

1860.

VICTORIA.

ESSAY ON THE PLANTS

COLLECTED BY

MR. EUGENE FITZALAN,

DURING

LIEUT. SMITH'S EXPEDITION TO THE ESTUARY OF THE BURDEKIN.

BY

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By Authority:

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To Prof. McCoy, M. A., & &
most respectfully
the author.

ESSAY.

The despatch of the *Spitfire* on a survey voyage to the entrance of the River Burdekin offering an opportunity to extend our limited knowledge of the Flora of Eastern tropical Australia, permission was readily obtained from the enlightened Government of Queensland that a botanical collector could accompany the party.

Although in such rapid surveys as the nature of the expedition involved, the facilities of enriching our knowledge of the natural productions of the country cannot be otherwise than limited, particularly when, as in this instance, a savage population had to be encountered, yet, by the zealous exertions of Mr. Fitzalan, botanical collections were formed of so considerable interest, that I deemed the material sufficient for the issue of a special document on its elucidation. Since, moreover, a series of the plants collected during the expedition is deposited in one of the public institutions of Brisbane, a special paper of reference promised utility, whilst by the fragmentary elaboration of such plants as may occasionally be collected in the unexplored portions of Australia, gradually the materials for a universal work on the plants of this country may be stored together without costly special arrangements for the purpose.

Some of the plants brought by the expedition hold out a likelihood of being of practical utility to the colonist, and such notes on their uses as suggested themselves have been inserted in the enumeration. Several species were obtained in a state too imperfect to admit of their systematical arrangement, whilst others are only indicated in Mr. Fitzalan's journal.

The new district of Kennedy, with a seaboard from Cape Palmerston to the Bellenden Ker Ranges, being proclaimed, and Port Denison, in Edgecombe Bay, chosen as the site for the new maritime township, it is likely that, through the ready access thus offered to the fine pastoral and salubrious country along the ever-flowing Burdekin and its extensive tributaries, the settlements will at once extend northward to the Newcastle Range, which separates, in latitude 18° S., the waters of the eastern coast from those of the Carpentaria Gulf, the advantage of the proximity of excellent harbors to any part of the Burdekin being incalculable.

Whilst thus a vast tract of country will be opened for the enterprise of the pioneers of colonization, may we hope that thereby, also, the path may be smoothened to those who, with self-sacrifice, may be the foremost of carrying the torch of scientific investigation into the new parts of the realm. May ere long the Geographer be enabled to extend the triangulation from Mount Dryander, Abbot, Elliot, Hinchinbrook and Bellender Ker, and to trace from these commanding heights the rivers as yet unsketched; and may the Naturalist be fortunate enough, while enriching science, to open also new resources for internal wealth and prosperity, and for a flourishing mercantile traffic in North-East Australia.



ENUMERATION OF THE PLANTS COLLECTED DURING
THE BURDEKIN EXPEDITION.

CAPPARIDÆ.

BUSEECKEA CORYMBIFLORA.

F. M. Fragm. Phytogr. Austr. i. 63.

Port Denison.

GUTTIFERÆ.

CALOPHYLLUM INOPHYLLUM.

Linné. Sp. Plant. 732.

Percy Islands.

The stems of the young plant are quadrangular. Trunk about 2 feet in diameter; wood white and close-grained, similar to that of box.

PITTOSPOREÆ.

BURSARIA SPINOSA.

Caran. Icon. iv. 30 t. 350: *F. M. Plants indigenous to the Colony Victoria.* i. 74.

Cape Upstart.

MELIACÆ.

OWENIA CERASIFERA.

F. M. in Hook. Journ. of Bot. ix. 305.

Port Denison.

TURRÆA PUBESCENS.

Hellenius, in Kongl. Svensk Vetenskaps Academiens Handlingar, 1788, p. 26, t. 10, f. 3; *Bennett, in Horsfield's Plantæ Javanicæ rariorés*, 181.

Percy Island. On the Burdekin northward as far as opposite Halifax Bay; thence in the Brigalow scrub sparingly southward as far as Mount Lindsay; on the latter locality found by Walt. Hill, Esq.

The identity of the Australian plant with the Chinese species not being sufficiently established, I deem it desirable to append a detailed description of our plant, chiefly from the botanical diary kept during Mr. Gregory's expedition.

A small tree or more generally a shrub, several feet high, with several or many erect stems and spreading branches; the latter terete, distant, covered with exceedingly thin pubescence, sordidly brown, often smooth in age. Leaves deciduous, alternate, herbaceous or at last chartaceous, in a young state often fasciculate, ovate, entire, blunt, provided with a petiole of 3-4 lines length, penninerved, 1-4 inches long, downy along the nerves, otherwise almost glabrous or but slightly hairy, occasionally acuminate. Umbels lateral and terminal, sessile or short-pedunculate, few-flowered. Pedicels 2-6 lines long, with three bractcoles at the base. Exterior bractcole about 1 line long, triangular; inner ones lanceolate, about $\frac{1}{2}$ line long. Calyx five-toothed, almost campanulate, $1\frac{1}{2}$ line long, persistent, outside almost silky. Corolla white, fragrant, consisting of five petals, which are about 1 inch long, glabrous, outside towards the apex greenish and broadest, imbricate in æstivation, inserted outside the disk, at first coherent into a tube, in age separating, deciduous. Staminal tube free of the corolla, adnate to the margin of the disk, white, deciduous, at first with exception of the toothed limb entire, soon, however, splitting unilaterally from the apex to below the middle, as long as the corolla, at the apex divided into ten deeply bifid teeth, which are alternate with the anthers. Segments of the teeth linear-subulate, about 1 line long. Anthers yellow, with introrse dehiscence, less than 1 line long, tetragonous-oblong, rostellate, attenuated at the base; their fissures not extending quite to the base. Pollen golden-yellow. Style finally considerably longer than the column, glabrous, filiform, with a thickened truncate-ovate or urceolate apex of 1 line length, on which the hemispherical glabrous yellow stigma is inserted. Hypogynous disk short, entire. Germen smooth, globose, five-celled. Ovules affixed to the central angle of the dissepiments. Capsule five-valved, thickly coriaceous; the septum forming a ridge along the middle of each valve, glabrous. Valves broad-ovate, acute, outside squalid-green, inside yellowish, about 5 lines long. Seeds saturate-brown, renate-clubshaped, hardly longer than 2 lines, smooth. Testa chartaceous.

Albumen copious, oily-fleshy, whitish. Embryo greenish-yellow. Cotyledons oval, foliaceous, twice as long as the thin-cylindrical radicle.

The dehiscence of the staminal tube seems not to be previously noticed in *Turraea*. The occurrence of this genus within the Australian territory was already known to All. Cunningham (Conf. Append. to King's Intratrop. Surv. p. 23.)

MELIA AZEDARACH.

L. Sp. Plant. 550.

Port Molle. Occurs southward at least as far as the Hastings River. Common in many parts of East and North Australia.

AMPELIDEÆ.

CISSUS OPACA.

F. M. in Transact. Phil. Inst. Victor. iii. 23.

Port Molle.

COCHLOSPERMEÆ.

COCHLOSPERMUM GREGORII.

F. M. Fragm. Phytogr. Austr. i. 71.

Port Denison.

Attains the height of 20 feet.

BUETTNERIACEÆ.

MELHANIA OBLONGIFOLIA.

F. M. Fragm. Phyt. Austr. i. 69.

Cleveland Bay.

Shrub 8-10 feet high. Leaves and indument are subject to many variations. Hence the possibility of our plant proving identical with *M. incana*, which, moreover, has already been introduced into the list of Indo-Australian plants by Dr. Jos. Hooker.

STERCULIACEÆ.

BRACHYCHITON RAMIFLORUM.

R. Brown, in Horsfield's Plant. Javan. rarior. 234; *B. Bidwillii*, *Hook. Bot. Mag.* 5133.

Mount Gordon, Port Denison.

The plant is by no means rare in the drier littoral tracts of tropical Australia. Although a tree, it never attains the height of its congeners. An opportunity was recently afforded by Pemberton Walcott, Esq., of examining the seeds of *Brachyehiton Gregorii*, and proving their normal congenerie structure.

STERCULIA QUADRIFIDA.

R. Br. in Horsf. Plant. Javan. rarior. 233.

Port Denison.

This species extends from Arnhem's Land to Moreton Bay.

A tree, attaining the height of about 30 feet. Leaves generally 2-3 inches long, entire, chartaceous, above shining, beneath paler and opaque. Flowers monœcious. Calyx 4- rarely 3-cleft, only $\frac{1}{3}$ - $\frac{1}{2}$ inch long, pale green, at the inner base red; the margins of the lobes towards the base reflexed. Anthers yellow. Ovary velvet-downy. Styles short, downy, united. Stigmas 4, yellowish-green. Follicles coriaceous, turgid, outside beautifully scarlet, inside yellowish-red, smooth, 4-6-seeded. Seeds broad-ovate, about 8 lines long, glabrous, smooth, black, somewhat of the taste of filberts. Strophiole minute, rather spongy, whitish. Outer integument somewhat shining, black, very thin, brittle; inner one crustaceous and separable; between both a layer of whitish mucilaginous substance. Albumen fleshy, whitish, outside fulvous. Cotyledons flat, adnate to the albumen. Radicle very short, superior.

MALVACEÆ.

PARITIUM TILIACEUM.

Adr. de Juss. in St. Hilaire Flor. Brazil. i. 198.

Halifax Bay.

SIDA INDICA.

L. Sp. Pl. 964.

Cleveland Bay.

AURANTIACEÆ.

GLYCOSMIS SUBVELUTINA.

F. M. Fragm. Phytogr. Austr. i. 25.

Port Molle.

A tree 20-30 feet high.

MYRTACEÆ.

CAREYA ARBOREA.

Roxburgh, Plants of the Coast of Coromandel, iii. t. 218.

Port Denison. Extending around the north-eastern and northern coast to Arnhem's Land.
A tree never of great size.

MYRCIA AUSTRALASICA.

Glabrous; leaves thin-coriaceous, lanceolate-ovate, blunt-acuminate, short-stalked, without pellucid dots and without prominent veins, paler beneath; peduncles axillary and terminal, short, few-flowered, rarely one-flowered; pedicels hardly as long as the fruit; lobes of the calyx 4, short, triangular; berry dry, spherical, one-seeded; testa coriaceous, shining, smooth.

Magnetical Island.

A shrub 8-10 feet high. Branchlets somewhat angular when young, terete in age. Leaves 1-1½ inch long, one-nerved. Peduncles and pedicels thin. Limb of the calyx when crowning the fruit 1 line in diameter. Berry measuring 3-4 lines, perfectly filled by the solitary seed. Testa brownish. Cotyledons green, foliaceous, very much contortuplicate, concealing the greater part of the curved and compressed subulate radicle, which is about 3 lines long.

This plant can receive at present only a provisional position, its flowers being unknown. But since no myrcioid genus or species has hitherto been found in the eastern hemisphere, I thought it desirable to introduce this very interesting acquisition to the Australian flora into this list. It is possible that the discovery of the flowers of this plant may stamp it generically distinct or referable to any of the other genera of the tribe, as arrayed by Dr. Berg in the seventeenth volume of Martius's Flor. Brazil. and in the Linnæa for 1854.

EUCALYPTUS PLATYPHYLLA.

F. M. in Proceedings of the Linnean Society, iii. 93.

Port Denison.

TRISTANIA CONFERTA.

R. Br. in Aiton, Hort. Kew. ed. ii. vol. iv. 417.

Magnetical Island, Signal Hill, Upstart Bay.

Leaves, flowers and fruits are smaller than those of *T. macrophylla*, which nevertheless is to be reduced as a variety to *T. conferta*.

MELALEUCA LEUCADENDRON.

Linné, Mantissa, 105.

Port Denison, Cape Upstart. Common in North Australia.

I am inclined to consider *M. minor*, *M. Cajuputi*, *M. viridiflora*, *M. mimosoides*, *M. saligna*, *M. Cunninghamsi* and *M. Cumingiana* all as mere forms of this species, produced by the diversity of localities occupied by the species. The shape of the leaves and the color and length of the stamens are equally variable. In the collection is also a variety contained with grey velvet-downy leaves, very interrupted spikes and stamens only $\frac{1}{3}$ - $\frac{1}{2}$ inch long.

EUPHORBIACEÆ.

PETALOSTIGMA QUADRILOCULARE.

F. M. in Hooker's Journal, 1857, p. 17.

Cumberland Islands.

The *Hylococcus sericeus* R. Br. mentioned in Mitchell's Tropical Australia, p. 389, but seemingly nowhere described, is, according to Dr. Jos. Hooker's remarks, identical with this plant.

PSEUDANTHUS PIMELOIDES.

Sieber, in Spreng. Cur. Post. 25; Endl. Atakta, ii. t. 11.

Cape Cleveland.

A shrub 6-8 feet high. Flowers, according to Mr. Fitzalan, white in a recent state.

EUPHORBIA HYPERICIFOLIA.

Linné, Sp. Pl. 660.

Port Molle. Noticed also in many other parts of tropical Australia.

RHAMNACEÆ.

COLUBRINA ASIATICA.

Brogniart, in Annal. des Scienc. Nat. x. 369.

Cumberland Islands.

CELASTRINEÆ.

CELASTRUS DISPERMUS.

F. M. in Transact. Phil. Inst. Vict. iii. 31.

Cape Cleveland.

LEGUMINOSÆ

SOPHORA TOMENTOSA.

L. Spec. Plant. 533.

Port Molle.

LEPTOSEMA OXYLOBIODES.

Branches faintly silky, glabrescent, winged by foliaceous expansions; pedicels lateral, solitary, at last longer than the velvet-silky calyx, bibracteolate near the middle; flowers small; vexillum ovate-oblong, slightly bicarinate at the base, *nearly as long as the other petals, emarginate*; expanded anthers ovate-cordate, small; ovary short-stalked, villose; style short; pods ovate, rostrate; seeds numerous.

Port Denison. Found during Mr. Gregory's expedition on Newcastle Range.

A shrub of a few feet height. Branches alternate, phyllodineous by the thick-coriaceous and copiously veined expansions, which alternately from gemma to gemma decur. Bracts semilanceolate, bent inward, 2 lines long or shorter, outward velvet-silky. Flower-bearing pedicel twisted, grey velvet-downy, about 2 lines long; fruit-bearing one straight, often 3-4 lines long, stout-filiform, glabrescent. Flowers resupinate. Calyx about 4 lines long, cleft to near the base into two lips, inside, with the exception of the margin, almost glabrous; upper lip divided hardly to one-third of its length into two deltoid teeth; lower lip deeply cleft into three lanceolate-linear segments. Petals one-third longer than the calyx, seemingly red, all glabrous. Vexillum broader towards the base, hardly longer than 3 lines, tapering into a broadish somewhat channelled unguis. Lamina of the wings about 4 lines long and 1 line broad, rather blunt, semihastate-oblong, with an unguis of about 1 line length. Petals of the carina from the middle to near the apex connate; their lamina oblique-elliptical, rather blunt; their claw continuous to the lower margin of the lamina, by which means at the base of the upper edge of the petal a short blunt lobe is formed. Filaments glabrous, linear-setaceous, hardly longer than the calyx. Anthers dorsifixed, $\frac{1}{4}$ - $\frac{1}{3}$ line long. Ovary attenuated into a short stipes. Style curved-filiform, $1\frac{1}{2}$ line long, glabrous. Stigma very small. Pod broad-ovate, turgid, nearly smooth in age, blunt, suddenly rostrate, about $\frac{1}{2}$ inch long. Funicles measuring about 1 line, setaceous. Seeds many, black-brown, shining, kidney-shaped, sometimes grey-brown with black spots, 1 line long. Strophiole none.

The form of the standard affords, in conjunction with the habit of the plant, the only reliable note by which it can be separated from *Oxylobium*. It may be therefore preferable to place *Leptosema* into *Eupodalyriæ* rather than to consociate it with *Mirbeliæ*. The shape of the calyx is subject in the various legitimate species of *Oxylobium* to so great variations, that the relative length of the tube, lips and teeth of the calyx of *Leptosema* cannot be regarded as confirming its distinction from that genus.

Another congeneric plant, although not the result of the Burdekin expedition, is inserted here on this occasion.

LEPTOSEMA CHAMBERSII.

(Sect. *Callipetalum*.)

Silky; branches almost cylindrical; *branchlets angular-filiform or subulate*, spinescent, divaricate; racemes arising from the base of the stem, many flowered; pedicels near the summit bibracteolate, as well as the calyces and peduncle silky-tomentose; flowers large; vexillum from a cordate base narrow-lanceolate, acute, with two callous teeth at the base, about half as long as the other petals; wings hardly longer than the carina; expanded anthers linear-elliptical, elongated; *style very long*, glabrous; ovary sessile, oblique-ovate, velvet-downy; ovules numerous.

Between the Rivers Stephenson and Finke. John Macd. Stuart.

A dwarf shrub, according to the only specimen before us. Rhizome pale, somewhat corky. Stems and their numerous ramifications grey-silky. Scale at the base of the branchlets lanceolate-ovate, acute or semilanceolate. Racemes 2-4 inches long, many-flowered. Peduncles flexuose. Pedicels 3-5 lines long, stout, provided at the base with a cordate-ovate acuminate bract of about 2 lines length. Bracteoles also deciduous, hardly 2 lines long, narrow-lanceolate, somewhat channelled. Calyx nearly one inch long, before expansion conical-cylindrical, bilabiate to near the base, valvate in preflouescence, glabrous inside; lower lip divided to near the base into three equal broad-linear upward successively tapering segments; upper lip quadrate-oblong, short bilobed at the apex, about as long as the lower one, the lobes rounded in front and laterally acuminate. Petals all glabrous, crimson in their upper parts, pale and somewhat transparent towards the base. Standard $\frac{3}{8}$ inch long, below 2-3 lines broad, with a minute terminal apiculum; its claw about 1 line long and broad, supported on both sides by two minute acute opposite teeth, of which the inner pair is the smallest, and which originate by the dilation on both sides of the base of the vexillar stamen and from the unilateral enlargement of the base of the two next filaments. Wings about 15 lines long, oblong-lanceolate, with a faint acumen and with an unguis of about 1 line length. Petals of the carina semihastate-oblong, coherent above the middle, free in age, with a short broad-linear unguis. Filaments glabrous, linear-subulate, of unequal length; the longest attaining nearly the length of the keel. Anthers isomorphous, dorsifixed, versatile, 2-3 lines long, with two introrse fissures. Style filiform, glabrous, $1\frac{1}{2}$ inch long, curved at the apex, at first uncinatè, gradually upwards thinner. Stigma very minute. Ovary inside smooth. Fruit as yet unknown.

Only the shape of the calyx distinguishes this singular and beautiful plant generically from *Burgesia*, unless distinctive notes should be derived from the fruit. The habit, the racemose inflorescence, the large corolla and the elongated style are deemed sufficient for its sectional separation from the other *Leptosemata*.

I have chosen this, the most remarkable and the most ornamental of the new plants gathered by the intrepid and skilful John Maed. Stuart during his journey across central Australia, to express, by a tribute of science, my regards for the gentleman by whose munificence the brilliant exploit was solely initiated and supported.

CAJANUS GRANDIFOLIUS.

(Sect. *Atylosia*.)

Erect, stout, not climbing; branches streaked, as well as the petioles silky-tomentose with fulvous hair; leafstalks about as long as the leaves or shorter; stipules ovate-lanceolate, long-pointed, caducous; *lateral petiolules remote from the terminal one; stipels subulate*, deciduous; leaflets large, the lateral ones oblique broad-ovate, the terminal one ovate-rhomboid, all velvet-silky on both sides, paler and prominently net-veined beneath, rather acute on both ends; peduncles about as long as the petioles or considerably longer; pedicels corymbose or subumbellate, as well as the calyx silky-tomentose; *lobes of the calyx almost linear-subulate; the upper and lower one nearly as long as the somewhat persistent corolla*, considerably longer than the lateral lobes and the tube; vexillum faintly callous above the base; the margin of its basal lobes introflexed; pods nearly oblong, densely silky-tomentose.

Signal Hill, Upstart Bay. Found during Mr. Aug. Gregory's expedition on the Burnett Ranges and on the Victoria River.

A shrub, several feet high. Leafstalks lengthened to the distance of $\frac{1}{2}$ – $\frac{2}{3}$ inch beyond the lateral leaflets. The latter $1\frac{1}{2}$ –3 inches long, provided with stout petiolules, which are 2–3 lines long. Peduncles bearing at the summit occasionally a diminutive trifoliate leaf. Bracteoles cordate-ovate, acuminate, 2–3 lines long. Pedicels twin, somewhat shorter than the calyx. Lobes of the latter inflexed at the margin, the upper one acutely bidentate. Petals smooth. Vexillum orbicular, pure yellow, or but slightly streaked with dark veins, hardly $\frac{1}{2}$ inch long, with very short basal lobes and with an unguis, which is 1 line long and inflexed at the margin. Wings a little shorter than the carina, yellow towards the apex, pale towards the base, semilunar-oblong, with semihastate base and with a narrow flat short claw. Petals of the carina coherent from above the middle to below the apex along their lower margin, almost semicircular, with truncate base and with a narrow unguis of about $1\frac{1}{2}$ line length. Stamens diadelphous, glabrous. Anthers dorsifixed, yellow, subcordate-oval, $\frac{1}{3}$ line long. Style, with exception of the base, glabrous. Stigma minute, truncate. Pods about 1 inch long, compressed, short-beaked, with several seeds. The latter not seen in a matured state.

According to Wight and Arnott's definition (*Prodr. Flor. Penins. Ind. Or. i. 257*) *Atylosia* major approaches to this plant closely in its affinity. The remoteness of the lower special leafstalks from the upper one, and perhaps also the presence of stipellæ, seem to separate it however as well from that species as from the less similar *A. Candollei*, *A. rugosa* and *A. lineata*, and further the form of the calyx and the disposition of the flowers offer evident distinctions from *A. Lawii*, whilst the not climbing habit distinguishes it at once from *A. scarabæoides*, *A. albicans* and *A. elongata*.

CAJANUS CONFERTIFLORUS.

(Sect. *Atylosia*.)

Grey velvet-tomentose; leafstalks as long as or shorter than the leaves; stipules lanceolate-subulate; *petiolules arising from one point*; leaflets nearly ovate, blunt, netted by beneath strongly prominent veins; peduncles as long as the leaves or longer; *flowers corymbose*; lobes of the calyx lanceolate-subulate, all shorter than the corolla, longer than the tube; vexillum faintly callous at the base, the margin of its basal lobes introflexed.

Magnetical Island. The same species occurs at Rockhampton, according to a specimen transmitted by Mr. A. Thozet.

This plant is smaller in all parts than the preceding one. The fruit is as yet unknown.

It seems principally to differ from *Atylosia rugosa* in its inflorescence. A similar plant found on the Victoria River and distributed under the name *A. cinerea*, appears to differ only in a thin velvet-indument and in remote petiolules, the position of the latter being evidently subject to some variation. Another plant of this genus from the same locality and from the Gulf of Carpentaria, may, as a variety or as a species, be named *A. acutifolia*; it has its leafstalks considerably extended beyond the lower leaflets, its leaves distinctly acute and its slender peduncles often much elongated, whilst the pods are generally 2–3-seeded, ovate, the indument variable to a great extent, and the corymb sometimes elongated to a raceme.

The stronger development of the strophiole, observed amongst Australian species in *A. acutifolia*, offers the only and not a manifest differential character by which *Atylosia* can be separated from *Cajanus*, inasmuch as the corolla of *Atylosia* is not always persistent, and as the insertion of the special leafstalks is equally uncertain as the presence of stipellæ, whilst the presence or absence of callosities of the vexillum are in other genera, for instance *Swainsona*, only regarded as notes available for specific discrimination. Under these considerations I would suggest that *Atylosia* may be subordinated as a subgenus to *Cajanus*. In *Atylosia albicans* the stipellæ are distinctly developed. The actual limits of the variation, to which these plants are subject, is neither in the Indian nor in the Australian species ascertained, but apparently very

great. It is indeed possible, that we possess but one Australian species, for which the name *C. confertiflorus* might be retained.

It would also be of interest to ascertain whether the Australian congeners could be made available for food in the manner as *Cajanus Indicus*, serving as a substitute for peas in tropical countries.

In the collection occurs also a fruit specimen of a *Cyanospermum*, which may receive the name *C. Australe*. Being destitute of flowers and leaves, the specimens are insufficient for establishing a proper diagnosis. The calyx is much smaller and thus very considerably shorter than the pod, and the seeds are dark blue, characters which mark this a most singular species.

LOTUS AUSTRALIS.

Andr. Bot. Repos. 624.

Cumberland Islands. Extends sparingly north-westward to the Gulf of Carpentaria. Cattle are extremely fond of this herb, which therefore might be cultivated in sandy tracts, not readily available for other culture plants. It grows luxuriantly in some of our low sandy coast tracts.

CROTALARIA LABURNIFOLIA.

L. Spec. Plant. 1005.

Cape Cleveland.

CROTALARIA MITCHELLI.

Benth. in Mitch. Trop. Austr. 122.

Cape Molle.

INDIGOFERA PRATENSIS.

Suffruticose, diffuse, *almost silky*; leaves short-stalked, pinnate, with usually 5-9 pairs of leaflets; stipules linear-setaceous; *leaflets oblong-oval*, rarely ovate, blunt, mucronulate, finely penninerved; stipellæ minute, setaceous; *racemes axillary, many-flowered, conspicuously stalked*; pedicels short; bracteoles caducous, linear-subulate; teeth of the calyx deltoid; the lower ones pointed; corolla purple, rather large; standard subovate, one-fourth longer than the glabrous wings, outside silky, about as long as the keel; petals of the latter towards the apex silky; pods cylindrical, soon deflexed; seeds cubical.

Port Denison. Noticed by the author of this treatise on the Rivers Burdekin, Dawson, and Burnett, as well as in the neighborhood of Moreton Bay.

A pretty plant, never more than a few feet high. Stems and branches nearly cylindrical. Leaves seldom reduced to two or three pair of leaflets. Stipules often from 2-4 lines long, for a while persistent. Rachis of the leaflets narrow, channelled, $1\frac{1}{2}$ -4 inches long. Leaflets $\frac{1}{2}$ -1 inch long, flat, provided with a petiolule of about 1 line length, opaque, paler beneath. Rachis of the raceme angular. Pedicels solitary, about 1 line long. Bracteole of about the same length. Upper teeth of the short calyx somewhat remote; the lowest the longest, yet not much elongated. Vexillum 4-5 lines long, almost flat and sessile, but slightly acute, as long as the keel, not callous. Wings oblong-cuneate, ciliolate, sessile; the margin next the base inflexed. Keel slightly fringed, somewhat acute; its petals dissolved in their lower part, near the middle short and blunt-calcarate. Stamens diadelphous. Nine of the filaments highly connate. Anthers ovate, short-mucronulate, affixed above the base. Style ascendent, glabrous. Stigma finely bearded. Pods $1-1\frac{1}{2}$ inch long, about $1\frac{1}{2}$ line thick. Seeds hardly 1 line long, slightly shining, squalid yellowish-brown.

A very similar plant, with fewer almost orbicular leaflets, less conspicuous stipels and smaller flowers, was found on Sea Range (Arnhem's Land), and has been designated in the North Australian Herbarium *I. saxicola*.

Our plant touches in its affinity on several Asiatic species, compared on this occasion. *I. bracteata* is to be distinguished by the form and greater size of the bracteoles, which, moreover, are less caducous. *I. heterantha*, which I find amongst Fortune's Chinese plants, differs in less evidently penninerved and usually smaller leaflets with less conspicuous stipellæ, in smaller flowers, and more particularly in subulate teeth of the calyx. *I. hebeptala*, which, according to a somewhat imperfect specimen received from Ch. Moore, Esq., of Sydney, occurs on the Richmond River of East Australia, has fewer and broader leaflets and nearly glabrous petals. *I. decora*, which has become naturalized at Moreton Bay, shows more acute leaflets and a densely fringed carina. *I. pulchella* produces larger bracteoles, smaller stipellæ and almost glabrous petals. Some of these plants may be expected to occur in N.E. Australia. Dr. Hooker, in his valuable list of plants diffused as well over Australia as over India (*Conf. Introduct. Flor. Tasm.* p. 43), enumerates the following species:—*I. linifolia*, *I. cordifolia*, *I. enneaphylla*, *I. trifoliolata*, *I. viscosa* and *I. hirsuta*. To these are to be added *I. hebeptala* and *I. trita*, the latter being by no means rare, occurring from Arnhem's Land to Moreton Bay. Some of the other species have an equally wide range. *I. Australis* is scattered in manifold forms over the greatest part of extratropical Australia. Two other known tropical Australian species have as yet not been identified with Indian congeners, and are probably eudemic.

CANAVALIA OBTUSIFOLIA.

Cand. Prodr. ii. 404; *C. Bauेरiana*, *Endl. Prodr. Flor. Norfolkic. Insul.* 91.

Not rare on the tropical east coast of Australia. Bean edible.

DERRIS ULIGINOSA.

Benth. in Plant. Junghuhn. i. 252; *Miq. Flor. Ind. Batav.* i. 141.

Port Denison. Noticed also on the Fitzmaurice River in Arnhem's Land. Flowers, according to Mr. Fitzalan, pale pink.

ABRUS PRECATORIUS.

L. Syst. p. 533.

Port Denison.

BAUHINIA HOOKERI.

F. M. in Transact. Phil. Inst. Vict. iii. 51.

Cape Cleveland.

LABICHEA RUPESTRIS.

Benth. in Mitchell's Trop. Austr. 342; *L. digitata, Benth. l. c.* 273.

Port Molle.

GUILANDINA BONDOC.

Linné, Spec. Plant. 545.

Sinclair Island.

ACACIA FARNESIANA.

Willd. Spec. Plant. iv. 1083.

Port Denison.

Found throughout the greater part of tropical Australia.

ACACIA SIMSII.

A. Cunn. in Hook. Lond. Journ. of Bot. i. 369.

Cape Upstart.

ARALIACEÆ.

BRASSAIA ACTINOPHYLLA.

Endl. Decad. Stirp. Nov. Mus. Vindob. i. 89; *F. M. Fragm. Phytogr. Austr.* ii. 108.

Molle Island.

A large spreading tree. Fruit when young of bright rose-color, when ripe dark-red.

PANAX MACROSCIADDEUS.

F. M. Fragm. Phytograph. Austr. ii. 108.

Port Molle.

A tree 20-30 feet high. Berry occasionally by abortion of the second seed oblique ovate-globose; the seed then almost kidney-shaped.

RUBIACEÆ.

POGONOLOBUS RETICULATUS.

F. M. Fragm. Phytogr. Austr. i. 56.

Port Molle.

CANTHIUM COPROSMOIDES.

F. M. in Transact. Phil. Inst. Vict. iii. 47.

Magnetical Island.

Fruit scarlet.

GARDENIA OCIIREATA.

F. M. Fragm. Phytogr. Austr. 55.

Abundant on the granite hills of Cape Upstart. Mr. Fitzalan observes that the fruit is eaten by the natives. Berry 1-1 $\frac{3}{4}$ inch long, globose-ovate, outside appressed-downy. Pericarp almost dry, of about 2 lines thickness, with three rudimentary dissepiments, forming narrow placental ridges. Seeds numerous, clammy, being surrounded by a thin layer of black pulp, roundish or verging into an ovate or cordate form, almost black.

GUETTARDA SPECIOSA.

Linné, Spec. Plant. 1408.

Port Denison.

The specimens collected during the Burdekin expedition are rather imperfect, but seem to be conspecific with a plant collected during the North Australian expedition on Lord Howick's Group, which species accords well in all its characters with the Indian *Guettarda speciosa*, and has, together with many other North Australian plants, been compared for identification by the learned Dr. Hooker. (Vide *Flora Tasmaniae, Introduct. Essay*, p. 44.)

Mr. Fitzalan contends that it forms on the above locality a large tree. In Lord Howick's Group it attains but a small size. Leaves deciduous.

MORINDA CITRIFOLIA.

L. Sp. Plant. 250.

Perey and Sinclair Islands.

The opportunity is an apt one for offering here some remarks on the "Leichhardt-tree" of the settlers of Rockhampton, which occurs also on the Burdekin and extends thence to North-Western Australia. It was correctly referred by the lamented traveller, whose name it bears, to *Sarcocephalus*, and appears to be identical with *S. cordatus* (Miq. Flor. Ind. Batav. i. 133; *Nauclea cordata*, Roxb. Flor. Ind. ed. Wall. ii. p. 118). If it should prove distinct from the Java plant it might be distinguished as *S. Leichhardtii*. It forms an extremely handsome and umbrageous tree of considerable size. The wood is pale-yellowish, and regarded as useful for building purposes. The leaves are from 2-8 inches long. The stipules attain a length of 1 inch. The flowers are fragrant. The tube of the corolla is yellowish; the limb fulvous, the pistil white. The fruit measures from 1-2 inches, is irregularly globose and fleshy, outside areolate and grey-brown, inside pale, of bitter taste. The seeds are appended by a fleshy yellowish funicle, oblique- or angular-ovate, compressed, finely wrinkled; the cotyledons ovate, a little shorter than the cylindrical radicle.

GARDENIA FITZALANI.

Randia Fitzalani, F. M. coll.

Arboreous, unarmed; stipules deciduous; leaves opposite, rather large, thin coriaceous, glabrous, ovate, tapering into the petiole, shining above, paler and almost opaque beneath, remotely penninerved, faintly veined; *berries* axillary, solitary, short-stalked, large, globose, *completely two-celled*; *placenta central*; seeds large, fulvous, somewhat turgid.

Cape Upstart, Magnetical Island, Halifax Bay.

A small tree. Branchlets, at least in age, glabrous. Leaves several inches long; their petioles measuring $\frac{1}{2}$ inch. Flowers unknown. Fruit-stalks about as long as the petioles, stout. Berry pulpy, of agreeable scent, about $1\frac{1}{2}$ inch in diameter, terminated by the short persistent truncate neck of the calyx. Pericarp coriaceous, hardly thicker than 1 line. Pulp dark- and squalid-brown, somewhat laminar. Septum thin towards the middle, yet quite perfect or almost so. Seeds 3-5 lines long, oblique, roundish-ovate. Testa membranous, smooth, slightly shining. Albumen cartilaginous, white. Embryo shorter than the albumen, white, axillary. Radicle cylindrical, not much longer than the ovate-orbicular flat cotyledons.

In *G. resinosa*, which amongst Australian species ranks nearest to this, the leaves are of equal greenness on both sides and shining as if varnished; they are moreover abruptly terminated at the base, not gradually narrowed into the petioles, and reticulated by numerous conspicuous veins.

Another species of *Gardenia*, indigenous to Queensland, although not collected during the Burdekin expedition, might be introduced on this occasion.

GARDENIA CHARTACEA.

(Sect. *Piringa*.)

Shrubby; branchlets strigulose; leaves opposite or 3 or 4 in a whorl, narrow-lanceolate, rarely ovate-lanceolate, chartaceous, acute, tapering into a very short petiole, conspicuously penninerved, veined, glabrous and shining above, paler and somewhat strigose beneath; peduncles axillary, one-flowered, as well as the calyx strigose; *corolla small*; *segments of its limb from a subcordate base lanceolate, acuminate, longer than its campanulate tube*; berries rather small, subovate, imperfectly two-celled; pericarp very thin; seeds several, nigrescent, turgid.

In the vicinity of Moreton Bay and on the Clarence River.

A shrub, generally from 5-8 feet high. Branchlets almost cylindrical, rather slender. Leaves 2-6 inches long, $\frac{1}{2}$ -1 inch broad, not unfrequently distichous; the lateral nerves diverging in a very acute angle and occasionally rufous. Stipules comate, appressed-hairy, 4-6 lines long, deciduous. Peduncle very short or fully $\frac{1}{2}$ inch long. Flowers fragrant. Tube of the calyx protracted into a persistent irregularly cleft cylinder beyond the ovary. Corolla white, with very spreading imbricate lobes of the limb. Berry 1 inch or less long, in age nearly deprived of its strigulous indument. Pericarp almost chartaceous. Pulp somewhat lamellar. Seeds more or less obtusangular and turgid, large in proportion to the size of the fruit, and therefore never numerous, about 2 lines long. Albumen more horny than fleshy. Cotyledons flat, rhomboid-orbicular, hardly shorter than the radicle.

LORANTHACEÆ.

LORANTHIUS VITELLINUS.

Leaves alternate or some opposite, petioled, ovate- or lanceolate- or oblong-ovate, rarely oblong-lanceolate, glabrous, opaque, somewhat penninerved, almost veinless; *peduncles bearing a few-flowered raceme*, rarely 3-1-flowered, sometimes obliterated, as well as the pedicels, bracteoles and calyces subvelutinous or glabrous; bracteoles solitary, roundish-ovate, considerably shorter than the toothless or at last irregularly 5-toothed calyx; petals 5, glabrous, rarely tomentose, orange-yellow, coherent into a cylindrical, curved, unilateral fissured tube; *limb in aestivation narrower than the tube*; filaments glabrous, fulvous; anthers linear, basifixed; stigma small, capitellate; berry truncate, globose-ovate.

On the branches of Eucalypti, Bursaria, Ficus, arborescent Grevilleæ and other trees. Magnetical Island, Fitzalan; around the Gulf of Carpentaria and in many parts of Arnhem's Land, F. M., Warwick, Beckler; Moreton Bay, Hill; New England near Tenterfield, Stuart.

Branches pendulous, cylindrical. Leaves $1\frac{1}{2}$ –3 inches long, 4–16 rarely only 2 lines broad, tapering into a long or short petiole, rarely subsessile. Pedicels 1–4 rarely 6 lines long, clothed, as well as the bracteoles and calyces, with a brown or grey velvet. Calyx 2–3 lines long, with a conspicuous limb. Bracteole about 1 line long, sometimes acute. Corolla $1-1\frac{3}{4}$ inch long, with an orange-colored tube and a red limb, not distinctly gibbous, although curved and slightly dilated below the limb; one of the lobes usually deeper separated. Anthers yellow, 1–3 lines long. Style thinly angular-filiform, longer than the corolla. Berry 3–4 lines long.

In its affinity this species approaches closely to *L. longiflorus*, according to plate 302 of Wight's *Icones Plant. Ind. Orient.* and a specimen collected in Khasia by Drs. Hooker and Thomson; the leaves we find smaller, the flowers often shorter, with a limb before expansion gradually tapering to the apex, and thereby subulate-conical, rarely turgid, and the stamens are smooth. Still since our species is able to assume singular abnormal forms, it is quite possible that it merely constitutes a less luxuriant form of the *L. longiflorus*. Some relation it shows also to *L. Neilgherrensis*.

The Australian Loranthaceæ are by no means very numerous, although it may be presumed that we are not yet acquainted with all the species of North-East Australia. Besides the foregoing one our Australian herbarium contains the following plants of the order:—

Viscum angulatum (Heyne, in *Cand. Prodr.* iv. 283), known from Java and the mainland of India, and observed in Australia from the Gilbert River to Moreton Bay. *V. attenuatum*, according to a Khasia specimen collected and communicated by Dr. J. Hooker, seems not distinct. In habit it agrees also fully with *V. ramosissimum*. The Australian plant shows the perianth to be yellow inward, and to consist of three or four segments. The anthers open with numerous pores. The berries are purplish-white, globose, of the size of a small pea. The embryo is slender and placed transversely in the green albumen, not stretching fully across.

Viscum articulatum (Burmah, *Flora Indica*, 311) has been discovered at Warwick and on the Richmond River by Dr. Beckler, and been identified with the Indian conspecific plant by Dr. Jos. Hooker. It differs, indeed, in no particular from *V. moniliforme*, as illustrated in the *Spicilegium Neilgherrense*, t. 87, which has been combined by Miquel (*Fl. Ind. Batav.* i. 806) with *V. articulatum*.

Viscum incanum (Hook. *Icon.* 73, *F. M. Fragm. Phytogr. Austr.* ii. 109) occurs from Twofold Bay to the tropic of Capricorn. The habit is that of *V. orbiculatum*.

Nuytsia floribunda (R. Br. in *Journ. Roy. Geograph. Society*, i. 17). Restricted to S. W. Australia, extending northward however, according to Mr. A. Oldfield's observations, as far as the Murchison River.

Nuytsia ligustrina (All. Cunn. in *Lindl. Veg. Kingd.* ed. iii. 791) occurs in the Blue Mountains, and is said to be found also on the north-eastern tributaries of the Darling.

Loranthus sanguineus (F. M. *Fragm. Phytogr. Austr.* i. 177). A species from Arnhem's Land, already well marked by its blood-red petals and large black stigma. Amongst Australian species it ranks nearest to the following one. The limb of the unexpanded calyx exceeds in its diameter that at the tube.

Loranthus pendulus (Sieber in *Spreng. Cur. Post.* 139) ranges over the whole of Australia, forming in different climatic zones, and whilst deriving nutriment from trees of many different orders, most singular variations. The examination of a large series of specimens in our collections leads to the conclusion that *L. longifolius* Hook., *L. nutans* A. Cunn., *L. Cunninghami* As. Gr., *L. canus* F. M., *L. Quandang* Lindl., *L. congener* Sieb., *L. aurantiacus* A. Cunn., *L. miraculosus* Miq., *L. Miquelii* Lehm., and *L. Melaleuca* Lehm. are to be regarded as varieties of this plant. An extreme form seems the *L. Gaudichaudii*, varying with 4 and 5 petals, having the leaves and flowers reduced to remarkable smallness, and the anthers by diminution of length altered to an ovate form. When in other varieties, especially in *L. canus*, the pedicels become obliterated, the development of the bracteoles to a much greater size may be occasionally observed. The petals are sometimes perfectly green. It seems also that a plant with cordate clasping leaves, found in Arnhem's Land chiefly on *Carissa lanceolata*, is an extreme form of *L. pendulus*. Varieties passing from the cordate to the ovate and spatulate forms of leaves were noticed on the Victoria River and in Lord Howick's Group.

Loranthus celastroides (Sieber, in *Schult. Syst.* vii. 163; Asa Gray, *Unit. Stat. Explor. Exped. Botany*, 740, t. 100) has not so wide a range as the foregoing, being restricted to Australia Felix and eastern extratropical and subtropical Australia. Many of the forms of both are almost alike in appearance; yet the versatile dorsifixed anthers distinguish *L. celastroides* not only from *L. pendulus* but also from every other Australian congener. *L. eucalyptoides* is, as suspected by Professor Asa Gray, referable to *L. celastroides*.

Loranthus Preissii (Miq. in *Lehm. pl. Preiss.* i. 280) is also to be found in nearly every part of the Australian continent. This species proves to be identical with *L. scoparius* and the older but not adequately named *L. linophyllus*. In Sir Th. Mitchell's collection, preserved in Sydney, it occurs as *L. linearifolius*, although the diagnosis (*Mitch. Trop. Austr.* 102) seems to point to *L. Casuarinæ*. Its terete leaves and pink succulent berries seem to offer the principal distinctions between this and *L. pendulus*.

Loranthus Casuarinæ (Miq. in *Lehm. pl. Preiss.* i. 279) is as yet in its normal form with cylindrical leaves only found in the western extratropical portion of our continent, reaching to Chambers Creek eastward. But it appears that only the flat leaves distinguish *L. Exocarpi*,

whilst in a specimen gathered near Lake Torrens the leaves are semiterete. If the very characteristic black berry of *L. Exocarpi* is identical with that of *L. Casuarinæ*, we cannot hesitate to combine both. *L. subfalcatus*, according to Sir Will. Hooker's diagnosis in Mitchell's Trop. Austr. p. 224, seems not to differ from *L. Exocarpi*. A variety with spatulate leaves I observed in Arnhem's Land and on the Gilbert River. The species extends with several others to the southern shores of Australia Felix, but has not been met with in Tasmania, where, singularly enough, no Loranthaceæ exist. The flowers are extremely variable in size, offering a collateral proof that *L. Gaudichaudii* cannot be discriminated from *L. pendulus*, on account of smallness of flowers. The petals are sometimes deep red, sometimes brilliantly yellow. It grows on Melaleuca, Acaciæ, Casuarinæ, *Exocarpi*, *Myopora*, less commonly on *Eucalypti*, occasionally on other trees, sometimes upon other Loranths, the same tendency to a double parasitism having been noticed in *Viscum ineanum*. The filaments are black, occasionally red.

Loranthus insularum (Asa Gray, in Unit. States Explor. Exped. Botan. 738, t. 98) has been found by the author of this memoir on the Gilbert River, and by Mr. Flood on Quail Island. The difference of this *Loranthus* from the preceding one rests chiefly in the ready mutual separation of the petals, in the disposition of the flowers, which affords one of the best characteristics for discriminating amongst allied species, and perhaps in the color of the fruit. The flowers are ternately, seldom more or less in number, sessile on the summit of very short racemously disposed secondary peduncles. The petals are often, if not always, white at the summit, and the lobes are marked above the point where the filaments separate with a small black spot. The berries are green-brown, variegated with pale streaks. The leaves occur broad- or falcate- or oblong-linear, or, as expressed in the quoted plate, ovate, or elliptical- or cordate-ovate, and are not rarely sessile. The filaments seem of yellow, at least not of a black color.

LORANTHUS MAYTENIFOLIUS.

Asa Gray, in Wilk. Unit. Stat. Explor. Exped. p. 739, pl. 99.

Of this and two seemingly undescribed species I insert the diagnosis.

Leaves opposite, broad- or orbicular-ovate, tapering into a very short petiole, faintly or indistinctly nerved and veined, *very shining above*; peduncles solitary or geminate, usually 2-3-flowered, as well as the pedicels very short or obliterated, and together with the bracteoles and calyces thinly covered with brown velvet-downs; calyx twice as long as the roundish bracteole; its limb minutely denticulated; petals 5, red, coherent into a long slender unilaterally dehiscent tube; *limb in aestivation broader than the tube and blunt*; its lobes narrow-lanceolate, short, inside yellow, outside slightly velutinous; free part of the filaments short; anthers linear, basifixed; style capillar-filiform; stigma minute, capitellate; berry nrecolate-ovate.

On the Rivers Richmond, Hastings and Clarence, Dr. Beckler; at Moreton Bay, W. Hill; Wollongong, Wilkes's Expedition.

Branchlets terete, not unfrequently verticillate. Leaves 1-2 inches long, above dark-green, beneath less shining, in age at the margin somewhat recurved. Flowers terminal and axillary, crowded into irregular whorls. Corolla about $1\frac{1}{2}$ inch long, more or less curved, outside slightly silky-downy, especially its limb, lobes hardly 3 lines long. Anthers measuring $1-1\frac{1}{2}$ lines in length. Style short-exserted. Ripe fruit unknown.

LORANTHUS DICTYOPHILEBUS.

Glabrous; *leaves* opposite, ovate, or oblong- or ovate-lanceolate, narrowed into a short petiole, strongly penninerved and *net-veined, shining above*, paler beneath; secondary peduncles few, lateral, usually three-flowered, forming a cymose corymb; lateral flowers short pedicelled; calyx obconical-cylindrical, with a repand margin, three or four times longer than the orbicular bracteole; petals 6, vitellinous, connate into a club-shaped-cylindrical unilaterally somewhat dehiscent tube; *limb in aestivation much narrower than the tube*; anthers narrow-linear, basifixed; style capillary; stigma minute, capitellate.

Illawarra, Shepherd; Hastings River, Beckler; Moreton Bay, F. M.

Branchlets terete. Leaves thin-coriaceous, flexible and not, as usually the case, brittle in exsiccation, 2-5 inches long, $\frac{3}{4}-2\frac{1}{2}$ inches broad. Corolla $1\frac{1}{2}$ inch long. Anthers at first coherent. Style short-exserted. Fruit as yet unknown.

The leaves resemble greatly those of *L. loniceroides*. The contracted apex of the alabaster and the inflorescence seem mainly to distinguish our plant.

LORANTHUS GRANDIBRACTEUS.

Glabrous; leaves opposite, narrow- or ovate-oblong, stalked, opaque, slightly 3-5 nerved, inconspicuously veined; peduncles hardly surpassing the length of the petiole, towards the summit compressed and dilated; *bracts two, opposite, leaflike, very large, ovate, 5-7-nerved*, connate at the base, forming a long involucre to the sessile flowers; berries yellowish, globose-ovate.

Pendent from the branches of *Eucalyptus melanophloia*, on several places between the Albert and Flinders River.

Branches cylindrical, compressed at the summit. Leaves 2-4 inches long, 4-8 lines broad. Peduncles 6-9 lines long. Bracts opaque, generally $1\frac{1}{2}$ inch long, slightly cordate at the base, finally inflexed at the margin. Flowers unknown. Berry about $\frac{1}{3}$ inch long.

This curious plant attracted already Dr. Leichhardt's attention, when passing in his discovery-journey over nearly the same tract of country where it was noticed by myself. Hence it is cursorily mentioned in the diary of that lamented traveller.

The flowers of all the known Australian Loranthi are bisexual.

COMPOSITÆ.

BLUMEA WIGHTIANA.

Cand. Prodr. v. 435.

Port Denison.

HELICHRYSUM BRACTEATUM.

Willd. Enum. Plant. 869.

Port Molle.

GOODENIACEÆ.

SCÆVOLA SUAVEOLENS.

R. Br. Prodr. 585.

Sinclair Island.

DAMPIERA FERRUGINEA.

R. Br. Prodr. 588.

Magnetical Island.

CAMPANULACEÆ.

LOBELIA SIMPLICICAULIS.

R. Br. Prodr. 564; *L. stricta*, *R. Br. l. c.*

Without adnotation of locality.

APOCYNÆÆ.

LACTARIA CALOCARPA.

Hasskarl Nederl. Kruidk. Arch. iv. 9; *Miquel, Flora Indiæ Batavæ*, ii. 415; *Bleekeria calocarpa*, *Hasskarl, in Retzia*, i. 49; *Walp. Annales Botanices Systematicæ*, v. 492.

Branchlets angular at the summit, glabrous. Petioles from $\frac{1}{2}$ –1 inch long. Leaves 3–6 inches long, blunt or with a faint acumen, usually ovate, with gradually contracted base. Flowers wanting in the specimens gathered during the Burdekin expedition. Drupes about 2 inches long, scarlet, ovate, turgid, short-pointed at the apex, very blunt at the base. Epicarp firmly adhering to the mesocarp, finely lined with four longitudinal sutures, which are almost equidistant, the lateral ones sharper expressed than the frontal and dorsal ones. Mesocarp fleshy, forming a layer of $\frac{1}{3}$ – $\frac{1}{2}$ inch thickness around the putamen. The latter little shorter than the pericarp, ovate, lightly compressed, gradually tapering as well into the blunt base as into the short-acuminate or conspicuously rostrate apex, the sutural furrow descending on the one face half downward, on the other to the base; its breadth nearly 1 inch; its consistence woody; its color in a macerated state livid. It is imperfectly divided into two carpels by the pergamentaceous plates of the endocarp, which penetrate as a dissepiment along the commissural side of the carpels; another septum parallel to the former being formed, separating the seed from the large lateral cells. The cavity of the latter extends widely upwards and downwards, and is filled with a firm oily medullar substance, having at a superficial inspection the appearance of large seeds, whilst the very compressed true seeds placed across the centre of the putamen appear at first sight abortive. Fertile seeds 2–3 in each cell above each other, one often abortive, plane-convex or very compressed, roundish, pale-brown, with addition of their flat wing-like margin $\frac{1}{4}$ – $\frac{1}{2}$ inch long. Albumen white. Embryo almost as long as the albumen, white. Radicle superior, compressed, straight. Cotyledons broad-ovate, of about equal length with the radicle.

Mr. Fitzalan observes that the milky juice, yielded by incisions into the bark, soon becomes extremely tenacious. It might perhaps therefore be drawn advantageously into use for the manufacture of indiarubber, should the plant prove to exist sufficiently abundant.

It was reserved for this expedition to prove that this singular plant inhabits the eastern tropical shores of Australia. The nearest relation of *Laetaria* seems to *Ochrosia*.

The order of Apocynææ comprises in Australia, as far as hitherto ascertained, members of the following genera—*Chilocarpus*, *Melodinus*, *Carissa*, *Alyxia*, *Cerbera*, *Lactaria*, *Tabernæmontana*, *Lyonsia*, *Parsonsia*, *Balfouria*, *Wrightia* and *Alstonia*. To these undoubtedly many others will be added when once phytological explorers are able to penetrate fully the jungles of North-East Australia.

TABERNÆMONTANA ORIENTALIS.

R. Br. Prodr. 468.

Port Molle.

Flowers scented.

ALYXIA SPICATA.

R. Br. Prodr. 470; *All. Cunn. in Bot. Mag.* 3313; *A. de Cand. Prodr.* viii. 346.

Port Denison.

A shrub 10–12 feet high. Leaves when dry slightly recurved at the margin. Peduncles ternately verticillate, about $\frac{1}{2}$ inch long, slightly downy. Spikes less than 1 inch long, with many crowded flowers. Corolla white, only about 2 lines long. Anthers inserted near below the faux of the corolla. Berries unknown.

This plant bears considerable resemblance to *A. stellata*. The inflorescence of both is, however, totally at variance.

A. ruscifolia ranges from Illawarra to the Burdekin; *A. buxifolia* (*A. capitellata*, Benth. in *Hueg. Enum.* 81) occurs from near Sharks Bay along the whole south-western, southern and south-eastern coast. The fruit of both is orange-colored. The latter species is the only plant of this order as yet found within the limits of the South Australian settlements, and besides a *Lyonsia* or *Parsonsia* also the only one as yet found in South-Western Australia. Briefly reviewing some of the Australian Apocynæ on this occasion, it may be appropriate to notice that *Lyonsia* is generically on no other distinctions to be separated from *Parsonsia*, than in showing a truly two-celled capsule; the dissepiment is formed by two membranous plates, of which only the margin is unconnected. To the narrow channel formed by the free margins of these placental plates the inflexed edges of the valves are immersed. *Parsonsia*, on the contrary, exhibits a fruit, consisting of two connate follicles; the edges of the valves are fully bent inward and meeting each other form a spurious septum by being connate with those of the opposite follicle. The placental membrane is separately retained in each follicle.

Guided by the excellent figure in Labillardière's *Sertum Austro-Caledonicum*, tab. 31, I have no hesitation in referring *Echites* seabra from *Lyonsia* to *Parsonsia*. *P. heterophylla* has the genuine fruit of the genus. *Lyonsia* numbers, as far as my observations extend, only a second species, which may be recognized by the following diagnosis.

LYONSIA RETICULATA.

Leaves lanceolate or ovate-lanceolate, rounded at the base, gradually tapering to the apex, short-stalked, with distant lateral nerves, strongly net-veined; lobes of the corolla clothed inside entirely with retroverted hair.

Moreton Bay, F. M.; Hastings and Clarence River, Dr. Beckler.

L. straminea differs in often narrower leaves, which are usually less blunt at the base, in more closely approximated lateral nerves and less copious and prominent veins of the leaves, in smaller flowers bearded only distinctly at the faux and perhaps in considerably smaller fruit. The other characters of the plants accord. Both form huge climbers.

ASCLEPIADEÆ.

HOYA DALRYMPLIANA.

Leaves broad-ovate, short-acuminate or slightly acute, twice or less than twice as long as the petiole, veinless, of very thick consistence, covered above scantily beneath more densely with short crisp downs; branchlets as well as petioles, peduncles, pedicels and calyces almost velvet-downy; pedicels several times longer than the flowers; segments of the calyx lanceolate-ovate; lobes of the white corolla ovate-rhomboid, outside sparingly short-hairy, inside almost glabrous, at the apex reflexed; lobes of the corona rhomboid-ovate, blunt, concave, with a broad beneath hollow keel.

On Granite Hills at Cape Cleveland.

Leaves about 2 inches long, flat, paler beneath, not much shining above. Peduncles about 1 inch long. Pedicels rather numerous, umbellate, not much more than 1 inch in length. Lobes of calyx measuring about 1 line. Corolla white, about $\frac{1}{3}$ inch long, slit to two-thirds of its length. Corona, according to Mr. Fitzalan, marked with clear carmine stripes towards the centre; the lobes hardly longer than 1 line.

H. carnosa, a common South-Asiatic, but a doubtful Australian plant, cannot be confounded with *H. Dalrympliana*; its leaves being comparatively narrower and smooth, its corolla rather larger, more densely papillose-velvety above, smooth beneath, reflexed at the margin and most particularly at the apex, whilst the lobes of the corona are longer and rather pointed.

A second *Hoya*, probably the undescribed *Hoya Australis* of garden-catalogues, and perhaps R. Brown's Australian *Hoya carnosa*, was noticed during the expedition, and found also previously at Moreton Bay and during Mr. Gregory's expedition on some of the isles and on the main of Eastern Australia, but on all localities without flowers. Both Australian *Hoyæ*, to which future researches are likely to add others, require yet a very careful comparison with the Asiatic and Pacific species. The interest evinced during the expedition by Mr. Dalrymple in the botanical investigations of Mr. Fitzalan has prompted me to name this new plant in honor of that gentleman, and his great taste for sciences holds out a hope that during his commissioner-ship in the newly proclaimed district of Kennedy we shall enjoy his aid in the further development of its phytological treasures. The diagnosis of *Hoya Dalrympliana* is drawn up from very scanty materials.

ASPERIFOLIÆ.

TOURNEFORTIA ARGENTEA.

Linné, Mant. 113.

Port Denison.

TOURNEFORTIA ORIENTALIS.

R. Br. Prodr. 497.

Percy Islands.

A herbaceous plant.

TRICHODESMA ZEYLANICUM.

R. Br. Prodr. 496.

Cape Upstart. Extends to 31° S. L.

LABIATÆ.

PLECTRANTHUS PARVIFLORUS.

Willd. Hort. Berol. i. t. 65; *Benth. in Cawl. Prodr.* xii. 67; *P. graveolens, R. Br. Prodr.* 506; *P. Australis, R. Br. l. e.*

Percy Islands.

EBENACEÆ.

MABA GEMINATA.

R. Br. Prodr. 527.

Cleveland Bay.

VERBENACEÆ.

CLERODENDRON INERME.

R. Br. in Ait. Hort. Kew. ed. ii. vol. iv. 65.

Cape Cleveland; found also in Albany Island. F. M.

LIPPIA NODIFLORA.

Rich. in Michaux' Flor. Boreal. Amerie. ii. 15.

Port Denison.

ACANTHACEÆ.

DILIVARIA ILICIFOLIA.

Juss. Gener. Plant. 103.

Mount Gordon.

The specimen gathered in the expedition belongs to the variety destitute as well of stipular thorns as of teeth of leaves. The normal form occurs on the Fitzroy River, according to a specimen transmitted by Mr. Thozet.

BIGNONIACEÆ.

TECOMA AUSTRALIS.

R. Br. Prodr. 471.

Cape Cleveland.

PLUMBAGINEÆ.

STATICE AUSTRALIS.

Spreng. Syst. Veg. i. 959.

Bowling Green Bay.

THYMELEÆ.

PIMELEA COLLINA.

R. Brown, Prodr. 359.

Cape Upstart.

Very closely allied to *P. linifolia*.

PROTEACÆ.

CONOSPERMUM LINIFOLIUM.

All. Cunn. in Lehm. Pl. Preiss. i. 518.

Cape Cleveland.

Six to eight feet high.

PERSOONIA FALCATA.

R. Br. Prodr. 373.

Cape Cleveland, north-westward to Arnhem's Land.

NYCTAGINEÆ.

PISONIA ACULEATA.

L. Sp. 1511.

Sinclair Island.

A robust climbing plant, according to Mr. Fitzalan. The collection contains only fruit-bearing branches, which agree in every respect with the plant represented under fig. 1764 in Wight's icones. Lamark's illustration 861 exhibits narrower more pointed leaves and shorter pedicels.

Dr. Hooker includes this species as a dubious one in his list of Indian phanerogamic plants to be found likewise in Australia. His enumeration, as predicted by that learned botanist himself, will in future probably be largely augmented, and may on this occasion be supplemented by the following Asiatic plants:—*Cardamia parviflora L.*, *Lepidium ruderales L.*, *Barbarea vulgaris R. Br.*, *Abroma fastuosa R. Br.*, *Geranium dissectum L.*, *Ryssopterys tiliæfolia Bl.*, *Carapa Moluccensis Lam.*, *Turraea pubescens Hellen.*, *Frankenia laevis L.*, *Spergularia rubra Pers.*, *Sterculia fetida L.*, *Hibiscus vitifolius L.*, *Malva ovata L.*, *Drosera spathulata Lab.*, *Indigofera trita L.*, *I. hebeptala Benth.*, *Parinarium castatum Blume*, *P. corymbosum Miq.*, *Terminalia microcarpa Decaisne*, *Abrus precatorius L.*, *Pithecolobium moniliferum Benth.*, *Melaleuca Leucadendron L.*, *Callitriche verna L.*, *Lythrum Salicaria L.*, *L. Hyssopifolia L.*, *Viscum articulatum Burm.*, *V. angulatum Heyne*, *Cucumis pubescens W.*, *Sarcocephalus cordatus Miq.*, *Trianthema crystallina Vahl.*, *Hydrocotyle interrupta Muehl.*, *Adenostemma latifolium Don*, *Gynura ovalis Cand.*, *Picris hieracioides L.*, *Sonchus oleraceus L.*, *Datura alba Nees*, *Utricularia stellaris L. fil.*, *Prunella vulgaris L.*, *Vitex ovata Thunb.*, *Canscora diffusa R. Br.*, *Josephinia Imperatricis Vent.*, *Dichondra repens F.*, *Calystegia sepium R. Br.*, *Hypoestes laxiflora Nees*, *Dilivaria ilicifolia Juss.*, *D. ebracteata Juss.*, *Ipomœa Quamoclit L.*, *Samolus Valerandi L.*, *Atriplex Halimus L.*, *Arthrocnemum fruticosum Miq.*, *Tetranthera ferruginea R. Br.*, *Ficus aspera Forst.*, *Aristolochia Indica L.*, *Oberonia iridifolia Lindl.*, *Cocos nucifera L.*, *Caryota urens L.*, *Potamogeton tennicaulis F. M.*, *P. crispus L.*, *P. obtusifolius M. & K.*, *P. perfoliatus L.*, *P. marinus L.*, *Ruppia spiralis L.*, *Alisma Plantago L.*, *Tacca pinnatifida F.*, *Arum Orixense Roxb.*, *Zostera marina L.*, *Z. uninervis Forsk.*, *Eriocaulon setaceum L.*, *Juncus maritimus Lam.*, *J. effusus L.*, *Linza campestris Cand.*, *Cyperus difformis L.*, *C. alopecuroides Roxb.*, *Poa tenella L.*, *Panicum compositum L.*, *P. Italicum L.*, *Sclerachne punctata R. Br.*, *Pappophorum commune F. M.*, *Sporobolus Indicus R. Br.*

This list includes some species as yet in Australia not found within the tropics. Several plants from the Pacific Islands, including *Loranthus insularum A. Gr.*, *Lepturus repens Br.*, found also in Australia, will probably be yet detected in the Indian dominions.

CYCADEÆ.

CYCAS MEDIA.

R. Br. Prodr. 848.

Cape Upstart.

This plant attains, according to Mr. Fitzalan's notes, a height of 70 feet. In those parts of tropical East Australia, where it was noticed by myself, it occurred of only inconsiderable height.

CONIFERÆ.

ARAUCARIA CUNNINGHAMI.

Aiton, in Lamb. Pin. iii. t. 96; *Endl. Synops. Conifer.* 187.

Cumberland Islands. Occurs southward to the vicinity of the Hastings River.

The branches with immature fruit gathered during the Burdekin expedition accord fully with others from Moreton Bay, Rockhampton and the Hastings River. It remains as yet unascertained whether more than one *Araucaria* belongs to the East Australian flora. Mr. Fitzalan offers on this pine the following notes:—"Very abundant from Percy's Islands upwards. On Percy Islands it differs but little from the Moreton Bay pine, except in the invariable regularity of its branches, these being in regular tiers opposite; the Moreton Bay pine is seldom so; as we go further north this regularity increases and the foliage becomes more glaucous, until at Port Molle and on Whitsunday Island the tree assumes the habit of the New Caledonian species, the tree being conical, the tiers of branches perfectly regular and having a slight droop at their tips. We cut a spar of it on Magnetical Island to make a topmast, and the wood was hard and close-grained, paler than that of the Moreton Bay pine, and would not swim. It produces a white resin abundantly."

A new species of the magnificent genus *Araucaria* has very lately been discovered by Mr. Will. Duncan, botanical collector to John Rule, Esq., of Melbourne, having been found covering the summit of a lofty volcano on an island near New Caledonia. It may be designated, in honor of the gentleman through whose arrangements the discovery was accomplished,

Araucaria Rulei. It attains, according to Mr. Duncan, a less gigantic height than any of its congeners. In habit it bears more readily comparison with the Chilian *A. imbricata* than with any of the Australian or Polynesian species, but differs already from the former in although acute yet not pungent leaves, which are not striolated, and from $\frac{1}{2}$ – $\frac{2}{3}$ inch long. The closely and multifariously imbricated leaves distinguish it at once from *A. Bidwillii*.

The enterprising traveller to whom we are indebted for the discovery of this noble tree, brought from the same locality another previously unknown Conifera, which may possibly also be referable to *Araucaria*, although it shares not the symmetrical ramifications of the genus, and bears rather some resemblance to certain states of *Dacrydium elatum*. The leaves are appressed in many rows, smaller and less acute than in *A. Cookii*, and the branchlets not distichous.

CALLITRIS VERRUCOSA.

R. Br. accord. to Mirbel in Mémoir. du Mus. xiii. 74; Frenela crassivalvis, Miq. in Nederl. Kruid. Arch.

Cumberland Islands.

The review of a large number of specimens of the Sandarach pines, collected from almost every explored part of Australia, leads me to assume, that but very few species constitute this genus, even in the widest sense of its limitation. The following are the species which I feel inclined to consider as admissible:—1. *Callitris fruticosa*, *R. Br.* (*Frenela fruticosa*, *Endl. non Miquel*), which enlarges in forest land away from the coast to a tree.—2. *Callitris epressiformis*, *Vent.* (*Frenela Ventenatii*, *Mirbel*).—3. *Callitris Australis*, *R. Br.* (*Frenela Australis*, *Mirb.*).—4. *Callitris verrucosa*, *R. Br.* (*Frenela verrucosa*, *A. Cunn.*). To this species most likely the *Callitris robusta*, *R. Br.*, according to specimens from Rotten Nest Island, is referable. The presence of warts on the fruit affords by no means a note for recognizing this species. It is a tree of middle size, sometimes 80 feet high, and more or less pyramidal in growth, varying greatly in size of cones. It is smaller in foliage and thus thinner in branchlets than any of its Australian congeners. We have seen specimens gathered on Arnhem's Land, on the Murchison River, on Middle Mount Barren, on Lake Torrens, on St. Vincent's Gulf, on the Rivers Murray and Murrumbidgee, in New England and on the tropical east coast. It inhabits usually desert tracts.—5. *Callitris actinostrobis* (*Actinostrobis pyramidalis*, *Miq.*).—6. *Callitris Macleayana* (*Octoclinis Macleayana*, *F. M.*), which occasionally may be found alike to the normal and seemingly unalterable hexamerous division of the fruit of other species, with 6 instead of 8 valves of the cone. The range and the characteristic marks of all these species will be early the subject of a special memoir.

XEROTIDEÆ.

XEROTIS MULTIFLORA.

R. Br. Prodr. 261.

Port Denison.
Flowers white.

ORCHIDEÆ.

DENDROBIUM UNDULATUM.

R. Br. Prodr. 332; Lindl. Orchid. Pl. 87; F. M. Fragm. Phytogr. Austr. i. 87.
From Percy's Island northward to the estuary of the Burdekin, rather abundant.

DIPODIUM PUNCTATUM.

R. Br. Prodr. 331.

Cape Cleveland.

PHAJUS AUSTRALIS.

F. M. Fragm. Phytogr. Austr. i. 42.

Lady Elliot's Island, off Wide Bay.

Phajus Carroni, remarkable for its long spur compared to the two other Australian species, was found by Mr. Will. Carron in the vicinity of Rockingham Bay. (*Conf. Narrative of Kennedy's Expedition, p. 33.*)

GRAMINEÆ.

SACCHARUM FULVUM.

R. Br. Prodr. 203.

Port Denison.
Not rare in tropical and subtropical Australia, extending southward to the Murray River.

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