

papers on the same subject. Such publications were in the Library of the Society.

The PRESIDENT—In thanking Mr. Moore for his paper, said it had also provoked remarks of an interesting nature. What Mr. Anderson had said would prove of interest to many people at present, and he hoped when that gentleman had had his analyses made he would bring them under the notice of the Society.

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## RECORD OF HITHERTO UNDESCRIBED PLANTS FROM ARNHEIM'S LAND;

By BARON FERDINAND VON MUELLER, K.C.M.G., M.D., PH.D., F.R.S., &c

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[*Read before the Royal Society of N.S.W., July 2, 1890.*]

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THE plants of Arnheim's Land became gradually known to a now large extent in the course of this century through successive observers. The earliest investigations were by the celebrated Robert Brown, during Flinders' memorable exploratory voyage, when from December 1802 till the commencement of March 1803 the east coast of Arnheim's Land was surveyed. During Admiral P. P. King's four geographic voyages from 1818 to 1821 it fell to the share of Allan Cunningham, to reveal much of the vegetation along the north and the west coast of the territory mentioned. Though other navigators touched subsequently at the same region, no special phytologist was attached to their expeditions; some of these voyages however enriched other branches of the natural sciences; and valuable gatherings of plants were secured by Dr. Bynoe, while Admiral Stokes visited Arnheim's Land in 1839, for the great Kew establishment.

Leaving minor other kindred efforts out of consideration, it was only in 1855 and 1856, that further large access to our knowledge of the plants of Arnheim's Land could be obtained, the interior regions then for the first time coming largely within reach, through Aug. Gregory's expedition, though Leichhardt had crossed in 1845 from the Roper River to Port Essington, and had not been unobservant of the flora. About a dozen years ago Mr. Schultz, a special and successful emissary of the Adelaide Botanic Garden, traversed for botanical collecting purposes the vicinity of Port



Darwin, where subsequently Professor Tate of the Adelaide University professionally explored,—this distinguished scientist carrying on geologic and phytologic researches simultaneously. Some time previously Mr. B. Gulliver was sent from the Botanic Gardens of Melbourne, by the writer of these pages, on a collecting errand with Captain Cadeil's expedition, and much earlier Mr. Armstrong had formed an herbarium at and near Port Essington for the Royal Garden of Kew. During the last few years the director of the Botanic Garden at Port Darwin, Mr. Maurice Holtze, has with a most praiseworthy zeal been engaged whenever any opportunities did occur, to add still further to our knowledge of the native plants of Arnheim's Land, he being occasionally aided by Mr. Paul Foelsche, and latterly also by a young enthusiastic son. The Holtzean collections comprise now nearly one thousand species, and it is my object, to submit to the Royal Society of New South Wales from time to time, records of novelties from his gatherings, some of his discoveries having obtained publicity already. It is further hoped, that in a few years a full list of the plants, indigenous to the extremest part of North Australia, may become elaborated.

#### DUNBARIA SINGULIFLORA.

Weak, procumbent or somewhat twining, densely beset with very short hairlets; stems and branches thinly filiform; leaves quite small, on very short petioles; stipules extremely narrow, pointed; leaflets from lanceolar-elliptical to oblique-ovate, of rather firm consistence, granular-dotted beneath, recurved at the margin, the two lateral leaflets on extremely short stalklets; stipelles none; flowers axillary, always solitary, their stalk of about the same length or shorter; lobes of the calyx pointed, the lateral two shortest, deltoid-semilanceolar, the upper two connate to a bidenticular apex, the lowest hardly longer than these; petals glabrous, the lowest conspicuously incurved; fruit comparatively large, very much compressed, elongatedly and obliquely elliptic-lanceolar, without transverse impressions, but almost septate; seeds several, somewhat compressed, roundish, but at the base truncate, outside black-brown; strophiole conspicuous, almost colourless, bisected.

A delicate plant, with the aspect somewhat of *Rhynchosia glandulosa*, probably quite herbaceous. Vestiture grey. Leaflets  $\frac{1}{3}$ — $\frac{1}{2}$  inch long, paler beneath, the dots copious, pale, hardly shining and much concealed. Calyx scarcely  $\frac{1}{4}$  inch long, granular dotted. Petals of about double calyx-length, deciduous, probably yellow, the lower two sometimes twisted. Style capillary, glabrous. Fruit  $1\frac{1}{2}$ —2 inches long, about  $\frac{1}{3}$  inch broad, with very thin vestiture, without any basal stalk-like attenuation. Funicles



very short, but dilated downward. Cotyledons pale; radicle very short, slightly curved, partly enclosed. Strophiola ellipsoid in outline, turgid. Nearest allied to *D. debilis*.

Some difficulty has arisen in assigning to this plant its generic position; it accords in every respect with *Dunbaria*, except development of a large and turgescient strophiole, which is quite that of *Atylosia* and so the septation, but the fruit has not the traverse impressions of that genus and of *Cajanus*. From the normal species of *Rhynchosia* our plant recedes merely in having a fruit containing more than two seeds with cellular somewhat membranous dissepiments between them, although the strophiole is often very minute; but as in many other genera of Papilionaceæ, for instance *Indigofera* and *Tephrosia*, fruits occur with one and with several seeds, it might "pari passu" be advisable, to reduce *Cajanus*, *Atylosia* and *Dunbaria* as sections of *Rhynchosia* also. The inflorescence is that of *Rhynchosia uniflora* and *Dunbaria debilis*, as hardly needs to be noted.

#### CLERODENDRON HOLTZEI.

Pendant or prostrate or diffuse, much beset with short spreading hairlets; leaves comparatively small, almost sessile, from cordate- to rhomboid-orbicular, above nearly glabrous; peduncles terminal and from the axils of the upper leaves, bearing cymously from three to several flowers; bracteoles narrow, very short; flowers rather small; calyx cleft to near the middle, finally somewhat enlarging, but without succulence, its lobes acute; corolla pure white, outside beset with minute hairlets, its tube nearly doubly as long as the calyx, at the orifice bearing soft hairlets, its lobes from ovate to orbicular, about half as long as the tube; stamens hardly extending beyond the corolla-lobes; anthers ellipsoid-sagittate; style glabrous, almost totally enclosed; fruit shorter than the calyx; pericarp thin, somewhat succulent; endocarp thinly osseous, often only one of the nutlets perfect. In clefts of rocks, the comparatively long carnulent root deeply penetrating. Stems seemingly but slightly woody, often only a foot long even when flowering, slender. Leaves mostly measuring 1 - 1½ inches, exceptionally somewhat indented, never pointed. Calyx occasionally 6 cleft. Corolla measuring ½ - ⅔ inch in length. Nutlets ¼ - ⅓ inch long, when solitary verging into a globular form. Testa pale. Cotyledons white, turgid; radicle very short.

This species is as regards its flowers not unlike *C. tomentosum*, but the stamens are shorter, and the leaves as well as the stature and the fruit are widely different; in size of the leaves it comes near *C. phlomoides*.



## UTRICULARIA WALLICHIANA ;

Wight, icon. pl. Ind. orient. 1572, fig. 1. Oliver in the Journal of the L. S. III., 182. Clarke in J. Hook. fl. of Brit. Ind. 332.

Tall, annual, weak and often twining ; root rather short, its fibres capillary, much branched, scantily or hardly pitcher-bearing ; leaves very small, from linear- to ovate-lanceolar, all radical, never numerous, early perishing ; stems thinly filiform ; racemes mostly elongated and flexuous, with generally distant flowers ; bracts very short, ovate-lanceolar, without any basal protraction ; pedicels spreading, about as long as the flowers or even longer, finally towards the end dilated ; upper sepal rhomboid-orbicular, lower sepal orbicular-ovate ; corolla yellow, its upper portion laterally recurved, roundish, slightly bilobed, its lower portion somewhat longer, orbicular-rhomboid, undivided, towards the centre bulging and more intensely coloured ; posterior protrusion subulate-conical, about as long as the upper segment ; style very short ; fruit much shorter than the pedicel, ovate-roundish, compressed, nearly as long as the calyx ; seeds almost ovate, papillular-rough.

Attaining, when twining, a height of 2 feet, and then quite of the habit of *U. volubilis* ; when straight erect of less height. This plant, for which I intended the name *U. tortilis*, does not seem to require specific separation from the Indian plant, to which it is now referred, but as it is new for Australia, a description is furnished from Mr. Holtze's specimens.

Among Australian congeners it differs from *U. chrysantha*, which is not known ever to be conspicuously twining, already in much longer pedicels, larger flowers, uncleft lower division of the corolla, form of fruit and considerably larger seeds. From *U. fulva* it is chiefly distinguished in seemingly always greater height, again in elongated pedicels, in undotted lower division of the corolla, in usually less slender and more acute posterior protraction of the latter, and not globular fruit ; it is still more distant from the Asiatic *U. reticulata*, although that species is likewise of twisting growth, the colour of the corolla being yellow, never blue.

## UTRICULARIA SINGERIANA.

Annual, never tall, always glabrous ; root capillary fibrous, short, bearing rather conspicuous pitchers ; leaves very small, all radical, from broad- to narrow-elliptic, but gradually passing into the petiole, early perishing ; stem devoid of bracts, one-flowered ; pedicel about as long as the calyx ; bracteoles minute, lanceolar-deltoid, without any basal protraction ; upper sepal roundish or cordate-rhomboid, lower almost orbicular, occasionally somewhat bilobed ; corolla large, on the surface throughout lilac-coloured,



below reddish-brown, its upper portion obovate-cuneate, truncate or slightly bilobed ; its lower portion hardly longer, from rhomboid-to renate-semiorbicular, posterior protraction nearly or fully as long as the other portions of the corolla, but paler, broadish-conical, blunt, its orifice ciliolated ; filaments about as long as the anthers ; pollen-grains pale ; style very short ; ovulary roundish ; ovules very numerous.

Stem solitary, usually 4 to 6 inches high, unbranched, not very thin. Corolla dark-coloured when dried, larger than that of any other Australian species, somewhat exceeding even that of the large-flowered state of *U. dichotoma*, but far from rivalling with that of *U. montana* (of Jacquin, the *U. alpina* of Linnæus, which however seems to be nowhere truly alpine).

A well marked species, which in the systematic series would find its place best near *U. dichotoma*. This rare and beautiful plant has been dedicated to Professor Dr. J. Singer, the Director of the Royal Botanic Society of Ratisbon, at a time when that eldest of all Botanic Societies celebrated its centenary jubilee, he having for nearly twenty years been the leading administrator of the affairs of this celebrated union and thus also the editor of the Ratisbon "*Botanische Zeitung*," he having furnished already in 1865 a "*Flora Ratisbonensis*," It may not be out of place, to remember here, that forty-two years ago the writer of these lines had dedicated the *Phyllanthus Fuernrohrii* to the distinguished predecessor of Prof. Singer. The "*Botanisches Taschenbuch*," a periodical initiated actually by Prof. Hoppe, the predecessor of Furnrohr, commenced precisely one hundred years ago.

This new species differs from its nearest ally, the *U. dichotoma*, in bracts not turgid at the base, in greater size of the corolla, with a different colouration and a very much larger upper segment ; the fruit when known will likely also prove very different.

Incidentally it may here be observed, that Mr. Holtze from fresh specimens notes the corolla of *U. leptoplectra* as mauve-coloured on the surface and as salmon-coloured below ; the nearly bisected lower portion of the corolla with its almost dimidiate-ovate segments is quite remarkable ; the fruit, now obtained, is globular, extends considerably beyond the calyx, and measures nearly  $\frac{1}{4}$  inch ; fully matured seeds are not yet known. *U. chrysantha* has extremely minute seeds, almost truncate-ellipsoid, subtle-streaked, shining and yellowish. *U. fulva* has been sent from near waterfalls of the Elizabeth and Edith Rivers by Mr. Foelsche. Several of our *Utricularias* occur exceptionally with white corollas, for instance, *U. dichotoma* and *U. cyanea*.

#### ANEILEMA VAGINATUM ;

R. Brown, prodr. fl. Nov. Holl. 127 (Annotation) ; Kunth, enum. IV., 67 ; Wight, icon. plant, Ind. or. VI., t. 2076 ; Hasskarl,



Commelin. Indic. 34 ; Clarke, Commelinac, Bengal. 35, t. 23 ; Clarke in De Cand. monogr. phanerog. III., 216. *A. pauciflorum*, Dalzell in Hook. Kew Miscell. III., 136.

Slender ; leaves broad-linear, nearly flat, gradually pointed ; flowers small, three or two together or singly terminating the stem or the branches, conspicuously stalked ; bracts rather elongated but narrow, longitudinally incurved ; sepals as well as stalklets beset with very short spreading hairlets ; petals blue ; two of the stamens fertile ; filaments bearing crisped hairlets ; style glabrous ; cells of the ovulary uniovulate ; fruit trigonous-globular, shining ; seeds plano-convex, ovate-roundish, nearly black outside and rugular, without any lustre.

Not previously found in Australia, one plant so far as hitherto observed being the dwarf unbranched form.

#### SIDA HOLTZEI.

Copiously beset with spreading bristlets ; leaves rather large, paler green beneath, the upper forming from near their base usually five lobes, these from lanceolar- to broad-linear, bluntly serrated, the middle lobe longest, the next two also elongated, the lowest variously abbreviated, not revergent ; stipules comparatively long, linear-filiform ; flowers almost or quite sessile, singly axillary, but some crowded at the end of the branches between diminutive leaves ; calyx very small, somewhat beyond the middle five-cleft, partly whitish, its lobes equal, semilanceolar, thinly carinulated and margined, imperfectly ciliolated ; petals thrice as long as the calyx, white, bearing outside minute hairlets ; anthers pale, on extremely short filaments at the staminal column ; styles slightly exserted ; stigmas labellate ; ovaries 5, glabrous ; fruit quite small, depressed-globular ; fruitlets 5, separate, blunt, reticular-venulated, towards the base attenuated ; seed brownish, narrowed downward.

The aspect of this remarkable plant is more that of some species of *Hibiscus* (particularly from the sections *Lagunea*, *Furcaria* and *Abelmoschus*), than that of a *Sida*. Vestiture pale-yellowish. Stipules attaining a length of  $\frac{2}{3}$  inch. Lower leaves not obtained ; upper to five inches long, their denticulation short. Calyx at flowering time about  $\frac{1}{6}$  inch long, terminated by elongated hairlets. Length of corolla hardly above  $\frac{1}{2}$  inch. Lower portion of staminal column devoid of anthers. Fruit  $\frac{1}{5}$ — $\frac{1}{4}$  inch broad ; pericarp of fruitlets membranous, seemingly indehiscent. Seed at the hilum beset with minute hairlets.

#### TYLOPHORA LEIBIANA.

Quite upright, unbranched, glabrous in all its parts except the corolla ; root fascicularly fibrillous ; leaves narrow-linear, revolute



at the margin ; umbels axillary, containing several or only few flowers ; peduncles thin, about as long as the pedicels or even shorter ; calyx small, its divisions almost semilanceolar ; corolla dull-coloured, its segments much elongated, from a semi-lanceolar base filiform-linear, very much exceeding the calyx, at the inner side particularly downward beset with white papillular hairlets ; coronular lobes dark-coloured, erect, rounded-blunt, slightly turgid ; pollinia purplish-black ; ovularies slender, glabrous.

Root to 2 inches long. Stem to 3 feet long. Leaves towards the middle of the stem often about 2 inches long, but less than  $\frac{1}{8}$  inch broad. Pedicels  $\frac{1}{4}$  -  $\frac{1}{2}$  inch long. Corolla when fully developed measuring nearly 1 inch in length. Stamens about  $\frac{1}{10}$  inch long ; terminating membranule of the anthers very short. Fruit not obtained.

This plant is singularly different from all its congeners in the extreme narrowness of the leaves and in the length and slenderness of the corolla-segments, the latter reminding of those of *Calostigma insigne*.

The dedication is to Dr. A. Leibius, F.C.S., who through many years was one of the Hon. Secretaries of the Royal Society of N.S.W., and who at present occupies the distinguished presidential position of that eldest of Australian Science-unions.

#### HOYA AUSTRALIS.

R. Brown according to Traill in the Transact. of the Horticultural Society VII., 28.

Creeping over rocks near the sea-shore. Not previously traced to N.-W. Australia.

As stated in the report on the Burdekin-Expedition, this species is often beset with minute hairlets. Mr. Holtze has succeeded in finding also the fruit ; its characteristics are the following : Pericarp about 6 inches long, when flattened out nearly  $\frac{3}{4}$  inch broad at the middle, gradually acuminate, inside and outside glabrous. Placentary less than  $\frac{1}{4}$  inch broad. Seeds numerous, glabrous, pale-brownish, hardly more than  $\frac{1}{6}$  inch long, narrow-elliptical, but attenuated upwards and truncate at the summit. Tuft of hairlets attaining a length of one inch, white.

(To be Continued.)

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Müller, J. W. von. 1890. "Record of hitherto undescribed plants from Arnheim's Land." *Journal and proceedings of the Royal Society of New South Wales* 24, 73–79. <https://doi.org/10.5962/p.359084>.

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