus furcatisve, superioribus alternè multifidis, ramulis subulatis acutis erectis, axillis angustis acutis, stictis sub-triseriatis, stichidiis lanceolatis acutis ramulos minus terminantium.

HAB. Cape Horn and the Falkland Islands.

Fronds 1-1½ inches high, densely tufted, blackish-purple, rigid. Stem generally undivided, furnished with lateral short branches throughout its length. Branches sometimes all about a line long, and but slightly divided; sometimes the lowest are of this length and character, the upper 2-4 lines long, and repeatedly branched. All the ramuli are subulate and erect, or erecto-patent. The tips of the stem and main branches are generally strongly involute. Under the microscope the branches and ramuli appear beautifully marked with three rows of dark purple dot-like cells.

49. *Bostrychia fastigiata*, nobis; caulibus multifidis fastigiatis apicibus involutis, ramis æquilongis curvatis, ramulis formia seriem duplicem spherosporarum includentia; 2°. conces-
taculæ pedicellatae sporis clavatis erectis referta."—*Hist. Nat.
de Cuba*.

We are unable to find the "*filia elongata colorata," filling the axis. On the contrary, in the species now described, as well as in *B. radicans*, Mont., the axis is a tube, interrupted at intervals by membranous diaphragms. The structure is indeed very similar to that of *Polysiphonias*, from which this genus differs in having the cellules of the periphery very short, while those constituting the axis are lengthened.
alternis subulatis furcatis vel alterne multifidis, axillis acutis, stictis 3-4-vel pluriseriatis.

HAB. Cape Horn.

Fronds \( \frac{1}{2} \) an inch high, fastigiate, divided from the base into many main branches, red-purple. Stem scarcely any; branches long, curved, set with simple or multifid ramuli, much incurved at the tips. Perhaps this is only a variety of the last mentioned species, differing chiefly in having an abbreviated stem, with longer and consequently more divided branches, and a duller colour.

50. Bostrichia vaga, nobis; caulibus flexuosis vage subdichotomis, ramis paucis simplicibus arcuatis longissimis nudis, apicibus incurvis, ramulis nullis, axillis patentibus, stictis minutis multi-seriatis, stichidiis longissimis pedunculatis lanceolatis acutis.

HAB. Kerguelen’s Land.

Fronds \( \frac{1}{2} \) an inch to an inch in height, densely tufted, very flexuose, irregularly branched. Colour blackish-purple. Stictæ small, disposed in several, 6-8, rows. Very distinct in its ramifications.

51. Bostrichia mixta,* nobis; caulibus pinnatis, pinnis patentibus simplicibus vel furcatis, vel alterne ramosis, ramulis subulatis patente divericatis, apicibus strictis vel vix involutis, axillis latis.

HAB. New Zealand, on rocks near high-water mark; mixed with Gelidium corneum, var. crinale, Caloglossa Hookeri, and Polysiphonia confrinis (n. sp. ined.).

Tufts widely spreading, intricate. Fronds \( \frac{1}{2} \) inch high, simple, pinnate; the pinnæ spreading, simple, or more or less branched, sometimes bipinnate, distant, alternate, acute; the apices straight or the young ones involute. Colour blackish-purple. Substance rigid. Stictæ in three rows.

* We introduce this species here, though geographically out of place, for the sake of contrasting its characters with the allied species. Specimens found at the Cape of Good Hope by myself, and distributed under the MS. name of Stictosiphonia Capensis, very nearly accord with the New Zealand plant.—J. D. H.
Allied to S. Hookeri, but smaller, and with more patent rami-

fication.

52. Ptilota Harveyi, Hook. fil.; caule compresso cartilagineo
anguste lineari inarticulato furcato vel inordinate ramoso,
ramis distichis pinnatim decomposito-ramosis, majoribus
et minoribus costa articulata percursis pectinato-pinnulatis,
pinnulis creberrimis abbreviatis simplicibus articulatis mo-
nosiphoniiis subulatis oppositis, articulis pinnularum qua-
dratis, favellis ad apices ramulorum sitis, ramulis pinnatis
involucratis sphærosporis ad apices pinnularum aggregatis
nudis brève pedicellatis.

var. β pectinata; pinnulis subdistantibus.

HAB. Cape Horn and the Falkland Islands, abundant.—
var. β. Cape Horn.

Frond 8–12 inches long and nearly as broad in the spread-
ing of the branches. Stem filiform, § a line in diameter,
nearly of equal breadth throughout, irregularly forked, dicho-
tomous, or very much branched in a manner between dicho-
tomous and pinnate; the lesser branches more regularly
pinnate or bipinnate; every part of the frond, but especially
the younger portions, beautifully pectinated with opposite
jointed ramuli, of a line in length. These ramuli are simple,
and single-tubed, like those of a Callithamnion. The var. β
only differs from the common form in having the ramuli more
distant. The species to which this is most nearly allied is
undoubtedly P. plumosa of the Northern Hemisphere, whose
variety β (which Kutsing has erected into a species, P. ele-
gans, Kg.) bears articulated ramuli. Our plant is, however,
much larger than this variety, more rigid, and the ramuli are
of much greater diameter. Compared together under the
microscope, they are seen to be abundantly different.

53. Callithamnion simile, nobis; fronde subsolitaria rigidius-
cula ramosissima, ramis alternis v. subdichotomis articulatis
aveniis, ramulis brevissimis oppositis distichis horizontali-
bus crassis sursum pectinatis è quoque ramorum articulo
porrectis, pinnulis robustis simplicibus v. ramosis, arti-
culis ramorum diametro sesqui-subduplo longioribus, ramulorum diametrum subequantibus.

HAB. Christmas Harbour, Kerguelen’s Land, rare.

Fronds 2-5 inches long, slender, rather rigid, much and distichously branched; all the branches jointed, and of equal breadth throughout. Ramuli ½ line long, issuing in opposite pairs from the middle of every joint throughout the length of the frond, pectinated on their upper face with secondary ramuli, thick, subacute, and very patent. Colour brownish red. This so closely resembles C. Plumula, that it is difficult by mere words to discriminate them; yet on comparing them together on the table of the microscope, they are obviously not the same. Our C. simile is a much coarser, more rigid plant; its ramuli are more robust in proportion to the diameter of the joint, and the joints are shorter. We are the more disposed to keep it specifically distinct from C. Plumula, with which we were at first inclined to unite it, because specimens clearly referable to that species were found at Cape Horn; so that the differences above noticed do not appear to originate in difference of local circumstances.

54. Callithamnion Ptilota, nobis; fronde (parvula) rigida se-
tacea pinnatim ramosissima, ramis vix distichis venoso-stri-
atis subopacis, secundariis opposite pinnulatibus, pinnulis
simplicibus patentibus subulatis e quoque ramorum geni-
culo ortis, articulis diametro duplo longioribus.

HAB. Off the Crozets, on Macrocystis pyrifera.

Frond 1-2 inches high, solitary, as thick as a hog’s bristle, much branched in a pinnate manner, but not strictly dis-
tichous. Secondary branches closely pinnate. Pinnules opposite, subulate, simple, issuing from every joint. Colour brownish-red. Substance rigid and scarcely adhering to paper. Only a single specimen of this very distinct species was met with.

55. Callithamnion ternifolium, nobis; pusillum vage dichoto-
mum, ramis pellucide articulatis, ramulis sæpissime ternis
e quoque ramorum geniculo enatis brevibus tenuibus sim-
plicibus subulatis erecto-patentibus, articulis ramorum diametro 4-5-plo, ramulorum subduplo longioribus; favellis magnis bilobis ad spicis ramorum sitis.

HAB. Cape Horn, in deep water.

Parasitic, half an inch long, vaguely branched, rose red, flaccid and membranous. Ramuli issuing from every joint, usually three, rarely two or four, slender, short and simple-joints of the stems very long. Favellae large.

56. Callithamnion flaccidum, nobis; fronde gracillima membranae flaccida rosea decomposte ramosa, ramis primariis secundariisque oppositis! vel alternis! elongatis patentibus distichis, ramulis ultimus brevibus simplicibus oppositis vel secundis patentibus apice incurvis; articulis ramorum primariorum diametro multoties, secundariorum 6-10-plo, ramulorum sesqui-longioribus pellucide roseis avenis.

var. β. alternifolium; ramis ramulisque alternis vel secundis, rarissime hic illic oppositis.

HAB. Cape Horn, in deep water; both varieties.

Fronde 2-3 inches long, very slender, membranous and flaccid, of a beautiful rose colour, much branched, the branches lateral and distichous. In var. a, branches and ramuli are almost invariably opposite; while in β, they are as regularly alternate or secund, the inner ramuli of the branches being abortive, those along the outer edge only developed. In other respects the two varieties are identical. This species is allied to C. Turneri, but is a much larger and more branching plant.

57. Callithamnion scoparium, nobis; caule basi crasso inarticulato filis intertextitis flexuosis stuposis vestito flabellatim ramoso, ramis primariis cauli similibus, secundariis articulatis pellucidis tenuibus strictis pinnatis et bipinnatis creberrimis quadrifariis, e primariorum apicibus fasciculatim enatis apice fastigiatis, articulis diametro 2-3 plo longioribus.

var. β. ramulosum; pinnis apice ramulis secundis ornatis.

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Hab. Falkland Islands; β. Cape Horn.

Fronds 2-3 inches high, bushy. Stems thick, inarticulate, densely clothed with flexuous woolly fibres, only slightly divided. Branches resembling the stem, throughout their length densely shaggy, with slender crowded quadristarious straight branchlets. These secondary branches are articulate, irregularly divided, either pinnate, or having secund or sub-dichotomous divisions; but in all cases they are straight, and erect, the ramuli mostly appressed. The tips are either acute or obtuse, and simple or furnished with short pectinate secund ramuli. Colour dark purple. Substance rigid. To the naked eye this resembles C. tetricum and C. crinitum, but the microscope shows it to be abundantly different. It has much the habit of Sphacelaria scoparia, as alluded to in the trivial name.

58. Callithamnion Gaudichaudii, Ag. ? fronde fruticosa ramosissima, caulibus primariis crassis inarticulatis opacis striatis quadristarius decompositis sensim attenuatis, ramis inarticulatis striatis ramulis plumosis quadristarii densissime obsitis, ramulis (vel plumulis) brevibus roseo-pellucidis articulatis pinnatis et bipinnatis, pinnulis patentibus inferioribus simplicibus elongatis subulatis superioribus furcatis vel iterum pinnulatis, articulis diametro subduplo longioribus.

var. β. caulibus longioribus laxius ramosis basi nudis, ramulis gelatinosis minus crebris. Cal. Gaudichaudii

Ag. Sp. Alg. vol. ii, p. 173

Hab. Cape Horn and the Falkland Islands; β. Falklands.

Root scutate. Fronds 2-3 inches (in var. β. 4-5) high, shrubby, and much branched. Stem thicker than a hog’s bristle, divided from the base into numerous branches, which spread every way. These are densely clothed with secondary branches, which again are covered in every part and all round with minute pinnated ramuli or plumules, from ½ line to a line in length. Favellae large, 2-3-lobed, lobes many-seeded. Colour blackish purple, rosy purple under the glass. Substance of the branches cartilaginous, of the
ramuli tender and adhering to paper. This species comes very near C. Arbuscula and C. Brodiei, between which it almost seems intermediate. It has the large size and robust habit of the former, but much longer and more compound plumules; and it is much stouter than C. Brodiei, with more opaque stems. Var. β. is perhaps only an advanced state of the plant, being gathered in the same locality and three months later in the season. It chiefly differs in being of a more tender gelatinous substance, and in having the branches less densely clothed with ramuli, and most of them naked at the base. Its outward character is something that of C. tetragonum. We cannot be sure whether this be Agardh’s C. Gaudichaudii, having seen no specimens of his plant, and his description being too brief to enable us perfectly to determine the matter; but no other plant among our Falkland Island collection so nearly coincides with his words. He had probably only a single specimen to describe from, and we have a large suite of all sizes and ages.


60. Callithamnion hirtum, nobis, in Fl. Antarct. v. 1, p. 192. HAB. Lord Auckland’s group.

61. Callithamnion micropterum, nobis, in Fl. Antarct. v. 1, p. 192. HAB. Lord Auckland’s group.

62. Ectocarpus geminatus, nobis; cæspite basi intricato olivaceo v. virescente, filis (majusculis) tenuibus ramosis-simis apice liberis plumosis, ramis ramulisque patentibus oppositis v. quaternis, ultimis brevibus, utriculis conicis sessilibus oppositis basi sæpius ramulo brevi bracteaformi fulcratis. HAB. Cape Horn and the Falkland Islands.

A beautiful species, 4-5 inches long, having the habit of E. granulosus, but amply distinguished by the constantly opposite, sessile, conical capsules or utriculi, which are very generally subtended by a minute ramulus half their own length. The main branches are frequently in fours; the
ultimate ramuli, which are very short, are constantly opposite, and issue at an angle of 75° or 80°. Besides the present species, the European *E. tomentosus* and *E. siliculosus* are found at Cape Horn.

(To be continued.)

*On Six Species of Jungermanniae, new to Britain, by Thomas Taylor, M.D.*

Of the numerous discoveries of the late Mr. Thomas Drummond, the addition of the following six species of Jungermanniae to the British list is a singular proof of the acuteness and sagacity with which he investigated nature. The species were all observed in the Highlands of Scotland; and when we consider that such are the classical localities to which continental as well as British botanists have directed their attention, from the times of Dickson and of Don to the present hour, we must be surprised to find that no other individual has noticed the species alluded to, found more than ten years by Mr. Drummond. They occur among other cryptogamic discoveries of the same individual in the extensive and most valuable collection of Sir William Hooker.

   Highlands of Scotland.

   Whatever difficulty there may be in clearly distinguishing *Scapania nemorosa*, Nees. from *Scapania undulata*, Nees., which it must be confessed, the characters given in the *Synopsis Hepaticarum* have scarcely removed, the present is sufficiently distinct from either, by the constantly entire leaves and by the far less ratio of their smaller to their greater lobes, as well as by its more aquatic habitat.

   Highlands of Scotland.

   Having been so fortunate as to witness the fructification, we may add to the specific character given in the Synopsis: "Calyce perichaetio molto longiore, ex angusta basi obovato,
compreso, truncato, denticulato." It may be not amiss to note that \textit{Scapania curta}, Nees. and \textit{Scapania inigua}, Nees. have both been lately found near Dunkerran, in the county of Kerry; the former abundantly both on mountains and in woods, the latter more scarce, on wet mural banks in the mountains.


Highlands of Scotland.

By the present tardy discovery, Mr. Drummond has removed a reproach from British Cryptogamists, who had hitherto in vain sought this species, long known to have existed in Europe from Portugal to the North of Germany, and in America from Canada to New York.


Highlands of Scotland.

It must be confessed that this species approaches very closely to \textit{Jung. cordifolia}, Hook.; still, the more patent and shorter leaves give it a squarrose appearance, not at all observable in the latter.

5. \textit{J. gelida}, Tayl.; caule repente adscendente subsimplici flexuoso (apice innovante) foliis approximatis erecto-patentibus secundis subrotundis bisidis, segmentis inaequalibus acutiusculis incurvis integerrimis.

Among \textit{Gymnomitron concinnatum}, Nees, Highlands of Scotland.

Creeping up here and there through the \textit{Gymnomitron}, overtopping it and then reclining; reddish-brown above, but the colour of the older, inferior, and more shaded parts quite discharged. Stems very slender, sometimes one inch long, consisting of the growth of former seasons topped by that of the present year. Attached by rootlets for its entire length except near the top. Leaves convex, largely cellular, the sinus between the segments sometimes acute, more commonly obtuse.

It is allied to \textit{Jung. punicea}, Nees. from Java, whose colour
it emulates at the tops of the shoots. It is, however, a larger plant, less branched, has the division of the leaves deeper, and their cells far larger.


The editors of the Synopsis appear not to have met with the fructification; we would therefore propose the following amended specific character; caule adscendente caespitoso radiculoso subsimplici, foliis erecto-patentibus imbricatis secundis quadrato-rotundatis integerrimis obtuse complicatis sinu angusto bifidis, laciniiis ovatis obtusis incurvis, stipulis bipartitis, laciniiis lineari-lanceolatis integerrimis, calyce terminali oblongo-ovato subcompresso subtruncato denticulato."

Patches dense, olive-brown. Stems about one inch long, sparingly branched; the entire inferior side has thickly set rootlets. Leaves crossing the stem, concave, all pointing upwards; some near the top trifid. Lateral perichelial leaves quadrifid, the stipular bifid, all with a few spinous teeth at the base, and sometimes one or two above the base. Calyx convex above, deeply channelled below. Peduncle four times as long as the calyx. Capsule oblongo-ovate.

Scientific Excursions in New Holland, by Dr. Ludwig Leichhardt, 1842-44; extracted from his letters to M. G. Durand, of Paris.

Communicated by P. B. Webb, Esq.

(The energetic individual from whose letters to M. Durand the following extracts are made, is now embarked, we are informed, on one of the most difficult journies overland that has ever been undertaken, from Sidney to Port Essington, through the interior of New Holland. We heartily wish the attempt may be crowned with success, and we shall be proud that the pages of our Journal should be the means of communicating such welcome intelligence to the British public.—Ed.)
Port Jackson, in which is situated the town of Sidney, is exceedingly varied by a great number of small bays and diminutive islands, clothed with luxuriant vegetation, and conveying the idea of a rich and fertile soil. The rocks, which may be seen in various directions, are composed of quartzose limestone, of coarser or finer grain, and more or less tinged with oxyde of iron.

Proceeding towards Botany Bay, the traveller soon finds himself surrounded with sand-hills of trifling elevation, on which grow shrubs and low trees, chiefly consisting of Eucalyptus, and other indigenous Myrtaceae, Acacias, the Proteaceae, Petrophila, Isopogon, Lambertia, Grevillea, Banksia, Hakea, and Persoonia. The Grass tree (Xanthorrhoea) gives a peculiar character to many spots, and Zamia australis is no less striking. Lampocarya and Gahnia command attention by their lofty spikes or brown panicles; they prevail in the marshes which fill up the depressions between the hills. The Epacridae, Styphelia, Lysinema, and Sprengelia, are conspicuous for the brilliancy and profusion of their blossoms; and many Rutaceae are equally showy; for instance, the beautiful Correa speciosa, Crowea, and the species of Boronia. I also noticed some handsome Orchideae, particularly Corysanthes fimbriata; but there are not many of them in flower this time.

The north shore is the richest, the soil being better, and it producing a great number of Acacias. Casuarina is abundant, and of several kinds; and the Gum Trees (Eucalyptus) attain a greater development: their peculiarly growing foliage and smooth white bark give these trees a very marked aspect. On the virgin soil there is no turf whatever, though the Gramineae are abundant and varied.

The essential character of this Flora resides, in the great variety, in a small extent of country, of its genera and species, which are nearly all woody, and adorned with large, bright, and numerous, and strikingly, shaped flowers. At the time of my arrival, not a drop of rain had fallen for eighteen months; thousands of sheep and oxen had consequently
perished, and great distress prevailed in the colony; but during the four months of my sojourn at Sydney, showers fell frequently, and with almost tropical violence.

The climate is charming, the air exceedingly pure, and cool in the winter season, when those individuals who have resided in it long are apt to complain of feeling rather too cold. In the afternoon, the sea-breeze always blows; and I never beheld such glorious sunrises and sunsets; nor a more lovely moon, even in the Bay of Naples, or shining on the Campanile at Pisa. The stars may glow equally brightly in France; but the firmament in this hemisphere is richer in those of the first magnitude. In the constellations of the Southern Cross, the Centaur, the Argonaut, the Dog-star, the Scorpion, the Virgin, Boötes, &c., the individual stars are peculiarly large and bright. At this present time, Jupiter and Venus nightly adorn the sky.

Bunga-Bunha District, Archer's Station, Jan. 6, 1844.

I quitted Sydney, after having devoted six months to studying the Botany of its environs, with the assistance of R. Brown's "Prodromus," and the 7th Volume of De Candolle's great work. There were several tribes of plants, however, which I could not investigate; the Euphorbiaceae, for instance, because I had not the necessary books: among the other kinds, I made greater progress; and soon found myself competent to undertake some public herborizations, the first ever known in this colony, and to give a course of lectures on Botany, when I endeavoured to explain the structure of the different families of plants, and especially to direct the attention of the inhabitants, during their walks, to the more common and prevalent species, particularly Myrtaeae, Rutaceae, Proteaceae, Eupacridae, and Cycadeae.

At the close of August, 1842, I left the capital of New South Wales, and proceeded to the Hunter river, in order to investigate its geology, and especially the position of its coal formation. The mouth of the river is by no means so
productive of plants as the environs of Sydney; still there are some strikingly beautiful on the mountains of Newcastle, and the marshes close to that town. *Doryanthes excelsa* grows near Macquarrie Lake, often attaining a height of 12-18 feet; it also inhabits the mountain called the Sugar-loaf, between Newcastle and Maitland, and springs up, together with the *Grass tree* (*Xanthorrhoea*), among the huge blocks of pudding-stone. A noble, scarlet-flowered *Blandfordia*, is found in the marshes (but these are now generally dry), along with a profusion of *Melaleuca* (Tea trees), *Calothamnus*, with fine red blossoms, several *Leptosperma*, *Fabricia*, and *Baccharis*.

After a month's stay at Newcastle I ascended the river, and visited several interesting geological localities: Harper's Hill, where there are many fossil shells; and Blackcreek, of which I investigated the calcareous formation. I then fixed myself for some time at Glendon, a very large farm, the property of Messrs. Scott, who spared no pains to render my researches both easy and agreeable. I noticed a great difference in the Flora here, and even at Harper's river; the plants of the maritime zone having disappeared, and been replaced by those of the interior. A great variety of small herbaceous *Leguminosa*, and the little *Mimosa terminalis*, always spring up abundantly after rain; but this blessing is so scarce, that the proprietors are compelled to forego agriculture. Puddingstone is still the prevailing kind of rock, mingled with sand stone, of a coarser or finer grain, which often again passes into puddingstone. Coal exists in many spots, between Newcastle and Liverpool Range, and may be traced along the river banks and by the edges of the little streams which feed the rivers: as Glendon brook, West brook, and many others; and particularly on the burning mountain, Mount Wingen, which is nothing else than a mass of ignited coal, lying below the sand stone; the coal itself is full of the impressions of *fossil Ferns*. The commonest sort is one with a lanceolate frond, from an inch to two feet long; but there are many others, more or less allied.
to the genera of fossil Ferns already described. In the sand-
stone may be seen Ferns, Equisetaceae, Calamites, and trunks
of trees; this formation bears the action of the atmosphere
better than the argillaceous schist, which quickly falls
to powder. North east of Glendon runs a range of hills
and mountains of a totally different structure, they consist of
porphyritic field spar, of which I do not remember to have
ever seen specimens in the Museum. I think these hills are
raised by the puddingstone, sand-stone and a conglomerate,
which is rendered very hard by the igneous rock.

Northward, about thirty-six English miles from Glendon,
we come again upon puddingstone, and mountains of
basaltic formation, where I frequently saw imperfect zoolites.
I explored Mount Royal, a spur of these mountains, attaining
a height of three thousand feet, and itself one of the loftiest
in this part of the colony. The centre and highest portion
is basaltic, and the shoulders of sand-stone. The eastern
declivity is covered with a most peculiar vegetation, called in
the colony, Mountain Brush; and, in my opinion, much
allied to the virgin forests of South America. The beautiful
description by Mr. Waterton, in his Wanderings in South
America, is applicable, word for word, to the Mountain Brush
on Mount Royal, and equally so to the brushes on Bunya-
Bunya. This author seems as if he might have had Mount
Royal in his eye when he speaks of the variety of trees,
aggregated in a narrow area, rising to a great height before
they ramify; and intertwined by equally diversified climbers,
which latter ascend to the summit of the trees, and there
display their foliage and flowers. So again, herbaceous
plants are never seen in the interior of the brush, they are
confined to its skirts, or spring up in open spaces, where
light can penetrate, and the air have free circulation. The
Ferns are remarkably numerous and diversified, and it was in
the small ravines at the foot of this mountain, where the
vegetable soil is mixed with decomposed basalt, that I
gathered specimens of Alsophila from individuals fifteen feet
high and nearly a foot thick. The Brushes yielded me an
excellent harvest of rare plants; but for want of books I have not yet correctly determined them.

Liverpool Plains, one hundred and fifty miles from Glendon, were my next destination, and I soon after climbed the summit of the Liverpool Range, and had the pleasure of seeing the basin of the Hunter and Goulburn Rivers below me to the east; and immense plains, stretching far westward. The Liverpool range forms an immense basaltic ring round the basin of the Hunter, which latter is filled with sand-stone, pudding-stone, and conglomerate, incumbent on a bed of coal. Towards the coast, may be seen several basaltic dykes; their course is from south-east to north-west; and it is easy to trace their connection with the Liverpool Range, and to find the centre for the antediluvian igneous actions in the Pacific Ocean. Near the Paterson rise mountains, containing some calcareous formation, among which I was assured that Trilobites and Orthoceratites have been found. I was not so fortunate as to see any, though I discovered several impressions of shells in calcareous sand-stone near the foot of Mount Royal. I have not yet explored the basin of the Goulburn River, which is bounded on the west by granitic mountains; but I hope to do so on my return from Moreton Bay.

The Liverpool plains afford much novelty and interest to the Botanist. When I first traversed this singular district, an immense number of Composite were in flower; and I made a small collection, limited by the want of plant papers, all I had being some newspapers which the Messrs. Scott kindly gave me. It seems likely that these plains were originally the bed of a lake, or a chain of small lakes, in which rose many islands, generally formed of sand-stone and clothed with a forest composed of various species of Eucalyptus. The Callitris is common and much employed for building bush huts. I passed the Mokka, the Peel, and two other rivers on my way, to settle awhile at the source of the Gwydir. All these so-called rivers are now but ponds in their nearly dried beds, and may be crossed almost dry shod.
The channels are, however, very broad and full of rolled pebbles; indeed, two separate channels may be often seen; the inner one, where there is yet some water, and which is fringed by a thick scrub on each side of *Casuarina* (Swamp oak); and the other filled with sand and rolled stones, and here and there a stout *Gum tree*, which has succeeded in braving the force of a stormy deluge, or of many weeks' incessant rain.

Between the Peel and the Wamoy rivers, the forest vegetation changes; and instead of travelling under *Spotted Gums, Box*, and *narrow leaved Iron Bark*, there is only seen a dense growth of *Silver-leaved Bark*, with its grey green foliage.

A range of trachytic mountains separates the Wamoy and Gwydir, near the sources of the Rocky Creeks, which is a stream tributary to the Gwydir. I examined these mountains as closely as my limited and rude instruments and means of investigation would permit.

Westward of these mountains may be seen the Big River, pursuing its course to join the Wamoy, which, lower down, is called the Bavan and still nearer to its mouth, the Darling. This and several other streams take their rise in the high table land of New England; and they all unite near the Darling, passing alike amid mountains of granite, basalt, and quartz, and being full of water in their upper part; but invariably dwindling, after they leave the mountainous region, till, on approaching the western plains, their dry beds contain little else than sand, except in the season of the heavy periodical rains.

It is most interesting to see how the showers, which fall on the table-land of New England, not twenty English miles off the eastern coast, take a course of one thousand miles, to water the country and to issue finally into the southern ocean. The land, lying between the Severn and Condamine rivers, is a plain, called by the colonists, *Bricklow Scrub*, the *Bricklow* being an *Acacia*, with long and stiff greyish phyllodia, which often grows associated with *Forest Oak*, a *Casuarina* and many sorts of brushwood, *Iron Bark*, and a
species of *Banksia*, the only one which is seen at a distance from the sea. The soil is very sandy, except on a few spots near the streams, where it is mingled with clay and vegetable earth; and here the *Apple tree* of Australia (*Angophora lanceolata*), thrives well. In the same way, as the *Bricklow* characterizes this part of the country, so does the *Myall* (*Acacia pendula*) seem confined to the plains of the Liverpool, Gwydir, and Big Rivers. It has *phylloidia* and pendant branches, which droop like those of a *Weeping Willow*, and its wood exhales a delicious perfume, resembling violets. The black people make their *boomerangs* of it; this warlike instrument seems to be in the hand of every native throughout the vast continent of Australia.

The Condamine is the first river that does not belong to the same genus, so to speak, as the Bavan or Darling; for it quickly takes a northward direction and probably pours its waters into the Gulf of Carpentaria, describing a curve similar to the Bavan. The Darling Downs begin after you pass the Condamine; they consist of undulated and open country; and their black, rich, and basaltic soil, is covered with different *Gramineae*, one of which, the *Satin Grass* (*Antheristira*), forms the principal food of the numerous flocks of sheep which rapidly increase in such a favourable locality. A new kind of *Gum tree*, called the *Moreton Bay Ash*, is frequent on the hills; it is distinguished by the lower part of its trunk being covered by a very broad scaly and black bark, while the upper portion is white, or greyish, and quite smooth. Here and there, on the plains, grows a *Xanthorrhoea* of a totally different character from *X. hastilis*, affecting a rich soil, while *X. hastilis* is only found on the poorest sand, and attaining 10-15 feet high and a foot in thickness.

In one of the streams, (Hudson's Creek) is a bed of coal—a remarkable circumstance, in an entirely basaltic soil. The alluvium of the valleys, and the river banks, especially those of the Condamine, contain fossil bones; but my endeavours to procure any proved fruitless. It is not, however, to be doubted, that the petrified bones, though not the teeth, of elephants, have been found here; but it would seem to me
too hasty a conclusion thence to argue that this animal has ever inhabited New Holland in a living state. Rather, I should suppose, that the basaltic system has materially aided in heaving this continent above the waters; and it appears likely that the bones may have been deposited there while the continent was still in a submerged state, wafted thither from India or the large islands between that Peninsula and New Holland.

The Darling Downs are 1450 feet above the level of the sea; and the nights feel very chilly even during September and October. The slope down towards Moreton Bay is very rapid and similar to that of New England to Macquarrie Harbour. Immediately on entering the basin of the Brisbane River, vegetation assumes a more vigorous aspect, and the trees grow higher and at wider intervals. The sides of the mountains, the banks of the streams and rivers, are clad with almost impervious brushwood.

From Moreton Bay, in a northerly direction, Bunya-Bunya, my present sphere of action, lies sixty miles distant. This place is so named from the quantity of Araucaria* or Bunya Bunya, which grows here in the mountain brushes. From this spot a quarter of an hour takes me to the virgin forest or to one of the creek bushes, flowing from the Bunya mountains, which latter separate the valley of the Brisbane from that of Wide Bay River. The direction of these mountains is east and west; they join the coast range and ramify considerably towards the south, and upon their sides spring many streams, tributary to the Brisbane. Dixon's map is most erroneous, as regards the part north of Moreton Bay. The rock is of various kinds, especially syenite and granite; quartz seems entirely absent to the east of the chain and at Mount Brisbane, where Hornblende and Feldspar prevail, or prophyratic Hornblende. There is still another Feldspar rock, often seen in the rivulets of these mountains, and probably belonging to the epoch of the Glasshouses, a name given to five fantastically formed solitary

* Araucaria Bidwilli, Hook. See vol. 2, p. 498, Tabs. 18 and 19 for a description and figure of this remarkable coniferous plant.
peaks, south of the Bunya-range, and twenty English miles distant from the sea, each of them known to the natives by a distinctive appellation. The rock of the Puy de Dome and of Larooni is strikingly analogous to that of the glass-houses; and it is a remarkable circumstance that the general aspect and configuration are also much alike. Is it not a curious fact that I have not been able to detect the least appearance of metals of any kind, nor of precious stones? I have often seen mica as bright as gold dust, but nothing else; as if science were determined I should serve no other master, nor reap other resources than hers!

But how can I adequately convey, in words, any idea of the Bunya brush, especially of that majestic tree, the Bunya, whose trunk looks as if designed for a pillar to bear up the arch of heaven, and on the fruits of which, the blacks come every year to regale themselves for two or three months (January, February, and March). It was equally hard to describe the variety of plants and shrubs which grow in this bush, covering, as it does, an extent upon the mountains equal to fifty English miles of length and breadth. The Castanospermum australe* grows both here and near the river and streams, often attaining the height of eighty to one hundred feet, and producing its little bunches of red and yellow flowers, which sprout out of the wood at the same time as its compound and deep green leaves are developed near the tips of the branches. I met with another tree, of the same family, on the mountain, and not among the brush; its wood is very spongy, and the natives employ it to make their halimans or shields, the bark is covered with corky tubercles. The flowers are large and red, and the foliage tereate, each leaflet being petiolate and triangular with the angles rounded. I think it is an Erythrina.

There are two other Leguminous trees in the Brush, one adorned with rich racemes of yellow blossoms, and the other belonging probably to the Mimosea: its leaves bipinnate, and the leaflets elliptic-lanceolate, larger towards the end than

those at the base, its pods twisted like a cork-screw. Four others are Proteace; viz.: the Wairum, with very rigid, long, and pinnate lobed foliage, the Silver oak (Grevillea robusta); the Dulabi with lanceolate leaves; and another, of which the lower surface is beautifully silvery. In all these four species the medullary rays are seen very distinctly through the wood. There are several singular trees belonging to the Malvaceae and Sterculiaceae, one which the colonists call Bottle tree, because the trunk swells at about 3-4 feet above the ground; its bark is very hard, but the wood soft and spongy and full of juice. I have never seen the flower of this tree; but its fruit is a capsule, very similar to that of Sterculia; the blacks eat the seeds. Another, called Bauni-Bauni, forms a very large tree, with thick bark and spongy wood; it has very large and long slightly cordate leaves: the bark contains a gelatinous transparent substance, which adheres to the fingers. A small tree or shrub, with tubular scarlet blossoms, grows on the mountains among the rocks. On the sea-beach I saw a Malvaceous shrub, or small tree, producing foliage similar to a fig and large Hibiscus-like flowers: its wood is hard and of a lovely deep, velvety, yellow at the heart. I also found two other species of Hibiscus, (H. heterophyllus), which grows almost everywhere in the colony, and of which the tenacious bark forms excellent natural ropes: this species has white or reddish flowers, the base of each petal and the stamens being deep purple. The other kind is yellow-flowered, and a third, with foliage resembling that of a fig, produces pink blossoms.

Araucaria Cunninghami, the Moreton pine, called by the aborigines Gunam, grows in all the bushes by the river and the streams; it attains the stature of a lofty tree, its beautiful crown towering above all the rest: another species inhabits the brush of the Cerde-Bay River, and is known to the natives by the name of Danda-jam. I have heard that still another species may be seen near the sea-shore. The Cypress-pine (Callitris) is frequent on the sandy beach of the coast.

I am about to send home collections of the plants of the
Brush, also of the different kinds of wood, both from the Brush and the forest near Moreton Bay; and I have preserved the fruits in salt water and shall forward them with my specimens of rocks; for I think that geologists have no idea what a variety of formation exists in New Holland.

It has been proposed to undertake an expedition from Sydney to Port Essington, on the north coast of New Holland; but the government is too poor. Still it is much to be desired that it should be done, one time or other, either at the public expense, or by the efforts of the colonists.

We have seen the comet from the 3rd of March to April, 1843. All the country that I have traversed is, with slight exceptions, occupied by proprietors of sheep and cattle; their stations lying from twenty to thirty miles apart. Sometimes I have travelled upon my good Valparaiso mare, with no other companion than a faithful pointer bitch; and encamped alone at night on the mountain or in the forest, my own cook, groom, washerwoman, and naturalist. Everywhere the people, when I was fortunate enough to fall in with them, showed me great hospitality; and occasionally I have made acquaintance with some of the most respected persons in the colony; still, I have now and then been brought to such straights, that I have thought I must infallibly give up my studies and betake myself to some labour by which I might gain my bread. Your letter gave me much hope and pleasure. It is remarkable that I have gathered here a little plant, very similar to that you sent me from the marshes of Tuscany, Hypericum quinquinervium. Walt. Sarothra (Blentinensis, Sav.) I enclose in my letter some flowers of the tree that I have described as having ternate leaves, and its wood soft and spongy that is used by the blacks for their shields (halimans). These blacks are interesting creatures. Living much among them, I have had the opportunity of watching their peculiarities. Though now forming several powerful tribes, it cannot be doubted that they will soon disappear before the progress of civilization; and while philanthropy
deplores this result, it is quite evident that none of the many means, hitherto employed to preserve them from destruction, is likely to prove successful. It seems fore-ordained that these races shall vanish from the earth to make way for the Caucasian race, though all are endowed with the same passions and the germs of similar virtues. From what I have seen, I conclude that the natives of this part, at least of New Holland, are by no means stupid or incapable of learning; but an education of two or three, or even twenty years, will not do much for them; it is the education of successive generations which is requisite; and alas! even ten years will have wasted these people nearly away, so fatal are the consequences of small pox, and other introduced maladies, so baneful the effect of spirituous liquors.

Sydney, July 12, 1844.

I have organized a party of six persons (four whites and two blacks); and with six riding horses and as many mules carrying provisions, we are about to start for Port Essington, distant 2000 English miles! Heaven only knows whether we shall ever accomplish this journey! I have sent a collection of plants to the museum of the Jardin des Plantes, which I hope may give satisfaction; but let it not be forgotten that these specimens were gathered in a country where I was in frequent risk of my life, and where every energy was required to enable me to travel, and partially to endure, fatigue, hunger, and thirst! I was compelled to cut down wood for firing, with my own hands, and to cook my food, while I was also a geologist and botanist, and to wash my own linen and dry my specimens, often passing ten days and a fortnight in the forests, without any companion but my horse and my dog. If I had not occasionally been assisted by friendly and hospitable individuals, I must have been compelled to relinquish my journey, and to discontinue my collections. Such as the latter are you will see them: they were gathered in an area of country six hundred miles long and three hundred miles wide.
Podaxxon pistillaris
There are many geological specimens, which I send to Dr. Nicholson of Newcastle.

My herbarium is extensive, and contains a number of things which I do not know, and which I hope to study when I return from Port Essington. The *Leguminosae* are a rich tribe; but I found very few *Proteaceae* at Moreton Bay; not above four or five. You may observe, in my paper published in *Jameson's Journal*, that very fine *fossil-bones* are found on the Darling Mountains. I have sent a specimen to Mr. Richard Owen, who had kindly given me an introductory letter to Sir Thomas Mitchell of this colony.

__Description of Podaxon pistillaris, Fries; by the Rev. M. J. Berkeley, (with a Plate, tab. X.)__

**Podaxon Pistillaris** Fries. Syst. Myc. v. 3. p. 63.
Hab. Cape de Verd Islands. In an exposed valley near Porto Praya, growing amongst grass on the dry ground, *J. D. Hooker.*

**Peridium** 1\(\frac{1}{4}\) unc. longum, 1 unc. latum, discretum, basi a.
stipite laciniiis paucis subacutis dehiscente, tenue, rigide\(\text{papryraceum, primum croceum, demum fulgineum croceo-

maculatum, squamis paucis latis vestitum. *Stipes* 5 unc.
longus, sursum attenuatus, medio 2 lin. crassus, plus
minusve bulbosus, e fibris tortis compositus, sericeus,

squamoso-maculatus, massam fructiferam omnino percur-
rens, apice modice dilatato, intus pallide miniato-croceus,

fistulosus, floccis laxis pallidis rigidiusculis chordam fil-

amentosam formantibus farctus. *Capillitium* ellipticum, 1\(\frac{1}{4}\)
unc. longum, \(\frac{1}{3}\) unc. latum, miniato-ferrugineum, stipite per-
cursum; flocci e stipitis filamentis reflexi, et demum pro
magna parte quoad illum perpendiculares, inarticulati, rectiusculi, sursum attenuati ramosique, leviter sinuosi. Spore numerosissimae, plus minusve conglomeratæ, irregulariter lato-ellipticas, brevissime v. obsolete pedicellatæ; guttula globosa minima.

The discovery of Podaxon pistillaris, an Indian plant, in one of the Cape de Verd islands, was perhaps scarcely to be expected. It differs much in colour from the more sombre forms of the genus which occur in Egypt and along the coast through Senegal to the Cape of Good Hope. The genus occurs also in Australia.

Full grown specimens only of this very curious fungus have been hitherto obtained, which vary a little in intensity of colour. The original specimen described by Linæus, exists still in the herbarium of the Linnean Society. In some specimens the stem is much more decidedly bulbous than in others; in that from Porto Praya it is but slightly swollen below, and nearly solid at the base, rooting slightly into the soil and covered with a few cottony threads. In the Linnean specimen, and that figured by Greville, the stipes is very decidedly swollen. The colour of the spores and capillitium almost exactly resembles that of the substance called crocus, by watch makers. The fruit bearing threads are reflected from the stem being continued from it, and if I have seen correctly partly arise from ascending and partly from descending filaments; they are thick and rigid at the base, but slightly branched and becoming more slender above. The spores are collected in little pellets, amongst which are the half absorbed remains of the primitive cellular tissue. The stem is clothed with broad filmy scales, as is also the pileus; but whether these constitute or not, in an early stage, a coat of the peridium, is uncertain. The stem passes completely through the capillitium, is slightly dilated at the apex, and has, I suspect, at an early stage, a thin inner peridium attached to the fructifying mass as is seen in P. carcinomatis.

In this species the flocci appear to be inarticulate and to present no peculiarity of structure; but in P. carcinomatis
I find here and there a thread containing a single spiral filament, or itself breaking up into a flat spiral and twisted fillet. In that species too the floci are in general much more undulated and sometimes even curled. There can be no doubt but that this, like other Podaxineae, belongs to the division of sporophorous Fungi; but a proper comparison and correct appreciation of the different parts cannot be made without the examination of specimens in a much earlier stage of growth than any which have hitherto been submitted to the mycologist.—M.J.B.

Plate X., fig. 1, P. Pistillaris nat. size; f. 2. The same cut through vertically nat. size; fig. 3, floci highly magnified; fig. 4, floci and spores, highly magnified.

Algae Antarciticæ, being characters and descriptions of the hitherto unpublished species of Algae, discovered in Lord Auckland’s Group, Campbell’s Island, Kerguelen’s Land, Falkland Islands, Cape Horn and other southern circumpolar regions, during the voyage of H.M. discovery ships “Erebus” and “Terror,” by Dr. J. D. Hooker and W. H. Harvey, Esq. M.D.

(Continued from p. 276.)

Chlorospermeæ Antarciticæ.

Cladothele. Hook. fil. et Harv.

(Genus novum Siphonearum.)


Hab. In the sea, at Berkeley Sound, Falkland Islands.

A very curious plant, certainly related to Codium, especially to C. simpliciusculum, by the structure of the papillae that cover the surface, and from which we have derived the generic name, but with an axis of very different structure from that of Codium or of any other siphonous genus. It indeed more closely resembles that of Polysiphonia. In the specific name we wish to pay a deserved compliment to our friend M. Decaisne, who has thrown so much light on the affinities of the corallinoid Algae, related to Siphonae.

64. Conferva Falklandica, Hook. fil. et Harv.; filis densissime caespitosis flaccidis luteo virentibus flexuosis intricate ramosissimis, ramis secundariis longissimis subsimplicibus undulatis flexuosis, ramulis patentibus distantibus brevibus secundis, articulis granuliferis diametro 3-5plo longioribus.

Hab. On muddy rocks, St. Salvador’s Bay and Berkeley Sound, Falklands.

Tufts 6-10 inches long, densely matted, composed of branching, interwoven, very flexuous slender filaments, bundled together like locks of hair. The most striking characters of the species are, the wavy branches, and the great length and simplicity of the lesser branches, furnished more or less with short, patent, secund ramuli.

65. Conferva incompta, Hook. fil. et Harv.; filis intricatis incomptis atro-viridibus opacis rigidis setaceis tortuosis vix ramosis, ramis nunc longe nudis, nunc ramulis brevibus pectinatis circinato-inflexis ornatis, ramulis ultimis secundis v. alternis patentissimis obtusus approximatis remotisve, articulis diametro 3-4plo longioribus.

Hab. St. Martin’s Cove, Cape Horn.
Forms entangled, stratified tufts. Filaments much interwoven, twice as thick as those of *C. simpliciuscula*, very irregularly divided; the branches flexuous, and often naked, but here and there set with comb-shaped, involute ramuli, something in the manner of *C. flexuosa*. Colour dark and dull. Substance very rigid, when dry, and not adhering in the least to paper.


Hab. On sea-weeds, stones, and shells, Falklands and Cape Horn.

Forms entangled, dirty green tufts, without gloss. Filaments an inch or two in length, very distantly and irregularly branched, with a few distant ramuli. Allied to *C. riparia*, but more robust; also to *C. flagelliformis*, Suhr. but the habit is very different. It does not adhere to paper.


Hab. In the sea, Christmas Harbour, Kerguelen’s Land.

Filaments 4-5 inches long, interwoven at base into a dense stratum, above which the long spicles float freely in the water.

68. *Conserva angulata*, Hook. fil. et Harv.; fluitans vel reptans, filis simplicibus tenuissimis brevibus strictiusculis hic illic increassatis et angulatis, ad angulum radiculam vel ramulum abnormalem emitentibus, articulis diametro 4-5plo longioribus coloratis, endochromate siccitate contrahente.

Hab. Fresh water, Kerguelen’s Land.
Near *C. bombycina*, but distinguishable by its greater straightness and rigidity, the angular curves, incrassations and radicles. The incrassations are scarcely of the character of the inflations in Mr. Hassall's genus "*Vesiculifera."

69. *Conferva Sandvicensis*, Ag; filis tenuissimis simplicibus longissimis in funiculos flavo-virides implicatos intertextis, articulis diametro duplo longioribus.—*Ag. Syst.* p. 92.

**HAB.** Falklands, in rills of fresh water.

Rope-like bundles 12-14 inches long. Filaments exceedingly slender, not more than one-third the diameter of those of *C. rivularis*, of which this species has very much the habit. Agardh's character of his *C. Sandvicensis* agrees so well with our specimens that we think it probable our plants may prove the same.


**HAB.** Falkland Islands, on the roots of an umbelliferous plant in fresh water.

Filaments a quarter of an inch long, investing the roots on which they grow with a yellow, green down. The genus is somewhat doubtful; but we think it, at least, strongly allied to *D. tenus*, Ag. which it resembles in miniature, but the ramuli seem deficient in the setaceous apices.


**HAB.** Falkland Islands, on a dead rabbit.

Threads about half the diameter of those of *L. muralis*, and exceedingly fragile. Stratum thin, somewhat shining, yellow green.

72. *Calothrix olivacea*, Hook. fil. et Harv.; cæspite majuscule intense olivaceo erecto, filis sub lente luteo-glaucis flexuosis in funiculos crispatos tenaces coherentibus, per totam longitudinem sæpius connexis, nunc apice liberis plumosis, endochromate denso opaco vix striato.
HAB. Kerguelen’s Land, in alpine rivulets.
Tufts extensively spreading, about \( \frac{1}{4} \) an inch high, of a very dark, blackish olive colour. Threads much thicker than those of *C. distorta*, very flexuous, cohering often for their whole length in crisped bundles. Colour, under the glass, glaucous, with a golden tint.—A very pretty species.


HAB. Kerguelen’s Land, in rivulets among the hills, 3,700 feet.

Covers mosses and water plants, with a gelatinous, purple pellicle, more transparent than common in the genus. In a dry state the filaments, which, under the highest power of the microscope are seen as thin lines, are of a fine purple colour, and fringe the stratum to nearly \( \frac{1}{4} \) inch depth.

74. *Sphaerozyga tenax*, Hook. fil. et Harv.; strato fluctuante definito gelatinoso lobato tenaci æruginoso, filis densissime intertextis flexuosis sub lente glauco-viridibus moniliformibus hic illic articulo majori elliptico interruptis.

HAB. Falkland Islands, in fresh water.

With a gelatinous stratum, nearly as firm as that of *Nostoc caeruleum*, this presents all the essential characters of *Sphaerozyga*; to the naked eye it resembles an *Oscillatoria*. It is a species of large size.


HAB. Kerguelen’s Land, on rocks in the sea.

Frond 1-2 inches high, dull green, leafy. Structure very similar to that of *U. crispa*, but the habit and habitat is that of *U. latissima*. Some of our specimens are profusely covered with sphaerical bodies, immersed in the frond, and resembling the capsules of a *Nitophyllum*, which probably are incrassa-
tions, caused by the puncture of some minute animal. They appear to be hollow, but their walls are greatly thicker than the rest of the frond. Under the microscope, this species has the character of a fine piece of mosaic pavement.

76. Palmella anastomosans, Hook. fil. et Harv.; viridis in-crustans furfuraceo-rugosa carnoso-membranacea e cellulis hyalinis in fila anastomosantia foliaque clathrata coagulatis composita, granulis binis oblongis viridibus.

Hab. Kerguelen’s Land, on rocks in crevices.

It is difficult to say whether this species should be referred to *Palmella* or to *Ulva*. It has a firmer and more membranous substance than most *Palmella*, and a thicker frond than any *Ulva* with which we are acquainted. Yet the frond seems composed of a single stratum of cellules, and therefore perhaps it might be admitted into *Ulva*, where it would stand near *U. furfuracea*.

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**Decades of Fungi; by the Rev. M. J. Berkeley, M.A. F.L.S.**

*(Continued from p. 73.)*

**Dec. VIII.—X. **Australian and North American Fungi.

*(Tabs. xi. and xii. fig. 1—5.)*

71. Sphaeria (Concrecentes) *elevata*, n. sp.; elongata emergens rimosiuscula; perithecii subsparsis globosis mediis collum conicum vix excedentibus ligno immersis; ostiolo punctiformi; sporidiis curvatis opacis mediis.—*Drumm.* n. 225 (in part).

On dead wood.

Forming elongated, raised, irregular black or greyish spots, \(\frac{1}{2}\) a line thick, \(\frac{1}{2}-1\) inch long. Perithecia globose, middle-sized, with a conical neck, immersed in the wood, scattered, covered with a thin, black stroma; ostiola punctiform, not very visible externally. Asci clavate, containing an indefinite
number of curved, opaque, sporidia, which are far larger than in the neighbouring species.

Resembling *S. lata*, but distinguished by the much larger, opaque sporidia, which are contained in clavate asci. In *Spharia lata* the asci are much more slender, and the sporidia minute and pellucid.

* S. *rosella*, A. and S.—*Drumm*. n. 185.

On charcoal.

72. *S. (Villosse) pulvinulus*, n. sp.; sparsa, subglobosa demum collabenti-depressa astoma hirsutiuscula atra; sporidiis irregulari-subellipticis plurisepptatis; ostiolo obsoleto.—*Drumm*. n. 225 (in part).

On dead wood.

Scattered, black, subglobose, at length collapsing and depressed, clothed with short pubescence. Sporidia irregular, subelliptic, divided by transverse and longitudinal septa.

This species differs from all the species of the tribe with which I am acquainted in its sporidia. It resembles most *Spharia hirsuta*. The sporidia are just like those of *Sph. Laburni*.

* S. *sanguinea*, Sibth.—*Drumm*. n. 225 (in part).

* β *media.—*Drumm*. 212 (in part).

73. *S. (Denudatae) inspersa*, n. sp.; conferta et sparsa, minor, atra; perithecii subglobosi rugulosus rigidiusculis; ostiolo obsoleto.—*Drumm*. n. 212 (in part).

On dead wood.

Either scattered or forming crowded patches on bleached wood. Perithecia minute, globose, jet black, slightly rugose astomous. Asci linear; sporidia elliptic, brown.

Nearly allied to *Sph. pulveracea*, but differing very much in the spores, which in that species are fusiform, and divided into four distinct cells.

* Hysterium elongatum*, Wahl.—*Drumm*. n. 225 (in part.)

74. Agaricus (Clytocybe) *ochro-purpureus*, n. sp.; pileo subhemiisferico demum depresso carnoso compacto lento pallide alutaceo leviter purpurascens; cute facile secernibili; margine inflexo primum tomentoso, mycelio albo. Stipite
pallidiores hic illic purpuracente, medio tumido. Lamellis
crassis non connexis purpureis postice latioribus decurren-
tibus.

On clayey soil in woodlands. T. G. Lea, Esq. Ohio,
n. 261.

Pileus 2 inches across. Stem 2½ inches high, ⅔ of an inch
thick in the centre, solid, above deflexo-squamose, occasion-
ally equal.

This species resembles in most points Ag. tyrionthinus;
but the gills are thick and distinct, resembling those of Ag.
laccatus, and the mycelium (at least in the dry plant,) is white.
The spores when dry are of a palish yellow, but Mr. Lea
in his notes describes them when fresh as white.

This, and the greater part of the following species, are
described from a very rich collection of Fungi, consisting of
above 280 species, from the neighbourhood of Cincinnati,
kindly sent to Sir W. J. Hooker by T. G. Lea, Esq., and
accompanied in many instances by very copious and va-
luable notes. The collection has furnished a large quantity of
interesting species, first made known in his memoirs by
Schweinitz, some very rare European forms, and a consider-
able number of new species, the most important of which
are here described. I have myself corresponded on the sub-
ject with their discoverer, and can bear witness to his great
kindness and zeal; and I have no doubt that mycology will
be further enriched by his labours.

75. Agaricus (Mycena) Leianus, n. sp.; pileo convexo
umbilicato tenui margine striato minutissime miniato-virgato
stipiteque longo deorsum tomentoso strigosoque aurantiis
viscosis; lamellis distantibus ventricosis postice sinuatis ad-
nexis aurantiis, coccineo-marginatis.

On a dead trunk, Ohio, May. n. 214. T. G. Lea, Esq.

Pileus rather more than ⅔ an inch broad, convex, umbili-
cate, orange, clothed with a viscid cuticle, smooth, wrinkled
when dry; margin striate and slightly virgate, with vermil-
ion flocci. Stem 2½ inches high, not 1 line thick, orange,
smooth and viscid above, with a few indistinct, darker specks,
below clothed with matted, tawny down, and strigose flocci, stringy, attached to dead leaves, &c. by a creeping, strigose, orange mycelium. Gills distinct, broad, ventricose, remarkably sinuated behind, adnexed, orange, with a vermilion margin.

Resembling somewhat Ag. coccinellus, but probably more closely allied to Ag. pelianthinus. The pileus when dry has somewhat the appearance of that of Ag. palmatus, in consequence of its viscid cuticle. It must be a most beautiful species when fresh. Mr. Lea mentions that the spores are orange. I do not find this to be the case in the specimens; and as the spores, in well-dried Cortinarie, are always visible enough, I think there must be some mistake in this point. I have little doubt myself that the species belongs to the division Mycena.

76. Agaricus (Galera) mucidolens, n. sp.; olidus, pileo pluteiformi lobato glabro nitido viscido fuligineo; stipite fibrilloso, lamellis liberis.

On rotten trunks, in woods, Ohio, April, n. 215. T. G. Lea, Esq.

Pileus 2-3 inches broad, of a dull, smoky brown, viscid. Stem 2 inches or more high, clothed with brownish fibres. Gills free. Spores dull, ferruginous, broadly subcymbiform, with a small nucleus. Smell, like that of decayed cheese.

Allied to Agaricus reticulatus, but differing in several points, and especially in its dull, ferruginous, not croceoferruginous spores.

77. Lentinus sulcatus, n. sp.; parvus, pileo primum subconico, demum hemispherico, carnosulo diffracto-squamoso sericeo-virgato rufescente, margine sulcato; stipite centrali brevi solido subconcolore furfuraceo; lamellis distantibus latiusculis subcrassis postice emarginatis pallidis.

From the cracks of dry, hard, fence rails, May, Ohio, n. 212. T. G. Lea, Esq.

Pileus not ¼ of an inch broad, hemispherical or nearly so, at first slightly conical, of a more or less rufous tint, broken up into irregular scales, sericeo-virgate; sometimes the
scales are more or less indistinct, fleshy, margin deeply sulcate, at least when dry, the raised interstices darker, which gives the pileus a very neat appearance. Stem about \( \frac{1}{3} \) of an inch high, 1\( \frac{1}{2} \) line thick, often slightly attenuated downwards, solid, of the same colour as the pileus, furfuraceous, sometimes confluent. Gills distant, broad, subventricose, emarginate behind, very slightly annexed, pallid, rather thick, indistinctly toothed.

This very pretty species is allied to *Lentinus scleropus*, &c. It appears to be undescribed and there can be no difficulty in recognising it. In consequence of the striate and sulcate margin, it bears at first sight a certain resemblance to *Agaricus alutaceus*.

*Lentinus tigrinus*, Fr. A most remarkable state of this species has been found by Mr. Lea (n. 245) in which the gills have anastomosed, until the whole pileus and gills have become a hard, solid mass. At first sight it has quite the appearance of a new genus; but I am convinced that it is merely a very curious, but monstrous state of our European species.

78. Polyporus (Mesopus) *tabulaformis*, n. sp.; pileo orbiculari centro crasso margine tenui sublobato subzonato prolifero-rugoso velutino hic illic fasciculato-pilosus ferrugineobadio; contextu ferrugineo divergenti-fibroso; stipite centrali brevi obtusissimo in pileum effuso; poris parvis irregularibus pileo concoloribus.

Augusta, U. S. Mr. Wray.

Stem central, oboonical, very obtuse, 1\( \frac{1}{4} \) inch high, 2\( \frac{1}{4} \) thick in the middle, gradually effused into the pileus. Pileus somewhat imbricated below, above prolifero-rugose, thick in the centre, thin towards the margin, 7\( \frac{1}{4} \) inches broad, orbicular slightly lobed and zoned, clothed with velvety down, which is here and there fasciculato-pilosus, especially in the centre, of a rich ferruginous bay. Substance ferruginous, divergenti-fibrous. Pores small, one-fiftieth of an inch in diameter, irregular, rather deep, of the same colour as the pileus; dissepiments thin, edge irregular.
Closely allied to *Pol. holophaeus*, Mont. and *Pol. hispidus*, Fr., but especially to the former. The colour of the pileus and pores is, however, far lighter than in that species, and the habit different. The substance of the pileus has not at all the yellow tint of that of *Pol. hispidus*, and the border of the pileus scarce exceeds \( \frac{1}{2} \) of an inch in thickness, and is sometimes not half so thick; the habit is very much that of *Hydnum ferrugineum*.

79. Polyporus (Apus) *conglobatus*, n. sp.; pileis suberosis erumpentibus arctissime imbricatis massam globosam efformantiumibus, arcuatis, rugosis fusco-purpureis margine pallido; postice leviter laccatis; hymenio brunneolo; poris punctiformibus; dissepimentis obtusissimis.

On beech bursting through the bark, Ohio, n. 117. T. G. Lea, Esq.

Forming a compact, globular body, 4-5 inches in diameter, consisting of closely pressed, curved, imbricating pilei, united at the base into a mottled mass, consisting of bark highly impregnated with the mycelium, purplish brown behind, where it is laccate, with a dark bloom, pallid in front, substance corky, rather soft, ferruginous. Hymenium concave, scarcely conspicuous without dividing the pilei, brown. Pores very minute, punctiform, pale within; interstices perfectly even, obtuse.

The mass behind is sometimes perforated by the larva of some insect, which makes large channels through it. It is, I believe, sweet-scented when fresh.

This is one of the most remarkable species with which I am acquainted, and very distinct in habit from every species except *Pol. graveolens*, Schwein. The section is very peculiar, and quite different from that of most other species. The inner substance of the bark, as it were, swells till at last the outer layer is ruptured, and the mass of pilei protruded, which is continued from the substance of the bark.

Schweinitz has described no Polyporus at all resembling it,
with the exception of Pol. graveolens, from which it differs in its pilei, not being spathulate, its softer substance, and larger pores, which, though minute, are visible to the naked eye. Pol. graveolens occurs on the different species of oak, this on beech.

80. Polyporus (Apus) obductus, n. sp.; pileo sessili reniformi lobato tenui glaberrimo pellicula gelatinoso-cartilaginea flavida vestito, sicco fragilissimo, contextu albo; hymenio albo, poris laceratis, disseipimentis tenuissimis.

British North America. Dr. Richardson, 1827.

Pileus 5 inches broad, 2½ inches long, stemless, reniform, with a few rounded lobes, thin, about 1¼ line thick; substance white, vanishing completely towards the margin, clothed with a yellowish, gelatinoso-cartilaginous pellicle, which under a lens is slightly wrinkled, perfectly smooth, very brittle when dry, margin extremely thin. Pores white, finely toothed, disseipiments extremely delicate, about ⅘ of a line deep.

A very curious species, whose nearest affinity is perhaps with P. aureolus. When fresh, it is probably a juicy species, though very rigid and brittle when dry. The coat of the pileus is apparently nearly of the same nature as that of Agaricus mastrucatus.

81. Polyporus (Resupinatus) niger, n. sp.; resupinatus crassiusculus pileo vix ullo; hymenio nigro; poris minimis punctiformibus intus umbrinis, disseipimentis tenuibus.

On rotten trunks, Ohio, March, T. G. Lea, Esq. n. 112.

Elongated, entirely resupinate, except at the very edge, where it is slightly raised, dark brown and pubescent; substance, where it is not quite obsolete, dark brown. Hymenium black. Pores very minute, punctiform, 2 lines deep; edge very minutely tomentose with black down, umber within, disseipiments thin.

Nearly allied to Pol. tephoropus, (formerly, P. Surinamensis, Mont.) with which it agrees in many respects. The hymenium, however, is jet-black, instead of cinereous, and the inside of the tubes is umber. Like it, it is slightly raised at
the edge, and the substance and exposed portion of the pileus are dark brown. The dissepiments, also, in Dr. Montagne's fungus are thicker.

There is always some doubt about resupinate species, if they exceed a line in thickness. There is, however, no known species of which this can be a state. The same also may be said of Dr. Montagne's *Pol. tephroporus*, though it comes very near to resupinate specimens of *Pol. caperatus*, which I have from British Guiana.

82. *Trametes incana*, n. sp.; pileo laterali duro suberoso explanato dealbato glabro, contextu albo; stipite brevissimo disciformi; hymenio albido; poris parvis subrotundis, acie obtusa.

On dead trunks, Ohio, n. 225. T. G. Lea, Esq.

Pileus 8 inches broad, 4½ inches long, attached by a very short, lateral disciform stem, flabelliform, smooth, opaque-white, zoneless, or with a few obscure depressions, and short, radiating grooves; substance hard, corky, white, 1 ½ inch thick; margin subacute. Hymenium even of a very pale ochre; pores small, one-sixtieth of an inch in diameter, mostly roundish, here and there forming linear or curved sinuses. Sometimes the stem is accidentally elongated.

Resembling somewhat *Daedalea ambigua*, and certain states of *Lenzites repanda*, but distinct from either.

83. *Daedalea ambigua*, n. sp.; pileo suberoso crasso convexo azono dealbato glabro; hymenio subalutaceo; poris parvis sinuosis acie obtusa.

On dead trunks, Ohio, n. 117. T. G. Lea, Esq.

Pileus sessile, dimidiate, 6 inches broad, 3 inches long, 1½ inch thick, convex, zoneless, opaque-white, as if white-washed, smooth, or most minutely pubescent in the younger parts only, of a hard, corky texture, white within. Margin at first very obtuse. Hymenium rather concave, of a pale tan-colour, pores small, narrow, sinuated, moderately deep, dissepiments obtuse.

This species approaches closely to some states of *Lenzites repanda*, Fr., but it is a true *Daedalea*, the pores being at first
punctiform, and not radiating from the centre. There is no species of that genus with which it can be confounded.

It certainly is very near to the foregoing species, but the pores seem to me to be of a different nature, not to mention the difference of habit. Mr. Lea also distinguished them, which has confirmed me in my conclusions, which have been formed after much deliberation. I ought, however, to state, that Dr. Montagne, to whom I showed two of the specimens, was inclined to think that they were different states of one species.

84. Cyclomyces Greeneii, n. sp. pileo spongioso-suberoso orbiculari undulato sublobato zonato tomentoso cinnamomeo marginem versus tenuem lineato; stipite centrali obconico concolore; lamellis demum subcinereis. (Tab. XI.) Amongst dead leaves. Tewkesbury, Massachusetts. B. D. Greene, Esq.

Pileus above 3½ inches in diameter rather thin except in the centre orbicular slightly lobed and undulated, here and there irregularly tuberculate concentrically zoned of a rich ferruginous cinnamon, clothed with short velvety down, which vanishes in parts towards the margin, where it is marked with little linear grooves and raised lines, interspersed with minute fascicles of down; substance rather soft, marked with concentric circles; margin very acute. Stem obconical, obtuse, about 1½ inch high, and ⅔ of an inch thick, compressed and sulcate where it joins the pileus, minutely velvety or rather pruinose, of the same colour with the pileus; gills arranged concentrically rather narrow, nearly entire, imbricating, crisped and rigid when dry, at length subcinereous, interstices even and without any traces of disseipments.

A most interesting addition to the beautiful genus *Cyclomyces* which consisted before of a single species only. The pileus is very like that of *Polyporus tabulaformis*. It is very brittle when dry.

Tab. XI. Cyclomyces Greeneii, nat. size. f. 1. Portion of the underside, showing the gills; magnified.

85. Hydnum flabelliforme, n. sp. imbricatum coriaceum, pileis
spathulato-flabelliformibus zonatis hirsutis; hymenio ochraceo; aculeis longiusculis acutis carneis, siccis ochraceis.


Pilei imbricated, laterally confluent ¾ an inch broad, ¾ of an inch long, spathulato-flabelliform fixed by a narrow base, which is mostly more or less distinct, coriaceous clothed with white or slightly tawny short woolly hairs. Hymenium bordered; aculei acute, sometimes slightly compressed above, flesh coloured, ochraceous when dry.

A pretty species allied to H. ochraceum.

86. Hydnum stratosum, n. sp. pileis resupinatis, margine libero, demum stratos et processibus rigidis ramosis extus stippeis formatis; aculeis longis rigidis acuminatis spadiceis hic illic cinereis.


Pilei resupinate with a narrow lobed border spreading for three or four inches over the matrix, consisting of repeatedly branched rigid brown processes resembling some Cornicularia, which are clothed above with grey or ferruginous tow-like fibres. Aculei rather long rigid sharply acuminate brown varying to cinereous, at length stratose.

This is one of the most remarkable species with which I am acquainted. It resembles in many respects Hydnum parasiticum, but has not like that a coriaceous pileus. The whole substance indeed consists merely of rigid branched processes which are partially covered above with coarse pubescence, so that the pileus might perhaps be described as repeatedly branched. These processes are, however, combined into a lobed stratum. I do not know any other species with which it; can be compared, except perhaps as Dr. Montagne suggests his Hydnum pteruloides, but that he is now inclined to consider as merely a state of Trametes Hydnoideus, whereas the present is undoubtedly a perfect plant.

87. Hydnum Ohioense, n. sp. resupinatum membranaceum a matrice hic illic secernibile pallide flavum; aculeis longis acutissimis aquosé pallido-fusci subfasciculatis.

Spreading for several inches, entirely resupinate membranaceous partially separable from the matrix; aculei somewhat fasciculate 1-2 lines long of a watery pale brown, very slender at the apex.

This species resembles Hydnum fernandesium, Mont. (H. membranaceum, var. stenodon, Mont. Prodr.) from which it differs in its shorter less crowded aculei. The margin too in the Juan Fernandez species is more distinct and the whole fungus more luxuriant.

88. Scleroderma Texense, n. sp. subglobosum squamis supra liberis basi adnatis imbricatis vestitum mycelio infra medium affixo anostomosante subfultum; cellulis persistentibus sporis risque fuliginosis.

On the ground. Texas. Mr. Drummond.

Subglobose rather depressed 1½ inch in diameter at the base, about 1 inch high clothed with scales imbricating upwards from the base of a pale olive brown externally, yellowish within, and themselves often covered with smaller scales or with furfuraceous particles; peridium hard rigid brown; cells persistent fuliginous with a slight olive tint; spores globose granulated. Mycelium springing from below the centre of the peridium, consisting of flat broad anastomosing floccose processes, resembling in their origin and appearance those of Hysterangium nephriticum, Berk.

A very distinct species with cells more persistent than is usual in the genus. The scales also are more than usually developed, and are quite free above and distinct from the peridium. They are in fact the corky bark which is of some thickness at the base and gradually becomes thinner towards the apex as the peridium is protruded, in consequence of which it breaks up into scales.

89. Didymium rugulosum, n. sp. gregarium peridio lenticulari subtus laté umbilicato albo ruguloso; stipite tenui costato stramineo apice attenuato; capillitio parco albo; sporis nigris sub lente fusco-purpureis. Columella nulla.

A minute species \( \frac{1}{2} \) of a line in diameter with the stem \( \frac{2}{3} \) of a line high. The appearance of the surface of the peridium is like that of a little globule of mother of vinegar, white and curdled.

90. Macrosporum punctiforme, n. sp. soris minutis sparsis punctiformibus; sporis obovatis; filis simplicibus obtusis subflexuosis. (Tab. XII, fig. 1).


Forming minute black scattered dots; stroma reticulate; flocci erect simple slightly flexuous sparingly septate sometimes decumbent and then proliferous. Spores obovate at first simple and pellucid, then furnished with one or two transverse septa, at length acquiring a darker tinge and a few oblique or vertical septa.

Tab. XII, fig. 1. a. Flocci. b. Portion of stroma with flocci springing from it. c. Spores in various stages of growth. d. Single spore. All more or less magnified.

91. Macrosporum pinguedinis, n. sp. latissime effusum, floccis tenuibus erectis simplicibus septatis; sporis lanceolatis quandoque obovato-oblongis. (Tab. XII, fig. 2).

On grass on which animal fat had been poured. Ohio. No. 146. T. G. Lea, Esq.

Completely investing the culms and leaves of the matrix. Flocci erect flexuous septate; spores brown lanceolate obtuse transversely septate with here and there a vertical septum; sometimes obovate-oblong.

Macrosporum, Fr. is the same with Septosporium, Corda taking Helminthosporium Cheiranthi as the type of the genus which indeed differs very slightly from Helminthosporium.

Tab. XII. fig. 2. a. Flocci and spores magnified. b. Spore highly magnified.

92. Sporidesmium concinnum, n. sp. sporis primum brevis- sime pedicellatis oblongis obtusis nitidis fenestratis. (Tab. XII. fig. 3.)

Forming minute jet-black crowded sori which are at length almost confluent. Stroma consisting of decumbent branched threads. Spores at first consisting of a pellucid simple obovate cell, which gradually acquires an oblong form (the peduncle being entirely obliterated) and divided regularly by numerous transverse and vertical septa; occasionally a few of the lower septa are oblique.

A very pretty object under the microscope. The true *Sporidesmium atrum* which appears to be a rare species also occurs at Ohio. It was, however, common at Prag as M. Corda informs me, till the wooden palisades were destroyed.

Tab. XII, fig. 3. a. Flocci. b. Spores in various stages of growth. c. Portion of spore. All more or less magnified.

93. *Oidium simile*, n. sp. Effusum submembranaceum fulvum filis ramosiusculis; articulis ultimis subglobosis. (Tab. XII, f. 4.)


Forming a deep tawny pulverulent but somewhat membranaceous stratum on decayed wood which to the outward eye exactly resembles *Oidium fulvum*, but distinguished by its subglobose not oblong articulations. The fructifying joints arise either from a direct transformation of the ultimate joints, or from the central constriction of the subterminal.

Tab. XII, fig. 4. a. Flocci with spores. b. Spores; more or less magnified.

94. *Septonema spilomeum*, n. s. soris parvis punctiformibus; filis ramosis; articulis oblongo-ellipticis scabriusculis triseptatis. (Tab. XII, f. 5.)


Forming little scattered sori about the size of a poppy-seed; threads branched; articulations oblongo-elliptic trisep-tate; one or more of the septa occasionally containing an oil-globule; border of articulations pellucid, rough with little scabrous prominences.

Very distinct from the other species in the punctiform habit, and in the nature of the articulations.
Tab. XII, fig. 5.  a. Flocci.  b. Spores. More or less
magnified.

95. Cronartium asclepiadeum, Kze. var. Thesii, maculis
obliteratis, tuberculis parvis sparsis, sporis subglobosis, peri-
diis elongatis incurvatis extus minutissime ramentaceis.

Scattered over the under surface, not aggregate as in C. as-
clepiadeum, where they seem usually to be confined to a de-
terminate spot; peridia more minute; cells of the peridium
longer; spores not so much elongated.

It is possible that this may prove a distinct species, but
the dry specimens exhibit no sufficient characters.

96. Sphaeria (Lignosæ) tinctor, n. sp. effusus innatus planus
sculpturam matricis e mycelio minutæ superficie referens,
intus extusque ater; perithecii elongatis, collo brevi, ostiolo
inconspicuo.

On dead Platanus occidentalis (button wood). Ohio. No.
128. T. G. Lea, Esq.
Forming a black widely effused stratum exhibiting all the
markings of the matrix which is tinged to the depth of a
quarter of an inch orange-red, black both within and without.
Stroma hard ¼ a line or more thick; perithecia vertical elon-
gated with a very short neck; ostiola not visible externally,
even under a lens.

Analogous to Sph. hypomilta, Mont. but by no means al-
lled. It is rather related to Sph. stigma. The matrix is quite
distinct from the wood though it exhibits on its surface all
its markings, otherwise the species might be placed in the
section Concrecentes of which it has the habit.

97. Sphaeria (Circumscriptæ) Leiana, n. sp. innata, stro-
mate pallido laxo e cortice et ligno linea circumscripto, peri-
thecii ellipticis ostiolis subconfertis elongatis lineolatis
granulatis, sporidiis minimis curvulis.

On bark of dead Hornbeam. Ohio. No. 180. T. G. Lea,
Esq.
About ¼ a line in diameter. Perithecia not numerous circi-
nating elliptic seated on a pale stroma of rather a loose tex-
ture; ostiola forming a little tuft rather elongated umbilicate finely grooved, granulated. Ascii lanceolate; sporidia minute carved like those of S. verruciformis.

A very neat species distinguished at once from Sp. carpini by its prettily granulated ostiola; but above all by its minute curved not lanceolate sporidia. It approaches also S. decipiens, D. C. especially as regards the ostiola, but not to mention the difference of habit, the spores in that species are dark and elliptic with one side flat, not colourless and curved.

98. Sphaeria (Circumscriptae) fulvo-pruinata, n. sp. pustulata, subangulata basi effusa; perithecii oblongis collo elongato; stromate discoque ostiolis punctato fulvis; sporidiis ellipticis uniseptatis.


Forming somewhat angular pustules about a line broad rather effused at the base as seen through the thin cuticle; disc angular tawny pulverulent pierced by the black punctiform ostiola; stroma tawny like the disc; perithecia globose. Ascii linear, sporidia elliptic uniseptate with a single globose nucleus in each cell.

99. Sphaeria (Confluentes) rhizogena, n. sp. suborbicularis atro-fusca stromate pallido, perithecii globosis primum cervino-pruinosis demum supra atro-fuscis, subitus pallido-fuscis papilla subtili abrupta quandoque depressa; intus pallido-fuscis.


Patches nearly orbicular 2 lines or more broad with their surface rather irregular, here and there depressed; stroma pale yellowish brown; perithecia minute dull not shining, partially immersed, pale brown when shaded from the light, nearly black above at first prunose, globose with a minute and sometimes depressed papilla, filled with pale brownish jelly; ascii linear, sporidia elliptic.

This species has exactly the habit of Sphaeria Laburni, but
differs materially in structure. Its nearest ally appears to be S. Gleditschie.

From Sph. melogramma as published by Mougeot it differs in its pale stroma and elliptic not fusiform sporidia. In the plant as published by Fries, No. 441, the sporidia are curved.

100. Sphaeria (Byssisedæ) rhodomphala, n. sp. peritheciiis demum confertis minutis globosis umbilicatis atris plus minus, præsertim circa ostiolum obsoletum, miniato-pruina- tis, sub lente scabriusculis subiculo fusco insidentibus.


Scattered, at length much crowded, either free or seated on a matted brown subiculum; perithecia globose at first powdered with vermilion which is more or less persistent in the centre; ostiolum simple umbilicate; ascii somewhat lanceolate pedicellate; sporidia lanceolate constricted in the centre with a single septum, and containing one or sometimes two nuclei.

A pretty species but rather difficult to place, as the subiculum is sometimes entirely wanting and the perithecia are rather pulverulent than villous. It has almost equal claims to take its place amongst Denudatæ, Villoseæ and Byssi- sedæ.

ERRATA.

Vol. 3, p. 337, for "Buck Bean," read "Garden Bean."
Vol. 4, p. 29, for "Brongniart," read "Jussieu."

Fungi described in the First Century, now completed.

Agaricus allantopus, B.  Agaricus ochro-purpureus, B.
— crinalis, B.  — nidiformis, B.
— Drummondii, B.  — radicatus, Relh. var. super-
— lampas, B.  biens, B.
— Leeanus, B.  — rhizobolus, B.
— lepton, B.  — xanthocephalus, B.
— mucidolens, B.  Aseroe viridis, B. & Hook, fil.
— muculentus, B.  

VOL. IV.  A A
Auricularia minuta, B.
Boletus alliciens, B.
—marginatus, Drumm.
Bolbitius mitraformis, Harv. Irpex incrustans, Mont. & B.
Bovista lilacina, Mont. & B.

B.
Broomeia congregata, B.
Calocera guepinioiodes, B.
Cantharellus capensis, B.
—viscosus, B.
Clathrus pusillus, B.
Clavaria setulosa, B.
Corticium radicale, B.
—vinosum, B.
Cortinarius erythraeus, B.
Cronartium asclepiadeum, Fr.
—var. Thesi, B.
Cyclomyces Greeneii, B.
Dacrymyces rubro-fuscus, B.
Dædalea ambigua, B.
Didymium rugulosum, B.
—scrabiculatum, B.
Dothidea appendiculosa, Mont. & B.
—examans, Mont. & B.
—Zollingeri, Mont. & B.
Geaster Drummondii, B.
Guepinia Pezizaformis, B.
Hexagonia decipiens, B.
Hydnurn dispersum, B.
—flabelliforme, B.
—investiens, B.
—Isidioides, B.
—Ohiense, B.
—sclerodontium, B.
—stratosum, B.
—Webbii, B.

Hymenogramme Javensis, Mont. & B.
Ileodictyon gracile, B.

B.
Lentinus sulcatus, B.
Licea applanata, B.
Macroporium pinguedinis, B.
—punctiforme, B.
Mitremyces luridus, B.
Mycenastrum phaeotrichum, B.
Mystrosporium pulchrum, B. & Corda.

B.
Oidium simile, B.
Paxillus Eucalyptorum, B.
—Peziza Drummondii, B.
Phallus curtus, B.
Physoarum flavicomum, B.
Polyporus brunneolus, B.
—Cladonia, B.
—compressus, B.
—conglobatus, B.
—denissus, B.
—gryphaeaformis, B.
—niger, B.
—obductus, B.
—oblactans, B.
—ochroleucus, B.
—portentosus, B.
—pullus, Mont. & B.
—rimosus, B.
—Schomburgkii, Mont. & B.
-tabulaformis, B.
—tardus, B.
—toxus, B.
—venustus, B.
Scleroderma Texense, B.
Secotium coarctatum, B.
— melanosporum, B.
Septonema spilomeum, B.
Sistotrema autochthon, Mont. & B.
Sphaeria capnoides, B.
— elevata, B.
— sulco-pruinata, B.
— inspersa, B.
— Leucania, B.
— pulvinulus, B.
— rhizogena, B.

Sphaeria rhodomphala, B.
— tinctor, B.
Sporidesmium concinnum, B.
Stereum illudens, B.
— obliquum, Mont. & B.
Thelephora radicans, B.
Trametes incana, B.

APPENDIX.

Myriangium Duriei, Mont. & B.
— Montagnei, B.

On a minute Fungus, Podisoma Macropus, growing on Juniperus Virginiana in North America, by Dr. Wyman, in a letter addressed to Sir W. J. Hooker; with some additional remarks by the Rev. M. J. Berkeley.

(With a figure, Tab. XII. f. 6.)

Boston, United States,
May 8th, 1844.

Dear Sir,

I have taken the liberty of sending you the following notice of a microscopic fungus, to which my attention was first called while engaged in examining the dense tufts with acerose leaves which are abundantly met with in the Juniperus Virginiana of this neighbourhood. On investigating the peculiar growth last mentioned, minute specks were noticed in every instance, on the stems of the twigs of which they are composed, and almost never elsewhere except in the excrescence known as the “Cedar apple.” These specks are of a reddish colour, slightly elevated, about $\frac{1}{2}$ to 1 line in diameter, and in part concealed by a scale of cuticle, under which they are developed, but which is ruptured as they increase in size. Having detached one of these masses,
and placing it under the field of a microscope, I found it to consist entirely of immense numbers of minute fungi allied to the genus *Puccinia*, characterized by a slender filament or pedicle, on the summit of which are two cells of the form represented in the adjoining figure. Each cell is of a triangular form, the two being united at their bases. Internally these cells are filled with yellowish green granules, besides which there exists a transparent spherical body, which I suppose to be a nucleus or cytoplasm. The accompanying figures will give you a better idea of the fungus than any verbal description. The existence of two distinct cells is easily demonstrated by macerating the specimen for a short time in water, when they readily separate from each other, and in some instances I have noticed the projection of a tube not unlike a fallen tube, from one of the angles. I have made numerous searches for these parasites, but have almost never detected them, except in the localities above mentioned, viz: the tufts composed of acerose leaves and the “Cedar apple.” The tufts with acerose leaves are not identical as I believe, with the variety of form which occurs in the young shoots of the *J. virginiana*, described in Bigelow’s Med. Botany and by yourself in the Flora Boreal Americana, also in the description of the *J. burmudiana* in Lond. Journ. of Botany for March 1843. The form of the leaf is in both cases acerose, but the tuft to which I refer, forms a single dense spherical mass, the twigs so crowded together as scarcely to allow the light to pass through, looking at a distance like the nest of some bird. These masses vary in size from that of the first to eighteen inches in diameter. Generally not more than one mass is seen on the same tree, sometimes, however two or three. I have never seen a single tuft like those described in which the fungus in question was not present, and this is the result of a great number of observations.

The “Cedar apple,” is an excrescence of the bark of the *J. virginiana*, and usually attributed to the presence of the ova of insects. On its surface are generally to be seen small depressions from which at certain periods there projects a
small point varying in length, this process consists entirely of fungi which are developed in a cell, the external coverings of which are ruptured as the fungus increases in size. In both the situations, when wet, they absorb, moisture very rapidly, swell and become much elongated. In the "Cedar apple," they often project to the distance of an inch, and hang down like tassels. In localities where the juniper is abundant these excrescences exist in large quantities, so that after a rain the trees have the appearance of putting forth large numbers of flowers, in consequence of the sudden elongation of these collections of fungi.

The universal presence of this fungus in the tufts of acerose leaves above described have almost led me to the belief that they stand in the relation of cause and effect, though it must be obvious that the evidence is still far from satisfactory. Observations in other localities and other species will perhaps decide.

It does not appear from any description which I have seen, that the acerose leaves described by botanists are confined to masses or tufts as I have stated above; but on the contrary I infer that they are scattered about on different branches, or as Bigelow says are met with on young vigorous shoots.

Should the facts communicated in this letter prove new or in any way interesting I beg you would make any use of them which you may think best; if not, please excuse the liberty I have taken in addressing you at this time.

With great respect,

I am truly yours,

Jeffries Wyman, M.D.

To Sir W. Jackson Hooker.

Tab. XII, f. 6.

a. Magnified drawing of the sporidia. b. The same, more highly magnified. c. The two cells in part separated after maceration in water. d. Cells completely detached. e. Sporidia germinating. f. Section of "Cedar apple, shewing pro-
cesses formed by sporidia with the peduncles, (natural size). g. One of the masses magnified, shewing the ruptured cell (from surface of Cedar apple).

The fungus described by Dr. Wyman is clearly Podisoma macropus, Schwein. in Am. Phil. Trans. vol. 4, p. 307. No figure has hitherto, as far as I know, been given of it. Dr. Wyman's communication, therefore, though not containing any absolute novelty must be regarded as very acceptable. As Dr. Schweinitz's notes on the subject do not appear to be in the hands of many botanists, we think it may be agreeable to our readers to have a translation of them.

It may be as well to state first, that the species was published in the earlier memoir on the fungi of Carolina, p. 74, under the name of Gymnosporangium Juniperi Virginiana. Link changed the name to Gym. macropus, and in his later memoir, Schweinitz refers it to the genus Podisoma, retaining, however, the specific name given to it by Link.

"The species," says Schweinitz, "is rather rare in those parts of Upper Carolina with which I am best acquainted, but very common in Pennsylvania infesting, especially, clipped trees of Juniperus Virginiana and commonly known by the name of the "Cedar Apple" under which it is sold in the markets as a powerful but fabulous anthelmintic. Link expresses his sorrow that I have not investigated the anatomy of the lower part of the sporidochium. I willingly give here what information I have on the subject. First then the base is by no means to be regarded as a sporidochium, if one is to regard as sporidochium what is usually so termed in Podisoma Juniperi. That gelatinous body composed of the matted peduncles of the sporidia exactly agrees with the tremelloid ligules of our Podisoma macropus. The basilar globe in question is of quite a different nature. It is, however, never absent. It always precedes our fungus; shewing itself in the most delicate branches of J. virginiana of about the size of the head of a good sized pine, gradually increasing and generally swelling into a more or less regularly turbinate, plicate head which is traversed by the branch in an unaltered condition, and attaining a diameter of one or two inches. The substance in the dry and old plant is fibrososuberose as in Fistulina but not succoso-carnose, as if from fibres radiating from a broadly obconic stem, but then preserving its somewhat woody habit. On the contrary, when flourishing, it is easily cut and eaten like an apple, and becomes hard when dried. Externally there is an epidermis-like bark of a brown purplish lilac tint, and altogether juiceless, like the peel of an apple. The whole surface is regularly dotted with polygonal usually pentagonal foveola which are at first plane, but presently dimpled and umbonate; at length the bark being ruptured in the centre, the ligulate tremelloid sporidochia burst forth in moist weather, about an inch in length of the most beautiful orange colour, adorning in the course
of a single spring night the whole tree as it were with the richest crop of ripe oranges. If wet weather continues for many days, it remains in this state till the ligules melt away. Under the influence of the sun, however, they soon dry up, and never revive. The apples last for a year. Old specimens are internally not unlike excrescences of trees. The apple is never found without at least rudimentary ligules, nor the ligules without the apple. In general when the Junipers are cut into a pyramidal or other form they are covered with an incredible quantity of these fungi, but according to observations which I have carefully made for ten years it does not destroy them, nor does it even seem to injure them. Many people therefore, and some, not of the lowest class, believe firmly that it is either the real indorscence or fruit of the Juniper. I am convinced from close observation that it has nothing to do with insects. The apple does not however, appear very clearly of a fungous nature. It appears to me to be a most anomalous substance, respecting which it is better to assert nothing, but to examine more accurately.

The anatomy of the base of this fungus in its young state before it protrudes the tremelloid ligule, exhibits the following appearances. The substance is then altogether like that of a ripe apple; if cut with a knife it is of a whitish green like that of an unripe apple; grumose-cellular radiating from the base. The green tint soon changes into tawny orange, and then a few whitish fibres are observed radiating and branching from the base. After the protrusion of the ligules which takes place in rainy weather the apple does not increase, but if the spring is not rainy, it increases daily. The epidermis of the younger excrescences before the evolution of the sporidochia has a filamento-s-furfacrouse texture, and is as thick as the peel of an apple. The ligules in their most perfect state are loaded with sporidia, just as in P. juniperi; but they are generally longer and not conical, but often somewhat flexuous and attenuated towards the apex.

It may be observed that our British species grow from a peculiar disc though not developed so highly as the Cedar Apple, and that a similar disc occurs in a new species of Cyttaria, discovered at Cape Horn, by Dr. Joseph Hooker to which I purpose to give the name of Cyttaria Hookeri.

M. J. B.

Contributions to the Botany of South America. By John Miers, Esq., F.R.S. F.L.S.

(With a Plate, Tab. XIII, XIV.)

It is the intention of the author to continue, from time to time, a series of these Contributions to the Botany of South
America, the results of the observations made by him during several years' residence both on the western and eastern shores of that vast continent. Having availed himself of the opportunity of examining many plants in the living state, and preserved drawings and details of a great number, he proposes to select from these such as may be still undescribed or yet imperfectly understood. Whenever the subject admits, he will collect all the materials he can command towards monographs of each genus, not in any regular order, but as the subjects present themselves. In his endeavours to carry out this plan, he has received much kind assistance from Sir William Hooker, and he has great pleasure in acknowledging his obligation to that distinguished Botanist for the liberality with which he has afforded the use of his valuable library of reference and the freest access to his extensive herbarium, which is particularly rich in the botanical productions of South America. From this fertile source, and the different herbaria in the British Museum, as well from the materials in his own collection, he has prepared the following contributions, which he proposes to follow up by illustrations drawn by himself, exhibiting the details, which according to his views, tend to exemplify the characters of each genus referred to.\[1\] The vast accumulation of plants during the last few years, collected in all parts of the globe, has been so great, that it becomes absolutely necessary to define with greater accuracy the limits, not only of genera, but of species, and where this can be accomplished upon sufficient evidence, much will be done towards removing the confusion that exists in so many cases; but even should the author of these contributions succeed in only a few instances, he hopes to render some service, though it be not very great, towards the advancement of the science of botany.

* This work will afterwards appear with the addition of plates in a 4to form under the title of "Illustrations of South American Plants, &c." In the following Contributions, reference in foot notes will be made to the plates illustrative of such subjects in the work alluded to.
THE FLORA OF SOUTH AMERICA. 321

Salpichroa.

Under this name it is proposed to class several plants that have been hitherto arranged in Atropa, the limits of which genus remained for a long while undefined, many species having been referred to it, and again removed by different botanists. Its character, as given by Professor Spenner (Gen. Pl. Germ. p. 21, tab. 18) upon the typical species A. Belladonna is deficient in so far as regards all the South American species. That offered by Prof. Endlicher (Gen. Pl. n. 3857) has evidently been framed with the intention of embracing the whole of these, amounting to about ten, which, however, include two other very distinct forms; of these, four will be classed in Salpichroa, and the remaining six under the name of Hebecladus.* The plants before mentioned possess a calyx

* They are all remarkable for their conspicuous flowers presenting an intermediate tooth in the plicature between the lobes of the corolla. The generic name of Hebecladus is derived from ἡβάς, pubes, κλαδός, ramosus tener, in allusion to their habit, which much resembles that of Salpichroa, but is more suffruticose. The following elements for a generic character have been taken from the species I have examined in the dried state.


that scarcely enlarges, and that is usually cleft, almost to the base, into five linear erect segments, not a campanulate,

Caule fruticoso volubili, folii geminis, elliptico-ovatis, subacuminatis, integerrimis, basi in petiolum decurrentibus, utrinque (præsertim subtus) hirtellis; pedunculo biforo; floribus nutantisibus; corolla calyce 3-4 plo longiori, basi externe tuberculis 5 instructa.—Nova Granada.

Specimens of this plant exist in the herbarium of Sir William Hooker, collected by Professor Jameson on the Western side of the Volcano of Pichinchina, at an altitude of 13,000 feet; by Colonel Hall, in the Valley of Lloa, who describes it as a large shrub; and again by Professor Jameson in Columbia (n. 195); and by Goudot, at Bogota in New Granada. The leaves are 3 inches long, and 1¼ inch broad, on a petiole ½ inch long; peduncle 1-2 flowered, the calyx is somewhat pentagonal, and deeply cleft into 5 thin greenish triangular segments, with ciliate margins; the corolla is slightly pubescent; the filaments are wholly free to the base, where they have a short triangular dilatation, which is ciliate, above this they are slender and quite glabrous; the anthers are cordate at base, apiculate at summit.

2. Hebecladus umbellatus. Atropa umbellata. R. & P. 2, 44, tab. 181, a.; caule frutescente, flexuoso fragili; folii subgeminis, cordato-ovatis, subangulatis, pubescentibus; pedunculo axillari, laterali, umbellato, multifloro, nutante; corolla melisfera, purpurea, limbo reflexo, ciliato, luteo, plicaturis vix dentatis; staminibus inclusis; stylo exerto; baccæ albida, calyce patenti suffulta.—Peruviam collibus circa Limam et Chanca. v. s. in Herb. Hooker. Amancaes prope Limam (Mathews, n. 722). A small shrubby plant; the leaves are notS somewhat angularly sinuate, but have erose-denticate margins.

3. Hebecladus biflora. Atropa biflora, R. & P. 2, 44, tab. 181, b. Pubescens; caule fruticoso, ramis glabris, nutantisibus; folii ovatis, acutis, superioribus geminis, utrinque glabris, subuts pallidis, venis prominentibus; pedunculis hirtellis, 2-floris, nutantisibus; corollæ purpureae, tomentoso-pilosæ, limbo luteo-viridi; staminibus exsertis, antheris caruleis, sagittatis; baccæ depresso-rotundata, alba, calyce patenti suffulat.—In Andibus Peruviae. v. s. in Herb. Hooker. Obrajillo et Cuilay ad Vallem Cante (Mathews).

4. Hebecladus bicolor. Atropa bicolor, R. & P. 2, 45; caule fruticoso; ramis teneris, angulatis; folii plerumque geminis, ovatis, acutis, angustatis, glabris; pedunculo axillari laterali, umbellato, 3-4-floro.; corollæ rubricundæ, limbo viridescente.—In Andibus Peruviae.

5. Hebecladus aspera. Atropa aspera. R. & P. 2, 45.; caule herbaceo, dichotomo; folii geminis, ovatis, altero minori, asperis; floribus solidariis, cernuis; corollæ luteo-carulea, fave violacea, campanulata; filamenta hisrutis, violaceis; baccæ alba.—Amancaes prope Limam.
5-partite calyx, with stellately patent lobes, increasing considerably in size with the fruit; it has a narrow tubular fleshy corolla, often contracted in the mouth, not one that is cam-

6. Hebecladus intermedius, sp. nov.; caule glabro; foliis ovatis, angu-
lato sinuatis, margine erosae, utrinque parce pilosis, venis pulverulentis; umbella triflora; corolla tubulosa, floccoso-hirtella, lobis 5 sublineari-
bus, dentibus interjectis; antheris sagittatis, longe exsertis, filamentis gracilibus, glabris.—v. s. in Herb. Hooker. Purruchuco Peruvian.

(Mathews, n. 524. sub nomine Atropa aspera, R. & P.)

This plant, in the shape of its leaves, approaches A. aspera, R. & P., but they are by no means asperous; the flowers differ much from the figure of that species, resembling more those of A. biflora; the leaves are 3½ inches long, and 1½ inches broad, on a petiole ½ inch long; the stem of the umbel is ½ inch long, the pedicels being 10 lines, the calyx is 4 lines, the tube of the corolla 1 inch, the border 4 lines in length.

7. Hebecladus lanceolatus, sp. nov.; caule flexuoso, glabro, subangulari;
foliis geminatis, altero minori, lanceolato-ellipticis, basi cuneatis, apice acuminatis, petioloque utrinque parce molliter hirtellis; umbella in
axillis lateralis, 4 flora; calycis margine floccoso; corolla tubo rubello,
labro, ore flavo, 5 lobo, lobis acutissimis, puberulis, dentibus tot con-
spicuis, acutis, interjectis; staminibus inclusis; stylo exserto, clavato.

—Columbia, v. s. in Herb. Hooker (Hartweg, n. 1301).

The leaves of this species are 3½ inches long, and 1½ inch broad, on a
petiole ½ inch long; the stem of the umbel is 1½ inch, and the pedicels
9 lines in length. The flowers are of similar size to those of H. viridiflora.

8. Hebecladus Turneri, sp. nov. Caule flexuoso, tereti; foliis geminis,
aquilibus, ovatis, acutis, basi late rotundatis, in petiolum decurrentibus,
utrinque pilis mollissimis sparsis; umbella cernua, 6-3 flora; calycis
laciniii lanceolatis, pubescentibus; corolla parva, glabra, aurantiaca,
lobis acuminatis, margine floccosis; staminibus brevibus, inclusis;
stylo exserto; bacca rubra calyce patenti suffulta.—Patricia ignota.

This specimen exists in Sir W. Hooker's Herbarium, evidently dried from
a cultivated species by Dawson Turner, Esq. without any note of its
origin or the place of its growth. The leaves are 3½ inches long, and
2½ inches broad; the stem of the umbel is 4 lines, the pedicels 6 lines, the
corolla 6 lines long, the latter being of an orange colour, rather broad in
proportion.

Species dubia.

foliis ovato-oblongis, acutis, scabris; pedunculis elongatis, 1 floris,
filiformibus.—Brazil.
panular, veined, thin in substance, and widened in the throat; its filaments are short, slender, and inserted in the middle, not in the bottom of the corolla; the anthers are linear, erect, nearly exserted, not oval and reflexed in the middle of the tube; its ovary is deeply imbedded in a large coloured fleshy disc, not wholly free, or at least supported on a small 5-lobed ring. The stigma is clavate, almost cup-shaped, not deeply sulcated, 2-lobed, and reflexed. The berry is of a bright scarlet colour, not greenish or black. The testa of the seed is rugous, and covered with rigid hairs, not smooth and reticulated: characters offering many well marked points of distinction from Atropa. There is another remarkable difference between Atropa and Salpichroa; in the one, the corolla is thin, becoming membranaceous and unchanged in drying, while that of the other is thick and fleshy, becoming black as it dries, a character it possesses in common with most of the Jaborosa group, such as Jaborosa, Himeranthus, Dorystigma, and by Juanilloa, &c. The name is derived from salpīt buccinum, xro segments. colour, in allusion to its pretty, trumpet-shaped flowers, and the following are its generic characters. Salpichroa. Calyx persistens, sæpissimè profunde 5 partitus, lobis linearibus acutis, fructifer haud mutatus, rarius 5-fidus. Corolla hypogyna, subcarnosa, infundibuliformis, interdum tubulosa, fauce subconstricta, limbo 5-fido, lobis lineari-oblongis, reflexis, aestivatione fere induplicatis, marginibus floccosis, vix introflexis. Stamina 5, æqualia, sub-exserta; filamenta filiformia, glabra, medio corollæ orta. Antheræ lineares, erectæ imo dorsi affixaè, liberaè, circa stylum conniventes, 2-loculares, loculis parallelis adnatis, rimæ longitudinali dehiscentibus. Ovarium liberum, conicum, disco carnoso magnò colorato suffultum, 2-loculare, placentis centralibus, ë disseipimento formatis, multiovulatis. Stylus simplex, filiformis, erectus, stamina excedens, basi conicus. Stigma subcapitatum, depressum, cavum, obsolete 2 lobum. Bacca ovalis, carnosa, 2-locularis, stylo apiculata. Semina numerosa, in pulham nidulantia, rhomboideo-rotundata, valde compressa, testa rugosa, utrinque
THE FLORA OF SOUTH AMERICA. 325

(præsertim versus marginem) pilis simplicibus rigidis dense vestita, hilo marginali. Embryo intra albumen carnosum arcuatus; cotyledonibus semiteretibus; radiculâ tereti hilum spectante.—Herbae America meridionalis puberula, diffuse, ramose, subscandentes; caule angulato, flexuoso, suffruticoso; ramis foliis oppositis. Folia solitaria, vel gemina, rarius terna, integra, in petiolum longum decurrentia. Flores solitarii, albi, vel lutei, siccitate nigrificantes, pedunculati, demum cernui. Bacca rubra.

§ I. EUSALPICROA. Corolla longe tubulosa, intusimo glabra.


2. Salpichroa dependens. Atropa dependens. Hook. Icon. 107; caule suffruticoso, pendente; foliis geminis, cordato-ovatis, breviter petiolatis, fare glabris, subitus pallidis; calyce tubuloso, tenui, pubescente, 5 fido, demum fructisero subampliato hinc fisso; corolla longe tubulosa, stylo staminibusque eksiertis.—Peruvia (Mathews, n. 829).

3. Salpichroa hirsuta. Atropa hirsuta, Meyen (Riese um die Erde, 1, 466). Nees ab Esenb. (Nov. Act. 19, Suppl. 1, 389); caule suffruticoso, ramosissimo, diffuso; foliis geminis, subcordato-ovatis, longe petiolatis, calycibusque profunde 5 partitis, hirsutis; corolla tubulosa, antheris cum styli apice eksiertis.—Peruvia, circa Pisacomam, altitudine 15,000 ped.

This appears to be the same plant, of which many specimens exist in the herbarium of Sir William Hooker from various localities, viz:

Pichincha (Jameson, n. 32), Pichincha (id. n. 301), Columbia (Hartweg, n. 1311). In these the stem is 4-angular, flexuoso; the leaves are solitary, geminate, and ternate, from
CONTRIBUTIONS TO

½ to 1 inch long, and 4 to 9 lines wide; the petiole is nearly as long as the leaf, slender, and caniculate; the internodes are about the length of the leaves; the flowers are solitary and lateral; the corolla about ten lines long, tubular, of a greenish yellow colour, glabrous, having oblong obtuse lobes, with floccose margins; the oval berry is terminated by the persistent glabrous style. Andes of Peru (McLean), where the leaves are more ovate, nearly glabrous above, pubescent beneath, the margins being somewhat crenate. Andes of Quito (Jameson, n. 125), of more stunted growth, a flexuose stem, presenting many short knotty leafless internodes; leaves ternate, barely 3 to 4 lines long, 2 to 3 lines broad, petiole 3 to 5 lines long. Bogota (Goudot), very near the last; the branches are somewhat more divaricate, and of a darker reddish colour.

4. Salpichroa ramosissima, sp. nov.; caule fruticuloso, 4 gono; axillis anotinis nodosis; ramulis pubescentibus; foliis utrinque glabriusculis, geminis ternisque, æqualibus, submembranaceis, elliptico-oblongis, basi rotundatis, in petiolum gracilem decurrentibus, apice subcumatis, margine ciliatis; floribus solitariis lateralibus; corolla tubulosa, calyce 3plo longiori, fauce contracta, lobis acutiusculis, re-flexis, margine velutinis.—Purruchuco, Peruviæ. v. s. in Herb. Hooker (Matheus, n. 1053 sub nomine Atropa ramosissima).

A very distinct species, both in the form of the leaf and the shape of the corolla; the leaves are 1½ inch long, 7 to 9 lines broad, the petiole, which is slender and caniculate, being ½ inch long; the lobes of the calyx are narrow, almost linear, and slightly hairy; the berry is red, of an oval shape, ½ inch long, ¼ inch in diameter; the seeds are flattened, with a hairy testa resembling that recorded in the following section.

§ Perizoma. Corolla brevis, medio et fauce constricta, intus annulo carnoso lanato instructa.

datis in petiolum attenuatis, fere glabris, margine petioloque ciliatis, interdum valde pubescentibus,—Bonaria. *Busbeckia*, sp. Mart. MSS.

I met with this species in 1825, when its details were recorded by drawings from the living plant; it was also collected about the same time by Dr. Gillies, from whose specimens Sir William Hooker gave the excellent figure and description above quoted. I had long ago separated this from *Atropa* as a distinct genus under the name of *Perizoma*, and had prepared a drawing to exemplify it; but upon examining with more attention the species of the foregoing section that exist in Sir William Hooker's herbarium, I was led to the conclusion that it is better to place it as a distinct section of *Salpichroa*, on account of the close resemblance of the most essential characters of the flower and the seeds; the presence of the hairy perigynous ring and the different size and shape of the tube of the corolla not offering more than a sectional difference.

This is a weak plant trailing among bushes, or on the ground. The stem is slender, sub-4-angular, somewhat flexuose. The leaves are sometimes almost glabrous, often slightly pubescent on both sides, with very short articulate hairs, the margin and petiole being ciliated. The flowers are usually solitary (or geminate when the axils present ternate leaves); they are crenulous upon slender pubescent lateral peduncles. The calyx is deeply cleft into 5 long sharply-pointed, almost linear erect segments; it is slightly pubescent and persistent, it does not increase much in size nor become patent as the fruit ripens. The corolla is short and tubular, broad in proportion, quite white and smooth, and sensibly contracted both in the middle where the filaments are inserted, as well as in the mouth; the segments of the border are narrow, acuminated and reflexed; the aestivation is slightly induplicate, the inflected edges adhering by their woolly margins; near the base of the tube is seen a somewhat fleshy ring, which is covered with long, woolly, white, articulated hairs. The stamens are equal, short, slender, and glabrous;
the anthers, converging around the style above the mouth of the tube, are narrow, linear, 2 locular, with parallel adnate cells, which burst longitudinally somewhat laterally; the pollen is yellow and farinaceous, and when seen in the microscope, both in the dried and humid state, is globular with 3 salient obtuse equidistant points. The ovarium is pyramidal, its base being deeply enveloped by a conspicuous fleshy orange-coloured disc; the style is conical at base, above which it has a broad band of long white hairs, and is quite smooth towards the summit, which rises a little above the anthers; the stigma is rather large, clavate, somewhat hollow, cup-shaped, and fleshy. The berry is of an oblong form, of a bright scarlet colour, about $\frac{1}{4}$ an inch long, and $\frac{3}{4}$ wide, api-culate at the summit with the persistent base of the style; it contains from 16 to 20 rather large dark brown seeds, enveloped in pulp; these are of a roundish square form, greatly flattened, with a small hilum on the marginal edge; the testa is hard, brittle, and rugous, both its surfaces, and especially the margin, being densely set with long rigid simple hairs; the albumen is fleshy, rather compact, and encloses a nearly annular, filiform, embryo; the radicle is about one-third the length of the embryo, and points towards the hilum, the coty-ledons being semiterete and arcuate.*

I found this plant at several places in the Pampas, at a distance of nearly 600 miles in the interior, and afterwards near Buenos Ayres; and although these differ very much in appearance, I can hardly venture to designate them as distinct species; they are therefore added merely as varieties.

Var. $\beta$. divaricata; caule flexuoso, valde divaricatim ramoso, foliis obovatis, minoribus, utrinque pilosisculis.—Pampas, ab Esquina de Medrano usque Frayle muerto, Provincia Cordovensis.

This plant is of more straggling habit, the branchlets spreading very widely, and the leaves scarcely exceeding $\frac{1}{4}$ to $\frac{1}{2}$

* A representation of the above species with ample details is shown in Plate 1 of the "Illustrations of South American plants, &c."
of an inch in length, the stem being 4-angular and pubescent.

var. γ. pubescens.—caule 4-gono; foliis fere ovalibus, rotundatis, utrinque valde pubescentibus, petiolo gracili.—Pampas, San Luiz usque Rio Quinto.—This presents a very different appearance to the last variety: the leaves being about the same size, but and more slender.

6. Salpichroa

suffruticosa ich. Linn. 7, 70—
tis, flexuosis, ramu-
sparsis, inaequa-
ordatis, in petiolum
utrinque glabris,
killaribus, solitariis,
laciniis linearibus,
mi, genitalibus ex-
low).

scription, it is evident e foregoing. The d; the peduncle is
ward; the calyx
covered with short
licated with glan-
der than the calyx,
articulate?), funnel-
triangular, rather
s; the stamens
ng inserted above
contracted, and
ulous hairs. The
istent calyx, 
mna increases in size to the length of 5 lines. The seeds
are numerous, whitish, compressed, subreniform, but were
not ripe when seen.

DUNALIA.

Among the plants sent from Peru by Mathews is one
marked Lycium obovatum, but it is clearly not the one

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figured under that name in the Flora Peruviana.* In its

- I have searched in vain for this plant in the herbarium of Ruiz and Pavon in the British Museum, nor can I find it elsewhere. In the herbarium of Sir Wm. Hooker there are, however, three plants from central America that bear much resemblance to it. It cannot be a true *Lycium* on account of the sepalation of its corolla which is valvato-plicative (not imbricate) and its lobes are acute with pubescent margins (not rounded and smooth); it appears to me that with some others I shall point out, these will form a distinct group; they possess a habit widely different from *Lycium*, although they are all spiny shrubs, generally with 1 or 2 violet or crimson flowers growing out of the fascicles of rather small fleshy leaves that cluster upon the spines; the corolla is usually broader and more tubular than in *Aenibus* or *Lycium*, with stamens often unequal and included; the calyx has generally acute lobes, and is not pentagonal with obtuse lobes as in *Aenibus*. They offer much resemblance in external appearance to the species of *Dusalia*, above described, but they want the intermediate tooth in the corolla and the appendiculate stamens of that genus. I propose to call them by the name of *Lycioplesium* from *Lycium*, and *πυριτα*, *approximatus*. It may be said that they should, like the *Lycioutes* of Endlicher, form a distinct section of *Lycium*, but on account of the sepalation of the corolla, the generic character, so altered to admit of them, would necessarily include *Aenibus*, *Salpichroa*, *Chenesethes*, and *Iochroma*; genera decidedly inadmissible. The following is therefore offered as the generic character.


Frutices Americae meridionalis glabri vel tomentosi spinosi; folia crassiuscula, oblonga, in petiolum basi angustata, in spinis junioribus subfasciculata; flores pedunculati (1-2) in quoque axilla; corollae violacese vel rubescentes; baccae rubrae vel aurantiaceae.

essential characters of *Dunalia*. The genus *Dunalia*, founded by Prof. Kunth on a shrubby plant with much the habit of a *Witheringia*, brought from the Cordillera of New Granada by Humboldt, was placed by that learned botanist among *Cestrinæ*, on account of the resemblance of its flowers to those of *Cestrum*, although he confesses he knew nothing of the form of the embryo of its seed. Until this fact be ascertained it remains doubtful whether it may not with equal reason be classed in *Solaneæ*, near *Salpichroa* or *Chamæsthes*, which view is much favoured by its numerous ovules seen upon the thickened placenta on the dissemination; but on the other hand it must not be forgotten that some analogy exists between the appendiculate processes of the filaments in this genus, and the singular projection often seen upon the fila-

This is said to be a shrub 6 feet high, with many spreading, thick, leafless branches; branchlets an inch long, furnished with leaves at base, spinose at the apex; leaves fasciculate (4-7), petiolate, 4-6 lin. long (including the petiole 1 lin.) 2-2½ lin. broad; flowers subaxillary, peduncles 3-4 lin. long, filiform, and smooth; calyx semiglobose, obtusely 5-toothed, nearly entire, smooth, with 5 small acute teeth, about 1 line long; corolla smooth, tubular, somewhat curved, 7 lines long, border with 5 equal, acute, spreading lobes with ciliate pubescent margins; stamens inserted at base of tube, and equal in length to the corolla, filaments smooth, anthers erect, oblong; ovarium conical, smooth; style filiform, smooth, rather longer than the stamens; stigma thickened, green.


A handsome shrub, said much to resemble the last mentioned species, but differing in its smaller lanceolate leaves; branchlets covered with thick white tomentum, 1-1½ in. long, often spiny at the apex, bearing fascicles of leaves at the base; peduncles axillary, smooth, 6 lines long; calyx smooth, 3 lines long, with 5 short equal obtuse teeth, terminated by a woolly cuspidate point; corolla tubular, 15 lines long, with a slightly spreading border, having 5 short triangular acute lobes with ciliate margins; berry red, twice the size of a pea, globose, partly enclosed within the calyx, which now becomes unequally 3-4 cleft.
ment of some species of Cestrum, which appears as if two lateral lobes were agglutinated into one salient tooth.

The following is proposed for its generic character:


**Frutices Andicoli America meridionalis intertropicae; foliis alternis petiolatis, geminis vel fasciculatis, glabris vel pubescentibus; floribus sub umbellato-fasciculatis vel solitariis, extra-axillaris: corollis albis vel coccinis.**


The leaves are said to be about 10 inches long and 4 inches broad, on a petiole an inch in length; the calyx does not measure a line; the corolla is white, nearly an inch long with a narrow slender tube, the lobes of the border being ovate, and 1-nerved; the stamens are very short, and placed in the middle of the tube of the corolla, the lateral appendages equalling in length the intermediate antheriferous filament; the style is much longer than the corolla; the berry is globose, glabrous, about the size of a pea.
2. Dunalia lycioides (sp. nov.)—fruticosa, glaberrima; ramulis horrido-spinosis; foliis fasciculatis (1-2-3), lanceolato-spathulatis, obtusiis, in petiolum decurrentibus; floribus (1-2) nutantibus, staminibus exsertis. — Peruviae Prov. Canta, Tarma et Jauja. (Mathews n. 850) in herb. meo; etiam in herb. Hook. cum aliis Columbia (Lodd. n. 255) et Bolivia (Pentland).

This is described to be a shrub 6 or 8 feet high. The branches are flexuose, quite smooth with internodes scarcely an inch distant, and a single stout, sharp pointed, divericate spine in each axil, 2 inches in length, the older ones being bare and sometimes again spiny; the younger ones-bearing leaves and flowers. The leaves are smooth, fleshy, rounded at the apex, and tapering at base into the petiole, they are 9 lines in length and 2½ lines wide; the peduncles are 4 lin. long; the calyx at first slightly pubescent, is urceolate, with 5 projecting ribs which terminate in as many short teeth, with a mucronulate woolly apex. The corolla is broader and about the length of the last species, being 10 lines long, smooth, of a crimson colour, having a border of 5 short, rather erect lobes, with floccose margins, and a narrow intermediate plicature with tomentose edges and a small erect tooth in the centre. The crimson filaments are adnate by a central line to the base of the tube of the corolla for one third of its length, the upper part being wholly free, the lateral appendages being short, acute, and only ¼th part of the length of the antheriferous portion, which is slender and subulate; the anthers are oblong, yellow, protruding beyond the mouth of the corolla. The fruit is unknown.*

ACNISTUS. Schott.

This genus was first proposed by Schott in 1829 (Wiener Zeitschrift 4.1180) upon a Brazilian plant considered to be identical with the Cestrum cauliflorum, Jacq. Hort. Schoen.

* A figure of this species is given in plate 2 of the "Illustrations of South American Plants," &c.
3.41 tab. 325. Another species, also confounded with it, had been long previously known and figured by Plumier, under the name of *Belladonna frutescens* (tab. 46, f. 1). The authors of the Flora Peruviana have given a representation of a fourth species, under the name of *Lycium aggregatum*, (2.45. tab. 182. f. a.); but as the characteristic features of the genus are not delineated in the figures above quoted, nor any exact details have, to my knowledge, yet been published, I offer the following from my own observations.


**Frutices Americae tropicae**, foliis alternis, integris, junioribus aggregatis; floribus pedunculatis, in axillis sepe annotinis, fasciculatis, rarius in racemis terminalibus; pedunculis apice incrassatis.

There is very little tenable ground for maintaining this genus, as hitherto constituted, distinct from *Lycium*, there being hardly any single character that is not equally common to both of them, excepting the hairy tuft at the base of the filaments in the one, (and that is a very inconstant feature), and the numerous fascicles of flowers in the cicatrices of the fallen leaves in the other. An important distinction will, however, be found to exist in the aestivation of the corolla. We have the respectable authority of Schlechtendahl and Schott,
which has been acceded to by all succeeding botanists, that *Aenistus* possesses an imbricate aestivation. I cannot affirm this statement, for in the Brazilian species upon which Schott founded this genus, the lobes of the corolla unquestionably adhere by their tomentous margins, which are mutually and slightly turned in, a mode of aestivation observed in many arborescent species of *Solanum*, and very different from that of true *Lycium*, where the lobes of the corolla offer an imbricate or quinuncial aestivation. It therefore seems advisable to unite with *Aenistus*, several species hitherto combined with *Lycium*, forming part of the section called *Anisodontia* by G. Don, and *Lyciostamnos* by Endlicher; these mostly consist of spineless trees or shrubs, with large leaves, having flowers in umbellate fascicles, and I propose to confine within the limit of *Lycium* proper, those shrubs, mostly with small fasciculate leaves, whose branchlets terminate in spines, or have a tendency to do so, that have only 1 or 2 flowers in each axil, and with elements corresponding to the old generic character exhibited by Gärtner (*de fruto* 2.242), with the addition of the before mentioned aestivation.*

* The remaining species of *Lycium* in the section above alluded to, appear to me again distinct, approaching very closely to *Dunalia*, but as their filaments want the lateral appendages peculiar to that genus, I propose uniting them under the name of *Chañesthes*, derived from *Chañe* deahoso, popur vestie; on account of its tubular calyx splitting by the growth of the fruit. This genus will comprise 5 species described by Prof. Kunth from the plants brought home from central America by Humboldt and Bonpland, together with another hitherto undescribed that exists in the herbarium of Sir Wm. Hooker; they are all trees or large shrubs, with abundant foliage, growing at great elevations in the valleys of the Andes, having generally long crimson, or orange coloured flowers of much beauty, the corolla presenting a 5-lobed border, with 5 small teeth in the intermediate narrow plicatures, as in *Dunalia*, and an unequally 5-toothed calyx, that somewhat enlarges with the fruit, and splits as above mentioned.

*Chañesthes.*—*Calyx* tubulosus, inaequaliter obtuse 5-dentatus, sub 2-lobus, decemnum parum auctus, lateraliter fissus, persistens. *Corolla* hypogyna, infundibuliformi-tubulosa, subincurvata, lobis 5-acutis, margine flocc-
It should be remarked that the flowers in most (and I believe in all) species of *Acnistus* possess a very sweet smell.

1. *Acnistus cauliflorus*, Schott;—foliis obovato-oblongis, utrin-

cosis, stimatione valvato-induplicativis, basi plicatis, dentibus brevibus
interjectis. *Stamina* 5, subinclusa, filamentis basi adnatis, mox liberis,
gracilibus, erectis, vix exsertis; antheris oblongis, basifixis. *Ovarium*
ovatum, 2-loculare. *Stylus* gracilis, apice incrassatus, exsertus. *Stigma*
clavato-bilobum. *Bacca* obovata, calyce hinc fisso inclusa. *Semen*
umerosa, in pulpo nidulantia, rugosa, reniformia, cetera ignota.

*Frutices* *Andicoli* *Americae* *intertropicae*. *Folia* *alterna*, *petiolata*. *Flores*
*speciosi*, *coccinei*, vel *aurantiaci*. *Bacca rubra*.

1. *Chenesesthes fuchsioides*. *Lycium* *fuchsioides*. *H.* *B.* *K.* *3*, 52, *Pl. *Æquin.*
*tab. 42*. *Bot. Mag. tab. 4149*. *Fruticosa*; *foliis* obovato-oblongis, obtu-
siustculis, glabris; umbellis extra-axillaribus, terminalibusque, sessilibus,
multifloribus; pedicellis glabris, cernuis; calyce 2-lobo, sub 5-dentato,
lobo altero 3-dentato, vel integro; corolla coccinea, glabra, filamentis
*Columbia*, *Jameson*. *v. s.* *in Herb. Hooker*.

Bonpland describes this to be a shrub 10 or 12 feet high. The leaves are
smaller than most of the other species, being only 2 in. long, and 9 lin.
wide, broader towards the top, and narrowing gradually into a petiole of
6 lin. in length. The calyx is tubular, quite glabrous, about 5 lin. long,
broadly 2-lobed, the one lobe having a single, sometimes two minute pu-
bescent teeth, the other having three minute approximate teeth, which are
downy; the flowers, according to Bonpland, are of a "beau rouge;" while
Colonel Hall states them to be "orange red;" they are about 1 inch long,
tubular, glabrous, with a border of five somewhat erect lobes, with a small
tooth in each intermediate plicate; the filaments are crimson, subulate,
slightly hairy below, inserted near the base of the corolla; the berry is
pyriform (not globular), and three times the length of that figured by Bon-
pland, 9 lines long, enclosed by the enlarged calyx, which is cleat to the
base on one side; the seeds are very numerous, but too unripe to discover
the form of the embryo. The plant found by Prof. Jameson in Columbia
is hardly to be distinguished from that of Col. Hall, except that in the lat-
ter, the stamens are somewhat exserted, and the calyx is divided into five
nearly equal segments, being scarcely bilabiate; but that difference alone
can hardly make it a distinct species. Prof. Jameson says it is found abund-
antly in the neighbourhood of villages (azogues), where it is used for
fences. The cultivated specimens described by Sir Wm. Hooker (*Bot. Mag.*
*tab. 4149*), exhibit larger and broader leaves and larger flowers, but the
calyx is exactly that as above described from Columbia.

2. *Chenesesthes umbrosa*. *Lycium* *umbrosum*. *H.* *B.* *K.* *3*, 54. *Fruticosa*;
que attenuatis, basi cuneatis, in petiolum longum subdecurrentibus, integris, utrinque pubescentibus, demum subglabris, subtus pallidis; floribus fasciculatis, confertis, longe ramulis horto-pubescentibus; foliis oblongis, acuminatis, glabriasculis, floralibus ovato-rhomboideis; floribus umbellato-fasciculatis, lateraliter extra-axillaribus; corollis coccineis, tubulosis, hirtellis; staminibus subinclusis; stigmatate exserto, bilobo.—Nova Granada. Columbia (Hartweg, n. 1310). v. s. in Herb. Hooker.

The leaves are 3 in. long and 2½ in. broad, the petiole being 1½ in. long; the pedicels are 1½ in. long, the calyx 5 lin. the corolla 1½ in. long; the crimson filaments are adnate to the base for a length of 3 lines, where they are downy, thence they are free, tomentous, and dilated below, smooth and tapering gradually upwards; the style thickens considerably towards its summit.


In this species the leaves are about the size of C. fuchsiioides, the flowers are in fascicles, with slender pedicels swelling at the summit, 1½ in. long and tomentous; the calyx is short, unequally 5-toothed, 2-lobed, the one having sometimes 3 teeth, often truncated; the corolla of an orange-red colour, is covered with soft, dense, yellowish down, and is 1½ in. long; the anthers are half exerted; the style being somewhat longer, and the stigma capitate and bilobed.


6. Chaenesthes lanceolata, (sp. nov.) Fruticosa; ramulis cano-vel subferrugineo-floccosis; foliis lanceolatis, acuminatis, supra parce pubescentibus, infra pallidoribus, floccoso-tomentosis, petiolo caniculado, tomentoso; umbellis brevibus, multifloribus; calyce urceolato, 5-dentato, mollissime pubescenti, pilis floccosis; corolla subcurvata, parce puberula lobis mar-
pedunculatis; corollis pubescentibus, staminibus breviter exsertis.—Rio de Janeiro et in Insulis Antillanis.

This species, which is widely disseminated throughout tropical South America, is considered by Schlechtendahl and others as identical with the three following; but as it differs in many respects, I have kept it distinct. The leaves are more

ginibus floecosis; antheris lineari-oblongis, subinclusis.—Paramo de Quindui, Nova Granada (Goudot), v. s. in Herb. Hooker.

The leaves are 5½ in. long and 1½ in. broad, on a petiole 1 in. long, with many divergent parallel veins. The stalk of the umbel does not exceed 3 lin., the calyx 3 lin., on a pedicel of 9 lin. long; the corolla seems of a crimson colour, the tube slightly curved, about 1¾ in. long and 4 lin. broad; the filaments are adnate to the base of the corolla for the length of 6 lin. where they are tomentous; they then become free, are pubescent below, slender and glabrous upwards, and of a crimson colour; the anthers are half exserted.

**IOCHROMA, Benth.**

With Sir Wm. Hooker's kind permission I add here a new species of Mr. Bentham's beautiful genus *Iochroma*, in addition to the three species enumerated in the *Bot. Reg.* 1845, tab. 20.

4. Iochroma *macrocalyx* (sp. nov.); Suffruticosa; foliis rhomboideo-ovatis, utrinque molliter pubescentibus, subtus pallidis; floribus umbellato-umbellatis; tubo magnno, ventricoso, orae constricto, 5-dentato,

## Inserted Notes

- [Notes on plant species, possibly handwritten]
elliptic, with comparatively longer petioles, the stamens less exserted, the corolla more slender, with a proportionally longer tube, which is pubescent, the anthers are apiculated, the style far exserted, the peduncles glabrous, longer, and more slender. A specimen in Sir William Hooker's herbarium, from the Island of St. Vincent's is not distinguishable from the Brazilian specimens.*


This species is sufficiently distinct from the others in the form of its flowers, which are well shown in Jacquin's figure, where the leaves are not represented longer than 3 or 4 inches, but in Sir W. Hooker's cultivated specimen they are 9 inches long, upon a petiole of 1 inch, they are 4½ in. broad, quite smooth on both sides; the pedicels are slender, the corolla quite glabrous, very short, and broader in proportion than any other species (4 to 5 lin. in length, 2 lin. in diameter), the calyx is smooth and membranaceous, and the stamens far exserted.


This species, hitherto confounded with the preceding, differs in the size and shape of the leaves, and in its flowers. The leaves are from 10 to 12 in. long, and 3 in. broad, upon a

* For the details of the generic features of Acnistus, and a figure of the above species, see plate 2 of the "Illustrations of South American Plants, etc."
petiole 9 lin. in length; the corolla is white, with a much longer
and narrower tube; the calyx is deeply cleft into 5 acute lobes.
4. Acnistus aggregatus. Lycium aggregatum. R. & P., 2, 45,
Bot. Misc. 2, 232.—Frutex leviter tomentosus, canescens;
foliis primum fasciculatis, demum sparsis, oblongis, utrin-
que acutis, undulatis, integerrimis, supra subglabris, subtus
incano vel flavido-tomentosis: floribus umbellato-fasci-
latis, corolla alba, tubo brevi, lobis macula viridi notatis,
staminibus vix exsertis.—Peruvia. v. s. in herb. Hook.
The leaves are from 3 to 6 in. long, and 1½ to 2½ in. broad,
more elliptic: the calyx and corolla are both pubescent, the
lobes of the former being short and obtuse.
5. Acnistus Guayaquilensis, G. Don. Lycium Guayaquilense,
H. B. K. 3, 50:—folii elliptico-oblongis, acutis, supra
parce puberulis, subtus molliter cano-tomentosis; umbellis
extra-axillarisibus, sessilibus; calyce pentagono; corolla
alba; staminibus exsertis.—Guayaquil.
In this species the leaves are described by Kunth to be
from 6 to 7 in. long, and 2½ to 3 in. wide, on a petiole ½ in.
long; the flowers are about the size of those of Lycium Euro-
peum, and of a sweet smell, as in the preceding species.
6. Acnistus floribundus, G. Don. Lycium floribundum, H. B. K.
3, 51:—folii oblongis, acutis, glabris, infra pubescentibus;
umbellis extra-axillarisibus, sessilibus, approximatis; florib-
bus praecedenti majoribus; corolla alba, extus pubescenti;
staminibus exsertis.—In Andibus Peruvianis, ad Caxamar-
cam.
The leaves of this species are from 2 to 3 in. long, on a
petiole of 3 to 4 lin., the flowers somewhat smaller than those
of the species last described, are more numerous in each fas-
cicle, of a sweet smell, upon smooth pedicels, which are from
5 to 6 lin. long, and thickening towards the calyx.
7. Acnistus spathulatus, G. Don. Lycium spathulatum, R. & P.
2, 46, tab. 183, a:—glaber, ramis angulatis; folii obovato-
spathulatis, dispersis, vel fasciculatis, in petiolum longum
decurrentibus; umbellis subaxillaribus sessilibus; corollae lobis acutis, pubescentibus.—Huanuco Peruviae. v. s. in Herb. Hooker. (Mathews, n. 849).

This is described as a shrub, 8 to 10 feet high; the leaves, including the decurrent petiole, are 5 in. long and 1½ in. broad, the pedicels are thicker above; the flowers are of a violet hue, and the filaments pubescent at base.


9. Acnistus rami florosus, (sp. nov.); ramulis pallidis, glabras, verruculosis; foliis oblongis, utrinque attenuatis; nodis annotinis floriferis, valde approximatis; floribus plurimis, umbellato-fasciculatis; pedicellis gracilibus; corolla glabra, lobis margine tomentosis; staminibus styloque 2-lobo exsertis.—In Insula San Vincenti. v. s. in Herb. Hooker.

This is a very distinct species, remarkable for its proximate floriferous internodes, which are not more than half an inch apart. The leaves are 8½ in. long, and 3½ in. broad, on a petiole 1½ in. long; the flowers are numerous in each fascicle, the pedicels being 6 to 9 lin. long: the corolla is smooth.

10. Acnistus Benthami. Lycium macrophyllum, Benth.—Caule argenteo, foliis subfasciculatis, oblongis, utrinque cuneatis, supra glabras, subtus incano-puberulis; floribus in axillis annotinis fasciculatis; corollæ lobis ciliatis; staminibus exsertis.—Mexico. v. s. in herb. Hooker (Hartweg, n. 368).

A species nearly approaching A. spathulatus in the size of its leaves, which are 4 in. long, and 1½ in. broad, on a petiole 1 in. long:—the pedicels measure 1 inch.


The leaves are 3½ in. long, and 1½ in. broad, on a petiole of 9 lin.; the pedicels are 1½ in. long; the corolla has a tube 7 lin. and a border 4 lin. in length.

12. Acnistus cestroides. Lycium cestroides. Schlecht. Linn. 7, 70: ramulis pubescentibus, interdum spinescentibus; foliis late lanceolatis, utrinque acutis, glabris; floribus umbellato-fasciculatis; pedunculis spicis incrassatis; corolla glabra, lobis brevibus, obtusis, margine tomentosis; staminibus inaequalibus, inclusis.—Banda Oriental, in San José de Urugay. (Sellow).

This is said to be a bushy shrub, with flexuose branches, the younger ones downy, short (some of them almost spiny at the apex), bearing fascicles of young leaves, and almost umbellate clusters of flowers; the leaves have short petioles, measuring altogether 2 to 2½ in long, and 8 to 10 lin. broad, the petiole being semiterete and pulvinate at base, out of a short tubercle; when in flower the peduncles are 3 lines, in fruit 5 lines long; the calyx is 1½ lin. long, having short lobes with a subulate tooth at the apex; the corolla is 8 lin. long; the berry is globose, red, 8 lin. diameter; the seed with its embryo agrees with the character of that given in the typical species.

13. Acnistus ellipticus, Hook. fil. ined.—Fruticosus; foliis ellipticis, utrinque attenuatis et glabris, floribus paucis, fasciculatis, pedicellis longis; corolla extus cano-pubescenti, lobis brevissimis, staminibus inclusis, medio tubi insertis.

—Insula Galapagos (Darwin).

This is a very distinct species, with smooth elliptic leaves, 3½ in. long, 1½ in. broad, with a channelled petiole ½ in. long; the flowers 3 or 4 in a fascicle, grow out of the cicatrizes of the fallen leaves; the peduncle being 1½ in. long, considerably thickened towards the summit; the calyx is about 8 lin. long, with short, unequal, rounded teeth; the corolla is tubular, about 8 lines long.
Species dubia.


HIMERANTHUS.

The Jaborosa runcinata of Jussieu has very properly been separated from the Jaborosa integrifolia, Comm. and constituted as a new genus by Prof. Endlicher under the name of Himeranthus (Gen. Plant. n. 3860); but as that distinguished botanist probably had no opportunity of seeing the plant in its living state, his character is incomplete in some of its essential features. I therefore propose the following as its true limits, and annex the details of two other species that I met with.


Herbæ Bonarienses, glabrae inferne radicantes, superne sub ascendentes; foliiis magnis, collo radicali congestis, ovatis, erosæ-vel sublyrato-sinuatis, petiolatis; pedunculis laterali-bus, solitariis, unifloris.

I found this plant in 1825, at Arecife, 120 miles westward of Buenos Ayres; it seems to correspond with the *Jaborosa runcinata* of Link and Otto; but as Sir Wm. Hooker justly observes, it has no upright stem, as figured by these authors, for the leaves and peduncles proceed at once from the collar at the summit of the root. The plant seems to propagate itself by running suckers which at intervals strike root into the ground, where they form new plants. The leaves vary from 2 to 3 inches in length, and 1½ to 2 in. in breadth; the petioles being about an inch, and the peduncles about 1½ in. long; at times they are somewhat larger. The calyx is sub-fleshy, with 5 equal, acute, erect, persistent lobes. The corolla is campanular, somewhat contracted in the mouth, the border being 5-partite, with oblong acuminate lobes, and a plicate aestivation; it is of a yellowish white colour, fleshy, quite glabrous outside, and hairy at base within. The stamens have very short filaments inserted below the mouth, expanding into a thick fleshy connective, to which the 2-celled anther, bursting longitudinally, is dorsally attached. The ovary is green, globular, half immersed in the fleshy torus; the style is simple, white, slightly curved, and is distinctly tubular at the summit to some depth; the stigma is clavate, and indistinctly 2-lobed. I met with no seed sufficiently advanced to show any indication of the embryo, the character of which I have stated on the authority of Endlicher. *

From the above description it will be seen that the genus *Himeranthus* is very distinct from the *Jaborosa* of Jussieu, founded originally upon the plant discovered by Commerson, which is the only species known, and which has been very accurately described and figured by Sir Wm. Hooker, (*Bot. Mag. tab.* 3489), from living specimens raised in Glasgow, from seeds sent home by Mr. Tweedie. †

* A drawing of this species is given in plate 4, a. of the "Illustrations of South American Plants."

† I did not find any specimen of *Jaborosa* during my journey, but judging from the excellent figure above mentioned and the dried specimens I
2. Himeranthus erosus (n. sp.);—foliis subintegris, vel erosinuatatis, carnosulis, petiolatis, petiolo crasso sulcato; pedunculo petiolo 3-plo-longiori; corollae lobis integris, acutis.—In Provincia Bonariensi.

I found this plant at some considerable distance from Buenos Ayres; the leaves are more than double the length of the former species, comparatively broader, more entire, the petiole being about 2½ in. long, very fleshy, semiterete, with slightly decurrent margins. The peduncles are from 4 to 6 in. long; the flowers are larger, the tube of the corolla not so much contracted in the mouth, and the segments of the border larger in proportion; the filaments are nearly half the length of the tube of the corolla, are fixed about the middle above the villous lines described in the last species; the style is hollow at the apex for one-sixth of its length, and the stigma, with three expanded, obtuse, and almost obsolete lobes, is exserted. Specimens of this plant exist in Sir William Hooker's herbarium, gathered by Dr. Gillies.*

3. Himeranthus tridentatus (n. sp.);—foliis ovatis, angulo-

have seen, I subjoin what I consider to be an amended character of this genus.


Herba Bonariensis subacaulis, prostrata, radicans; foliis integerrimis, oblongis, petiolatis; pedunculis longis, solitariis, 1-floris.


In order to exhibit more strikingly the difference between the two genera I have placed in juxta-position with Himeranthus erosus in plate 5 of the "Illustration of South American Plants," Sir Wm. Hooker's representation of Jaborosa integrifolia.

* A representation of this species is given in Tab. 5. A. in the "Illustrations of South American Plants."
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sinuatis; pedunculo petiolo 2-plo longiori; corollae lobis oblongis, obtusi, 3-dentatis.—Bonaria.

This species I found also in the province of Buenos Ayres, in 1826, the only specimen of which was afterwards much destroyed, but I preserved the drawing made on the spot.* The leaves are far more membranaceous and more entire than the former species. The lobes of the corolla are longer, broader, more obtuse, and 3-dentate.

**DORYSTIGMA.**

Among the plants that I found in my last rapid journey over the lofty chain of the Andes, in 1825, were two species, one of which was also collected about the same time by Doctor Gillies, from whose specimens it was figured and well described by Sir William Hooker in his *Bot. Misc.* 1, 347, *tab. 71*, under the name of *Jaborosa caulescens*. The difference in the stamens and the stigma, the presence of stipular bracts, a somewhat ascending stem, and a far more rigid and dry habit, constitute the ground upon which I propose to separate it from *Jaborosa*, from which genus it differs far more strikingly than *Himeranthus*. The following is offered as its generic character, its name being derived from Αόρυ ἡστα, and νυμα on account of its lance-shaped stigma.


Herbæ Andicolaæ, inferne radicantes, prostratae, vel subadscen-

* The above species is also figured in the same work, *tab. 4. d.*
dentes; foliis petiolatis, subternis, lyratis, vel pinnatifido-laciniatis, denticulatis; pedunculis extra-axillaribus, solitariis, 1-floris, bracteatis.


Sir William Hooker's above mentioned figure affords so admirable a representation of this plant, and is accompanied by so good a description, that it is needless to make any further remark, than that the bracts are scarcely half an inch long, very slender, and subulately acuminate. Excepting in their relative size, there is little difference in the flower of this and the following species; the mouth and segments of the corolla are densely lined within with tomentum, the hairs being articulated; the anthers have a distinct mucronate apex, and the filaments are somewhat longer.*

2. Dorystigma squarrosum, (n. sp.); Jaborosa decurrens (Nob. Trav. Chile, 2, 581);—foliis subternis, longe petiolatis, irregulariter pinnatifido-laciniatis, laciniiis eroso-denticulatis, petiolo alato, pedunculo duplo longiori; bracteis longissimis, lineari-spathulatis, pedunculo fere æqualibus.—In Andibus Chilensis, altitudine 12,000 ped.

This plant was found by me in January, 1825, in another and far more elevated portion of the Cordillera, near the summit of the Cumbre; although exposed to the bleak drying winds prevalent in that great altitude, it is larger in its general proportions than the former species, and is remarkable for the great difference in the length of its bracts. The root is fusiform, and from its summit arise several stems, which are somewhat prostrate and ascending. The leaves have a blade about 3 in. long and 1 in. broad at the widest part, quite smooth, light green, opaque, and more coriaceous than fleshy

* A representation of this plant, with ample sectional details, is given in the "Illustrations of South American Plants," plate 6. A.
in consistence; the petiole is about 3 in. long, fleshy, round beneath, flat above, with a somewhat broad decurrent ciliated margin; the leaves are generally ternate, and the united bases of the foot-stalks give a knotty form to the axils, which are about \( \frac{1}{2} \) in. apart. The number of peduncles and bracts generally correspond with that of the leaves. It may be doubted whether the slender leaflets seen in the axils should be considered as bracts or stipules, neither of which organs are usually met with in the Solanaceous group of plants; but I have adopted the view of Sir Wm. Hooker, who considers them as bracts, which is justified by the circumstance of their being always seen rather within the line of the petioles; they are linear, slender at base, about 1\( \frac{1}{4} \) in. long, swelling at the extremity into a spatulate blade, with a long cuspidate point. The peduncles are round, rather slender, about 1\( \frac{3}{4} \) in. long, somewhat erect, 1-flowered. The calyx is persistent, swelling about the torus, somewhat membranaceous above, and divided into 5 equal, long, tapering, erect segments, furnished with long articulate pubescence. The corolla is of a lurid cream-colour below the border, which is white, both externally and within, where it is covered with woolly tomentum; the tube is funnel-shaped, rather more than 1 in. long, the border being divided into 5 rather acute, expanding lobes, which are somewhat plicate at base; the anthers are almost sessile, and fixed by their base below the mouth of the corolla, they are deeply 2-lobed and laterally compressed, so that they stand out in a circular ring around the stigma, they are of a lurid green, and burst in front somewhat laterally by a longitudinal fissure, throwing out a yellowish-coloured pollen. The ovary is globular, somewhat flattened at the summit, and divided into 2, 3, or 5 indistinct lobes. The style is erect, cylindrical, somewhat enlarging at its extremity. The stigma is oblong, cordate at base, tapering, obtuse at apex, formed of 2 indistinct flattened adnate lobes, fleshy, green, and shining. The berry is cernuous, fleshy, and 2-celled; the seeds are flattened, reniform, subrhomoidal, with a marginal hilum; the testa is somewhat fleshy and rugous; the embryo is slender,
filiform, almost annular, and imbedded in fleshy albumen; the radicle, which points toward the hilum, is very long, straight at the extremity, and bent above; the cotyledons are short, slender, semiterete, curved, and terminate near the extremity of the radicle.*

**Trechonætes.**

Among the few interesting plants gathered in my journey over the Cordillera in the January, 1825, was one found upon the eastern descent of the Cumbre, towards Las Cuevas, at an altitude of 11,500 feet, in a very dry and arid situation, which circumstance suggested the above generic name, from τὴν ἄνθος locus asper, ναϊνθς incola. Specimens of the same plant have lately been sent to this country by Mr. Bridges; and as it has not been yet described, I now offer the result of my long recorded observations, from which it will be seen to possess characters very distinct from Jaborosa and its congeners.


Herbæ Andicolæ, pubescentæ, inferne radicantes; caulibus plurimis, prostratis, vix adscendentibus; foliis pinnatifido-laciniatis, dentatis; pedunculis extra-axillaribus; folio multo brevioribus; floribus solitariis, vel fasciculatis; bracteis linearibus.

1. Trechonætes laciniata. Jaborosa laciniata (Olim. Nob. Trav. Chile, 2, 531);—caulibus plurimis, brevibus, subadscendent-
bus; foliis subcoriaceis, pinnatifido-laciniiatis, lobis dentatis, acutis; floribus subsolitariis; pedunculis extra-axillaribus, bracteis brevi tenui subulata apice lanata instructis.—In Andibus altissimis Chilensisibus.

This curious plant is evidently allied to the *Jaborosa* group of *Solanae*, but it has an aspect very different from the others, both in its general pubescence and more lurid hue, as well as by its broad, duller, campanular flowers, with stamens quite free and inserted in the base of the corolla. The stem is fusiform, extending horizontally in the stony soil, from which radiate several half prostrate branching stems, whose axils are distinct although approximate; the leaves are sometimes alternate, sometimes subopposite; the petiole is fleshy, round below, flattened or caniculate above, with broad decurrent margins, and about 2 in. long; the blade is about 2 or 2½ in. long, and 1½ in. broad at the extreme points; they are deeply and somewhat pinnately laciniate, the segments being rather narrow, somewhat parallel and roundish, the margin being sometimes entire, with a cuspidate apex, but more generally sharply toothed with intervening sinuosities; they are somewhat erect, covered with long soft pubescence, the hairs being composed of several broad articulations; the peduncles are about half the length of the petioles, and round; the calyx is divided into five rather acute segments, very pubescent outside, glabrous within; the corolla is broadly campanulate, the tube being slightly pubescent on both sides; the lobes are ovate, acute, terminated at the apex by a somewhat terete woolly spur, the margins being whitish, membranaceous, the more central portion as well as the tube being marked with numerous purplish brown reticulations, and a few scattered hairs; the filaments are slender, nearly the length of the tube of the corolla, quite free to the base, whence they originate from a small adnate ring; they are smooth and slightly pubescent at base, erect, and curving downward toward the apex; the anthers, which are thus inverted, consist of two nearly globular adnate lobes, divaricate at base, bursting longitudinally by lateral fissures; they are without any sensible connective, and are fixed dor-
sally near the base, on the apex of the filament. The ovarium is round, pubescent, and partially imbedded in the fleshy torus, is 2-celled, with many ovules, adnate to a central enlargement of the dissepiment; the stigma is clavate, consisting of 2 adnate corrugated lobes. At the time I collected this plant, there was no indication of fruit, nor is any seen in Mr. Bridges’s specimens, but from analogy it may be assumed to be a berry. *

2. Trechonastes sativa (n. sp.);—caulisibus plurimis, confertis, subadscendentibus, pubescentibus; foliis ternis, inaequalibus, oblongis, angulato-sinuatis, vel pinnatifido-laciniatibus, laciniiis angulato-sinuatis, lobis mucrone glanduloso apiculatis, utrinque parce pilosulis; floribus plurimis, pedunculatis, aggregatis, pubescentibus, bracteis totidem spathulatis, integris, subglabris.—In Andibus Provinciæ Tucumanensis. v. s. in herb. Hooker, a Tweedio lecta, n. 1253.

This plant, according to Tweedie, is cultivated in Tucuman, where it is “used as mustard,” from which it may be inferred that the seeds have a pungent taste, for no part of the dried plant exhibits any such flavour. It grows in broad patches about a foot high; the stems are covered with soft hairs, and the axils are about 3 in. apart; the leaves, 3 in each axil, are of unequal size, the largest being 7 in. long, including the rather short decurrent petiole, and 4 in. wide; these are pinnately laciniate; the smaller ones are about 4 in. long and 2½ in. broad, and are angularly sinuate. Numerous flowers are crowded together in a fascicle on one side of each axil, the peduncles being 9 lin. long, with a glabrous, spathulate bract, at the base of each, from 2 to 9 lin. long. The calyx is deeply cleft into 5 acuminate, subulate, membranaceous, green segments, pilose, 2 lin. long. The corolla is of a dusky green, less than half the size of that of the former species, sparsely covered with long, soft pubescence, broadly campanulate, submembranaceous, veined, and deeply divided into 5

* A representation of this species is given in plate 7 of the “Illustrations of South American Plants.”
ovate, acute lobes, with undulated margins, and terminated by a woolly rostrate apex; the stamens are included; the filaments, entirely free, slender, glabrous, erect, and recurved at the summit, arise from the points of a slender, adnate, 5-toothed ring in the base of the corolla; the anthers are ovate, cordate, 2-lobed. The ovarium is round and smooth; the style short and thick; the stigma clavate, broad, and 2-lobed.

**Pionandra.**

Under this name I propose to found a genus comprising some Solanaceous small trees and arborescent shrubs with wide spreading branches, and long racemes of flowers, similar to three species that I found in the Organ Mountains in 1829 and 1838. The *Witheringia diploconos,* figured by Von Martius in his Nov. Gen. et Sp. vol. III. p. 76, tab. 229, evidently belongs to this genus, the characters of which may be thus defined.

**Pionandra** (gen. nov.) *Calyx parvus, 5-partitus, persistens.*

*Coryolla* hypogyna, tubo brevissimo, limbo ampio, 5-partito, lobis 5 subcarnosis basi inflatis vel lanceolatis tenuioribus, aestivatione marginibus (fere valvatis) introflexis, interdum mucroni linearirostratis. *Stamina* 5, æqualia, circa stylium conniventes; *filamenta* breves, erecta, ex annulo plus minusve carnosso tubo adnato orta, crassa, lata, æpissime utrinque auriculata, nunc figura sigmoidea recurvata, nunc

* The genus *Witheringia,* according to the latest arrangement in the Repert. Bot. of Walpers, 3.29, contains many (24) heterogeneous species, and it appears to me that very few of those enumerated, harmonize with the generic character as established by L'Heritier. In the herbarium of Sir William Hooker, I can find no plant corresponding with the typical species; and in the British Museum where L'Heritier's original specimens are deposited, there are two plants marked *Witheringia solanacea,* both different, and neither answering to the figure and description of the founder of the genus. In the absence, therefore, of the typical plant, without any good description of it, or any satisfactory drawing of its details, without even the knowledge of the country where the original was obtained, nor by whom collected, it is difficult to understand the true limits of the genus.

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Frutices, vel arbusculae, in America meridionali intertropica indigena, subborgyales, ramosissimi, ramis dichotomis, foliis petiolatis geminis, subintegris plerique cordatis, altero minori; racemis extra-axillaris seipsisime in dichotomia ramulorum; floribus pedicellatis, secundis, pedicellis articulatis, sœpe deciduis.

Derivatio ex &alpha; pinguis, &eta; stamen, propter antherarum connectivum magnum.

I propose to separate the different species into two sections, with curved and straight stamens.

§ I. Ceratostemon. Stamina valde curvata, crassa, apice conniventis.

1. Pionandra floribunda (n. sp.) — foliis 5-nerviis, fere glabris, cordato-ovatis, apice valde attenuatis, et ciliato-serratis, limbo integrum, supra nitidis, creberrime punctulatis, subtus glauco-pallidis, sub lente minutissime pubescentibus; racemis secundis, folio æqualibus, corollae lobis extus apice rostratis.—Serrâ Organensi, Rio-Janeiro.

This is a small tree with very bushy widely spreading branches, conspicuous for the number of its long pendent racemes of flowers, that I met with on the ascent of the Organ Mountains, at an elevation of nearly 3000 feet. The branches are flexuose, somewhat dichotomous, quite smooth and glabrous. The leaves are sharply acuminate at the apex,
where they are subserrulated and ciliate; the margin is very
entire and somewhat membranous; they are about 4 1/2 inches
long, exclusive of the petiole, and 2 1/2 inches broad, the twin
leaf being about an inch shorter: they are quite smooth and
shining above, their surface being covered with very numerous,
minute, raised points, which are somewhat pellucid when
viewed through the light; below they are quite smooth, of a
pale glaucous green, apparently glabrous, but when examined
by a lens are seen covered with a very fine pubescence; they
are somewhat 5-nerved at base, the midrib and nerves being
slender and prominent. The petiole is channelled above,
slightly pubescent, and 1 1/4 inch long. The racemes of flowers,
about 3 inches long, generally spring from the stem on one
side a little above the origin of the pair of leaves, and some-
times out of the bifurcation of the branches; the pedicels all
arising from one side of the peduncle, are alternately arranged
in two rows, and articulated at a little distance from their
origin, where the greater number fall off: they are about an
inch long and glabrous. The calyx is small and fleshy,
and does not increase in size with the fruit, its segments
being acute and slightly pubescent. The corolla is of a lurid
greenish white, fleshy, and about an inch in diameter when
fully expanded; it has a short campanular tube, which is
distinctly saucate and obtusely 5-angular at the corners
opposite the stamens; the border is cleft into 5 equal, ovate,
acute segments, having very woolly and slightly inflected
margins, which in the bud present an induplicate cestivation
nearly valvate, each segment has externally at its apex, a long
terete spurlike woolly process; when the flower is fully open,
the lobes are quite patent: the corolla outside is quite
glabrous, but it is lined within with a short woolly white
tomentum, and near the base of the tube, is seen a semi-
terete fleshy annular staminiferous ring. The stamens are
very large and conspicuous, quite glabrous, and alternate
with the lobes of the corolla; the filaments are united at
their base into a very short tube, which springs from the
annular ring alluded to; they are dilated and fleshy, quickly
expanding beneath the anthers into 2 prominent auricular lobes, and terminate in a remarkably large fleshy gibbous connec-
tive supporting the adnate anthers, which consist of 2 distinct and separate lobes, somewhat divaricate at base, and
united at their summit by a cervix, forming a bottle-necked apex, in which two distinct pores are seen: the lobes, however,
present a decided longitudinal dehiscence by a central furrow; the summits of the anthers all converge round the style. The
ovarium is oval, quite smooth, 2-celled, with a broadly lunu-
late placenta arising from each side of the dissepiment, around which numerous ovules are closely arranged. The
style is short, thick, scarcely longer than the ovarium, it is
hollow and tubular more than half way down. The stigma
is a cyathiform fleshy cup, obsolely 2-lobed, terminating
the style, having within its mouth 2 fleshy glands. The
berry grows to a large size; the largest that I saw of a
kindred species which was far from mature, was oblong, and
nearly 2 inches in length, in which the seeds were not ripe
enough for examination.*

2. Pionandra pubescens (n. sp.)—Arbuscula, tota pubescens:
foliis 5-nerviis, obovatis, basi obtusis, vix cordatis, apice
attenuatis integris, utrinque pubescentibus; racemis secun-
dis, folio brevioribus.—Rio de Janeiro, Serra Organensi.
A species much resembling the former; but altogether
closely pubescent, and of pallid appearance. The leaves are
more obtuse than cordate at the base, the flowers are smaller,
not quite so fleshy, but the stamens are hardly so much
curved. The fruit was, in a very young state, 1½ inch long
and half an inch in diameter, but without doubt it grows to a
much larger size.

3. Pionandra ciliata (n. sp.) :—pubescens ; foliis geminis,
altero minori, lanceolatis, utrinque attenuatis, vel basi
obtusioribus, saepe inequaliteris, apice caudato-acuminatis
margine denticulatis, dense piloso-ciliatis, supra sparse pi-
losis, subtus tomentoso-pubescentibus, pilis articulatis :

* A representation of this species with full details is shown in Plate
viii of the "Illustrations of South American Plants."
racemis secundis, folio brevioribus: bacca magna.—Rio de Janeiro, Serrâ Organensi.

This species is very distinct from the two former, and approaches more in the form and size of its leaves to the Solanum capsicoides, Mart. which also belongs to this genus. I did not find it in flower, but from the resemblance of its habit to those above described, I imagine it will be found to belong to this section. The berry, though far from mature, measures nearly 1½ in length and ½ inch in diameter.


From Sir Wm. Hooker's excellent figure of this species, it will be seen how closely it approaches P. floribunda in its general habit, and in the size of its leaves, one of which only is here cordate. The racemes are 4 inches long, arising from the forks of the dichotomous branchlets, the pedicels are unequal in length and articulate: the calyx is somewhat pentagonal, with triangular lobes and ciliate margins: the segments of the corolla are lanceolate as in P. capsicoides.


It is only from the description of Dr. von Martius that I am acquainted with this species which certainly approaches close to my P. floribunda: the leaves, however, are entirely glabrous, and not punctulate; they are little more than half their size, and less cordate at base than in that species. The raceme is much longer than the leaf. The calyx is denticulated, the stamens are ventricose, but the fleshy connective
is less curved: the filaments are expanded below, but are not auriculate: it has the fleshy perigynous ring, and the annular disc, as well as the short tubular broad style and stigma of *P. floribunda*. Its flowers are odorous, which I do not remember to have noticed in the Organ Mountain species, and the lobes of the corolla want the rostrate apical appendage so conspicuous in that species.


A very distinct species remarkable for the length of its articulate glandular hairs. It forms a shrub about 4 feet high: its larger leaves are 3½ in. long and 2 in. broad on a petiole 1½ in. in length, the smaller leaves are 2½ in. long and 1½ in. broad on a petiole ¾ in. The raceme is 7 in. long: the calyx is 5-angled with broadish deep segments, very pubescent, and somewhat membranaceous: the corolla is very pubescent outside, smooth within, its segments being broad and acute: the stamens and pistillum resemble those of *P. floribunda*.


According to Cavanilles this is a shrub about 4 feet in height. In all the specimens I have seen, the larger leaves measure 9 or 10 in. in length, 5 in. in breadth on a petiole, 1½ in. long: the smaller leaves are 5½ in. long and 4 in.
broad on a petiole of 1½ in.: the racemes are about 7 in. in length: the corolla of a rosy hue has a short tube, with 5 oblong segments reflected at tip: the 5 equal stamens are included, the filaments are short and thick, the auricular lobes though small and hidden by the anthers are distinct and free: the anthers are large, curved, and approximate: the berry is reddish, about the size of a pigeon's egg, and 2-celled: this is doubtless the same fruit that I saw in the markets of Lima, where it is commonly used for cooking in lieu of the ordinary Tomate, the flavour of which it greatly resembles. Tweedie remarks that it is used in Buenos Ayres for the same purpose, but not ordinarily, for I never observed it.


From the figure of Ruiz and Pavon, I do not doubt this species belongs to this genus; and although the leaves are sometimes pinnate, they are often simple and cordate: the racemes, as in the other species, generally grow out of the bifurcation of the branchlets, and have many fleshy, secund flowers, with articulated pedicels: the fruit is also large, 2-celled, with lunulated placentations.


There can be no doubt from the figure and description above cited, that this species possess all the essential characters of Pionandra.

10. Pionandra viridiflora. Solanum viridiflorum R. et P. Fl. Per. 2.38, tab. 173, b:—fruticosa, villosa, caule tereti:
foliis geminatis, altero minori, sub 5-nerviis, ovatis, acutis, rotundato-cordatis, baseos lateribus incumbentibus, utrinque pilosis, pilis flavis, articulatis, infra pallidioribus; racemo e bifurcatione, folio breviori, floribus secundis, pedicellis articulatis: fructo magno, ovali—Peruvia (v. s. in herb. Hooker alabastris nondum maturis.)

A species closely allied to _P. pendula_, and very near _P. betacea_, but with much smaller leaves: the larger ones measure 7 inches in length, and are 5½ in. broad, on a petiole 1½ in.: the smaller being 4½ in. long, and 3½ in. broad, on a petiole of the same length of the basal lobes 1 in. long: the calyx is pubescent, 5-angular, and somewhat campanulate, with 5 short lobes: the corolla is tomentous outside, with woolly margins: the stamens are somewhat long, with a thickened fleshy, somewhat scabrid connective: the style is considerably swollen in the middle, and the stigma cup-shaped: the berry is of the size of that of _P. betacea_.

11. Pionandra _premnæfolia_. _Solanum premnæfolium_. _Dun._


In habit this species much resembles _P. floribunda_; but the leaves and stems are covered with long close hairs: the larger leaves are 3½ to 4 in. long, and 2½ to 2¾ in. broad, on a petiole 1 in. to 1¾ in. long: the smaller leaves measure 2¾, by 2 in. on a petiole 1 in. long: the raceme is 4½ in. long: it probably belongs to this section.

§ 2. _Euthystemon_. _Stamina rectiora_.

12. Pionandra _capsicoides_. _Solanum capsicoides Mart. Flora_ (BZ) 21. _Biebl. 1.78:_—suffruticosa: ramulis pubescentibus; foliiis ovato-lanceolatis, lanceolatisve, acuminatis, interdum geminis, minori obovato, basi obtuso, majoribus acutiusculis, vel obtusis, inaequilateribus, subtus pubes-
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I have this species from Cape Frio and Villa Ricca in the province of Minas Geraes. Its leaves are nearly 6 inches long and 2 inches broad; the racemes are pubescent and about as long as the leaf, with secund flowers, the pedicels being articulated a little above their base. The calyx is pubescent; but the corolla is glabrous, and of much more membranaceous structure than any of the former species with lanceolate segments: the stamens are more slender, nearly straight; the filaments are united upon a somewhat membranous perigynous ring, and although not fleshy, are dilated and expanded in a bilobed form below the anthers: the connective is thin, flat, tapering above; the anther cells are turgid, burst longitudinally, and as in P. floribunda are constricted near the summit by a collar, which is surmounted by an emarginate globular apex, that opens by two distinct pores. The ovarium is smaller, and together with the style and stigma, is quite glabrous: the style is rather slender, thickening toward the summit, and as long as the stamens; the stigma, though much smaller, resembles that of the before-mentioned species.∗


This species very closely resembles the last, but its leaves are not more than 4 inches long, and 1 inch broad, generally much smaller, pubescent on both sides, and nearly equilateral; the lobes of the calyx are ciliate, often serrulate; the filaments are dilated, and membranaceous below, expand-

∗ A figure of this species with details is given in Plate IX of the "Illustrations of South American Plants."
ing above in a large inflated connective; the anther cells are straight, sub 4-gonous, ventricose and turgid, of a yellow colour; the style is longer than the stamens, and with the stigma intermediate between that of the last species and of *P. floribunda*. It approaches *P. ciliata*, but the leaves are smaller, broader in proportion, not so much attenuated at the apex, and less pubescent. The racemes are shorter, 2 inches long, with 4—6 to 10 flowers, which have the articulation of the pedicels close to the peduncle, so that when fall off, the stem scarcely exhibits the persistent bases of stalks observed in the other species.


The upper leaves are about the size of those of *P. perennis*, and in like manner, as well as the stems and peduncles are covered with articulate hairs; they are also geminate and sub 5-nerved. The racemes are very short, second, growing out of the bifurcation of the branches pedicels are also articulated, and deciduous, characters in conformity with all the species above enumerated. A describes and figures the fleshy ring at the base of the corolla, out of which the stamens originate, which states to be long, straight, and approximate at the apex. corolla is deeply 5-partite; the fruit is a spherical body about the size of a cherry. A remarkable character is servable in this plant, in the very large size of the leaves, which are about 1 foot in length, and 8 inches by divided into acute lobes, by several deep incisures, sit at base; they are nearly glabrous. I did not observe remarkable dissimilarity in the size of the upper and leaves in any of the species I found in the Organ Mountains, nor has this been noticed by the authors who have described the other species, if we except *P. pendula* where some of the leaves are simple and cordate at the base, while others are
larger, and divided into 3 or 5 segments, as shown in the figure of Ruiz and Pavon above quoted.

15. Pionandra Hartwegii (n. sp.); —fruticosa; foliis geminis, altero minori, 5-nervis, cordato ovatis, integris, superne lucidis, parce pilosis, infra ferrugineo-pruinoso-punctatis; racemis e bifurcatione subscorpioideis, folio multo longioribus.—Columbia (Hartweg, n. 1297) v. s. in herb. Hooker.

Stems round, dark brown, subpubescent: leaves 4½ in long, 2½ in broad, on a petiole 1½ in length, the smaller one 2½ in long, 1½ in broad, on a petiole 1 in. long; raceme pubescent, 8½ in. long; pedicels articulated, 1½ to 1¾ in. long; calyx small, 5-gonous, glabrous, lobes short, obtuse, with a very small tooth in the apex; corolla with linear, lanceolate segments, an inch long, obtuse at the apex, smooth with floccose margins; anthers 2-celled, very long, equal, linear, erect, somewhat scabrous, opening by an apical pore, and by a lateral fissure in each cell: style obtuse; stigma clavate.

16. Pionandra coriacea, (n. sp.): —fruticosa, foliiis geminis, magnis, glabris, valde coriaceis, cordato-ovatis, 5-nervis, altero minori, supra punctulatis, infra pruinosis; racemis brevibus, scorpioideis; floribus secundis, pedicellis articulatis, approximatis; corolla tubo brevi, lacinii lanceolatis: antheris linearibus, erectis, connectivo crasso.—Peruvia (Mathews, 1971) v. s. in herb. Hooker.

The leaves of this species are remarkably thick, opaque and coriaceous, about 8 inches long, 5 in. wide, with a petiole 2 in. long, the smaller ones 5 inches long, and 3½ in. wide, the petiole being the same length as the basal lobes.


The leaves are described as 7 inches long, 5½ inches wide. The stamens included, the filaments short and much dilated, the anthers opening by pores, according to Kunth, and by
lateral fissures, according to Bonpland. The berry is 2 inches in length.

**Species Dubiae.**


The leaves are 4-5 inches long, 1½ to 2 inches broad, with stellate pubescence; the racemes are short, sometimes bifid, and the flowers have articulated pedicels.


The upper leaves are 5-6 inches long, 2½-3 inches broad; the lower ones 7-8 inches long, and 5-6 inches broad; all with stellate pubescence.


The leaves are 5-6 inches long, and 2½ to 2½ inches broad, with stellate pubescence.


It is probable that under a careful revision of the exten-
sive Linnæan genus *Solanum*, which is greatly required, many other species will be found to come within the limits of *Pionandra*. It is with much doubt I have placed here the last four species which are only known from the short descriptions quoted; when examined with more attention they may probably be found to belong to another group, many species of which I have observed in the splendid herbarium of Sir Wm. Hooker; I allude to such as approach *S. conicum* R. & P. Flor. Peruv. tab. 172, b. Many of these have simple, others pinnate leaves, sometimes smooth, often with stellate tomentum; they have racemes either simple or scorpioid, often dichotomously branched, either extra-axillary or growing out of the bifurcation of the branches, they have very long narrow coriaceous anthers, and a peculiar form of style; a section of this same group, numerous in species, have their stems and petioles aculeate, such as *S. torvum* loc. supra cit. tab. 175 a. *S. lanatum*, tab. 174 b, *S. incarceratum*, tab. 176. The present arrangement of the genus *Solanum* comprising upwards of 500 species, is certainly very defective, the form of the leaves, offering very unsatisfactory, and uncertain characters on which to found any subdivisions; far better elements will be found to exist in the floral characters assisted by the particular habit of the several species; much therefore may be expected from the distinguished author of the well-known monograph on *Solanum*, who has undertaken the arrangement of the nat. ord. Solanæ, for the forthcoming volume of the Prodromus of De Candolle.

**Sorema.**

The following details of *Nolana paradoxa*, Lindl., were made as far back as 1828, and notwithstanding several species of *Nolana* have already been figured at different times, I am not aware that the carpological characters of the order *Nolanaeae* have hitherto been illustrated. The plant in question, which I found near the sea-shore at Concon, the place of my residence in Chile, is now called by Dr. Lindley, *Sorema paradoxa*, in a very interesting paper which
he has given on the divisions of this order in the Botanical Register for Sept. 1844, tab. 46. Although much additional knowledge has thus been afforded, the real limits of Nolanaee are not yet fully defined, and the true place of its arrangement in the Natural system not yet quite agreed on. Dr. Lindley, in the last edition of his "Natural System," p. 229, places it near Convolvulaceae, with which it accords in its expanded funnel-shaped plicated corolla. Others have combined it with Borragineae, with which it agrees in having a plicated corolla, included stamens, and distinct nuts. Prof. Endlicher, in his Genera Plantarum, p. 655, following nearly the views of Dr. Lindley, places it as a sub-order, or rather as an aberrant group "Convolvulaceis affinis." After a careful examination of its relations, I venture to suggest for it a distinct place in the system, at the beginning of the class Tubuliflorae of Endl., immediately following the Borragineae, in the Nuculiferae of that eminent Botanist, so that intermediate with Convolvulaceae, the Nolanaee will thus retain their close affinity towards Solanaceae, for it is especially with Petunia, &c., that they agree in their convoluted and deeply plicated corolla with unequal included stamens, and not less with many others among Solanaceae in their geminate or fasciculate leaves and general habit; and while they also accord in the annular filiform shape of their embryo, enveloped in albumen, and in the position of the radicle, they differ from the whole of that order in the origin and development of their distinct carpels, for the ovules of Solanaceae are invariably attached to the dissepiment of a 2 celled or imperfectly 4-celled ovarium. With Borragineae, on the other hand, they agree in the gynobasic insertion of their distinct ovaria upon a fleshy lobed disc, and in their separate nuts, with a single seed in each cell, perforated at the base, but whether the areolar process, which I have shown to exist in all the Nolanaee, possesses any direct resemblance, in its nature and origin, to the salient "strophiole (Celomphala, Schrad.)" that is seen attached to the perforated nuts of many Borragineae, according to the descriptions of the late Prof. Spenner (Nees.
Gen. Plant, tom. 2, tab. 69—73), it is not now necessary to
determine, it being sufficient for our present purpose to indi-
cate the fact, and to add that they differ from the whole of
that family, in the form and position of their embryo, as well
as in habit and inflorescence. With Convolvulaceae, as Prof.
Lindley remarks, many analogies exist, but they differ in
their simple, not imbricate calyx, in their distinct ovaria and
the important character of their embryo. I shall presently
attempt to show that the hitherto anomalous genus Grab-
owskya, is referrible to a position between Borragineae and
Nolaneae, and Dichondrea will then form an excellent con-
necting link between Nolaneae and Convolvuleae, to the former
of which this small group has a very close affinity, on account
of the almost gynobasic origin of its nearly distinct carpels,
and also because its embryo is really cyclical, notwithstanding
that the cotyledons, at their extremity, are bent back in a
sigmoid form, after having completed more than an entire
helix, somewhat in the manner of the embryo of Convolvulus,
but it is to be remarked, that although the cotyledons of
Dichondra are broader than the radicle, and more foliaceous
than those of Nolaneae, they are simply parallel, and have not
their margins crumpled and conduplicated, as in the true
Convolvuleae. Doctor Lindley observes (Nat. Syst. 230) that
"if we attend to the embryo, they will stand among Convol-
vulaceae, if to the carpels, among Nolaneae: upon the whole
the latter must be accounted of the most importance, and
consequently it is with Nolaneae that I arrange them." I
find on examining the seed of Dichondra repens, that the
utricle falls away from its receptacular attachment, showing
a distinctly round perforate aperture at base, and on the
receptacle are to be seen opposite the opening, two distinct
prominences, corresponding to what, by analogy, may be
considered as of a similar nature to the areolar processes
observed in Nolaneae and Grabowskya. The reasons above
offered will therefore probably justify the position I have
ventured to assign for Nolaneae in the general system, so
that without violating the connexion already established by the authority of the most distinguished Botanists, between Dichondrææ and Convolvulææ, they will stand after Borraginææ, and before Convolvulææ through the intermedium of Dichondrææ.

The new genera of Nolanaææ, proposed as before alluded to by Doctor Lindley, although not so well distinguished by characters derived from the inflorescence, are nevertheless well marked by a distinct and peculiar habit, aided by differences of structure in the fruit. Most of the species comprised under Nolana and Sorema, are succulent prostrate plants with broad fleshy leaves; in the latter genus, the leaves are geminate, the inner one petioled, the outer one sessile, with one of its margins decurrent on the stem. The species included by Alorna, Dolia and Apilocarya, are mostly erect plants with a shrubby habit, and approximate or fasciculated linear leaves, many of them being densely covered with tomentum; the flowers of the two last mentioned genera are proportionately very small, those of the others presenting large campanulate flowers, resembling those of Convolvulus. It is worthy of remark, that all the plants of this order, grow either within reach of the humidity of the sea, or in inland tracts where the soil is impregnated with particles of salt or natron. The genus in which the plant about to be described is placed may be thus defined.

Sorema Lindl.—Calyx tubulosus-campanulatus, 5-angulatus, imo toro adnatus, limbo 5-partito, lobis erectis acuminae obtusiusculis persistens. Corolla hypogyna, infundibuliformis, limbo amply, campanulato, plicato, obsolete 5-lobo, lobis brevissimis, emarginato-mucronatis. Stamina 5, inæqualia, inclusa; filamenta erecta, breves, imo corollæ orta, basi pilosa; antheræ basifixæ, 2-lobæ, rotundatae. Discus hypogynus, carnosus, calyce adnatus. Ovaria 20, ad 40 distincta, supra discum pluri-seriáliter disposita, 1-ovulata. Stylus centralis, breviusculus, pentaígonus. Stigma clavatum, 5 lobum. Drupeæ totidem; nux angulata, endo-
carypio crasso, textura coriacea, spongiosa, 1-locularis, 1-sperma, basi perforata, apertura omnino clausa, operculo a semine demum secedente. Embryo filiformis intra albumen carnosam cyclicus, cotyledonibus semiteretibus, radicula ad hilum spectante.—Herbae Chilenses annuae prostrate carnosula, floribus speciosis Convolvulaceis.


This plant is so well known, that it needs no particular description: all that is worthy of mention is the structure of its fruit, which I do not think has been yet sufficiently detailed. The peculiarity of this genus is, that its many carpels are all perfected into an equal number of 1-seeded drupes; I have observed sometimes in the above species, though it rarely happens, that 2—3 nuts are combined into one, which is then 2—3 celled, each cell having a single seed. In habit it approaches the typical genus Nolana. The nut is unequally angular, rhomboidal, sharp-angular, of a spongy coriaceous consistence, the place of its basal attachment being marked by a small round cicatrice, being the area of a hard cylindrical operculum that closes the channel leading into the included cell. The seed which fills the cavity is reniform and compressed, the testa is yellow, reticulate, and crisp, the inner integument is a very thin transparent membrane enclosing the albumen, which is white, hard and fleshy; the embryo is white, filiform, bent in a somewhat spiral form, the radicle pointing towards the hilum, or inner aperture of the cell: the cotyledons, which together are somewhat more slender than the radicle, are about the same length.*

2. Sorema atriplicifolia Lindl. Nolana atriplicifolia D. Don

Sweet. Fl. Gard. n. ser. tab. 305:—procumbens, subpubes-

* A figure of this species is given in Plate x. of the “Illustrations of South American Plants.”

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cens; foliis spathulatis, radicalibus majoribus, forma Atriplícis hortensis; calyce campanulato, lobis ovato-lanceolatis, acutis; corollae tubo intus flavo, fauce albo, limbo amplo, cæruleo.—Peruvia? an potius Chile?

With this species I am not acquainted, not having met with it in any herbarium that I have seen.

The figure given in the work above cited, exhibits the cauline leaves to be about 1½ in. long, and 1 in. broad, they are wavy, fleshy, broadly oblong, obtuse, subulate at base, on a very broad decurrent petiole, one of the margins of which is continuous along the angle of the stem. The species is known only from cultivated specimens, raised from seeds said to have been obtained from Peru.

3. Sorema litoralis (n. sp.)—herbacea, prostrata; radice fusiformi, ramulis plurimis, e collo radiatis; foliis radicalibus majoribus, longe petiolatis, cordato-ovatis, obtusis, caulinis geminis, inæqualibus, obovatis, obtusis, uno sessili, altero subspathulato, late petiolato, decurrenti: floribus solitariis, corolla ampla, cærulea.—Chile, Valparaiso, v. s. in herb. meo (Mathews;) in herb. Hooker, (Cuming. n. 627, Bridges n. 327.)

This plant grows sparingly on a sandy beach, within reach of the spray of the sea: its tap root descends to a depth of 6 or 8 inches: its branches, springing from the neck, spread along the sand in all directions; the radical leaves have a narrow petiole, about an inch long, and barely a line broad, the blade being nearly 10 lines long, and 8 lines broad: the cauline leaves are only half that size, in unequal pairs, the outer one being sessile, and decurrent on the stem as the preceding species, the younger leaves, peduncle, and calyx are pubescent, but the older leaves and stem are glabrous: the calyx is 5-angular, 5 lines long, divided half way down into 5 triangular erect teeth: the corolla resembles that of S. paradoxa: the nuts are about 16, with sharp angles, each 1-celled.

4. Sorema acuminata (n. sp.):—fruticulosa, prostrata; caulibus ramosis, angulatis; foliis geminis, pubescentibus,
THE LATE MR. GRIFFITH.

lanceolatis, lineari-acuminatis, oblique sessilibus, margine exteriori decurrenti: floribus axillaribus, solitariis, caeruleis; nuculis distinctis 35, parvis, foveolatis.—Chile ad Conceptionem: (v. s. in Herb. Hooker, n. 1322.)

(To be continued.) 4/16

The late Mr. Griffith.

(The following notice of this truly accomplished and lamented Botanist is from the Transactions of the Royal Asiatic Society for June, 1845.)

Mr. Griffith was one of the most accomplished botanists of our day; with the most accurate and extensive acquisition of learning in his department, he combined such a spirit of activity and enterprise as has been rarely equalled, great talents, and a very remarkable power of labour, arrangement, and application. He was born in the year 1810, and was educated at the London University. He went out to India, as an assistant-surgeon on the Madras Establishment, where he arrived on the 24th September 1832, and was shortly afterwards selected by the Bengal Government to examine the botany of the Tenasserim Provinces. He was, in 1835, deputed to Assam, with Dr. M'Clelland, for the purpose of assisting Dr. Wallich in his inspection of the growth of the Tea plant in Assam, and proceeded from thence, in company with Dr. Bayfield, to the then unexplored tracts which lie between Suddiya and Ava, upon the extreme frontier of our Eastern territory. In 1837 he accompanied Captain Pemberton on his mission to the wild countries of Boutan, and two years after was sent, with the army of the Indus, to prosecute inquiries into the botany of Afghanistan. In 1841 he was appointed to the medical duties of Malacca. Upon Dr. Wallich's absence, owing to illness, at the Cape, Mr. Griffith was intrusted with the superintendence of the Botanical Garden at Calcutta, and with
the duties of Botanical Professor in the Medical College; but having on the return of Dr. Wallich from the Cape, resumed his place at Malacca, he was there seized with disease of the liver, and died at the early age of thirty-four, having already acquired a distinguished reputation,—having, in every capacity wherein he served the government received its approbation and its thanks; and having given a promise of such further services to botanical science as few have had either the opportunity or the talent of affording. In all his varied and extensive journeys, his courage and his energy never failed him; whether in the jungles of Assam, or the hills of Afghanistan, he still pursued his researches, undeterred by danger, either of disease or of violence; and if disabled, as he was more than once by fever and debility, his first convalescence found him ever ready for fresh exertions. He had thus, by the application of extraordinary powers of observation, and in researches extending through the vast regions which have been enumerated, formed large and valuable collections, and brought together materials for a great botanical work; and he looked with impatience to a period of repose for compiling a Scientific Flora of India, when he sunk under his last fatal illness. Perhaps no more impressive picture of the energy of this extraordinary man, and of his devotion to his favourite science, can be given than that which may be drawn from the following extracts from a letter dictated by him on his death-bed, and addressed to Dr. McClelland:

"I write this by deputy, being seriously ill of hepatitis; the attack has been very severe, and the treatment necessarily active, so that I am reduced to an extreme state of weakness. Although my adviser does not despair, still the issue is doubtful, and under this impression I commence a few lines to you on business.

"Mrs. Griffith (supposing the result of this illness to be fatal to me) will bring up with her all the collections at Malacca, and they being added to those at the export ware-
house, and all having been previously cleaned and packed, I leave to you to present to Government, for the Honourable Court of Directors, to be sent home without any delay. As you know the trouble I have taken with these collections, and the hopes I had entertained of making them subservient to a general scientific Flora of India, I need not impress on you how much I am interested in their proper disposal, and their being brought properly before the scientific public; and I would say the same regarding my drawings and manuscripts, which will accompany my wife to Calcutta, should it so happen that I leave her.

"In all the plans which I have consigned to your execution, both regarding my wife and collections, I am confident your own feelings will prompt you to every exertion on my account. Asking God's blessing on you and your wife, I bid you good bye."

"Thus far," continues Dr. Moorhead, his medical attendant, "was written at Mr. Griffith's dictation; but I grieve to say the fatal result came to pass yesterday evening, Sunday, 9th February, at half past seven o'clock."

Memoranda on the above by Dr. M'Clelland.—"To the above details, furnished by Dr. Moorhead, I may add that Mr. Griffith's constitution for the last two or three years seemed greatly shattered, his energies alone remaining unchanged. Exposure during his former journeys and travels laid the seeds of a fatal malady in his constitution, while his anxiety about his pursuits and his zeal increased; he became care-worn and haggard in his looks, often complaining of anomalous symptoms marked by an extreme rapidity of pulse, in consequence of which he had left off wine for some years, and was obliged to observe great care and attention in his diet. In Afghanistan he was very nearly carried off by fever, to which he had been subject on his former travels in Assam. No government ever had a more devoted or zealous servant, and I impute much of the evil consequences to his health, to his attempting more than
the means at his disposal enabled him to accomplish with justice to himself:"

Although Mr. Griffith's researches were directed primarily to Botany, he neglected no opportunity, during his visits to various parts of India, of attending also to other departments of Natural History. Of his zeal and success in Zoology, his collections afford abundant proof; they consist chiefly of mammalia, birds, fishes, and insects. While attached to the army of the Indus, he made, on account of Government, large collections of mammalia, and birds, which have been transmitted to the Honourable Court of Directors, and constitute a valuable addition to the museum at the India House. In mammalogy he collected a considerable number of the smaller animals of Afghanistan, among which are several new to science; but his ornithological collections are still more extensive, having brought together about six hundred specimens, not only from the route of the army, but from several separate excursions to the ranges of mountains north of Cabul. Besides the discovery of a considerable number of new species, the interest of these collections consists in their affording, perhaps, the most extensive and instructive illustration of the geographical distribution of the several species of birds found in India, which has as yet been attempted.

Mr. Griffith has also been zealous and successful as a collector of the fresh-water fishes of India, during his various travels: the importance and extent of these is detailed in a paper on the subject, printed in the second volume of the Calcutta Journal of Natural History; and some of his discoveries in Entomology have been communicated to the public by the Rev. F. W. Hope, in the eighteenth volume of the Transactions of the Linnaean Society of London.

He was most especially remarkable for the philosophical spirit in which he invariably prosecuted his researches, and for the patience with which he watched the most minute phenomena which appeared to him connected with the
subjects of investigation. Some of his published papers, especially those on Vegetable Impregnation, and the Progressive Development of Organs, have never been excelled, and rarely equalled.

The merits of this accomplished naturalist and devoted labourer in the field of scientific discovery, were appreciated and fostered by the noble President of this Society while at the head of the Government of India, and it is to his Lordship's kindness that the Society are indebted for some of the most interesting parts of the foregoing communication. His loss was also recently noticed in terms of deep regret by the present Governor-General, Sir Henry Hardinge, in His Excellency's Address at the annual distribution of honours and prizes at the Bengal Medical College.

As it is understood that the whole of the valuable materials prepared and collected by Mr. Griffith are consigned to the Directors of the East India Company, the most confident hopes may be cherished that the expectations of the scientific world will not be disappointed of the full benefit which they are calculated, and were intended by him, to confer on botanical and zoological knowledge, and that the irreparable loss entailed on his widow by his early death, and the sudden extinction of all those hopes of fortune, honour, and reward which his extensive knowledge and indomitable energy were so well calculated to raise, will meet with such alleviation as, to the enlightened liberality of the Honourable Court, the great value of his labours, and the forlorn and ill-provided state of his widow and family, may be considered to merit.

A description of Ophiocaryon paradoxum, on the Snake Nut Tree of Guiana; by Sir Robert Henry Schomburgk, K.H., &c. &c.

In a paper which I communicated to the Linnæan Society, which was read the 6th June, 1837, and since printed in "The Annals of Natural History," (vol. v, p. 202) I di-
rected the attention of naturalists to a curious fruit, a drupa, the kernel of which, when opened, and the membrane which covered it, being removed, displayed the striking resemblance of a snake coiled up.*

I was not then able to procure the blossoms of the tree which produces this strange fruit, in such an advanced state as to permit me to describe it with accuracy; they were merely small buds, at that time, which left much to conjecture, and thus I was misled to consider the tree as belonging to the order Terebinthaceæ, standing near Anacardieæ. I have since succeeded in procuring flowers in perfection, and am now enabled to give the following description of the botanical character of this tree, in which I have been much assisted by Mr. Bentham.

Ophiocaryon, Schomb. in Endlicher, Gen. Plant. Suppl. 1, p. 1425.


Char. Gen.—Flores polygamo-dioici? masculi desunt. Hermaphroditæ-faminiæ: Sepala 5, valde imbricata, orbicularia; 2 exteriora lateralia minora, posticum cum anticus inter se subæqualia. Petala 5, valde imbricata, gynophoro brevi crasso, sub staminibus inserta, orbicularia; 3 exteriora (postica cum antico) sepalis interioribus paulo majora, 2 interiora sepalis subæqualia. Gynophorum sub ovario paullo incrassatum, staminiferum. Filamenta 5, sterilia, brevissima, subulata, petalis alternà, 3 petalis exterioribus opposita, squamousformia, petalis 2-3 poll. breviora, obovato-spathulata, uno paullo majore obcordato. Stamina (fertilia?) duo, petalis interioribus opposita, et iis sub breviora; filamentis dilatato-cuneiformibus; anthera continua erecta; connectivo erecto apiculato; loculis duobus

* Dr. Schomburgk is not, perhaps, aware that this fruit is actually sent to Europe from South America, as a vegetable curiosity, under the name of the "Snake-seed"—and this is the first account we have of the plant which produces it.—Ed.

Ophiocaryon paradoxum, Schomb.


The male flowers are still wanting to complete the description. It will be rather a difficult task to procure them, as the Indians take notice only of trees under which they find the nuts lying, and which consequently have female or hermaphrodite flowers.

The fruit is decidedly the most remarkable production of this tree: it is the size of a walnut, the kernel very
strikingly resembles a snake, when the thin membrane which covers it, is removed. The embryo is spirally twisted, or rather coiled up, the radicle long and its extremity clavate tending towards the umbilicus, the foliaceous cotyledons are marked with curved veins, somewhat contorted and folded up between the radicle and the neck of the embryo.

A slight curvature is observable in the embryo of several Sapindaceae, and in the section Dodeaeacea it is even twisted; the cotyledons of that Order are generally large, but I am not aware that in any of the genera they are foliaceous as in Ophiocaryon.

In Potamogeton, Zannichellia, &c., we have a similar instance of a spiral and lengthened embryo among Monocotyledonous plants; and, among Dicotyledons, we find something analogous in Humulus, Cistus, Bumia, Erucaaria, Salsola, &c.

The tree has been hitherto only discovered at the lower Essequibo, near the junction of the rivers Mazaruni and Cayuni with the Essequibo; chiefly at the banks of the small rivers Ampa, Careau and near Saxacalli. The Indians of the interior are perfectly unacquainted with the tree. Even at the Demerara river it is unknown, although it runs parallel with the Essequibo at a distance of fifteen to twenty miles to the eastward of it.

The tree is in blossom in April and May and I have found mature fruits in November and likewise in January. I am not aware that it possesses any medicinal property; the resemblance of the kernel to a snake has caused it to be considered by the populace as an antidote for snake poison. It has an acrid, bitter taste.

Botanical Excursion to Salinas, an Indian Village on Chimborazo; by Professor William Jameson.

The city of Riobamba, capital of the province so named, is situated nearly in the centre of an extensive plain between
the two main ridges of the Cordillera, which constitute its eastern and western boundaries. Of all the towns or villages it is perhaps the most recent, from the circumstance of the ancient city having been in 1797 destroyed by an earthquake, a catastrophe still fresh in the memory of the older inhabitants. The few that escaped established themselves in the present site, and the entire population, chiefly Indian, may probably amount to 10,000 souls. The climate is cool and remarkably dry, the soil barren in the extreme. By the aid of artificial irrigation, a few vegetables and fields of lucerne are cultivated; but the market is chiefly supplied from the mountains, the produce of the several farms, there situated, being transported on mules and "llamas."

On the 5th May, 1844, I set out on an expedition to Salinas, an Indian village on the western flank of Chimborazo, and was consequently obliged to cross the much frequented path called the "Arenal" and descend to Guaranda. Leaving Riobamba, the main road for the first two leagues is scarcely discernable from the loose-blowing sand that conceals the tract. There is a scanty vegetation of *Cactus*, three species, *Agave Americana*, and a few bushes of *Dodonaea viscosa* (No. 317). As we approach the base of Chimborazo, the face of the country improves considerably. Showers descend from the Cordillera. There is an abundant pasturage of native grasses, and Cerealia are successfully cultivated. Among the agricultural products peculiar to these regions are the "quinoa" and "oca," (*Chenopodium* and *Tropaeolum*), two plants used, from time immemorial, by the Indian population. The *Tropaeolum* produces its tubers at 12,000 feet, and the *Chenopodium* ripens its seeds at a scarcely inferior elevation.

I passed the night at the farm house of San Juan, a large estate better calculated for the rearing of cattle than for the production of grain; its elevation cannot be less than 11,000 feet. On the road side grew a large *Cactus* with round branches, and a thick trunk clothed with moss (*Tortula*). It is employed as a fence, and is I believe the hardiest plant
of that numerous tribe, reaching a station elevated about 500 feet above this point; *Calceolaria ericoides* (No. 180) was particularly abundant. It produces a profusion of yellow blossoms arranged in the form of a spike, but very frequently lax; the leaves are totally different from any other known species, hence the specific name. The other plants were three species of *Solanum*, one of them a large shrub, a *Peperomia* and *Datura sanguinea*, the last named tree always in the neighbourhood of houses.

May 7.—This day's journey, which usually terminates in Guaranda, is peculiarly interesting to the botanical traveller from the variety of climate he traverses, giving rise to a diversity of vegetable forms. At a point named "La Chorrera," where the main road to Quito branches off, *Draba grandiflora* (No. 152) occurs in considerable abundance. It ranges between 12,500 and 13,500 feet. A little higher up is the "arenal," perhaps the loftiest road in the world, with the exception of that to Cuenca traced across the Asuay. Many curious plants vegetate on this elevated plain, but owing to the inconstancy of weather, and the great distance to an inhabited spot, I am obliged to make a hasty survey, trusting to some future opportunity to complete it. As the weather was unfavourable, I had barely sufficient time to add to my collection a new *Draba*, (No. 153) having the habit of some of our European species, and *Sida phyllanthos*? (No. 154). The only shrubs were *Lupinus* (No. 47), and *Chuquiraga insignis* (No. 227). There was also a *Geranium* very abundant, forming little clumps or hillocks, *Astragalus geminiflorus* (No. 297) in loose sand, and on tracts denuded of every other vegetable body, a *Lichen* (No. 137) the same that I had previously seen on the volcanic sands of Cotopaxi at a nearly similar elevation.

As we approached the point where the road descends we were frequently enveloped in a dense fog, and scarcely had we turned the western flank when it commenced raining almost incessantly. This state of the weather continues, with little intermission, from the end of December to the middle of
May, and corresponds to the wet season of the coast. The western ridge of the Andes, of which Chimborazo forms the loftiest summit, presents a barrier intercepting the clouds and condensing them in showers of rain, while the climate of the eastern side is characterized by the opposite extreme. Notwithstanding the bad weather, I added to my collection *Polylepis lanuginosa* (No. 204), which of all trees is perhaps that which grows at the greatest elevation on the globe. The trunk, nearly destitute of bark, is gnarled and twisted in the most fanciful manner, and the root penetrates deeply the rocky crevices, thus enabling the trees to resist the violent winds with which they are assailed during the period of the dry season. Between the limits of 1300 and 1400 feet they constitute a well defined zone characterized by the absence of all other trees. The more remarkable plants occurring in the same region are *Gentiana cernua*, (No. 184), *Calceolaria*, (No. 178), *Eryngium humile*, (No. 159), *Silene*, (No. 39), *Baccharis thayoides*, (No. 98), and *Lathyrus*, (No. 44). Lower down, these plants give place to the grasses, and at 1200 feet we again observe patches of forest; not of *Polylepis*, but of *Aristotelia Maqui* and *Columellia sericea*, (No. 58). There is not, as in the central Cordillera, a well defined zone of shrubs. They may be equally numerous, but they are intermingled with forest trees. There are no pines, and oaks are very rarely found. The plants that abound most are arborescent and shrubby *Composite*, (No. 188, 245), *Rosaceae*, (No. 223, 224, 225), *Melastomaceae*, (No. 169, 230), *Scrophularinaceae*, (No. 178, 180, 181, 182), and *Lorantheae*, (No. 224). The same observation respecting shrubbery is applicable to the descent of the Cordillera towards the source of the Marañon with this peculiarity, that the lofty ridge of the eastern chain produces, in the greatest abundance and of the most luxuriant growth, a tall gramineous plant, (No. 92), impenetrable to man or horse, and consequently any investigation in that quarter is attended with serious difficulties.

The constant rain of the preceding months had rendered the road extremely bad. I had calculated on reaching Gua-
randa before sunset, but unfortunately the mule that carried my luggage was thrown down in a narrow pass, where it was found impracticable to extricate her without taking off the load. So much time was lost before this could be accomplished that I was compelled to pass the night in the open air, spreading over my bedding an indian-rubber poncho to exclude the rain.

We entered Guaranda next day about 10, and having eaten nothing for the last twenty-four hours, joined to the fatigue of the previous day’s journey, I felt little inclination to move about. Guaranda merits no particular notice. The houses are badly constructed and filthy, and the village, excepting on the Sundays, seems to be nearly deserted. The surrounding scenery is highly picturesque. Hills cultivated to the summit, and houses frequently perched on the brow of a precipice indicate marks of industry. The wealth of the province however consists in horses and mules, which are hired to transport articles of foreign manufacture to the capital.

The native flora of Guaranda is of an interesting description. One of the most showy plants is a Passiflora with a rich crimson blossom. There are several handsome Salvias, and no less than six Calceolarias. A tall shrub of the order Acanthaceae*, (No. 166), with large orange flowers and stiff holly-like leaves, grows on the sides of ravines.

May 16.—Started for Salinas, distant from Guaranda six leagues, and situated on the ridge of the Cordillera in a direction almost due north. The journey commences by ascending a hill, immediately beyond the suburb, terminating on the summit in a level road and traversing luxuriant fields of wheat, barley, maize and lucerne, all beautifully verdant. The different Calceolarias were in fine bloom; and with regard to geographical position, I may remark that numerous tribe is almost exclusively limited to the side of the Andes fronting the Pacific, not a single species having been found by me at a corresponding elevation on the eastern chain. The same remark will apply to the genus Alstroemeria.

BOTANICAL EXCURSION TO SALINAS.

We arrived at the estate of "El Sinchig," from which we enjoyed a magnificent view of the country we had just gone over, with the snowy summit of Chimborazo on the left. The house is built on an eminence, just on the verge of the cultivated district, and surrounded by a shrubbery of Fuchsia triphylla entwined with a Loasa (No. 156) having fine orange-coloured flowers. Leaving the farm-house, we enter a narrow pass with very steep hills on either side, clothed with trees of a distinct species of Polylepis, (No. 17), arborescent Compositae, Valeriana, and, in short, the same vegetation observable on Chimborazo. We ascend on the left hand side of the ravine, and pursuing a narrow path traced on its grassy summit, we arrive, after a couple of hours' riding, at the village of Salinas.

The salt springs have been the means of assembling a population on these lofty regions where the climate is too severe to be rendered available for the cultivation of the more hardy vegetables. The process for the extraction of salt is conducted in a manner I have not seen practised elsewhere. A piece of ground is selected, having a gentle declivity, and divided into different spaces of about 30 yards in length by 6 in breadth, each of which has its respective proprietor. When the weather is fair, and especially during sun-shine, the whole population, men and women, are busily employed in bathing the heated surface with a quantity of the salt water, which runs down and collects in a reservoir from which it is repeatedly carried up in pitchers to undergo the same operation. When the briny fluid has acquired a high degree of concentration it is transferred to the boiler, usually made of copper, where it is speedily evaporated. The residuum is immediately formed into cakes, weighing about a couple of pounds each. As might be expected, the salt is very deliquescent and bitter, from the presence of the muriates of lime and magnesia. The water recently drawn from the spring contains protoxide of iron held in solution by carbonic acid, and a quantity of sulphate of lime, all of which are separated during the first stage of the process, that
of concentration. During the wet season, of course, no work can be done.

No trees were found on this region excepting two Buddleas (Nos. 181 & 182), in the precincts of the village loaded with blossoms of a deep saffron colour, a large shrub (No. 174), resembling a Thalictrum and used as a fence, Cassia (No. 214) and Datura sanguinea, which on the Andes appears to follow man wherever he chooses to establish himself. The nettle, of which there are two species, is another migratory plant, and will spring up wherever an attempt is made to cultivate the soil. I have frequently observed this plant on the elevated plains of the Andes, but always in circumscribed localities: a sure indication that such spots were at one time tenanted by man and his flocks.

The village is backed by a wall of perpendicular cliffs many hundred feet in height, the rock being of the kind distinguished by the term conglomerate. A constant disintegration is going forward, and wherever the water has undermined a portion of the stoney mass we have a beautiful vegetation of Tropæolum (No. 155), Loasa (No. 156), and a Mutisia with orange-coloured flowers. Two Orchideæ grow on the mural cliffs, one of them a Stelis with very succulent leaves; but on the elevated plains, the most abundant plants were Plantago rigida (No. 10), and a beautiful little scarlet Gentian which communicated a glow to the whole landscape. In other respects the vegetation of this region is similar to that I had seen en route. I shall therefore only add a list of Nat. Orders with the number of species occurring at the elevation of 12,000—14,000 feet, which may be relied on as correct.

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<th>Family</th>
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<tr>
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<td>7</td>
<td>Loaæ</td>
<td>2</td>
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<tr>
<td>Cruciferae</td>
<td>7</td>
<td>Melastomaceæ</td>
<td>4</td>
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<td>Berberidaceæ</td>
<td>2</td>
<td>Homalineæ</td>
<td>1</td>
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<tr>
<td>Hypericinæ</td>
<td>3</td>
<td>Sanguisorbeæ</td>
<td>3</td>
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<tr>
<td>Escalloniæ</td>
<td>1</td>
<td>Rosaceæ</td>
<td>8</td>
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<tr>
<td>Grossulaceæ</td>
<td>2</td>
<td>Leguminosæ</td>
<td>8</td>
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BOTANICAL INFORMATION.


(Continued from p. 166).

The time had now arrived for me to quit Malaga and make an excursion on the sea-shore and mountains in the Province of Ronda. The season was peculiarly fitted for this tour, and it was my intention to devote a month to it, previous to visiting the high lands and lofty mountain chains of Grenada, where vegetation is much backward. For this object I purchased a strong mule, which should carry my plant-paper and the small quantity of luggage necessary for myself, such an animal being indispensable for a journey of...
the kind. It was thus only I should be enabled to stop where I liked upon the road and to penetrate into districts never visited by the carriers (arrerios). I engaged the services of a man from the environs of Velez, whose name was Antonio, a thorough specimen of the Andalusian peasant; he was always lively and talkative, singing his ballads as he went and in excellent spirits, except when I compelled him to go with me upon the mountains, which he held in most devout detestation.

We set off from Malaga at eleven in the forenoon, clad, like the people of the country, with a peaked sombrero on our heads, cartridge-box at the girdle and musket on the shoulder. This garb, which is always worn by travellers, whether townsfolk or peasantry, is remarkably convenient, allowing people to go about without exciting any curiosity; while the sight of a coat and beaver hat never fails to raise a commotion in every village, and sets the dogs barking, and inasmuch as it is considered to mark the wearer as an Englishman, it affords an unfavourable badge for attracting the attention of plunders. After quitting the city, we traversed a monotonous part of the Vega lying between the sea on the right hand and a line of sandy hills on the left. The fields presented not the slightest shadow, and the deficiency of water causes perfect sterility in the dry years. The waters of the Guadaljora might be brought hither with little difficulty or expense. I noticed Galium glomeratum (Desf.), Cichorium divaricatum, Scolymus maculatus, and S. Hispanicus. The road was enlivened by numerous parties of peasants on their way to the city, coming from the large villages of Coin, Alhaurin and Churriana and Torremolinos, where all the bread used in Malaga is made, because of the excellent quality of their water. We soon fell in with the Guadalhorce or Rio de Malaga, a large stream which rises near Antequera and is brought over the ruins of an aqueduct and bridge of Roman construction. Most of the arches having fallen, the pillars chiefly remain, their massy shafts entwined with shrubs and climbing plants. These long ruins, which may be seen in many
places in the fields, have a striking appearance and remind
the traveller of the Campagna of Rome.
We had now reached a height, equal to that of the eastern
extremity of the Sierra de Mijas, by which, all day long, our
view of the sea had been shut out, and we passed at a small
distance the country residence called Retiro, which the Mal-
gueños vaunt too much to strangers, but where they find
what is certainly very rare in their neighbourhood, shade and
running streams. The country through which we now tra-
velled was delightful and fertile; either farms, girded with
orange groves, or forests of olive trees, among which the gentle
breeze allayed the heat of noon and from whence the eye
might catch distant prospects through the trembling leaves.
This lovely valley did not continue long with us, and leaving
it we ascended an uncultivated and vast plain which slopes
southward from the Sierra. All this open space was dotted
with species of Cistus, thorny shrubs, and here and there, a
few clusters of stunted Evergreen Oaks. About mid-way, we
came to a hut made of leaves, where four peasants from Al-
haurin mounted guard; many plundering attacks, which
lately occurred in this neighbourhood, having given rise to
this precaution, and indeed it had been difficult for robbers
to select a spot more favourable for their purposes, for they
might every where lay ambushes among these wild thickets
and escape pursuit by fleeing to the mountains. Though
vegetation was somewhat monotonous, I still gathered some
interesting plants, as Cleonia Lusitanica, Stachys Italica,
Thapsia villosa, Dianthus serrulatus and the elegant Linum
suffruticosum, which grew abundantly among the bushes, its
corollas being successively pink, white, and yellow. After
walking for about five Spanish leagues, we descended by an
easy slope to Alhaurin, a perfect earthly paradise, full of mul-
berry and orange trees, and watered with numberless brooks.
So fertile is the land by nature, that splendid harvests are
ripened beneath the shade of these trees; and a naturalist
need to have visited southern Spain, ere he can form an idea
of the productive power of its soil, when blessed with a mo-
derate degree of moisture. All was full of freshness and life here, while the heat of the sun had already scorched up the environs of Malaga. The hedges of brambles and of Coriaria myrtifolia were adorned, as in other parts of temperate Europe, with many delicate species of plants, as Fumaria capreolata, Campanula Erinus, Geranium Robertianum and G. lucidum, Veronica Cymbalaria, Fedia Cornucopiae, Centranthus Calcitrapa and Arenaria spathulata. The village which lies embosomed in this ocean of lovely verdure does not disparage from the aspect of the country; for it is large and cleanly, many of the inhabitants of Malaga possessing villas in it, where they shun, during the height of summer, the scorching heat of the coast; in addition to several English families, who, coming originally only to spend the winter, have become so much attached to the place, as to settle finally in it. The public-house, or Posada, where I stopped, was however, in disagreeable contrast with the rest of the village, being filthy, inconvenient and infested with bugs; while to complete my annoyance, a party of gypsies, here called Gitanos, had taken up their abode in it, and being the roughest and rudest people on earth, they spent the whole night in bawling and shouting and quarrelling.

The next day I went to visit the springs, to which this district owes its fertility, here called Nascimientos. Some of the village wags, who generally spend their time in lounging about the houses of public entertainment, in order to chat with new comers and to learn the news, followed me during my walk and took care to spread the intelligence, as we went along, that I was about to turn loose a most wonderful snake in the waters. The tidings took effect and half the village was quickly at my heels, while a rolling fire of jests was kept up between the mystifiers and the mystified, amid which, my servant, suddenly raising the lid of my tin botanizing box, increased the sport by putting to flight a flock of children, who thought the monster was already giving them chase. The spring, towards which we took our course, is a streamlet of the clearest and brightest water, which finds its way through the.
crevices of calcareous, stony and ferruginous coloured earth, lying at the foot of a wall of rocks, by which the uniform slope of the Sierra is intersected for half a league; it trickles onward between banks, shaded with noble Poplars, and where rustic benches have been placed for the public accommodation. I feel quite incompetent to describe the beauty of the view which I beheld that evening at sunset. A little below was the village encircled with orange-groves, farther off the forests of olive, then the whole hollow of the vale and opposite me, in the distance, the imposing and massive Sierra de la Nieve, already bathed in the clear twilight peculiar to a southern sky.

My friend Hoenselaer had strongly urged me to climb the Sierra de Mijas, where he promised me a rich harvest, spite of its apparent sterility. To reach this mountain, I retraced a part of the Malaga road, and quitting it to the left hand, soon reached a beautiful nacimiento, whose abundant stream turned several mills. The argillaceous soil around the spring was decked with those delicate Helianthemums, of which the blossoms only expand at the earliest morning hour and drop away as soon as the sun is fairly risen; these were H. Niliticum, intermedium, salicifolium and Egyptiacum, growing along with Micropus supinus, M. bombacynus and Euvax pygmaea. On arriving at the foot of the wall of rock, mentioned above, I was delighted to find a vast number of lovely plants that I have never seen before, flourishing beautifully in this moist spot, with a north exposure. There were Herniaria polygonoides, the fragile and delicate Linaria villosa, its leaves covered with a gummy and fragrant exudation, and then came Saxifraga globulifera and Campanula ve-lutina, gracing the angular and rough fractures of the stones with tufts of white and blue blossoms. Wherever the rock formed hollows and caverns, might be seen enormous tufts of Fumaria corymbosa, a plant which seems to shun the outward air and of which the peduncles may be observed lengthening and stretching in every direction after the flowers are past, seeking to deposit its seeds in the fissures. I also gathered there
Ephedra altissima (Desf.) and, Queen of all, Anthyllis podocepha, a lovely shrub with silky leaves, and crowned with clusters of golden yellow flowers. The distance I had yet to go in the day forbade my doing more than take a superficial glance at these treasures, which the proximity of the village would allow me to revisit the following day, so I regretfully forsook these rocks and pursued my way among slopes, covered with species of Cistus, Rosemary and Kermes Oaks. We continued ascending by a ravine, called La Cañada del Infierno; it was now dry and the bottom was covered with a fine sand, among which grew abundance of Alyssum serpyllifolium, Atlanticum, and Mercurialis tomentosa; this sand is found, here and there, all over the mountain being formed by the decomposition of the white calcareous chrystal of which the mountain itself consists. I gathered in succession several species peculiar to the mountainous region, viz. Macrochloa arenaria, a gigantic kind of grass, which bears, on a stalk five or six feet long, a large golden spike, Armeria alloidis, with white blossoms, Senecio arachnoideus and minutus, Echium albicans, a magnificent plant, whose aspect recalls the individuals of the same genus which are peculiar to the Canary Islands, and Reseda undata, called by the shepherds, in allusion to its long straight round flower-spice, "Hopo de Horra," or Fox’s tail.

During this excursion I enjoyed, to the full, the delights of discovery; a pleasure which was keenly renewed and varied during every successive excursion in Andalusia, and which cannot be felt in Central Europe, where every inch of ground has been trodden and re-trodden by experienced botanists. Here and there, some flocks of goats and sheep were wearily seeking their scanty food amid this thorny vegetation, where hardly a trace of the gramineous tribes is to be seen. The owners drive these poor animals to the mountain from Alhaurin, Mijas, and other surrounding villages, whither they return in the evening, and it is incomprehensible how the slender portion of vegetation that can be thus collected should afford them sufficient strength to accomplish this long daily journey.
From the summit, 3520 feet above the sea, we gained a noble panoramic view of the surrounding country. Malaga and its lighthouse might be descried towards the east, and beyond that city the mountains of Grenada; on the opposite side stretched the mountains of Ronda and the distant rock of Gibraltar, its point wrapped in mist. But the spot which chiefly fascinated my attention and from which I could scarcely take my eyes, was the continent of Africa, which I beheld for the first time. I could plainly discern the forky summit that rises above Ceuta; and fronting me, several higher mountains, not however so clearly defined, because of the gradual widening of the strait. I have since been able to perceive the shore of Africa from Malaga even; but this can only be done when the weather is very clear and the gazer has the advantage of rather an elevated situation, such as is afforded by the Castle of Gibralfaro.

The Sierra de Mijas, at whose western extremity I was posted, runs from West to East as far as Torremolinos, one league distant from Malaga. Its summits are rounded and the sides furrowed by numerous ravines, consequent on its sandy formation. Towards the south the slope is more rapid than on the north, and between it and the sea lies a country regularly intersected with undulating hills and little vallies through which passes the road, usually travelled, from Malaga to Gibraltar, past the Castle of Fuengirola. I found the high parts of the mountains covered with shrubs, many of them similar to those of the plains, the elevation not being sufficient to produce, in this latitude, a total change of vegetation. *Ulex australis* prevailed, mingled with *Rosemary, Juniperus Oxycedrus, Cistus incanus, salvifolius, Monspeliensis* and *atriplicifolius*. A *Helianthemum*, with white flowers and downy foliage, formed elegant little bushes; and, combined with most of the plants which I have already enumerated, as belonging to the subalpine region, I noticed *Borkhausia albida, Valeriana tuberosa, Carex gynobasis, Erysimum canescens, Orchis anthropophora*, and *Asphodelus fistulosus*. In the clefts of rock which terminate the mountain on the
south side, I gathered the beautiful Linaria tristis, with flowers of a blackish-purple hue, Calendula suffruticosa, Saxifraga globulifera and an umbelliferous plant, which grows upon Mount Atlas, Bunium globerrimum; it was not in flower, but I recognized it by the peculiar form of its leaves.

The approach of evening could alone induce me to tear myself away from this rich harvest; I descended to the Cross of Mendoza and thence to Alhaurin by a rapid slope which leads straight to the Nacimiento, and along which, in spite of its aridity, I gathered several rare species, as Matthiola varia, Brassica humilis, a new kind of Herniaria, a curious velvetty-leaved variety of Ranunculus gramineus and a lovely Iris, near Xiphium, its purple blossoms spotted with yellow. The Cross of Mendoza is a shoulder of the mountain where stand several ancient and rudely carved wooden crosses; it is a much venerated place of pilgrimage in the country and my posadera (landlady) assured me that she had often walked thither (los pies descalzos) barefoot, to obtain the exemption of her son from the conscription. Her devotion had succeeded, "Blessed be the Holy Virgin," said she, "my son is now married and an honest man like his father." This was equivocal praise, for rarely have I met with a greater rogue than the landlord of that inn. Every body knows that the hostleries in Spain contain no provision for the traveller's use, and if a new comer ventures to ask what he can have to eat, the constant reply is Caballero, lo que Vmd. trae, "Sir, whatever you may please to have brought with you." It is, therefore, necessary to purchase for one's self in the village here and there, what is wanted. In some of the more civilized places, the host undertakes this office, laying a profit upon every article; and at the moment of departure a long bill is handed in, where every item is specified, down to the oil and salt which have been used in preparing the food, and the traveller is amazed to find that he has quite as much to pay for these wretched provisions as in the best Fondas of the city.

On my return from the Sierra, I spent a day in study-
ing and drying my plants, and then paid another and last visit to the shelf of rocks, which had already afforded me such interest and delight.

(To be continued.)


(In a letter to the Editor.)

When Dr. Wight visited Ceylon in 1836, he undertook, at the suggestion of the then Governor, to publish a new edition of Moon's Catalogue of Ceylon plants, and for that purpose all the collections which had been accumulating at the Botanical Garden from the time of Mr. Moon, were sent to him. Several circumstances contributed to prevent his accomplishing this task, among which may be mentioned the fact, that but few of the plants named in the catalogue were found in the collection, and, of those which did exist, the greater part were in such bad condition as to be almost indeterminable. On my arrival in Ceylon, Dr. Wight wrote to say that the whole of the specimens would be returned, at the same time kindly offering, provided the government would allow me to visit him, to assist in comparing the Ceylon specimens with his own rich Indian herbarium, with the view to having them correctly determined. This was an offer not to be neglected, as it would save me the very laborious undertaking of ascertaining their names by books alone; and on laying the matter before His Excellency the Governor, he, with that liberality which he has uniformly extended towards the Gardens and the investigation of the Botany of the Island since my arrival, at once granted me leave for such a period as might be found necessary to accomplish the object in view.

On the first of November of last year (1844) I started from Kandy, with the intention of taking a passage to
Madras in the steamer 'Hindostan,' which was expected to call at Galle about the eighth. I was, however, prevented from accomplishing this plan by a very untoward circumstance. Being unable to obtain a seat in either of the two coaches which run between Colombo and Kandy, I was obliged, from my slower mode of travelling, to sleep at night at the half-way 'Rest House,' which is situated in one of the most unhealthy places in the island, and there imbibed the seeds of a jungle fever, which three days afterwards laid me up, at little more than an hour's notice. It was fortunate for me that, anticipating what was about to occur, I secured the immediate advice of the son of an old friend of yours, the highly esteemed Irish naturalist, Mr. Templeton. He is a Surgeon in the Army, who has been several years in Ceylon, and, you will be glad to learn, inherits his father's love for the study of Natural History. At present he is engaged in working up materials for a 'Fauna' of Ceylon.

Notwithstanding the active treatment adopted, it was ten days before I was able to stir out, and in the meantime the steamer had sailed. As another was expected about the end of the month, I went on to Galle to await her arrival; but owing to detentions it was not till the end of December that she reached Ceylon. During my stay at Galle I enjoyed the hospitalities of your friend Captain Champion, and with him made several short Botanical excursions in the neighbourhood. I could not, however, expose myself much, for I had several returns of fever in the shape of ague. The Botany of the south end of the island, as I learned from these short rambles, is very rich, and I hope ere long to be able to spend a month or two there with the proper appliances for making large collections, both for our own establishment and the Royal Gardens at Kew.

At Madras I was again fortunate in meeting with kind friends in the son and nephew of my preceptor in Chemistry, Professor Thomson of Glasgow. It was at the coldest season of the year I arrived there, and my health was much benefited by the change. There is something far more oriental
in the appearance of Madras, than in any of the towns of Ceylon. The turbanned natives, their loose flowing dresses, so well suited to a hot climate, the mosques with lofty minarets, and the flat-roofed houses, on the tops of which parties of wild monkeys are not unfrequently to be seen gambolling, recall most vividly the pictures of Eastern scenes, which every boy has read with delight in the fascinating tales of the 'Arabian Nights.' That part of the suburbs where the greater number of Europeans reside, looks like one vast garden, each house being surrounded by a large piece of ground laid out with trees and shrubs. The roads which intersect them are wide, well kept, and planted on either side with a row of trees, the commonest of which are the beautiful golden-flowered Thespecia, the ash-like Odina Wodier, and different species of Wild Fig, the branches of the latter fantastically adorned with pendent masses of horse-tail-like roots. The hedges which surround the enclosures are either formed of Opuntias, Inga dulcis, Lawsonia inermis, Euphorbia Tirucalli, or a small species of Bamboo, among which twine innumerable Convolvulaceae, Asclepiadace, Leguminosae, and Cucurbitaceae. I visited the garden belonging to the Horticultural Society, which is of course principally intended as an experimental one for Agricultural and Horticultural objects. The botanical collection is not large, but contains several plants not yet introduced to Ceylon, some of which I hope to obtain by exchange. It suffers from two almost irremediable evils—a bad soil, and impossibility of extension.

Coimbatore, where Dr. Wight at present resides, is about 320 miles distant from Madras; in a south-westerly direction, and to save time I determined to travel post, which, however, is somewhat different from the so called mode in England. In place of a carriage, I had to purchase a palankeen, and instead of horses, to have relays of bearers placed at different stations along the road. To get the latter part of this business arranged, required eight
days' notice to the Post-Master-General, and the deposit of a sum of money sufficient to pay the bearers, which for the distance I had to travel amounted to about £20. The whole journey was accomplished in less than five days, from which you may judge that I had not much time for sleeping, for to a 'Griffin,' like myself, such a luxury is not to be enjoyed in a palanquin when on the way. To those who can take time, India is quite a delightful country to travel in, compared with South America. Along the whole of the principal roads, public 'Bungalows,' or Rest Houses, have been erected at the distance of every ten or twelve miles, for the use of travellers, substantially furnished with chairs, tables, and bedsteads, and generally entrusted to the care of an old Sepoy. Travellers are obliged to carry their bedding and provisions, for of the latter little is to be had at these places, except milk, eggs, and the requisites for a dish of curry and rice; but even these simple viands cannot always be obtained.

During the three first days I encountered very heavy rains, and in consequence found it difficult to cross some of the rivers, particularly one at Arcot, the bed of which is more than half a mile broad, with a quick-sand bottom. The whole country through is very flat, reminding me much of the level plains—the northern provinces of Brazil. In such parts as can be irrigated, rice and other grains peculiar to the East are cultivated, while the more elevated and drier tracts give pasturage to oxen, buffalos, sheep, and goats. There is a very tolerable carriage-road all the way, and a row of trees having been planted along each side of the greater part of it, the pedestrian traveller constantly meets with a cool shade under which to rest. The trees principally selected for this purpose are numerous varieties of Wild Fig, and the Tamarind. Some of the latter are the largest and finest I have ever seen. My journey was
too rapid for making collections, which I did not greatly regret, for the ground has been often gone over by Dr. Wight.

Two days before reaching Coimbatore, I had a smart fit of ague, which returned on the day after my arrival with increased force, and prostrated me so much that I was confined to bed for nearly a week. I received a most hearty welcome from Dr. Wight, who was quite delighted to meet with a brother Botanist. He was on the Neelgherries when I informed him from Madras that I was near at hand, and he only reached Coimbatore a few hours before me. For the last three years he has been employed in superintending a large Cotton Farm, established here by order of the Court of Directors of the East India Company; and conducted on the North American plan of cultivation; American planters being engaged for that purpose. It has not, however, answered so well as was anticipated, for the soil is too light to admit of more than two crops being taken off the same plantation in succession, and even then the second crop is decidedly inferior to the first. This is with regard to American Cotton. In America the case is very different, for there the same ground is kept under Cotton cultivation for years in succession; and it is the same in the northern districts of Brazil, such as Pernambuco and Maranham. Coimbatore is about 25 miles distant from the foot of the Neelgherry range, and the country round it is flat. There is not much depth of soil, for at one or two feet below the surface there exists in some places a very thick stratum of botryoidal limestone, and in others disintegrating gneiss and granite.

The Ceylon collections were more extensive than I anticipated, but by far the greater part are in a very bad state of preservation. Moon seems to have been a most indefatigable collector, for among his plants we found most of the species detected by subsequent Superintendents of the Garden, and other collectors. During the month of January, Dr. Wight and I worked very
constantly at them, first grouping them into their natural Orders and Genera, and then comparing them, species by species, with those in the Doctor's Herbarium. By this means, together with the use of his valuable and extensive botanical library, we were enabled to ascertain which are new species, and to name those that had already been described. From the materials in this collection, and in that made by the accomplished Mrs. Col. Walker, which you so kindly presented me with previous to my departure from England, together with what I have collected since my arrival, and still hope to accumulate, I trust to be able, in the course of a very few years, to prepare for publication a Flora of the island, worthy of the richness and beauty of its vegetation, and of the encouragement afforded me both by the home and local government. This, however, as you are well able to judge, will be a work of no little labour, as it must contain descriptions of from four to five thousand species, being considerably more than half of all the plants defined by Linnaeus in the last edition of his 'Species Plantarum.'

In the course of our evening walks or drives, I always contrived to pick up a few specimens of those plants which are indigenous to the plains of India, or at least to the Peninsula. Several of them are of great botanical interest. Thus, in a large tank near Dr. Wight's house, Vallisneria spiralis grows in the utmost abundance, along with its near ally Hydrilla Rosburghii. In hedges and bushy places, the Azima tetracantha, Lam., is very common. This, like many other genera of imperfectly known structure, has been banded about from Order to Order, and, wandering-Jew-like, has been hitherto unable to find a place of rest. An investigation which we instituted with regard to its structure and affinities yielded us much satisfaction. We both sat down to examine it, and, unknown to each other, arrived at the same conclusion, viz.: that it forms the type of a new Order, intermediate between Oleaceae and Jasminaceae. We have drawn up a conjoint memoir on the
subject, and sent it to the Calcutta Journal of Natural History for publication. The following is a short extract—"The principal reason, it appears, why those Botanists who have written on this genus have not been led to refer it to its proper position in the natural system, is, that too much importance was attached to its being polypetalous. Notwithstanding this structure, we believe its affinities lean less towards the polypetalous than the monopetalous division of plants; and in the latter we are inclined to place it, as a distinct Order between Oleaceae and Jasminaceae. That it is nearly related to these Orders, more nearly, indeed, than to any others in the system, our analysis clearly shows; but to neither can it be referred, from the almost equal affinity it bears to each. Thus it corresponds with Oleaceae in the structure of the flower, differing principally in having 4, not 2, stamens. If we reflect, however, that in its floral envelopes, Oleaceae is tetramerous, it is to be expected that truly Oleaceous genera may yet be discovered having four stamens. The dioecious character of Azima is met with in more than one species of Olea; and free petals exist in Linociera. Azima is essentially distinguished from Oleaceae by its erect, not pendulous, ovules and exalbuminous seed. On the contrary, it agrees with Jasminaceae in the nature of its ovary and fruit, but not in the details of its floral envelopes. From Oleaceae it differs in habit, while it coincides with that of the scandent species of Jasminum."

During my visit to Coimbatore I made myself better acquainted than formerly with the structure of the fruit of the Natural Order Cucurbitaceae, a subject to which, as you are aware, Dr. Wight has paid much attention. Perhaps the few following observations connected with it may not be unacceptable.

Most writers on the subject describe the fruit as one-celled, with parietal placentae. The definition given by Jussieu in his "Genera Plantarum" is more complex:— "Fructus inferus baccatus, cortice sæpius solido, unilocularis,
mono-vel polyspermus, aut multi-locularis polyspermus, receptaculis seminiferis lateribus seu parieti affixis.” Lindley says: “Fruit fleshy, more or less succulent, crowned by the scar of the calyx, 1-celled, with three parietal placentae;” and in his ‘School Botany’ has given a diagram illustrative of this structure. Arnott defines a Pepo to be “a fleshy inferior fruit, either indehiscent or bursting irregularly, and consisting of about three carpels, each divided into two cells by its placentiferous margin being so introflexed as to reach the dorsal suture.” Endlicher’s view is still different:—“Ovarium infernum, rarissime uniloculare, ovulo unico ex spicpe loculi pendulo, plerumque e carpidiis tribus vel quinque compositum, carpidiis usque ad axim idealem involutis, iterumque revolutum porrectis, marginibus ovaliferis parietem attingentibus sex- vel decem-loculare, septis alternis sterilibus, alternis angulo parietali utrinque ovuliferis sæpissime septis primariis e carpidiorum marginibus introflexis obsoletis, triquinqueloculare vel secundariis e carpidiorum marginibus revolutis pariter obliteratoris uniloculare, placentis parietalibus tribus vel quinque geminatis.” Such a structure as this may be consistent with theory, but assuredly not with fact.

Seringe, in his “Mémoire sur la famille des Cucurbitacées,” was the first to point out, about twenty years ago, the true nature of a cucurbitaceous fruit, which, although simple, is so extraordinary, and different from what exists in other orders, that I can well believe him when he says that he hesitated to make it known. After describing the normal plan on which fruits are formed, viz.: by carpellar leaves, either applied edge to edge, as in those which are one-celled; or with their margines introflexed, as in such as are plurilocular, he says:—“Mais comment se figurer que cette feuille de Cucurbitacée, ployée comme il vient d’être dit, pourra se retourner dans le fruit et son bord seminifère se trouver dans la circonférence au lieu d’occuper le centre? c’est cependant ce qu’il faut se figurer pour comprendre l’organisation des Cucurbitacées. Le genre Phaca offre bien un exemple de ren-
versement dans son fruit, la gousse pendant sa maturation se tourne sur la base; mais comment le supposer dans une Courge, dont les carpelles sont entourées du torus et du calyce? Cette position des carpelles existe cependant dans cette singulière famille, et me paroit tellement incompréhensible que j'ai eu de la peine à me décider à l'annoncer. J'ai fait des coupes de fruits très-jeunes, demi-mûrs et mûrs de bien des Cucurbitacées, et j'ai toujours trouvé la même position des carpelles." De Candolle adopts this view in his 'Prodromus,' as may be learned from the following passage: —"Carpella 3 vel 5, carnosa (abortu? solitaria) toro et calyce involuta, peponidem formantia, nervo medio carpellorum centrali et margine semiinfero externo."

Neither Seringe nor De Candolle has, however, so clearly or satisfactorily demonstrated this very singular structure, as has Dr. Wight, in his paper originally published in the 'Madras Journal of Science.' "In a Pepo," says Dr. Wight, "the normal position of the mid-rib of the carpellary leaf is reversed, that is, placed in the axil, and the placental margins towards the circumference. That such is actually the case requires no argument to prove; we have only to cut the ovary of any true cucurbitaceous plant, to be made sensible, at a glance, that it is so." To test this theory I examined the young ovaries of several species of the Order, and in all of them found convincing evidence of its truth. In Coccinia Indica the structure is most beautifully exhibited, for there the revolute margins of the carpels which form the dissepiments do not adhere, and when a longitudinal cut is made in a transverse slice of the ovary, the three carpels readily separate from each other, the inner angle exhibiting a dense point of vascular tissue, which evidently is the mid-rib. When the carpels are thus separated, and allowed to retain their adhesion to the adherent tube of the calyx, the placentae are distinctly seen to be formed from the slightly involute margins of the revolute carpellary leaf. In the species of Bryonia with two cells, the
midribs of the carpels are still in the axis of the fruit, the partition being formed by the laminae, and the placenta by their very slightly revolute margins. In this case, as indeed in all the species I have examined, the external walls of the cells are constituted alone by the tube of the calyx. The only difference then between this and the usual structure of a fruit is, that in the one case, the carpellary leaves are involute, in the other revolute. The few words of De Candolle express the structure of a *Pepo* admirably, while the verbose character of Endlicher is quite unintelligible. Dr. Wight informs me that the late lamented Mr. Griffith was most determinedly opposed to the revolute theory.*

The close confinement to which I subjected myself during the month of January in arranging the Ceylon collections, together with several returns of ague, so much injured my general health, that at the recommendation of the civil medical attendant here, who is married to a daughter of your Cape correspondent, Baron Ludwig, I determined to make a run up to the Sanitorium on the Neelgherries a week or two to recruit, and check, if possible, the periodical attacks of my fever. Dr. Wight's family being on the mountains, he kindly consented to accompany me.

Ootacamund, the principal station on the hills is about fifty miles from Coimbatore, one half of which distance was traversed before reaching the foot of the range, and this was accomplished the first day. The road is nearly level all the way; as we passed along, I observed many plantations of cotton, tobacco, and castor oil. The hedges along the road, and between the fields, are mostly formed of *Euphorbia Antiquorum*, *tortilis*, and *Tiruculli*.

* Long before this reaches you, you will have heard of the death of Mr. Griffith. He had but shortly returned from Calcutta to Malacca, when he was cut off on the 8th of February, by inflammation of the liver, after only a few days' illness. Thus has India's brightest botanical ornament been taken away, even before the prime of life; but, young as he was, he has left an undying fame behind him.
Sometimes *Amyris Gileadensis* is used, and while it very much resembles the hawthorn of Europe, quite equals it as a fence. About Coimbatore a species of *Viscum* grows very commonly on the two first kinds of *Euphorbia*, a fact at variance with the assertion of De Candolle, (*Prodr. 4*, p. 277), that the *Loranthaceae* "vegetant super omnes fere arbores dicotyledoneas, lactiferis exceptis." In many places by the sides of the road, splendid specimens of the Tamarind and Wild Figs may be seen. The most common of the latter is the *Ficus Benjamina*, very remarkable for the profusion of roots which it throws down from its branches. These, when they reach the ground, became secondary stems, as in the true Banyan tree. Those who wish additional facts to prove that the wood of Exogenous trees is formed by bud roots, have only to look at one of these trees to be fully convinced of the truth of this beautiful doctrine. The main stem of some of them, indeed I may say of all, does not form one solid mass, as usually occurs in other trees, but is a congeries of thick branching roots, which come down from the lower ends of the large branches, surround the original shoot or stem, and overlay each other in such an open reticulated manner, that daylight can often be seen through a trunk several feet in diameter. It is also curious to observe that the long horizontal main branches of these trees have not the conical shape, or at least not so much, as those of other trees. What is the cause of this? The explanation is very simple. The roots which are sent down from the buds between the bark and the previously formed wood, in place of reaching the lower part of the branch, are thrown out along the course of it in masses, which, as I have before stated, resemble enormous horse-tails, and hence the necessity which the branches of such trees have for the supports which are formed by these roots when they reach the ground. Instances have been known of the main trunk of these trees, although totally destroyed, yet continuing to live, its functions being performed, and the whole mass supported, by the
supernumerary stems formed of the tender rootlets given out by the branches.

In the course of our drive many kinds of plants occurred, which I had not before met with in a wild state. The most curious were the Stapelia-like *Caralluma fimbriata*, and *Bucerosia umbellata*, both inhabiting dry arid stony fields, along with *Coleus aromaticus*. In the same localities *Cassia auriculata* and *Dodonea Burmanniana* grow in the greatest profusion.

Next morning, a ride of five miles brought us to the foot of the Neelgherries, which rise very suddenly out of the plains. At this point the country is well wooded, and among the large trees, *Strychnos Nux vomica* and the superb *Butea frondosa* appear most conspicuous, the former bearing abundance of large orange-coloured fruit, and the latter loaded with large panicles of bright red flowers. Here we collected specimens of *Cardiospermum canescens*, *Glycosmis arborea*, *Getonia floribunda*, and a magnificent *Ipomoea* with very large pale rose-coloured flowers, the tube of a much darker shade. It climbs to the tops of the highest trees of the forest, and thence hangs down in rich festoons. Further on, the Jack-tree is common, and *Sisygium Jambolana*, the latter a large and very handsome tree. At this ascent to the mountains the lower zone of vegetation consists principally of a Bamboo, which throws up its graceful stems to the height of nearly a hundred feet, and this continues until we reach an elevation of about 1500 feet above the level of the plain. Among these I observed some large trees of *Cochlospermum Gossypium*, recognizable at a great distance from the profusion and size of their bright yellow flowers. In the region of the Bamboo we collected specimens of an undescribed *Aniscochilus*, *Dunbaria latifolia*, the beautiful blue-flowered *Thunbergia Hawtayneana* and *Hiptage Madablotah*. The next region, embracing about 3000 feet above the Bamboo, may be called that of the Olive, from the predominance of plants of that natural family, the most common of which are *Olea*
paniculata and dioica, both forming large trees. Here also are found two species of Kydia, Microchlena 5-angulare, several Lauraceae, Urticaceae, Celtis orientalis, Semecarpus Anacardium, a Gnidia, two species of Jasminum, a Gnetum, forming a large tree, Mæsa Indica, a Begonia, Aristolochia acuminata, a Mappa, and several other Euphorbiaceous trees, Clematis Goveniana, a beautiful climber, Mucuna prurita, Phœnix pedunculata, Arenga Wightii, Griffith, Monosis Wightiana, an undescribed Hedera, and the splendid Mesua speciosa, of which a fine figure will appear in the next part of Dr. Wight's 'Icones.'

Shortly before reaching Coonoor, about ten miles from Ootacamund, and nearly 6000 feet above the level of the sea, the appearance of the hills becomes very much changed in the nature of the vegetation; the vast forests disappear, leaving large open campos thinly covered with stunted trees and shrubs; but still the deep ravines and hollows are well wooded. In one of these ravines by the road side the lovely Andromeda-like Agapetes arborea was beautifully in flower; on rocky places Plectranthus mollis, Anisochilus dysophylloides and Crotalaria scabrella; and in bushy hilly spots Indigofera pulchella, Desmodium rufescens, Osbeckia Wightiana and Wendlandia Notoniana. At Coonoor we halted to breakfast at the public bungalow, and afterwards walked out a little in the neighbourhood. Here grew the pretty erect yellow-flowered Jasminum aureum, Potentilla Leschenaultiana, Rhododendron roseum, Microtropis ovalifolia, Symlocos spicata, &c. Shortly after leaving Coonoor we collected Exacum Wightianum, Gaultheria Leschenaulti, which is the same as that figured in your "Icones Plantarum" under the name of Andromeda Katagherensis.

When a European Botanist first arrives in a tropical country, his mind becomes so filled with its gorgeous productions, as almost to forget the less luxuriant vegetation of his native land. But when time has familiarized the former, the
sight of plants analogous to the latter, is sure to awaken many delightful remembrances of past times. This I found to be the case during my ride from Coonoor to Ootacamund, where the number of European forms mingling with intertropical ones is very great indeed. Among these may be mentioned *Rosa Leschenaultiana*, a shrub with long straggling branches, bearing clusters of large white flowers; *Berberis tinctoria*, which when in flower very much resembles the common English Barberry, but the berries instead of being red are black; two species of *Rubus, R. Wallichianus*, bearing yellow fruit, and *R. lasiocarpus*, a *Mentha, Juncus glaucus, Lonicera Leschenaultii*, resembling very much in general appearance the Honeysuckle, and *Clematis Wightiana*, &c. Some of the open hilly country here is cultivated by a very industrious race of natives, called Budgars, who inhabit the mountains. Besides some small grain peculiar to the country, they cultivate barley, wheat, onions, garlic, mustard, opium and potatoes, all thriving well in favourable seasons. About four miles from Ootacamund we passed Kaitie, a residence belonging to Lord Elphinstone, and about a mile further on we obtained the first view of the Sanatorium itself.

Ootacamund began to be visited by Europeans about twenty years ago, and now contains, besides the bazaar or native village, more than one hundred European residences, of course belonging principally to the Company's military and civil servants. It boasts a very handsome church, a club-house, two hotels, and three large shops where most European articles may be obtained. It is situated in a large amphitheatre of very irregular undulating surface, and the residences are chiefly scattered along the spurs which descend from the higher range. The hills have a bare aspect, being mostly covered with coarse kinds of grass, and other herbaceous vegetation, among which a few stunted *Rhododendrons* and other small trees may be seen breaking the monotony which would otherwise prevail. It is only in the hollows and long narrow valleys or ravines intersecting
the hills that regular woods exist. These at a distance appear to be composed of very small trees, but on nearer approach, we are soon undeceived, as many of them attain a very great size.

Dr. Wight's house is very pleasantly situated, and being considerably elevated above the plain, commands a fine view: except where a clearing has been made for a flower and kitchen garden, it is surrounded by native jungle. Some of the trees are highly ornamental, as you may judge from the following list of what occur in the immediate vicinity. The first enumerated must be the splendid Rhododendron roseum, not only from its being the Queen of Beauty, but one of the commonest. Only figure to yourself a plant of the Rhododendron arboreum, now so commonly cultivated in the green-houses of England, becoming a densely branched tree from 30 to 40 feet high, and then you will gain some idea of the appearance of the many thousands which adorn the hills and valleys of the Neelgherries. It is never found below an elevation of 6000 feet, and reaches to the highest summit of the mountains, or nearly 8500 feet above the level of the sea. On exposed hilly places, it becomes very gnarled and stunted, and then much resembles some of the beautiful forms now cultivated in the open air with you. The next in beauty is the Agapetes arborea, and a new species which will shortly be published by Dr. Wight under the name of A. rotundifolia. Then come Clevera gymnandra, Turpinia Nepalensis, Eugenia densiflora, Sapota elongoides, Ilex Wightiana, and Ilex denticulata, both the latter are immense trees, often attaining the height of from 60 to 90 feet, with fine umbrageous heads; Gordonia obtusa, Cinnamomum ovalifolium, and Myrsine capitellata. Besides these there are others of smaller size, such as Stemonurus fœtidus, Berberis Leschenaultii, and tisctoria, Viburnum Wightianum and kebanthum, and Pavetta breviflora. The Berberis Leschenaultii is a very handsome plant indeed, belonging to the Mahonia division of the genus.
It would be a most ornamental tree for an English lawn, from its size, large dark green leaves, and dense fascicles of long spikes of yellow flowers and blue berries, if hardy enough, which, unfortunately, is not the case, to stand the climate of England. The lower jungle in the same situation consists of several species of shrubby Composite, three kinds of Rubus, a new Coffea (C. alpina, R.W.) with highly odoriferous flowers, two or three kinds of Leucas, Osyris Wightiana, Hedyotis stylosa, and Lawsonia, Mephitidia venulosa, (Sautia venulosa W. & A.), Jasminum aureum, Osbeckia Gardneriana, a new species, one of the most beautiful of the Peninsular Melastomaceae; Lonicera ligustrina, a very pretty plant, used on the hills for garden hedges, much resembling those of Privet, and a very fine Euphorbiaceous shrub constituting a new genus nearly allied to Buxus.

In the flower garden I found many common English plants growing most luxuriantly, such as Wallflowers, Larkspurs, Scabiosas, Lupines, Roses, Pinks, Carnations, Dahlias, and several beautiful kinds of Pelargoniums. So well does the climate suit the latter, that in many places they are apparently wild, and this also is the case with an Iris, Oenothera biennis, Melianthus major, Capsella Bursa Pastoris, Achillea Ptarmica, &c. All European vegetables flourish, but the only fruit tree which bears well is the Peach. Strawberries are in season nearly all the year round, but they require to be fresh planted every six months, as they are found not to yield a second crop. When we were there in February, one of the coldest months of the year, we had strawberries on the table nearly every other day. In January the nights were so cold that pools of water were frozen. To give you some idea of the Meteorology of the hills, I copy the following tables from a little work lately published in Madras entitled, "Report on the Medical Topography and Statistics of the Neelgherry Hills."
**BO**TANICAL INFORMATION.

*Heights of the Neelgherries, by Barometer.*

- Dodabetta, highest summit . . . 8429 feet.
- Oootacamund . . . 7197 ",
- Rotagherry . . . 6407 "
- Dimhutty . . . 6166 "

**Temperature.**

- Dimhutty . . . . . . 64° 1
- Kotaghrerry . . . . . 63° 4
- Ootacamund . . . . . 60° 8
- Dodabetta . . . . . . 56° 6
- Ootacamund (daily range) . . . . . 8° 7
  (monthly range) . . . . . 17° 4
  (annual range) . . . . . 38°
  (rain annually) . . . . . 63.608 inches.

**State of the Weather for one year.**

- Dry days . . . . . . 260
- Partial rain . . . . . 88
- Continued rain . . . . . 14
- Unrecorded . . . . . . 3 = 365.

- Calm . . . . . . 214
- Light winds . . . . . 130
- Strong winds . . . . . 21 = 365.

- Frost . . . . . . 28 nights.
- Partial fogs . . . . . 10 days.
- Continued fogs . . . . . 1 day.

Prevalent winds from N. to W.

*(To be continued).*
Animadversiones in Piperaceas Herbarii Hookeriani, auctore Dr. F. A. Guìl. Miquel.

Cum in ditissimo Herbario Hookeriano haud parcam copiam Piperacearum novarum vel adhuc dubiarum invenissem, quibus difficilis hujus Ordinis historia varia ratione illustratur, brevem earum enumerationem jam nunc benigno botanicorum judicio submittere haud inutile mihi videbatur. Reperi enim in splendida hac collectione plura quae antea frustra quæsiveram, magnam copiam Piperacearum Peruvianarum ab indefessis Mathewus et Jameson lectarum, vel ex Ruizii et Pavoni herbarii acquisitarum, Garderianas Brasilienses aliasque ex variis Novi Orbis plagiis a D. D. Guilding, de Schach, Tweedie, Purdie, Macfadyen, Hartweg, Linden, Parker, Hostman, Nicholson, Barclay, rel. detectas, uberrimam messem specierum quas Archipelagus Oceani pacifici gignit, a Fraser, Cunninghamis, Colenso, Edgerley, Darwin, Barclay rel. communicatas, e coloniis Anglo-indicis, præter Wallichianas olim jam a me examinatas, plures novas a cl. Griffith lectas, porro Ceylanenses Walkeri, Javanas Zollingeri cæt., atque ex ora occidentali Africae tres species, olim imperfectissime notas, in doctrina phytogeographica perquam memorabiles, ab infelici Vogelio repertas. Speciebus in Systemate Piperacearum jam descriptis quasque si aliquid addendum esse, heic etiam enumeravi, operis hujus paginam adscripsi, quo a novis facile distinguantur.

Hookero autem qui totam suam Piperacearum collectionem liberaliter mecum communicavit, nec non Dr. J. Dalton Hooker, qui species in celebri expeditione antarctica Rossii a se lectas, benevolè misit, animum testor gratissimum.

Scribem Rotterdami,

m. Junii, 1845.

Tribus Peperomieæ, Miq.

Phyllobryon, Miq.

1. Phyllobryon Pavoni, Miq. Syst. Pip. p. 50: varietas sub-
acuminata; tenerior, foliis minoribus ovato-cor.latis attenuato-acuminatis.—Ex Chinchao Peruviae a. 1795. Ruiz, et Pav.

ACROCARPIDIUM, Miq.

1. Acrocarpidium nummularifolium, Miq. l. c. p. 52, var. foliis fere omnibus apice emarginatis pæne obcordatis, hinc A. cordifolio proximum.—In Surinam (Hostmann, n. 117.)

2. A. Sellovianum, l. c. p. 55.; forma pilosior; ramis junioribus petiolisque pilis longioribus densius obtectis, foliis omnibus fere reniformibus, setis multi articulatis.—In humidis umbrosis El Equador (Jameson.)

3. A. cordifolium, l. c. p. 56.—Amenta 4-5 cent. longa, pedunculi 1 cent.—In Jamaica.


4. A. Guayaquilense; repens, ramosum, carnoso-succulentum, adulem glabrum, junius in caule foliisque præsertim subtus longe pilosum, foliis alternis petiolatis paullo supra basin peltatis ovato-rhombeove-circularibus crassis, subtus convexis uninervis, amentis solitariis innovatione lateralis pedunculatis filiformibus, demum subremotifloris.

Crescit in Prov. Guayaquil in truncis arborum in ins. fluvii Pante. (Jameson).

Species foliorum indola distinctissima, sed ob baccas incognitas nondum certa generis civis. Planta adulta tota
glabrescit, in junioribus autem ramulis et praesertim in pagina inf. foliorum pili sparsi longi observantur. Petiolii 2–5 mm. longi. Folia $\frac{3}{4}$–1$\frac{1}{2}$ cent., raro perfecta orbicularia, plerumque aliquid latiora quam longa, vel et ad subovatum aut rhomboeam formam tendentia. Pedunculi 1–1$\frac{1}{2}$ cent. longi; amenta 5–6 cent. primum densiflora, post florescentiam autem flores sunt remotiores. Bracteae orbiculares pedicellato-peltae. Stamina 2. Ovarium ellipticum apice stigmatiferum.


Ab A. repente, quocum olim hanc speciem conjunxeram, inspecto specimine authentico, satis differre nunc persuasum habeo. Differt enim statura minore, ramis erectis, foliis forma et amentis multo brevioribus.—Folia $\frac{3}{4}$–1$\frac{1}{2}$ cent. longa, $\frac{3}{4}$–1$\frac{1}{2}$ lata. Pedunculi 1–2 cent. longi, amenta 5–6 mm.

7. A. majus, l. c. p. 60.—St. Catharina Brasiliæ, (Tweedie.)

8. A. Jamesonianum; repens radicans filiforne glabrum, foliis alternis longe petiolatis rotundato-vel lato-ovato-cordatis sinu baseos profundo, lobis plerumque conniventibus, apice rotundatis vel acutiusculis quinquennerviis et tenere reticulatis, amentis solitariis axillaribus vel terminalibus remotifloris longe pedunculatis elongatis pedunculorum æquantibus vel brevioribus, bracteis pedicellato-peltatis.
Creseit in planitie ad Quito, (Hall, n. 54), in mont. Pichincha, (Jameson, n. 62).

A. repenti et A. scandenti affine, sed statura gracili, glabritie et amentorum dispositione diversum.—Petiol 1-6 cent. longi; folia 1¼-2½ cent. longa. Pedunculi 3¼-6 cent.; amenta 1-5 cent. longa.

**PEPEROMIA, Ruiz et Pav.**

* Sectio TILDENIA, Miq. *

1. Peperomia Gardneriana, l. c. p. 73. Radix; tuber subglobosum, piscis avellane magn.

* Sectio MICROPIPER, Miq. *

3. P. pellucida, l. c. p. 79.—Trinidad, (De Schach, Piper cordifolium). Domingo, (Dr. Imray, n. 833.)


P. Hymenophylæ ex ins. Philippinis et P. exiguæ e Java admodum similis, ut varietatem fere habuissem, sed cum folia sint pellucido-punctata magis rotundata et majuscula, minus reticulata, amenta longiora et alio modo disposita tanquam speciem propono.

Unicum specimen suppetens 7 cent. altum. Radix parva fibrillosa; caulis ramique valde succulent in sioco transparentes filiformes. Folium unicum radicale parvum; caulina
majores; petioli ¼ 1½ cent. longi; folium majus 2½ cent. longum, 2½ latum, 5-vix sub-7-nervium, nervo medio ad apicem ducit parce ramoso, lateralibus præsertim extorsum ramulosis, insinis subtilissimis; folia superiore 1½-2 cent. longa et lata, basi minus profunde cordata, in universum magis ovata. Compases in sicco transparenti-membranae, sed haud perspicue marginata. Pedunculi 3-8 mm. longi; amenta 2 cent. longae, filiformes; bracteæ juniorum imbricatae, florentes remotæ, demum dissitæ, persistentes, membranae. Ovarium ellipticum, rectum, spuce stigmatiferum. Stamina 2, filamenta brevia; antheræ bilocularæ pallidae. Baccae leviter immerse.

5. P. hirtella; succulenta, basi radicans repens, ramis erectis petiolis pedunculisque appresse hirtellis, foliis alternis ovatis ellipticisve acuminatis vel acutis, acumine obtusiusculo, basi obtusis vel rotundatis, utrinque appresse puberulis subtusque glandulose punctatis, 3-5-nervis, amentis lateralibus solitariis pedunculatis (pedunculo petiolum parum superante) subdensi floribus carnosis teretibus obtusi, folio plerumque brevioribus, bracteis persistentibus, baccis globoso-ovatis punctatis. Crescit in insula Domingo, in mont. Couliaban, (Dr. Imray), n. 244.


Ex affinitate P. myrtifoliae. Caulis inter muscos repens, ramosus, filiformis. Petiolis antice profunde canaliculati 1-2 mm. longi. Folia in seco coriacea, inferiora 4-6 mm. longa et lata, media 1-1½ cent. longa, 6 mm. lata, suprema 1-2 cent. longa, 5-7 mm. lata tenuiora. Pedunculi ½-fere 1 cent. longi, amenta 3-7 cent. Bracteæ pedicellato-peltatae orbiculares. Stamina 2. Ovarium apice stigmatiferum.


Præcedenti proxima, forma foliorum distincta. Rami ramulique filiformes dichotome vel opposite ramosi. Petioli
2 mm. longi; folia 5-10 mm. longa 4-7 lata, subae albicantia et sub lente glandulis fuscis elevatis punctata, adulta fere prorsus glabra. Pedunculi glabri vel glabriusculi, 3-5 mm. longi, amenta 3-4 cent. longa recta. Bracteae breviter pedicellato-peltate orbiculares fuscae et punctatae. Ovarium ellipticum apice stigmatiferum. Filamenta brevia, antherae albicantes biloculares.

10. *P. dassystachya*; succulenta erecta parce ramosa tota molliter pubescens, foliis alternis rhombo-ovatis ellipticas, ininis minoribus utrinque obtusis, superioribus acutiusculis, summis attenuato-subacuminatis, 8-5-nerviis et venosis pellucido-punctulatis, utrinque puberulis pilis sensim deciduis, amentis breviter pedunculatis terminalibus solitaris vel ex summis foliis axillaribus quandoque geminis rectis obtusis densifloris, rachi dense hirtello-pubescentes, bracteis pedicellato-peltatis sparse piliferis vel glabris, ovario apice stigmatifero.

In Peruviae Prov. Chachapoyas, (Mathews, n. 3229.)

Collucanda in vicinitate *P. acuminata* cae., sed ab omnibus distinctissima et amentis ipsis pubescentibus facile discernenda. Caulis dense molliter pubescens. Folia inferiora minora 2-4 cent. longa elliptica vel ovata, imo plane rotunda, superiora multa majora lato-subanguloso-elliptica ovataque acuta, supra semper acuminata plerumque æquilatera, quaedam tamen inaequilatera, 6-8 cent. longa, 3-3½ supra medium lata, tripli-tri-vel subquinquenervia, nervis 3 mediis saltem bene distinctis, medio percurrente. Pedunculi petiolos circiter æquantes. Amenta 6-8 cent. longa, cylindrica, obtusa, dense pilosa, floribus annulatim dispositis.


12. *P. acuminatissima*; succulenta glabra erecta ramosa, foliis alternis petiolatis succulentis æpunctulatis ovatis ellipticis, summis elliptico-lanceolatis æquilateris longe anguste acutæque acuminatis, acumine juniorum ciliolato, 3-5-ner-
ANIMAVERSIONES IN PIPERACHAS.

vias nervis 3 medii distinctis subtus prominentibus, extimis tenuibus submarginalibus, amentis axillaribus solitariis breviter pedunculatis densifloris, ovario apice stigmatifero.


Precedenti proxima, habitu P. pterocaulum semulans. Caulis pedalis subflexuosus parce ramosus, succulentus, angustatus (an fere alatus?). Folia inferiora breviorsa latiora superioribus minora, 4½-6½ cent. longa, 2½-3 lata ovata vel elliptica brevius acuminata, superiora 8-10 longa, 3-9 lata, in sicco membranacea, supra atro-viridia, subtus pallida, nervis 3 mediis ad apicem ductis subsimplicibus. Petioli 3-5 mm. longi, antice canaliculati. Amenta 6-10 cent. longa, rectiscula vel leviter curvata, teretia, sursum aliquid attenuata.

13. P. Hamiltoniana; carnosa glabra et basi radicante erecta dichotome ramosa, foliis alternis breviter petiolatis carnosis pellucido-punctatis, summis confertis, rhomboe-vel lanceolato-ellipticis acutiusculis vel obtusis, basi cuneatis, subtus pallidis trinervis, nervo medio ad apicem ducto, amentis terminalibus solitariis breviter pedunculatis elongatis subdensifloris, ovario apice stigmatifero.

Crescit in Jamaica (Purdie, n. 108).


14. P. spectabilis; succulenta erecta, caule petiolisque dense pubescentibus, foliiis alternis ? summis subternis, petiolatis ovatis acuminatis basi rotundatis vel acutiusculis succulentis, supra sparse et decidue subtus paullo densius
puberulis, uninerviis et tenuiter penniveniis, amentis in panicula ampla terminali verticillatim dispositis, verticillis (3) singulis et 3–6 amentis remotifloris filiformibus longiuscululis, bracteis pedicellato-peltatis orbiculatis, ovario apice stigmatiferō.

In Peruvia (Mathews, n. 1685).


Crescit in insula Norfolk, Julio m. (A. Cunningham.)

Anne species?


17. P. rhomboidea, p. 103, nunc primum a me visa, inter species foliis oppositis referenda, P. latifolia affinis.—Succulenta suberecta, caule petiolis foliisque præsertim subtus
sparse pilosis cito glabratis, foliis oppositis petiolatis latis ovato-rhombeis vel ellipticis acuminatis acutis vel obtusis, basi rotundatis vel cuneatis, 5-7-nervis, amentis axillari-bus et solitariis dissitifloris.

*Crescit* in insulis maris Pacifici corallinis, Nohoan, Tahiti.

Petiolis 1-2 cent. longis; folis 3-6 cent. longis, 2½-4½ lata, subglandulosa, supra saturate viridia, subtus pallida, nervo medio ad apicem ducto. Amenta 5 cent. longa; ovarium apice stigmatiferum.

18. *P. Abyssinica*; succulento-carnosa glaberrima, dichotome ramosa, basi repens radicans aphylla, superne foliosa, foliis alternis summis confertis quandoque suboppositis, breviter petiolatis reflexis (propter novella et paucas radiculas parva subrotunda) ellipticis rhombo-ellipticis vel obovatis, utrinque obtusis vel apice rotundatis aut emarginatis enervis vel obsolete uninnervis, amento terminali solitario brevi pedunculum sequante remotifloro, bracteis pedicellato-peltatis orbiculargibus, ovario elliptico apice stigmatifero.

*Crescit* in rupibus vallis Maschicha inter Debra Dschoa et Abu Mekkana; repens. 2 Mart. 1840 (*Schimper, It. Abyssa. Sect. II. n. 1319.*

Habitu *P. retusa*, amentis *P. Borbonensi* quoddammodo similis, sed distinctissima ab omnibus. Caulis vage repens, inferne radicans et aphyllus, internodiis 3-6 cent. longis; superne brevioribus 2½ cent. longis, ad nodos incrassatis. Petiolis 1-2 mm. longis; folia 1-2½ cent. longa, 5-12 mm. lata, exsiccata pallida coriacea, minora rotundata vel elliptica utrinque obtusa, majora rhombica versus apicem saxe attenuata sed semper obtusa. Pedunculi 1½ cent. longi; amentum (unicum suppetens) 12 mm. longum, carnosum; flores remoti subimmersi. Bracteae persistentes. Stamina 2, filamentis brevissimis, antheris globosis bilocularibus. Ovarium fecundatum ellipticum obtusum.

19. *P. macrothyrsa*; carnosa glabra erecta inferne simplex et aphylla, foliis alternis ad apicem caulis primarii dense aggregatis crasse carnosis petiolatis elliptice vel lanceolate
dolabriformibus basi attenuatis, apice contracto obtusiusculis, caule supra foliorum comam elongato parte folioso et aphylo amennisero alte paniculato, amennis in axillis foliorum floralium vel bracteasformium sessilibus 2-4-fasciculatis inaequilongis subdensifloris.

* Crescit in Peruvis Prov. Chachapoyas, (Mathews, n. 3236.) *

Pulchra species, *P. dolabriformi* omnibus partibus cognata, statura autem majore, foliis longiusculae petiolatis, inflorescentia multoties majore et magis composita, amennis majoribus certe sui juris.


20. *P. Pernambucensis*; succulento-carnosa radicans, foliis alternis obovato-ellipticis brevi-acuminatis vel lanceolato-ellipticis, basi cuneata in petiolum attenuatis glabris uniserialis et costivenis, amennis in pedunculo communi succulentum tenerrime puberulo racemoso-paniculatibus breviter pedicellatis vel sessilibus brevibus cylindricis obtusis, summis brevisimis ellipticis densifloris, bracteis pedicellato-peltatis persistentibus, antheris aurantiacis, ovario ovato apice stigmatifer, baccis exertis obovatis vel globosis fuscis punctatis.

*Crescit in trunco muscoso arboris in sylva ad coloniam Catua, Pernambuco, (Gardner, n. 1157.)*
Species admodum singularis, cum nullo congenerum comparanda, foliorum forma ad P. cuneifolium, obtusifolium con. accedens, sed ad Microperipera sectionem referenda, ab indorrescentiam P. Berteroana, margaritiferae aliquatenus affinis. Caulis radicans aphyllus. Folia duo ad ejus apicem, unum majus 18 cent. longum, 7½ latum, venis circiter 8 utrinque et nervo medio adscendentibus, petiolo 2½ cent. longo antice canaliculato; alterum 13 cent. longum, 4 latum. Inflorescentia infra amenta (pedunculus) 2 cent., caeterum 4½ cent. longa, amentis alternis vel raro binatis onusta, quorum inferiora 1 cent. longa, summa vix 2 mm.; pedicelli basi bractea decidua stipati. Bractae peltatae orbiculares fuscae. Filamenta brevia, antherae biloculares aurantiace demum flavescentes.

21. Peperomia species; dissimili vel blanda proxima, e specimine manco haud tudo determinanda, e Columbia, (Hartweg, n. 1395.)

22. P. Quitensis; succulenta erecta ramosa, ramis prasertim ad nodos, petiolis foliisque utrinque in nervis marginibusque setuloso-hirtis, his oppositis petiolatis rhombo-ovatis ellipticisve utrinque acutiusculis, apice ipso obtusioculo, subtus punctatis, trinervis nervo medio ad apicem ducto, amentis longiuseule pedunculatis (pedunculo petiolum ter quaterve superante) axillaribus oppositis et terminalibus subpaniculato-congestis subconfertifloris. Crescit prope Quito, supra trunccos in vallibus, con. (Jameson, n. 59.)

apice attenuato obtusiuscula, pilis crebris et ramosis. Amenta
axillaria et terminalia foliiis obtusiusculis conferta, 3-5 cent.
longa, teretia obtusiuscula, inferne quidquid contracta, ped-
dunculis sparse pilosis ½-1 cent. longis sustenta. Bracteae
breviter pedicellatae peltatae orbiculares membranaceae glabrae.
Stamina 2. Ovarium ellipticum apice stigmatiferum.
28. P. insularum; succulenta adscendens radicans ramosa,
ramulis petioliis foliiis subtus in nervis pedunculisque sparse
puberulis sensim glabratris, foliiis oppositis petiolaris rhom-
beo-ellipticis vel -sublanceolatis, basi cuneatis acutis vel
obtusis apice attenuato vel subacuminato obtusiusculis,
3-vel 5-nervis, nervo medio percurrente crassiusculo,
lateralibus tenuibus, amentis axillaribus et terminalibus,
plerumque aggregatis 1-5 pedunculo longioribus teretibus
obtusis subdissitifloris, ovario apice stigmatiferorum.
Crescit in ins. Sandwich, Oahu (J. Diell, n. 53.) Ex affi-
nitate P. Sandwicensis et P. latifoliae.
Caulis ½-1 pedem longus, basi radicans decumbens, caeterum
erectus, basi glaber, superne pilosulus, internodiis brevibus
(3-plerumque 1 cent.), nodis tumidis. Petioli 2-10 mm.
longi, antice canaliculati, cito glabratii; folia carnosa, nascentia.
Supra in nervis pilosa, adulta glaberrima, 1½-2 vel 3½ cent.
longa, 1-1½ lata, supra nervis 3 impressis, subtus 3-5 pertensa,
pallida, inque nervis et extra eos sparse pilosula et glandulis
fere resinosis inspersa. Pedunculi ½-1½ cent. longi; amenta
2-5 cent., superne leviter incassata glabra, bracteis pedicel-
lato-peltatis orbicularibus.
24. Peperomiae species nova? P. portulacoidi affinis, folia
autem altera videntur, statura P. Arabicam referens, sed
folia obovata vel lanceolata, amenta solitaria vel gemina
axillaria dissitiflora; ob sp. mancun haud extricanda.
In Madagascaria, (Dr. Lyall, n. 338.)
25. Peperomiae species, longe repens, caule tenui angulado
lævi nitente ligneo, foliiis oppositis breviter petiolaris
orbicularibus vel basi leviter excisis subtus convexis, ju-
nioribus utrinque pubescenti-hirtellis, adultis glaberrimis
carnosis enervis.
Crescit in Madagascaria, (Dr. Lyall). Folia $\frac{1}{2}$-$1\frac{1}{2}$ cent. lata.


27. P. flagelliformis, Hook. fil. MSS.; erecta succulenta glabriuscula, foliis breviter petiolatis verticillatis 2-4 elliptico-spathulatis obtusis, basi acutis unînerviis subaveniis subtus pallidis et petiolis ramulisque nascentibus tenerimne sub-puberulis, amentis verticillatis 6-7 pedunculatis remotifloris, baccis ovatis acutis verruculosis.

In ins. Galapagos (James Island) ineunte Oct. 1835, legit Cl. Darwin.


28. P. Fernandeziana, p. 139.—In sylvis umbrosis frigidis montium editiorum ins. Juan Fernandez, Apr. 1830, (Bertero, n. 1491.)

29. P. recurvata, p. 141, var. Philippensis, foliiis ellipticis vel obovato-ellipticis, subtus in nervis marginibus petiolis ramulisque puberulis. Folia 1$\frac{1}{2}$-2$\frac{1}{2}$ cent. longa, 1-1$\frac{1}{2}$ lata. Crescit in ins. Philippinis, (Cuming, n. 1920.)

30. P. Mathewowiana; erecta succulenta opposite ramosa molliter puberula, foliiis verticillatis 4-6, raro 2, breviter petiolatis utrinque pubescentibus, pilis subtus su-
pra nervos densioribus, rhomboe-spathulatis basi cu-
neatis, apice attenuato obtusiusculis, superioribus rhomboe-
lanceolatis pellucido-punctatis trinerviiis nervo medio ad 
apicem ducto substus prominent, lateralis tenuibus, 
amentis axillarius verticillatis terminalibusque breviter 
pedunculatis filiformibus elongatis subdensifloris, bracteis 
pedicellato-peltatis glandulosis, ovario apice stigmatiferi.
*Crescit* in Peruvia, Cassapi, Zacopota, (*Matthews, n. 1688.*)

Ex affinitate *P. hirsuta*, *camptotricha*, *blanda*, pubescentia, 
soliorum situ et forma satis distincta. Planta pedalis et 
altior. Internodii 3-5 cent. longa. Petioli 2-5 mm., saeque 
ae caules pube mollis brevi densa obtecti. Folia 2½-3 cent. 
longa, 1-1½ lata, interdum angustiora sublanceolata; nervi 
parce ramosi. Amenta numerosa; in verticillo soliorum su-
premo et penultimo verticillata nec non terminali, 4-8 cent. 
longa, filiformia, recta, erecta, subconstrictiflora, pedunculis 
glabriusculis ½ cent. circiter longis sustenta. Flores vir-
ginei consertiores. Bracteae orbiculares. ovarium ellipti-
cum.

32. *P. septemnervis*, p. 152. Amenta terminalia solitaria vel 
gemina, 7-14 cent. longa, cylindrica, obtusa, densiflora. 
Bracteae pedicellato-peltatae. Baccae ovatae fusce antica 
apice scutulo auctae, quare hæc species rectius ad *Sect. 
Rhynchophora* transferenda videtur. 
*Crescit* in Jamaica; in sylvis ad Portland, Julio 1843, (*Par-
die ?*)

33. *P. ovalifolia*, p. 154. Caules sparse hirtelli, pili ad nodos 
crebriores. Petioli dense hirti 2-5 mm. longi. Folia iiis 
P. *muscosa* quoad compagm simillima, punctata, ovalia, 
ovata vel subovata obtusa, utrinque pilis longis sparseis, 
substus obsolete uninervia 1½ fere 2 cent. longa, 8-15 mm. 
lata. Amenta terminalia vel raro lateralia, solitaria, terma, 
pedunculis 2-4 cent. longis parces pubescentibus sus-
tenta, 5-8 cent. longa recta vel leviter curvata densi-
flora. Bracteae pedicellato-peltatae orbiculares viridas per-
sistentes. Ovarium ellipticum attenuatum apice stigmati-
ferum. Baccæ globosæ vel ovato-globosæ subrostratæ.—
Quoad genitalia certe e Sect. Micropiperis et P. reflexæ
similis.
Cresc. in ins. St. Vincent, (Guilding), St. Domingo, (Imray,
n. 334.)
39. P. Myrtillus, p. 154, forma foliis latioribus et brevioribus,
1-2 cent. longis, 5-8 mm. latis, magis ellipticis, trinerviis.
Cresc. in Jamaica, (Mactadyen sub "P. discolor.")
34. P. Hartwegiana; carnosa, adscendens, dichotoma, caule
angulato glabriusculo, ramulis petiolisque dense hirtello-
pubescentibus, foliis verticillatis 4-5 subpatulis lato-vel
subobovato-ellipticis, basi acutiusculis, apice obtusis, raro
emarginatis vel mucronulatis, marginibus subrevolutis,
crasse carnosis supra præsertim versus basin puberulis
sensim glabratis, subtus glabriusculis et glanduloso-panic-
tatis prope basin uninerviis subhaveniiis, amenis terminali-
bus solitariis vel binis pedunculatis densifloris, ovario
oblongo acuminatim attenuato apice stigmatifero, baccis
ovatis acutis subobliquis punctatis.
Crescit in Columbia (Hartweg, n. 1401).
Ex affinitate P. quadrifoliiæ.—Caulis spithamaeus, inferne
et nodis radicans; internodia 3-4 cent. longa. Ramuli 1 cent.,
hirtello-incani pilis varie curvatis, haud raro subretrosris.
Petiol i eadem pube obtecti lato-canaliculati 1-2 mm. longi.
Folia in sicco crasse coriacea, 8-15 mm. longa, 6-10 lata,
pleraque elliptica, basi acutiuscula raro obtusa, pallide viridia,
subtus præter basin glabriuscula, obsolete uninervia, nervo
luci obverso ad ½ alt. saltem distincto. Pedunculi tennirme
puberuli 1-1½ cent. longi. Amenta 4-5 cent. longa, versus
basin 2 mm. crassa, sursum vix attenuata erecta, rectiuscula,
densiflora. Bractææ longiuncule pedicellataæ orbiculares, gla-
briusculæ, marginibus pallescentibus, subundulataæ, persis-
tentes. Stamina 2, filamentis brevibus, antheris bilocularibus.
Stigma majusculum.
35. P. Deppeana, p. 160, forma major. Caulis petiolisque
pubescentes; folia terna vel sepe quaterna longiuncule
petiolata obovata superne in 3 nervis puberula, marginibus
ciliolata, subtus glabriuscula, 8-12 mm. longa.—In Brasi-
ilia, in sylvis umbrosis ad Laguna de Rancho (Gardiner)
n. 705.

36. P. Selloviana, p. 161, forma aliquid major; ad Rio
grande (Tweedie, n. 829.)

37. P. Galapagensis, Hook. fil., succulenta (adscendens?)
ramosa, ramis ramulisque tetragonis tenere puberulis, foliis
verticillatis 2-6 breviter petiolatis patulo-reflexis succu-
lentis pellucido-punctatis glandulosis glabriusculis oblongo-
linearibus vel anguste ellipticis utrinque obtusi unineriis
aveniis subtus convexis, amentis axillaribus et terminalibus
3-5-verticillatis pedunculatis filiformi-clavatis conferti-
floris, bracteis pedicellato-peltatis subrotundis pellucido-
glandulosis, filamentis longiusculis, ovario ovato-elliptico
subobliquo apice stigmatifero, baccis parumper immersis
subgloboso-ovatis acutis punctato-verrucosis.

P. microphylla accedens, sed foliis angustioribus haud ciliatis
cert. discernenda.

Caules spithamaei, patule et opposite ramosi, pilis patent-
ibus tenerrimis inspersi, internodiis 2-1 cent. longis, superne
foliosis; ramuli apice amentiferi. Folia in seco coriacea,
glandulis pellucidis praesertim versus marginem distinctis,
glabra vel glabriuscula, omnia fere reflexa, opposita vel ple-
rumque versus ramorum apices verticillata 4-6, petiolis
1 mm. longis profunde canaliculatis glabriusculis sustenta,
4-8 mm. longa, 2-3 lata. Amenta 1\(\frac{1}{2}\) cent. longa, densi-
flora, floribus inferioribus saltem remotiusculis, sursum sub-
clavata, carnosa, glabriuscula, pedunculis 2-5 mm. longis
suffulta.

38. P. reflexa, p. 169. Variis ejus formis sequentes loci
natales addendi. Jamaica (Macfadyen, nomine “Piper
verticillastrum,” Dr. Distan, Dr. Bancroft); Peruvia in
Chachapoyas (Mathews, n. 3231) Mauritius (Telfair),
Nepalia, Kamoon, montes Silhet (Wallisch), Ceylonia
(Walker n. 25, forma foliis minoribus subrotundo-rhom-
beis) insulæ oceani Pacifici (W. Cunningham) Oahu.
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(Barclay, Beechoy). Specimen sterile ab All. Cunningham, sub. n. 39 in ins. Norfolk lectum haec etiam pertinere verisimile habeo. "Rocks in dark moist woods; creeping, herbaceous, with obtuse elliptical 3-nerved leaves.—Folia quaterna, terna, vel et opposita."

Sectio Panicularia, Mig.

39. P. umbellata; erecta succulenta glabra simpliciuscula, foliis (preter paucia radicalia) ad apicem caulii consertis cordato-rotundatis vel rotundato-ovatis obtusis tenuiter 5-7-nerviis, caule supra folia elongato amentifero simplici aphylo vel pauciramoso et folioso, amentis in ramulorum apicibus umbellatis numerosissimis filiformibus remotifloris, bracteis infra medium pedicellato-peltatis.

 Crescit in Peruviae Chachapoyas 1840, (Mathews, n. 3230.)

Differt a P. secunda glabritie et facillime inflorescentia.

Radice et habita ad Sect. Tildeniae spectat.

Radix tuberosa pisi magnitudinis. Caulis succulentus 6-8 cent. longus, supra foliorum comam adhuc paullo longior florens. Petioli $\frac{1}{2}$-1$\frac{1}{4}$ cent. longi; folia 1$\frac{1}{4}$-2 cent. longa et lata, aliquid latiora quam longa, succulenta, in sicco subcoriaceo-membranacea, nervis tenuibus subsimplicibus per tensa, medio ad apicem ducto. Umbellae longe pedunculatae basi foliiis floralibus bracteaeformibus viridibus vel plerumque decoloribus parvis sessilibus ellipticas instructae. Amenta 10-20 raro pauciora in quavis umbella, 1-3 cent. longa, pedunculis $\frac{3}{4}$ cent. longis sustenta filiformia, genitalia ut in P. secunda.

Sectio Rhynchophorum, Mig.

40. P. angulata, l. c. p. 180. Amentum 3 cent. longum, pedunculo 1$\frac{1}{4}$ cent. longo sustentum, filiforme teres densiformum, uti in P. muscosa, que vix satis diverse videntur.

—in Surinam, (Hostmann, n. 470.)

41. P. Parkeriana, succulenta glabra ramosa radicans, foliis alternis modice petiolatis succulentis glandulosopunctatis ovato-vel elliptico-oblongis acute acuminatis plerumque
inæquilateris basi rotundatis vel acutis, summis sub lanceolatis uninerviis utrinque tenuiter 3-4 venulosis, amentis ramulos aphylos terminantibus pedunculatis (pedunculo petiolum circiter æquante) plerumque conjugatis elongatis densifloris, ovario acuminato-scutoato.

*Crescit* in Guiana Anglica (*Parker*).

*P. distachya*e proxima, sed glabritie et foliorum forma constanter distincta.—Specimina *P. distachya*e foliis latioribus insignia in *Syst. Pip.* a me commemorata, ad hanc pertinere videntur.


42. *P. Hernandiæfolia*, l. c. p. 73, nunc primum a me visa, e *Sect. Tildenia* ad *Rhynchophorum* prope *P. Ponthieui* transferenda.

*Crescit* in ins. St. Vincent, (*Guilding*).

Succulenta, radicans, repens, caulibus petiolis pedunculis et foliis substus præsertim in nervo medio patule et subretrose pubescentibus, foliis alternis longe petiolatis ovatis vel lato-ovatis abrupte acutæque acuminatis, basi lato-rotundatis, ad ½ vel ½ alt. a basi peltatis, nervo medio crassiusculo substus prominente, venis obsoletis, supra glabriusculis, marginibus puberulis, substus glandulis pilisque inspersis, amentis axillari-bus longe pedunculatis, (pedunculo medio unibracteato simplici vel raro bifido) brevibus densifloris, baccis emersis ovatis longe rostratis verrucosis.

Petioli 4-5 cent. longi. Folia in sicco coriacea 4-8 cent.

43. *P. nigropunctata*, p. 188. In ins. Antigua (*Nicholson*, n. 40.)

44. *P. Columbiana*, carnosa glabra erecta, caule angulato, foliis densis sparsi hinc suboppositis sessilibus vel sub-sessilibus lanceolatis vel elliptico-lanceolatis utrinque attenuatis glabris subitus uninervis et parce prominule venosis, glanduloso-punctatis, amentis terminalibus aggregatis (3) longiusculæ pedunculatis teretibus obtusis pedunculum æquantibus densifloris, bracteis subsessili-peltatis, ovario rachi immerso infra apicem stigmatiferō.

*Crescit* in Columbia (*Hartweg*, n. 1397.)

Species certa sed ex imperfecto specimine haud rite descripta. Ramus est spithamens, majorem partem aphyllus, cicatricibus foliorum prominentibus notatus, superne dense foliosus. Folia erecta carnosa, marginibus revoluta, subitus nervo medio prominente notata, e quo venæ parce adscendentes prominulæ exoriuntur, ibique glandulis fuscis punctata, 2-3 cent. longa, 5-6 mm. lata. Pedunculi 1½-2 cent. longi; amenta 1½-2½ cent., obtusa, recta, rachi foveolata.

45. *P. obtusifolia*; forma oblongifolia, p. 194.—In ins. St. Vincent (*Guiding*), in Jamaica (*Macfadyen*).

*P. obtusifolia*? forma pusilla, foliis elliptico-ovovatis (3-5½ cent. longis) nervo medio e basi utrinque 2-3-venoso, 5-7 plinerviis.—Peruvia, (*Mathews*, n. 1687).

46. *Peperomieæ species incerta*, talinifolia et pyrifolia proxima, foliorum apice acutato incurvo diversa, haud tuto extricanda. Peruvia, (*Mathews*).

47. *P. cuneata* (*Piper cuneatum*, *Herb. Hook.*). Carnosa glabra, foliis alternis longiusculæ petiolatis cuneato-vel obovato-spathulatis obtusis raro retusis, uninervis et prope
basin utrinque trivenosis, amentis terminalibus vel e foliorum supremorum axillis, solitariis longe pedunculatis, pedunculo plerumque unibracteato, densifloris, ovario oblique acuminato antice stigmatisero, baccis acuminatis-simis.

Crescit in ins. St. Vincent, (Guilging).


48. P. amplexicaulis, p. 196, forma grandifolia.—Decumbens, radicans, succulenta, glabra, foliis alternis sessilibus vel subsessilibus cuneato-spathulatis apice attenuato obtusiusculis, nervo medio valido ad ½ alt. 4-costulato.

Crescit in Jamaica, (Purdie, n. 109).

Differt a specie folii majoribus et latioribus 12-16 cent. longis, 3½-4 latis.

Erasmia, Miq.

1. Erasmia floribunda, p. 200, forma minor pauciflora, foliis minoribus 10-14 cent. longis, amentis in pedunculo communis geminis. Prope Xalapa (Galeotti.)

Tribus Piperææ, Miq.

Pothomorphe, Miq.

1. P. peltata, l. c. p. 203.—In St. Vincent (Guilging), Trinidad; Jamaica (DISTAN), Surinam (Hostmann, n. 42.)
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2. P. sidefolia, l. c. p. 209.—In Brazilia, Serra de Acaripe; suffrutex 4-pedalis, (Gardner, n. 1850.)

3. P. Dombeiana, l. c. p. 211.—In Peruvia (Mathews, n. 1701.)


MACROPIPER, Miq.

1. M. latifolium, l. c. p. 218, masc.—Coral Islands (Beechey). Amenta masc. 2 axillaria videntur.—Fæm. in Tahiti (Barclay, sub nomine “Piper mæthysticum;” inc. Ava Ava irai; verlisimititer hæc species itaque etiam ad potum inebriantem parandum inservit.

Alia hujus speciei forma amentis solitariis axillaribus, foliis superioribus dilatato-ellipticos basi obtusis vel attenuatis, apice protracto obtusatis, septemnerviis utrinque glabris; vix pro specie diversa habenda.

Hab. Shady places, rich soil: Society and Friendly Islands, May, June, 1830, 4 feet. (Mathews. n. 86.)


*Crescit* in Nova Zelandia, (Fraser, J. D. Hooker, R. Cunningham, Edgerley, n. 323, Auckland (Dr. Sinclair.)

Observ. Si 2 amenta ramulum lateraliter terminant, extimi pedunculus medio bracteam gerit, tanquam rudimentum folii, e cujus axilla ortus est. Bractæ stipulaceæ, amenta in Pothomorphis genère obvelantis cum hac omnino sunt comparandæ.

4. *M. psittacorum*, p. 221.—Piper psittacorum ab All. Cunningham in ins. Norfolk sub n. 13 lectum, nullo pacto a M. excelsa differt. Cum autem specimen authenticum Endlicherianum haud viderim et in ejus phrasi de foliis summis ovato-oblongis linearibusve sermo sit, dubius hæreo.—In schedula notavit All. Cunningham, stiripem esse affinem P. excelsa et latifolio; specimina vero sunt masc., quæ viatori obiter inspicienti ab amenta gracilia facile diversa videri possunt a fœmineis M. excelsi.
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CHAVICA, Miq.


3. Ch. Roxburghii, p. 239. — Ceylon (Herb. Pallas, n. 88, Walker,) Assam, in vallibus (Griffith, n. 519, n. 558.)

4. Ch. sarmentosa, p. 242. — Mergui (Griffith.)

5. Ch. densa, p. 252, mas.? Java (Zollinger, n. 974,) fœm.? (n. 724.) Ob sp. manca determinatio fallax.

6. Ch. officinarum, p. 256. — Wallich List. 6650 E. — Java (Zollinger, n. 907, fœm.) China (Millet.)

7. Ch. sphaerostachya, p. 278, fœm. Assam (Fielding,) Khasiya (Griffith, n. 132.)


9. Ch. corylistachya, p. 281; forma major, foliis 20 cent. longis, 6¼ latis, amentis cylindricis obtusis 6½ cent. longis, calamum scriptorium crassis. Philippinæ (Cuming, n. 1813.)

RHYNCHOLEPIS, Miq.

1. Rh. Cumingiana, p. 282, fœm., Cuming ex ins. Philippinis, n. 1697. Sub hoc numero in collectione Hookeriana specimen video diversum ab eo quod in Lessertiano sub eodem numero vidi : differt foliis ovatis vel lato-oblongis anguste acutaeque acuminatis, basi conniventi-cordatis, 7-11-nerviis, imo multinerviis, sed nervulos basilares adnumerés, 17 cent. longis, 6¾-8 latis, itaque molto latoribus. Amentum cylindricum obtusum 5-6 cent. longum, 5-8 mm. crassum,

Cubeba, Miq.

2. C. Wallichii, p. 289.—Wall. List. n. 6637.
3. C. canina, p. 293. Java (Zollinger, n. 677.)
   Eiusdem forma angustifolia, foliis omnibus lanceolatis quintupli- vel triplinerviis, 6-8 cent. long., 1-2 latis. Java, Zollinger, n. 698, b.)
5. C. Borbonensis, p. 301. Mauritius, (Bouton, sub “Piper sylvestre,” Bojer.)
6. C. Clusii, p. 304; ramis teretiusculis, ramulis tetragonis vel tetragono-compressis, nascentibus petiolis foliisque subtus in nervis primariis pedunculisque tenerrime pubescen- tibus, foliis modice petiolatis, infimis ovatis æquilateris acuminatis basi æquali cordatis, superioribus majoribus lato-ellipticis acuminatis æquilateris vel inæquilateris basi lato-rotundata vel obtusa modice inæquali excisis vel leviter cordatis, membranaceis, subtus pallidis, nervo medio paucicostulato, costulis 3-2 ad ½ alt. majusculis patulo-adscendentibus, reliquis infimis et supremis tenui- bus, pedunculo petiolum bis terve superante, amentis (fœm.) subpatulis curvatis, stigmatibus 3, baccis ovatis vel ellipti- cis acutis pedicellum æquantibus vel paullo superantibus.


Eandem hanc esse speciem, quam a Clusio jam commemo- ratam et a R. Brown ex Herbario Banksiano indicatam, inter dubias species olim enumeraveram, nullum quidem dubium,
atque ita res in distributione geographica Cubabæ generis et Piperacearum in universum admodum memorabilis extra omne dubium posita est. Est autem hec species arcte cognata cum reliquis congeneribus africanis, C. costulata, Borbonensi et Capensi, habitus simillima, obiter intuenti vix diversa, accuratius autem observatu, characteribus solidis e foliorum nervatione et compago petitis certa species.


7. C.? hederacea, (Piper hederaceum A. C. M.);

alte scandens dichotome ramosa nodosa glaberrima, foliis
coriaceis obsolete pellucido-punctatis, subtus pallidis, ovatis attenuato-acuminatis acumine subobliquo obtusiusculo, basi subæquali rotundatis vel obtusis, marginibus leviter revolutis, quintupli- vix subseptuplinervis, nervo medio ad apicem ducto, venulis immersis, pedunculo petiolum circiter equante, amentis (masc.) cylindricis obtusis folio multum brevioribus, bracteis peltatim sessilibus orbicularibus coriaceis glabris imbricatis, staminibus 2.

HAB. Five Islands, (A. C. Jan. 1829; altissimas arbores adscendens.)

Species distinctissima, sed in genere nondum certa, aliquatenus foliorum forma cum C. Neesiana comparanda.


Piper, Linn.

1. Piper attenuatum, l. c. p. 306.—Assam (Griffith, n. 518, 555, 556.)

2. P. Zeylanicum; glabrum, foliis rigide coriaceis epunctatis ovatis æquilateris acuminatis basi inæqualicordatis vel rotundatis, marginibus revolutis, quinque- (vel nervulo basilari in latere externo accessorio) 6-nervis, nervis crassis subtus prominentibus supra impressis, amentis dioicis longiusculae pedunculatis (pedunculo petiolum superante) brevibus densifloris, bracteis oblongis decurrenti-adnatis intus ad basin axique hirtis, staminibus 2, filamentis crassis infra antheram marginatis, stigmatibus 4 raro 5 crassis reflexis.

Crescit in Ceylon insula, (Walker, n. 31.)—Species admodum
distincta foliorum forma, crassitie, nervatione, filamentis versus apicem in marginem circularem incassatis.

Frutex ramosissimus, an scandens? rami teretiusculi nodosi; ramuli (fuscescentes?) angulati. Petioli antice canaliculati ½-1½ cent. longi, cum lamina angulum sistentes; folia 6-3 cent. longa, 3-2 lata, subaequilatera, sed basi haud aequalia, summa angustiora lanceolato-ovata, reliqua ovata, supra secundum nervos et vetustiora etiam secundum venas profunde sulcata et iis subtus prominentibus lacunosa, marginibus revoluta rigida; nervo medio ad apicem ducto, duobus mediis fere ad eum percurrentibus. Amenta fœminea pedunculis 5-12 mm. longis sustenta, florentia 2-4 cent. longa, baccifera vix longiora. Rachis hirta; bracteæ extus subtusque glabrae ad insertionem hirtellæ, coriaceæ. Ovarium ovatum vel subglobosum glabrum, stigmatibus 4-5. Baccæ globose, apice cicatrisate, 5 mm. in diam. Amenta masculina paullo brevius pedunculata et ipsa plerumque paullo breviora. Antheræ longiusculae exsertæ ovatae vel globose, biloculares, filamento marginati dilatato sustentæ.

Forma major? foliis oblongis (8-10 cent. longis, 4-4½ latis) amentis masc. longioribus (10 cent.)—Mayaburan, (Sir F. Adam.)

3. P. Hookeri; ramulis petiolis pedunculis foliisque junioribus subtus in nervis hirtellis, his coriaceo-membranaceis pellucidopunctatis supra glabris ovatis æquilateris breviter acuminitis, acumine obtuso, basi æquali-cordatis vel rotundatis septem vel nervis 3 mediis paullo supra basin liberis subseptupli-vel noveno-nerviis, pedunculo petiolum (amento fœm. folium) superante, bracteis oblongis decurrenti-adnatis subtus sparse hirtellis cito glabratis, ovario ovato, stigmatibus 4 brevibus crassis puberulis.

HAB. Bombay, (Lambert.) Ex affinitate P. attenuati, sed statura majore, foliorum nervatione et stigmatibus plane diversum.

Ramuli angulosi tenuiter striati pubescenti-hirtelli. Petioli teretes hirtelli 5-10 mm. longi. Folia 8-10 cent. longa,
4-6½ lata; nervis subtus prominentes, 3 mediī ad apicem ducti, adstantes per anastomoses fere eo usque continuati, reliqui tenues, anastomoses subhorizontales prominule. Stipulae oppositifolias decidue lineares puberulae petiolo breviore. Pedunculi 1½ cent. amenta baccifera 8 cent. longa.

4. P. nigrum, p. 308.—Ceylon, (Walker, n. 1397), in Cayenna cult., (Martin.)

5. P. tricoicum, p. 310. Assam, Madras ex Madura sub nomine P. nigri, Mool lagoo indigenis dictum, stirps mater P. albi eff. ex teste schedula eadem etiam quae in Malabar in ad P. album colligendum colitur, (Griffith.)


7. P. Nepalense, p. 318, Khasiya, (Griffith;) folia paullo crassiora et fortius reticulata.

8. P. arborescens, p. 320. Java, (Zollinger, n. 915.)


10. P. muricatum, p. 326. Java, (Lobb.)

11. P. Walkeri; ramulis petiolisque adultis glabris, folis crassiusculis membranaceis subtilissime pellucido-punctualis, supra glabris opacis subtus præsertim in nervis sparsissime pilosis aequilateris vel subinaequilateris elliptico-vel ovato-lanceolatis lanceolatisque acuminatis, acumine acuto vel obtusiusculo basi leviter inaequali obtusis septuplinervis, nervis 3 mediis ad ¾ alt. a basi liberis ad apicem ductis, pedunculo petiolum æquante vel paullo superante, amentis
filiformibus longissimis remotifloris dioicis, bracteis elongatis decurrentibus intus hirtis, stigmatibus 3 crassis brevi-lanceolatis acutis.

Ceylon, (Walker.)


China (Millett).

Piperaceæ admodum singularis, Enckeam quandam densifloram referens, in genere prorsus dubia et meliore specimine olim accuratius examinanda.

Ramuli inferne teretiusculi, superne angulati glabri,
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flexuosoi, nodosi, internodiis 3 cent. longis. Petiolı 1 cent. longi; folia tenuissime membranacea æquilatera vel plus minus inæquilaterna 11-13 cent. longa, 5-7 lata, nervis tenuissimis, anastomosibus horizontalibus reticulatis baud prominulis. Stipula oppositifolia parva lineari-convoluta glabra. Pedunculi 1 cent. longi; amenta in sicco nigrantis circa 4 cent. longa secta, pennam passerinam crassa; baccae confertae basi subcoherentes, filamentis rudimentariis verrucæformibus circumdatae. Bractæ parvae clavatae apice subpeltatim dilatatæ glabrae; nunc certe pro parte delitescentes. Anthereæ bilocularæ ovatae fuscae. Stigmata 3 brevia obtusiuscula puberula.

ENCKEA, Kunth.

1. E. lavigata, l. c. p. 348.—In Peruvia (Matheus, n. 1708).
4. E. plantaginea, p. 356. forma, foliis 5-nerviis, amentis filiformibus 6-10 cent. longis, baccis remotis elliptico-ovatis. Jamaica, montes Westmoreland (Purdie).—An species?
5. E. ceanothifolia, p. 357.—Jamaica (Macfadyen, Distan).
6. E. decrescens; ramis glabris striatis, ramulís petiolis foliis utrinque in nervis pedunculisque hirtellis, foliis membranaceis pellucidó-punctatis supra opacis et cito glabratis, inferioribus æquilateris lató-ovatis acuminatis basi profunde cordatis, 7-interdum sub-9-nerviis, superioribus sensim decrecentibus summissque breviter petiolatis æquilateris vel inequilateris ovatis brevi-acuminatis mucronatis, basi rotundatis, 7-5-nerviis, amentis folium æquan-
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tibus vel superantibus confertifloris, bracteis spathulato-
conchæformibus hirtis, ovario elliptico, stigmatibus 4 bre-
vibus recurvis, baccis globoso-ellipticis subtetragonis.

HAB. America centralis, (Barclay.)

E. ceanothifoliae nec non E. stipulacea accedens, facili
negocio autem distinguenda.

Petiolis inferiores 3½ cent. longi; folia 11-12 cent. longa,
8½-10 lata, acumine brevi plerumque obtuso mucronato,
nervis subtus prominentibus medio ad apicem ducto, late-
ralibus 2 per anastomoseae, reliquis brevissimis presentim
versus margines reticulatis; pili sparsi subtus persistentes.
Folia media basi plerumque truncata; summa petiolis ⅓-1
centi. longis sustenta, 5-7 cent. longa, 3½-4½ lata. Petioli (ut
et pedunculi) subretortae hirtelli ⅓-1 cent. longi. Amenta
florentia erecta teretia recta 5-8 cent. longa densiflora.
Stamina 4? filamentis brevibus, antheris bilocularibus ovatis;
fructifera 6-9 cent. longa, baccis distinctis et ob flores plures
haud sœcundos subreemotis, ovatis. Stigmata 4 brevia ovata
puberula serius decidua.

PELTOBRYON, Klotzsch.

1. P. Matheousii; ramulis pedunculis petiolis foliisque subtus
in nervis primariorum tennerrime puberulis cito glabratis, his
membranaceis subepuncatatis subtus glandulosis ovato-
oblongis vel subovatis acuminatis acumine linear-lanceo-
lato subfalcato acutissimo, basi lato-rotundata subequali
in petiolum protrutta, costulis majusculis usque ad ½ alt.
circiter 6-8patulo-adscendentibus, amentis folio ⅓ brevio-
ribus cylindricis rectis, pedunculo petiolo breviore vel
subequali, bracteis conchæformi-peltatis hirtellis deciduis,
styllo filiformi ovarium superante, stigmatibus 3 linearibus
patulis.

Crescit in Peruvia, (Mathews, n. 1710).

A P. calloso et Pappigii, quibus foliorum forma aliqua-
ternus accedit, amentis longioribus et facile styli filiformis
longitudine distinguitur. Petioli 15-8 mm. longi tenues
antice canalculati basi dilatati nodum amplexentes cito

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glabrati. Folia utrinque saturate viridia, subtus vix pallidiora, membranacea, subtus minute glandulosos-punctata in nervo et venis primariis pilis tenerrimis inspersa, 9-15 cent. longa, 4¾-6 lata, basi lato-rotundata, ima secus petiolum quidquam protracta, æquilatera, apice tantum obliqua, costulis venosis primariis e nervo medio tenui utrinque usque ad ¾ alt., circiter 6 vel 8 patulis versus margines ascendentibus, aliisque magis horizontalibus tenuibus, omnibus tenuissime anastomosantibus, suprema utrinque per anastomoses fere ad apicem ducta. Pedunculi 5-7 mm. longi, amenta 6-7 cent. recta pennam gallinaceam tenuiorem crassa, suboblique rostellata, stylisque exsertis subhirta. Bractæ pedicellatae conchæformi-peltatae hirtæ, sed in florentibus et bacciferis amentis fere omnes deciduæ. Stamina decidua. Ovarium obpyramidatum 3-5-gonium apice lato-rotundatum, stylo toto filiformi 2 mm. equeante, stigmatibus intus puberulis. Baccae glabrae vertice umbonatæ plerumque stylo coronatae.

2. P. Hookeri; glabrum, ramulis resinoso-glandulosis, foliis membranaceis pellucido-punctatis, utrinque præsertim subtus glandulis hemisphæricis nitidis inspersis, oblongis vel sub lanceolato-oblongis brevi-acuminatis; acumine acuto vel obtusiusculo, basi leviter inæquali attenuato-acutis costis utrinque per totam longitudinem circiter 12 patulis prope marginem arcuato-anastomosantibus ac ascendentibus, amentis crassis cylindricis obtusis folio multoties brevioribus, stylo brevi crasso, stigmatibus brevibus, baccis obovatis stylo deciduo cicatrisatis. Crescit in sylvis humidis ad Stm. Martham (Purdie, Maio, 1844.)

Species spectabilis inter P. longifolium, et attenuatum fere media, nec tamen dubia species.

Ramuli succulentis angulati, nodi marginati. Petioli e basi dilatata antice canaliculati 1 raro 1¼ cent. longi. Folia membranacea supra lâte viridia subnitentia, subtus pallida, nervo venisque præsertim prope basin fuscescentibus pertensa, glabra, subæquilatera, oblonga latitudine maxima haud procul
a basi pertingente indeque attenuata, acuta, basi subæqualia, venis primariis 11-12; 20-25 cent. longa, 7-10 lata. Stij-
pula oppositifolia decidua coriaceo-scariosa striata glabra
oblongo-lanceolata 2 cent. longa (adeoque ab illa P. attenuati
valde diversa). Amenta patula pedunculis 1 cent. longis
crassis suffulta, 4-5½ cent. longa, 1 cent. crassa et crassiora,
obtusissima, basi ob flores sterilis attenuata, cæterum nunc
baccifera. Baccae obovatae leviter angulatae discretæ, stylo
pyramidali crasso rostrate vel hoc deciduo cicatrisatæ.

NEMATANTHERA, Miq. in Linæa, Tom. XVIII.

1. N. Guianensis, Miq. l. c.—Omnium hujus tribus generum
maxime singulare.

Crescit in Surinam (Hostmann n. 10). Folia paullo majora
quam in specimine l. c. a me descripto, scil. 11-16 cent.
longa.

ARTANTE, Miq.

Sectio NHANDI, Miq.

1. A. caudata, l. c. p. 380.—Pernambuco (Gardner). Chinchao
Peruvianæ (ex Herb. Ruiz et Pav. n. 271), Trinidad.
2. A. catalpaefolia, p. 388.—Brasilia (Swainson). Trinidad
(de Schach).
3. A. sororia; ramulis petiolis foliisque utrinque præter mar-
gines dense appresse hirtellos imamque basin juniorum
glabris, his longe petiolatis pellucido-punctatis lato-ovatis
abrupte et acute acuminatis, basi concavo-truncatis vel
repano-cordatis, novemnerviis, petiolis anguste ad §
circiter alt. alulatis, amentis breviter pedunculatis leviter
curvatis folium subæquantibus, bracteis peltatis villosoci-
ciatis.

Crescit in Peruvia ad Chinchao (a. 1795, Ruiz et Pavon n.
271). America centralis (Barclay).

Duabus precedentibus valde affinis, sed foliorum forma
statim discernenda. Ramuli teretiusculi striati glabri nodosi.
Petiolis 3-5 cent. longi glabri utrinque alati, alis ad basin paullo dilatatis cæterum angustissimis, supra ¼ alt. evanescentibus. Folia tenuiter membranacea pellucido-punctata supra atroviridia opaca glabra preter imam basin juniorum interdum tenere pubescentem, subtus pallida subnita, nervis prominentibus et parcis anastomosibus prominulis pertensa, lato-ovata abrupte anguste oblique vel recte acuminata, æquilatera, basi lata concava vix subcordata, secus margines pilis appressis densis brevibus instructa 14-17 cent. longa, 11-13 lata; nervi omnes e basi, 3 medii ad apicem ducti. Pedunculi 5 mm. longi, amenta 11 cent., leviter curvata, heic juniora. Genitalia ab iis A. caudata vix differre videntur, sed bractearum area centralis nuda fusca glandulosa.

4. A. Ruiziana; glabra, foliis breviter petiolatis rigide membranaceis epunctatis rotundato-ovatis, summis lato-ovatis, æquilateris vel inæquilateris subabrupte brevi-acuminatis acumine obtuso, basi lato-truncatis vel summis rotundatis 9-vel sub-7-nervis, nervis 5 medii fere ad apicem ductis, pedunculo petiolum subæquante, amentis brevibus rectis teretibus, bracteis conchæformi-cucullatis glabriusculis, stigmatibus 4-5 recurvis.

Crescit in Peruviae nemoribus ad Pangoa, m. Jul. (Mathews, n. 1143.)

Rami ramulique angulati obtusato-trigoni, striulati, nascentes glabriusculi, internodiis 6-12 cent. longis nodis dilatato-marginatis. Petiolis 2-1 cent. longi, trigono-semiteretes antice profunde canaliculati marginibus obtusati, in sicco fuscescentes, superficie quasi glandulosæ. Folia majora inferiora 25-28 cent. longa, 23-19 lata, supra levia versus basin nervis sulcata, subtus nervis prominentibus et anastomosibus reticulata; superiora 16-19 cent. longa, 10-15 lata; nervi omnes e basi, 3 medii ad summum apicem, 5 medii ad acumen, reliqui alte ascendentes, extimi margini proximi vel in superioribus foliis in ipso margine siti; anastomoses horizontales venulis transversis junctæ. Stipula oppositifolia coriacea lanceolato-oblonga convoluta rigida obtusiuscula

5. A. scutata, glabra, petiolis basi vaginantibus usque ad ¼ alt. coriaceo-alatis, foliis membranaceis pellucido-punctatis ovatis æquilateris apice abrupte falcatim acuminatis, acumine angusto obtusiusculo, paullo supra basin peltatis, hac leviter cordata æquali, nervis et basi et e nervo medio usque ad ½ alt. ortis 15-17-plinervis, 3 mediis ad apicem ductis, amentis pedunculatis densifloris, folium æquanti-bus?

Crescit in Peruvia, (Mathews, n. 1700).


Sectio Macrostachys, Miq.

6. A. magnifica, l. c. p. 391. Peruvia (Mathews, n. 1699.)
7. A. richardiae folia, p. 395.—In sylvis umbrosis montium Organensium (Gardner, n. 623. Frutex 6-ped.)
8. A. coccoloboides, p. 397. Serra de Mendanha Brasiliæ
(Gardner, n. 5185). Frutex 6-ped. Folium juvenile supra molliter pubescens; cæterum congruit.


Sectio Churumayu, Mij.

10. A. Hookeriana; ramulis pedunculis petiolis foliisque utrinque glabris, his membranaceis pellucido-punctatis sub-inæquilateraliter lato-ovatis acuminatis, acumine brevi-lanceolato acuto, basi leviter inæquali truncato vel subcordato-rotundatis, costis e basi et supra eam ad ½ vel ½ alt. utrinque 4-5, noveno-vel undeno-nerviis, amentis breviter pedunculatis brevibus cylindricis acutis densifloris, bracteis peltatis semiobiculari-triangularibus villoso-ciliatis, area centrali nuda subrotunda, ovario in stylum brevem attenuato, stigmatibus 3 lanceolatis. Crescit in Peruvia ad Serruja, Chachapoyas, (Mathews, n. 3222).

Species valde distincta cum sola A. Enckeovide comparanda. Rami ramulique striati angulati sensim teretiusculi, internodiis 4-6 cent. longis. Petioli 2-1½ cent. longi antice canaliculati et submarginati. Folia lâete viridia subtus pallida 17-21 cent. longa, 10-12½ lata, plerumque aliquantum inæquilatera, latere scil. exteriore latiore et ½ cent. ad basin longiore, marginibus demum leviter revoluta; e nervo medio versus basin crassiusculo et subtus prominentem, versus apicem autem valde attenuato utrinque 4-5 costâ oriuntur, quarum tres plerumque e basi, quarta paullo supra basin et quinta ad ½ vel ½ alt. a basi exorta, omnes patulo-adscententes, supraem fère ad apicem continuata, infimâ tenuissimâ; anastomoses parvae vix distinctae. Pedunculi 1-1½ cent., amenta florentia 5 cent. longa recta patula, apice plerumque acuta, 4-5 mm. crassa. Flores densi subannulatim dispositi. Bracteae pedicellato-peltatae antice concavatae, peltae ambitu croceo-
ANIMADVERSIONES IN PIPERACEAS.

villoso ciliato ubriangulari, area centrali nuda verruculoso-fusca semiiorbiculari-vel triangulari-rotundata. Ovarium glabrum.

11. A. Endlicheriana; ramulis junioribus petiolis postice foliis subitus in nervis primariis quam tennerrime puberulis cito glabratis, his coriaceo-membranaceis pellucido punctatis supra glabris utrinque glandulis fuscis inspersis ovato-subdeltoides attenuatis acuminatis inaequilateris, basi subaequali leviter cordatis vel truncatis, costis e basi et usque † alt. utrinque 5-6 11-13-plinervis, nervis 3 mediis ad apicem ductis, pedunculis appresse hirtellis petiolo † brevioribus, amentis rectis folio subbrevioribus, bracteis pedicellato-peltatis, peltae margine lato-membranaceo lacero-ciliolato, ovario in styllum attenuato, stigmatebus 4 lineari-lanceolatis recurvatis. Crescit in Peruvia, (Mathews, n. 1698).

Petiolis basi dilatata amplexicaules, antice profunde canaliculati, stipulis petiolaribus diutiis adhaerentibus sensim cica-trisatis, 1 fere 2 cent. longi. Folia e basi ovata aliquatenus inaequilateraliter deltata sursum regulariter attenuata et in acumen breve obtusiusculum terminata, 20-22 cent. longa, 9-10½ lata, præsertim in parte † inf. inaequilatera; nervi 4-5 utrinque e basi; reliqui supra basin liberi fortiiores alte ascendentes, subtus prominentes, anastomosibus remotis tenuibus prominulis. Pedunculi 8 mm., amenta 12 cent. longa, recta, 2-3 mm. crassa; flores subspiraliter dispositi. Bractearum pelta subrotunda vel subtriangularis, area centrali fusca crassiuscula, margine exnueto lutescente. Filamenta teretia, antheræ ovatae cordatae pallidae. Ab A. Hookeriana foliis sursum valde attenuatis, nervatione et amentis longioribus statim distinguitur.

12. A. Benthamiana; glabra, foliis coriaceo-membranaceis pellucido-punctatis inaequilateraliter ovato-oblongis longe et anguste acuminatis basi leviter inaequali-rotundatis, costis majoribus utrinque pluribus, inferioribus 4-5 e basi vel basi proximis fortiusculis ascendentibus, reliquis superiorebus tenuioribus magis patulis, summa apici proxima
in acumen continuata, pedunculo petiolum circiter æquatæ, amentis cylindricis rectis folio multo brevioribus, bracteis conchaæformibus basi hirtis apice tuberculato-subpeltatis (glabris ?)

HAB. Caraccas, (Linden, n. 216).


13. A. Schachii; glabra, foliis membranaceis pellucido-punctatis, inferioribus lato-ovatis oblique acutæque acuminatis subæquilateris basi lato-rotundatis, infra ¼ alt. novenerviis et superne patulo-venosis, superioribus ellipticiis inæquilateris basi obtusis vel acutiusculis subseptupli-nerviis et superne venosis, pedunculis petiolo brevioribus, amentis rectis teretibus obtusis, folio ¼ brevioribus, bracteis inflexo-peltatis, vertice ovariisque griseo-pubescentibus.

Crescit in ins. Trinidad, (de Schach.)

Species quoad sectionem haud plane certa, amentis et foliorum superiorum indole ad Sect. Leiophyllum vergens.

Rami teretes striati, internodiis longis, nodis tumidis. Petioli, presertim inferiores, basi amplo-dilatata amplexicaules, marginibus et stipulis deciduis tenuiter cicatrisati, 3½-1 cent. longi. Folia tenuiter membranacea, pellucido-punctata, supra læte viridia, subitus pallidiors, inferiora 17-18 cent. longa, 10½-11 lata, costis tenuibus, 3-4 utrinque e basi quinta ad ¼ vel ½ alt. a basi, superne quædam tenuiores,
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quarum summa usque ad apicem ducta. Anastomoses tenues. Folia superiorea 15-17 cent. longa, 6-8½ lata, costis 2-3 utrinque e basi quarta paullo altius libera. Stipula oppositifolia decidua linearis convoluta subcurvata 1 cent. paullo superans. Pedunculi 5-6 mm., amenta 5-7 cent. longa, 2 mm. crassa, ad spectus griseo-pubescentis.

15. A. Miersiana; ramulis petiolis pedunculisque appresse subretrorse hirto-pubescentibus, foliiis coriaceis sparse pelucidno-punctatis, supra tennirme puberulis nervisque sulcatis, subitus sublacunososis incanis pubescenti-tomentosis pilis supra nervos densioribus oblique ovatis acuminatis acumine acutiusculos mucronulato, basi leviter inaequali rotundatis vel subcordatis, 5-7-plinerviis, nervis 3 mediis ad ¼ alt. solutis, reliquis e basi pedunculo petiolum bis terve superante, amenis cylindricis brevibus obtusis, bracteis pedicellato-peltatis subrotundatis croceo-ciliato-hirtis, area centrali nuda glandulosa, staminibus 4? infimo bractee opposito, baccis obpyramidatis vertice subtruncato-umbilicatis.

HAB. Peruvia, in Chachapoyas, (Matheus, n. 186.)

Species A. Andicole accedens, certe A. albida, p. 415 affinis, que tamen secundum descriptionem a cl. Kunth datam quisudam notis differre videtur.

Frutex. Rami teretes nodosi appresse pubescentes, internodiis 2-5 cent. longis; ramuli dichotomi dense tomentosohirti, tomento sordide ochraceo. Petioli 4-10 mm. longi, antice canaliculati. Folia in sicco supra sordide fusca, nervis venisque canaliculata, attamen laevis, sub lente pilis teneris inspersa, subitus ochraceo-incana, molliter tomentoso-pubescentia, pilis supra nervos longioribus, plus minus inaequaliteraliter ovata, acuminata, acumine lanceolato-lineari sursum attenuato acuto mucronulato, marginibus revolutis, basi subattenuata leviter inaequali plerumque rotundata aut aliquid excisa, 5-6 cent. longa, 3 cent. ad ¼ alt. circiter lata, nervis subitus prominentibus medio ad apicem ducto, e basi utrinque uno majore et sepe altero ad imam basin tenui, tertius


Crescit in Peruviae Prov. Serruja; Chachapoyas, (Mathews, n. 3225.)

Ramuli fusco-tomentoso-pubescentes. Petiolis 1-2 cent. longis antice canaliculatis basi nodum marginantes pubescentes. Folia submembranacea lato-ovata attenuato-acuminata, acumine brevi obtusiusculo, basi inaequali cordata, lobis conniventibus petiolum tegentibus, 11-11½ cent. longa, 7-7½ lata, noveno-nervia si nervos insimos tenuissimos adnumeres, nervis 5 medius paullo supra basin solutis, reliquis ex ipsa basi egressis, medio ad apicem, 2 superioribus fere ad eum ductis, supra molliter pubescentia, subtus flavescenti-tomentoso-pubescentia. Pedunculis 1 cent. longis pubescentes, amenta baccifera 4-6 cent. longa obtusa, calumnum scriptorum crassa. Bractæ pedicellato-peltatae triangulares hirto-ciliatae pilis flavis, area exigua oblonga nuda verruculosa. Baccae obovatae compresso-quadrate apice umbonate punctatae, juniores puberulae?


17. A. Pavoni; ramulis petiolis pedunculis foliisque subtus molliter pubescentibus, his membranaceis pellucido-punctatis, supra molliter puberulis sensim glabratis ovatis attenuato-acuminatis subæquilateris, basi æquali-rotundatis vel leviter cordatis, nervis e basi et e nervo medio
usque ad $\frac{1}{3}$ alt. utrinque 6 adscendentibus, petiolis versus basin subvaginantisibus pedunculum bis terve superantisibus, amentis crassis cylindricis rostellato-acutis rectiusculis folio paullo brevioribus, bracteis conchaeriformi-peltatis ochraceo-hirtis, stigmatibus longiusculis, antheris ovato-oblongis. 

*Crescit* in Peruvia ad Quebrada in Pariahuanca, (Matheus, n. 793.)

Ramuli teretiusculi sensim glabrati, juniores molliter pubescentes subochracei, internodiis 5-8 cent. longis. Nodi marginati. Petioles 2-2½ cent. longi, antice profunde canaliculati basi dilatati, antice e stipulis petiolaribus decidunt cicatrisati, cæterum dense pubescentes. Folia 13-14 cent. longa, 8-9$\frac{1}{4}$ lata, æquilatera, attenuato-acuminata, acumine acutiusculo, basi æqualia vel subæqualia, nervis fere infra $\frac{1}{3}$ alt. ortis multiplinervia, 3 mediis ad apicem ductis, inferioribus utrinque 4 fere e basi exortis, omnibus subtus prominentibus, anastomosibus tenuibus. Stipula oppositifolia coriacea oblonga acutiuscula subconvoluta hirtella 2 cent. longa. Pedunculi crassi dense hirti 5 mm. longi, amenta 9-10 cent. longa, calamum scriptorium crassa; antheræ supra bracteas exsertæ. Bractearum area centralis exigua nuda, cæterum dense hirtæ vertice subtriangulares.

18. A. *alpina*; ramulis foliis utrinque pedunculisque glabris, petiolis junioribus antice tenere ciliolatis cito glabris, foliis submembranaceis glandulis venulisque pellucidis, ovatis vel elliptico-ovatis attenuato-subacuminatis apice ipso obtuso, plus minus inæquilateris, basi leviter inæquali rotundatis, septupli-vix novem-nerviis, pedunculo petiolum superante, amentis patulis crassis rectis obtusis folium superantis vel fere æquantibus, bracteis pedicellato-peltatis, pelta suborbiculari vel triangulari flavo-hirto-ciliata area orbiculari nuda, stigmatibus 3 lanceolatis. 

*Crescit* in monte Pichincha, 10,000 pedum. alt. (Hall.)

Habitu A. *cinnamomifolium*, p. 419, quodammodo referens, sed nervatione foliorum et bracteis cæt. perfacile distinguenda.

Rami dichotomi, ramuli angulati glabri. Petioles 4- fere
1 cent. longi, antice canaliculati, ima basi nodum marginantes, nascentes marginibus tenere ciliolati mox glabrat. Folia utrinque glabra, supra opaca, subitus pallida, nascentia hic illic uno alterove pilo instructa, venis pariter ac glandulis pel lucidis, plerumque elliptico-ovata et plus minus inaequalitera attenuato-acuminata, acumine apiceve ipso obtuso, raro acutiusculo, basi leviter inaequali-rotundata raro leviter excisa, nervo medio percurrente utrinque usque ad ¾ alt. a basi costulas 3 vel cum una basilari tenuissima 4 emittente prominentes versus margines ascendententes, aliquasque tenuiores superne, nulla ad apicem ducta, omnes parce et obsolete anastomosantes; 5-7 cent. longa, 3-3½ lata. Pedunculi crassi angulati ¼-2 cent. longi; amenta matura 3-6 cent. longa recta obtusa, calamum scriptorum crassa; flores annulatim dispositi. Bractae petæ area centralis demum fere omnino rotunda elevata verruculosa, ambitus e pilis subluteis primum subtriangulari-semilunaris demum fere orbicularis. Baccae obpyramidatae polygonae vertice truncatae. Stamina 3.


Sectio Radula, Miq.

20. A. Radula, p. 426, forma foliiis paullo minoribus subtus scabro-hirtulis nec mollibus, amentis maturis.—Minas Geraes Brasiliæ, (Claussan.)

21. A. dasyoura; ramulis petiolis pedunculis foliiisque subtus tomentoso-pubescentibus demum scabro-hirtis, his rigido coriaceis epunctatis supra areolatis verrucoso-aspprimis in nervis junioribus setulosis, oblongis subaequaliter breviter et obtuso-acuminatis, basi subaequali obtusis, usque ad ½ alt. utrinque 8-costatis, amentis longe pedunculatis crassissimis obtusis curvatis folium aequalibus, floribus annulatim dispositis, bracteis pedicellato-peltatis antice concavis præter basin fuligineo-hirsutissimis, ovario sursum attenuato pubescente, stigmatibus 4 linearibus longiusculis.
Crescit in Peruvia, (Mathews, n. 1716.)

Species spectabilis admodum distincta, sed ob folia fere æquilatera a contribualibus quodammodo recedens.


22. A. Lindeniana; ramulis petiolis pedunculis foliisque subitus in nervis venulisque incano-hirtis, his subcoriaceis pellucidos punctatis, nascentibus supra in nervis primariris pilosulis cito glabratris demum areolato-bullatis laevibus, subitus lacunosis sensim scabrescentibus ovato-ellipticis æquilateris acute acuminatis acumine mucronato, basi ineæquilaterali subæquali rotundatis leviter excisis, costis majoribus utrinque circiter 6 patulo-adscententibus, nulla ad apicem ducta, omnibus lacunoso-reticulatis, pedunculo petiolum circiter æquante, amentis cylindricis obtusis brevì-mucronatis folio brevioribus, bracteis pedicellato-peltatis triangularibus griseo-hirto-ciliatis.

HAB. Nova Granada. (Linden, n. 839.)

Species in sectione quodammodo heterogenea, sed ob folia lacunosa scabrescentia et bracteas huic sectioni aptior quam reliquis.

Rami teretes scabro-pubescentes nodosi; ramuli angulati;

23. A. areolata; ramulis petiolis pedunculis foliisque subtus in nervis venisque sparse longe et patentim hirtis, foliis longe petiolaris coriaceae pellucido-punctatis, supra præter basin nervi medii, glabris areolatis demum areolato-bullatis, subtus fusco-punctatis lacunosis, ovatis attenuato-acuminatis subaequilateris, basi in alii æquali in alii inæquali rotundatis, costis infra ½ alt. utrique 5 (infimis 2 subtilissimis, reliquis 3 superioribus majusculis,) nulla ad apicem ducta, pedunculo petiolum bis terve superante, amentis cylindricis rectiusculis vel leviter curvatis pedunculo brevioribus vel longioribus, bracteis conchaformi-peltatis, area subsemilunari-triangulari nuda ambitu ciliolatis, filamentis exsertis.

Crescit in Serruja, Chachapoyas, Peruviae, (Mathews, n. 3227.)

Stirps singularis, inter hanc et præcedentem sectionem fere intermedia, indumento, foliorum forma et amentis longe pedunculatis insignis. Rami subglabri, ramuli patentim hirti cito glabrati. Petioli teretiusculi basi subvaginantes patentim hirti 3-1½ cent. longi. Folia 12-16 cent. longa, 6-8½ lata, fere omnino æquilatera ovata vel oblongo-ovata, quædam basi omnino æqualia rotundata, quædam inæqualia (latere externo 1 cent. longiore,) apice acuminata, supra saturate viridia areolata, areolis parvis pentagonis vel irregularibus, quibus
margini ipso adspectus crenulatus imprimitur, juniora margi-
nibus ciliata, basi in nervo medio pilosula, hoc demum dilata-
tato lutescenti-excorticato, subtus pallida juniora reticulata,
globosæ biloculares sordide lutescentes.
24. A. acutifolia, p. 428. Forma minor quam specimen
Ruiziana olim descripta.—Peruvia in prov. Huanuco et
Pariahuanca ad ripas fluminum, (Mathevs, n. 795, n. 1715),
in Chachapoyas, (idem, n. 187.)
25. A. crocata, p. 429; pedunculi (1 cent. longi) petiolum
æquantes;—nulla alia autem differentia a sp. Ruizianis.
Crescit in Peruvia, (Mathevs, n. 1711 vel 1712.)
26. A. salvæfolia? p. 430. Ad Huanuco et Pariahuanca Pe-
ruvæ, (Mathevs, n. 794.) Foliiis tantum longioribus a sp.
meis recedens.
Alia species, ab A. salvæfolia recedens; foliiis basi acutis,
sed ob amenta nimis juvenilia hau'd tuto extricando, a cl.
Mathevs ad Serruja, Chachapoyas lecta, (n. 3224.)
27. A. verbascifolia, p. 431, var. foliiis basi minus inaequalibus
et minus profunde excisis. Quito, (Jameson, n. 61.)
28. A. lanceæfolia, p. 433.—In Peruvia legit Mathevs, speci-
mina foliiis majoribus 20-24 cent. longis, 4½-6½ latis. Form-
am amentis paullo longioribus 9-10 cent. in Nova Granada
cl. Linden, n. 976.
29. A. elongata, p. 434. Columbia, (Hartweg, n. 1396.)
Ejusdem forma latifolia? Peruvia, (Mathevs, n. 1706.)
Folia multo latiora 20-25 cent. longa, 7½-9 lata; petiolis
1 cent. longi.
30. *A. granulos* *a*, p. 435. In Peruvia, Prov. Mozobamba, (Mathews, n. 188.)
33. *A. Jalapensis*, p. 444. Folia quaedam 20 cent. longa, 9 lata, basi valde inaequalia. Certa bona species, Mexico, (Galeotti.)
34. *A. hirsuta*, p. 446. Folia suprema fere lanceolata 14 cent. longa, 4-4½ lata; infima 25 cent. longa, 10 lata, utrinque ad ½ alt. 8-costata. In vallibus umbrosis insule Trinid* *ad*, (Purdie.)
36. *A. adunca*, p. 449. In Jamaica valde vulgaris, (n. 137,) in Trinid* *ad*, (Lockhart.)—Forma angustifolia, Essequebo, (Schomb. n. 1.)—Specimen Peruvianum, (Serruja, Chachapoyas, Mathews, n. 3225), habitu *A. granulosa* simile, ramulis petiolis pedunculis junioribus molliter pubescentibus, foliis brevissime petiolatis caet. Anne species?
38. *A. aspera*; ramulis petiolis pedunculis foliisque subtus in nervis hirtellis, his rigido-membranaceis pellucido-
punctatis, junioribus supra in nervis puberulis, ceterum pilis rigidis minutissimis asperrimis, quibus deciduis punctatis, subtus pallidis glandulosos-punctatis scabridis, oblongis, adultis subaequilateris acuminatis, basi subaequalis acutis, costis ad ½ alt. utrinque 5, amentis folio subbreviribus cylindricis rectis vel flexuosis acutis, bracteis pedicellato-peltatis ochraceo-villosulis.

Crescit in Peruvia, (Mathews, n. 1708.)


41. A. leucophylla, p. 460. Mexicum ad Chilo in Puebla, (Andrieux, n. 94.)

42. A. salicariaefolia, p. 468. Ins. St. Catherine, Brasiliae, (Tweedie.)

43. A. ulmifolia, p. 472, formam pedunculis petiolum paullo superantibus in ins. St. Vincent legit Guiling; legitimam in ins. Antigua, Dr. Nicholson; in St. Domingo, (Dr. Imray.)

44. A. temnicuspis; ramulis petiolaris molliter longaque hirtis, foliis breviter petiolatis membranaceis pellucido-
punctatis supra præter nervum medium versus basin in
junioribus hirtellum, glabris, subtus minute punctulatis in
nervis venulisque appresse hirtellis scabriusculis, elongato-
oblongis inæquilateris longe anguste et acute acuminatis,
versus basin attenuatis, basi valde inæquali semicordatis,
costis infra ½ alt. utrinque circiter 5, summa ad apicem
ducta, amenis breviter pedunculatis rectis folio ½ breviori-
bus, bracteis conchæformi-peltatis vertice tenere ciliolatis.

Crescit in Peruvia, (Matheus, n. 1704.)

Pili ramulorum et petiolorum præ reliquis longi molles
haud densi, citius cadentes. Petiolis 5-10 mm. longi, lobo
baseos majore fere tecti. Folia tenuiter membranaceas lete
viridia lævia, subtus pallida glaucescentia subscabriuscula,
præsertim versus basin inæquilatera, latere majore in lobulum
rotundatum 1 cent. longum producto, altero (angustiore)
truncato, apice in acumen lanceolato-lineare valde attenuatum
producta, 22-25 cent. longa, 8-10 lata; costæ tenues plerum-
que utrinque 5 vel et 6 addito infima tenuissima basilari;
anastomoses parce tenues horizontales. Pedunculi subgla-
brati 5-8 mm. longi, amenta 10-11 cent. longa, 2-3 mm.
crassa, acutiuscula. Flores annulato-spiraliter dispositi.

45. A. dasypoda; ramulis petiolis pedunculisque hirto-vil-
losis, foliis membranaceis pellucidis-punctatis supra sparse
pubescentibus sensim glabratis, subtus præsertim in nervis
marginibusque hirto-pilosis (pilorum articulis brevissimis
numerosis) oblongis vel ovato-oblongis parum inæquilateris
falcatim acutaeque acuminatis, basi subæquali leviter cor-
datis vel rotundatis, costis usque ad ½ alt. utrinque 4-5,
summa ad apicem ducta, amenis breviter pedunculatis
(nascentibus) dense hirtis brevissimis subconico-oblongis.

Crescit in Peruvia, (Matheus, n. 1702.)

Ramuli angulati, petiolis ac pedunculis pilis ochraceo-fuscis
mollibus patentibus densissime vestiti. Petioli antice canali-
culati sepe numero stipularum petiolarium vestigiis instructi,
1 cent. circiter longi. Folia 15-18 cent. longa, 6-8 lata,
supra pilis sparsis super nervos paullo densioribus subpu-
berula iisdemque ciliata, subtus densius pubescentia, præter
acumen falcatum lineari-lanceolatum subaequilatera, basi plerumque fere tota aequalia leviter cordata, costis utrinque 3 fere e basi, quorum superior et sequens alte adscendunt, summa ad ½ alt. orta cum opposita aream lanceolatam includens ad apicem perducta. Anastomoses tenues subtus vix prominulae. Amenta nascentia pedunculo densissime hirto quam petiolus breviore suffulta 1½-2 longa crassa ochraceo-hirta.


47. A. eriopoda; ramis angulatis punctulato-asperiusculis, ramulis petiolis foliisque subtus in nervis dense hirtis, his coriaceis pellucido-punctatis supra punctato-asperrimis, subtus-scabro-hirtis et fusco-punctatis, ellipticus paullo inaequilateris longe anguste acutae acuminatis, basi subaequalis acutis, costis usque ad ½ alt. utrinque 6-7 parallele adscendentibus 3 mediis ad apicem, reliquis alte versus marginis adscendentibus, amentis erectis rectis cylindricis folio paulum brevioribus, pedunculo cito glabrato petiolum superante, bracteis inflexo-peltatis triangularibus ciliatis, baccis glabris vertice truncato-concavis. Crescit in Nova Granada, (Linden, n. 840.) Foliorum indumento et genitalibus ad A. asperifolium, forma autem ad A. diospyriformis accedit.

Petiolî 1 cent. longi antice canaliculati, basi dilatata nodum marginantes, dense fusco-hirti. Folia adulta rigide sed haud crasse coriacea, supra opaca asperrima, in nervis primariis pilis brevibus sensim deciduis instructa nervisque demum canaliculata, subtus ad lentem elevato-punctata opaca praesertim in nervis primariis et margine pilis appressis fuscis barbato-hirtula, haud admodum inaequilatera, in acumen angustum longum acutum terminata, basi parum vel modice inaequali acuta, 14-16½ cent. longa, 6½-7½ in medio lata, fere ad ½ alt. costis subtus prominulis et per totum decursum distinctis pertensis, quorum inferiores 3-4 approximatae basi

48. A. Barclayana; ramulis petiolis pedunculis dense hirtellos-pubescentibus, foliis membranaceis sparse pellucido- punctatis utrinque in nervis venulisque sparse appresse hirtellis, supra sensim glabratis subscabriusculis, subtus pallidis demum sublacunosus-scabriusculis, oblique sublan- ceolato- vel rhomboe-oblongis attenuato-acuminatis, acume obtuso mucronato vel mutico, versus basin attenuatis, basi obtusa valde inaequalibus, costis utrinque ad ⅔ alt. 5-6 adscendentibus summa per anastomoses ad apicis marginem ducta, amentis (nascentibus) brevi-pedunculatis brevibus dense hirtis.

HAB. in parte occid. Novae Granadæ, (Barclay.)

Ramuli flexuosô trigoni pubescentes, sensim glabriores et scabrescentes, internodiis 2-5 cent. longis. Petioli 5-8 mm. longi. Folia rigidiuscule membranacea supra saturate viridia subopaca juniora in nervis densius et inter ea sparse pilosula sensim glabrata et verruculis parvis asperula, subtus cirresa- scenti-pallida, præsertim in nervis primariis appresse hirtella, sub lente fusico-punctata, plus minus inaequilatéra sed semper obliqua, plus minus oblonga, sed ita ut latitudine maxima supra ¾ alt. pertingat, basi valde inaequalia, latere exteriores 4-1 cent. longiores rotundato, altero attenuato-truncato an- gustiore, apice attenuato-acuminata, acumine ipso obtuso nervo excurrente plus minus mucronulato, 15-21 cent. longa, 54-7 lata; costæ 6 in latere majore, 5 in minore, anastomoses teneæ vix prominulae, demum versus margines acrobiulatae. Stipulæ petiolares elliptices ciliatae breves vix petiolo adnatae.
Stipula oppositifolia lanceolato-oblonga convoluta coriacea glabra, marginibus subobdata, 8 mm. longa. Amenta 1-1½ cent. longa valde juvenilia.


50. A. glabrescens; ramulis punctulato-asperulis, foliis coriaceo-membranaceis pellucido-punctatis supra glabris laevis, usulis, subtus pallidis punctatis, nascentibus in nervis pilis teneris fugacibus hic illic inspersis, lato-ellipticis sub-æquilateris, subabrupte longiusculae et acute acuminatis, basi leviter inæquali vel æquali obtusis, costis majoribus utrinque ad ½ alt. 3-5, aliisque his intermediis et summis magis patulis, 2 summis ad apicem ductis, pedunculo quam petiolus duplo breviore, amentis brevibus cylindricis crassis obtusis, bracteis conchæformibus vertice truncatis adultis glabris, beccis obpyramidatis, vertice rotundo con-eevis umbilicatis glabris punctulatis.

Crescit in Guiana Anglica, (Parker.)

Quodammodo cum A. diospyrifolia comparanda, sed foliorum forma et nervatione, nec non amentis breviaribus tuto distinguenda.


Sectio HEMIPODION, Miq.

51. A. straminea; ramulis nascentibus petiolis nervisque sub- tis quam tenerirme puberulis eito glabris, his coriaceo- membranaceis epunctatis utrinque nitisidæ laevissimis ellip-
tico-lanceolatis vel lanceolato-oblongis apice attenuato obtusiusculis, basi obtusa valde inaequalibus, venulis subpatulis utrinque circiter 8 tenuissimis, pedunculo petiolum basi substipulaceo-marginatum mox cicatrisatum superante, amentis tenuibus folium circiter aequantibus, bracteis peltatis ciliato-villosulis subtriangularibus, staminibus longiusculae exsertis.

Locum tenet inter A. Swartzianam et A. xestophyllam, cum nulla autem confundenda.

Crescit in Jamaicae montibus ad Manchester, Dec. 1843. (Purdie.)

Rami vetustiores teretiusculi valde nodosi, cortice laevi albicante parum ruguloso, raro verruculosso, internodiis brevibus; ramuli tenuiter striati. Petioli 5-10 mm. longi, nodum marginantes, e stipulis petiolaribus cito delitescentibus mox cicatrised, cicatrici usque ad basin lateris minoris folii continuata. Folia lateribus antice conniventibus antice complicata 8-11 cent. longa, 3-3½ raro 4 lata utrinque nitida et laevia subtus pallidiora, lanceolato-oblonga vel elliptico-lanceolata, subaequilatera, apice ipso obtuso, basi admodum inaequalia, latere exterior 5-10 mm. longiore, rotundato; e nervo medio percurrente utrinque 6-8 venae patulæ utrinque in sicco prominulæ, versus margines bifide ramulose et anastomosantes exorientur. Stipula oppositifolia lanceolata glabra convoluta 1½ cent. longa. Pubes nisi in petiolis et ramulis nascentibus vix ulla et fortiores lente tantum discernenda. Pedunculi 1-1½ cent. longi. Amenta erecta vel patula 4-7 cent. longa, recta, obtusa vel acuta, 2 mm. crassa; flores annulatim dispositi. Bractee breviter pedicellatae, petala area centrali exigua nuda, ceterum pilosulo-ciliata lutescente demum grisea. Filamenta longiuscula teretia sursum aliquid incrassata, antheris ovatis bilocularibus.

52. A. xestophylla, p. 491.—Jamaica, (Purdie, n. 126.)—

Folia utrinque 8-10 venoso-costulata; majora 20 cent. longa, 5-5½ lata. Pedunculus 1, amenta 10 cent. longa longa patula teretia tenuia recta mucronata, flores suban-


53. A. geniculata, p. 493. Trinidad, (De Schach.)
54. A. Luschnathiana, p. 494. St. Catharina, Brasiliae, (Tweedie.) Larangeiros, (Graham.)

Var. glabrata, p. 495.—Ad Acaripe, Brasiliae, (Gardner, n. 1849.)

55. A. Casapiensis; glabra, foliis crassiusculis membranaceis pellucido-punctatis, utrinque glandulis fuscis inspersis glabris praeter marginem juniorum versus apicem tenuerrime ciliatum, oblongis vel obovato-oblongis apice brevi-acuminato acuto, basi inæquali rotundatis utrinque pluricostulatis, amentis pedunculatis . . .

Crescit in Casapi, Peruviae, (Mathews, n. 1712.)


Aliud specimen sub eadem numero adest, prope Huallaga lectum, sterile, foliis obovato-oblongis apice brevi-attenuato
obtusiusculis basi subaequali cuneato-angustatis, costis 16-18 utrinque quod etsi compages foliorum eadem ac in specie, huc referre non audeo.

56. A. nitida, p. 495. In Surinam, (Hostmann, n. 709.) Demerara, (Parker.)

57. A. tuberculata, p. 497. Columbia, (Hartweg, n. 1399.) Trinidad, (De Schach,) St. Vincent, (Gulling,) Jamaica, (Purdie.)

Varietas amentis brevius pedunculatis, pedunculo petiolum sequante. Caracas, (Linden, n. 227.)

58. A. Demerarana; ramulis pedunculis petiolis foliisque subtus in nervis dense hirtellis, his brevi-petioliis membranaceis crebro pelliculo-punctatis supra glabris lanceolato-oblongis aequilateris breviter attenuato-acuminatis, basi plus minus inaequali haud profunde conniventi-cordatis, costulis utrinque 8-10 patulo-adscendentibus, summa per anastomosum arcum ad apicem continuata, pedunculo petiolum sequante, amentis patulis brevibus cylindricis, bracteis conchæ-formibus vertice truncata-hippocrepiformi minute ciliolato glabrato, baccis obpyramidatis vertice con- cavocruncatis puberulis.

Hab. Demerara, (Parker,) Surinam, (Hostmann, n. 312.)

Haud longe distat ab A. Luschnathiana.

Rami obtuse tri-tetragonoi, subretrorse puberuli. Petioli basi amplexicaules 8 mm. longi, antice canaliculati fulgineopubescentes. Folia 21 cent. longa, 5½-7½ lata, supra saturate viridia nitidula glabra, subtus paullus pallidiora in costulis et venulis appresse hirtello-pubescentia, marginibus leviter revoluta, costulis per totam fere longitudinem alternis et oppositis patulo-adscendentibus, summa cum venulis supremis magis patulis in arcum confluentem ad apicem continuata; acumen breve rectum latiusculum acutiusculum; lobuli baseos rotundati parvi. Stipula oppositifolia petiolum superans lanceolata carinato-convoluta hirtella. Pedunculi 5-6 mm. longi hirtelli. Amenta 4-4½ cent. longa calamum scriptorium fere crassa. Stigmata plerunque 4 brevia patula teretiuscula puberula.
In sp. *Hostmanniana* folia basi magis inaequalia 20-22 cent. longa, 7\frac{1}{2}-8 lata; amenta florentia 2\frac{1}{2} cent. longa.

59. *A. Berbicensis*, p. 500. Essequibo, *(Schomb.* n. 53.)*

60. *A. Hostmanniana*; ramulis junioribus petiolisque dense foliis subtus in nervis sparse appresse hirtellis, his coriaceo-membranaceis sparse pellucido-punctatis, supra saturate viridibus nitidis glabris, subtus fuscescenti-nitidulis puberulis subpunctatis, elliptico-vel ovato-oblongis subobliquis acute acuminatis, basi leviter inaequali-rotundatis, costis per totam longitudinem utrinque pluribus patulo-adscendentibus venosis, pedunculis petiolum vix superantibus, amenis patulis folio paullo brevioribus, bracteis pedicellato-peltatis, pelta triangulares marginibus extenuata lacero-fimbriata, area centrali nuda transverse oblonga, ovario a lateribus compresso.

*Hab.* Surinam, *(Hostmann,* n. 116.)*

Affinis *A. Berbicensi*, foliorum forma et nervatione et præsertim bractearum forma distincta.

Ramuli angulati appresse hirtelli. Petioli 1 cent. circiter longi appresse interdum subretrorse pubescentes, pubescentia usque ad basin lateris minoris folii continuata. Folia 17-24 cent. longa, 6-8\frac{1}{2} lata, ovato-vel sublanceolato-oblonga, alia fere aequilatera, alia perspicue inequilatera, marginibus sub-repanda, apicis acumine modico mucronato-acutato, basi rotundata semper inaequali, latere exteriori \frac{1}{2} cent. prope modum longiore, subtus nitidula fuscescencia imo subaurata, tactu mollia, sed ad lentem in nervo costis venisque pilis griseis appressis instructa; e nervo medio utrinque per totam longitudinem 6-10 costulae venosæ majores subpatulae tenues et aliae his intermediae breviore et tenuiores, omnes parum prominulæ parceque anastomosantes; arcus e summis anastomosibus ortus ad apicem ductus. Stipula oppositifolia lanceolato-carinata dorso hirta 1 cent. longa. Pedunculi 1-1\frac{1}{2} cent. longi, juniqores parce pilosuli, adulti glabrati. Amenta 11-12 cent. longa patula, sub anthesi pennam passerinam crassa, baccifera crassiora. Flores spiraliter dispositi. Bracteæ pedicellato-peltatæ marginibus late exte-
nuatis griseo-luteolo villosulæ, area centrali nuda exigua. Ovarium a lateribus compressum; stigmata teretiuscula. Antheræ ovatae. Baccæ obpyramidatæ tri-tetragonæ, vertice truncato bracteas superantes.

Forma? foliis ovato-oblongis latioribus 22 cent. longis, 9 latis, nervis primariis paucioribus, quorum summus per anastomoses ad apicum ducitur, ideoque ab ipsa specie satis distincta, nec tamen ob reliquam partium perfectam congruentiam disjungenda. Guiana Anglica, (Parker.)

61. A. persicariaefolia, p. 499; var. foliis breviis petiolatis et bracteis densius hirto-ciliatis.

HAB. Nova Columbia, (Cuming, 1290.)

Habitu magis quam characteribus a specie differt. Petiolis dense hirtelli 2-4 mm. longi. Folia 11-12 cent. longa, 3-4 lata, crassius membranacea, supra subnitida glandulis prominulis demumque verruculis fere scabriuscula, subitus paullo pallidiora, in nervo sparse pilosa, haud scrobiculata. Pedunculi petiolis crassiores 8-10 mm. longi, amenta patula æque ac folia unilateralia, 5-6 cent. longa, matura 3-4 mm. crassa. Bracteæ hirto-ciliatæ, area nuda exigua.

62. A. Lehmanniana; ramis ramulisque verrucoso-punctatis, petiolis pedunculisque junioribus sparse pilosis, foliis subitus in nervis appresse hirtellis supra glabris, crebro pellucido-punctatis brevi-petiolatis lanceolato-oblongis æquilateris vel inæquilateris longe attenuato-acuminatis acumine acuto, basi leviter inæquali-rotundatis vel acutis infra ½ vel ¾ alt. 5-6-costulatis, pedunculo petiolum parum superante, amentis tenuibus patulis folio parum brevioribus, bracteis inflexo-peltatis glabris marginibus tenerime ciliolatis.

Cresc. in Casapi Peruvianæ, (Mathews, n. 1694.)

Ex affinitate A. persicariaefoliae. Ramuli recti vel leviter flexuosi, internodiis 2-3 cent. longis apice infra nodum dilatatis, nodis margine albicante cinctis. Petiolii adulti glabri tenues antice canaliculati 2-4 mm. longi. Folia plus minus inæquilatera vel omnino æquilatera longe acuminata, basi leviter inæqualia, latere exteriorie 2 mm. longiore, 10-12½.
cent. longa, 3-3½ lata, supra atroviridia subobscura glabra præter nascentiam imam basin, subtus pallida subpunctata in nervis appresse hirtella, nervis tenuibus adscendentibus 2 sup. ad apicem ductis, anastomosibus parcis fere obsolentibus.

Stipula oppositifolia membranacea scariosa nervosa lanceolata, marginibus et nervo medio crassiusculo postice ciliolatis glabratis 1½-2 cent. longa decidua. Pedunculi juniores 4-5 mm. longi, amenta 7-8 cent. longa, pennam passerinam crassa recta apice leviter obliqua acutiuscula. Flores annulatim dispositi.

**Sectio Isophyllon, Miq.**


65. *A. Parkeriana*; ramulis uno latere duplici serie hirtelliis dein glabratis, foliis crassiusculis membranacis pellucidopunctatis, supra glabris subopacis, subtus in nervis petioloque postice hirtellis lanceolato-oblongis æquilateris acuminalis, basi æquali vel subæquali acutis patulo-multicostatis, pedunculo petiolum bis quaterve superante hirtello, amentis brevibus cylindricis obtusis, bracteis conchæformibus, vertice truncato subpuberulis glabrascentibus, baccis obovato-polygonis, vertice truncato concavis, stigmatibus 3 brevibus.

*HAB.* Demerara, *(Parker.)*

Ex affinitate *A. rhododendrifolia, anonefolia, et eucalyptifolia.* Rami dichotomi nodosi teretes stricti glabri, nodi marginati, internodia 4 cent. longa, uno latere plerumque planiuscula; ramuli duplici serie pilorum patulorum instructi. Petioli antice canaliculati 2-5 mm. longi, postice hirtelli glabrascentes. Folia 13-16 cent. longa, 4-6 lata, plerumque omnino æquilatera et basi acuta, quædam basi leviter inæquali magis obtusiuscula, apicis acumine recto obtusi usculo.
vel acuto; e nervo medio subitus prominentem et percurrente utrinque costulæ venose 12-16 subpatulæ (praeter 2 infimas magis ascendententes,) omnes praestim versus margines anastomosantes reticulatæ subitus prominulæ. Stipula oppositi-folia deciduala lanceolata carinata recta glabriuscula, dorso inferne hirtella, 1½ cent. longa. Pedunculi 1-2 cent. longi; amenta baccifera 2-3 cent. longa subpatula recta obtusa.

66. A. rhododendrifolia, p. 506. Demerara, (Parker.)
68. A. æqualis, p. 511. St. Domingo, (Imray, n. 329.)
69. A. adenophora, p. 514. Cayenne, (Martin.)

HAB. Nova Granada, (Linden, n. 921.)

71. A. lentaginoides, p. 520.—Columbia, (Hartweg, n. 1400.)
Vix differt a sp. Brasiliensi nisi foliis paullo crassioribus, supra sulcatis; bracteæ nascentes subciolatæ.—Stirps sub n. 1898 a cl. Hartweg, lecta vix differre videtur.—Proxima etiam et vix diversa species est a cl. Mathews in Pangoa, Peruviæ lecta, (n. 1147.)

72. A. cuspidata; glabra, foliis membranaceis subitus pallidis glandulosus et pellucido-punctatis ovato- vel lanceolato-ellipticis longe angustæ et acutissimæ acuminatiis, basi æquali acutis, costis utrinque infra ½ vel ¾ alt. 3-4, fere septupli- vel noveno-nerviis, pedunculo petiolum panno superante, amentis cylindricis acutis vel subrostellatis leviter curvatis folio subbreviaribus, bracteis parvis peltatis convexis marginibus extenuatis ciliolatæs.

HAB. Peruviæ, (Mathews, n. 1713.)
Affinis præcedenti et A. laurifoliiæ, foliorum forma et bracteis ad Sect. Ottoneides vergens. Ramuli teretiusculi glabri striati, internodiis 3-6 cent. longis; nodi tumiduli marginati. Petioli 1-1½ cent. longi antice canaliculati juniores basi stipularum rudimentis instructi. Folia supra saturae viridia opaca glabra sub lente punctis subverrucaæformibus instructa, membranacea pellucido-punctata, subitus pallida et
glandulis fuscis punctulata, nervis tenuibus e nervo medio percurrente infra \( \frac{1}{4} \) vel \( \frac{1}{2} \) alt. utrinque 3, raro 4 are alternis, quorum tres superiores are ad apicem ducti, reliqui brevissimi, anastomosibus parcis tenuibus, æquilatera, acumine lineari acutissimo uninervio, 11-13 cent. longa, 3\( \frac{1}{4} \)-5 lata. Stipula oppositifolia lineari-lanceolata 1 cent. are longa. Pedunculi 1-1\( \frac{3}{4} \) cent. longi. Amenta 6-8 cent. longa, pennam corvinam crassa leviter curvata, floribus annulatim dispositis. Stamina 3 ?


Guiana Anglica, (Parker.) Incolis Warakabacoura, partem sistens famosi veneni Ourali.

Foliorum forma Ottonis haud absimilis et bracteis in sup- pententi sp. autem nimis juvenilis, ejus generis characteribus vix repugnant. Cum autem genitalium indoles prorsus lateat, provisorie hoc retulii.

Rami subteretes vel uno lateres compressi, striati, laves, cinerascentes, rigidi, nodis tuberculato-incrassatis, ramulis compressis, internodiis 2-8 cent. Petioli 2-3 mm. longi antice canaliculati. Folia 18-22 cent. longa, 7 are 8 lata, æquilatera apice in acumen breve acutiusculum desinentia vel tautum acuta, basi latiora, ima subito acute in petiolum con- tracta, supra nervo medio sulcata, subtus costulis 7-8 utrin- que per totam longitudinem dispositis instructa, quæ versus margines in arcum confluent et anastomosibus crebris reticu- latis prominentibus junguntur. Amenta oppositifolia pedun- culata cylindrica valde juvenilis; bracteæ nascentes conchæ- formes glabriusculæ ?

Sectio Saliuncæ, Miq.

74. A. Leprieurii, p. 525. Surinam, (Hostmann, no. 1875.)
1. O. Anisum, p. 536, var. pedicellis glabris. p. 538.
Hab. in sylvis montium Organensium, Martio 1841, (Gardner, n. 5862.)

2. O. Hookeriana; ramulis petiolis foliisque subtus in nervo medio hirtellis, his subaequilateris elliptico-lanceolatis anguste acutae acuminatis, basi aequali vel leviter inaequali cuneatis interdum subemarginatis, membranaceis, parce pellucido-punctulatis, supra glabris vel nascentibus pilis tenerimis inspersis, pedunculis petiolum aequantibus rhachique tenere hirtellis, pedicellis glabriusculis baccas superantibus, stigmatibus exiguis sessilibus.
Frutex tripedalis, (Gardner, n. 5186.)
Rami teretes striati glabri, nodis tuberculatis incrassatis, ramuli juniores praesertim uno latere tenuiter hirtelli cito glabrati. Petioli antice canaliculati dense hirtelli 3-5 mm. longi. Folia aut omnino aequilatera aut parumper inaequilatera, basi aequalia vel vix alicud inaequalia, 15-16 cent. longa, 4-4½ lata, supra opaca, subtus pallida et nervo medio prominente versus basin praesertim hirtello venulis subpatulis utrinque circiter 6-8 reticulatis prope marginem confluentibus pertensa. Stipula oppositifolia lineari-lanceolata carinata hirtella. Amenta florentia 3½-4½ cent. longa erecta, pedunculo rhachique carnosa angulata tenere hirtellis; pedicellis carnosis glabri vel subtente vix puberuli 1-2 mm. longi. Bracteae et basi stipitata contracta conchaeformi galeae tenere puberulae, pedicello breviores. Anthereae 4 subsessiles ovatae biloculares, loculis dissepimentum proprio instructis. Ovarium ovatum obtuse tetragonum, stigmatibus pro genere parvis.

3. O. Ieta, p. 544. Brasiliae, (Sello.)

Description de deux genres nouveaux de la famille des Euphorbiacées; par J. E. Planchon, docteur-ès-sciences.

(Tabls. XV. XVI. A.)

STACHYSTEMON, (Tab. XV.)

CHAR. GEN. Flores monoici.

MASQ. Calyx 5-6 partitus laciniis coloratis subulatis, rigidulis, subaequalibus, uniseriatis. Corolla 0. Columna antherifera per antherim elongata, sanguinea. Anthereae plurimae minuta secus columnam inordinatim dispositae, pulvinulo glanduliformi insidentes sessiles, uniloculares, transversim bivalves. FEM. Calycis glumacei foliola 6 imbricata, ovato-lancelata, carinata, margine scarioso denticulata, bine dente excisa. Ovarium oblongum, glaberrimum, perianthiè arcto inclusum, 2-rarius 3-loculare loculis bivulatis. Stylis numero locularum, subulatii, exserti, apice revoluti adie internâ stigmatosi. Ovula sub processu lato loculi ferè dimidium superiorem occupante collateraliter appensa, anatropa, subglobosa. Fructus...?

Suffruticulus Nova Hollandiae, humiliis glaberrimus, habitu Micranthæ; foliis alternis, rigidis, confertis, lineari-bus, acutis; stipulis minutis subulatis petiolo brevi utrinque adnatis; floribus in apice ramorum circum gemnam innovantem congestis, axillaribus, masculis columna stami-nifera, verniformi, sanguinea conspicuis, feminea paucis inter fasciculum masculorum saxius occultis.

Stachystemon vermiculare.

HAB. Prope Flumen Cygnorum, legit Drummond.

Ce genre, bien différent de celui qui suit, est très-voisin, au contraire, du Pseudanthus de Sieber. On observe dans les deux le même habitusroide, les mêmes feuilles à stipules soudées avec le pétiole, et surtout, la même structure de calice, qui par une singularité, dont les Euphorbiacées four-
nissent beaucoup d’exemples, se trouve très-différent dans
tes fleurs des deux sexes. Le Stachystemon paraît encore
s’accorder avec le Pseudanthus par la position de ses ovules
géminés, et par le processus charnu du placenta contre lequel
leur micropyle vient s’appliquer. La différence la plus frappante
entre les deux genres, consiste dans les étamines très-
nombres dans le premier, et réduites à 5 ou 6 dans le
second.

Planche XV. Stachystemon vermiculare: Fig. 1. Une
feuille avec ses stipules adnées au pétiole; f. 2. une fleur mâle;
f. 3. anthère, vue en profil; f. 4. la même en face; f. 5. fleur
femelle; f. 6. coupe de l’ovaire dont on a retranché les
styles: il y a deux ovules collatéraux dans chaque loge. Tous
détails sont plus ou moins grossis.

BERTYA. (Tab. XVI. A.)

CHAR. GEN. Flores monoici, singuli intra involucrum calyci-
forme e bracteis 5-6 adpressis formatum subaequilobis.
Calyx coloratus, scarioso-membranaceus, quinqupartitus
laciniis obtusis aestivatione imbricatis. Corolla 0. Masc.
Stamina indefinita: filamenta in columnam exsertam,
dense antheriferam, coadunata; antheræ breviter pedicel-
late, oblongæ, erecto-patentæ, biloculares extrorsum longi-
tudinaliter dehiscentes. Fœm. Ovarium oblongum, trilo-
culare, loculis uniovulatis. Stylæ 3 liberi vel ima basi
cohærentes, profunde tripartiti, laciniis linea antica stigma-
tosis. Capsula oblonga inermis, calyce acræo inclusa,
loculo unico fertili monospermo, lato bivalvi, cæterisque
vacuis, angustis, ab axi seminifero secedentibus. Semes
oblongum, testa crustacea, nitida, fusca; caruncula (arillo
de seu marginie micropylis incrassato) alba, lunata, umbilico
contigua. Cætera desiderantur.

Suffrutices Nova Hollandiae, virgatim ramosissimi, plus minus
resinoso-viscosi; foliis alternis, exstipulatis, confertis, erecto-
patentibus, sepius linearibus, integerrimis, margine revolutis;
floribus in axillis foliorum solitariis, inferioribus masculis.
1. Bertya oleasolia; foliis Oleae albae supra pilis stellatis, brevibus, sparsis, scabridis, subtus dense incanis; floribus sessilibus squamis involucri liberis anguste ovatis, adpressis.

**HAB.** In petrosis sterilibus vallis Wellington, legit All. Cunningham.


Crescit cum præcedente.


**HAB.** Juxta annem, Cox, et in montibus cœruleis, leg. All. Cunningham. (In horto Kew ent culta.)

4. Bertya Cunninghamii; glaberrima; folia et flores fere præcedentis, foliis plane sessilibus et ramulis lineis elevatis resinosis e basi foliorum decurrentibus angulatis.

**HAB.** In interiore Novæ Hollandiæ orientalis extratropicæ abundat. (All. Cunningham in herb. Hooker.)

5. Bertya pinifolia; glaberrima; foliis linearibus, longis, mucronatis, scabridis; floribus sessilibus, bracteis involucri linearibus cum calyce dense resinoso conglutinatis.

**HAB.** Juxta annem Brisbane, legit Fraser.

Je dédie ce genre à M. le Comte Léonce de Lambertye, qui partage heureusement ses loisirs entre la culture des fleurs brillantes des jardins, et l'étude de ces fleurs modestes qui ne revêtent leurs charmes qu'à l'œil qui sait les découvrir et les admirer. L'existence d'un genre Lambertia expliquera d'une manière satisfaisante l'altération que j'ai du faire subir au nom de M. de Lambertye en l'appliquant au genre ici décrit.

Ce genre doit prendre place à côté du Beyera, Miqu. ou Calyptrostigma, Klotsch, fondés à-peu-près en même
temps sur le *Croton viscosum* de Labillardière, et les espèces congénères. C'est là que l'appellent en effet son port, la propriété d'exsuder une matière résineuse et les caractères plus positifs de sa structure florale. Un examen superficiel risque de faire prendre chez le *Bertya*, l'involucre uniflore pour un calice et le vrai calice pour une corolle, ce qui conduirait naturellement à rapprocher ce genre du *Ricinocarpus* de Desfontaines. Pour prévenir cette erreur, je dois dire que dans plusieurs de ces faux calices, j'ai trouvé deux fleurs développées, l'une mâle supérieure, et l'autre femelle plus courte, naissant presque du même point que la première et munie comme elle de son calyce scarieux et coloré.

Tab. XVI. A. Fig. 1. Fleur mâle du *Bertya oleefolia* grossie; f. 2. fragment d'un rameau du *Bertya rosmarinifolia* chargé de fleurs femelles, de grandeur naturelle; f. 3. une de ces fleurs isolée et grossie; f. 4. son ovaire dépouillé des enveloppes florales; 5. le même coupé; 6. loge fertile et bivalve du *Bertya gummifera*, renfermant une graine.

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(TABS. XVI. B. C. D.)

L'idée de faire de l'Henslowia le type d'une famille n'a nullement servi jusqu'ici à éclaircir ses vraies affinités. Mr. Lindley le rapproche avec doute des Antidesmées, c'est-à-dire d'un groupe mal placé lui-même, et qui forme le centre obscur autour duquel s'accumulent les genres embarrassants et peu connus. Griffith remarque avec raison la ressemblance de l'Henslowia et des Combretacées, tandis que Mr. Bentham me communiquait dernièrement quelques soupçons sur ses rapports avec les Cumuniacées. Je me permets de reproduire ici cette idée, quoique exprimée oralement et sans
Affinités du genre Henslowia.

un examen immédiat de son objet, parce qu'elle s'approche beaucoup de celle que j'en avais moi-même à cette époque, et qui fait le sujet de cette note. Comme introduction indispensable aux conclusions qui vont suivre, je dois rappeler les caractères de ce genre, en les complétant par la description du fruit.

Henslowia, Wall.


Arbores Indica Orientalis præsertim insularis, ramulis tetragonis; foliis oppositis, breviter petioliatis, integerrimis; floribus minutis, viridescentibus, secus ramos elongatos panicula bractiata, plus minus confertis.

Si des caractères qui précèdent on isole les plus essentiels, les feuilles opposées sans stipules, le calice à estivation valvaire, l'insertion perigynique des étamineset l'inflexion de leurs filets qui sont pliés en deux dans le bouton, et surtout les caractères de la capsule et des graines, on pourra soupçonner déjà que c'est parmi les Lythrariées qu'il faut chercher des genres analogues à l'Henslowia. Cette recherche nous
AFFINITÉS DU GÉNRE HENSLOWIA.

conduit d’abord à ceux des genres de cette famille chez lesquels la regularité des fleurs est liée avec l’absence de denticles accessoires du calice. Tels sont le Lawsonia, le Crenca d'Aublet, (auquel il faut réunir comme synonyme le Dodoca de Linné fils,) l’Adenaria de Kunth, et l’Abatia de Ruiz et Pavon. (vid. Tab. XVI. D.) Ce dernier genre surtout coïncide avec l’Henslowia par l’absence de pétales et, à quelques modifications près, par la structure de la capsule et des graines. C’est aussi près de lui que l’Henslowia me paraît devoir prendre place. La différence qui pourrait frapper le plus entr’eux, c’est que dans le premier, les étamines nombreuses s’insèrent dans le tube même du calice bien au-dessous de son bord, tandis que chez le second, elle sont au nombre de cinq, et presque insérées entre les dents calycinales. Mais, l’on sait que ces deux modes d’insertion staminales se trouvent séparés ou réunis chez les divers genres de Lythraires et notamment chez la Lagerstæmia. Sur la nature de cette double production d’étamines dans la même fleur, on pourra consulter avec intérêt les considérations sur les organes floraux du Professeur Dunal, dont je suis fier d’être l’élève et l’ami.

Un autre genre qui se lie étroitement à l’Abatia, est le Raleighia récemment décrit par Mr. Gardner. L’idée qu’à eu cet intelligent voyageur de rapporter son genre aux Bixinées, est à quelques égards justifiée par l’existence de placentas parietaux, et parce que l’Abatia lui-même offre quelques ressemblances avec les fleurs du Pineda, qui appartient à cette dernière famille. Cependant l’examen direct du Raleighia ne me laisse aucun doute sur la place que je lui assigne et peut-être même est-il trop voisin de l’Abatia pour en être génériquement distingué. Mr. Bentham, trompé par l’idée que le Raleighia était voisin des Weinmannia, a cru y observer de très petites stipules. Une observation très attentive m’a pourtant confirmé sur leur absence, l’assertion de Mr. Gardner.

Une troisième plante, dont je ne puis malheureusement juger, que par une figure de la Flore Péruvienne, paraît devoir
AFFINITÉS DU GENRE HENSLOWIA.

être rapportée aussi à la famille de Lythrariées. C'est le genre Alzatea de Ruiz et Pavon. Il se trouve parmi les Celestrinées douteuses, dans un ouvrage d'une immense utilité, qui est un beau monument élevé aux travaux des Jussieu et des Brown, mais où doivent nécessairement se retrouver les imperfections de la science.

Sans sortir du champ des suppositions probables, je croirais pouvoir regarder le Crypteronia de Blume comme identique avec l'Henslowia, et probablement aussi avec le Quillatum de Blanco. Les raisons sur lesquelles se fonde cette idée peuvent être jugées par ceux qui liront et compareront les descriptions de ces genres. En attendant, je n'ai pas cru devoir, sans un fondement plus solide, remplacer le nom d'un genre qui est parfaitement décrit et figuré dans un magnifique ouvrage, par un nom qui est perdu en quelque sorte à la suite des Rhamnées douteuses du Genera d'Endlicher. Ce que je n'ose faire cependant, la loi d'antériorité obligera un autre de l'accomplir, si comme j'ai lieu de le croire, l'identité des genres se confirme.

Il me reste enfin pour terminer cette note, à donner la diagnose des espèces d'Henslowia, que renferme l'Herbier de Sir W. Hooker, et sur lesquelles j'ai fait mes observations. La distinction en est extrêmement difficile, et les caractères peu tranchés, ainsi qu'on pourra s'en apercevoir, par les phrases descriptives où j'ai tâché de mettre en relief les différences les plus marquées.

H. ramis teretibus glabris, ramulis obtuse tetragonis foliisque subboariaceis subtus dense lutescente pubescentibus, paniculæ brachiatae magnæ ramis compressis floribusque pu- berulis.
HAB. in montibus. Insul. Penang.

2. Henslowia (Crypteronia?) affinis, sp. nov.
H. præcedenti simillima, differt foliis membranaceis, nervis tenuibus, fructibus fere duplo majoribus, minus conflictis,
pube pulverulenta rufescence nec ut in priore pallide lute-
scente conspersis. Variet foliis subtus pubescentibus, vel
 glabris.
HAB. in Provinc. Mergui, (Griffith in herb. Hook.)
3. Henslowia (Crypteronia?) \textit{gabra}, Wall.
H. ramis teretibus, ramulis laevibus obtusissime tetragonis;
foliiis glaberrimis longiusculae obtuseque acuminatis, nervis
supra valde impressis; paniculis (saltet femineis) bre-
vibus, parum ramosis; floribus quam in precedente
majoribus.
HAB. in Insul. Philippinens. (Cuming, exsic. n. 794.)
4. Henslowia (Crypteronia?) \textit{leptostachys}, sp. nov.
H. glaberrima; ramis teretibus, ramulis tenuibus obtuse tetra-
gonis; panicule ramis gracilibus elongatis; floribus min-
usat is interrupte subglomerato-sparsis.
HAB. in Insul. Philippin. (Cuming, exsic. n. 1464.)
5. Henslowia (Crypteronia?) \textit{Cumingii}, sp. nov. (Tab.
\textit{XIV} C.)
H. polygama? ramulis crassis acute tetragonis; foliiis glaberr-
rimis, coriaceis, subtus reticulato-nervosis; paniculis mag-
nis ramosissimis; floribus pro genere majusculis; sta-
minibus longis (an fertilibus?) cum calice sub fructu per-
sistentibus. (In aliis quidem stamina in flor. femineo ad-
sunt sed brevia et plane imperfecta.)
HAB. in Insul. Philipp. (Cuming.)
Tab. XVI. B. \textit{Figs. 1, 2.} Une fleur mâle de l'\textit{Henslowia}
\textit{pubescens}, Wall., grossie; \textit{f. 3, 4.} une anthèrace vue en face et
sur le dos.—C. \textit{f. 1.} Une capsule de l'\textit{Henslowia Cumingii};
\textit{f. 2.} une de ses valves pour montrer la cloison et l'insertion
des semences; \textit{f. 3.} une graine; \textit{f. 4.} son embryon.—D. \textit{f. 1.}
capsule de l'\textit{Abatia parvispora}; \textit{f. 2.} une de ses valves; \textit{f. 3.}
une graine; (tous ces détails sont grossis.)
Notes on the Vegetation and general character of the Missouri and Oregon Territories, made during a Botanical journey from the State of Missouri, across the south-pass of the Rocky Mountains, to the Pacific, during the years 1843 and 1844; by Charles A. Geyer.

(It is with no small satisfaction we are able to announce to our scientific friends that Mr. Charles A. Geyer, who distinguished himself by the Botanical collections he made with Mr. Nicollet in 1838 and 1839, between the Missouri and Mississippi Rivers, has recently arrived in England with a very valuable and beautifully preserved collection of Plants, gathered in the Upper Missouri, on the Rocky Mountains, and in the Oregon Territory, during the years 1843 and 1844. Mr. Geyer is thus honourably mentioned by Drs. Torrey and Gray in the 2nd volume of their admirable "Flora of N. America," p. 69:—"We are greatly indebted to the kindness of M. Nicollet for an extensive collection of dried specimens, made during his survey of the country between the Missouri and the sources of the Mississippi, under the orders of the Secretary of War. The collection was formed by Mr. C. A. Geyer, an assiduous German Botanist, who was attached to the Expedition.* The specimens are very complete, and

* Mr. Geyer commenced his investigations in the Western territories of the United States so early as the year 1835, when, with only one attendant, he started from New York, and penetrated the Missouri plains as far as Big Nemahaw, Lower Platte river; but owing to fever and ill-treatment by a party of Indians, he was obliged to return with very little success. It was on going back to St. Louis, on board the steamer of the American Fur Company, that he met M. Nicollet, who invited him to accompany his expedition to the sources of the Mississippi in 1836 and 1837. This, however, at the time he declined; but joined that enterprising gentleman in surveying the Missouri, (as high up as the Little Missouri), and almost the whole of that immense country (now Dakotah and Iowa territory) between the Missouri and Mississippi. In 1840 Mr. Geyer collected about St. Louis. In 1841 he made a tour with M.
in the finest preservation; and the localities, with other particulars, have been carefully recorded by Mr. Geyer. They were chiefly gathered during the autumn, and latter part of summer: the earlier, and perhaps most interesting collections were unfortunately lost.” A Catalogue of this Herbarium was published by our excellent friend Dr. Torrey, in the Appendix to M. Nicollet’s “Report intended to illustrate a Map of the Hydrographical basin of the Upper Mississippi River.”

This collection is peculiarly interesting, as illustrating the Botany of a region lying considerably to the south* of those

* Other plants were collected by the officer, Lieut. J. C. Fremont, as detailed in that gentleman’s “Report on an Exploration of the country lying between the Missouri river and the Rocky Mountains, on the line of the Kansas and Great Platte rivers.” These are also described by Dr. Torrey in an Appendix published in 1843. Our attention has been directed to the Genus “Fremontia” published in this Appendix, which, no doubt, from the limited circulation of the “Report,” has not attracted the attention it deserves; and hence Botanists have been led to notice the plant under another name. It is the Sarcobatus Maximiliani of Nees, described by Dr. Seubert in the “Botanische Zeitung,” for Nov. 1, 1844; but was previously noticed under the same name, in a work as little likely to fall into the hands of Botanists as the “Report” above mentioned, namely, “Prince Maximilian v. Wied Reise ins innere Nordamerika,” I. p. 510, and II. p. 447. It is there doubtfully referred to Urticeae, and said to be the “pulpless Thorn” of Lewis and Charles Young. Some observations on this Genus will be found at p. 1, of the present volume of our “Journal,” from the pen of Dr. Lindley, who was, however, unacquainted with the character of Fremontia, and we shall only render justice to Dr. Torrey by occupying a portion of these pages with a transcript from it.
countries so successfully explored by the intrepid travellers, Douglas and Drummond, extending as it does from the 29° to the 48° of lat.; and, in conjunction with the discoveries of the talented and indefatigable Nuttall, and of Lieut. Fremont,

**Fremontia**, (nov. gen.) _Flowers_ diclinous monoicous? dioicous, heteromorphous. _Stam. Fl._ in terminal aments. _Scales_ excentrically peltate, on a short stipe, angular, somewhat cuspidate upward. _Stamens_ 2-3-4 under each scale, naked, sessile; anthers oblong. _Pis_. _Fl._ solitary, axillary. _Perigonium_ closely adhering to the lower half of the ovary, the border entire, nearly obsolete, but in fruit enlarging into a broad, horizontal, angular, and undulate wing. _Ovary_ ovate; _styles_ thick, divaricate; _stigmas_ linear. _Fruit_, a _utricle_, the lower two-thirds covered with the indurated calyx, compressed. _Seed_ vertical, integument double. **Embry** flat-spiral (2–3 turns), green; _radicle_ inferior; _albumen_ none.

**Fremontia vermicularis** (Batis? vermicularis, Hook. _Fl._ Bor. Amer. 2, p. 128.) Uppermost fork of the Platte, near the mouth of the Sweetwater, July 30.—A low, glabrous, diffusely branched shrub, clothed with a whitish bark. Leaves alternate, linear, fleshy, and almost semiterete, 6-12 lin. long, and 1-2 lin. wide. Staminate aments about three-fourths of an inch long, cylindrical, at first dense, and composed of closely compacted angular scales, covering naked anthers. Anthers very deciduous. Fertile flowers in the axils of the rameal leaves. Calyx closely adherent, and at first with only an obscure border or limb; but at length forming a wing 3-4 lin. in diameter, resembling that of **Salsolea**.—This remarkable plant, which I dedicate to Lieutenant Fremont, was first collected by Dr. James about the sources of the Canadian river, (in Long's expedition); but it was omitted in my account of his plants published in the Annals of the Lyceum of Natural History. It is undoubtedly the **Batis? vermicularis** of Hooker, (l. c.) collected on the barren grounds of the Oregon River, by the late Mr. Douglas, who found it with only staminate flowers. We have it now from a third locality, so that the plant must be widely diffused in the barren regions towards the Rocky Mountains. It belongs to the sub-order **Spirolocoeae** of Meyer and Mocquin; but can hardly be referred to either the tribe **Suedinae**, or to **Salsoleae**, differing from both in its diclinous, heteromorphous flowers, and also from the latter in its flat-spiral, not coiledate embryo."

This description of Dr. Torrey, Dr. Gray observes, shows not only that the fertile flowers have a perianth (which Dr. Lindley appears to doubt); but that this perianth in fruit forms a circular ring, as in **Salsolea**. I may observe that I now possess, from Mr. Geyer and other travellers, fine specimens of this interesting plant, and they will be further noticed in the Catalogue of Mr. Geyer's plants.—Ed.
already mentioned, must render our knowledge of the vegetation of these extensive wilds very considerable.

Mr. Geyer has now divided his ample collections into 20 sets; the fullest of which amounts to 600 species; the lowest to 2 or 300; but the species wanting in these lower sets are not generally the scarcest kinds, for of such Mr. Geyer was careful to collect abundantly: and the sets are now offered to Botanists at the rate of £2 the 100 species, all expenses included. Orders may be sent to Mr. C. A. Geyer, at the Royal Botanic Gardens, Kew, or to R. Heward, Esq., Young Street, Kensington.

It will be our agreeable task to publish a Catalogue of this collection, with remarks and descriptions of the new species; this Catalogue to be prefaced by some account of the journey detailed by Mr. Geyer himself.)—Ed.

PRELIMINARY REMARKS.

In the spring of 1843, I set out from St. Louis, Missouri, and joined the party of Sir W. D. Stewart, of Murthly Castle, Scotland. I not only received every possible assistance from that gentleman, as far up as the Wind River Mountains; but he also kindly provided me with a letter of recommendation to the venerable Governor McLoughlin, of the Hon. Hudson Bay Company, Columbia Department, at Fort Vancouver, which enabled me to sojourn in Upper Oregon, and finally to embark, with my botanical collection for London, in one of the vessels of the Hon. H. B. Company.

The liberality of that body of gentlemen is too well known, especially in the scientific world, to require any encomium from me, yet I may be allowed to make special mention of the kindness and assistance I received from the Chief Factors, Macdonald, at Fort Colville, Mc Kinlay, at Fort Walla-Walla, and especially from Chief Factor Douglass, and Governor Mc Loughlin, at Fort Vancouver. Not less indebted am I, as well as, I believe, previous botanists, to the assistance of the different missionaries, both Protestant and Catholic. By
the kindness of the superior of the Catholic missions, I was permitted to proceed with their caravan to the Flathead mission, after parting from Sir W. Stewart at the Wind River Mountains. I enjoyed their hospitality, and finally accompanied a mission party to the Cœur d’Aleine Indians, an entirely new field for my researches on the upper waters of the Spokan and Kallispell Rivers.

For the opportunity of exploring the fertile part of the Spokan country, (which was only visited by the Botanist Douglas about as far as 80 miles west of Fort Colville), I am especially indebted to the Reverend gentlemen, Messrs. Eells and Walker, of the American Board of Foreign Missions, at Tsimakain.

I arrived in the midst of winter 1843, almost exhausted by want of food, having been lost, and wandering alone in the mountains and woods for thirteen days, where the snow was two and three feet deep. Never shall I forget the kindness and unremitting attention bestowed upon me in that forlorn situation; the more felt after my exposure to the inclemency of the weather for eight successive months. To a brother Missionary, of the same body, I owe the means of visiting another new field, the Highlands of the Nez-Perçez Indians, where he accompanied me on my excursions, and also afforded facilities to investigate the flowery Koos Kooskee valley over again, where previous botanists had but cursorily passed.

It must, no doubt, be gratifying to the lovers of natural history that such assistance is rendered to scientific travellers; not only since it would be impracticable, even with all the means, to traverse the different Indian tribes unmolested, or without considerable difficulties, but it also shows that the necessity for extending our knowledge of the productions of nature is felt and cheerfully aided, even in the recesses of that vast western wilderness. May future explorers, for whom there is yet enough in store, meet with the same reception under those hospitable roofs!
NOTES ON THE MISSOURI AND OREGON TERRITORIES.

This extensive region of North America presents so many interesting features, both in its vegetation and in a geological point of view; the latter too, of so perplexing a nature, that a satisfactory physico-geographical description cannot be attempted by me. Nor do all those existing data, which have been at different times advanced by previous travellers, suffice to convey a true idea of that vast country to the reader. I shall, therefore, confine myself closely to the botanical characteristics, only venturing to touch its geological chaos, where it is required and warranted by sufficient authority and personal examination.

MISSOURI TERRITORY.

Passing up the Platte River to Fort Laramie, thence through the most northerly narrow range of the "Black Hills" across the Saline desert to the "Red Butter," and "Rock Independence" at Sweet-water, or Eau Sucrée River—Thence to "Wind River Mountains," and across the "Upper Colorado," near the mouth of "Grand Sableuse," to "Fort Hall," and "Boiling Springs" of "Lewis River"—And finally to the sources of Missouri, across Madison's fork at Beaver-head, on the central chain of the Rocky Mountains: connected with previous observations up the Missouri as far as the Little Missouri, in 1839.

I.—First comes a most fertile region lying between the lower Kanzas, and the sandy barriers of the lower Platte valley; presenting some features of the flora of the Missouri valley and uplands. Forest trees gradually diminish in size, and in the number of species, and herbaceous plants increase in the number of genera and species.

A belt of rich undulating prairies, with very picturesque scenery, beautiful groves of Prunus americana, and Chikasaw, adorn the lower parts south of the Kanzas. The rivers are fringed with woods, and often bordered by extensive prairies; and the valleys are encompassed by rocky ridges of Missouri limestone. The ravines are gentle, fringed with Quercus macrocarpa, Ulmus fulva, and
Botanical Information

Americana; thickets of Corylus Americana occurring here and there in the valley; and Quercus Chinquepin on the limestone hills.

By enumerating the different forest-trees, it will be seen that none but the most common are diffused so far away from the Missouri river-woods. This is the most remote western habitat of Platanus occidentalis, Juglans nigra, Gymnocladus Canadensis, Morus rubra, Tilia Americana, Celtis occidentalis, Quercus macrocarpa, Fraxinus acuminata, Acer eriocarpum, Negundo fraxinfolium, and Aesculus pallida; the undergrowth consisting of Cornus cervinata and alba, Zanthoxylon fraxineum, Rhamnus parvifolius, Crataegus crus-galli, Ribes tristorum and floridum, Vitis riparia, cordata and quinquefolia. Of herbaceous plants, likewise, only the most common accompany the foregoing forest-trees to the limit of their range, chiefly Anemone Pennsylvanica, Urospermum Claytoii, Geranium maculatum, Sanicula Marylandica, and Carex varia.

Turning away from the outskirts of the gigantic western forest to the beautifully undulated prairies of the lower Kansas, stretching themselves, as if endless, along the horizon, great is the disappointment of the traveller, for he must soon exchange them for the desert! It is a charming sight, in the months of May or June, (in fact throughout the summer season also) to behold these prairies teeming with flowers. Already, in April, Viola delphinifolia, and Anemone tenella, with Hypoxis erecta, constitute the first ornament; next follow Batschia canescens, Castilleja coccinea, Pedicularis Canadensis, Cypripedium candidum, with Carex Torreyana, and Meadii, in such abundance, as to form almost a carpet by themselves. On the upland prairies and limestone-hills, we find the superb Pentstemon grandiflorum, with its no less showy companions Pentstemon dubium, Oenothera Drummondii, Polytaenia Nuttallii, Ceanothus Americana, and Amorpha canescens.

In the month of June another flora is perceptible in the lower plains. Plants, flowering for twice as long a time as
the former, and growing about twice as high. Amongst these stand preeminent as the most showy:—*Asclepia tuberosa*, *Phlox aristata*, (varying, in its native place, so much in colour, as to resemble the *Dianthus barbatus* of the gardens); then come *Petalostemon violaceum* and *candidum*, *Sakvia azurea*, *Lilium Canadense*, *Melanthium Virginicum*, and *Baptisia azurea*. Later still, towards August, the *Composite* reign almost alone, from *Helianthus angustifolius*, *Actinomeris helianthoides*, *Ambrosia trifida* and *Silphium connatum*, (growing 5-15 feet high in the most fertile spots) to the dwarf *Aster sericeus* of the adjoining limestone-hills.

Great difficulties presented themselves to us while traversing this beautiful country. Rivers, with steep banks of 50 or 60 feet in height, where we had to let our waggons and baggage-carts down upon ropes; and sudden rises of water, peculiar to these streams, and which when full, defy almost any attempt to cross them, resembling so many torrents. Daily we had to traverse some or other of the smaller rivers, and often were obliged to construct bridges by felling a large tree, and carrying our baggage over, and then swimming the horses through.

Towards the sandy barriers of the valley of the lower Platte, the Missouri limestone disappears almost entirely above the surface, leaving only extensive platforms, slightly covered with earth. Such rocky tracts are clothed all over with the beautiful *Astragalus assurgens* of Hooker. It varies of every shade, from pure white to vivid pink, deep purple and violet; *Astr. caryocarpus* is its constant companion, very remarkable for its large wallnut-shaped fleshy legumes, growing in bunches, and stretching in a circle around the plant on the stony ground or limestone rock. Another pretty plant, the *Malva Munroana*, is often found with the two foregoing, likewise groups of *Verbena Aubletia*, with *Calymenia nyctaginea*, *Batschia longiflora*, and *Hedeoma hispida*.

The ridges and slopes of the ravines are studded with *Ceanothus Americana*, *Amorpha canescens*, and *Tephrosia Virginiana*, while the level prairies present dense masses of
Lathyrus ornatus, Anemone tenella and Pennsylvanica, and Hymenopappus corymbosus. In wet places may be seen groups of Iris Virginiana, and Tripsacum monococcon, mingled with Carices, Eryngium aquaticum, and Zigadenus glaberrimus.

On arriving at the Platte, the aspect of the country is entirely changed, and a comparative barrenness takes place.

Here commences the

II.—Or less fertile region, lying between the Saline desert of Upper Platte, and the last named fertile prairie region of Kanzas river.

Surface and apparent geological features.—The land having risen to an elevation of about 900 or 1000 feet, it loses that pleasing undulated surface, characteristic of the western prairies. The tabular plains commence, though at first much interrupted by abrupt, steep ravines, and intervening ridges. They are composed of a coarse gravel, bedded on a massive layer of boulders of every sort of so-called primitive rocks, especially granite, and these again rest on recent horizontal sandstone, which latter overlays masses of bituminous shale of amazing depth. Piles of that sandstone are met with here and there, variously inclined, having been evidently dislodged from the level position, denuded of the soil by the weather, and are now walled at their bases with the accumulated boulders. In deep abrupt ravines, the water-courses are on bituminous shale, while the steep sides present to view the horizontal interrupted layer of the new sandstone stratas. This sandstone is of a coarse grain, and argillaceous cement, the latter preponderating; hence it is easily decomposed by the action of the atmosphere.

General features of the vegetation.—The woods are now reduced to groves only of Populus Canadensis, Mx., Ulmus Americana and fulva, Negundo fraxinifolium and Celtis occidentalis. A very small grove of Quercus macrocarpa occurs at the most northerly spur of the Black Hills, almost out of this region. The thickets consist of Rhus glabra, Rosa parvifolia, Amorpha frutecens, Salix longifolia, and Rubus occidentalis. Among the grasses, Avenaceæ and Festucaceæ take the lead,
while the hitherto abundant species of Andropogon and Po"llinia disappear to the west. Agrostideae increase, as also Hordeaceae; and the Leguminose and Astragaline prevail in the flora. Conspicuous representatives may be seen of many families, mostly of one genus only! Thus of Liliaceae, Yucca; of Pedicularis, Castilleja; of Scrophularine, Pentstemon; of Solanea, Solanum triflorum; of Hydrophyllae, Ellisia; of Convolvuli, Evolvulus; of Cinercephae, Cardueus argyrophyllus, Torr.; of Papaveraceae, Argemone; etc. White and scarlet are predominant among the herbaceous plants; lilac and purplish colours exist only in the species of Pentstemon.

The Platte or Nebraska River is shallow and rapid with an average breadth of a mile, and presents within this region most picturesque scenery from the innumerable small verdant islands which appear as if sailing in its rapid stream. Most of these islands have at least one tree in their centre, and some of them small groves, either of Poplar, Elm or Negundo, their luxuriant branches bending in the wind. Along the banks scarcely a tree is to be seen, except at the mouths of rivers and junctions of rivulets. The thickets of Salix longifolia, Amorpha frutescens and Rosa parvifolia, when all in bloom, afford a pleasant contrast to the adjoining trackless drifting sandy ranges of the valley, formed by local currents of wind from the hills. These sandy tracts are the abode of Stipa avenacea, St. juncea, Agrostis cryptandra, and the pretty Eriocoma; sometimes, on firmer sand, the Cryptis squarrosa twines over the surface. Only Stipa avenacea grows densely; scattered amongst it I found the pretty Machaeranthera, like Centaury, with us, amongst corn. These different species of Stipa formed the favourite food of our horses, but only before their panicle was developed; as soon as the spikelets came out, the animals would not touch this genus, but fed on the Eriocoma. Scattered amongst these sand-grasses generally were groups of Cleome integrifolia, Asclepias speciosa, Argemone grandiflora, Calyemina multiflora, and
Chrysosopis villosa. The more fertile parts of the valley still present Penstemon grandiflorum, and Batschia Gmelini, with Lathyrus palustris, Sisyrinchium anceps, Pentst. pubescens, Potentilla anserina, Zigadenus, Aster, and Solidago, in moist places.

The sand hills are held together by the long binding roots of Psoralea arenaria and Rumex venosus; in part, also, by Glycyrrhiza lepidota and Cerasus punila, which latter seems to me a true plum, as regards the fruit; sometimes it grows only a span high, with a dozen fruits of the size of a sloe. Out of these thickly clustered masses springs the robust Carduus argyrophyllus, Torr. with its large, white, and very fragrant heads of flowers. Most showy are the thyrses of the Rumex venosus, of which the large winged fruits become scarlet towards maturity. The singular and transient flora of these sand hills disappears in less than four weeks, when everything dries up, and no vegetable life remains, except masses of Orobanche, growing out of the roots of roses and the Psoralea or Glycyrrhiza.

But it is to the gravelly plains and ridges that the attention of the botanist is chiefly attracted; especially the wide extending ridges, which, wherever they appear, give shelter to the rarest and choicest plants of the surrounding country. These ridges prevail along the whole eastern slope of the Rocky Mountains; alternating with almost every geological formation; and may be traced across the Missouri, about the mouth of Platte river eastward, in an irregular interrupted line to Lake Michigan, and southward likewise to the Ozark Mountains of Missouri; perhaps, also through Arkansas to Texas.

The plants of these ridges bear a resemblance to the Sub-alpine Flora, with somewhat of the robustness of those species which inhabit the plains below. There are no grasses with creeping roots, except the simple Panicum Muhlenbergii, in this region, and on the upper Missouri; but several beautiful Gramineae grow only here, amongst which are Aristida pallens and Agrostis brevifolia. Atheropogon oligostachyon and Ses-
leria dactyloides are abundant. The most conspicuous plants are Mammillaria simplex, Bartonia ornata, Lupinus pusillus, Sida coccinea, Gaura coccinea, Pentstemon albiflum and grandiflorum, Astragalus hypoglottis, assurgens and caryocarpus, Echinacea angustifolia, Lygodesmia juncea, Psoralea esculentula, canescens and Glycyrrhiza, Evolvulus argenteus, Polygala alba, Cenothera serrulata, Diploppus pinnatifidus, Hooker, Calymenia angustifolia, hirsuta and decumbens, Aster sericeus, Solidago nemoralis, Schrankia uncinata, Erysimum asperum, Linum multicaule, Kentrophyton, Phace, Oxytropides, &c. &c. The Mammillaria occurs in varieties with white, rose and purple flowers; Polygala alba, white, pale pink, and violet; Echinacea, white and pale purple. Schrankia grows only on the slopes, prostrate, full of bright purple flowers, its leaves are irritable, like those of Mimosas pudica.

Several of the above named plants may be seen also in the plains, which, however, are characterized by others more robust, amongst which Helianthus atrorubens and Echinacea purpurea are conspicuous, Heliopsis scabra, Columbaria pinata, Rudbeckia columnaris, with yellow and deep fuscous-purple rays. Allionia nychaginea grows in stony places. On sunny slopes I observed Petalostemmon candidum and violaceum, Coreopsis delphinifolia, Psoralea, Astragali, Phace, Kaletia, Panicum Muhlenbergii and Polyggon glomeratus.

Small sandy denuded places are occupied by the beautiful Petalostemmon villosum and Cenothera albicaulis, and also by Crypsis, Cleome integrifolia, Opuntia Missourica and Artemisia caudata.

In these plains occur flats, or slightly depressed and somewhat circular places, sometimes one mile in circumference, covered with a delicate carpet of the pretty Sesleria dactyloides. Within them the Prairie Marmot (Arctomys Ludovicianus, Say,) burrows; so that the spots are often called prairie-dog villages by Anglo-American travellers. These creatures live together in great numbers, and feed, at least generally, on this little grass. Their habitations probably communicate, though each pair seems to have but one en-
trance, around which a heap of naked earth forms a little elevation, from which the inmates survey the village. A small species of owl lives peaceably with the marmot; it is a restless little bird, apparently on good terms with the marmots, but ever on the alert, for fear of the rattle-snake; which, strange to say, inhabits the same quarters, but is probably an intruder. This owl seems to have as good a sight in the noon-day sun as its European kindred have at night; for I have remarked it moving about all day, passing and repassing from one burrow to another. When I visited these habitations at sunrise, I never failed to see alternately marmots, owls, or rattle-snakes peeping out of the apertures. In a plain at Shienne River, on the upper Missouri, I found one large village deserted by marmots, and tenanted solely by rattle-snakes; the latter having probably overpowered and destroyed the legitimate occupants, or driven them out.

On the earth-heaps of these burrows, I saw Solanum triflorum, and never elsewhere, it grows prostrate in patches; Ænothera pinnatifida, Sida coccinea and Lupinus pusillus are here also together.

The scarlet colour, with which tracts of thousands of acres may be seen glowing during the months of May or June, is occasioned by the Sida coccinea; the white, by Ænothera pinnatifida and coronopifolia; blue and purple by several species of Pentstemon, and yellow by the dense masses of Helianthus tubaeformis and petiolaris.

Before closing the description of this region, I must mention the great inconveniences to which the traveller is exposed in it; foremost come the incessant rains during the months of May and June, which fall so heavy, that the water runs an inch deep upon the ground, accompanied too with violent winds. Next are the mosquitoes during calm nights, and swarms of blood-thirsty horse-flies by day, plaguing alike man and beast incessantly. Not less annoying are the night watches, necessary here to guard the animals from the marauding Pawnees, especially after a hard journey and in bad weather. However, after weary day and sleepless night are
past, when once the morning sun makes its appearance, all troubles are over and almost forgotten. Every one is engaged in breaking up camp, talking about the most probable adventures of the coming day; some prepare to hunt the buffalo or bison, some the antelope, and others to go in search of strayed horses, &c. Perhaps a bellowing band of bison rushes across the river, or a troop of wild horses appear prancing in the morning sun, and dashing over the plains, or a capering antelope is seen on the brow of the hills, or something else to add excitement to the scene. Quickly the whole cavalcade has mounted again, and proceeds onward through that inhospitable and dangerous wilderness.

(To be continued.)

Proposed Botanical Journey of Mr. Alexander Gordon, to the Mountains of Texas, &c.

Not only did Mr. Charles Geyer accompany Sir William Stewart into the Rocky Mountains, but an equally indefatigable Scottish Botanist was of the party, Mr. Alexander Gordon, who had been long resident in the United States, and had thence transmitted many rare seeds and roots to Europe. On his return from that journey, he lost by shipwreck a great part of his collections soon after his embarkation at New Orleans for England. Among what remained, seeds of several rare plants have been reared, and a considerable collection of exquisitely dried specimens came into the possession of Mr. H. Shepherd, Curator of the Liverpool Botanic Garden, and Mr. Lawson of Edinburgh. Through their kindness, my Herbarium has been enriched with many of these plants, and I shall have occasion to notice several, when treating of those of Mr. Geyer in the present Journal.

Still bent on prosecuting his researches in the less known parts of the south-western portions of North America, Mr. Gordon embarked again for the United States in the autumn of last year; and his first letter to me conveyed the informa-
tion that misfortunes still attended his wanderings, so that
he was detained at Mobile in Alabama much longer than
he could have wished. The circumstances are these, as de-
tailed in his letter from that place, dated December 23, 1844.

"I have to inform you that I have as yet proceeded no
further than Mobile, owing to causes which I am about to
explain. On leaving New York, I proceeded by way of
Philadelphia, and thence crossed the Alleghany mountains to
the head of the Ohio at Pittsburg, and descended that river
to its junction with the Mississippi, and was proceeding down
the latter noble stream to New Orleans, when our steam-boat,
the "Belle," a splendid new vessel, was run into at mid-
night, and sustained such injury that she sunk in a few
minutes. By great good fortune, I caught hold of a plank
which kept me above water, till I was picked up by the small
boat belonging to the vessel which had so damaged us, but I
lost everything except my shirt and trousers, and four dollars
that were in my pocket.

"This calamity has prevented me from prosecuting my in-
tended tour for the present; but ever since my arrival at
Mobile, I have been actively engaged in making a large col-
lection of such southern plants as I am certain will meet with
a ready market at New York, and as these will be despatched
at once, I may naturally look for payment by February, and
so be put into a position to pursue my route early in spring.
And I am really disposed to hope that little time is lost by
the delay, for whether I go, in the first place, to the Texian
Mountains; or, what now seems more probable, to Santa
Fè; in either case, I shall arrive soon enough for the spring
Flora. If I decide on the latter course, I shall join the
regular Traders at the City of St. Louis, and avail myself of
their protection to Santa Fè: they go annually, and therefore
no disappointment can be anticipated on that head.

"By an opportunity that now presents itself of forwarding
growing plants, I shall send you specimens of what appears
to me the Sarracenia Drummondi, which I understand you
have never seen in flower; along with two other species of
the genus, that do not seem to me accurately described. This neighbourhood is rather rich in plants, and if you desire to have any, and let me know at once, there will be ample time to collect and forward them in due season."

Mobile, April 17, 1845.

"I am honoured with your letter, dated February 10, and beg to thank you for the interest you are pleased to express in my affairs. In the first place, I have to inform you that the untoward circumstances and heavy loss sustained by me while descending the Mississippi, as mentioned in my last communication, have, notwithstanding my most strenuous efforts, compelled me to defer for a few months longer my tour to the mountains of Texas and Santa Fe, (for I purpose, if I live, visiting both.) Do not, I entreat you, consider me lukewarm in the matter, for it is with the greatest reluctance I submit to delay, even for that short period; but poverty is a powerful check-rein, and at present there is no alternative. I have, however, pleasure in informing you that two months ago, I took the superintendence of a gentleman's garden at Mobile, reserving to myself the privilege of dedicating what time I might find requisite to collecting plants, seeds, and specimens. I am perfectly aware that the Flora of this portion of America is too well known to promise much interest, at least in comparison with an untrodden region, but I shall strive to make the former subservient to enabling me eventually to explore the latter. And even here there is much variety and beauty among the plants; so that since I must stay till the end of the season, I shall be enabled to transmit you so large a collection for the sum you specify, as will give you entire satisfaction. Indeed, I should be sorry to restrict my exertions to mere payment; I shall feel pleasure in sending all I can.

"You speak of the practicability of forwarding the growing specimens, packed in Sphagnum, and I have had so much experience, and been always so successful, that there is no risk to be feared, especially as moss of that kind is abun-
dant and fine in the neighbourhood. A proper regard to the quantity of moisture is the only point that requires attention.

"Some of the genera you mention have not fallen under my observation hereabouts; *Trillium*, for instance; while others that are not named by you are abundant. I may instance the genus *Liatris*, great favourites of mine, and of which I can send you six or eight species. For the last few weeks, I have been enchanted with the profusion of *Gelsemium sempervirens* and *Pinguicula lutea*, the former hanging in rich festoons from almost every tree and shrub, and the latter presenting the eye with all the richness of a golden carpet. I think there is another and undescribed species here of *Pinguicula*; but all my books having been lost in our wreck, I cannot be positive; a *Sarracenia*, too, differing in many points from *S. purpurea*, to which, however, it is much allied.

"Perhaps I may be able to send some of the specimens by a ship from hence in the end of June: the seeds and growing plants will go in October or November.

"P.S.—Since writing the above, I have been to a distance of forty miles, to collect *Sarracenia Drummondi*. Only imagine a space of forty acres, or more, a dense mass of that splendid plant!"

It is impossible not to admire the ardour with which Mr. Gordon thus carries on his botanical investigations in North America; nor is this, we know, by any means the first time, that, when circumstances required it, he has hired himself out as a gardener for some months, or a year, thereby earning, with the sweat of his brow, the scanty means for prosecuting his favourite pursuit; and we trust that when his Alabama plants arrive, (and they may be expected about the commencement of the next year) purchasers will be found for them: thus enabling him to collect the more extensively and more successfully in the mountains of Texas and of North Mexico.
Mr. Heward, Young Street, Kensington, is authorized to receive names of any persons who desire to have plants or seeds, from the regions Mr. Gordon visits.

Heldreich's Oriental Plants.

Letters have been received from M. Boissier, giving an excellent account of Heldreich's herbizations during the present summer. He was lately in Cilicia, collecting on the flanks of Mount Taurus, "où jamais Botaniste n'a mis le pied." Thence he will proceed to the neighbourhood of Karan- man and Iconium. We earnestly recommend those who have not already sent in their names as subscribers, but who wish to possess sets of these valuable plants, to lose no time in doing so. This can be done, as stated at p. 41 of the present volume of the Journal, through M. Reuter, rue de Constance, n. 136, à Genève.

Mr. Ibbotson's Plants of the North of England.

If we have Botanists carrying on their pursuits in foreign regions, so we can boast of indefatigable and most meritorious collectors at home. Mr. H. Ibbotson, of Gruthorpe, near Whitwell, Yorkshire, has already announced* his intention of preparing this season, a number of sets of British Ferns, containing each 100 specimens, at the price of 5s. Also a number of packets of the rarer flowering plants of Yorkshire, especially the many interesting ones of Teesdale. Of these, 200 specimens are offered for 10s., and 500 for 20s. Specimens of Mosses, Hepaticae, and, like the Ferns and flowering plants, named and localized, are offered upon equally reasonable terms. We have seen collections formed by Mr. Ibbotson, and bear most willing testimony to the beauty of the specimens, and the care and accuracy with which they are named. Contrary to a general practice, Mr.

* See the cover of the last (August) month's Journal.
Ibbotson gives more specimens of the rarer species, and fewer or single samples, of the common kinds. He is indeed most worthy of encouragement by every lover of Botany. Among the "plantæ rariores" to be thus offered, are Carex paradoxa, Scheuchzeria palustris, Lysimachia thyrsiflora, Veronica triphyloph.

Mr. Gardiner's Scotch Plants.

Equally meritorious with Mr. Ibbotson is Mr. Gardiner, and equally indefatigable in collecting and offering upon the most moderate terms, the rare vegetable productions of Scotland, especially of that rich and classical district, the Clova mountains. We have more than once, in the pages of this Journal, called attention to these specimens; and we may add, that Mr. G. is still extending his researches in the interesting field, and has it in contemplation to publish, during the ensuing year, a second series of "Botanical Rambles in Braemar,"* and also a Flora of Forfarshire: which Flora he proposes to accompany and illustrate with a series of 200 species of the rarer and more peculiar plants of the district.

Bourgeaud's Plants of the Canaries.

It is, perhaps, not yet generally known, that M. Bourgeaud, a zealous Botanist of Savoy, is, under the auspices, and aided by the local knowledge of the Canary Islands possessed by Mr. Webb, gone to visit them with a view to collect the plants, of which we are glad to learn that a few sets will be made up for sale. Already some cases have arrived at Paris, and we shall be happy to be able to announce their distribution.

* See p. 208 of the present volume of this Journal.
Contributions to the Botany of South America. By John Miers, Esq., F.R.S. F.L.S.

(Continued from p. 371.)

The stem is almost 4-angular; the leaves are nearly amplexicaul at base, where they are fixed obliquely on the stem, the lower edge being decurrent; they taper gradually upwards, and are linearly acuminate, are about 1½ in. long, and 3 lin. broad at base; the younger ones are pubescent, but they soon become glabrous; the peduncle is compressed, 6-7 lin. in length, and together with the calyx is covered with long, soft pubescence; the calycine tube is turbinate, pentagonal, 4 lin. long, with five equal erect, triangular, acuminate lobes of equal length; the corolla is about the size of that of *S. paradoxa*, with a broad campanulate border of a blue colour. The nuts are scarcely as large as rape seeds, black, deeply foveolated with very sharp angles; on one receptacle I found 35 distinct nuts, all 1-celled.

5. *Sorema lanceolata* (n. sp.)—herbacea, prostrata, incanopubescens; caule subangulato; foliis geminis lanceolatis semiamplexicaulibus, basi oblique adnatis, hinc decurrentibus; floribus in axillis solitariis, speciosis, caeruleis.—Chile ad Coquimbo. *v. s. in herb. Hooker, (Cuming, n. 856.)*

The whole plant is furnished with incanous pubescence; the younger leaves, peduncles and stems, are ciliated and covered with very thick articulate hairs; the leaves are somewhat spathulate, lanceolate, oblique at base, and decurrent on the stem, as in the former species, they are 1½ in. long, 4-6 lin. broad; the peduncle is compressed, 1½ in. long; the calyx is campanulate, 5-angled, 6 lin. long; the teeth being half that length, and lanceolate; the corolla is 1½ in. long, and much resembles that of *S. paradoxa*.

6. *Sorema longifolia*. Alona longifolia *Lindl. loc. cit.*—herbacea, prostrata; caule crasso; foliis geminis, linearilanceolatis, subspathulatis, alato-petiolatis in caulem hinc
decurrentibus, parce et molliter pubescentibus; floribus speciosis solitariis, axillaribus, cæruleis.—Chile ad Coquimbo v. s. in herb. Hooker, (Cuming. n. 887).

This is evidently a succulent prostrate plant, with a fleshy stem 3 lin. in diameter, and with axils 1 in. apart; the leaves are 3 in. long, \( \frac{1}{6} \) in. broad, spatulate and decurrent; the pedicel is 1\( \frac{1}{4} \) in. long; the calyx is altogether 9 lin. long, the linear segments measuring 5 lin.; the corolla is 1\( \frac{3}{4} \) in. long, with a broad campanular blue border as in \( S. \) paradoxa. Doctor Lindley mentions having found in one receptacle 7 drupes, viz: 1-4-celled, and 6-1-celled, in all ten cells: in the one I examined I found 4 nuts, each 6-celled, 1-3-celled, and 8-1-celled, in all 13 nuts, with 35 cells; it is worthy of remark that all the seeds do not produce a perfect embryo.

7. Sorema linearis (n. sp.):—herbacea, glandulosö-pilosa, demum subglabra; ramulis angulatis; foliis linearibus, obtusis, hinc decurrentibus; floribus solitariis, axillaribus.—Chile ad Conceptionem. v. s. in herb. Hooker. (Bridges, n. 1323).

This is probably a procumbent plant; the younger leaves are covered with dense glandular tomentum; they are decurrent on the stem as in the preceding species, 1\( \frac{1}{2} \) in. long, 2-2\( \frac{1}{2} \) lin. broad; the peduncle is \( \frac{1}{4} \) to \( \frac{3}{4} \) in. long; the calyx is short, 5-angular, with lanceolate segments, altogether 5 lin. long, and covered with soft pubescence; the corolla is of the same shape, but smaller than that of \( S. \) paradoxa, and in the dried state is of a yellow colour. In one case, I found 2 of the nuts 3-celled, 3-2-celled, 15-1-celled, in all 6 nuts with 27 cells; in another instance I observed 1-4-celled, 1-3-celled, 3-2-celled, and 5-1-celled, in all 10 nuts with 18 cells.

From the above details it may be inferred that as the nuts differ so constantly in their number, and as in each nut the number of cells is so uncertain, differing even in the same plant, this feature can no longer be considered a good generic character. I have examined the plants above described, with much attention, and cannot perceive any mark to distinguish Alona from Sorema, except that in the former the
species are all erect plants with woody stems, and fasciculate, terete, or 3-gonous leaves, while those of the latter are herbaceous, prostrate plants, with geminate broad, fleshy leaves, which in every case appear decurrent on the stem. I have had no opportunity of examining more than one out of the 5 species of *Nolana* enumerated by Dr. Lindley, and that has not enabled me to appreciate the distinction between that genus, *Sorema*, and *Alona*. In *Nolana* the species are all succulent prostrate plants, mostly with geminate leaves, which are both petiolated, and are not decurrent on the stem, as in *Sorema*; in all the 3 genera the flowers closely resemble each other; in *Nolana tenella*, Lindl., I found 5 nuts, which were either 1-3-4 or 5-celled; if no difference then can be detected in the flower or the seeds, habit alone remains to draw a line of distinction between them, and a question arises whether habit alone will be considered sufficient to separate these plants into 3 genera. Should they all verge into *Nolana*, this genus might then with propriety be divided into 3 sections:—1. *Eunolana*, comprising the 5 species alluded to; 2. *Sorema*, containing the 7 species above enumerated; and 3. *Alona*, embracing 8 species, viz: 1. *A. celestis*, 2. *A. rostrata*, 3. *A. obtusa*, 4. *A. glandulosa*, 5. *A. carnosa*, and 6. *A. baccata* of Dr. Lindley, together with two new species described below. It is to be hoped that some Botanist, possessing the means of examining these plants, if possible in the living state, will observe whether any tangible and constant characters exist between them, or whether from the similarity of their structure, they should all become referrible to *Nolana* as above suggested; but in the mean time it is not unfair to presume, from the indications alluded to, that some good generic differences may yet be discovered, when the plants have been more carefully examined.

7. *Alona ericifoia* (n. sp.):—fruticuloso, glandulosopubescent, ramulis sub-dichotomis; foliis fasciculatis conhertis linearibus, margine revolutis et tunc teretibus; floribus speciosis caeruleis; calyce tomentoso, tubo 5-gono, lobis
erectis, lineari-acuminatis; corollae limbo ampolo campanulato; nucibus paucis, magnis, baccatis, plurilocularibus.—Chile ad Conceptionem. v. s. in herb. Hooker. (Bridges, n. 1325).

This is apparently a low-growing suffrutescent branching plant, distinguished by its numerous close fascicles of narrow linear leaves, which are about \(\frac{1}{4}\) in. long. and \(\frac{1}{2}\) a lin. wide, somewhat broader towards the apex, the margins being rolled back on the mid-rib, so as to assume a perfectly terete form, they are covered with dense short, glandular tomentum. The flowers are about the size and shape of those of Sorema paradoxa. The calyx is funnel-shaped, about \(\frac{1}{4}\) inch long. the acuminate lobes being about one third of its length, and somewhat curved outwards, as in A. caelestis, and A. rostrata.

8. Alona microphylla (n. sp.):—fruticulosa, ramulis tortuosis nodosis; foliis parvis, fasciculatis, confleris, sathulato-oblongis, carnosulis, viscidulo-pubescentibus; floribus solitariis, mediocribus, calyce campanulato, ad medium 5-partito, lobis late triangularibus, pubescenti, pilis glandulosis, alissaque articulatis; corolla pubescenti, limbo ampolo campanulato, staminibus styloque exsertis.—Chile ad Conceptionem. v. s. in herb. Hooker. (Bridges, n. 1380).

This is another low growing suffrutescent species, with very much the habit of some of the small-leaved Lyciums. The stem and lower portion of the branchlets are tortuous, bare, and knotty; the leaves are close, about 3 lin. long, \(\frac{1}{4}\) to 1 lin. broad, spathulate, nerveless, fleshy, and covered with short, viscid, glandular hairs. The peduncles are ciliate, \(\frac{1}{4}\) in. long; the tube of the calyx is 2 lines in length, as well as in diameter, having 5 equal, broad, triangular, erect lobes, 2 lin. long; the corolla is 1 in. long, broadly campanulate, with 5 rounded lobes.

Since the former part of these remarks upon the genus Sorema was printed, I have seen in a living state a cultivated species that corresponds with the Nolana atriplicifolia of
Sweet, *loc. cit.*, which appears to me only a more luxuriant form of *Sorema paradoxa*: I consider, therefore, the two species to be identical, and the stated place of the origin of the former (Peru), to have been mistaken for that of Chile.

**Dolia, Lindl.**

This genus was proposed by Prof. Lindley for a plant brought by Mr. Cuming from Chile, and which I obtained many years ago from Dr. Miller, of H.M.S. Dublin, who collected it in Concepcion. Although unquestionably belonging to *Nolaneae*, it has more the habit and inflorescence of a *Fabiana*, from the flower of which it is scarcely distinguishable. The following is offered as a more extended generic character than that given by its distinguished author.


**Fruticuli** Chilenses, *erecti*, *ramosissimi*; *ramulis* brevibus *flexuosis*, interdum *cottoneo-floccosis*; *foliis* *fasciculatis*, *minimis*, *spathulatis*, carnosulis, pilosis; *floribus parvis*, *solitariis*, *terminalibus*, *v. axillaribus*.

This is an erect low-growing shrub, with slender woody stems, and numerous short flexuose branchlets, which are densely covered with long white cottony hairs; the leaves are fasciculated, linear, spatulate with fleshy rounded summits, pubescent, scarcely 1 line in length; the flowers are terminal, solitary, and erect, hardly more than ½ inch long, and 1¼-2 lines diam.; the calyx is 1½ line long; 5 to 8 small drupes become matured in each calyx, in the specimen I examined I found 6, of which one was 2-celled, and five were 1-celled, with a single seed in each cell; the nuts are ovoid, rounded, somewhat angular, the basal point of attachment being small, and the opening into each cell marked by a round scar or areola, as in Sorema.*

2. **Dolia salsioides**, Lindl.—ramis calvis junioribus pubere brevissima sparsis; foliis fasciculatis linearibus fere glabris, calycis dentibus linearibus, obtusis, subpubescentibus, tubo corollae fere aequalibus.—Chile. *(Macrae)*.

The leaves of this species are 4 lines long, ¼ line broad, slightly ciliated, or exhibiting under a lens a few scattered articulated hairs; the peduncle is about the length of the leaves; the calyx is about 3 lines long, divided half way down into 5 segments, which are linear, obtuse, fleshy, and sparsely covered with short pubescence; the corolla is about 4 lines long.

3. **Dolia clavata** (n. sp.).—omnino calva; foliis fasciculatis, carnosulis, lineari-spataulatis, imo pulvinatis; calycis dentibus linearibus, obtusis, tubo corollae dimidio brevioribus; staminibus exsertis, filamentis basi sericeis.—Chile ad Conceptionem. *v. s. in herb. Hooker. (Bridges, n. 1324.)*

This species has much the aspect of the last, but the leaves are broader, spatulate and rounded, 3 lines long, and 1 line wide, they are quite glabrous and fleshy; the peduncle is of the same length as the leaves; the calyx about 2 lines long, is divided halfway down, its segments being linear, obtuse,
and somewhat thickened at the apex; the corolla is about 6 lines long, with oblong reflected segments, the stamens being exserted, the filaments arising about the middle of the tube, from as many dense velvety tufts, above which they are glabrous, as is likewise the style; the ten ovaries are arranged in 2 series on a conical receptacle, the margin of the surrounding disk being erect and obsoletely lobed.


The above specimen is small, apparently a portion of an erect low-growing shrubby plant. The leaves are barely \( \frac{1}{2} \) an inch long and half a line broad, covered with dense grey tomentum: the peduncle is scarcely 2 lines long; the calyx is small, only \( 1\frac{1}{2} \) to 2 lines in length, with triangular erect teeth; the corolla, about 8 lines long, is very slender at base, spreading above in a bell-shaped tube, with a 5-lobed margin. The seeds are black, shining, rounded, covered with rugous prominences: on one receptacle I observed 1 of the nuts to be 6-celled, 1-4-celled, 1-3-celled, 2-1-celled, in all 5 nuts with 15 cells.


This specimen, or rather fragment of one, was sent from Peru by Mathews, where he states it to have been obtained out of a collection made by Ruiz and Pavon, then existing in Lima. It has quite the habit of the species above described, but the axils are nearly an inch apart, the leaves in pairs, being \( \frac{1}{2} \) in. long, and barely a line in width, they are tomentous and fleshy; the flowers are solitary in each axil, the peduncle is only 1 line, and the calyx, deeply cleft into 5
linear acute segments, is scarcely more than a line in length. The tube of the corolla, which is slender below, swells considerably above.

**Alibrexia.**

Under this name I propose a new genus for a prostrate plant that I found growing upon the rocks in the Caleta of Conceon in Chile, in the year 1823, where it was constantly exposed to the spray of the sea, whence its name, from αλιβρέξιος, mare madefacio. It differs from *Nolana* and *Sorema* by having 10 carpels supported upon a distinctly stipitate disc quite free from the calyx, by a more tubular corolla with a border cleft to the base into 5 very small rounded reflexed lobes as in *Dolia*, and by its drupes with rounded oval nuts umbilicate at base, the perforation not being wholly filled up by a woody operculum or strophiole-like process, and by the constant adhesion of this process to the testa. It differs from *Nolana* and *Alona*, in having a somewhat fleshy corolla, with a small 5-lobed border, not one that is broad, deep and campanular. From *Dolia* it is distinguished by its herbaceous, fleshy and prostrate habit, not being suffruticose with a decidedly woody erect stem: by its stamens arising from the base of the corolla, not simply fixed in the middle of the tube: by its calyx being cleft nearly to the base, by the greater number of its ovaries, by its nuts being quite rounded, and narrowed at base to a slight ring around the areolar cicatrice. It differs from *Aplocarya* (a genus hardly distinct from *Dolia*) in the want of the very conspicuous, large, cicatrized base of its drupes, to which a portion of the withered receptacle and disc often remains attached, in having 10 distinct ovaries, and a more infundibuliform and less hypocrateriform corolla, and by its stamens not being exserted. It differs from all others by its ramified and stellate, not simply articulate pubescence. As in *Dolia* and *Aplocarya*, the tube of the corolla is quite free, both from the fleshy disc and the calyx, but in *Alibrexia* it falls off by a horizontal line parallel with the disc, leaving it surrounded

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by a hollow cup. The following is the outline of its generic character.


Plantæ *suffruticulosa*e Chilenses, *prostratae*, *succosæ*, in *saxis* mare adspersis incola; caulibus *ramosis*; basi *subligneis*, ramulis *succosis*; foliis *alternis*, *sub-confertis*, *linearis*-*spathulatis*, *carnosis*, *velutino-tomentosis*, pilis *ramoso-articulatis*, vel *stellatis*; floribus *parvis*, *axillaribus*, *pedunculatis*.

1. **Alibrexia rupicola**—prostrata; foliis lineari-*spathulatis*, *confertis*, tomentosis: floribus solitariis, *axillaris*, pedunculo calyceque utrinque tomentoso, calycis lacinis linearibus, corolla parce pubescenti, violascenti-albida.—Chile, ad Concon.

The plant spreads itself in a dense mass upon the surface of the rock to which it is attached, is frequently washed by the surf, and constantly exposed to the spray of the sea. The leaves are small, linear, spathulate, with a rounded apex,
fleshy, and covered on both sides with dense, short, dark grey
tomentum: they are about 8 lines long, and barely a line in
width: they are attached to the stem by a small glabrous
pulvinate gland: the peduncle is slender, half an inch long;
the calyx is 2 lines long, cleft nearly to the base, with narrow
linear segments tapering upwards, it is tomentous both
within and without. The corolla is barely half an inch long,
slender within the calyx, it swells above in a somewhat
campanular form, is of a pale lilac colour, somewhat fleshy,
and slightly pubescent outside; the border is narrow, and
divided to its base into 5 short, rounded, reflected lobes,
having at the apex a minute toothlet: the stamens are
wholly included, and are somewhat unequal in length, the
filaments slender, tapering, and glabrous, arise out of dense
hairy tufts in the base of the corolla. The disc is distinctly
stipitate, cup-shaped, and quite free both from the corolla
and calyx, its border nearly erect, is formed of 5 confluent
lobes, with a margin divided into 10 distinct crenatures; the
gynobase arises in a conical form within the centre of this
cup, the intermediate cavity being filled by the carpels which
are arranged in 2 series, and are attached by a ventral, and
almost basal point to the gynobase: from the centre of this
arises the style, which is columnar, 5-grooved, glabrous, and
surmounted by a 5-lobed, hollow, clavate stigma. The
drupes are small and fleshy, enclosing an ovoid rounded nut,
which is of a more woody texture than most of its congeners:
this is usually 1-celled, sometimes 2-celled, the base of each
cell being marked by an areolar cicatrix, which is partly
hollow, the bottom of the cavity being filled up by the stro-
phiole-like process that remains attached to the testa of the
included seed. The testa, smooth, somewhat membrana-
ceous, and of reticular texture, encloses the albumen, which
is fleshy, and not very copious: in this is imbedded the fili-
form embryo, whose semiterete cotyledons are bent round in
a nearly circular form, while the terete radicle, which is only
slightly curved, and somewhat thickened towards its extre-
mity, terminates at a point close to the attachment of the process before mentioned.*


This species also grows on maritime rocks, and is distinguished by its longer, broader (in proportion to their length) and more incanous leaves, by its corolla not quite so fleshy and whiter. The leaves are sometimes 13 lines long, and nearly 2 lines broad, densely covered with short white branching almost stellate hairs, the base of the petiole is enlarged, and adheres to the stem by a concave pulvinate gland, which is almost glabrous, and much more conspicuous than in the last mentioned species: the calyx is covered, within and without, by a dense orange coloured tomentum, and its lobes are broader and more triangular.


This plant grows on the sandy beach at Lurin in the harbour of Callao, and also in the province of Camana, whence it was sent to Ruiz and Pavon by Tafalla, together with the drawing above cited, which affords a very imperfect representation of the flower: it is quite prostrate, with many short, slender, radiant branchlets which are woody towards the base, fleshy towards the extremity: the leaves are about 1 or 1½ inch long, and about two lines broad, the peduncle is

* A representation of this plant with full details is shown in Plate 12 of the Illustrations of South American Plants.
about ½ in. long; the calyx is campanular about 4 lines long with 5 equal, 3-angular lobes; the corolla is tubular below, somewhat swollen at base around the disc, above it swells into a somewhat campanular form, with 5 short revolute lobes, it is about an inch long, of a bluish violet colour, pubescent and apparently not marked with the radiate nervures so conspicuous in Nolana and Sorema. The contracted portion of the tube of the corolla is pubescent within, whence the stamens arise, the filaments are dilated, tapering upwards, smooth, and unequal, the anthers are oval, bluish, and included within the mouth: the style is of equal length. The disc has a 10-lobed border, and supports 8 to 12 ovaria. The drupes are fleshy, and vary in size. I found in one case five nuts, each 3-celled, and seven 1-celled—in all twelve nuts with 22 cells: in another instance, I observed three nuts each 4-celled, two 3-celled, one 2-celled, and two 1-celled, in all eight nuts with 22 cells. The whole plant is densely covered with short greyish tomentum, the hairs of which, when magnified, appear sometimes articulate, but most generally stellate and stipitate, a form of pubescence peculiar to this genus. I confess, however, that I feel some hesitation in referring this plant here, as its corolla more nearly approaches that of Sorema and Alona in size and colour, but in its general aspect, peculiar habit, the size and shape of its leaves densely covered with remarkable tomentum, as well as in the form of its nuts, it greatly resembles the two preceding species.

Grabowskya.

This genus was founded by Prof. Schlechtendahl (Linn. 7. 72) upon the Ekretia halimifolia of L’Heretier (Stirp. p. 45. tab. 23). By Linnaeus and succeeding Botanists, it was assigned to Lycium, without doubt on account of the similarity of its flowers and habit to that genus. Schlechtendahl, for the same reasons, preserved his new genus Grabowskya among Solanaceae, but Nees von Esenbeck restored it to Ekretiaceae, because of its unilocular 4-celled ovarium, be-
coming a nut, a character much at variance with the bilocular ovarium with its many seeded placentaion on the dissipe-
ment, which is the constant attribute of Solanaceae. Dr.
Arnott (Linn. 11. 484) who added 2 new species, supported
the views of Schlechtendahl in assigning it a place among
Solanaceae, on account of its curved embryo, a view also
maintained by Doctor Lindley, who figured a species in the
Botanical Register tab. 1985, under the name of G. Boer-
haavifolium, which I have designated under that of G. Lindleyi.
Finally, however, Prof. Endlicher in his Genera Plantarum,
No. 3745 has again placed it in the albuminous section of
Ehretiaceae, a disposition that can hardly be supported, when
it is remembered that these have an embryo, either straight,
or but slightly curved, broad foliaceous cotyledons, and a
small superior radicle, and that they all possess moreover
a totally dissimilar habit; Grabowskya, on the other hand,
has a long, slender, filamentous, and cyclical embryo, with
semiterete cotyledons, as long as, and even more slender than
the radicle, which points to the base. My own observations
lead me to differ somewhat from the views of these distin-
guished Botanists, and to consider it, as stated in p. 367, rather
as forming a subtribe of Nolanaceae, the reasons for which
will presently be shown.

Having examined both G. duplicata and G. obtusa in my
last journey across the Cordillera in 1825, I offer the follow-
ing as an amended character of this genus.

Grabowskya Schlect.—Calyx parvus campanulatus, nunc
5-partitus, nunc subinteger, margine mucronibus 5 subu-
latis extus instructus. Corolla hypogyna, infundibuliform-
is, limbo 5-partito, laciniiis patenti-reflexis, aestivatione
imbricatis. Stamina 5, prope corollae basin inserta, exserta,
filamentis gracilibus, basi villosis, antheris ovatis, bilobis,
basi divaricatis, dorso affixis, longitudine dehiscentibus.
Ovaria 2, adnata, e disco carnosae orta, obovata, singulo
2-loculare, ovulis in loculis solitariis, erectis, angulo interno
basali affixis. Stylus simplex. Stigma clavatum, com-
pressum, sub-bilobum. Drupa baccata, calyce parum aucto
suffulta, 2-pyrena, pyrenis osseis, 2-locularibus, loculis 1-
spermis, basi perforatis. Semina oblongo-obovata, com-
pressa, facie subplana, dorso convexa, testa imo in stro-
phiolam carnosam aucta, apertura basali pertensa. Embryo
filiformis, intra albumen carnosam cyclicus, radicula tereti
ad hilum spectante, subrecta, cotyledonibus semiteretibus,
arcuatis.

Frutices Andicoli vel Bonariensis ramosissimi, spinis axilla-
ribus alternis, Lycii habitu: folia alterna, solitaria, vel
gemina, aut fasciculata, petiolata: flores pedunculati, soli-
tarii vel parce racemosi, aut axillis approximatis paniculam
terminalem simulantes.

1. Grabowsky a Boerhaavifolium Schlect. loc. cit. Ehretia
halimifolia L’Herit. loc. cit. Lycium Boerhaavifolium,
Linn. (non Lindl.) Lycium heterophyllum Murray, in
Comment. Gott. 6. tab. 2.—foliis alternis, petiolatis, utrin-
que attenuatis, petiolo gracili: panicula corymbosa ter-
minali ex ultimis turionibus, pedicellis imo bracteatis,
bractea parva lineari acuta: calyce 5-partito, laciniiis
subulatis, simplicibus, acutis.—Peruvia, v. s. in herb.
Hooker.

This character is drawn from the description of L’Heritier,
which I have compared with a specimen in the herbarium of
Sir W. Hooker.

3841: Ehretia duplicata, Nees ab Esenb.—foliis longe pe-
tiolatis, orbiculari-ovovatis, basi cuneatim attenuatis, apice
acutae ac breviter acuminatis, calyce campanulato, ore
subintegro, membranaceo, mucronibus 5, subulatis, infra
marginem extus notato, maturescenti fructu parum aucto,
tunc dentibus quasi biserialibus, interiori obtuso, exteriori
subulato crasso, multoties longiori.—Esquena de Medrano,
Provincie Cordovensis (a Bonaria 400 m. p. intervalllo) mihi
decta: Bonaria (Gillies et Tweedie).

This species has been very faithfully delineated by Sir W.
Hooker as above cited, and is remarkable for the peculiar
form of its calyx.

In the form of its calyx and general appearance, this nearly approaches the original species. It is a low growing shrub, with very spinous flexuose branches almost denuded of leaves, the stems being round, smooth, and pallid: the spines generally longer than the internodes are evidently young abortive branchlets, for they often bear leaves, and most frequently flowers, sometimes lengthening and becoming flexuose and prickly: they grow out above the petiolar insertion of each leaf, and there appears on either side of every spine, a young branch, bearing copious alternate leaves; these mostly soon die away, leaving cicatrices on both sides. The leaves are alternate, oblong, almost orbicular at the apex, where there is a slight mucro, they are cuneate at base, terminating in a slender petiole, entire on the margin, and of a pallid glaucous green on both sides. The calyx is tubular, campanulate, somewhat 5-angled at base, the border is divided into 5 short, obtusely angular, erect, very fleshy teeth. The corolla is of a lurid white colour, quite glabrous outside, the tube is slender at base, gradually swelling above, the border is divided into 5 rounded, obovate segments, which overlap in aestivation: inside it is smooth at base, but from one fourth of its length, where the stamens are inserted, to a little below the mouth, it is covered with white woolly pubescence. The stamens rise above the mouth half the length of the tube, the filaments are slender, glabrous above, but in the lower half within the tube, they are very pubescent: the anthers are divaricate at base, and apiculate at the summit. The ovarium is small, obovate, green, smooth, 4-locular, but at a very early period, the existence of 2 distinct bilocular carpels is manifested, a single erect ovule arising
from the base of each cell. The style is erect, simple, somewhat shorter than the stamens. The stigma is clavate, green, with 2 compressed rugose lips. The fruit is a berry with very little pulp, inclosing 2 hard obovate nuts, flat within, rounded outside, each having at the base 2 distinct apertures, which on the inner side extend some way upwards, outside they are separated by a short spine; in this aperture may be seen the strophiole of the seed, by which it receives its nourishment from the fleshy support of the nut: the testa is of a dark green hue, oblong, compressed, smooth, tapering below, exhibiting on the inner flattened side, the before-mentioned protuberant prolongation of the testa: the endopleura is a very thin membrane covering a hard fleshy albumen which encloses the embryo: this is amphitropical and filiform; the radicle which points to the base is terete, a little swollen below; the cotyledons are incumbent, sharply curved at their origin, becoming somewhat straight towards the extremity which closely approaches the end of the radicle.


This appears to be a more bushy, and far less spiny species than any of the others, the foliage seems dense, the leaves more elliptic, and the purplish flowers few in each axil, while in the Peruvian species, with which it has been confounded, the flowers are white, and crowded in almost terminal coryms.

Dr. Walpers (Repert. Bot. Syst. 3. 113) adds 2 other species, but there appears no reason for placing the first (G. disticha. Meyen.) in this genus, since the fruit is unknown, and its characters agree quite as well with Lycium. The other (G. Meyeniana Nees. Atropa spinosa, Meyen.) is the plant I have described under the name of Lyciopseum Meyenianum (ante p. 332.) I am not acquainted with the
Triguiera of Cav. which may probably belong to this tribe.

The evidence given above, in regard to the carpological character of Grabowskya, taken into consideration with what I have advanced on a former occasion respecting Nolaneae (p. 367), renders it clear that this genus cannot appertain either to Borraginæ, or to Nolanea, although it is to this order that it bears the greatest affinity, its position being manifestly between them; with the tribe Borragæa it agrees in the gynobasic origin of its ovaria, and in having a fruit with 2 bilocular nuts, and in the adhesion of the style to the axis of the adnate ovaria, but the form and position of the embryo in copious albumen, independent of its glabrous and totally different habit, forbids any positive connexion with it. On the other hand, the difference between it and Nolanea is not great: it agrees with them in the form and position of the embryo enveloped in albumen, in its 2-locular nuts, which that tribe often possesses, but it differs in the small and regular number of its ovaria, which in Nolaneae are constantly more numerous, always distinct, and never confluent with the style as in Grabowskya; the aestivation of the corolla is also deeply plicate in the one, and imbricate in the other; it agrees, however, as before shown, both with some genera of Borragæae, and all Nolaneææ, in having the cells of its nuts perforated at base, through which a strophiole subtends that connects the testa immediately with the gynobasic disc that supports the ovaria. Upon the whole it appears to offer the closest alliance to Nolaneææ, which order I therefore propose dividing into 2 distinct subtribes, viz:—

Nolaneææ.


Thus it is seen that Grabowskyae stand in relation to Nolaneae, in the same position that Dichondreae do to Convolvuleae, and although the former, in respect to Solaneae, are placed at the two extreme points of the class Tubulifloreae Endl., it cannot be denied that these Orders offer many analogies common to each other, for Grabowskya has quite the habit and inflorescence of Lycium, and Nolana is not very dissimilar in habit from Physalis, and other Solanaceous plants; still the carpological characters of the Nolaneae seems so very distinct, verging evidently towards Ehretiacae, that there appears to me ample reason for justifying the arrangement above proposed, which also offers the advantage of conciliating the very opposite views of our most distinguished Botanists in regard to these plants.

(To be continued.) 5. /411

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Note sur la Fleur des Narcissus, par Louis Cagnat.

Sans rechercher à quel verticille elle appartient, les Botanistes ont appelé couronne, l'espèce de coupe que présentent les fleurs des Narcissus. Cependant il n'est pas seulement nécessaire d'indiquer la forme d'un organe, il faut encore s'attacher à reconnaître quelle est sa nature et à quel ordre de pièces il doit être rapporté. C'est ce qu'a fait M. Auguste de St. Hilaire pour la partie dont il s'agit; encouragé et aidé par lui-même, je vais hasarder quelques observations sur l'opinion qu'il a émise.

Avant de nous occuper de la couronne des Narcissus, je crois qu'il est bon de dire quelque mots sur les verticilles floraux de ces plantes et de celles qui sont analogues. L'auteur de la Morphologie végétale pense avec raison que, comme chez les vraies Liliacées, les Asparagées, etc. l'enveloppe
florale des *Narcissus* est formée par deux verticilles de trois pièces chacun, que les six étamines sont le résultat du dédoublement des six pétales, et que par conséquent il n'y a pas dans ces plantes de verticille staminal véritable.

Quand à la couronne des *Narcissus*, le même savant croit qu'elle est, comme la première enveloppe florale, composée de deux verticilles très-rapprochés et soudés intimement, comprenant chacun trois parties ; et qu'elle résulte d'une multiplication. "En effet," dit-il, à peu-près, "la multiplication naturelle entraîne nécessairement l'alternance ; or, puisque, dans ceux des Narcisses dont la couronne est à six lobes, nous voyons ceux-ci alternes avec les six pétales, il est probable qu'elle provient d'une multiplication." Il est très-vrai que la multiplication naturelle amène constamment l'alternance, comme le prouve le *Magnolia Yulan* ; mais je ferai observer que, dans une fleur où il aurait quatre verticilles dont deux résulteraient d'une multiplication naturelle, les parties du troisième verticille seraient opposées à celles du premier, et les pièces du quatrième au second verticille ; en conséquence, si la couronne des *Narcissus* était, comme le pense M. Aug. de St. Hilaire, composée de deux verticilles provenant d'une multiplication naturelle, nous aurions, non pas l'alternance des lobes de la couronne avec les parties de l'enveloppe extérieure, comme cela a réellement lieu dans les Narcisses à couronne lobée, tel que le *Narcissus odoratus* ; mais leur opposition. Pour me faire mieux comprendre, je vais indiquer par des lignes quelle serait la position respective des verticilles de la fleur des Narcissus, dans le cas où la couronne serait formée par deux verticilles de trois pièces chacun.

* * * 1er. verticille extérieur.

* * * 2ème. verticille.

* * * 1er. verticille de la couronne opposé au 1er. verticille extérieur, alterne avec le second.

* * * 2ème. verticille de la couronne opposé au second verticille extérieur et alterne avec le 1er. verticille de la couronne.
On doit sentir que, si la couronne était composée de deux verticilles ainsi placés, rapprochés dans un même cercle et soudés ensemble, on ne s’apercevrait plus que de l’opposition, puisque les pièces du quatrième verticille rempliraient les espaces compris entre celles du troisième. Mais nous avons en réalité comme je l’ai dit une parfaite alternance; donc, je le repète, la couronne des Narcissus n’est point le résultat d’une multiplication.

Dans les fleurs doubles, nous trouvons la première enveloppe florale, adhérante à une couronne facile à reconnaître à sa forme et à sa couleur; puis nous voyons plusieurs verticilles dont les pièces soudées seulement par leur bords, présentent intérieurement aussi chacun sa couronne, plus ou moins bien formée, plus ou moins distincte; et ainsi nous avons une alternative d’enveloppes et de couronnes superposées, d’où il est impossible de ne pas conclure que de chaque enveloppe dépend une couronne. Enfin au centre de la fleur nous remarquons avec plus ou moins de clarté, des pétales isolés et des étamines semi-metamorphosées qui ont à leur face une petite languette; ce qui achève de démontrer l’intime relation des enveloppes florales avec la couronne; et par conséquent celle-ci ne résulte point d’une multiplication, mais d’un dédoublement.

Ce que a dû nécessairement me confirmer dans cette opinion, c’est que j’ai trouvé une fleur simple de Narcissus dans laquelle il n’y avait de complet que le verticille intérieur formé de trois pièces ayant une couronne à trois lobes; tandis que du verticille extérieur, il n’était resté qu’un pétales complètement isolé, parfaitement libre depuis l’ovaire, et qui présentait au sommet de son onglet, une languette ayant la même consistance, la même couleur que la couronne du verticille intérieur et parfaitement analogue à celle des pétales isolées que l’on voit dans les fleurs doubles. Il est impossible, ce me semble, de ne pas sentir l’intime relation de cette languette avec le pétales qui la supporte, et par conséquent la couronne, comme je l’ai dit, ne peut que provenir
d’un dédoublement petaloïde* analogue à celui qui a lieu dans les pétales des *Nerium* et des *Silene*.

Mais, peut on objecter, quand ils existent, les lobes de la couronne des *Narcissus* ne sont point opposés mais alternes avec les divisions de l’enveloppe florale. Cela doit tenir à ce que chaque dédoublement petaloïde, aura été originairement divisé en deux lobes commes les pétales du *Primula officinalis*, et que chaque lobe se sera intimement soudé avec un des deux lobes du dédoublement le plus voisin, comme si dans *Draba verna*, par exemple, où les pétales sont partagés en deux divisions, chacune s’unissait intimement avec la division contigue du pétale le plus rapproché.

Il y a plus; l’enveloppe florale des *Narcissus* étant formée par deux verticilles soudés l’un avec l’autre, les lobes que présente la couronne doivent appartenir par moitié aux deux verticilles; une moitié d’un lobe doit appartenir au dédoublement petaloïde du verticille extérieur, et l’autre moitié au dédoublement du verticille intérieur. C’est ainsi que l’androphore en apparence simple des *Oxalis* appartient à deux verticilles; ou si l’on veut, c’est ainsi que les pièces du calice quinquuncial des *Œeilles* véritablement en spirale, sont cependant soudées à leur base en seul tube.

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* L’idée de la théorie du dédoublement conçue par M. Dunal, a été publiée par M. Moquin très-junue encore; longuement développée par moi dans la “*Morphologie végétale*,” et confirmée récemment par M. A. de Jussieu. Quand, à la place où symétriquement nous ne devons avoir qu’un organe, il s’en trouve plusieurs, nous devons dire qu’il y a dédoublement. La multiplication repète les verticilles et entraîne l’alternance, le dédoublement repète l’organe isolé. Dans une fleur complète, l’opposition est toujours le résultat du dédoublement. Je vais donner un exemple du dédoublement. Chez les *Samolus*, après la corolle alterne avec le calice, nous trouvons un verticille de filets stériles alternes avec la corolle; c’est là le véritable verticille staminal réduit aux filets; quand aux éta- mines que nous trouvons opposées aux pièces de la corolle, elles en sont le dédoublement. Ce peu de mots suffira pour répondre à ce que dit sur ce sujet le savant auteur d’un Mémoire sur les Primulacées.—Note de M. Auguste de St. Hilaire.
Description d'un nouveau genre de la famille des Diosmées, par J. E. Planchon, docteur-ès-sciences.

(TAB. XVII. XVIII.)

Rabelaisia.


Sapor foliorum amaricans et calidus. Glandulae foliorum subepidermide prominentes, aliis majoribus cum minutissimis crebrioribus intermixtis.

1. Rabelaisia Philippinensis; foliiis 8-10 pollicaribus basi acutis, petiolo apice conspicue incrassato. In Insulis Philippin. legit Cuming. (Cuming, exsicc. in herb. Hook. n. 1501, 1512 (specim. masc.) et n. 501 (specim. fem.)

2. Rabelaisia parvifolia; foliiis 2-3-pollicaribus basi atte-
nuata subrotundatis, petiolis gracilibus apice vix sensim incrassatis.

Hab. ad Fretum Bouton. (Vidi specim. foemineum, imperfectum, sed absque dubio praece ndenti congener, a cl. Webb communicatum).

En consacrant un genre à la mémoire du célèbre auteur de Pantagruel, j'ai à peine besoin de rappeler un passage de son livre où l'idée burlesque du mot Pantagruelion amène un remarquable digression sur l'origine des noms des plantes. J'avais songé à rendre à l'ami de Rondelet, cet hommage un peu tardif, lorsque Mr. Brown m'a fait remarquer dans la Théorie Élémentaire de De Candolle la citation du morceau dont j'ai parlé, et l'intention qu'avait l'illustre professeur de Genève, de dédier un genre à son auteur.

Ce genre appartient évidemment à la famille des Diosmées, renfermant les Diosmées propres et les Zanthoxyllées de plusieurs auteurs. Il paraît être voisin de l'Ecodia, genre qui a des fleurs polygames et non hermaphrodites, et sur lequel j'aurai occasion de revenir dans une revue des groupes qui formaient les Rutacées de L. de Jussieu. Je renvoie à ce travail dont les matériaux sont déjà prêts, la discussion des affinités du Rabelaisia et d'autres genres. Je ferai pourtant observer la ressemblance frappante d'aspect, qu'il présente avec le Soutamea (Cardiophora ! Benth.), genre qu'on a regardé jusqu'ici comme une Polygalée anomale, mais qui doit former avec le Brueca et l'Ailanthus une section de l'ordre des Simaroubées.

Parmi les Euphorbiacées douteuses du Genera d'Endlicher, se trouve un genre Lunasia de Blanco, qui pourrait bien être identique avec le Rabelaisia. Cependant sur des données incomplètes et incertaines, je n'ai pas cru devoir introduire dans la science un nom qui porterait toujours un doute et peut-être une erreur.

Explicat. des fig. Pl. XVII. XVIII. Rabelaisia Philippinensis. Fig. 1. capitule de fleurs mâles grossi. 2. une fleur mâle à peine ouverte. 3. La même étalée comme elle se trouve au temps de l'anthèse. 4. un fragment de l'épi
fructifère. 5. un fruit. 6. coupe verticale d'un des car-
pelles. Ces trois dernières figures sont de grandeur natu-
relle.

**ALGÆ NOVÆ ZELANDIÆ.**

**ALGÆ NOVÆ ZELANDIÆ;** being a Catalogue of all the
species of Algæ yet recorded as inhabiting the shores
of New Zealand, with characters and brief descriptions
of the new species discovered during the Voyage of H. M.
discovery ships "Erebus" and "Terror," and of others
communicated to Sir W. Hooker by Dr. Sinclair, the
Rev. W. Colenso, and M. Raoul. *By Dr. Hooker,
and W. H. Harvey, Esq.*

(In Mr. Allan Cunningham's "Specimen of the Botany of
Magazine," a list of forty-seven Algæ is given, comprising all
that was known up to the year 1836 of the Marine Botany
of the Islands of New Zealand. M. Montagne has recently
described twelve additional species in the Botany of the
French Polar Voyage, and we have now to add sixty-five
others, making the whole number recorded one hundred and
twenty-four, which can scarcely be more than one fourth, at
the very most, of the Algæ which probably inhabit the
extensive coasts of New Zealand. The new species now
described were chiefly collected by the officers of the
Antarctic expedition. To these we have added a few, com-
municated to Sir W. J. Hooker by Dr. Sinclair and the
Rev. W. Colenso, and an interesting fasciculus of Algæ col-
lected by M. Raoul, and liberally placed in our hands for
publication by the Directors of the Paris Museum. We
regret that we have not been able to procure a set of Mr.
Stephenson's Algæ, an examination of which would in all
probability have added somewhat to our number. In the
following list we have marked with an asterisk (*) those of
which we have as yet seen no New Zealand specimen, and
with a cross (†) those that are altogether unknown to us.)

*Vol. IV.*
Fucoideae.

Hab. New Zealand, Sir Joseph Banks, Lesson.

Hab. New Zealand, D'Urville, Lesson, Sinclair.

3. †Sargassum *granuliferum*, Ag. Ic. Alg. t. 11.  
Hab. Cook's Straits. D'Urville.

Hab. New Zealand, Lesson.

5. Sargassum *Sinclairii*, nobis; caule basi semiterete apicem versus compresso obtusangulo filiformi, foliis lanceolatis basi attenuatis tenuibus nervo evanescente, inferioribus majoribus inciso-dentatis, superioribus remote dentatis sub-integerrimisve, vesiculis paucis breve petiolatis foliiferis, receptaculis brevissimis axillarisibus foliolo minuto subtensis parum divisis lobis levibus turbinatis apice abrupte 3-4 cornutis.

Hab. Bay of Islands, Sinclair, Lyall, &c.

Nearly related to *S. incisafolium*, from which it differs in the semiterete obtusely angled stem, and in the shape of the receptacles; and to *S. lacerifolium*, from which it is also distinguished by the stem, and by the much less deeply divided leaves. Like both those species, the present is remarkable for having a single very large leaf, sometimes 3-4 inches long, at the base of the branches. This leaf is always more indented than the rest.

6. Sargassum *scabridum*, nobis; caule angulato muricato, foliis oblongo-lanceolatis acuminiatis tenuibus dentatis superioribus angustissimis nervo attingente valido, vesiculis petiolatis globosis levibus muticis (an semper?) sparsis, receptaculis lanceolatis levibus racemosis pedicellatis, racemis axillarisibus folio brevioribus.

Hab. Bay of Islands.

Our specimens of this plant are few and less perfect than we could wish, but the species appears sufficiently charac-
terised by the muricated stem, a peculiarity which it shares with S. linifolium and S. onustum, from both which it is, in other respects, very different.


8. †Sargassum duplicatum, Bory, in Duperr. p. 127. HAB. New Zealand, Lesson.

Is not this a synonym of S. cristatifolium, Ag.? a plant of which we have excellent specimens from the Mauritia.


HAB. Howa Howa Bay, D’Urville. Bay of Islands, abundant, Sinclair, Lyall, Hooker, &c.

Of M. Richard’s variety capillifolium, which he at first published as a distinct species, we have received but few and very imperfect specimens; of his var. pennigerum, on the contrary, our series is extensive, and were it not for the high authority of the French Naturalist, and the seemingly convincing data on which he founds his observation, we should certainly never have supposed these two varieties to belong to one species. Our very numerous specimens of the variety pennigerum present no intermediate types of form with the var. capillifolium, and only differ one from another in being more or less branched. Some, like those described by M. Richard, have long simple stems, set with deeply pinnatifid leaves; others, in an older state, are bipinnate, their pinnae issuing from the axils of the primary leaves, and furnished like the stem or main rachis with leaves neither more nor less compound than those of the first set. From the axils of these secondary leaves spring fruit-bearing ramuli, or, in old specimens, a third series of pinnae similar to the second, and so the plant continues to branch after a perfectly uniform law.

10. Sargassum Raoulii, nobis; caule longissimo gracili lævi compresso angulatim-flexuoso alterne ramosissimo, ramis similibus, foliis distichis distantibus pluries dicho-
tomis laciniis angustissimis plano-compressis enerviis, vesiculis sphæricis muticis ad basin folii solitariis petiolatis, petiolo filiformi compresso, receptaculis lævibus cylindraceis racemosi, pedicellis sæpe furcatis.

HAB. Akaroa, M. Raoul. (Also a native of Tasmania.)

Stem 2 feet or more in length, half a line in width and preserving nearly an equal breadth throughout our specimens, quite smooth, compressed, angularly bent at intervals of about an inch; the branches issuing from the angles, quite distichous, zigzag like the stem and emitting from their angles a second series of branches, or filiform dichotomously divided leaves or ramuli. Leaves resembling the branches, but smaller, multifid, the segments very slender, flat, without midrib. Vesicles generally solitary, either at the base of a leaf, or in the interval between two leaves, globose, 2-4 lines in diameter, muticous, on rather long, compressed petioles. This species is allied to S. piluliferum and S. Desfontainesii, from the first of which its nerveless leaves distinguish it, and the nature of the stem from the latter. M. Raoul’s specimens are the only individuals from New Zealand which we have seen, and they are not in fruit, but we have the same plant from two stations in Tasmania, and have added the character of the fruit from one of these. On one of the Tasmanian individuals, the leaves are furnished with distant, prominent warts, pierced by a pore, and containing a tuft of byssoid muciferous fibres. These at first sight may be taken for the fructification, which is in fact very different. The position of the receptacles is subterminal, and thus there is a transition in character to Blossevillea, which renders the distinction between that genus and Sargassum very trifling indeed.


HAB. New Zealand, Lesson.


HAB. Kaua Kaua Bay, Lesson.

13 *Marginaria Urvilliana, A. Rich. l. c. t. 9.
HAB. Kaua Kaua Bay, Lesson.
HAB. Shores of New Zealand, D'Urville.
   t. 24. f. a-e.
HAB. Shores of New Zealand, Sir Joseph Banks, Lesson.
   t. 28. f. 11. Fucus comosus, Turn. t. 142. Macrocystis comosa, Ag.
HAB. Hew Zealand, D'Urville, Hooker.
17. Phyllospora quercifolia, Harv.—Fucus quercifolius, Turn.
   t. 151. Cystoseira quercifolia, Ag. Stephanocystis querci-
   folia, Treviran. in Endl. Suppl. III. p. 31. Platythalia
HAB. Bay of Islands, D'Urville, Colenso.

The fructification of this remarkable species was unknown
to Turner, who nevertheless was struck with its near affinity
to F. comosus, the type of Agardh's genus Phyllospora. The
frond is probably of great length. Our specimens are all
imperfect, consisting of branches and broken pieces of the
stem, from which the habit may be inferred to be similar to
that of F. comosus, namely, a long simple stem furnished with
lateral, undivided, alternate branches, which bear a second
and perhaps a third series of similar shorter ones; the last
series of branches and the spines of the first, equally pro-
ducing receptacles. These receptacles are evidently trans-
formed leaves. They occupy the position of the normal
leaves, but are much smaller, the leaves being 4-5 inches, the
receptacles 1-1½ in length. The latter are cuneate and entire
below, sharply serrated above, their upper half densely papil-
lated on both surfaces with the globose conceptacles, which
in our specimens contain large, dark olive, undivided spores,
with a wide border. None of our specimens produce vesicles.

Fucus phyllanthus, Turn. t. 206. Sargassum phyllanthum, Ag. Fucus flexuosus, Esper.

HAB. Coast of New Zealand, Sir Joseph Banks, D'Urville, Sinclair, Lyall, Hooker, &c.


HAB. Coast of New Zealand, Sir Joseph Banks, Sinclair, Lyall, Hooker.

We can by no means agree with M. Richard in uniting this species with the preceding. To us they appear to be abundantly distinct at all ages, and we have formed this opinion from an extensive series of perfect and imperfect specimens of both kinds. Turner's figure of F. Phyllanthus is certainly drawn from a very much battered individual, but it is sufficiently like the plant in its perfect state to be recognised without much difficulty. We have seen many specimens similar to it, and possess others from more perfect individuals where the frond is young and vigorous; but all are alike characterised by having the denticulate margin fringed with the racemose receptacles along the whole course of the leaf-like branches, which resemble in a very striking manner the phyllodia of a Phyllanthus (Section Xylophylla) to which Turner compares them. These fruit-bearing branches are not, as Richard supposes, denuded of leaves, but perfect, and indeed the youngest part of the frond.—As to F. Maschalocarpus, Turner's figure and description are only defective in not representing vesicles, which are often absent and were wanting on his specimens. Some of ours produce them. When present they are solitary, elliptical, large and apiculate, or tipped with a leafy point, and they occupy the place of the receptacles, namely, the axils of the distichous leaves. But, vesicles apart, C. Maschalocarpus is abundantly different from C. Phyllanthus. It is a much coarser plant, of a thicker and more opaque substance; its clusters of receptacles are densely fasciculate, not racemose, and they are invariably placed in
the axils of marginal leaves, not at the apex of lateral spines. It is true that, on battered specimens, the leaves are sometimes broken off while the receptacles remain, and such specimens may have been regarded by the illustrious French Naturalist as Turner’s *Phyllanthus*, but it is clear to us that M. Richard could not have known the true *C. Phyllanthus*, or he never would have confounded *C. Maschalocarpus* with it.—We retain Turner’s excellent name “*Phyllanthus*,” although Esper’s has slightly the priority of publication, because Esper’s specimens were derived from Turner, to whom in courtesy the right of publication belonged; and because, but that they are quoted by Turner, Esper’s figure and description would be wholly unintelligible. It is manifest from the observations of Turner, under both species, that he designed the specific names to be retained as substantives, not adjectives, as altered by Agardh, and we have therefore restored the masculine termination.


**Hab.** Kouraki Bay, *D’Urville*. Akaroa, Hombron.


**Hab.** Akaroa, Hombron, Raoul.


**Hab.** New Zealand, *D’Urville*.


**Hab.** New Zealand, *Sinclair*.

Possibly a new species; but our specimens are not in a good state, nor with advanced fruit. The ultimate ramuli are longer than Turner’s description and figure represent, and perfectly simple.


**Hab.** New Zealand, *Lesson*.

This remarkable plant is very extensively distributed along
the southern shores of New Holland, and in Tasmania, in
which latter island it abounds; but we have not yet seen
specimens from New Zealand.
25. Hormosira Billardieri, Montag. Moniliformia Billardieri,
Bory. Fucus moniliformis, Labill. t. 262.
HAB. Wangari Bay, D'Urville. Bay of Islands, Lyall, &c.
26. †Hormosira Sieberi, Dne. Moniliformia Sieberi, Bory.
HAB. New Zealand, Lesson.
27. Splachnidium rugosum, Grev. Fucus rugosus, Turn. t. 185.
HAB. New Zealand, Lesson. Akaroa, Raoul.
t. 256. Turn. t. 240.
HAB. Bay of Islands, Sinclair, Lyall, Hooker, Raoul.
22. Durvillaea utilis, Bory, in Duperr. Voy. t. 1. 2.
HAB. Shores of New Zealand, D'Urville, &c.

LAMINARIIÆ.

HAB. New Zealand, Lesson.

This, to judge by the description, hardly belongs to the
present genus.
31. Capea biruncinata, Montag. Flor. Canar. t. 7. Laminaria
biruncinata, Bory. L. Cunninghamii, Grev. MS.
HAB. New Zealand, D'Urville, Cunningham, Hooker.
32. Capea flabelliformis, nobis. Laminaria flabelliformis, A.
HAB. Wangari Bay, D'Urville. Bay of Islands, Hooker.
Laminaria radiata, Ag.
HAB. New Zealand, D'Urville.
34. Macrocystis pyrifera, Ag. Fucus pyrifera, Turn. t. 110.
HAB. Coasts of New Zealand, abundantly.

SPOROCNOIDÆ.

35. Carpomitra Halysèris, nobis; fronde plana lineari membranacea (demum subcoriacea) tenui costata di-trichotoma vel subpinnata disticha, axillis angustis alternis suboppo-
sitisse, ramis erectis, apicibus sæpissime tridentatis, receptaculis conicis.

HAB. Bay of Islands, R. Cunningham, Sinclair, Lyall, Hooker.

Root conical, densely clothed with stupose fibres. Frond 8-10 inches long, from ½ to ¾, or sometimes nearly ½ an inch in width, distichously branched from the base, the lower branches generally opposite as are also several of the upper ones, the latter more or less unilaterally dichotomous and thus alternate, all issuing at a small angle, membranaceous, translucent and thin, in age becoming more opaque and subcoriaceous, destitute of evident pores, every where furnished with a persistent nerve, which is medial through the branches, but as it approaches the axilleæ deviates towards the upper margin of the lamina. Apices of the branches entire, or very generally three-toothed. Colour when young a fine olive, becoming foxy brown in age. Substance tough, but soft, very like that of Dictyota dichotoma. Receptacles at the apex of the nerve of the frond, generally terminating the middle tooth of the three, but sometimes produced by all the teeth, conical, rather acute, fleshy, not quite a line in length, composed of branching filaments radiating round a columnar axis, and bearing spores and antheridia on the same filament; the antheridia oblately elliptical, terminating the threads, containing coloured matter, and having the three joints immediately below them slightly swollen and coloured; the spores linear-oblong, seated on short side branches at the lower part of the filaments, filled with dense olivaceous endochrome.—In habit this plant very strongly resembles Halyseris polypodioides, but its structure is dissimilar, and the fruit altogether different. In the fruit it entirely agrees with Sporochaus Cabrerae, Ag., a plant which Kützing has, with great propriety, made the type of his genus Carpomitra.

Dictyotææ.

36. Zonaria flava, Ag. Z. Tournefortii, Mont.
HAB. Bay of Islands, Lyall, Hooker.
Our specimens are abundantly covered with the large cushion-like blotches of fructification, which are very irregular in form and size. They do not appear to differ in any essential respect from Canary Island specimens also before us.

37. Zonaria *Sinclairii*, nobis; caespitosa, caule gracili filiformi flexuoso villose ramoso, ramis setaceis elongatis in frondes pusillas anguste cuneatas fissas basi longe attenuatas absuntibus.

**HAB.** New Zealand, Dr. *Sinclair*.

*Root* a widely spreading mass of stipose fibres, from which rise numerous slender filiform stems 4-5 inches long and scarcely thicker than hog's bristle, flexuous, branched, and every where clothed with short woolly hairs. The branches terminate in very narrow wedge-shaped cloven fronds. *Colour* a greenish-olive.

38. Dictyota *dichotoma*, Lam.

**HAB.** New Zealand, plentiful. *Lyall*, &c.


**HAB.** New Zealand, *Sinclair*.

**Ectocarpæ.**


41. Sphacelaria *virgata*, nobis; scoparia, basi supposto, caulis tenuibus, ramis basi saxe nudis elongatis virgatis simplicibus circumscriptione lineari-lanceolatis, ramulis quadrifariis crebris brevibus pinnatis circumscriptione obovatis, pinnis creberrimis elongatis erectis simplicibus furcatisve vel secunde ramulosis fastigiatis spicis sphaceolatis.

**HAB.** Bay of Islands, *Davis*, *Lyall*.

*Stem* 8-9 inches long, in the lower part thickish and covered with dense woolly hairs, naked above and very slender; branches long and simple, setaceous, naked below, rough with the bases of broken ramuli, densely clothed with quadrifarious branchlets above, which are ¼-½ inch
long. *Ramuli* densely pinnated with long, simple or forked, fastigiate, erect pinnules resembling those of *S. scoparia*.


**HAB.** Akaroa, Hombron. East Coast, Colenso (218.)

43. Ectocarpus siliculosus, Lyngb.

**HAB.** Bay of Islands, *Hooker*.

**CHORDARIÆ.**

**SCYTOTHAMNUS, Nov. Gen.**

*Frons* fruticosa, compressa v. cylindracea, vage ramosissima, cartilagineo-coriacea, e filis crassiss longitudinalibus maxime intricatis flexuosis diffusiss diffusiss coloratis juxta peripheriam in fila radiante horizontali moniliformia dichotoma aequanimbibus formata. *Utricii* oblongi, inter fila periphericalia nidulantes, apicales.


**HAB.** On rocks in the Bay of Islands, very abundant.

*Root* an expanded disk. *Fronde* tufted, 4-10 inches long, excessively branched and bushy, with the habit and substance of a *Cystoseira*, but a totally different structure, solid or hollow according to age; the lower part of the stem often almost woody, compressed or terete, coriaceous, opaque. Under a lens the structure is very beautiful; the axis consists of longitudinal long-jointed anastomosing filaments coloured with a brown endochrome, closely packed together and somewhat parallel; the periphery of dichotomous moniliform horizontal filaments radiating from the outer ones of the axis, their joints containing a dark brown mass, and about equal in length and breadth. There is no prolongation of the filament beyond the surface of the frond, as in *Mesogloia* and *Chordaria*, but the threads of the periphery end abruptly in the epidermis, and are as closely glued together as those of a *Gigartina*.—A very curious plant, which we have ascertained by an interchange of specimens to be
the *Chordaria australis* of J. Agardh, who is now inclined, with us, to regard it as the type of a new genus, allied to *Chordaria* and *Mesogloia*. Our friend, M. Montagne, on the contrary, considers it one of the *Florideae*, allied to *Grateloupia*, an opinion from which, for many reasons, we are compelled to dissent.

**Rhodomeleae.**

**Epineuron, Harv. in Herb.**

*Frons* plana, membranacea vel cornea, linearis, costata, distiche ramosa vel e disco prolifera, vage reticulata. *Cellulae* interiores magnae, polyhedrae, transversim ordinatae; exteriores pluriseriatae, pusillae, coloratae, irregulares. *Stichidia* semper e nervo enata, lanceolata, involuta, duplici serie sphærosporas foventia. *Ceramidia...— Algæ frondosæ v. foliosæ fusco-rubæ, sæpe ad marginem dentatae ciliatae.*

45. **Epineuron lineatum**, nobis. *Fucus lineatus*, Turn. t. 201. (non *Amansia multifida*, Lam.)

**Hab.** New Zealand, Sir Joseph Banks.

An attentive perusal of Turner’s characters of his *Fucus lineatus* has convinced us that it must be something very different from *Amansia multifida*, to which Agardh unites it. The description has so much in common with the following species, which does not however answer to the figure, that we venture to refer the Banksian species to the present genus.

46. **Epineuron Colensoi**, nobis; fronde lineari angustissima obsolete costata badia transversim striata siccitate rigida vage pinnatim bi-tripinnatimve ramosa, pinnis pinnulisque longissimis simplicissimis erectis inciso-serratis, serraturis (laciniisve) alternis erecto-patentibus subulatis acutis,

* To this genus also belong *Fucus fraxinifolius*, Turn.; (E. fraxinifolium, *Harv.*) and probably *F. confertus*, Turn. It differs from *Dictyomenia* essentially in the position of the fructification, and in habit. I have another unpublished species (*E. Backhousii*) from the Swan River.—W. H. H.
stichidiis nervum creberrime vestientibus filiformibus incurvo-hamatis simplicibus.

Hab. East Coast, Mr. Colenso. Bay of Islands, Lyall.

Our specimens, apparently broken, are 5-6 inches in length, and not a line in breadth. The main stem, from loss of membrane and thickening of midrib, is narrower than the branches. It is irregularly divided at a few long intervals into principal branches, which are bare of ramuli in their lower part, but closely pinnated and sometimes bipinnated above, the pinnae very erect. Every part of the frond is regularly inciso-serrate, the serratures being from \( \frac{1}{4} \) a line to nearly a line in length, and about as much asunder, alternate, subulate, acute. The midrib, which is evident below, becomes very faint upwards, and is gradually lost in the younger portions of the frond. The colour of our specimens is a dark reddish brown, fading to white on maceration. The substance is rigid, thickish, and it does not adhere to paper. Under a lens of lower power, the frond appears closely striate transversely, owing to the arrangement of the cellules in the interior of the frond; under a higher power this character is lost, as the cells of the periphery, which are small and more opaque, obstruct the view. The stichidia are produced in great abundance along the midrib, which eventually they completely cover. Our plant is much less branched than Turner's F. lineatus, with longer and straighter branches, a more rigid and thicker substance, and a different colour.

47. *Rhodomela pinastroides, Ag. Fucus pinastroides, Turn. t. 11.

Hab. New Zealand, Sir Joseph Banks.

No one has gathered this species at New Zealand since the time of Banks, whose specimen is vouched for by Turner. We earnestly hope some of our friends at New Zealand may re-discover it.

48. Rhodomela Mallardie,* Harv.; siccitate nigra, caule

* My first acquaintance with this plant was from beautiful specimens
elongato cartilagineo filiformi crassiusculo inarticulato pinnatifimo bipinnatifimo ramoso, ramis simplicibus densissime ramulis velatis, ramulis brevissimis obsolete articulatis striatis dichotome multifidis quadrisarriis patentibus.

Hab. East Coast, Colenso.

Fond 6-8 inches long, as thick as pack-thread, branched with greater or less regularity in an alternate pinnate manner, the branches often again producing a set similar to themselves. The lower part of the stem and the bases of the larger branches are naked and smooth, while all their upper portions and the branches are densely covered with short ramuli, which give the plant the habit of Cladostephus spongiosus. Ramuli a line long, rigid, horizontally patent, irregularly dichotomous with patent axils, fastigate, the apices acute, imperfectly jointed, the dissepiments opake. Joints as long as broad, with few striae. Colour when dry intense black. Ceramidia (on Mrs. Mallard's specimens) ovato-urceolate, with a slender protruding mouth, sessile on the ramuli, which are then thicker and less divided than usual. Tetraspores immersed in the scarcely distorted uppermost divisions of the ramuli, in a single row.—The habit of this species is very similar to that of R. Larix and R. floccosa. There is also a resemblance to Polysiphonia glomerata, but the structure is different.

49. Rhodomela? spinella, nobis; pusilla, cartilaginea, rigida, densissime cespitosa, intricata, vage ramosa, ramis elongatis patentissimis divaricatisve simplicibus furcatisve, ramulis spinasformibus subulatis acutis horizontalibus undique emissis, tetrasporis in ramorum majorum peripheria nidulantibus sparsi.

found by Mrs. Mallard at Port Philip, on the same occasion that she gathered the wonderful Thuretia quercifolia in such unexampled perfection. Mrs. Mallard's specimens are larger and more branching than Mr. Colenso's, and not so coarse in the stem or so shaggy in the ramuli, but we cannot find a good specific character to separate the Port Philip from the New Zealand plant, and the discrepancies in question are probably owing to climate, or to local circumstances, such as difference of exposure to rough water, &c.—W. H. H.
HAB. East Coast, Colenso. Bay of Islands, Hooker.

Fronds ½ inch to 1 inch in height, setaceous, densely matted together in broad tufts, much and irregularly branched, rigid, brownish-red, turning black in drying; branches very patent, simple or forked, as long as the height of the frond, and more or less furnished with patent spine-like ramuli, which issue at right angles and are frequently secund. Tetraspores scattered over the branches, immersed in the periphery. Structure: a large central tube surrounded by several concentric rows of endochromatic cells or tubes, which gradually become smaller outwards.—This species so closely approaches in appearance the West Indian Gigartina spinella, that it can scarcely be distinguished except by its darker colour, until a section of the stem reveals its different structure. It also strongly resembles Gelid. corneum var. crinale, but may be known at once by its acute ramuli. The structure is decidedly that of the family Rhodomelea, and not far different from that of R. scorpionides, but the fruit, so far as it has been observed, is of a very anomalous nature. It presents the only instance we know of among Rhodomeila of scattered tetraspores.

HAB. A common parasite on Gelidium lucidum.

HAB. New Zealand, (Decaisne.)

52. Dasya collabens, nobis; caule fruticoso tereti inarticulato flaccido glabro alterne ramoso, ramis subdistichis erecto-patentibus simplicibus vel iterum alterne divisis fila articulata rosea monosiphonia dichotoma lateralia emit-tentibus, filis crassis sensim attenuatis acutissimis bis-terve furcatis, articulis diametro duplo vix triplo longioribus ad genicula subcontractis.

HAB. Akaroa, M. Ratau.

2—4 inches high. Nearly allied to D. Arbuescula, from which it differs in being of a much more flaccid, gelatinous nature, closely adhering to paper; and also more essentially
in the dichotomous filaments not being equal in diameter throughout, but their divisions gradually tapering to a fine point. The stem has 5 radiating tubes.

53. Polysiphonia *dendritica*, Ag.; prona, ad algas majores applicita pusilla disticha bipinnata, caule compresso pinnis creberrimiis elongatis cum ramulis subulatis alternantibus obseso, pinnis iterum pinnatis, pinnulis subulatis approximatis alterne majoribus ramulosis et minoribus simplicibus, articulis brevissimis pluri-striatis, ceramidiis sēpe obliquis pinnulas terminantibus globoso-urceolatis ostiolo prominulo.

_Hab._ Parasitical on *Gelidium lucidum*.

_Frond_ ½ inch to 1 inch in length, lying flat on the surface of the *Gelidium*, and sometimes attached to it by the whole length of its main stem, all the branches being free. Agardh describes his plant (a native of Brazil) as being "_inordinate ramosa, pinnis simplicibus compositisque intermixtis._" We consider this apparent, not real, irregularity of the branching to have arisen from the frond at first being margined with subulate teeth which never change their form or size, but from whose axils spring secondary branches fringed like the primary with subulate ramuli, and that again, in the axils of these ramuli, tertiary branches are formed and so on. In this manner there arrives eventually a frond with simple and pinnated branches intermixed, and by the occasional non-development of the latter, irregularly so. This mode of branching is similar to that of *Polyzonia*.

54. Polysiphonia *aterima*, nobis; rigidula, atra, caule sulcato brevissime articulato basi nudo setaceo sursum decomposita ramosissimo sensim attenuato vix dichotomo, ramis alternis secundisve iterum et iterum alterne divisis circumscriptione obovatis, ramulis ultimis subulatis subsimplicibus distantibus erectis axillis apicibusque acutis, articulis omnibus brevissimis 12-siphonisiis, ceramidiis ovato-globosis obtusissimis sessilibus sparsis.

_Hab._ East Coast, _Colenso._

4—5 inches long, setaceous. Joints evident in all parts
of the frond, very short, composed of beautifully hexagonal oblong cells, about 6 in the breadth of the joint, and internally formed of about twelve large tubes, each containing a separable sac of endochrome, surrounding a small central empty tube. Colour when dry very black, and substance rigid.

55. Polysiphonia *rytiphlaeoides*, nobis; nigro-fusca, caule crasso fruticoso virgato tereti sulcato brevissime articulato e basi ramosissimo, ramis virgatis erectis decompositis, ramulis lateralibus quadrifariis erecto-patentibus sensim attenuatis ultimis subulatis sparsis apice fibrillosis, articulis ramorum 7-siphoniis diametro quadruplo brevioribus.

**HAB.** New Zealand, Raoul.

*Frond* 4-6 inches high, coarse, dark brown, bushy. Joints of the stem and branches pellucid, but exceedingly short, so that the frond may be said to be closely transversely striate, rather than jointed. This species is nearly allied to *P. cancellata* of Tasmania, but has a different habit and shorter joints.

56. *Polysiphonia botryocarpa*, nobis, in Fl. Antarct. t. 70.

*Rhodomela Gaimardi* ? Mont. (not of Agardh.)

**HAB.** Akaroa, Hombron.

57. Polysiphonia nigrescens, Ag.

**HAB.** New Zealand, Raoul.

M. Raoul's specimens are small, but they have all the essential characters of this variable species.

58. Polysiphonia *Cladostephus,* Mont ! *Voy. Pole Sud.*

* Since this was prepared for press, Mr. Harvey has received from M. Montagne, to whom he communicated a specimen of his *P. byssoclados,* some fragments of the *P. Cladostephus* of that author, accompanied by the following note : "Admirez la ressemblance de deux choses que je crois pourtant différentes! Le fait est qu'en lisant votre diagnose, je présumai sur le champ que votre *P. byssoclados* était identique à mon *P. Cladostephus.* Maintenant, que j'ai vu la plante, je reste dans le doute. Il est vrai que mes exemplaires sont ceux d'une algue agée. Toutefois en les comparant de point en point, on trouve des différences assez marquées dans la con-

**HAB.** New Zealand, Raoul.

59. *Polysiphonia implexa*, nobis; parvula, caespitosa, basi radicans, implexa, frondibus erectis brevibus vage ramosis, ramis subalternis patentibus apice ramulos paucos emittentibus, ramulis subulatis patentibus subsimplicibus, articulis 4-siphoniis diametro equalibus v. inferioribus sesqui-longioribus.

**HAB.** New Zealand, Raoul.

Our specimens are about an inch in height, and seem to have formed wide intricate patches on rocks. The species is allied to *P. intricata*, J. Ag. and several of the same section, but cannot be included under any described species known to us.

50. *Polysiphonia strictissima*, nobis; caespitosa, atro-rubescens, frondibus capillariibus membranaceis tenacibus strictis dichotomis, axillis angustissimis, ramis erectis! fere appressis, articulis 4-siphoniis inferioribus diametro 6-8-plo, superioribus 5-plo, ultimis 1¼-3-plo longioribus, apicibus fibrillosis.

**HAB.** New Zealand, Raoul.

Tufts 4-5 inches long, dense and coarse, dark dull red, composed of dichotomous capillary fronds remarkably straight and erect. The character attributed to *P. stricta* applies better to this plant than to any specimens of that doubtful species that we have seen. But it would be absurd, on this account, to refer the present to Dillwyn's species, which is really very different, and probably only the young of *P. fibrata*.

sistance, la couleur, la longueur des ramules et la longueur des articules de ceux-ci." We have examined M. Montagne's specimen, and whilst we admit the points of difference pointed out by this acute observer, we fear they are not of sufficient importance to warrant our retaining two species; *P. byssoclados*, of which we have now some hundred specimens, varying considerably in all these respects.
HAB. Akaroa, Raoul.
HAB. Bay of Islands, Hooker.

**Corallineae.**

HAB. Bay of Islands, Hombron, Colenso.
64. †Jania gracilis, Mont. l. c.
HAB. Akaroa, Hombron.

**Laurenciae.**

HAB. New Zealand.
66. Laurencia obtusa, var. botryocladia, J. Ag.—Laurencia botryoides, Bory.
HAB. New Zealand, Lyall, &c.

Sometimes this nearly resembles L. papillosa, Ag. Other specimens are scarcely different from the common form of L. obtusa, and some again approach the cylindrical variety of L. pinnatifida.

HAB. New Zealand, Forster.
HAB. New Zealand, Sir Joseph Banks.

**Cladhymenia, Harv. in Herb.**


R R 2
Algae Australasicæ substantia habituque ad Halymeniam, structura tamen ad Laurenciam affines. Apices ramulorum obtusissimæ.

In this group we propose to include, beside the two following species, the Laurencia? membranacea of Harv. in Hook. Journ. (Cladhyemenia Gunnii, Harv. MS.), although as yet we are only acquainted with the tetraspores of that plant; and although there is a slight discrepancy in the structure of its frond, the stratum of minute surface cells being nearly obsolete. Still, the habit is so completely similar to that of the following species that we think it may with safety be referred to our new genus. The ceramidia, if such they may be called, are certainly the lowest development of that organ with which we are acquainted, being no more than slightly inflated ramuli, scarcely shorter than the unmetamorphosed ones, containing at the bottom of the inflated portion a tuft of unequal angular seeds.

69. Cladhyemenia Lyallii, nobis; radice fibrosa ramosa, fronde angusta nervo obsoletissimo percursa gelatinoso-membranacea bi-tripinnatifida, laciniiis lineari-lanceolatis basi angustatis patentibus apicem versus brevioribus, suprema simplicibus, inferioribus elongatis pinnatifidis bipinnatifidisque, ramulis filiformibus obtusis, ceramidiis elliptico-oblongis pedicellatis.

HAB. Bay of Islands, Lyall.

Fronds 4-5 inches high, in circumference broadly deltoid, filiform at base, quickly becoming flat, and gradually acquiring the breadth of one, and in the middle of 2-3 lines, and thence tapering to the apex, traversed by an obsolete internal nerve like that of certain Plocamia, repeatedly pinnatifid. Pinnæ tapering at both extremities like the main stem, the lowest bipinnatifid, the middle pinnatifid, the uppermost simple or merely toothed; ultimate ramuli linear, filiform, obtuse. Colour a fine rosy red.

70. Cladhyemenia oblongifolia, nobis; radice fibrosa ramosa, fronde latiuscula enervi gelatinoso-membranacea pinna-tifida et bipinnatifida, laciniiis erecto-patentibus oblongis
basi attenuatis subpetiolatis apice obtusissimis subtruncatis, ramulis altimis pusillis ciliéformibus linearibus obtusis brevibus alternis, ceramidiis oblongis pedicellatis.

HAB. Paroah Bay, Lyall. (A single specimen.)

Our specimen is 4 inches long, the stem ½ an inch broad in the middle, gradually tapering to the base, and very blunt at the apex. The plant probably attains to a much greater size. Colour a rosy pink.

71. Chylocacia _parvula_, Grev.

HAB. Akaroa, D'Urville, Raoul.

72. Chylocadia _Novæ Zelandiæ_, nobis; stipite brevi cylindraceo mox in frondem lato-linearum ampliato, caule (juniori tantum viso) simplici compresso articulato-constricto, ramis oppositis verticillatis base attenuatis, articulis diametro duplo brevioribus, tetrasporis per ramulos sparsis.

HAB. Bay of Islands, parasitical on the base of _Sphacelaria hordeacea_, Lyall.

Doubts, chiefly respecting its genus must rest on this species till we shall have received more perfect specimens. It has something the habit of _Champia_, and may possibly be more correctly placed in that genus. Our largest specimen is 3 inches long, and about a line in breadth, but it had only commenced throwing out its lateral branches, and we have yet to learn to what extent these are developed. The whole frond is divided by transverse diaphragms, at intervals of about half the diameter, and these are connected, as in _Champia_, by numerous rope-like threads. There is a slight contraction at the joints. The colour, probably iridescent when growing, is a dull greenish suffused with pink.

**Delesserieæ.**

Hab. Bay of Islands, near high water mark, parasitical on Bostrychia mixta, Gelidium corneum var. crinale, and Apophlœa Sinclairii.

The New Zealand specimens are of much smaller size than those from Cayenne, and the cellules composing the frond are somewhat differently shaped, whence we had at first considered that they might be regarded as a distinct species, having nearly the relation to the first that D. ruscifolia has to D. Hypoglossum. But a form, seemingly intermediate, found by Professor Bailly at New York, and communicated to us by M. Montagne, induces us to agree with this acute observer in regarding our plant as identical with the American species. Mr. Harvey is hardly satisfied with the position of this plant in Delesseria, and at one time proposed the MS. name Caloglossa for it, but he now fears that there are not sufficient data on which to found a genus.

74. *Plocamium Corallorrhiza, nobis; Thammophora Corallorrhiza, Ag. Fucus Corallorrhiza, Turn. t. 96. and F. cirrhosus, ib. t. 63.

Hab. Dusky Bay, Forster.

The variety cirrhosa only has been found at New Zealand, and it may possibly prove distinct from the Cape of Good Hope plant. No character can, however, be derived from the cirrhose prolongations of the branches, which frequently occur in P. Cunninghamii and in other species.

75. Plocamium procerum, nobis. Thammophora procula, J. Ag. in Linn. XV. 10.

Hab. New Zealand, Lyall.

Hab. New Zealand, very abundant. *R. Cunningham* and all succeeding voyagers.

This appears to be the commonest species at New Zealand, and yet, though we have examined hundreds of specimens we have not seen any in fruit. *Fronds* 4-6 inches high, a line or rather more in breadth.

77. *Plocamium abnorme*, nobis; fronde angusta tenui nervo obsoleto percursa pinnatim decomposita virgata, pinnis pinnulisque alterne geminis sensim angustatis, ultimis angustissimis, ramulis subulatis integerrimis acutis, stichidiis axillaribus subsolitariis simplicibus furtatisme lanceolatis, nonnunquam e pinnulis ipsis ultimis transmutatis formatis.

Hab. Bay of Islands, *Lyall, Hooker*.

Very nearly related to *P. angustum* (*Thamnophora angusta, J. Ag.*), but differing in the fructification, which often affords a satisfactory character in this genus. In *P. angustum* the stichidia form dense racemose clusters, here they are commonly solitary and either simple or once forked; but what is strange, and has suggested the specific name, the ultimate pinnules themselves are frequently converted at their tips into false stichidia, which bear tetraspores like the rest! The habit resembles *P. coccineum*, from which the *alternately geminate* branching, the position of the fruit and the substance separate it.


Hab. New Zealand, *Cunningham, Hooker, Lyall*.


Hab. New Zealand, *Lesson*.

Possibly this scarcely known and ill characterised species may be the same as our *P. abnorme*.

**Sphærococcoideæ.**


* t. 1. f. 2. *Hook. fil. Fl. Antarct. t. 72. f. 2.*

Hab. Akaroa, *Raoul*. 
Hab. Bay of Islands, Lyall.
Hab. East Coast, R. Cunningham.
Hab. New Zealand, Lesson.
Hab. New Zealand, Lyall.
A very imperfect scrap, possibly belonging to this species.
85. Rhodomenia Montagneana, nobis; stipite brevi orasso, fronde primaria oblongo-cuneata basi attenuata fucata simplicive carnoso-membranacea sanguinea madefacta fragilima frondes secundarias marginales et apicales cuneatas basi attenuatas fucatas dichotomasve emittente, coccidiis hemisphaericis prominulis numerosissimis per totam frondem sparsis marginatis, tetrasporis minutis oblongis zonatim quadripartitis in peripheria nidulantibus.
Hab. Bay of Islands, Lyall, Hooker.
Primary frond 4-8 inches long, frequently broken off at the apices and emitting from the truncate extremity and along the lateral margins, innumerable cuneate slightly stipitate fronds; the smaller of which, from one to four inches in length, are simple or merely emarginate, or slightly bifid, at the apex; the larger, 6-10 inches long, are forked, or once, twice, or thrice dichotomous. All are cuneate at base, and more or less stipitate; they vary in breadth from \( \frac{1}{4} \)-1\( \frac{1}{4} \) inches. The axils are obtuse, and the apices acute. The substance is thickish, more fleshy than membranous, and when moistened after having once been dried it becomes extremely fragile, and if allowed to remain but a short time in fresh water will completely decompose. The colour is a fine blood red. The coccidia are extremely abundant, thickly dotted over the surface and fringing the margin, and (when dry) furnished with a broad pellucid limbus. In this respect, and
in the structure of the frond there is a near resemblance to *R. polycarpa*. The fronds which produce tetraspores are larger, with broader segments and perfectly smooth, and the tetraspores are thinly scattered over the surface, not collected into cloudy patches. A magnificent species, nearly allied to *R. ornata*, Mont.; but, as we are assured by that author, perfectly distinct, and we have much pleasure in inscribing it with his name, as a mark of our respect, and gratitude for his able illustration of the Algae of the Southern Hemisphere.

86. *Rhodomenia? coriacea*, nobis; fronde crassa coriacea siccitate cornea flabelliformi palmatim et pedatim laciniata, raciniis cuneatis latis apice fastigiatis obtusatis, axillis rotundatis.

Hab. Bay of Islands, *Lyall*.

The specimens are too imperfect to enable us to decide on the genus, and probably the above character is very inadequate, but we are unable at present to give a more intelligible one. It is possibly a large growing plant, but our specimens, evidently broken, are only 4-5 inches long; they have a circular outline and a remarkably thick leathery and almost horny substance. Their slices under the microscope exhibit a structure not unlike that of *Rhodomenia*; the centre being composed of large polygonal cellules, gradually smaller to the surface. All the cellules contain endochrome.


Hab. Bay of Islands, *Sinclair*.

*Frond* 6-8 inches long, not half a line in diameter, of equal breadth throughout, pretty regularly dichotomous, in outline broadly flabelliform. *Substance* very tough, rigid and horny when dry. *Coccidia* borne on the lower branches, often op-
posite, one at each side of the frond. Colour faded. The structure of the stem is denser than is usual in the genus, the cellules of the axis being smaller, and those of the periphery more filamentously disposed than in the typical species.


HAB. New Zealand, Sir Joseph Banks.

CRYPTONEMÆ.

89. Gigartina livida, J. Ag. Fucus lividus, Turn. t. 254.
HAB. Paroah Bay, Lyall.
HAB. New Zealand, D’Urville.
91. †Gigartina ancistroclada, Mont. Voy. Pole Sud. p. 121. t. 7. f. 4.
HAB. Akaroa, D’Urville.
HAB. Bay of Islands.

Two imperfect specimens, seemingly belonging to this species.

93. Gigartina torulosa, nobis; caule (vix noto) subsimplici? subcompresso filiformi cartilagineo siccitata corneo, ramis lateralibus saepe secundis cireberrims subsimplicibus v. vage furcatis nudis ramulosisve horizontaliter patentibus vix attenuatis, fructiferis nodulosis, ramulis furcatis paten- tibus, axillis latis, favelliidiis omnino immersis per ramos dense sparsi.
HAB. New Zealand, Hooker.

Our specimens are very imperfect. They consist of portions of the stem, 3-4 inches long. The colour has faded. The most obvious character is taken from the fruit, which is completely immersed in the branches, its place being marked by a slight swelling, beneath which, in the substance of the branch, is found a dense mass of seeds or a flavellidium. The axis of the frond is composed of angular coloured cells,
vaguely congregated but scarcely forming filaments; the periphery of beautifully moniliform elongated radiating filaments.


HAB. New Zealand, Sir Joseph Banks, R. Cunningham, &c.

95. Chondrus chondrophyllus, Grev. *Fucus chondrophyllus*, 

Turn. *t.* 222.

HAB. Wangari Bay, D'Urville.

96. Iridae decipiens, nobis; pusilla, fronde cartilaginea sti-
pitata flabelliformi plana dichotoma, laciniis cuneatis pluries furcatis ultimis angustatis linearibus acutis, axillis rotundatis, margine nunc simplici nunc ramenta linearia simplicia pinnatim emittente, favellidiiis nunc maculiformibus immersis per totam frondem sparsis ellipticis obl-
longisve, nunc in verrucis umbilicatis ad spicis ramento-
rum sessilibus immersis.

HAB. New Zealand, Raoul.

Two states of this plant are before us, one of which so closely resembles Chondrus crispus, that except by the fruit, and the ramenta fringing the margin, we cannot distinguish it; the other has a mixed character between a very slender variety of Iridea stiriata, and a broad state of Gigartina pistillata. These two forms are very dissimilar, but one specimen referable by its fructification to the first, has more the habit of the latter, and thus connects the two. Iridea stiriata and J. Radula have a similar double production of favellidia, one immersed in the frond, the other crowning the ramenta; and J. stiriata presents such wild variations in form, and sometimes so closely resembles the wart-bearing variety of the present species, that, though we have never seen any state exactly similar to what we now describe, we cannot entirely divest ourselves of doubt as to the validity of the present species. And yet the chondroid form is so unlike J. Radula, that we cannot well unite them.


HAB. Paroah Bay, Lyall.
98. Iridaea Radula, Bory. Fucus bracteatus, Turn. t. 25.
HAB. Bay of Islands.
HAB. Akaroa, D'Urville.
100. Halymenia furcellata, Ag.
HAB. East Coast, R. Cunningham.
101. †Halymenia dubia, Bory, in Belang. Voy. p. 32.
HAB. New Zealand, D'Urville.
p. 107. t. 12. f. 2.
HAB. Akaroa, D'Urville.
HAB. Akaroa, D'Urville.
HAB. New Zealand, Lyall.
105. Chrysimenia secunda, nobis; frondibus (pusillis) tubulosis membranaceis flaccidis roseis cespitosis intricatis ramosissimis, ramis curvatis ramulisque patentibus sepissima secundis linearibus obtusis equalibus, ramulis distantibus paucis brevibus.
HAB. New Zealand, Raoul.

Froinds densely tufted, two inches high, setaceous, much branched; the branches generally secund and arched. Colour a rose red. Substance delicate and adhering to paper. The specimens are not in fruit.
106. Melanthalia abscessa, nobis. Fucus abscessus, Turn. t. 223.
HAB. New Zealand, Sir Joseph Banks.

Not having been able to compare this plant with the Banksian specimen of Fucus abscessus, we abstain, on the strongly urged, though to us not convincing, arguments of our friend Montagne, from considering it identical with that described and figured by Turner, as Fucus abscessus. Long before the publication of M. Montagne's
figure we were well acquainted with what is now called *M. Jaubertiana*, but which we had unhesitatingly referred to Turner's *Fucus abscissus*. Nothing at all more resembling Turner's figure is known to us. Some of our specimens indeed might well pass for that he has depicted; while others resemble closely the larger form figured by the French Algologist. The difference mainly insisted on by M. Montagne lies in the stem, which in *M. Jaubertiana* is cylindrical, in *Fucus abscissus* "flat without veins or midrib."

Were the *M. Jaubertiana* cylindrical throughout, we should not hesitate to agree with Montagne. But it is not so. The frond is most cylindrical below, it gradually diminishes upwards, and the upper portion is perfectly flat. The larger the specimen, the rounder is the stem, and in young specimens we find the frond compressed even in its lowest part, and if Turner's figure be taken to represent a young specimen, it is a characteristic. And it should be observed, that though he describes the frond as flat, the figure of a transverse section which he gives evidently represents a compressed frond.

**Hab.** New Zealand, several varieties.

**Hab.** New Zealand, very common.

A beautiful plant, generally recognisable by the broad, flat, more or less midribbed frond and shining surface; but varieties occur which approach the var. *sesquipedale* of *G. corneum*. We, have ascertained our plant to be the same as that of Turner, having been favoured by Mr. Brown with an inspection of his original specimen.

**Hab.** New Zealand, Sinclair.

**Apophleæa**, Harv.

*Frons* cylindrica, cartilaginea, solida, crassa, dichotoma, &
filis tenuissimis strictis parallelis peripheriam versus radiantibus constitueta. *Peripheria* (madefacta) fungoso-in- 
crassata, rupta, decidua. *Fructus* ——. *Algae littorea* 
intense rubra, uncialis, crassissima, pluries dichotoma, fas-
tigiata.

111. Apophleæa *Sinclairii*, nobis.
HAB. New Zealand, *Sinclair*.

In a dry state this anomalous production resembles a very 
robust *Lichina*, being black and rigid. When moistened, 
however, this appearance wholly vanishes. The black 
woody wrinkled stems become of a brilliant crimson, and 
their outer coat, imbibing moisture much more readily than 
the very dense axis, swells to twice or thrice its bulk when 
dry, and is broken in all directions, and falls away in flakes, 
leaving the solid axis behind. The frond is from ½ an inch 
to an inch in height, but when moistened is 2-3 lines in dia-
meter!

**Ceramieæ.**

112. Ballia *Brunonis*, Harv. *Sphacelaria callitricha*, Ag. *Ballia* 
callitricha and *B. Hombroniana*, Mont.
HAB. New Zealand, East Coast, *Colenso* (223).

We retain the specific name imposed by Mr. Harvey in 
founding the genus, given in honour of the original discov-
er of this beautiful plant, “The Prince of Botanists.”

HAB. East Coast, *Colenso*.

114. Ceranium *cancellatum*, Ag.
HAB. Bay of Islands, *Lyall*.

**Chlorospermeæ.**

HAB. New Zealand, *Colenso*.

HAB. New Zealand, *Colenso*.

HAB. New Zealand.
HAB. Bay of Islands, Hombron, Hooker.
HAB. East Coast, Colenso.
120. Conserva bombycina? Ag.
HAB. In fresh water.

(N.B. Besides these, there are 4 or 5 other Conservae received from Mr. Colenso, but in so imperfect a state, and entangled together, that it is impossible to extricate them, or to describe them in intelligible language.)

121. Enteromorpha compressa, Ag.
HAB. New Zealand, abundant, Hooker.
122. Enteromorpha intestinalis, Ag.
HAB. Bay of Islands, &c. Hooker.
123. Ulva Linza, Ag.
HAB. Bay of Islands, &c. Hooker.
124. Ulva latissima, Ag.
HAB. Shores of New Zealand, abundant, Hooker.

(To be continued.)

BOTANICAL INFORMATION.


(Continued from p. 409.)

Our first botanical excursion of any length was to the summit of Dodabetta, which is about four miles distant from Ootacamund. The ascent is so gradual that one may ride the whole way. We of course met with much that was new to me, although almost every thing was quite familiar to Dr. Wight. On shady banks, and even in open exposed places, the wild Strawberry (Fragaria elatior), grows in the greatest profusion, from the level of Ootacamund, even to the very summit of the mountain, in which latter situation I
found it, both in flower and in fruit. On the open grassy hills we saw several other herbaceous plants, such as *Anemone Wightiana*, *Ranunculus cordatus*, *Dipsacus Leschenaultii*, *Wahlenbergia Indica*, *Bupleurum distichophyllum*, *Pimpinella Candolleana*, and *Leschenaultii*, *Valeriana Brunonis*, and several species of *Senecio* and *Gnaphalium*. The shrubby plants which we met with in similar situations, were an undescribed species of *Teucrium*, allied to the *T. tomentosum*, abundance of *Gaultheria Leschenaultii*, *Anaphalis Neelgherriana*, *Cotoneaster busifolia*, *Hedyotis articulata*, &c. In the woods which fill the hollows and ravines, we found some that were in flower, besides those which I have already enumerated, such as an *Euonymus, Microtropis ramiflora*, *Monocera ferruginea*, *Eugenia calophyllifolia*, and a *Celtis*. At the summit I was rewarded with an old Scotch acquaintance, *Prunella vulgaris*, and *Alchemilla Zeylanica*, Moon, a plant so nearly resembling the *A. vulgaris* of Europe, that it has been considered as such by Dr. Arnott. Both Dr. Wight and I, however, have satisfied ourselves from a comparison of it with British specimens, that they are essentially distinct. The rocky part of the summit was gay with the large yellow corymbs of *Kalanchoe grandiflora*. In clear weather a fine view is said to be obtained from Dodabetta of the Coibatatore and Mysore countries, but we were prevented from enjoying it by a dense ocean of clouds which lay spread out below us.

Our next excursion was to the Kaitie Waterfalls, about seven miles from Ootacamund. By the way I collected fine specimens of *Rosa Leschenaultiana*, and *Clematis Wightiana*. On dry banks, and in open grassy pastures, a beautiful little Thyme-like plant (*Micromeria biflora*), grew in great profusion, as well as its taller and more shrubby allies *Leucas suffruticosa*, *helianthemifolia*, and *ternifolia*. On moist banks *Impatiens Leschenaultii* formed dense bushes, from six to eight feet high, with a thick woody stem. This is one of the most abundant of the many beautiful species of the genus which inhabit the Neelgherries. Before reaching
the falls we passed through the garden and grounds belonging to Kaitie, the property of Lord Elphinstone. On the right hand side of the avenue leading to the house there is a remarkably healthy English Oak tree, nearly twenty feet high; and nearly opposite to it a few Cyprus trees about the same height. The garden contains various kinds of European fruit trees, such as the Peach, Apple, Plum and Pear. The Peach bears plentifully, but its fruit, like that which I have met with on the mountains of South America, is very far inferior to what is grown in the open air in England. Apples do not succeed, those I saw being as small as Crabs, and very little superior to them in flavour. As in the other gardens on the hills, European flowers and vegetables thrive admirably. The road to the falls from the house leads through a long, flat valley, along which a small stream runs. In this valley very few plants were in flower: notwithstanding that it is much lower than the valley in which Ootsacamund is situated, vegetation had suffered much more from the frosts of January. The young leaves and branches of the Barberry, the Bramble, and other shrubs, all appeared as if they had been scorched by fire. There was scarcely any herbaceous vegetation, and many of the trees and shrubs being here deciduous, the country bore a very wintry appearance. The banks of the stream were lined with the Barberry, *Ligustrum Perottetii*, *Rhamnus hirsutus*, the *Rhododendron*, *Salix tetrasperma*, and *Rubus Wallichianus*. On more elevated parts *Cotoneaster buxifolia* grew very profusely; but here we met with none of it in flower. The stream which flows through this valley is about the size of the one which runs through Campsie Glen, near Glasgow, and is joined by another of equal magnitude immediately above the fall, which is a slightly inclined basaltic precipice about two hundred feet in height. After this gentle leap, the water flows through a beautiful wooded valley into the Coimbatore country. At the upper part of the fall, we collected a pretty species of *Asystasia*, *Carissa paucinervia*, A. De C., *Esacum Wightianum*, and a very
handsome species of *Aerides* (*A. Lindleyana*, Wight MSS.) sparingly in flower. A few specimens were also obtained of the beautiful *Lysimachia Leschenaultii*. Dr. Wight informs me that many curious herbaceous plants grow on the rocks here in the months of August and September, but of which almost no traces were now to be observed. One of these is a large-flowered Lily, very much resembling Wallich’s *Lilium longiflorum*.

In the jungles, at the foot of the falls, vegetation was in a more active state. Here we collected specimens of *Photinia Notoniana*, *Loranthus amplexifolius*, *Viscum ramosissimum*, *Sonerila speciosa*, *Jasminum erectiforum*, a delicate little species of *Monochilus*, an undescribed *Vanda*, *Barleria involucrata*, *Passiflora Leschenaultii*, and numerous other plants which were mostly new to me. One of the most curious of them all was a species of the *Balanophora*, perhaps the same as Dr. Arnott has described under the name of *Langsdorffia Indica*, but which has now been reduced to the genus *Cynopsole*. In a dark part of the forest, I found a single specimen of *Clathrus cancellatus*, one of the most beautiful, at the same time that it is one of the most saetid of fungi. I have also met with it two or three times in the mountain forests of the Central Province of Ceylon. About a quarter of a mile below the fall, we arrived at a large Mulberry plantation, belonging to a gentleman who is endeavouring to rear the silk-worm on a large scale. So far as he has yet gone, the results are favourable. It being now pretty late in the afternoon, and our rambles having rather tended to increase our appetites, we halted on a large flat rock in the middle of the stream to take some refreshment. The situation was most beautiful; and we were surrounded in all directions by botanical treasures, as you will be able to judge from the following enumeration of a few of them. The trees were a species of *Monocera*, *Photinia Lindleyana*, *Agapetes arborea*, *Viburnum acuminatum*, *Turpinia Nepalensis*, and a large species of *Cinnamomum*. The
shrubs were *Osbeckia Wightiana*, an undescribed *Agapetes*, and several very handsome *Crotalarias*.

The next excursion we undertook included an absence of three days. Our head-quarters were a Bungalow about ten miles from Ootacamund, on the road leading to a pass, which descends into the Mysore territory. This place is called Pycarrah. Our ride was through a beautiful, open, hilly country, a few small patches of wood occurring in hollows, or in the deep gashes which intersect the hills. Dr. Wight pointed out to me several swampy tracts, in which *Parnassia Wightiana* grows in great plenty in the rainy season. In a small wood, by the side of the road, we found *Viburnum hebanthum* in a fine state; and on the margins of small streams *Eurya Wightiana*, a small shrub very much resembling the tea-plant in habit. We kept along the road for about eight miles, and then struck off to the left for the purpose of reaching the Pycarrah, a stream of some size which passes the Bungalow of the same name, and botanizing along its banks. In our progress we passed through several small woods which yielded us a few good things, such as an *Olea, Ophiorhiza Brunonis*, several fruticose *Acanthacee*, and an undescribed species of *Eugenia (E. montana*, Wight, MSS). We also passed over a rather high, bare hill, on which *Anemone Wightiana* was sparingly in flower. On the summit of this hill there is a large circular Cairn about four feet high, with an open well-like cavity in the centre. It had the appearance of great antiquity, and was over-grown with small shrubs and other vegetation. Similar cairns are seen on the tops of nearly all the hills of the Neelgherry range, and when opened have been found to contain generally from twenty to thirty urns of clay, often of very elaborate workmanship. Iron and brass utensils are also occasionally found in them; but so roughly used by the hand of Time, that they fall into dust on being touched. These Tumuli have lately been exciting the attention of Captain Congreve, an Indian Antiquary, and
the conclusion he has come to is, that they are of very high antiquity, and owe their origin to a pastoral race which still inhabit the higher ranges of the Neelgherries, and which he has undertaken to prove are of Scythian descent. On the Neelgherries these people are known by the name of Tandawars, or more commonly Toders. They engage in no agricultural pursuit; but rear large herds of buffaloes, the milk of which forms the principal part of their food, and great numbers of which animals are sacrificed in a most cruel manner at the death of their chiefs. These natives are nearly black, and are a very wild-looking race of beings, having only the lower part of their body covered with a few rags. It is said that female infanticide was formerly practised among them to a great extent.

Before reaching the banks of the Pycarrah, we passed through a large marsh full of Acorus Calamus, not then in flower. Our walk along the side of the river was very productive. All along it, a pretty species of Osmunda grows luxuriantly, and I was fortunate in finding it in beautiful fructification. The effects of the past winter were as visible here as in the Kaitie valley; the tender fronds of the Osmunda, and the young shoots of an Agapetes, and a fruticose Hedyotis, being very much browned. We crossed the stream at a place where the current runs with great rapidity among a number of large stones; and on these we found a curious little Podostemon. A little black shell (a Nerita) is also very common on the rocks. A dry bank afforded a species of Nicholsonia, the first, I believe, which has yet been found out of America. Ligustrum Perottetii grew abundantly on the banks, but was not in flower. Further down we collected Senecio Wightiana, Blumea hieracifolia, Lycopodium alpinum? an Eriocaulon, two kinds of Utricularia, and Pimpinella Candolleana.

Next morning, before breakfast, we walked down to the river, crossing it at a place where the bed is broad, and the water in detached streams falls over a succession of shelving rocks. Growing on these were three species of Podostemon, one of them being the same as that found on
the previous day. The banks, which are high and rocky, yielded a number of fine plants, such as Coleus barbatus, Kalanchoe grandiflora, Impatiens Goughii, a large Eriocaulon, Hedyotis verticillaris, (a curious low-growing plant, with broad ribbed leaves, and more resembling a Plantago than a Hedyotis); Drosera Burmanni and pentata, a Carex, Osbeckia Gardneriana, a Campanula, and a pretty suffruticose Gnaphalium. The Rhododendron, Agapetes arborea, Ilex Wightiana, and Photinia Notoniana, grow along banks; and on the branches of nearly all of them the very curious coral-like Viscum moniliforme is seen in great quantities. Dr. Wight pointed out to me on the stems and branches of the Rhododendron, as well as on rocks, a little Eria (E. retusa, Wight, MSS.), the depressed pseudo-bulbs of which are beautifully covered with a fine fibrous net-work. It was not in flower; but I have obtained fine specimens from his Herbarium.

Our rambles during the day explored some of the wooded ravines in the neighbourhood. In one of these we met with a new species of Cynopsole, growing parasitically on the roots of a large tree, (Myrsine capitellata). It is much smaller than the one found at Kaitie. Our researches were besides rewarded with two species of Microtropis, Gardneria Wallichiana, a shrub which climbs to the tops of the highest trees, a Jasminum, and several mosses and ferns. Here Myrtus tomentosa, and Dodonaea Burmanni, attain the size of trees. The fruit of the former, when ripe, is very delicious, resembling the gooseberry in flavour, indeed, it is called by Europeans the Hill Gooseberry, and from it they prepare a delicious jelly. Osyris Wightiana, and Jasminum aureum, are common in dry pastures around Pycarrah.

On the succeeding day our excursion extended to a distance of upwards of eight miles along the road which leads into the Mysore country. The scenery through which we passed, though not so grand as some of our after excur-
sions, is perhaps the most pleasing of any to be met with on the hills. In every direction large swelling hills are to be seen, covered with grass—at this season having the appearance of ripe corn—intersected with patches and long stripes of verdant woods, the varying tints of the foliage of which form pictorial combinations, on which the eye dwells with pleasure. There is one tree conspicuous above all the others, not only from its abundance, but the peculiar light green colour of its leaves. It is as yet a 'planta innominata,' forming a new genus belonging to the natural order Stilaginaceae. Between Pycarah and the next Bungalow, which is at a place called Neddawattum, we added very largely to our collections. On the road-side a fine tall species of Artemisia (A. grata), was very common. In a wood through which we passed, we saw a fine large tree, the top of which was nearly one mass of white flowers. It proved to be a Symplocos, and we have since ascertained that it is not described in De Candolle's Prodromus. Here we also met with an undescribed species of Coffee, though one which Dr. Wight had previously found, and several frutioose Acanthaceae. The stems of the large trees in the more dense parts of the wood, were covered with mosses, ferns, lichens, various kinds of Orchideae, and an Astyanththus. One of the Orchideae was a remarkable, and very large species of Oberonia. In another wood, a few miles further on, Leptanthes Walkeri was richly in flower, as well as a few other handsome Acanthaceae. One of them is a striking plant, a large, rambling, climbing shrub, with woody stems more than three inches in diameter. It comes near the genus Strobilanthis, but is sufficiently distinct to constitute a separate genus. Dr. Wight has a fine drawing of it, and will shortly publish it under the name of Didyplosandra lurida. The spikes come off from the old branches, and are from six inches to a foot long; the bracts and flowers are large, and both of a lurid brown colour. In more open bushy places we found Thunbergia fragrans, Im-
patients latifolia, and several species of Plectranthus and Pogostemon. We descended the pass a short way, which leads into the Mysore country, but did not meet with much to interest us. There were some fine peeps into the low country, which is much more thickly wooded than that which lies between Madras and the Neelgherries.

Our last excursion, occupying eight days, was the most productive of the whole. It was to the western slopes of the chain, or those which lead into the Malabar country. On our way thither we spent three days exploring the woods and mountains in the neighbourhood of a place called the Avalanche—from a great land-slip which has taken place on the side of a high hill, about sixteen miles from Ootacamund. Here, as usual, we were domiciled in the public Bungalow. The country through which we passed is very similar to that which leads to Pycarrah; but the hills at the Avalanche are far higher, and more rugged in their outline. The first day was spent on a high hill behind the Bungalow, where there are some well-wooded ravines. In these we met with Sonerila speciosa in fine flower; a third species of Cynopsole, much larger than the other two, the stems being nearly a foot in length, and the fructified part as large as one’s fist; a new Isandra, Michelia Neelgherica, Comphandra polymorpha, Blumea pterodonta, and a new Stylocoryne. By the sides of these jungles grew an undescribed Moonia, which Dr. Wight has dedicated to his friend Dr. Arnott, a species of Gynura, and Senecio corymbosa. The open grassy parts of the hill yielded us Gerardia Sopubia, an Ophilia, Ranunculus cordatus, and Prunella vulgaris. On the succeeding day we explored a long densely wooded ravine, which runs up to the top of the same hill, and found a very fœtid Mephitidia, a Cinnamomum, Hedera rostrata (Wight MSS.), and the new Symplocos, a few ferns and mosses, and a Rutaceous shrub, which, before we obtained the ripe fruit, we considered to belong to the Chilian genus Pitavia (Galvesia, Ruiz et Pav.),
the flowers having exactly the same structure. The fruit, however, in place of being a drupe, is a dry capsule.

Early on the morning of the third day we proceeded to investigate a high range of hills immediately opposite the Bungalow, and about two miles distant from it. We rode along the more level part, so as to be fresh for the steeper portion. In the moist flats grows a very pretty little Gentian (G. assocondita, Zenk.), with bright blue flowers; while on the higher and dryer fields Hypericum Mysorensis, a shrub from four to six feet high, with large golden blossoms, is seen in the greatest plenty. In a wood, by the margin of which we passed, and into which we occasionally dipped, we found a Pygeum in fruit, Symplocos obtusa, several kinds of Lauraceae, and Myrtaceae. In open parts at a greater elevation several species of Crotalaria, and Osbeckia Gardnerriana, were in full bloom. After scrambling up a very steep ascent, and when near the summit, we visited the residence of a Bear, but did not find him at home. This was a hollow, under a projecting ledge of rock, and judging from certain appearances, he had not been long gone. The selection of this spot for his den showed great wisdom; for not only was it well protected from the prevailing winds during the season of the rains, but in case of danger he had two outlets of escape. One of these, leading to a higher part of the mountain, was a very excellent ladder, formed of the gnarled stem of a large Rhododendron, the dense top of which serves besides as a verandah to the portico. The steps are so much worn that they seem to have been used for a long period by the progenitors of the present possessor. In clefts of the rock here, grew a pretty little Campanula, not uncommon in similar situations all over the hills. Ligustrum Perottetti was very common by the sides of mountain streams, as also a species of Elaeagnus. In a flat marshy tract, behind the summit of this range, we found an Eriocaulon, Valeriana Brunonian, and the curious Hedyotis verticillaris; while the dryer fields around
it were thickly studded with the bright yellow flowers of a Buttercup (Ranunculus cordatus). On our return, we collected specimens of two or three Laurinææ, and a large arboreous Olive allied to Olea glandulosa.

On the following day, we started from the Avalanche bungalow and went on to another at a place called Sispara, about fifteen miles distant. Shortly after leaving we had to ascend nearly 1000 feet above the level of the Avalanche valley, and from this elevation we commanded a fine view of the upper ranges of the Neelgherries, including Ootacamund, and the massive rounded summit of Dodabetta. The route thence lay through a truly beautiful, but uninhabited country; the road winding now along the sides of high grassy hills, now over their bleak summits, and now through beautiful vallies by the sides of limpid rivulets, the margins of which are adorned with Rhododendrons, and numerous other flowering shrubs. In one of these vallies, somewhat resembling that of Neuera Ellia in Ceylon, but smaller, the Wild Strawberry (Fragaria elatior), and Alchemilla Zeylanica form patches of immense size. It is curious that while the Neelgherries, and the mountain ranges of Ceylon have many European forms of plants in common, yet each presents a few which are peculiar to itself. Thus the Prunella vulgaris, Parnassia Wightiana, Lysimachia Leschenaultii, Rosa Leschenaultii, the four species of Viburnum, and the two of Lonicera of the Neelgherries, have not yet been discovered in Ceylon; while, on the other hand, the Agrimonia Eupatorium, Ranunculus hastatus, and Viola Walkeri of Ceylon, are unknown on the Neelgherries. They each possess a Dipsacus; but these are distinct, though nearly allied, species.

Before we got half way to Sispara, we were enveloped in a dense mass of clouds, which came rolling along from the Malabar country, and were soon drenched to the skin by the rain which they gave out. The cold was excessive, and we were glad to dismount and walk for the last two miles. We felt it most while passing along a high range which overlooks the low country. Here we saw convincing proofs, in the
shape of what may be called in geological language, recent deposits, that a large herd of Elephants had gone over the same ground only a short time before. Notwithstanding the rain and the cold, we diverged a considerable way from the road to visit the only station which Dr. Wight knows for Hypericum Hookeri-anum, and, even there, only one patch was to be seen about twenty yards square. Oddly enough too, this is situated in the centre of a flat swamp about half a mile in circumference. To this spot, for what reason I know not, the European residents have given the name of 'New England.' We found the Hypericum in fine flower, it is a very handsome species. Some way beyond this, we came upon one of the most remarkable pieces of natural scenery which is to be met with on the hills, which is called the 'Devil's Gap;' but whether this name commemorates his arrival on the hills, or his exit from them, no one now seems to know; though the probability is that it was not the latter. It is an immense gap, upwards of 150 feet wide, in the centre of a high hill, and has evidently been caused by the rending asunder of the latter. The road passes very close to it; and forms at its close, a deep wild-wooded ravine, ultimately terminating in a broad valley which sweeps down into Malabar: the view from it is magnificent indeed.

Notwithstanding the unfavourable state of the weather, we added considerably to our botanical stores. Among other plants may be mentioned a Pittosporum, a new Osbeckia, an Olea, a large shrubby Smithia, two beautiful species of Sonerila, a Gnidia, different from that which grows on the Eastern slopes, an undescribed Plectranthus, a new Pogostemon, a new Utricularia, and Clematis Munroana.

Two days were devoted to short rambles among the mountains in the vicinity of the bungalow, situated in a wild, but beautiful spot, a little below the top of the pass. The commonest trees in the woods at this elevation, are a new species of Ilex, and a new genus of the natural order Olicineae, which will be published in
the next part of Wight's 'Icones;' under the name of *Burseorpetahum arboreum*; the fruit is the size of a small Plum, and the calyx is adherent, as in Alph. De Candolle's new genus *Hypocarpus*. By the margins of jungles grew a very curious new *Hedyotis*—a shrub about six feet high, but of which we only obtained one or two miserable specimens in flower; and a very pretty small fruticose species of *Impatiens (I. Munroi, R. W.*) On the upper parts of the mountains there was but little herbaceous vegetation, our visit being at the end of the dry season. One of the most remarkable plants which these rocky places afforded was a new shrubby species of *Anisochilus*.

By far the most abundant harvest we reaped in this quarter was on the day devoted to an excursion about six or eight miles down the pass. The road leads through one continued forest. From the greater amount of moisture which this slope of the chain receives, vegetation here exhibits itself in its most luxuriant state. I shall enumerate some of the more remarkable or beautiful plants, taking them in succession as they occurred. Our first acquisition was a little caulescent *Dorstenia*, growing on shady banks by the road side, *Impatiens cuspidata, Lobelia nicotianaefolia, Torenia Asiatica*, the large-flowered variety, a new *Isonandra*, a new *Symlocos*, three species of *Mephitidae*, a new species of *Choripetahum*, a new species of Blume's genus *Balbespernum*, a fine *Euonymus*, two kinds of *Hedera*, one of them with large pinnated leaves, and a large-flowered *Ceropegia*. We were now about three miles down, and having arrived at a place where there is a large, rocky, moist, and rather steep part of the side of a high hill, destitute of trees, but covered thinly with shrubs and herbaceous vegetation, Dr. Wight informed me that the previous year he found on these rocks a species of *Anemia*; and this being a genus to which I have paid a good deal of attention, and which was considered till within a few years ago, to be peculiar to tropical America, when a solitary species
was discovered in Africa, I lost no time in clambering up the rocks to possess myself of an Indian species. The rock was very steep, but by the aid of a very curious kind of Wild Fig, which clings to it like ropes, we soon got up. This Fig bears a fruit larger than the common Fig, on thin creeping, rooting stems, which are destitute of leaves; they, the leaves, appearing only on the extreme branches. You may imagine my delight at finding in the greatest plenty, but not in a very good state of fructification, a true Anemia, so much resembling A. flexuosa, which I have frequently collected in similar situations near Rio de Janeiro, and on the Organ mountains, that I feel almost quite certain it is the same. This, however, shall be determined by a comparison of specimens on my return to Ceylon. On the rocks we also gathered a fine Asplenium, and an Aspidium, a Begonia, and plenty of the new fruticose Anisochilus, which we first met with near the bungalow at Sispara. Immediately below this rock grew a Pavetta, a new Eugenia, and two undescribed species of Sonerila. Further on, our collections were enriched by two fine Acanthaceae plants, Impatiens diversifolia, an undescribed Microtropis, and many other new or little known plants. The lowest part of the pass is covered with forest-trees of immense size, consisting chiefly of a kind of wild Nutmeg, a fine Euphorbiaceae tree, which will constitute a new genus, a Terminalia, and different sorts of Laurinea. It was late before we thought of returning, and we did not reach the bungalow till after dark. Next day we regained the Avalanche, and on the following reached Ootacamund, well pleased with our week’s labour.

Having now been about a month on the mountains, with no recurrence of fever, and my general health much improved, we determined to return to Coimbatore, and finish the examination of the Ceylon collections. To vary the route, we proceeded by Kotagherry, and the pass of the same name, and were accompanied by the talented historian of the Chinese war, Capt. Oughterlony, who is at
present occupied with a survey of the Neelgherry mountains. We passed the night at Kotagerry, about fifteen miles distant from Ootacamund, and on the following morning rode down to a small Coffee plantation, belonging to Capt. Oughterlony's brother. There is no residence on the estate; but the Captain having sent his tent, we breakfasted in it. The Coffee plants do not grow so luxuriantly as in Ceylon, from the very obvious reason that the climate is too dry; the coffee produced here is, however, of very excellent quality, being highly flavoured. From all that I have seen of the Neelgherries, no part of the range seems so well adapted for the cultivation of this shrub, as the Western, or Malabar slopes, which exhibit all the capabilities of the richest Coffee districts in Ceylon. In the afternoon we rode down to the Bungalow at the foot of the hills, slept there, and next day reached Coimbatore.

The following plants were added to our collection between Kotagerry and the plains:—Impatiens fruticosa, Monosis Wightiana, Lantana dubia, fine specimens of Lonicera Leschenaultii and Viburnum acuminatum, an Ardisia, Buddleia discolor, Glossanthus Malabaricus, a new species of Phebe, a fine large tree, Schmidelia Rheedii, an undescribed Jasminum, Semecarpus Anacardium, an Olea, the beautiful blue-flowered Thunbergia-like Meyenia Havotayneana, &c., &c. The lower part of the Kotagerry pass is steep, and the road very bad, but the view from that part of it, where the low country first comes in sight, is exceedingly fine, and as a whole put me very much in mind of the rich plains which are overlooked by the Malvern hills.

You will be glad to learn that Dr. Wight has the third part of his 'Icones' in the press, which with some succeeding ones, is to be principally devoted to the productions of the Neelgherries. A selection from these, coloured, he is also publishing under the name of "Neelgherry Plants." Of this Work there will only be 100 copies, to consist of four or five parts of 50 plates each. At present he has two native artists and a plant-collector constantly employed,
at his own expense. It is only those who know how Dr. Wight is situated, who can fully appreciate the difficulties he has had to contend with in effecting what he has towards the elucidation of the Botany of the Southern parts of India. Living upwards of three hundred miles from Madras, where the lithography and printing are executed, and much of his time being occupied with professional engagements, it is astonishing that he has been able to accomplish so much. It is now his intention to resume the publication of his "Illustrations of Indian Botany," of which the last part was the first portion of the second volume.

Having at last completed the determination of the Ceylon Collections, and the selection of an immense number of duplicates from Dr. Wight's Indian Herbarium, I left Coimbatore, on the 13th of April, to return to Ceylon via Cochin, on the Malabar coast. The Malabar country is far more fertile than the Carnatic, and covered with fine forests, similar to those on the West coast of Ceylon, a difference no doubt caused by the great quantity of rain which falls during the S.W. Monsoon. Some of the forests I passed through were almost entirely composed of magnificent Teak trees. At Trichoor, a native town about fifty miles from Cochin, I remained two days with the officer who commands a detachment of the Madras Native Infantry now stationed there, and during that time had an opportunity of seeing a very splendid native festival. It was under the auspices of a brother of the present Rajah of Cochin, and not less than 10,000 people were calculated to be present, among whom were only four Europeans. In this grand procession, I saw about fifty elephants, all in gorgeous trappings of silver and gold, and on the back of each stood several half-naked Bramins, waving large fans made of the tail-feathers of peacocks under the canopy of large umbrellas of crimson silk. Among the immense mass of human beings here assembled there was neither rioting or fighting; a strong proof of the gentleness of their disposition; nor did I observe more than half a dozen in a
Botanical Information.

state of intoxication. At Cochin, I had to wait a week for a vessel, but during that time I saw little that could interest a Botanist, for it was the end of the dry season, and there was not much in flower. After a run of three days we dropped anchor in this port, and my collections have all been landed safely, and are now on their way to Kandy.

George Gardner.

Colombo, Ceylon, 14th May, 1845.

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Bouqueria, Novum Plantaginearum Genus,
Auct. J. Decaisne.

(With a Plate, Tab. XIX.)

cula teres cotyledones longitudine æquans. *Plumbula* inconspicua.

Bougueria *genus*, medium inter Plantaginem et Littorellam, priori habitu accedit, capsule structura ad posteriorem vergit.

Hoc genus Andicolum dicavi memoria illustr. Bouguer, qui Condamineo comitante, excelsorum Peruviae montium altitudinem mensus est.

**Bougueria nubicola.**

B. foliis linearibus, pedunculis folio brevioribus, bracteisque glabris, calyce dense piloso. (Tab. XIX.)

Crescit in Bolivia inter saxorum porphyreticorum fissuras in montibus nivosis sub nomine *las lagunas* designatis, urbem Potosi alte superantibus, inde circa 4,888 metr. alt. supra Oceanum.

Flores fructumque perfecerat Martio (b. specim. 6 sicca in Herb. Mus. Paris. a cl. Alc. d'Orbigny relata.)


**Tab. XIX.** Bougueria nubicola. Dcne.—*Fig. 1.* Bractea; *f.* 2. flower; *f.* 3. anther; *f.* 4. corolla; *f.* 5. fruit; *f.* 6. the same laid open and showing the seed; *f.* 7. the fruit cut through transversely; *f.* 8. vertical section of a seed; *f.* 9. embryo:*—magnified.*

* The above generic and specific character and description appeared in the Annales des Sciences Nat. 2nd. ser. v. 5, p. 132.

After a tedious passage of two days and nights from calms and dense fogs, I arrived at Great Arran early on the morning of August 31, and the day being delightfully sunny, I rambled over the north western parts of the island. In several enclosures, (for I cannot term them fields, this botanically interesting island being intersected in every direction by innumerable loosely piled stone barriers or bounds) I saw especially near the road leading to the light-house, Helianthemum canum growing in such abundance that I am surprised that it has, until this day, escaped the notice of even the most indifferent observer. These dreary and seemingly barren sheep enclosures present continued platforms of huge limestone flags, and where a separation of the rocks takes place, the hollows afford a scanty, but sweet herbage, and the botanist is greeted by an assemblage of rare and beautiful plants, peculiar to some of the limestone districts of Britain. Here Helianthemum canum profusely covered the bare rock, insinuating its strong roots so deeply into the crevices as to render it difficult to procure good specimens for cultivation; while the delicate little Galium pusillum, so strikingly different in its growth and character from G. saxatile, Cerastium arvense, var. strictum, similar to the form found by me in 1842 in the western Plasket Island, coast of Kerry; Arenaria verna, Asperula Cynanchica, and the rich purple blossoms of Geranium pratense intermingled with it in quantities. The deeper fissures or miniature chasms were lined with the pale green tresses of Adiantum Capillus Veneris, the huge leaves of the Irish Ivy, Lonicera Periclymenum, Rubus saxatilis and R. cæsius. The species of Ferns appeared to be few, and, with the exception of the Adiantum, none but the common kinds, Grammitis Ceterach, Aspl. Trichomanes,
A. Ruta Muraria, A. marinum, (magnificent specimens), Scolopendrium vulgare, and Polypodium vulgare and Pteris aquilina, the two latter in vast profusion. Several sunny banks were studded with Arabis ciliata, A. hirsuta, and an Arabis bearing closely the character of A. bellidifolia with perfectly smooth obovate petioled entire radical leaves. The commonest thistle in the grassy plots was Carlina vulgaris, and with it I met a singular specimen* which I enclose, but I have not been able to find reference to the species. In the sands of the Island Brassica Monensis and Convolutus Soldanella were plentiful, and in several stations the Allium carinatum, alluded to in the additions to the 5th edition of "British Flora." I suspect that I have also obtained the true A. Ampeloprasum.

In the N.W. part of the Island, I collected Hesperis matronalis, or, perhaps, more properly, inodora; but could no where meet with Matthiola sinuata, recorded by Mr. J. T. Mackay as having been detected in Arran many years since. On the sandy turfy banks Astragalus hypoglottis, Arenaria verna, Sagina maritima and Neottia spiralis were frequent; the two first having been previously noticed by Mr. R. Ball.

The present rough observations must be considered a very imperfect account of the Botany of Arran, because I have not had leisure, since my return home, to examine my collection thoroughly, but such as they are, I thought they might prove acceptable to Botanists interested in the Flora of Ireland. I may mention that John Wynne, Esq., of Haslewood, Sligo, the discoverer on Benbulben Mount of Saxifraga nivalis, has lately enriched the Irish Flora with Arabis petraea, and the true Saxifraga pedatisida, Ehrh., the former from Benbulben, the latter from the Isle of Achill, Mayo. To these I have this year added Arabis stricta and Draba rupestris.

* The specimen sent by Mr. Andrews is Carlina racemosa, Linn., a native of the South of Europe and North of Africa, probably introduced.—Ed.
Schimper's Mosses.

European and other Mosses on Sale by M. W. P. Schimper, Strasbourg.

In order to defray a portion of the heavy expenses incurred by the publication of the *Bryologia Europaea*, M. Schimper will immediately prepare for sale a certain number of sets, containing the normal forms of nearly all the European Mosses, each species to be represented by perfect and multiple specimens, arranged like those of Drummond's American Mosses. The price of each set will be £8 sterling.

Two peculiarly rich sets, corresponding exactly with the Herbarium of the University of Strasbourg, containing all the different forms and varieties of European Mosses, gathered in numerous localities, together with more than two hundred exotic species, of which one hundred are new, or, at least, undescribed, may also be had for £15 each. Persons desirous of purchasing are requested to apply direct by letter to M. Schimper, stating the mode in which their respective orders are to be transmitted.

Intelligence from Mr. Bridges in Bolivia.

Cochabamba, April 3rd. 1845.

"Sir William,

"Since my arrival in Bolivia, now six months ago, I have not had the pleasure of receiving a letter from you. Previous to my departure from Valparaiso, I wrote to you after I had the honour to receive the letter which your kindness and influence obtained for me from his Lordship, the Earl of Aberdeen, destined for H.B.M. Consul in Bolivia, Charles Masterton, Esq. On reaching Chuquisaca, the capital of Bolivia, I immediately presented his Lordship's letter, and I am happy to inform you that Mr. Masterton gave me a most cordial and obliging reception, and
made known to his Excellency, the President, General Ballivian, through the Minister of Foreign Affairs, the object of my journey to Bolivia. A few days afterwards; I had the honour of an interview with his Excellency, who received me with unexpected kindness, and most generously promised to provide me with letters to all the Prefects or Governors of the various Departments of the Republic, which I received previous to my departure from Chuquisaca, and I have in all parts met with every attention from the authorities. After the receipt of this, you will please do me the favour, either verbally or by letter, to present my most sincere and grateful thanks to his Lordship, the Earl of Aberdeen, for the favour and most essential service he has conferred upon me.

"I shall now attempt to give you a brief idea of what I have done in this singular, and in some parts, interesting country. On the 13th of September, I landed in Cobija, the only commercial port which the Republic possesses, and during the few days I remained there, I made an excursion up the dry, lofty and arid mountains which run parallel with the coast nearly the whole length of the Desert of Atacama. Along the coast, and at the base of those mountains scarcely a plant exists: it is not possible for a person, who has not seen this place, to picture to themselves a spot so awfully barren. The only vegetation that is to be seen, at a distance, is a tall erect species of Cereus, which, if I am not mistaken, is the C. Coquimbensis of Molina, for I have found the same species at Coquimbo. There are two distinct species found about Coquimbo with enormous long spines, but although in this respect they agree, their seed-vessels are widely different. The Cobija plant produces a large pear-shaped fruits, covered with long green or greyish hair, which are termed "Pasas canas" by the natives, and, in certain seasons of the year, form the food of the Chinchilla. The other species alluded to yields a round smooth seed-vessel destitute of hair. After having ascended this ridge of mountains to the elevation of 1500
feet, to my great surprise I discovered a variety of plants, and amongst them growing on some stunted bushes a beautiful new species of *Tropoeolum*, somewhat similar to *T. brachyceras*, but with a more expanded flower, twice the size, and the plant altogether much more robust. I obtained fine tubers and specimens of this plant, but, from what I learn, they have been unfortunately lost on their passage to Valparaiso.

"Having procured mules in Cobija for myself and two Chilian servants, we took the road to Potosi, and in three days reached the little town of Calama, forty leagues distant from Cobija, situated in the desert of Atacama. It was within thirteen leagues of this place, that I had the pleasure of finding in February the beautiful *Pilocereus*. In my last letter from Valparaiso, I gave you a few remarks on this interesting plant; since then I have seen more of its habits, &c., therefore shall again trouble you with the following observations. It is generally found on the slopes of bold, rugged mountains, whose aspect is towards the north, where it enjoys plenty of sun and a dry sandy soil. Frequently twenty or thirty stems proceed from the same root, the outer ones partly lying on the ground forming a curve upwards, the inner stems grow erect and are those which are most hairy, they seldom reach the height of 4 feet, and from the older stems in the centre spring the flowers, which are of a beautiful dark red, about the size of *C. flagelliformis*; the seed-vessels are round or rather oval, smooth and shining on the surface, hollow within and destitute of a pulpy substance; the seeds are round and of a blackish colour. The place where I found it most abundantly, was near the vicinity of the city of Potosi at an elevation of 12,000 feet; therefore you may judge from this it is frequently exposed to frost. In the language of the Quichuan Indians, it is called Quichuallo, pronounce Ke-wal-yo. The other enormous species of *Cereus*, which I mentioned, grows in the same localities and often attains the height of 20 feet. The flowers proceed from the top, and are of a dark red
colour arranged in a circle; when viewed from a distance, one might imagine that a flower of a *Paonia* had been artificially placed on the plant. The stems are often 18 inches in diameter; the natives use the dried stems for rafters to their houses, also for doors, being the only timber the country produces in those parts. I possess, in Valparaiso, a piece of this wood, which on my return I will forward, for the purpose of giving you an idea of its size and structure.

"From Calama, by regular stages, I arrived at Potosi, one hundred and fifty-eight leagues from Cobija. We travelled on the summit of the Andes after leaving Calama, twenty leagues, often at an elevation of 18,000 feet, till we reached Potosi. During the whole of this long journey, I did not collect a single specimen, as few plants exist, and those we saw were not in flower, it then being the dry season; were a traveller to pass the same road at the present time, he would be more fortunate, and might obtain many curious alpine plants. On the Andes, I found many interesting birds, particularly two kinds, one a new species of *Eudromia*, as large as *E. elegans*, but different in plumage, and without a crest; the other is a charming species of *Tinocnorum*, much larger than *T. D'Orbignianus* and of beautiful plumage. These birds inhabit the vicinity of frozen brooks near Tapaquilcha; they are rare and I have never been able to detect them in any other place. I remained only a few days in Potosi, and from thence directed my way to Chuquisaca. After leaving Potosi, with a few leagues of a gradual descent, we came into a more congenial climate, and I had the pleasure to find a fine species of *Berberis*, *B. virgata*? of Ruiz and Pavon; also a very elegant species of *Lycium*, with long dark blue flowers. Before we arrived at Chuquisaca, we crossed what may be termed the head-waters of the river Pilcomayo. On the mountains on either side of this river there is a very interesting vegetation. Here I found a most beautiful tree belonging to the *Bignoniaceae* which grows to the height of 20 feet, completely covered with panicles of splendid dark blue flowers, the size and
shape of *Gloxinia speciosa*. I verily believe, on many trees, there were at least 10,000 flowers. I have preserved numerous specimens of this fine plant, accompanied with the seed-vessels; therefore you will, when you receive them, soon find the genus to which it belongs. On the banks of the river under the shade of trees, I met with a few plants of a *Gesnera* new to me, having a large tuberous root and pale red flowers. The commonest tree in the neighbourhood of Chuquisaca is the *Schinus Molle*, which grows to a large size, and is highly ornamental, when its long racemes of pink fruit are ripe. On the large trees we saw many parasitical species of *Tillandsia*, and a few species of *Orchidaceae*, but not in flower. The *Cactee* are very numerous in this part of the country, and I collected about twelve species of *Cereus* and *Echinocactus*, many with very fine flowers, and all different from those of Chile. I have forwarded plants to Valparaiso, and by the time you receive this, I hope they may have arrived in England. From the nature of some of them, I am apprehensive they will not endure the long voyage to Europe.

"After a month's residence in Chuquisaca and its environs, I came on to Cochabamba, through the warm and unhealthy valleys of Moxotoro, Rio Grande and Misque, where I found a variety of plants, birds, &c., and I arrived here on the 24th of December. I have now spent three months in this place, which is the most delightful climate I ever experienced, the thermometer ranging from 68° to 74° in the shade.

"During my residence here, I have examined the mountains in the vicinity, and have made a considerable collection of dried plants, too numerous to mention. Among them are four species of *Calceolaria*, distinct from those of Chile, several *Salvias* and many genera new to me. One of the handsomest plants I have seen here, is a species of *Begonia*, with a large tuberous root and a fine red flower, 3 inches in diameter. I have sent tubers of this to Chile with directions for England. The leaves are large and shining, and the plant attains about 2 feet; it grows in a rich decomposed
vegetable soil, on the shelves of precipices in shady places on the mountains to the N.E. of Cochabamba.

"I consider my next remittance of dried plants from this country will afford you more pleasure and interest than any you have received from me, both as to extent and variety, and it also may prove more novel, from the few travellers that have yet entered this remote country. I have devoted the greater part of the time I have spent here to ornithology and entomology. Of birds, I possess at least 100 species; many of them were made known to Europe, only by the labours of that eminent traveller, D'Orbigny. The following birds discovered by him, I have found in the valleys of Chuquisaca and Cochabamba; (the names extracted from his work); viz: Troglodytes fulvus, Saltator aurantirostris, Hirundinea bellicosa, Adacyani rostris, A. nigerrima, Pytilius aureo-ventris, Cypselus Andicolus, Emberiza lutoccephala, E. hypochondria, E. griseo-cristata, E. atriceps, Linaria analis, Carduelis atratus, Icterus maxillaris, Uppucerthia Andicola and montana, Phytotoma angustirostris, Synallaxis humicola, S. fuliginiceps? S. striaticeps, S. torquata, Orpheus dorsalis, Turdus fusco-ater, T. Chiguanco, Phalcolemus montanus, Picus atriventris, P. cactorum, Colaptes rupicola, Culicivora reguloides, Setopagia brunniceps? Serrirostrum carbonarium, S. psittoides, and Anthus furcatus. In Entomology, I have been no less fortunate; but hitherto I have directed my attention almost alone to Coleoptera, and have captured several species of Nyctalus and Phancus, also a considerable number of species belonging to other genera.

"In three days from this date, I intend to leave Cochabamba, and proceed to the eastward into the provinces of Moxos, and Santa Cruz de la Sierra, crossing an enormous ridge of mountains to the N.E. of this place, and afterwards fall into the tropical forests. In about eight days journey, I shall reach the river Mamoré, and on that river I purpose going to Trinidad, the capital of the province of Moxos, where I may station myself for one or two months, and it is not improbable I may reach the frontiers of Brazil.
After I leave Moxos, I shall ascend the River Piray, and
land within a few leagues of Santa Cruz de la Sierra, and
thence return again to Cochabamba. Should I only have
health during this journey, I shall, without doubt, form an
extensive collection of Natural History, which may tend to
make known the Bolivian Flora in England; better, at least,
than it is understood at the present day. It is not possible
for you to form any conception of the expense and difficulty
of conveying things after being collected, in this country,
without roads and the means of transportation. Soon after
my arrival in Trinidad, I will do myself the pleasure of
writing to you again, and am,

Sir William,
“Your obedient and obliged servant,
“THOMAS BRIDGES.”

Notes on Mimoseæ, with a Synopsis of Species. By GEORGE
BENTHAM, ESQ.

Tribe III. ACACIEÆ.

(Continued from Vol. III. p. 226.)

(Foliis simpliciter pinnatis.)

XXVIII. INGA, MARTIUS.—Inae foliis simpliciter pinnatis,
Wild., DC.

Flores hermaphroditæ, rarius polygami. Calyx tubulosus
v. campanulatus, 2-5-dentatus. Corolla tubulosa v. infundi-
buliformis. Stamina indefinita, sæpius numerosa, corolla
duplo v. pluries longiora, basi in tubum coalita. Ovarium
unicum. Legumen carnosum v. coriaceum, planum tetra-
gonum v. subteres, rectum v. subincurvum, vix dehiscens,
marginibus incrasatis v. valde dilatatis et sulcatis. Semina
pulpa dulci, sæpe nivea, involuta.—Frutices v. arbores Americæ
calidioris, inermes. Folia simpliciter abrupte pinnata. Pe-
tiolus inter juga foliolorum sæpe in alam expansus, alis semper
ad nodos interruptis. Glandulae inter omnia paria scutellatae,
turbinæ vel stipitatae, in speciebus perpaucis obsolete v

As already stated under Pithecolobium, the absolute character here relied on for distinguishing Inga is the simply pinnate, not bipinnate leaves. The generality of the species differ, it is true, essentially from Pithecolobium in the thicker, more fleshy, almost indehiscent pod, with a remarkably thickened or dilated margin, and never spirally twisted, and the flowers are usually longer with a hairy corolla, but many species have precisely the flower of Pithecolobium, and even the differences in the pod run from one genus to the other by almost inappreciable gradations, so that unless the positive (and in Leguminosae important) character derived from the foliage be taken into account, we must either reunite all the monadelphous Mimoseae into one genus, or have recourse to vague characters, difficult to appreciate, and still more so to describe, and after all remain in doubt as to all species where the pod is undescribed—that is, more than one third of the whole number known.

The inflorescence and some other characters have appeared to me sufficient to establish the five following substantive sections:


IV. Pseudinga. Spicae ovatae v. oblongae. Calyx tubulosus. Corolla, speciebus paucis (Glabrifloris) exceptis, vil-
LOSEA. Legumen planum marginibus incrassatis quam facies
multo angustioribus.—Species 37-86.

V. EUINGA. Spicæ ovatae v. oblongæ. Calyx tubulosus
v. tubuloso-campanulatus. Corolla villosa. Leguminis mar-
gines valde dilatati, sulcati, quam facies vix angustiores v.
latiores easque interdum obtententes.—Species 87-128.

The difficulty in determining the species, especially of the
two last sections, is unusually great, the foliage and flowers
of half-a-dozen or more species are often so similar as to
render it almost impossible to characterize them without the
pod, which very seldom accompanies the specimens. The
characters derived from the proportionate length of the calyx,
corolla and staminal tube vary, even after the flower is ex-
panded, according to the period of its development; the in-
florescence, whether chiefly axillary or terminal, can scarcely
be judged of from the fragments which our herbaria will hold
of these large-leaved trees; the number and size of the leaflets
depend often on the part of the branch whence the specimen
is taken; and the hairiness is often very abundant on the
young leaves and branches, and entirely worn off with time.
It is, therefore, very probable that many of the species here
described as new, may hereafter be found to be the same as
some of those already described which I have not seen. On
the other hand, it may be observed that the species of Inga
do not in general appear to be very widely diffused, and that
most of Willdenow's, and others which are unknown to me,
come from Para or Caraccas, from neither of which localities
I have any specimens.

SECT. I. LEPTINGA. Racemi umbellæformes, receptaculo
subgloboso, pedicellis elongatis, calyce sæpius mucho longiori-
bus, rarius calyce ampliore brevioribus. Flores parvi, glabri
v. tenuiter puberuli.

77, t. 289) ramulis inflorescentiaque tomentellis, foliis glabris,
petiolo alato, glandulis magnis, foliolis bijugis elliptico-ob-
longis acuminatis coriaceis nitidis, umbellis pedunculatis sub-
racemosis, floribus tomentellis, calyce corolla duplo quam
pedicellus plus duplo breviore, tubo stamineo vix exserto.—Foliola majora 4-5-pollicaria. Petiolis alae latiusculae. Pendunculi 1-1½-pollicares. Bracteolae subulatae. Flores 4-5 lin. longi.—British Guiana, Schomburgk, coll. 1843, n. 751 (1400); Woods of the province of Maynas, Pöppig; Lamas in Peru, Matheus, n. 1593.

2. I. umbratica (Pöpp. et Endl. l. c. p. 77) ramulis inflorescentia foliisque junioribus tomentoso-puberulis, petiolo interrupte alato, foliolis bijugis amplis ovali-oblongis ellipticas coriaceis, glandulis magnis, umbellis brevissime pedunculatis, floribus tomentellis, calyce corolla plus duplo quam pedicellus pluries breviore, tubo stamineo longe exserto, legumine recto plano glabro.—I. myrianthae affinis, sed characteribus datis facile distincta. Foliola majora 8 poll. longa.—Woods of the province of Maynas, Pöppig.

3. I. sciadion (Steud. ! Flora, 1843, p. 758) ramulis foliisque glabris, petiolo complete alato, glandulis majusculis, foliolis bijugis ovatis v. ovali-oblongis breviter acuminatis coriaceis nitidis, umbellis brevissime pedunculatis, floribus tomentellis, calyce corolla pedicelloque plus duplo breviore, tubo stamineo breviter exserto.—Ab I. umbratica differt imprimis foliolis triplo minoribus, petioli alis ad foliola inferiora attingentibus, et staminum tubo breviore.—Surinam, Hostmann, n. 170.


5. I. leptopus, glabra, petiolo nudo, glandulis parvis v. obscuris, foliolis bijugis ovali-ellipticis v. ovato-oblongis coriaceis nitidis, umbellis longiusculae pedunculatis, floribus elongatis glabriusculis, calyce tubulosæ corolla triplo quam pedicellus pluries breviore, tubo stamineo exserto, legumine plano marginato glabro.—Foliola majora 4-5 pollicaria. Sti-


? minor, glabra, foliolis ultimis 3-4-pollicaribus vix coriaceis, pedunculis brevioribus, calycibus minoribus; an species propria?—British Guiana, Schomburgk, 2nd Coll. n. 810, (1427.)

7. I. umbellifera (Steud.—DC. Prod. 2, p. 432), ramulis inflorescentiaque tomentellis, petiolo breviter et anguste alato, glandulis scutellatis, foliolis bijugis oblongo-lanceolatis utrinque angustatis coriaceis nitidis, umbellis longe pedunculatis, floribus subglabris, calycibus corolla pedicelloque plus quadruplo brevioribus, legumine plano marginato minute tomentello.—Mimosa umbellifera, Vahl. Ecl. Amer. 3, p. 30.—Foliola multo angustiora quam in I. sertulifera, ultima 3-3_2-pollicaria; petiolus evidentius alatus; pedunculi longiores; flores consimiles.—British Guiana, Schomburgk.

8. I. virgultosa (Desv. Ann. Sc. Nat. Ser. 1, v. 9, p. 426), ramulis apice tomentosis, petiolo anguste alato, glandulis minutis, foliolis 3-4-jugis (parvis) ovato-lanceolatis glabris nitidis, umbellis pedunculatis, calyce minuto corolla pedicelloque multoties breviore, tubo stamineo longiuscule exerto, legumine crasso compresso.—Mimosa virgultosa, Vahl. Ecl. 3, p. 32.—From the description, it appears that this species
(which I have not seen) is very near to I. heterophylla, if not a mere variety with downy branches. The leaflets are said to be from 1 to 1½ inches long. The calyx, well described by Vahl, is so small that Desvaux could not see it.—Cayenne.


11. I. flagelliformis (Mart. Herb. Fl. Bras. p. 112), glabra, petiolo nudo, glandulis sessilibus sæpe obscuris, stipulis falcato-ovatis, foliolis 3-5 jugis rarius bijugis oblongo-ellipticis utrinque acutis nitidis coriaceis, pedunculo rigido elongato, floribus tubulosis glabriusculis, calycibus corolla plus duplo quam pedicellus pluries breviore, tubo stamineo corollam œquante.—Mimosa flagelliformis, Vell. Fl. Flum. 11, t. 27.—Foliola majora 4-6-pollicaria. Petioli teretes v. sub foliolis angulati, rarius obsolete marginati. Stipulae ampleœ. Pedunculi 2-4-pollicares, pedicelli 9 lin., corolla 4 lin. longa. Bracteole setaceæ, apice spathulatae, 1 lin. longœ.—Province of Rio Janeiro and Minas Geraes, Lushnath, Martius, etc. In some of Martius' sets the I. cordistipula has been by mistake sent as I. flagelliformis.


Sect. II. Diadema. Flores in capitulo globoso longe pedunculato sessiles v. rarius breviter pedicellati, parvi, tenues,

—Brasil, Pohl.

β tenuis, foliolaris minoribus 5-6-jugis.—Mimosa tenuis, Vell. Fl. Flum. 11, t. 11.—Inga tenuis, Mart. Herb. Fl. Bras. p. 114.—Rio Janeiro, Lushnath, Reidel.

16. I. diadema (Mart. Herb. Fl. Bras. p. 114), foliolaris 4-5-jugis elliptico-oblongis utrinque angustatis, pedunculo longo tenui, floribus sessilibus ?—Mimosa diadema Vell. Fl. Flum. 11, t. 45—Brasil. This I have not seen, but from Velloso’s figure it appears to be near I. nutans on a large scale, the leaflets are three or four inches long, the peduncles 7 to 8 inches. In the figures of both species, the artist has found it too much trouble to distinguish the calyx corolla and stamens.


81. *I. Jinicuil* (Schlecht. ! Linnæn, 12, p. 559), glabra, foliolis trijugis ovali-v. oblongo-ellipticis breviter cuneatis apice acutiusculus nitidulis, pedunculis elongatis, corolla calyce puberulo triplo longiore, legumine plano glabro.—Foliola majora 4-6 poll. longa. Pedunculi 1-3-pollicares. Calyx 1 lin., corolla 3 lin. longa.—Jalapa, *Schiede*. Of this I have not seen the flowers myself.


Spicæ vulgo axillares, solitariæ v. fasciculatae, breviter pedunculatae, 1-3-polllicares. Flores sessiles, vix unquam tres lineas superant. Bractæe minūtæ.


β. parvifolia, arbor elata.—Pernambuco, Gardner, n. 984.

24. I. Guayaquilensis (G. Don, Gen. Syst. 2, p. 391).—This is considered by Walpers (Linnaæa 14, p. 298), to be the same as the Brasilian I. tetraphylla, and if that be the case, Don’s name claims the priority; but without a careful comparison of specimens, it is scarcely advisable to unite two species from countries so widely distant as Guayaquil and Bahia. I have not met with any species of this section amongst the Guayaquil collections I have seen.


2-3-jugis anguste oblongis utrinque angustatis, spicis elongatis, calyce corolla quadruplo breviore, tubo stamineo longiusculae exserto, legumine plano glabro.—Mimosa cylin-
drica, Vell. Fl. Flum. 11, t. 9.—Valde affinis I. semialatae et forte ejus varietas; petiolus tamen rarissime subalatus et tubus stamineus longior. Foliola sepe trijugae.—Tropical Brasil, Pohl, Boaz.

27. I. coruscans (Humb. et Bonpl. in Willd. Spec. 4, p. 1017), glabra, petiolo nudo, foliolis trijugis oblongis utrin-
que angustatis coriaceis nitidis, spicis elongatis, calyce corolla pluribus breviore, tubo stamineo vix exserto.—Ab I. 
cylindrica differt foliolis majoribus latioribus coriaceis; flores etiam tenuiores confertiores, calyx minor, staminum 
tubus multo brevior.—On the Magdalena river, Humboldt and Bonpland; British Guiana, Schomburgk, 2nd Coll. n. 72 
and 214.

28. I. pezizifera, ramulis novellis inflorescentiaque tomen-
tellis, foliis glabris, petiolo nudo, glandulis maximis pezizi-
formibus, foliolis 4-jugis ovato-oblongis acuminatis coriaceis 
nitidis, spicis oblongo-cylindricis, calycibus corolla 4-plo 
brevioribus, tubo stamineo exserto—Foliola 3-4-pollicaria. 
Inflorescentia et flores I. Bourgonii. Species inter Burgoniis 
apteris facile distinguitur glandulis maximis.—British Guiana, 
Schomburgk, 2nd. Coll. n. 124 (50).

29. I. polystachya, glabra v. ramulis inflorescentiaque 
tomentoso-puberulis, petiolo nudo, floribus quadri-rarius 
tri-jugis ovato-oblongis obtusis v. obtuse acuminatis coriaceis 
nitidis, spicis numerosis elongatis multifloris, calyce corolla 
subtriplo breviore, tubo stamineo subexserto.—Foliola fere I. 
tetraphyllea sed fere semper 4-juga. Spicæ 3-4-pollicares, 
floribundæ. Flores quam in affinisibus minores; corolla vix 
quamun 2 lin. longa.—Tropical Brasil, Pohl.

30. I. tenuifolia, glabra, petiolo nudo, foliolis 4-jugis lan-
ceolatis acutis basi angustatis, spicis cylindricis, calyce 
corolla triplo breviore, tubo stamineo incluso.—Foliola mem-
branacea, majora 1½-2-polli. longa, 5-6 lin. lata. Spicæ fere

31. I. marginata (Willd. Spec. 4. p. 1015), ramis foliisque glabris, petiolo sub foliis anguste et longiusculæ alato, foliis bijugis elliptico-oblongis acuminatis nitidis, spicis elongatis laxis, calyce corolla pluries breviore, tubo stamineo subexterno, "legumine lineari nodoso."—Mimosa fagifolia Linn. Spec. p. 1498.—Foliola suprema 3-4-pollicaria. Spicæ tripollicariae. Bracteæ minutæ, ovatæ, cuspidatae.—Caracas, Bredemeyer, British Guiana, Schomburghk, 2nd. Coll. n. 918 (1443).—The consistence of the leaves and inflorescence of this plant bring it much nearer to I. laurina than to I. Bourgoni to which it is usually referred, it is also near I. semialata; but the wings of the petiole are longer and narrower, the leaves shorter and firmer, the bracts shorter and broader, and the pod (which I have not seen) is very differently described. Kunth's I. marginata, considered by De Candolle as distinct, is said by others to be the true I. marginata, Willd., but as neither flowers nor fruit have been seen, it cannot at any rate be admitted as a separate species.


33. I. semialata (Mart. ! Herb. Pl. Bras. p. 114), glabra

β. latifolia (Mart! Herb. Fl. Bras. n. 1091), foliolis adultis 6-8 poll. longis, 2-2½ poll. latis, corollis 3 lin. longis. —Tropical Brazil, *Sello, Pohl, Martius*.


35. *I. puberula*, ramulis pedunculis foliisque junioribus hirto-puberulis, petiolo sub foliolis superioribus anguste alato, foliolis bijugis oblongis utrinque angustatis, spicis elongatis laxis, calyce corolla triplo breviore, tubo stamineo incluso v. breviter exserto; “legumine moniliformi.”—Inter *I. excelsa*, et *I. pycnostachya* media, a priore differt pube, ab hac ala petioli angustiore breviore nunc angustissima, spica laxiore, etc. An varietas *I. semialata*? sed legumen (quod ipse non vidi) diversum dicitur.—Tropical Brasil, *Pohl, Guillemin*; near Bahia, *Lushnath*.

36. *I. pycnostachya*, ramulis petiolisque pilosulis, petiolo alato, foliolis bijugis anguste oblongis longe et obtuse acuminatis basi angustatis utrinque pilosulis, spicis elongatis
densis, floribus minute pilosisculis, calyce campanulato
corolla 4-plo breviore, tubo stamineo vix exserto.—Arbor
habitu et inflorescentia I. excelsae et I. puberulae similis sed
flores conflortiores et ala petioli ad foliola inferiöra attingit et
superne utrinque 1-2 lin. lata est. Corolla 2 lin. longa. Legu-
men ignotum.—Province of Mozobamba, Peru, Mathews.
The I. martinicensis, Preal. inserted below n. 47 may pos-
sibly belong to the section Bourgonia.

Sect. IV. Pseudinga. Spicæ ovatae densæ v. longiores
basi laxæ v. interruptae. Flores sessiles v. rarius brevissime
pedicellati. Calyx tubulosus v. anguste tubuloso-campanu-
latus. Corolla speciebus paucis exceptis, villosa. Legumen
planum, marginibus elevatis latitudine leguminis multo
angustioribus.—This section is readily distinguished from
the preceding ones by the inflorescence, from Euinga it is
scarcely known but by the pod. The flowers are usually
more slender, the calyx smooth or clothed with appressed
hairs, the corolla generally very hairy, but in the Glabriflora
quite smooth, sometimes as small as in the preceding
sections, sometimes two or three times as long, the petiole
often without wings, but sometimes as broadly winged as in
Euinga. As there are so many species of which the pod is
unknown, the limits between this section and Euinga cannot
be as yet very precisely defined, and it is very likely that
some species may here be improperly referred to the one or
to the other.

§ 1. Glabriflora.—Calyx glaber v. tenuiter pubescens.
Corolla glabra. Series a Bourgoniiis inflorescentia et calyce
longiore differt.

* Petyolo alato.

p. 286), glaberrima, petiolo anguste alato, folioliis bijugis
elliptico-oblongis acuminatis basi membranaceis, glandulis
sæpe obscuris, pedunculis brevissimis, spicis ovato-oblongis,
floribus parvis, corolla calyce subtriplo longiore, tubo sta-
mineo longe exserto.—Foliola ultima 5 poll. longa, 2 poll.

38. I. sapindoides, (Willd. Spec. 4. p. 1012), ramulis hirtis, petiolo inter paria lineari-alato basi nudo, foliolis 4-5-jugis oblongis acuminatis supra nitidis subtus scabriusculis, spicis oblongis brevis puberculatis, legumine lineari glabro.—Foliola superiors 4-polllicaria. Legumen pedale.—Caracass, Bredemeyer. Unknown to me.

*Petiolo nudo, glandulis sæpius obscuris v. plane nullis.


40. I. unijuga (Pœpp. et Endl. Nov. Gen. et Sp. 3. p. 79), glaberrima, eglandulosa, foliolis unijugis oblongis basi valde inaequali et obliqua acutis subcoriaceis venoso-margi-natis, pedunculis petiolo æqualibus paucifloris, floribus glabris, leguminibus falcatis pubescentibus.— Arbor excelsa. Foliola adulta 10 poll. longa, 4 poll. lata. Pedunculi fasciculati, 2 lin. longi. Legumen 5 poll. longum, compressum, falcatum, suturis tumidis, valvis coriaceis pubescentibus.—Woods about Ega on the Amazon river, Pœppig. This species, which I have not seen, is evidently very diffe-
rent from any one known to me. In some respects it appears allied to the *Pithecolobium unifoliolatum*, in which the leaves at first sight appear to be simply pinnate with two leaflets, although they are in fact bipinnate with two pinnae and one leaflet to each.


45. *I. inæqualis* (Humb. et Bonpl. in Willd. Spec. 4, p. 1019), foliolis 4-jugis oblongo-lanceolatis glabris supra nitidis superioribus basi inæqualibus, glandulis inter paria
bina superiöra, spicis oblongis breviter pedunculatis, calycibus corollisque glabrís.—Foliola superiöra 4 poll. longa, 1½ poll. lata, inferiöra 3-2-pollícaria. Glandulis ad paria 2 inferiöra nullæ.—On the Orenoco, Humboldt and Bonpland. I am unaquainted with any species with glands between the upper leaffets only.

46. I. fraxínea (Willd. Spec. 4, p. 1019), foliolis 5-jugis oblongis acuminatis utrinque glabrís nitidís, glandulis urceolatis sessilibus, petiolo pubescente, spicis paniculatis oblongis pedunculatis, calycibus pubescentibus, corolla glabra.—Foliola superiöra 3-pollicaria, costæ pubescentes. Spicæ unguiculares.—Para, Hoffmansegg. Unknown to me.


47. I. martinicensis (Prael. Symb. Bot. 1, p. 65, t. 42), ramulis petiolis costisque foliorum ferrugineo-pubescentibus, petiolo nudo v. apice angustissime alato, foliolis bijugis obovatis sparse pilosulis, spicis cylindricis breviter pedunculatis, calyce tubuloso strigoso quam corolla hirsuta dimidio breviore, tubo stamineo inclusi.—Mimosa coriacea, Sieb. Fl. Martin, n. 325.—From a specimen I formerly saw of this species, it appeared to me to have the inflorescence of Bourgonia with the flowers of Pseudinga. It is at any rate a very distinct species, which requires further examination to determine its affinities.—Martinica, Sieber.

48. I. vismiaefolia (Pœpp. et Endl. Nov. Gen. et Sp. 3, p. 79), ramulis teretibus pedunculisque villosi-hirtis ferrugineis, foliolis trigujis late ovalibus obtusis basi rotundata subcordatis supra glabra lœvibus subtus villosis fuscescen-
tibus, spicis hemispheario-capitatis longe pedunculatis in
paniculam terminalem folio aequali dispositis, calyce infun-
dibuliformi sericeo, corolla strigosa-villosa staminum tubo
exerto.—Arbor perquam pulchra, humilior. Foliola termi-
nalia pedem longa, 6 poll. lata. Flores 11 lin. longi. Corolla
duplici calycis longitudine. Ovarium sericeum. Legumen
ignotum. This must be a very distinct species which I have
not seen. It is said by Poppig to be allied to L. rubiginosa,
but the inflorescence and flowers are described as very dif-
ferent from those of that species, and indicate an affinity
rather with Pseudinga than with Euinga, a point which
cannot be determined till the pod is known.—Woods of
Maynas, Poppig.

49. I. lineata, ramulis petiolis pedunculisque ferrugineo-
puberulis, foliolis 3-jugis ovali-ellipticis acuminatis basi
angustatis utrinque adpressae pubescentibus, venis numerosis
parallelis utrinque prominulis, spicis ovatis in alabastro sub-
cylindricis, floribus sessilibus, calyce tubuloso-campanulato
pilosulo quam corolla infundibuliformis villosa duplo breviore.
—Foliola ultima 6-7 poll. longa, 3 poll. lata. Glandulae
magnae, sessiles. Pedunculi in axillis numerosi, pollicares,
ferrugineo-pubescentes, superiores breviter paniculati. Spicæ,
pollice breviores, ante antherum iis I. Bourgoini subsimiles,
expansae ovatae. Bracteæ minutæ. Corollæ vix 2 lineas exces-
dentes, uti calyces quam in sequentibus latiores.—Tarapoto,
in Peru, Mathews n. 1594.

50. I. Mathewsianna, ramulis petiolis pedunculisque fer-
rugineo-puberulis, foliolis 5-6-jugis oblongis acuminatis basi
longe angustatis ad venas utrinque puberulis cæterum glabris
nervis subdistantibus reteque venarum utrinque prominulis,
spicis ovatis in alabastro brevibus, floribus sessilibus, calyce
tubuloso pubescente corollæ sericeo-villosæ dimidium supe-
rante.—Foliola parum inæqualia, acuminæ acutissimo, basi
inæquilatera, ultima 4-4½ poll. longa, 15-18 lin. lata. Glan-
dulae sessiles demum majusculæ. Inflorescentia I. lineata,
longa.—Prov. of Mozobamba, Peru, Mathews.
NOTES ON MIMOSEÆ.


52. I. *Riedeliana*, ramulis novellis ferrugineo-puberulis demum folioské glabris, stipulis parvis deciduis, foliolis 3-jugis ovali-v. elliptico-oblongis breviter acuminatis basi inaequaliter cuneatis supra nitidulis, specis fasciculato-paniculatis ovatis, floribus breviter pedicellatis, calyce tubuloso-pubescente corolla sericeo-villosæ dimidium superante, legumine plano puberulo.—Foliola fere I. *corymbifera* sed rigidiora et semper trigula videntur, ultima vix 5-policaria; venæ subtus interdum leviter tomentella. Flores I. *corymbifera*, sed stipatæ pedicello ¼-1 lin. longo bracteæ æquante. —Woods on the Amazon river, Riedel.

β? *Surinamensis*, floribus brevius pedicellatis.—Surinam, Hostmann, n. 830, 271, and in some collections n. 174.—This variety is in some measure intermediate between I. *Riedeliana* and I. *corymbifera*, and may possibly be a distinct species, unless further observation may show both I. *Pavoniana* and I. *Riedeliana* to be mere forms of I. *corymbifera*.

53. I. *corymbifera* (Benth. in Hook. Journ. Bot. 2, p. 144), ramulis novellis petiolisque ferrugineo-puberulis, foliolis 4-jugis ovali-oblongis acuminatis basi cuneatis supra ad venas et subtus minute et rariter puberulis demum vix nitidis, specis pedunculatis ad apices ramorum fasciculato-pani-
culatis, floribus subsessilibus, calyce tubuloso pubescente
corollae sericeo-villosae dimidium aequante v. superante, legumine plano minute et rariter puberulo.—Foliola maxima
semipedalia v. paullo longiora, 2-2½ poll. lata, pleraque tamen
Flores interdum brevissime pedicellati. Bracteeae minuta. 
Calyx 3 lin., corolla 5 lin. longa. Legumen 3-4 poll. longum,
9-11 lin. latum, marginibus parum elevatis.—British Guiana,
Schomburgk, 1st. Coll., also 2nd. Coll. n. 31, n. 62, and n. 839
(1419).

β. Brasilienensis, ramulis floribusque villosioribus, nec aliter ut videtur diversa.— Woods of the Serra da Chapada in Brasil, 
Riedel.

53. I. tenuifolia (Salzm. ! Pl. Bras. exs.) ramulis petiolis
inflorescentiaque ferrugineo-tomentellis, spicis pedunculatis
ad apices ramorum fasciculato-paniculatis, oblongis, floribus
sessilibus elongato-tubulosi, calyce tubuloso tomentoso
striato corolla sericeo-villosa 3-4-plo breviore, tubo
stamineo breviter exserto.—I. macradenia Mart. / Herb. Fl. 
Bras. n. 1096.—Pubes minuta, in ramulis petiolisque sordide
ferruginea, in ramis evanida, in foliorum pagina inferiore
brevissima, copiosa, albida; in pagina superiore pili minuti
sparsi sub lente numerosi apparent. Foliola ultima 4-5
poll. longa, 2 poll. lata, acumine longo acuto, basi cuneata.
Glandulae majusculae. Spicæ subinterruptæ, numerose.
longa.—Bahia, Salzmann, Lushnath, Blanchet, n. 3018;
Tropical Brasil, Pohl ; British Guiana, Schomburgk, 1st. Coll.
n. 74.

β glabrior, pedunculis axillaribus, corolla tenuiore glabriore, 
—Surinam, Hostmann, n. 807.

54. I. Humboldtiana (Kunth, Nov. Gen. et Sp. 6, p. 285),
ramulis foliisisque glabris, foliolis 4-jugis oblongis acutis basi
acutiusculis membranaceis glabris supra nitidis, spicis pedun-
culatis ad apices ramorum fasciculato-paniculatis, calyce
 tubuloso-campanulato adpresso hispidulo, corolla sericeo-
hirsuta, legumine plano puberulo.—Foliola 2½-4 poll. longa,
1-1¼ poll. lata.—Banks of the Magdalena, Humboldt and Bonpland. Unknown to me.

55. I. juglandifolia (Willd. Spec. 4, p. 1018), ramulis petiolisque ferrugineo-pubescentibus, glandulis nullis, foliolis 3-4-jugis oblongis acuminatis basi angustatis glabris subtus ad venas pubescentibus, spicis in axillis ternis, corollis villosis, legumine plano.—Foliola ultima 5-pollicaria.—Caraccas, Bredemeyer. I have not seen this species which appears to belong to the Pseudingaceae Gymnopodae, and if so, it is the only one in the group without glands.

56. I. foliosa, foliis demum glabris, foliolis 5-6-jugis amplis elliptico-oblongis acuminatis v. rarius obtusis subcoriaceis nitidis, panicula tomentella, floribus sessilibus, calyce puberulo corollae sericeo-puberulae dimidium subaequante, legumine plano puberulo.—Foliola longiora usque ad 7-10 poll. longa, 2½ poll. lata, longius breviusvae acuminata, basi inaequaliter rotundata v. leviter angustata petiolo 2 lin. longo. Spicæ breves, ovate, numerose. Calyx 1¼-2 lin., corolla 4 lin. longa. Variat floribus paullo majoribus minoribusve, pube tenuiore v. densiore.—North Brasil, in the province of Maynas, Pappig; on the Rio Madeira, Riedel; Peru, Mathews, n. 1923.


58. I. nobilis (Willd. Enum. p. 1047), foliolis 3-4-jugis oblongis acutis petiolisque glabris, spicis paniculatis, pedunculis pubescentibus, corollis sericeis.—Brasil. A species only known from the above short diagnosis.

59. I. leptoloba (Schlecht. Linnaea, 12, p. 560), puberula; foliolis trijugis utrineque lucidulis subtus magis puberulis ellipticis v. ovato-ellipticis basi acutis cuneatisve apice acuminatis,
spicis pedunculatis axillaribus in ramis hornitinis, corolla pubescente calyce duplo longiore, legumine compresso elevato- marginato vix puberulo. — Foliola maxima 4-5-pollicaria. Flores 4 lin. longi. Legumen brevissime stipitatum, latol- lineare, acuminato-acutum, 10-12-spermum. — Hacienda de la Llaguna, in Mexico, Schiede. Unknown to me.

60. I. punctata (Willd. Spec. 4, p. 1016), foliolis 2-3-jugis oblongis acuminatis coriaceis nitidis supra glabris subitus sparse pilosiusculis, petiolo strigosæ, spicis paniculatis axill- laribus, corollis sericeo-villosis. — Foliola ultima 4-pollicaria.
— Woods of Martinica and Caraccas. Unknown to me.

61. I. splendens (Willd. Spec. 4, p. 1017), foliolis 2-jugis oblongis acuminatis nitidis utrinque petiolisque glabris, spicis axillaribus geminatis, corollis sericeo-villosis. — Un- known to me, said to be like I. punctata, but larger in all its parts. — Para, Hoffmansegg.


63. I. multiflora, petiolo marginato ramulisque glabrius-


69. I. nitida (Willd. Spec. 4, p. 1018), ramulis hirtis, petiolo alato, foliolis bijugis oblongo-lanceolatis utrinque nitidis subtus pilosiusculis, spicis oblongis longe pedunculatis, corollis vilosis.—Affinis dicitur I. quassiefoliae, sed
foliola longiora, spicæ oblongæ nec ovatae longius pedunculatæ, ramuli hirti. Foliola superiora 4-5-pollicaria.—Para, Hoffmannsegg. Unknown to me.


A specimen in fruit gathered on the Corcovado by Lushnath is very much like this species, but the wings of the petiole are narrower, and the spike appears to have been much longer. The pod is flat, 4 inches long, 9 lines broad, with a few short hairs.

73. I. Feuillei (DC. Prod. 2, p. 433), petiolo alato, foliolis 3-4-jugis ovali-oblongis utrinque acutis glabris, spicis subgeminis pedunculatis ovatis, leguminibus longissimis linear-
bus planis glabris.—Pacai, F. e u l i . o b s . 3, p. 2, p. 27, t. 19 (ê ex hoc synonym.) Mimosa sinemariensis, A u b l . P l . G u i . 2, p. 945, Inga reticulata, S p r e n g . S y s t . 3, p. 130.—Flores albi. Legumina edulia, 1-2-pedalia, intus alba.—Cultivated in the Lima gardens. Unknown to me.


resembles in foliage, but is very different in flowers and inflorescence.

3. parvifolia, foliolis 5-6-jugis minoribus, legumine majore latiore hirsutimo.—Rio Janeiro, Lord Colchester, Sello.


79. I. vestita, ramulis petiolisque dense rufo-villosis, petiolo aptero, glandulis subulato-stipitatis, foliolis 3-4-jugis elliptico-oblongis acutis basi cuneatis utrinque villosis, spicis ovatis, bracteis parvis, calyce tubuloso strigoso dimidium corollæ hirsutissimæ subæquante, legumine plano rufo-villosissimo.—Foliola ultima 2-2½-pollicaria, cetera multo minora, iis I. Guilleminiana similia. Glandulæ fere lineam longæ. Pedunculi pollicares, rufo-villosi. Calyx 2½ lin., corolla 5 lin. longa. Legumen policem latum, densissime velutino-villosum.—Brasil, Sello. There is also in the same collection a specimen of what appears a very distinct species, with subulate glands and the petiols not winged, but there are neither flowers nor fruit.


81. I. barbata, pilis longis rufis in caule petiolis peduncu-


84. I. Catharinae, ramulis petiolis pedunculis costisque foliolorum rufo-hirtis, petiolo inter paria alato, glandulis parvis turbinatis breviter stipitatis, foliolis sub-4-jugis ovali-v. oblongo-ellipticis junioribus pilosis, spicis ovato-oblongis, bracteis linearibus calyce pilosulo paullo brevioribus, corolla rufo-villosa.—Affinis I. virescenti, sed villosior, foliola majora, ultima sub-4-pollicaria. Bracteae 2-2½ lin. longæ. Calyces I. virescentis, corollae nondum apertæ sed multo villosiores
videntur. Stipulae lato-lanceolatae, falcatae, villosae, 4-5 lin. longae.—St. Catherine's, in South Brasil, *Tweedie*.


—The two following species are of very doubtful affinity, resembling in some respects the *Pilosiuscula* among *Pseudina*, in others the *Striata* among *Euinda*, and the fruit being unknown, their real position cannot now be ascertained.


—British Guiana, *Schomburgk*, 1st. Coll. n. 364; Surinam, *Hostmann*, n. 708, also n. 676, judging from an imperfect specimen, with rather narrower leaflets.


87. I. setigera, (Pœpp. et Endl. Nov. Gen. et Sp. 3, p. 79), ramulis teretibus petiolisque nudis rigidissime longisetis hispidis, foliolis 5-jugis elongato-oblongis acutis basi obtusis supra pubescenti-hispidis subtus glabris, spicis axillarisbus petiolo duplo brevioribus hemisphærico-capitis pedunculatis, calyce infundibuliformi glabro, corolla apice setosa, tubo staminum longissime exserto.—Arbor 20-pedalis. Sti- pulæ pollicares, diu persistentes, rhombeo-ellipticæ. Foliola adulta pedalia. Flores majusculi.—Woods near Ega, in North Brasil, Pœppig. This must be a very distinct species from any I have seen, agreeing in some respects with the Pseudonga Vulpina, in others with Euingæ Striatae, or Calo- cephalæ.


89. I. nuda (Salzm. Pl. exs.), ramulis foliisque pilis bre-
vibus hirtellis, petiolo sub paribus ultimis brevissime et anguste alato v. nudo, glandulis turbinatis, foliolis 3-4-jugis elliptico-oblongis v. ovato-lanceolatis supra demum nitidulis glabris, spicis ovatis breviter pedunculatis, calyce glabriusculo dimidium corollae dense villosae vix æquante.—Foliola ultima 5 poll. longa, vix 2 poll. lata, basi obtusa, inequalia, spice obtuse acuminata. Calyx 3 lin. longus, dentibus ovatis. Corolla 6 lin. v. paullo longior. Bracteae oblongae v. lineares, calyce 2-3-plo breviores.—Bahia, Salzmann.

90. I. Salzmanniana, ramulis angulatis foliisque minute scabro-puberulis, junioribus ferrugineis, petiolo anguste alato, foliolis 4-5-jugis obovali- v. oblongo-ellipticis acuminatis submembranaceis, glandulis scutelliformibus, spicis ovato-oblongis breviter pedunculatis, calyce puberulo dimidium corollae sericeo-villosae vix æquante.—I. ovato-lanc. Salz. herb.—Habitu accedit ad I. nudam, sed pubes multo brevior, foliola paullo latiora minus nitida, et petiolum a pari ad par alatus, alis raro linea latoribus. Folia iis i. scabriusculae similia, sed calyx laxior, evidentius striatus, 3-3½ lin. longus et corolla multo villosior, 7 lin. longa. Bracteae lineari-lanceolae, calyce vix breviores, ante anthesin deciduae.—Bahia, Salzmann.


92. ? I. Lindeniana, ramulis angulatis petiolis pedunculisque rufo-hirsutis, petiolo alato, foliolis 3-jugis amplis ovalibus acuminatis supra hirsutis subtus velutinis, spica oblonga,


93. I. bracteosa, ramulis foliisque parce hirtellis demum glabratis, petiolo nudo, foliolis 3-jugis maximis ovali-ellipticis breviter acuminatis basi rotundatis, spicis ovato-capitatis, bracteis lanceolatis acuminatisimis calycis æquantibus, calycis longe cylindrici glabriusculi dentibus subulato-acuminatis, corolla hirsutissima calyce duplo longiore.—Foliola ultima 10-11 poll. longa, 6 poll. lata. Stipulae ovatae. Glandulæ breviter stipitatae. Calyces pollicares. Corolla 1\4 poll. longa. Stamina cum flore ultra 3 poll. longa, tubo longe exserto.—British Guiana, Schomburgk, 2nd. Coll. n. 695 (1080.)


78), ramulis teretibus petiolis costisque foliorum rufo-hirsutis, foliolis 2-3-jugis amplis rigidissimis elliptico-obovatis obtusis basi cuneata rotundatis supra glabris basin versus uniglandulosus subtus hirto-pilosis, spicis solitariis sessilibus, calyce corollaque hirsutis. Foliola glandula cupuliformi in nervo versus laminæ basin sita insignia, terminalia 10 lin. longa, 5 poll. lata. Flores apertos non vidit cl. Pæppig.—Eastern Peru, in woods towards the Mission of Tocache, Pæppig. Unknown to me, and referable perhaps to the Pseudingeæ Pilosisculæ, or possibly allied to I. Lindeniana.


98. I. brachyptera, ramulis foliisque junioribus parce hirtellis demum glabratis petiolo sub pari supremo breviter
alato, glandulis stipitatis, foliolis 3-jugis amplis ovali-ellipticis acute acuminatis basi rotundatis supra nitidis, spicis ovato-capitatis, bracteis ovatis acutis calyce magno cylindrico vix brevioribus, corolla calyce duplo longiore sericeo-hirsutissimo, legume hirsutissimo.—Affinis I. macrophylla, sed alis petioli brevibus, foliolis basi angustatis etc., distincta videtur. Leguminis facies plane, margines valde dilatati sulcati.—Tumaco in Columbia, Hinds.


101. I. fulgens (Kunth, Pl. Legum. p. 36, t. 11), ramulis foliisque glabris, petiolo sub paribus alato, foliolis 2-3-jugis amplis obovali-ellipticis utrique rotundatis coriaceis nitidis, spicis elliptico-oblungis, bracteis ovatis acutis calyce tubulosocampanulata duplo superantibus, corolla hirsuto-sericea
calyce 3-4-plo longiore.—Foliola ultima 6¾-7¾ poll. longa, 4 poll. lata. Bracteeæ 6 lin., calyx 3 lin., corolla ultra 8 lin. longa.—Near Honda, in New Granada, Humboldt and Bonpland. Unknown to me.

I have seen a specimen without flower in the Berlin herbarium, gathered by Billberg near Porto Bello, which appears to belong to a distinct species of this series.


102. I. calycina, ramulis petiolis pedunculis costisque foliolorum rufo-pubescentibus, foliolis 6-7-jugis oblongo-lanceolatis acuminatis supra demum glabriusculis, subitus ferrugineo-pubescentibus, spicis interruptis paucifloris, calycibus corollam villosam æquantibus.—I. sessilis fere in omnibus similis, calycibus exceptis 16-17 lin. longis. Legumen idem. —Brasil, between Itamaratim (or Inhumerim ?) and Congosoco, Riedel.


§ 5. *Vere*. Calyces tomentosi, sessiles v. rarius breviter pedicellati. Corolla pilis longis sericeis appressis v. subpatentibus (nec in flore perfecto crispulis) vestita.—Petiolus
alatus. Glandulae scutelliformes. Ramuli, petioli, pedunculi et nervi foliolorum in omnibus pube ferruginea, brevi v. velutina, vestiti.—The species of this series are all very much alike in foliage, and the characters derived from the inflorescence, the form and length of the calyx, &c., are often scarcely tangible, yet the pods are frequently so very dissimilar that where they are not known, I have* been afraid to unite plants under one species in cases where the differences appear but very slight.

*Calyce sessili tubuloso v. turbinato-tubuloso, 5-7 lin., rarius 4 lin. longo.

110. I. vera (Willd. Spec. 4, p. 1010), pube tenui, foliolis 4-5 jugis obovali-v. elliptico-oblongis acuminatis, spicis oblongis v. interruptis paucifloris, bracteis parvis ovatis, calyce tubuloso ad duas tertias corollae attingente, legumine tereti sulcato.—Foliola quam in affinisibus tenuiora, majora 4-5 poll. longa, 2 poll. lata, pube brevissima scabriuscula, supra nitidula. Calyces 6-7 lin. longi. Corolla fere 9 lin. longa.—Jamaica, Wright, Purdie; Haiti, Ehrenberg. This is, according to Vogel, the species preserved in Willdenow’s herbarium, and supposed by him to be the *Mimosa Inga* of Linnaeus, but it is probable that Linnaeus included under that name all of those of this series which were known to him.

111. I. eriocarpa, pube ferruginea densa, foliolis 5-jugis obovali-v. elliptico-oblongis vix acuminatis, spicis interruptis paucifloris, bracteis parvis ovatis, calyce ampio tubuloso ad duas tertias corollae attingente, legumine subtereti sulcato dense tomentoso.—Vix I. vera varietas, etsi forma foliolorum similis. Foliola demum subcoriacea, utrinque velutino-pubescentia. Flores magnitudine I. vera, sed crassiores.—Mexico, between San Blas and Guadalaxara, Coulter.

112. I. spuria (Willd. ? Spec. 4, p. 1011), pube ferruginea densa, foliolis 5-6-jugis oblongis acuminatis supra brevissime pubescentibus subtus hirtellis, spicis oblongis v. interruptis paucifloris, bracteis linearibus caducissimis, calyce tubuloso quam dimidium corollae subbreviore, legumine tereti sulcato.
NOTES ON MIMOSEÆ.

—Foliola iis I. vere subsimilia v. angustiora, molliora; pube densiore, supra raro nitida; rhachis longior. Calyces in altero specimine vix. 5 lin., in altero fere 6 lin. longi. Corolla 10-11 lin. longa.—British Guiana, Schomburghk, 2nd. Coll. n. 831 (1423). These specimens agree well with Kunth's description, but scarcely so with Willdenow's.


113. I. Cumingiana, pube brevi subserruginea, foliolis ovalis— v. oblongo-ellipticis acutiusculis utrinque scabo-pubescentibus, pedunculis elongatis supra medium interrupte floriferis, bracteis linearibus diu persistentibus, calycibus tubulosibus dimidium corollæ aureo-villosissimæ æquantibus.


117. I. insignis (Kunth. Mim. p. 43, t. 13) ramulis petiolis pedunculis costisque foliorum hirto-tomentosis, foliolis 5-jugis ellipticis acuminatis coriaceis glabris nitidis, spicis oblongis densis, bracteis oblongo-spathulatis calyces æquantibus, calyce turbino-tubuloso hirto-pubescente quam corolla sericea duplo breviore, legumine quadrangulari lignosotomentoso.—Between Quito and Puebló, Humboldt and Bonpland. Unknown to me.

118. I. pachycarpa, pube ferruginea velutina, foliolis 4-5-jugis ovali- v. oblongo-ellipticis acuminatis coriaceis nitidulis utrinque hirtis, spicis ovatis densis, bracteis lanceolatis calyce brevioribus, calyce turbinate-tubuloso ferrugineo-velutino dimidium corollæ hirsutissimæ superante, legumine quadrangulari lignosotomentoso.—Pluribus notis cum descr. I. insignis convenit, sed multo villosior. Foliola majora, ultima 4 poll. longa, 2 poll. lata. Bractæ breviores, caducissimæ. Calyx 5-6 lin., corolla 10-11 lin. longa. Legumen semipe-dale v. longius, 9 lin. latum et crassum, lateribus sulcatis, faciebus concavis non obtectis.—Puente de Guapulo, near Quito, Loza, and Cuenca, Hartweg, n. 966; but as I have not seen specimens from all these localities, it is possible that some may refer to the true I. insignis.

**Calyce pedicellato subcampanulato, raro 4 lineas excedente.**

crassiusculi. Calyx laxus, 4 lin., corolla 9 lin. longa.—Sesuya, in Peru, Mathews, n. 3274.

120. I. ornata (Kunth, Mim. 46, t. 14), ramulis petiolis pedunculisque hirto-tomentosis, foliolis 5-jugis oblongis acutis subcoriaceis supra pubescentibus subtus canescentibus et hirsuto-pubescentibus, spicis oblongis densis, bracteis caducis, calycibus pedicellatis campanulatis corollae sericeo-villosae dimidium sequantibus, legumine longissimo sulcato.—Foliola majora 5½ poll. longa, 2 poll. lata. Spica v. racemus bipollicaris, densiflorus, in pedunculo pollicari. Calyx 4 lin., corolla 8 lin. longa. Legumen 3-4-pedale.—Between Buga and Carthage, Humboldt and Bonpland. Unknown to me.

121. I. Bahiensis, pubes brevi ferruginea, foliolis 5-6-jugis ovali-ellipticis oblongisve acuminatis utrinque hirtellis supra nitidulis, spicis brevibus oblongisve pedunculatis, bracteis ovatis brevibus, calycibus brevissime pedicellatis campanulatis corolla subtriplo brevioribus.—Foliola ultima 4-8 poll. longa, 1¼-2⅛ poll. lata. Alæ petioli lateæ. Pedunculi ⅓-3-pollicares, apice breviter floriferi, floribus primum subcorollumbosi demum parum distantibus. Calyx 3 lin., corolla 9 lin. longa. Legumen tomentosum, marginibus valde dilatatis at facies non obtgentibus.—Bahia, Blanchet, n. 1016 and 1017.

β. foliolis minoribus 3-4-jugis.—Bahia, Salzmann, under the name of I. alata.

***Calyce sessili campanulato raro 4 lineas excedente.


123. I. affinis (DC. Prod. 2, p. 483), pubes ferruginea velutina sæpius copiosa, foliolis 4-6-jugis oblongis v. ovali-ellip-
ticis acuminatis v. rarius obtusis demum supra nitidulis spicis oblongis, bracteis brevibus caducis, calyce sessili velutino quam corollae sericeo-villosissimae dimidium breviore, legumine subplano latissime marginato velutino-tomentoso.


125. *I. velutina* (Willd. *Spec.* 4, p. 1014), from Para, is said by De Candolle to differ chiefly from *I. affinis* by the larger leaflets. It must also be very near *I. edulis.* Specimens gathered by Purdie at St. Martha may possibly be the same, but they are only in young fruit without flowers.

licem diametro, marginibus facies omnino obtegentibus.—Brasil, Pohl.


128. I. conferta, pube tenui, foliolis 5-6-jugis ovali-ellipticis oblongisve acuminatis tenuiter puberulis, spicis pedunculatis fasciculatis superioribus corymboso-confertis singulis oblongis, bracteis ovato-lanceolatis, calyce tubuloso-campanulato tomentoso dimidium corollæ sericeo-villosæ æquante.


Species quoad Sectionem dubia.

129. I. angustifolia (Willd. Spec. 4, p. 1012), petiolo alato, glandulis parvis sessilibus, foliolis 4-9-jugis lanceolatis acuminatis utrinque nitidis, legumine lineari plano glabro.—Flowers unknown, probably allied either to I. nutans, or to I. heterophylla.—Caracacas, Bredemeyer.

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—Province of Jaen de Bracamoras, Humboldt and Bonpland. Perhaps near I. scabriuscula.


132. I. Thibaudiana (DC. Prod. 2, p. 434), foliolis 4-5 jugis ovato-oblongis acuminatis superne nervo excepto glabris subtus petiolis pedunculis calycibusque pubescen-
tibus, petiolo apice alato basi nudo, spicis subgeminis oblongis ad apicem ramorum subpaniculatis, corollis sericeo-
pubescentibus.—Corollæ tenues, 7 lin. longæ. Stamina rubra, exserta.—Cayenne, Herb. Thibaud.

133. I. gladiata (Desv. in Ann. sc. Nat. Ser. 1, v. 9, p. 427) foliolis 4-jugis oblique ovatis abrupte acuminatis supra subasperis subtus rugoso-pubescentibus, glandulis maximis cupuliformibus, spicis brevibus axillaribus breviter pedunculatis, leguminibus compressis falcatis aureo-pubes-
tibus falcatis rostratis.—Guiana.

134. I. rhoifolia (Willd. Enum. p. 1046), petiolo alato foliolis 5-jugis oblongis acuminatis supra hirtis nitidis subtus villosis, ramis ferrugineo-tomentosis.—Brasil. The above character, taken from a plant not yet in flower, will apply to many of the Ewingæ Verae, as well as to several species of other sections.

I. nodosa, Willd. Spec. 4, p. 1016, or Mimosa nodosa, Linn., is Cassia bacillaris.

I. cognata, Schlecht. Linnaea 12, p. 560, has the leaves really bipinnate, with one pair of pinnae and the common petiole so short that the leaves appear at first sight to be simply pinnate. It is a Pithecolobium very near P. glome-
ratum.

I. ramiflora, Steud. Flora 1843, p. 759, is Pithecolobium lasiosus; I. trapeziformis, Steud. l. c. is Pithecolobium corym-
boxum; I. pubiramea, Steud. l. c. is unknown to me; the plant I have from Hostmann under n. 171 is my Calliandra Surinamensis with which Steudel’s character does not agree.
I. bauhiniaefoliae, Pœpp. et Endl. Nov. Gen. et Sp. 3, p. 80, is my Calliandra amazonica. I. lœta, Pœpp. et Endl. l. c., is my Pithecolobium latum, to which I have also referred the specimens in fruit described by Pöppig under the name of Pithecolobium polycarpum.

(To be continued.)

Contributions towards a Flora of South America. Enumeration of Plants collected by Sir Robert Schomburgk, in British Guiana.—By George Bentham, Esq.

(Continued from Vol. II. p. 674.)

Polygonaceae.

The genera of this order have been well arranged by C. A. Meyer in a paper published in the Transactions of the Academy of Sciences of St. Petersburgh, and several portions of the order have been worked up with considerable ability by Meissner, yet there remains much to be done by the monographist who shall undertake the task for the Prodromus, and who it is generally understood is to be Dr. Meissner himself. The further division of the extensive genus Polygonum will probably not be carried beyond the separation of Meissner’s very natural genus Muhlenbeckia,* and possibly that of some anomalous looking species, such as P. virginicum,† but Coccoloba, if studied from better specimens than those we usually possess, might furnish some very good sectional, if not generic groups. Among the numerous species now preserved in our herbaria, but few

* The P. flexuosum, Benth. Pl. Hartw. p. 80, must follow its near ally, P. tannifolium, Humb. et Kunth, into Muhlenbeckia. The branches of the style in the American species are not so distinctly penicillate as in the Australian M. australis, but this does not invalidate the general character of the genus.

† Whilst correcting this sheet for press, I have received Dr. Gray’s Plantæ Lindheimerianæ, in which one of these species, P. fimbriatum, is established as a genus under the name of Thysanella.
are to be met with in fruit, and it is that organ which appears to present the most remarkable variations. In some species, the achænum is entirely included in the enlarged fleshy tube of the perigon, whilst the lobes are scarcely altered, and persist in the form of a crown at the summit of the fruit, like the calyx of Rubiaceæ and other orders with adherent calyces or so-called inferior fruits. In other species the whole perigon becomes fleshy and scarcely covers the achænum, the upper part of which is more or less free; and in some cases the ovary and fruit, instead of being sessile at the base of the perigon, are born upon a more or less evident fleshy support. I have not seen the fruit of a sufficient number of species to ascertain whether these differences correspond with the variations observable in the venation of the leaves, the inflorescence or flowers, and what importance may therefore be attributable to them; but I have ventured, in the Botany of the Voyage of the Sulphur, to propose under the name of Campderia, a new genus for a plant, in which the perigon does not appear to become fleshy at all, but encloses an almost dry achænum supported on a thick fleshy stalk, although the general habit of the plant be that of several Coccoloba. In many species of Coccoloba the ovary is abortive in several flowers, but I have never observed any deficiency in the stamens, and this partial polygamous disposition appears to be of very little importance.

Among the Triplarideæ, the two genera Triplaris and Ru-prechtia are very appropriately distinguished by Dr. Meyer. In both of them the arrangement of the stamens in the male flowers is the same as in other regular hexamerosous en-neandrous Polygoneæ, and does not appear to me to have been quite correctly described in Endlicher's Genera. I always find one stamen opposite to each inner segment, and one close on each side of it; so that when the flower is fully expanded, there is a larger interval opposite to each outer segment of the perigon, as represented in Eriogonum com-positum, Linn. Trans. v. 17, pl. 17, fig. 10, c. Precisely the
same number and arrangement is observable in the minute abortive stamens in the female flowers of some Ruprechtia. The additional genus, Symmeria, here proposed, with polyandrous male flowers, is a singular anomaly amongst Polygonaceae.

The near relationship of Brunnichia and Antigonon are more fully referred to in the Botany of the Voyage of the Sulphur, p. 47.


849. C. pubescens, Linn. Spec. p. 323.—A tree of about 30 feet, not differing, as far as the specimens show, from the West Indian form of this species.—On the upper Rupunoony, Schomburgh.

849. C. excelsa, sp. n., scandens, foliis ovatis breviter
acuminatis basi rotundatis cordatisve supra glabris v. ad
venas impressas puberulis, subtus ferrugineo-pubescenti-
bus, racemis folio brevioribus, pedicellis perigonio sublon-
gioribus bracteam vix aequantibus, perigonii tubo lobis molto
breviore. — Caulis lignosus, super arbores alte scandens.
Ramuli juniores ferrugineo-pubescentes, demum glabrat
verrucosi. Vaginae brevæ. Folia pleraque 6-8 poll. longa,
4-5 poll. lata, petiolo subsemipollicari, nonnulla tamen multo
minora, omnia subcoriacea, supra siccate nigricantia et
venis exceptis glabra, subtus pube brevi ferruginea vestita,
nervis retexe majore venarum valde prominentibus. Racemi
laxiusculi, secus ramos ad axillas foliorum delapsorum, v. in
axillis foliorum subfasciculati, 2-3-pollicares, flexuosi, a basi
floridi. Bracteæ exteriores demum 1 lin. longæ, a basi
membranacææ, truncatæ, extus minutissime puberulae. Flores
plerique abortu masculi, nonnulli tamen in iisdem racemis
hermaphroditæ. Perigoinum lineam longum, laciniis 5 ro-
tundatis subequalibus, tubus brevis carnosus cum disco
staminifero connatus. Stamina 8, in omnibus floribus tam
hermaphroditæ quam masculis consimilæ, nec unquam aborti-
tiva videntur. Ovarium in floribus hermaphroditæ sessile,
obtuse trigonum, superne attenuatum. Styli apice leviter
incurvati, vix capitati, tenuiter papillosi, et forte flores quos
vidi non vere fertiles sunt, etsi ovulum adest, ut videtur per-
flectum. Ovarium in floribus masculis minimum est v. omnino
evanescit.—British Guiana, Schomburgk, 1st Coll., n. 400,
2nd. Coll. n. 218, (128).*

In Forsyth's herbarium, I found, under the name of C.
scandens, an imperfect specimen of a plant gathered by
Anderson in Saint Lucia, very much like the above, but with
the leaves perfectly smooth, the racemes much longer, and
the bracts very small. These are the only two species as yet
known to be climbers.

* The plants of the 2nd Collection were many of them gathered by Mr.
Richard Schomburgk, brother of Sir Robert, who accompanied him on
account of the Royal Herbarium, Berlin, and the numbers inserted last
on the labels or within a parenthesis, are those given to these specimens in
the Berlin collection.
850. *C. parimensis*, sp. n., arborescens, glaberrima, foliis ovatis breviter acuminatis basi rotundatis cordatisve, venis majoribus supra impressis, racemis folio brevioribus, pedicellis perigonio longioribus bracteas vix æquantibus, perigonii tubo lobis multo breviore.—Inflorescentia, bracteæ, flores et foliorum forma *C. excelsæ*; sed arbor est parva v. frutex elatus non scandens, et præterea differt glabritie. Folia majora 6-7 poll. longa, 4-5 poll. lata. Ovarium in floribus quos examinavi semper adest, sed styli rami vix apice capitati, nec sæpius distincte papillosi.—Rio Parime, *Schomburgk*. Hostmann’s n. 245, from Surinam, may possibly be a variety of the same species.

851. *C. marginata*, sp. n., glabra, foliis obovali-oblongis breviter acuminatis basi obtusis venis majoribus supra impressis marginibus anguste sursum involutis, racemis folio brevioribus, pedicellis perigonio bracteaque brevioribus, perigonii tubo lobis multo breviore.—Folia pleraque 4-5 poll. longa, 2-2½ poll. lata, chartacea, venis majoribus subtus prominentibus, rete venularum tenui. Racemi 5-10-pollicares, graciles. Bractæ latæ, vix semilinea longiores. Flores *C. excelsæ*.


The singular manner in which the margin of the leaves is turned back upon the upper surface to the breadth of about half a line, if it be not accidental, readily distinguishes this species from all others I am acquainted with. In my specimen all the leaves are thus bordered, without any appearance of disease, or of the work of any insect.

852. *C. striata*, sp. n., glaberrima, vaginis basi striatis, foliis ovatis acuminatis basi rotundatis cordatisve utrinque reticulato-venulosis, racemis folio longioribus tenuibus, bracteis minutis, perigonii subsessiliis laciniis tubo carnoso subbrevioribus stamina superantibus, bacca coronata.—Ramuli sub foliis insigniter striati et sœpe inflati. Vaginæ membranaceæ, truncatae. Petiolii brevæ. Folia 3 4 poll. longa, 2-2½ poll. lata, tenuia, rigida, siccitate flavidantia, venulis utrinque conspicuis, subtus vix magis quam supra prominulis. Racemi 4-5-pollicares, rhachi tenui rigida. Flores solitarii v. fasciculati, angusti, 1 lin. longi, limbo primum erecto, demum reflexo,


This species appears to have an extensive range, if specimens which I have from various parts of tropical Brasil and from the West Indies are, as they appear to be, referrible to it. It agrees in many respects with the characters given of C. obtu- sifolia, Jacq., but the leaves, though variable in form, are never so narrow as those described by Jacquin; nor does the inflorescence agree at all with that attributed to the C. micro- stachya, Willd., which is said to differ chiefly from C. obtusi- folia, by its broader leaves.

854. C. lucidula, sp. n., ramulis ferrugineo-puberulis mox glabris, foliis oblongis subobovatisæ acuminatis tenuiter subcoriaceis utrinque reticulato-venosis glabris nitidulis, racemis folio plerisque brevioribus, perigonii subsessillis laciniiis tubo suo longioribus, staminibus perigonium æquan- tibus.—Ramuli tenues, teretes, cortice cinereo. Vaginae puberulæ, oblique truncatae, 3-4 lin. longæ, angustæ. Petioli vaginis breviores, raro 2 lin. longi. Folia 2½-3½ poll. longa,


856. T. surinamensis, Cham.—C. A. Mey. l. c., var. crassifolia.—On the Creek Longjohn, on the upper Essequibo, Schomburgk, 1st Coll. n. 223.

The tufts of hairs in the axils of the veins on the under side of the leaves are often very small, and in many leaves disappear altogether, and the inner lobes of the perigon in the female flowers and fruit are but shortly adherent to the tube; yet I can perceive no essential difference between these specimens and Hostmann’s n. 439 and 1188 from Surinam, and Martin’s Cayenne specimens, which I consider to belong to the true T. surinamensis. The inner segments of the perigon in the flower are lanceolate-subulate, as the fruit advances they wither up a little laterally, so as to become linear-subulate.

857. T. Schomburghiana, sp. n., foliis amplis ovatis utrinque villosis, paniculæ masculæ ramis longis floribundis, floribus parvis subrotatis, perigonii feminii lacinii inferioribus ovatis obtusis petaloideis ovarium æquantibus.—Species distinctissima. Folia quæ vidi maxima 10 poll. longa, 6 poll. lata, utrinque acutiuscula, more generis venosa et longitudinaliter plicata, pubie ferruginea appressa in pagina superiore scabriuscula, in inferiore molliore copiosior. Paniculæ rhachides et bracteæ in utroque sexu pilis rufis longis hisutissimæ. Paniculæ masculæ ramuli numerosissimi, semi-pedales ad pedales, a basi dense floridi. Bractæae vix lineare

obtuse trigonus, laciniae exteriores cum angulis tubi continuae, 6 lin. longae, 1 lin. late, crassiusculae, molliter et tenuiter puberulae, aveniae, 3 interiores setiformes, 1 lin. longae. Capsula oblonga, superne attenuata, 3-4 lin. longa, stylorum vestigiis coronata, trisulca, sulcis laciniiis interioribus perigonii oppositis, intus sulcis intromissis semitrilocularis. Semen e basi cavatatis erectum, stipitatum, profunde trisulcum.—Pedrero, on the Rio Negro, Schomburgk, 1st Coll. n. 924, (female specimens), and n. 957, (male specimens).

The above species resembles R. salicifolia in the shape of the leaves, but the habit is much more rigid, and the perigon, especially when in fruit, very different in shape.


860. Symmeria paniculata, gen. nov.—Frequent on the banks of the upper Essequibo, Schomburgk, 1st Coll. n. 138.


Thymeleaceæ.

The genera of this order, as usually characterized, were in the greatest confusion, very unnaturally marked out by characters often of very little importance. Dr. Meissner has lately reduced to their proper limits the South African and some of the Asiatic genera, and it is to be hoped that he will
revise the whole order for the Prodromus. In the meantime, Dr. C. A. Meyer, in the Bulletin of the Academy of St. Petersburgh, has proposed a generic distribution which appears very satisfactory with relation to the European, Asiatic, and a portion of the American species, but which may require some modification as to the latter, when more of them shall have been examined. *Nordmannia*, for instance, (if I am not right in the plant I consider to be *N. tinifolia*), well distinguished by the stamens adnate to the lobes of the corolla, is, by the more or less complete abortion of the organs of one sex, usually dioecious, not truly hermaphrodite, and has small scales round the base of the ovary. It is a natural genus, containing at least half-a-dozen American species, including *Daphne salicifolia*, H.B.K., *D. cestrifolia*, H.B.K., *D. Bonplandiana*, Kunth, (vix Cham. Schlecht)* and some unpublished species. The only species of the order contained amongst Schomburgk's plants, belong to genera perfectly distinct from any I am acquainted with.


* *D. Bonplandiana*, Cham. Schlecht. (which I have not seen), with a glandular ring round the ovary, forms Meyer's genus *Haryasteria*, Galeotti's specimens from the same locality (n. 523) have on the contrary the character described by Kunth, and appear to me without doubt to be congenera with *Nordmannia tinifolia*. 
acuta v. obtusa, basi rotundata v. truncata, supra sparse et
appresse pilosa, subtus pube subsericea pallentia v. candi-
cantia. Pedunculi terminales, a folio terminali 2-6 lin. longi,
canescenti-tomentosi, graciles, apice capitulum ferunt 3-6
florum, bractea parva subulata subtensum. Flores sessiles,
albi. Perigonii tubus semipullicaris, leviter incurvas, tenuis,
canescenti-tomentosus, 10-striatus, intus glaber; limbi lobi
lanceolati, 3 lin. longi, extus dense intus tenuius cano-tomen-
tosi. Squamulae hypogynae minutae, longe barbato-hispidae.
Ovarium in fundo perigonii 1 lin. longum. Stylus ovario
brevior.

862. Goodallia guianensis, gen. n.—On the brook Curassa-
waka, a tributary of the Rupunoony, Schomburgk, 1st Coll.
n. 142, in part.

Char. gen. Goodallia. Flores dioici. Masculi: Perigo-
gonium late tubulosum 5-fidum, tubo intus vilioso, limbo
erecto. Stamina 10, ad faucem inserta, perigonio breviora,
5 lobis alterna paullo breviora. Squamæ perigynæ prope
basin tubi 10, lineares, glabres. Ovarii rudimentum nullum
v. minimum. Fœminei: Perigonium et squamæ perigynæ
marium. Stamina nulla. Squamulae hypogynæ minutissimae
longe hispidæ. Ovarium hirsutissimum. Stylus filiformis,
brevissim, apice dilatatus, in stigma crassum capitatum undique
papillosum. Ovulum unicum, ex apice cavitis pendulum.
Fructus vix carnosus, perigonio parum aucto inclusus,
ovoideus, apice attenuatius, hispidus. Semen pendulum,
fructu conforme; testa crustacea; albumen nullum; radula
supera; cotyledones crassæ convexas.—G. guianensis. Frutex
elatus, ramis divaricatis ramosissimis, ramulis ultimis tenuibus,
novellis sericeo-pilosulis, mox glabris punctulatis. Folia in
petiolo vix unquam lineam longo pollucaria v. paullo minora,
7-9 lin. lata, basi cuneata v. rotundata, margine integerrima,
consistentia et colore illa Maprouneæ referentia, glaberrima,
pennivenia, venis utrique prominulis sepe purpurascensibus.
Spice capitulæformes ad apices ramulorum sessiles, fœmineæ
3-5-floriae, masculæ interdum 6-7-floriae. Perigonium masculu-
lum 2½ lin. longum, lacinii lineari-lanceolati tubum æquan-

The only genus to which this one comes at all near in character is Lagetta, from which it is amply distinguished by the pentamericous flowers perfectly dioecious, and other characters, besides a very different habit. I have great pleasure in dedicating it to the distinguished young artist who accompanied Sir Robert Schomburgk in his second expedition, and brought home a beautiful set of views of various palms and other trees in their natural stations, besides many valuable botanical drawings.

863. Goodallia guianensis, var. ? parvifolia, foliiis oblongis ellipticisve obtusis mucronulatis subtus ramulisque sericeo-pubescentibus. — Specimen unicum vidi fœmineum. Ramuli virgati. Folia 4-6 lin. longa, 1½-3 lin. lata, petiolo lineam longo. Perigonia quam in typo majora, longius pedicellata; ceterum florum et fructuum structura omnino eadem.—Sent by Schomburgk with the last under the same number, and possibly gathered from the same bush, but the foliage and branches are so very different as to leave it doubtful whether they do not belong even to a distinct species.

Acanthaceæ.

(Determined and described by Professor Nees von Esenbeck.)

864. Mendoza puberula, Mart.—British Guiana, Schom-burgk, 1st Coll. (single specimen), 2nd Coll. n. 352 (439).

865. Hygrophila guianensis, Nees ab E., sp. n., caule erecto subsimplici profunde quadrangulari lateribus excavatis apice sparsim piloso, foliiis lanceolatis basi apiceque parum
attenuatis sessilibus subrepandis supra præsentim secundum costam median densissime lineolatis basi ciliatis, costis 7-8 debilibus subtus hirtulis, verticillis completis paucifloris, calycibus ad medium usque 5-fidis laciniiisque subulatis sparsim pilosis.—Differt ab H. conferta et H. salicifolia foliis haud petiolis longis in speciem basi attenuatis, apice etiam minus attenuatis acumineque obtusiori. Proxima sane accedit H. lacustris, cauli etiam rubro, sed differt hirsutie, licet sparsa, foliisque brevioribus (2½ poll. longis, 5-6 lin. latis) statu sicco circa costam in pagina superiore tanquam umbra canescente, a lineolis confertissimis orta, suffusis, calyce piloso aliisque. Corolla calyce paullo longior. Capsula fusca. (Nees).
—British Guiana, Schomburgk, 2nd Coll. n. 331 (291).

866. Stemonacanthus Humboltianus, Nees ab E., glaber, foliis oppositis ovato-oblongis in acumen angustum obtusum plus minus attenuatis, thyrsos terminali nudo, bracteis partialibus brevissimis ovatis, pedicellis calycibusque canescenti-sclareis subglandulosis.—Ruellia Humboldtiana, Klotzsch in Moritz Pl. Cub.—var. β. caule rhachique thyrsi tenuioribus foliis laxioribus magisque ovali-oblongis et utrinque acutis, thyrsos 1-1½ poll. longo subsimplici spiciformi, corollis paullo gracilioribus. (Nees).—Mountainous region near the Hyacon cataract, Schomburgk, 1st Coll.

867. Dipteracanthus humilis, Nees ab E. —Ruellia humilis, Pohl in Herb. Vindob.—var. β. diffusus.—British Guiana, Schomburgk, 1st Coll.

868. D. canescens, Nees ab E., cano-pubescent, caule herbaceo procumbente ascendentem erectov, foliis oblongo- lanceolatis sessilibus obtusi-usculis, repando-crenatis integerrimis, floribus axillaribus oppositis solitariis geminisve subsessilibus, bracteolis nullis (aut caducis?) calycis lacinii lineari-subulatis hirsutis, corollae infundibuliformis tubo fauces amplas obconicas æquante, limbi lacinii ovatis.—A D. geminisflora differt pubescentia densiore incana, foliis angustioribus, corollae faciebus paullo magis inflatis, an var.? Ad basin calycis cicatricule lineares transversales bracteolarum sedem prodere videntur, in multis tamen quæ examini sub-
jeci, bracteolam reperire frustra laboravi. (Nees).—British Guiana, Schomburgk, 1st Coll. n. 377, 2nd Coll. n. 291 (477).

869. Teliostachya alopecuroidea, Nees ab E. — Ruellia alopecuroidea, Vahl.—British Guiana; Schomburgk, 1st Coll. n. 555; French Guiana, Leprieur, Herb. Par. n. 165.

870. Thyrsacanthus Schomburgkianus, Nees ab E., ramis subtetragonis angulis laxeibus, racemo terminali elongato longe pedunculato glandulosopubescente, floribus distantibus oppositis (inferioribus sæpe geminis ternisve) secundis, pedunculis recurvatis, corollæ tubulose limbo brevi.—Differt a T. dissitifloro, Nees ab E. corolla pollicari, limbo fere regulari, laciniis ovatis parum patentibus; reliqua congruent. Folia in utraque stirpe argute cuspidata, variant a longitudine spithamae ad 3 poll. (Nees).—British Guiana, Schomburgk, 2nd Coll. n. 157 (110.)


872. A. pulcherrima, Jacq.—British Guiana, Schomburgk, 2nd Coll. n. 109 (38).

874. Beloperone? calcyina, Nees ab E., thyrso terminali
denso ramis inferioribus verticillatis, bracteis bracteisque
setaceis calyce multo brevioribus, calycis brevipedicellati
laciniis lineari-acuminatis longissimis, caule herbaceo glabro,
foliis amplis ovali-oblongis cuspidatis in petiolum attenuatis
supra glabra nitidisque subtas subtillissime velutinis, antheræ
loccellis calcaratis (suboppositis et connectivo oblongo discrete-
tis). (Nees).—British Guiana, Schomburgk, 1st. Coll. (single
specimen).

875. Rhytiglossa pectoralis, Nees ab E.—Justicia pector-
alis, Linn.—British Guiana, Schomburgk, 2nd Coll. n. 176
(141).

876. Leptostachya Martiana, Nees ab E.—British Guiana,
Schomburgk, 1st. Coll. n. 305.

877. Sericographis caripensis, Nees ab E.—Justicia carip-
ensis, Humb. et Kunth.—British Guiana, Schomburgk, 2nd
Coll. n. 190 (134).

878. Amphiscopia polystachya, Nees ab E.—Justicia poly-
stachya, Vahl.—French Guiana, Herb. Par. n. 165.

879. A. cayennensis, Nees ab E.—French Guiana, Herb.
Par. n. 163.

880. Dicliptera ciliaris, Juss.—British Guiana, Schomburgk,
1st. Coll. n. 192.

(To be continued.)

Description of Three Species of Plants from Upper India,
collected by Dr. Thos. Thomson, H.E.I.C.S. and Dr.
Bacon, H.E.I.C.S. with three plates.

(Tabs. XX, XXI, and XXII.)

1. Gentiana (Chondrophyllum) cephalodes, Edgeworth;
"caule filiformi apice foliis paucis capitulum 3-4 florum
involucrantibus, capsula breviter stipitata apice rotundata
ciliolata emarginata, stylo bifido utrinque reflexo." Edgeworth in Linn. Soc. Trans. ined. (Tab. XX, sub nomine
G. Baconi.)
HAB. Nepaul, Dr. Bacon, (in Herb. Thomson); also gathered by Mr. Edgeworth on the Himalayah, at an elevation of 5000 feet.

"Annuæ, 1-2 pollicaris. Caulis erectus, teres, basi nudus, apice capitulum parvum 4-5 flororum foliis involucratum gen-
rens. Folia 4-6, sessilia, late obovata, obtusa, mucronata, interiora minora, decussatim opposita, arcte involucrantia. Flo-
res in capitulum sessiles. Calyx membranaceus, 5-dentatus, laciniiis nervo medio subherbaceo acutis mucronatis corollæ
pliis æquantibus. Corolla 5-fida, intus nuda, laciniae ang-
gustæ acutæ, plice integrae, v. 2-3-dentatae. Stamina
ad medium tubi inserta, filamentis filiformibus, antheris
parvis versatilibus luteis. Ovarium breviter stipitatum, cu-
neato-obovatum, apice stylis brevibus filiformibus liberis
utrinque revolutis, stigmatibus apicalibus introrsis extus pu-
berulis. Capsula bivalvis, valvis ad medium patentibus re-
flexis, apice rotundatis emarginatis ciliolatis. Semina ovoidea,
testa nervis crassiusculis reticulata.—Species distinctissima,
affinis videtur G. marginata." Edgeworth.

When the accompanying figure of this plant was prepared, we
were not aware of its having been described for the Transac-
tions of the Linnæan Society by Mr. Edgeworth, who kindly
permits the above description to be taken from his manu-
scripts.

Tab. XX. Fig. 1. A flower; f. 2. corolla laid open;
f. 3. capsule; f. 4. seed; all magnified.
2. Saxifraga diversifolia, Wall.; pilosa, caule erecto fo-
lioso, foliis polymorphis inferioribus petiolatis ovatis corda-
tisve subacutis, cauliniis plerumque sessilibus integerrimis
discoloribus reticulatim venosis superne creberrime puncta-
tatis, floribus corymbosis, pedicellis bracteis calycibusque
glanduloso-pilosis, sepalis patentibus, petalis late spathu-
latiis basi glandulis 4 longe stipitatis instructis. (Tab.
XXI.) Var. β. parnassifolia, Ser. MSS. in DC. Prodr.
v. 4, p. 44.

HAB. Kamaon; Dr. Bacon, (in Herb. Thomson.)

A very beautiful species, with something the habit of our
S. Hirculus, but quite different in the foliage. We entirely agree with De Candolle in uniting under one specific name the S. lanceolata, Moorchroftiana and parnassifolia of Wallich’s herbarium.

Tab. XXI.—Fig. 1. Front, and f. 2. back view of a flower; f. 3. corolla; magnified.


Hab. Mooredabad, Upper India; Dr. T. Thomson.


This species has a very wide range, namely, from the base of the Himalayah Mountains southward to Madras, in the Peninsula of India. It is selected, as a hitherto unfigured plant, along with the two accompanying ones, from a rich and beautifully preserved Herbarium, formed in Upper India by Dr. Thos. Thomson, some of whose valuable observations on the Botany of those regions we hope soon to bring before the public.

Tab. XXII.—Fig. 1. Flower; f. 2. corolla; f. 3. corolla, laid open; f. 4. transverse section of ovary;—magnified.
On Fitchia, a New Genus of arborescent Compositae, (Trib. Cichorieae), from Elizabeth Island, (lat. 26°, long. 125° W.) in the South Pacific, by J. D. Hooker, M.D.
R.N. F.L.S.

(Tabs. XXIII, XXIV.)


1. Fitchia nutans, Hook. fil. (Tab. XXIII, XXIV.)

Hab. Elizabeth Island, in the South Pacific Ocean, (Cuming, n. 1424.)

Rami validi, crassitie digitae minoris, lignosi, cortice pallide flavo tecti. Folia ad apices ramorum opposita; petioli graciles, patentes, 2-pollicares, basi in stipulas latas connatas dilatati; lamina 3 unc. longa et 2 lata, plana, subcoriacea, opaca, utrinque glaberrima, creberrime reticulatim venosa, venis primariis patentibus, siccitate fusco-brunnea, subtus pellidora. Pedunculus terminalis, arcuatus, nudus, sub 2 unc. longus, superne dilatatus, involucro subintrusus. Capitulum magnum, 1½ unc. diametro. Involucrum latissime campanulatum, squamis imbricatis late orbiculatis carnosis marginibus integerrimis v. laceris membranaceis. Receptaculum latiusculum. Paleae lanceolatae, acuminatas, achaenias longiores. Corolla ½ unc. longae, radiantes, exteriores recurve, tubo gradatim ampliato, limbo apice 3-4 dentato, dentibus subulatis ciliatis. Filamenta corolleæ æquilonga, filiformia, inter se torta. Antheræ elongatæ, in apicem subelongatam productæ, loculis linearibus basi brevissime bicuspi-

A very noble plant, belonging to a new genus which will rank next to *Rea* of Bertero and Decaisne. I have named it in honour of one who is well known as a most accurate and elegant Botanical artist, Mr. Walter Fitch, to whose pencil are due the plates of this work, of the Icones Plantarum, of the last twelve volumes of the Botanical Magazine, and of the greater part of the Flora Antarticæ.

Arborescent *Composite*, belonging to genera wholly differing from those found on continents, often occur in insular positions, and at once give a character to the landscape and to the Botany of the island they inhabit. This remark applies invariably to islands whose other vegetation differs from that of the neighbouring lands; and also, in a certain degree, to isolated spots, where the Botany is not of such a confined nature. Thus, in St. Helena, of which the entire Flora is specifically different from that of either Africa or America, the *Composite* are invariably frutescent or arborescent, belonging to 4 genera, all confined to the island, and together containing 10 species. New Zealand probably ranks, so far as we at present know, next to St. Helena in peculiarity, though from its size it partakes of a continental vegetation in the number of its genera, those of *Composite* amount probably to 30, including 60 species; the arborescent are 8, with nearly 14 species, the latter all restricted to New Zealand, as are 5 of the former. The island of Juan Fernandez exhibits but few peculiar genera, though the species are almost wholly unlike those of the neighbouring coast of Chili. As far as I have ascertained, the *Composite* there amount to 17, distributed amongst 8 genera; 3 of them, containing 12 species, are arborescent, and grow nowhere else.

The Galapago Islands have a very remarkable Flora, more
than half the native flowering plants being different from those of the American continent. Twenty-one are *Compositeae*, (divided into 13 genera), all but one peculiar; 3 of these genera are arborescent or frutescent, and include 8 species.

Elizabeth Island is situated in the Pacific Ocean, and although we know little of its Botanical productions, there is every probability that they are, in a great measure, identical with those of Pitcairn's, and other islands of the Low Archipelago, and the Society groups; all which are considered to rank under one Botanical region, including all the South Sea Floras. What I would particularly notice here is, that in none of these are any arborescent *Cichoraceae* seen, or if *Cichoraceae* at all, certainly none allied to *Fitchia*. This occurrence of a plant which appears characteristic of an American island, at the western extremity of a very widely extended Botanical region, (wholly unlike the American), is a very singular fact, and we cannot help combining it with the circumstance, that, except Ducie's and Easter Islands, Elizabeth Island lies nearer Juan Fernandez, (where arborescent *Cichoraceae* chiefly abound), than any of the Pacific group. Thus there is a sort of union of two widely different and far separated Floras, at the approximating point of their geographical positions, and not caused by specific identity, which migration would explain satisfactorily to many, but dependent on botanical characters, indicating an affinity equally decided, but of a far more puzzling nature.

I may conclude with a remark on the South Sea Flora in general. The similarity between the vegetable productions of all the Pacific groups is such as to have induced Botanists to consider them but subdivisions of one extended botanical region. The similarity is, however, more apparent than real, and mainly owing to the prevalence of some conspicuous littoral species, with other plants transported by man to these isolated spots, as they were successively inhabited. There has been, in short, a migration of man and plants from the westward, all over the Pacific Archipelago; but I am inclined to suspect that these introduced species are superadded to a Flora that
had already existed on the principal islands. Thus, taking the Sandwich group and Society group as an instance, both are situated in nearly the same longitude, equally distant from the Equator, one in the 20th north, and the other in the 27th degree of south latitude. They contain 50 flowering plants in common, a considerable proportion of which are littoral species, equally natives of the other Pacific Islands (almost none, however, inhabiting the American shores :) in other respects their Floras are wholly dissimilar. Few or no marked genera are common to both with representative species in each. The Society Island vegetation is the poorest, the most tropical in forms, and the least peculiar, differing from that of the Sandwich group in possessing more Malvaceae, Leguminosae, Myrtaceae, Melastomaceae, Cucurbitaceae, Apocynae, Urticae, and particularly Orchidaceae; and wanting, or nearly so, the Composite, Lobeliaceae, Goodenoviae, and Cyrtandrae of the Sandwich Islands, which are very numerous, peculiar and characteristic there: whilst of such Orders as Gramineae, Cyperaceae, Euphorbiaceae, Solaneae, Convolvulaceae and Rubiaceae, well represented in both, there exist but few species, and no peculiar genera, common to the two groups.

Tab. XXIII and XXIV. Fig. 1. Palea; f. 2. floret; f. 3. stamen; f. 4. apex of style; f. 5. fruit; all magnified.

BOTANICAL INFORMATION.

ZEYHER AND BURKE;

South African Collections of Plants.

Mr. Charles L. Zeyher is favourably known to science from the many years (not less then twenty-one) that he has devoted to studying and collecting plants in distant regions. His first collections were made, we believe, in the Mauritius, in company with the unfortunate Sieber: but the
larger portion of his time has been spent, as Botanists are well aware, in South Africa, and much of it in company with Ecklon. Since Ecklon left the Cape of Good Hope, Mr. Zeyher has made many journeys and passed a long while at Uitenhage, with the vegetation of which district our Herbaria are greatly enriched through his means. But the most remarkable of his journeys was performed in company with Mr. Burke, who, as already mentioned in the 2nd volume of this Journal, p. 163, was charged by the Earl of Derby to undertake a Natural History mission into the interior, towards the tropics, in a direction north of Uitenhage, when they reached a district called Macalisberg, in the 24th degree of S. latitude.

Mr. Burke's rough Journal having been placed in our hands through the kindness of Lord Derby, we are sure we shall gratify our readers by some brief extracts from it, which will at least serve to show some of the difficulties to which travellers are exposed in that less than half civilized country.

In December, 1839, Mr. Burke sailed for the Cape, where he arrived in the middle of March, and after paying his respects to Baron Ludwig, the eminent cultivator of rare plants and a distinguished patron of every branch of Natural History, he proceeded to Vyge-Kraal, the residence of the Rev. Mr. Fry, under whose direction and with whose assistance, preparations were to be made for the distant journey, and where a waggon was already awaiting him.

On May the 21st, Mr. Burke observes, "everything is ready for our departure towards Uitenhage, whence we take our journey for the interior, and where I am to be joined by Mr. Zeyher, and two more waggons. Jones (one of Lord Derby's under-gardeners, and accustomed to the charge of animals, who had gone out with Mr. Burke) will go by sea to Algoa Bay, carrying our barter-goods, powder, &c., and will bring back living animals, which have been collected there and at Uitenhage, and return to England with them and with others which are at Vyge-Kraal. On the afternoon of this day, Punyer, an assistant, and myself left
Vyge-Kraal with one waggon, a Hottentot driver and leader, and fourteen very poor oxen, which we are assured, will improve in the good country we may expect soon to reach. Hardly, however, had we left Mr. Fry's door, than one of the wheelers fell down and the waggon passed over him, though without doing him much harm, and another ox appearing too weak to go far, we left these two animals behind and pursued our way with only twelve. The stubborness of some of our cattle, and the debility of others, compelled us to make an early halt for the night, and leaving Punyer to take care of the waggon, I returned to Vyge-Kraal. The following morning we started with the full complement of oxen, intending to reach Pompion's Kraal, and were within four miles of it, when the animals gave in, and we let them all loose, hoping to find them fresh next day, but were disappointed, for we had to lead two for some way, and finally to leave them behind us, while we sent the waggon on to Pompion's Kraal. At this place I received disheartening intelligence from a man who had been sent far up the country to purchase beasts. The small-pox had broken out among his people, and he was obliged to leave them ill in the field, where he fears that many must have died, the farmers being so terrified by the disease that they refused to afford help, or to allow any traveller even to approach their dwellings.

We stopped two days at Pompion's Kraal to recruit our oxen, and at last found it necessary to start with twelve, leaving the other two with their heads on the ground, apparently dying. The weather was very bad, heavy rain and much lightning, and to add to our troubles, some dogs found out our stock of meat, and stole it at night from the back of the waggon, where we kept it rolled in a sheep's skin. The rain too put out our fire, so that we were unable to cook any supper. On the 26th of May we halted by a small stream near Berg River, where I gathered several pretty species of Oxalis, not known in England. I think that the difficulty which cultivators find in making Cape bulbs succeed with us, is
due to the circumstance of the plants being taken up while in bloom. Thus, the tubers of these Oxalides are not matured, and I fear they will perish. Such plants should be removed in a dormant state. Punyer had the good fortune to catch two hares, a welcome addition to our food, after the loss of all our meat.

We were detained two days by the swollen state of the Berg River and spent the time in trying to purchase provisions for the journey, which we found it difficult to do, from the prevailing dread of small-pox. One lean sheep and a few loaves of bread were all we could procure. The oxen gave us much trouble by straying and wandering into the neighbouring farms, where they were detained by the owners for payment of pretended damages. An English settler and his family were also waiting to cross the river; he had been on his way to Cape Town to purchase goods, but the report of small-pox arrested him, and he now only desired to get safe back to Snieberg, and we were happily enabled to give mutual aid, and all of us got over the Berg River on the 29th, and to the Outspan place at Koopman’s River on the 30th. The afternoon of the 31st was spent at that interesting ravine, called the Neu Kloof. It is about a mile long, with lofty mountains on either side, and the Little Berg River winding through the bottom. The rocks are covered with shrubs and flowers; I noticed several Proteas, numerous species of Aloe, Mesembryanthemum, Helichrysum and Oxalis, Haleria lucida, Richardia, and many other striking plants. The way through the Kloof, is dreadfully rough and our poor oxen found it hard work to get the waggon over the enormous stones. A toll of nine-pence was demanded for keeping the Kloof in repair, which I am confident must be all profit, for not a trace of human workmanship can be described. Such is the fear of small-pox, that the toll-keeper would not come to take the money, but requested me to lay it on the ground, and we had lost sight of the place before he had ventured to emerge and pick it up. Slowly proceeding for the next two days, we came to Breede River, weary and half-famished,
the cattle nearly exhausted, and ourselves unable to purchase provisions, owing to the prevalent dread of contagious disease. The hyænas prowled about us constantly, and would probably have made prize of our oxen at night, if they had not been too lean to be worth catching. It was most disheartening to contemplate the long journey before us with such cattle, and if I could have afforded it, I should have purchased a new team; for the farmers, who are well aware of the nature of the country, were continually assuring us we should never get them half way to Uitenhage. The weather too was cold and rainy.

On the 4th of June, we arrived at a village called Worcester, where we met with still worse treatment, for not content with denying us any provisions for our money, the inhabitants threatened us with imprisonment for coming thither without a certificate of health from Cape Town. However, they were too anxious to be rid of us to fulfil this menace, and finally sold us a little bread and salt beef to hasten our departure. I was persuaded to let the people of the waggon have some brandy to keep up their spirits, and having given Punyer a bottle for this purpose, he served them rather too freely, so that from singing they fell to fighting, but ended at last by going quietly to sleep. The next day we proceeded to the Hex River, where two of our cattle were knocked up by drawing the waggon across it, and the hardships of the road, which led us over the same river no fewer than nine times in three days, reduced our team to ten beasts, all in pitiful plight, and quite unfit to ascend the Hex River hill, which was our next trial. Accordingly, at one steep place, the oxen all stopped, and away went the waggon backwards, dragging them along the stones and bruising them severely. The cold frosty nights and barren ground which affords hardly any food, give the poor creatures no chance of recovery. The soil is generally a mixture of gravel and clay, sprinkled with stunted *Mesembryanthemums*, and, here and there, a *Euphorbia*; I also saw *Loranthus elegans* in flower.

The same state of things prevailed for a fortnight. Though
much rain fell, the ground looked everywhere parched. At one place, we came to a swarm of locusts and spent a whole hour in passing through them. It is difficult to imagine what these insects could find to eat; our oxen can hardly pick up anything, and they wander so much, that on one occasion I had to pay seven dollars to a Dutchman for damage done to what he called his garden, where there had been some young corn, on which they browsed. The rivers are nearly dry and water is often scarce. Near a place, called Hartebeest’s Fonteyn, I noticed a few ostriches and Spring-boks.

On the 23rd, we fortunately fell in with a Cape Town butcher driving sheep, and bought one of them. It was remarkable to see how our dogs ate the locusts, through clouds of which we passed that day. At the Dwaka River, which we reached on the 25th, it seemed expedient to halt, that the oxen might be refreshed. A boor, whom we found there with his flock, offered to exchange my team for good oxen, for 200 rix-dollars; but I cannot afford this sum and have therefore no alternative but to push on as far as I can, and then, leaving the cattle and waggon in Punyer’s charge, to proceed alone to Uitenhage and send back assistance. It seems certain that the cattle cannot go much farther; but I shall try night-travelling, for the hot days exhaust us all, the thermometer varying from 90° to 95° in the shade. Accordingly, I set off after sunset on the 27th, went on for six hours, halted till daybreak and then proceeded for two more hours, which brought us to the Gamtka River, where we spent the day and pursued the same plan next night, till we came close to the Zwart-Berg range. I am sorry to say that vegetation was so scanty, that we were obliged, on halting, to tie our poor oxen to the yokes, or they would stray so wide we should never recover them. Passing near a cluster of houses, the terrified inmates sent us word to go another way, lest we should bring them the small-pox; but as the course they indicated would have caused such a circuit that our oxen must have knocked up, I returned for answer that I could not leave the regular route to oblige them. No vege-
tation could be described but a scanty growth of *Mesembryan-thema*. On application at a house, situated rather remote from the rest, the owner let me have some bread and other provisions; but said that I must not enter, or the neighbours would apprehend infection. The distance that yet lies between this place and Uitenhage is considered more trying than all our previous journey, because water is particularly scarce.

Till the 5th of July we continued our journey at a very slow pace, ourselves and the cattle suffering severely with hunger and thirst. On one occasion I was much disappointed in not capturing a large ant-eater, which, when pursued, took to a hole not big enough to admit him, but though another man and I, with a spade, endeavoured to dig him out of the ground, he burrowed so actively, making the hard soil and stones fly before him, that we, weak and fatigued, were obliged to give up the chase. Often we travelled all day without drink, and thought ourselves fortunate to find a pool of dirty and brackish water at night. The oxen, which scented water on such occasions from a great distance, became sometimes so unruly that we could not keep them in the path, though their poor feet were so sore, that they had difficulty in standing still; and often seemed unable to move. At last, I decided on leaving the waggon in Punyer's charge and going forward to Uitenhage for a fresh supply of cattle. The leader volunteered to accompany me, and the driver to stay with Punyer, and on the 6th we accordingly parted company; but many were the difficulties my companion and I met with ere reaching Uitenhage. The very first night, when tempted, by the coolness of the air, we endeavoured to thread a pass in the Zwart-Berg, we lost our way in the bush, and wandered about, narrowly missing a fall down a bank upwards of twenty feet high. I also stumbled into an ant-eater's hole and though no bones were broken, I found myself much shaken. The nights were so frosty and chilly, that it was hopeless to attempt sleeping; one of my eyes became swollen and very painful with cold and weariness, and we generally found it best to lie down to
rest during the heat of the day and pursue our journey late
at night and very early in the morning. On the forenoon of
the 8th, we came to Olifant's River, and there meeting a
boor who was seeking his master's cattle, he put us in the
right track for Uitenhage, and told us of a farm-house where
we might procure food; but when we got there, the owner
with his family and cattle had gone away to seek grass and
water, and a Fingoe, who alone was left, was unwilling to
sell us any provision. However, after some persuasion, he
let us have a piece of mutton for three shillings, and we
roasted it in the bush and made a hearty meal. Thirst was
our greatest tormentor; we vainly scratched in the sand of a
periodical river-bed, but could not obtain a drop, and were
unable to sleep from the distressing want of drink. The
next day, towards evening, we came to a small pool of muddy,
though most acceptable water, under a rock, and stretching
ourselves on a comfortable bed of *Mesembryanthemums*, got
some rest. It was, however, no sooner dark, than the
howling of hyænas and jackals aroused us, and the stars
being bright, we quitted the fire at midnight to proceed on
our way; but were quickly entangled in the thick bush, and
lost several hours in wandering about to recover the track.
The thorns scratched us, and we got several bruises by falling
over stones. Daylight enabled us to find the path, and
we went on, among great numbers of dog-faced baboons. A
female ostrich also crossed our way. The hope of reaching a
farm-house stimulated our exertions; but when we got there
just before dusk, the house, to our great disappointment, was
deserted, door and windows stopped with mud, and not a
living creature to be seen. My companion was so worn out
and disheartened, that he fell down and declared he could go
no farther, and when I would have persuaded him to proceed,
availing ourselves of the fair and cool night, he was too much
afraid of lions to stir from the protecting vicinity of the fire.
My left leg also was sadly hurt by the falls I had received two
nights before. Near this house we saw beautiful specimens
of *Schottia speciosa*. At daybreak we went on, and suffered
much with thirst, our course lying near the top of a line of
hills; when, just as my companion had refused to exert him-
self any more, we suddenly saw beneath us the bed of a large
periodical river, that branch of the Camtoos called the Groote
River. Our disappointment was extreme, when we found it
was perfectly dry; but, by dint of searching, I detected a
little water in a hole, and having drunk all we could of the
salt and disagreeable fluid, we lay down to rest. Sleep
was however out of the question, for the hyænas howled
so dreadfully that we were glad when daylight appeared
so we were glad when daylight appeared
to enable us to pursue our journey. Meeting three waggons
at a time, I requested some food, but was refused, the people
could spare none. All day we kept passing numerous speci-
mens of Aloe Africana, and at one place we went through a
grove of Opuntia vulgaris, from 10 to 15 feet high. At
sunset we reached the top of a high hill, where we halted; no
firewood could be found and we lay down supperless, with
no prospect of breakfast next day. The cold prevented our
sleeping, and when soon after daybreak we met a waggon
and asked for something to eat, we were again refused; but
the people directed us to cross a hill, where we should find
a farm-house. We did so, and reached the place about noon;
the owner is an English gentleman, named Dr. Jones, and
he entertained us most hospitably, and my companion
seeing a Hottentot occupied in skinning an ox which had
been gored, obtained part of the meat as a provision for our
journey. Zamia horrida was very fine in this neighbour-
hood.

On the following day, the 14th, we arrived at Uitenhage
about noon. I observed Plumbago Capensis and Loranthus
elegans growing near the track. Mr. Zeyher was here
awaiting me; but to my great disappointment I found that
no preparations had been made for the journey into the
interior, Mr. Jones having neither sent the goods which were
to have come by sea, nor despatched to Cape Town the
animals which are still here and at Algoa Bay. Mr. Zeyher
proposed going to Port Elizabeth and I agreed to accompany
him, in hopes of receiving some tidings. This plan having been fulfilled, I returned to Uitenhage, still without news of Mr. Jones, and engaged a span of oxen to go and fetch our waggon. The Hottentot who had come with me went back with the team, that no time might be lost in seeking for the waggon; but so reluctant are the owners of cattle to send them into the Karroo in this dry season, that three or four days more elapsed before the oxen set off.

As I could not leave Uitenhage without providing that the animals procured for the Earl of Derby should be sent securely to the Cape, and as Mr. Jones did not arrive, I decided on taking the animals myself and bringing back our stores and goods for barter. I therefore proceeded to Port Elizabeth, and engaged a passage on board the brigantine "Conch." The animals were shipped, on the 30th of July and 1st of August, and the following is a list of them.

Four ostriches, four spring-boks, one young bush-bok, a common gnoo, three spring-hares, and two jackals, two Stanley cranes, three Guinea fowls, and five pheasants.

We unmoored on the 2nd of August and stood to sea in company with H.M. brig "Curlew." The weather was fine, but a strong breeze soon sprung up, which increasing to heavy gales, the main-stay sail was carried away and we shipped much water. The young bush-bok died in two days, and when we were obliged to bear up for St. Francis Bay in tremendous weather on the 9th, I found all the spring-hares also dead. Standing out of the Bay next morning, we made for Table Bay and sighted Table Mountain on the 13th. To my great vexation, one of the ostriches thrust his neck through the bars of his cage and in his struggles to extricate himself was so much injured that I was obliged to kill him. It was the 18th ere we landed at Cape Town. On arriving I sent a messenger to Mr. Fry, whom I afterwards saw and who informs me that a report prevailed that I and my whole party had perished in the Karroo.

Another ostrich died before we could remove the animals from the ship. Mr. Fry is to take care of them at Vyge-
Kraal till they can be safely transmitted to England; he will forward my goods in the waggon which is to fetch the animals, and I shall convey the baggage with me to Algoa Bay.

August 20th.—I despatched the animals to Vyge-Kraal, and though the articles Mr. Fry was to have sent are not come, I am obliged to sail at once for Algoa Bay, my passage being secured in the schooner "Louisa," trusting that Mr. Fry will forward them by the next ship. Nothing particular occurred on the passage to Algoa Bay, and I reached Uitenhage again on the 29th, where I found Punyer with the waggon. The "Conch" had been reported as lost.

From this time to the beginning of November, I remained at Uitenhage, in daily hope of receiving the paper, &c., which Mr. Fry was to have sent. Several vessels arrived, among them the "Conch" went and came twice, and still our goods did not appear. For want of drying-paper, I could collect few plants; at last, on the 4th, I heard from Mr. Fry that he had shipped off my things, but he did not say by what vessel, nor send a bill of lading. Punyer is at Port Elizabeth, engaged in attending to birds and animals which are to go on board the "Veetis" to Cape Town.

(To be continued.)

Notes on the Vegetation and general character of the Missouri and Oregon Territories, made during a Botanical Journey in the State of Missouri, and across the south-pass of the Rocky Mountains, to the Pacific, during the years 1843 and 1844; by Charles A. Geyer.

(Continued from p. 492.)

III.—Or Saline Desert region, commencing about La-namie’s Fork of Platte River.

This region has not such easily defined limits as the foregoing two, but is scattered widely over the remaining western part of the North American continent. Commencing from its great centre, about the uppermost sources of the rivers
Platte, Arkansas and the Colorado on the West, it comprises most part of the higher plains of the southern slope of the Rocky Mountains, from an approximate elevation of 4,000, down to 1,200 feet; and follows the new red sandstone formation to every point of the compass; northward to the Saskatchewan and Lake Winnipeg; south to the Wachita of upper Arkansas river; east to the mouth of Big Sioux river of the Upper Missouri, and even to the Des-Moines river of the Upper Mississippi; and, lastly, westward to the Walla-Walla, a small tributary of the great Columbia and Oregon territory.

With so great a variety of elevation and extent of territory, (through nearly 20° of latitude and longitude) it will be necessary to subdivide the whole into 4 subregions, according to their principal features. The one prevailing feature is that of a comparative barrenness and desert-like appearance, some small parts of river-valleys only excepted.

General character of the vegetation.—East and westward the limits of the Cupuliferae and Coniferae.—Small groves and thickets of Salicinae!—Eleagnaceae, conspicuous in the two genera Eleagnus and Shephardia!—Station for the greater proportion of N. American Chenopodiaceae in North America!—Hordeaceae, prominent among the Gramineae.—Cichorieae, Chrysopsideae and Senecionideae among the Compositae!—Representatives of families: Allium striatum, Calymenia angustifolia, Cnicus undulatus, Viola Nuttallii, Bar- tonia ornata, Solanum flavidum, Heliotropium Curassavicum, Callistegia paradoxa, Triglochin maritimum, Beckmannia, Rhus trifoliata!—Disappeared families of the last region: Acereae, Chlorideae, Malvaceae!—Disappeared conspicuous genera of the former region: Allionia, Delphinium, Carduus, Sida, Anemone, Phlox, Lupinus, Polygala, Mammillaria, Echi- nacea, Gaura, Melanthium, Cypripedium, Coreopsis, Batschia, Atheropogon, Panicum, Machæranthera, Evolvulus, &c. &c.!

Eleagnus argentea and Shephardia argentea appear in the place of Corylus Americana and Prunus Americana! Amorpha nana in the place of A. canescens.
Prevailing colours, white and yellow. The foliage passing through every shade, from deep dull green to silvery white.

1st Sub-region.—Extensive depressed tracts of the great plains, on the sources of Platte River and the Colorado on the West, being subterraneous continuations of the southerly spurs of the Black Hills.—They consist of great ranges and detached piles of horizontal new red sandstone based on deeply inclined masses of the coarsest conglomerate, rarely directly on bituminous shale, under the great detached piles, or near river-defiles. The depression is about 200 feet below the general level of the plains above.

In traversing the great sandy deserts, the traveller's attention is excited by numbers of obtuse conical piles, towering above the level of the plains, and forming a sort of belt north and south in the south-pass along the horizon.—Northward, leaning on the pine- and snow-clad central chain of the R. Mountains; southward, losing themselves in the endless plains of Upper California. Suddenly the traveller finds his course arrested by a precipice, he surveys it with wonder, and imagines the exhumed ruins of Herculaneum or Pompeii are before him. Spacious streets and avenues of level rock, formed by regular ranges of new red sandstones haped into grotesque ruins, or high massive piles of conglomerate, containing globular, oblong, or columnar boulders imbedded in a grayish soft claystone cement. These boulders are of great size, smoothed by trituration, sometimes partially freed from cement, fronting the main pile and resembling columns, statues or monuments of every shape. On the top rests the obtuse, conical cupola remnant of sandstone, surrounded by a variety of small turrets, bearing likewise on their summits curiously shaped cupolas of greenish or brownish sandstone. In another direction is a series of low, oblong, angular platforms of sandstone, resembling tombs, or extensive terraces of astonishing regularity, with basins full of brackish water; piles of globular boulders, or obelisks, balancing a curious block of sandstone, may be met with here and there in the spacious plains. The outlets are mostly narrow, dark
defiles, and, on passing them, another such monumental city of Nature's own work is before the traveller; and not until he is so fortunate as to strike upon a river can he again resume his direct route.

An almost total absence of animal and vegetable life, and a death-like stillness pervade these regions, which together with the want of good water, of grass for the horses, and the parching sun of August, rendered this the most intolerable place I ever visited in my botanical rambles. Yet I was not disappointed, for some of the rarest specimens of plants in my collection were gathered from one solitary cliff within this region, about the junction of Ham's and Black's rivers, of the uppermost waters of the Colorado on the west.

A low crest-like ridge of sandstone rises on an isolated massive bed of bituminous shale, sloping towards the river from the adjacent desert; plains teeming with luxuriant plants of Stanleya viridiflora, Nuttall, &c. Around it grew bushes of the singular Helianthus, No. 96; and below, on the carbonaceous shale, I found the splendid Hydrophyllum, No. 93, with the Bartonia, No. 95. On the lower part of the slope I gathered, partly on a loamy calcareous crust, various Chenopodiaceae, and a few Onagraceae, comprising the numbers 92, 94, 100, 101, 103 and 104.

There is perhaps not another Hydrophyllaceous plant more elegant than the above. It is about six inches high, robust, and divided from its base into branches, which bear ample cymes of long recurved racemes, densely covered with rather small azure-blue or deep indigo-coloured flowers, which by their contiguity give a neat semi-globose outline to the plant. The other plants, though rare, are mere botanical curiosities, except a few species of Pentstemon, which were already in seed. On the depressed plains no plants are visible except a few groups of Onosmodium, n. 164, and the arborescent species of Artemisia (cana and tridentata), fringing the margin of the adjoining plains; these are the only signs of vegetable life.

Of animals we saw none, save a single prowling wolf and a
solitary smoky-coloured *Emberiza*. The latter seemed delighted with our unexpected visit, and followed us for about ten miles, until sunset; alighting on our hats, or travelling with us, by taking a seat on the crupper, or settling alternately on some *Artemisia* bush. Both these creatures probably had lost their way as we three had lost ours. Our bad luck, as we called it then, turned out good for us, for by that involuntary circuit (of about 90 or 100 miles) we evaded a party of marauding Shyenne Indians.

2nd Sub-region.—Masses of bituminous, or simply carbonaceous shale, bearing castle-like cliffs of horizontal sandstone, elevated above the plains; or lower, and capped with a heavy layer of brownish ferruginous loam, commencing at the mouths of Big Sioux and Qui-courit, and continuing for about 300 miles on both sides up the Missouri to Yellowstone river, with a slight easterly inclination. Carbonized organic remains of Ammonites and Orthoceratites are strewn over the surface.* This and the following sub-region comprise the "Burnt Hills" of Lewis and Clark.

The declivities fronting the river are clothed with a spare but elegant vegetation, and repay the visitor for the desolate aspect of the numberless sandbar-islands in the river. Bordered by the groups of *Juniperus Andina* (J. tetragona?) which inhabit the deep protected ravines, a slight shrubbery of *Shepherdia argentea*, *Ribes aureum*, and of *Rhus trifolii-lata*, clothe the base of the hills, further up mingles the prettiest of the genus *Amorpha* (A. nana, Nutt.) with dispersed herbaceous plants. *Yucca angustifolia*, and some species of *Cuctierexia* and frutescent *Chenopodiaceae* fringe the cliffs above.

The most brilliant flowers are those of the *Stanleya pinna-tifida*, Nuttall; it grows in thick clusters, about three feet high, on narrow parapets, forming, for the most part, brilliant golden-yellow serpentine lines on the hill-sides, visible at the distance of half-a-mile, the racemes being sometimes a foot

* See J. N. Nicollet’s Report, for further geological information.
and a half long. It is most abundant about the mouth of White River, and very rare further up, where the genus *Homolobus* takes its place. Lewis and Clark, in their narrative, mention this plant as a sort of an esculent *Cabbage*; and Pierre Durieu, their guide, related to me, that he himself partook of the meal they had prepared from the glaucous cabbage-like leaves, after which they all sickened, and violent vomiting with convulsions ensued. *Astragalus racemosus*, Pursh, a bushy erect species, two feet high, alternates with the *Stanleya*, and bears large racemes of showy milk-white flowers. Other herbaceous plants, scattered over the lower slopes, are the superb *Bartonia ornata*, *Cnicus undulatus*, *Penstemon grandiflorum*, *caeruleum*, *crisatum*, *Erigeron hirsutum* and *Cynoglossum Nuttallii*; finally, the *Yucca*, with its rich symmetrical silvery foliage and floribund scapes, completes the vegetation on the crest of the precipice.

The loamy slopes above are either naked or clothed with annuals, which latter are chiefly *Helianthus tubaformis*, *Chenopodium subspicatum*, *Kochia dioica*, *Euphorbia polygona-folia*, *Hosackia Purshiana* and *Atriplex argentea*. Towards the grassy borders of the adjacent plains are seen groups of *Seseli trilatum*, *Allium striatum*, *Psoralea cuspidata*, with a few scattered plants of *Viola Nuttallii*, *Schrankea uncinata*, *Erysimum asperum*, or *Penstemon*. *Cenothera cespitosa* alone thrives on the naked burning arid slopes of loose shale.

Loamy saline parts of the river are quite uniform. *Triticum Missuricum* forms meadows, enclosing small fields of *Ceratochloa* and *Lepturus paniculatus*. The only conspicuous plants in such meadows are *Solanum flavidum*, Torrey and James, *Donia squarroso*, *Helianthus*, and some plants of *Opuntia Missurica*. Saline watercourses abound with *Glycyrrhiza lepidota*, *Apocynum hypericifolium* and *Achillea Millefolium*; *Iva axillaris*, *Callisteia paradoxoza* and *Senecio integerrimus*, near rich grassy valleys; and these again are fringed with *Shephardia argentea* and *Rosa parvifolia*.

*Shephardia argentea* is the same shrubby tree which Lewis and Clark mention in their narrative as “Buffalo-berry,” or
"Graine de bœuf." Not until lately has the fruit of this tree been appreciated, which, together with its elegant form and foliage, affords an additional recommendation to the cultivator. It is a shrubby tree, at the most fifteen feet high, with silvery-green foliage and spinescent branchlets, which bear bouquets of bright red berries, becoming diaphanous and acquiring a delicious acid when touched by the frost. In the gardens of Sir Wm. D. Stewart at Murthly Castle, Scotland, I have since seen a number of thriving shrubs, which that gentleman had raised from seeds gathered by himself on the Upper Missouri. In this species the female individuals are rarer than in the Canadian Buckthorn, and perhaps more so than in any other N. American dioecious ligneous plant.

The Missouri River is the highway for travellers in this region. Travelling is either tedious by low water, or dangerous during the high water season of the summer months. The scenery, on the whole, bears a stamp of uniformity which would be fatiguing, were it not for the abundance of animals, especially bison, which traverse these regions, followed by packs of the large brown, the white, and the little barking prairie Wolf. The monarch of animals in these wilds is the grizzly or Missouri Bear, (Ursus horribilis), an animal of great size, strength, courage and ferocity. He feeds principally on the flesh of the bison, but also gathers for his vegetable diet the tubers of Psoralea esculenta, which he digs up in the gravelly plains, and peels with great nicety. Occasionally herds of elk and antelopes approach the river, and flocks of pelicans sun themselves on the sandbar-islands, or are busy fishing in the turbid water. Among reptiles, the rattle-snake is abundant, especially a long variety with a bright sulphur-yellow ground-colour, and pale brown rhomboid markings. The "horned frog," as it is called, in reality a curious species of lizard, is also found on the tops of the arid hills near the great gravelly plains.

3rd Sub-region.—Labyrinthine depressed regions, situated
about the upper waters of Qui-court, Teton and Shyenne Rivers; they seem to be likewise continuations of the easterly spurs of the Black Hills, and consist of vast ranges of bituminous shale, generally below the level of the great plains, but rising towards the river-valleys. They are cut into innumerable, very narrow and intricate, dark defiles or channels, with perpendicular sides about 150 feet in height, which absorb a brackish dark-brown water; otherwise they are analogous to those on the Missouri River, are capped with heavy dark loam, contain the same organic remains and picas of yellowish pumice stone strewn over their surface, and comprise about one half of the "Burnt Hills" of Lewis and Clark. There is nothing worth mentioning in their vegetation, and these tracts are only interesting to the Geologist, in so far as they indicate great part of the saline desert region.

4th Sub-region.—Saline plains; the greatest portion of them in the immediate neighbourhood of the Black Hills; stretching round the base of the Rocky Mountains, and sloping off, interruptedly, towards S.S.E. A loamy crust, with the appearance of having been drifted, or an undulated-crested surface, is the general character of the dry saline plains. Large exsiccate flats, perfectly level, and often covered with a snowy white crust of soda; some exsiccate swamps being the exception. Swampy river-valleys only are covered with a luxuriant vegetation.

The loamy portions of the dry saline plains are the centre of the Chenopodiaceae in North America, and the habitat of Fremontia vermicularis, (Torrey), a many-stemmed shrub, from three to eight feet high, with somewhat horizontal branches, spinescent branchlets and dull-green succulent foliage. It firmly roots itself in the crest-like saline loam-banks, and collects by its many stems and intricate branches the flying sands from the adjacent deserts. The young succulent shoots are used by the trappers as a substitute for salt, and at the same time for a vegetable, by boiling them with their meat. On that account, and from a distant resemblance this
shrub bears to Juniper, they gave it the name of "Salt Cedar," by which it is known to Anglo-American travellers. A few more shrubs associate with Fremontia, especially a Bigelovia, (63), the Chenopodiaceae, Nos. 62 and 64, Iva axillaris, (here a low shrub), and a spiny, silvery, tomentose Senecioidea, which is very rare.* Besides all the Chenopodiaceae of my collection, there grow here those of the Mississippi Valley, and Kochia dioica, Chenopodium rhombifolium, Salsola, &c. Nearer, towards some gravelly ridges, appears an intermediate flora of conspicuous flowering plants, as Cnothera albicaulis, Calochortus, 68; Sonchus pulchellus, Lygodesma, 156; Erigeron, 140; Plantago gnaphaloides and Erigeron hersutum, and some scattered dwarf azure-blue Pentstemon.

Dry saline portions of river-valleys harbour an abundance of Cymopterus glaucus and glomeratus, Glycyrrhiza lepidota, Phaca, 108; Plantago eriopoda, Castilleia occidentalis, Ferula n. 220; Pentstemon gracilis, Asclepias speciosa and Cleome integrifolia, enclosed as it were in a shrubbery of Shephardia and Eleagnus; or of Rosa parvifolia and Amorpha frutescens.

Wet saline river-valleys abound with a herbaceous variety of Iva axillaris, the showy Dodecatheon integrifolium, Iris Missuriensis, Triglochin maritimum, the Cichoraceae, n. 245, but most of all, Carex, n. 48.

Stony exsiccated river-valley swamps are waving with an abundance of Hordeum jubatum, mixed with Trichopodium laxum, Beckmannia, Ceratochloa and the scattered tall Calamagrostides, cinnoides and Mexicana, rarely are Alopecurus and Poa distans found amongst them. The rest of the ground is occupied by Calliopsis bicolor, Ranunculus Cymbalaria, Pursh, Epilobium coloratum and Herpestes rotundifolia. On the stony loamy and sandy margins grow Darlingtonia, Polanisia, Dalea alopecuroides, Xanthium, Lycopus, Ambrosia, Sisymbrium canescens, &c. &c.

Many small exsiccated places in river-valleys harbour

* A specimen in the collection of Sir William Hooker only! the S. Nuttallii? T. and G.
plants not seen elsewhere. On the Missouri, I found *Castilleia occidentalis* filling a small hollow, bordered with masses of *Heliotropium Curassavicum*. Again, near Laramie's Fork of the Platte River, some depressions are overrun with *Lippia cuneifolia* and *Œnothera*, n. 178, scattered amongst it. This *Œnothera* and No. 16* are doubtless the two most elegant of the genus in North America; the former is probably new, the corolla white and clear rose-colour, variegated with deep purple spots. It has a ligneous prostrate stem.

In localities, shaded by some high bank of earth, on exsiccated loam, and even soda crusts, grow dense masses of the *Asteræa*, n. 115, bearing a great number of stems which were remarkably level-topped; generally it was surrounded by dense carpets of the small pretty *Chrysopsidea*, n. 116.

The prevailing white colour among the flowers arises from *Achillea Millefolium*: as *Calliopsis bicolor*, with *Helianthus tuberosum*, *Stanleya*, divers *Solidagines* and *Ranunculi* produce the yellow. Blue is rare, and only presented by *Iris*, *Pentstemon* and *Lithospermum*; red, by *Dodecatheon* and *Cleome*, is likewise rare.

**Chas. A. Geyer.**


* This *Œnothera* also grows on somewhat saline clayey cliffs, in a very small locality, near Scots' Bluffs.
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