

New and little known Malayan Plants.

Series II.

BY H. N. RIDLEY.

This is another contribution to the knowledge of plants of the Malay Peninsula and adjacent countries, some species of which have been collected by myself, others by Dr. Gimlette in Kelantan, Mr. Rostado in Tringanu, Mr. Machado in Perak and Mr. Burnmurdoch in the rich forest of Semangkok Pass in Selangor. The most remarkable discovery is that of an indigenous species of Palmyra Palm, *Borassus*, by Mr. Machado in the forests at Kamuning.

New Plants.

ORCHIDEÆ.

Oberonia gracillima, n. sp.

Stem an inch long or less, often almost stemless. Leaves four or five ensiform acute $1\frac{1}{2}$ inch long $\frac{1}{8}$ inch wide. Spike very slender 3 to 4 inches long glabrous base nude for $\frac{1}{4}$ of its length. Bracts lanceolate acute entire longer than the ovary. Flowers minute, whorled 5 or 6 in a whorl. Sepals oblong obtuse recurved entire. Petals broader ovate toothed, all whitish. Lip orange oblong bifid at the tip with a wide sinus between the acute tips, edges minutely toothed, auricles short rounded.

Tringanu at Bundi (E. Rostado).

This little orchid is allied to *O. prainiana* but has a very different lip.

Saccolabium (§ *Cleisostoma*) *suffusum*, n. sp.

Stem stout 6 inches long $\frac{1}{2}$ inch through. Leaves fleshy 6 inches long 1 inch across, light green, lorate obtuse, unequally rounded bilobed. Panicle lax few

branched 18 inches long, branches 3 or 4. Flowers numerous $\frac{1}{4}$ inch long to the tip of the spur, pedicel $\frac{1}{8}$ inch long sepals lanceolate acute yellow suffused with brown. Petals narrower linear. Lip fleshy porrect, spur cylindric horizontal obtuse, side lobes short oblong obtuse, midlobe hastate tongue shaped fleshy obtuse with an erect tooth towards the tip. Callus in the spur-mouth thick and large decurved fleshy with two crura from the back attaching it to the back wall of the spur. No septuma. Column short, broad. Anther broad oblong. Pollinia globose, pedicel linear oblong, disc ovate acuminate.

Perak at Kamuning, Sungei Siput (A. D. Machado).

Saccolabium bicrure, n. sp.

Stem stout 3 inches long, roots long, leaves coriaceous lorate blunt distinctly retuse 4 inches long $\frac{3}{4}$ inch wide. Panicle 8 inches long branches few, peduncle rather stout. Flowers rather distant $\frac{1}{4}$ inch across. Bracts fleshy ovate persistent short. Sepals oblong obovate obtuse fleshy. Petals narrower linear oblong all olive yellow. Lip violet, side lobes quadrate with an oblong limb, midlobe fleshy ovate cordate, tip rounded fleshy, grooved above with a fleshy central ridge running back to the back wall of the spur and ending in a thickened pubescent callus and a septum of the spur. Dorsal callus a broad curved fleshy ridge pubescent at the top. Column broad short, with two vertical oblong quadrate rostellar wings, porrect. Anther large and broad with a Δ shaped ridge on the tip front broad truncate retuse. Pollen elliptic with a short broad pedicel and a disc of 2 very large truncate oblong porrect wings.

Borneo, Sarawak (Matang) on coffee trees. H. N. Ridley.

Saccolabium ramosum, n. sp.

Leaves lorate 7 inches long $\frac{3}{4}$ inch wide blunt obscurely unequally bilobed. Panicles over 6 inches long of 3

slender long branches. Flowers numerous $\frac{1}{4}$ inch long to tip of spur, yellow with brown stripes, sepals lanceolate, lateral ones oblique keeled the keel running out into a mucro petals much smaller and thinner. Lip shorter than sepals, side lobes falcate acute, midlobe lanceolate with a callus on the tip, dorsal callus reniform laterally flattened. Spur long straight narrow cylindric obtuse. Column oblong quadrate with short truncate arms. Anther small thin ovate. Rostellum arms shorter than column arms oblong quadrate truncate.

Sarawak, Bidi, cultivated in a garden, but collected in the neighbourhood (Ridley).

This species seems most closely allied to *S. javanicum* Smith.

Dendrocolla alba, n. sp.

Stems 3 to 4 inches long, with long slender and numerous roots. Leaves lorate fleshy dark green 1 to 2 inches long $\frac{1}{4}$ inch wide, obtuse. Scapes 4 inches long slender green raceme $\frac{1}{4}$ inch long thickened. Bracts ovate acuminate quaquaversal flowers 1 to 2 open at a time, $\frac{3}{4}$ inch across, expanding widely white, pedicels $\frac{1}{4}$ inch long. Sepals lanceolate acute. Petals narrower and shorter, narrowed at the base. Lip $\frac{1}{4}$ inch long saccate, lateral lobes curved short blunt distinct edged with clubbed hairs, midlobe little longer rounded blunt excavate, base of lip saccate grooved, callus in centre of the lip at the base of the midlobe oblong truncate; white with light brown blotches in the saccate portion and light brown spots on the side lobes and midlobe outside, and on the tip of the callus. Column oblong white with a narrower free foot blotched pale brown. Anther skull shaped. Pollinia ovoid, pedicel very short and broad.

Perak Kamuning, Sungei Siput (Machado) on old coffee trees. This pretty little plant with its numerous scapes bearing one or two white star like flowers at a time is allied to *D. trichogottis* Ridl. the common Singapore plant,

and much resembles it when out of flower. The flowers are larger and quite white, not of the yellowish color of the common species, and the lip is different.

D. ciliata, n. sp.

Stem an inch or more long. Leaves crowded dark green fleshy 6 elliptic obtuse narrowed a little to the base $2\frac{1}{2}$ inches long $\frac{3}{4}$ inch wide. Scape slender 2 inches long racemose part not thickened. Bracts minute ovate acute rather distant flowers opening singly, pedicel $\frac{1}{4}$ inch long green. Sepals oblong obtuse hyaline yellow tinted orange $\frac{1}{4}$ inch long. Petals narrower and shorter lip as long, side lobes erect rather long oblong white edged with long hairs, midlobe short conic fleshy all whitish. Column short, no foot or arms, anther helmet shaped beaked deep orange red. Pollinia 2 orange color ovoid shortly stalked, pedicel oblong flat indented at the sides disc about $\frac{1}{2}$ its length triangular pale orange yellow, Clinandrium flat with 2 orange triangular thin flaps.

Perak Kamuning (Machado). Occurs with the last.

Trichoglottis valida, n. sp.

Stem $2\frac{1}{2}$ feet long, stout. Leaves elliptic fleshy blunt 3 inches long $1\frac{1}{4}$ inch wide, sheaths ribbed $\frac{1}{2}$ inch long. Flowers solitary from the base of the internodes with a few small ovate to bracts at the base, pedicel slender $\frac{3}{8}$ inch long. Sepals falcate obtuse spathulate $\frac{3}{8}$ inch long. Petals obovate spathulate obtuse broader at the tip, all yellow with red blotches. Lip half as long as the sepals, lateral lobes oblong obtuse taller than the column, between them and parallel with the column an ovate oblong pubescent callus flat and thin, midlobe oblong with a round tuft of yellow hairs tip deflexed acute, spur very short blunt. Column short straight thick with a short erect tooth on either side, (apparently crimson) Pollinia globase.

Borneo, Sambas River. (Micholitz).

Acriopsis borneensis, n. sp.

Plant forming a dense mat with innumerable slender roots. Pseudobulbs $\frac{1}{2}$ inch long oblong elliptic somewhat flattened dull green leaves 2 rarely 3 elliptic obtuse dull dark green rather fleshy 1 inch long $\frac{1}{2}$ inch wide. Scape lateral 6 inches long with about 25 flowers rather crowded. Pedicels $\frac{1}{4}$ inch long. Dorsal sepal narrow hooded oblong subspathulate $\frac{1}{4}$ inch long. Laterals connate into a similar shaped organ. Petals obovate spathulate blunt broader, all yellow with dark red spots on the back faintly showing through. Lip a little longer than the lower sepals, free portion of base narrow linear greenish yellow, limb pandurate, side lobes triangular subacute spreading, midlobe obovate rounded callus on base of the midlobe oblong truncate with very short teeth retuse and grooved almost double, all white pubescent with a little violet on the callus and centre of the lip. Column as tall as the dorsal sepal, clinandrium with a long oblong truncate bilobed hood dull red apex yellow. Rostellum conic acuminate almost subulate dull red tipped yellow as long as hood and well below it, stigmatic arms longer thick tips flattened dull red tipped yellow. Pollinium single pearshaped yellow forming an angle with the very narrow long filiform pedicel, disc very small yellow, base of column pale green.

Borneo Sarawak; on Matang, collected June, 1903, flowered H. B. Singapore, March, 1904.

Allied to *A. purpurea* Ridl. and *A. densiflora* (Lindl.) but very distinct in the form of the lip. The coloring resembles that of *A. Ridleyi*.

SCITAMINEÆ.

Glubba unifolia, n. sp.

Rhizome creeping and throwing up stems 2 inches apart, stems 4 to 6 inches tall, covered with pubescent sheaths $\frac{1}{2}$ to 1 inch long. Leaf solitary erect ovate acute glabrous 6 to 8 inches long 3 inches wide narrowed to a

petiole $\frac{1}{2}$ to 1 inch long. Panicle from the axil of the leaf decurved, dense, 2 inches long, pubescent. Bracts oblong ovate pubescent, $\frac{1}{2}$ inch long calyx funnel shaped $\frac{1}{8}$ inch long with very obscure teeth, unequally bilobed pubescent. Corolla tube twice as long, lobes oblong hooded. Staminodes similar. Lip very short subspathulate bilobed apices rounded. Filament long slender nearly $\frac{3}{4}$ inch long, anther spurs 4 linear acuminate acute, the upper ones larger than the lower ones.

Tringanu, Bundi (E. Rostado).

This belongs to quite a distinct group of Globbas, remarkable for the solitary erect leaf, from below which hangs the dense short panicle. An allied species was obtained by Dr. Keith at Bangtaphan in Siam.

Camptandra angustifolia, n. sp.

Small tufted plant, 3 or 4 inches tall. Leaves lanceolate acuminate dark green $2\frac{1}{2}$ -3 inches long 1 inch wide narrowed at the base. Petiole $\frac{1}{2}$ inch long. Bracts ovate acute convolute $1\frac{1}{4}$ inch long, green, one or two on a stem. Inner bract, (Bracteole) $\frac{1}{2}$ inch long enclosing a single flower. Calyx tubular white shortly 3 lobed, lobes ovate ciliate at tip $\frac{1}{4}$ inch long, corolla $\frac{3}{4}$ inch long, white tube dilate upwards, lobes oblong white at tip, under $\frac{1}{2}$ inch across. Lip obovate rounded, bilobed, lobes rounded 2, thickened yellow ridges in limb. Staminodes oblong spathulate. Anther long curved white, as in *parvula*. Stigma large white.

C. parvula var. *angustifolia*, Ridley, Journ. Roy. As. Soc. 32, p. 105. Borneo, Sarawak, Matang, (Haviland Cm. Mi) Ridley. On rocks.

This plant of which I had only seen dried specimens from Dr. Haviland's collection, I found also myself in rocks on the mountain Matang and flowered them in the Botanic Gardens Singapore. It is quite distinct from *C. parvula* the flowers being only half as large. In some specimens there is more than one outer cup shaped bract,

each bract containing several flowers, and each flower being partially enclosed in another green bracteole of somewhat similar shape.

Gastrochilus parvus, n. sp.

A small tufted plant with bright green lanceolate leaves 4 inches long and 1 inch wide with rather darker nerves. Flower spike central with numerous brown lanceolate bracts. Calyx lobes rather long lanceolate pubescent white. Corolla tube $\frac{3}{4}$ inch long slender white dilated upwards and tinted pink lobes oblong white $\frac{1}{4}$ inch long. Staminodes linear oblong rounded white. Lip longer obovate oblong tip rounded white entire with a central yellow bar pink on each side. Anther thick oblong white back pubescent, with a fleshy white almost obovate crest.

Sarawak Bidi, flowered in the Botanic Gardens, June, 1904.

This little species is allied to *G. Hallieri* Ridl. *Kæmpferia anomala* Hallier Bull. Herb. Boiss VI pl. 9, 3, but it differs from that species in its entire lip, pubescent stamen and the distinct fleshy crest.

G. reticosa, n. sp.

Stem creeping short, throwing up branches, each bearing a single leaf and an inflorescence. Leaf petiole slender 3 inches long, grooved above, blade ovate subcoriaceous base cordate apex acute with about 10 pairs of raised veins and close conspicuous reticulations, 3 inches long 2 inches across, bright green, beneath paler pubescent spike shorter than the petiole $1\frac{1}{2}$ inch long outer sheaths enclosing the base of the leaf, innerbracts lanceolate acute. Flowers small opening singly. Petals linear lanceolate $\frac{3}{16}$ inch long yellow. Lip rounded spatulate base narrow limb $\frac{1}{4}$ inch wide rounded bilobed, base white with a yellow bar running to the limb which is pale violet. Staminodes half as long as the petals reflexed linear oblong obtuse, yellow minutely pubescent.

Stamen white pubescent filament short. Anther oblong retuse, not crested.

Sarawak, Bidi (H. N. Ridley), Fl. H. B. S., Nov. 22, 1904.

Near *G. Hallieri*, Ridl. This little plant is very distinct in its rigid pretty reticulated foliage.

G. plicata, n. sp.

A large plant for the genus. Stems tufted. Leaves distichous sheaths split 3 inches long with a broad thin margin. Petiole 4 to 5 inches long stout. Blade ovate acute 12 inches long 6 inches wide light green above beneath paler, plicate. Spike shorter than the petiole, covered with subdistichous sheaths bearing a small green ovate blade at the top. Flowers opening singly. Corolla tube 1 inch long white lobes narrow linear acute $\frac{1}{2}$ inch long. Staminodes subspathulate obtuse rounded 1 inch long $\frac{1}{2}$ inch wide light yellow. Lip 1 inch long oblong obtuse with up curved sides tip rounded entire, yellow with a cherry red band at the base and a similarly colored blotch at the tip or a broad band the whole length of the lip. Stamen shorter, white. Anther oblong with no distinct crest, tip rounded, entire. Stigma clubbed.

Kelantan, Kwala Lebir. (Dr. Gimlette). The plant sent by Dr. Gimlette flowered in November 1904. It is evidently near a plant I found at the foot of Gunong Pantai in Johore formerly and may possibly be identical, but I never saw flowers of that species nor was able to grow it. The plant is allied to *G. pandurata*.

Alpinia Murdochii, n. sp.

Stems five feet tall. Leaves elliptic lanceolate acuminate base broad 7 inches long 2 inches wide very closely ribbed pubescent above, paler and closely pubescent beneath, keel prominent, petiole very short hairy, ligule oblong truncate hairy, sheath pubescent, hairy along the edge. Raceme terminal four inches long, rachis and pedicels golden hairy, pedicels $\frac{1}{2}$ inch long. Bracteole

broad ovate half an inch long, glabrous within, hairy outside. Calyx white half an inch long tubular, lobes short ovate, pubescent, hairy at the base. Corolla short twice as long as the calyx tube very short, much shorter than the calyx white, upper sepal oblong hooded with a thick blunt boss on the top, the other two narrower oblong obtuse, all white finely dotted red. Lip shorter obovate three lobed, side lobes broad truncate, margins undulate, midlobe narrow, blunt bifid white base of lobes thickly dotted with red, and five elevated violet purple towards the tip. Filament broadly linear short. Anther as long thick, emarginate at tip and crestless yellow spotted red on the back. Style filiform. Stigma cup shaped, staminodes very short and obscure.

Selangor, Semangkok Pass, Feb. 1904. (A. M. Burn-murdoch), Sempang Mines (Ridley).

This species is remarkable for the shortness of its lip which is little longer than the stamen.

BURMANNIACEÆ.

Thismia arachnites, n. sp.

Succulent saprophyte, Stem 1-3 inches long creeping. Flowers 2-3 bracts lanceolate acute $\frac{1}{4}$ inch long. Peduncle in flower nearly half an inch long. Bracteoles shorter than bracts but similar. Perianth tube urn shaped, narrowed at the base $\frac{3}{4}$ inch long, $\frac{3}{8}$ inch wide, semi-transparent with numerous vertical ribs and numerous alternate transverse bars, conspicuous during life, all whitish with 6 red vertical streaks in the upper part, ring distinct and from round the mouth yellow. Calyx lobes short, rounded earlike, petals developed into long slender white tails $1\frac{1}{2}$ inch long. Stamens deflexed rising close to the mouth, oblong $\frac{1}{4}$ inch long, with an oval perforation close to the base, and numerous short teeth at the tip. Anthers very small style, short, thick, 3 lobed. Capsule cupshaped $\frac{1}{4}$ inch long and as wide, edges thickened. Peduncle thickened, fleshy.

Perak in dense forest just above the tea gardens
Larut Hills, February, 1904.

AROIDEÆ.

Raphiedophora falcata, n. sp.

Stem woody $\frac{1}{3}$ inch through. Leaves coriaceous lanceolate falcate acute base cuneate or hardly narrowed inaequilateral 8-9 inches long 1 inch wide, midrib prominent, nerves fine very numerous but not very prominent indistinguishable into primary and secondary nerves, transverse nervules not visible. Spathe green, not seen. Spadix sessile over 1 inch long thick nearly $\frac{1}{2}$ inch. Pistils oblong, top rounded not hexagonal. Stigma circular in an elevated ring, "yellow." "Ovary 1 celled with 2 imperfect partitions, ovules numerous."

Siam Bangtaphan (Dr. Keith), climbing up trunks of trees.

I have also leaves of what appears to be this from the Malay peninsula (Cantley's) collection, labelled "Jarnom Antan" and said to be used as an anthelmintic in children, the root being rubbed up in water and applied to the head, but I have never met with it in the Malay Peninsula myself.

Curculigo racemosa, n. sp.

Leaves lanceolate acuminate with a long point plicate, bright green, glabrous, above 18 inches long 3 inches wide, with small scattered hairs at the back, petiole 4 inches long hairy. Raceme erect 4-5 inches long, base $1\frac{1}{2}$ inch wide, hairy with brown wool. Flowers distant spreading, reflexed after flowering about 16. Bract base oblong above long acuminate $\frac{1}{2}$ inch long pale green edged with brown, hairs. Pedicel and ovary a little shorter brown hairy. Petals and sepals similar, oblong, linear, blunt, $\frac{1}{4}$ inch long, sepals slightly broader, bright yellow above, brown, hair, on the keel and tip beneath. Stamens shorter,

filaments linear, abruptly bent in the middle sigmoidly then ascending. Anthers orange linear, cells divaricate at base. Style very short half as long as the filaments. Stigma very small capitate.

Borneo, Sarawak on Mt. Matang. (H. N. Ridley).

FLAGELLARIEÆ.

Joinvillea malayana, n. sp.

A tall reed-like plant with numerous stems in a tuft about 6 to 8 feet tall, $\frac{1}{4}$ inch through hollow and leafy. Leaves very stiff plicate linear acuminate, narrowed at the base, bright green, glabrous 18 to 24 inches long 2 inches wide, sheaths smooth. Panicle terminal spreading 8 inches long with sinuous hairy branches. Flowers $\frac{1}{8}$ inch long, sessile or nearly so. Sepals 3 ovate keeled subacute with a small point ciliate at the tip. Petals 3 as long oblong truncate ciliate. Stamens 6, (one abortive). Anthers linear oblong, bases emarginate, filaments about half as long, ovary conic with a stout style, 3 shorter plumose stigmas. Fruit a very small globose red berry succulent, 3 seeded, seeds round.

Perak, Thaiping Hills, at the Cottage. Abundant in dry soil.

Selangor, Semangkok Pass. This also occurs on Mt. Matang in Sarawak where it was collected by Mr. Bartlett.

This remarkable plant belongs to the small order *Flagellariæ*, and is closely allied to *Flagellaria* a common sea shore climbing plant known as Rotan Binni here. Three other species of the genus are described, two from the Sandwich islands and one from New Caledonia so that the discovery of a fourth from the Malay Peninsula is of no little interest. The plant itself might easily be taken for a grass with its reed-like hollow stems and plicate leaves, like those of *Panicum plicatum* but much stiffer and the panicle of small flowers is not at all unlike that of a grass till their structure is examined. Curiously the Malayan species is more nearly allied to one of the

Hawaiian species than to the New Caledonia one. I cannot recall any parallel case of such a distribution of any genus in our flora, unless one compares it with the large genus *Cyrtandra* in *Gesneraceæ* which attains its maximum of development in the Sandwich islands and spreads through the Malay islands as far as to the peninsula where it dies out towards the North.

I am indebted to Mr. A. B. Rendle of the British Museum for aid in identifying this very curious plant.

PALMÆ.

C. Lindenii, Hort.

This rattan from the Philippines is only known from its foliage as a pot plant, in cultivation. A full grown female plant has flowered several times in the Botanic Gardens Singapore, so I herewith describe it. The plant itself so exactly resembles *C. lobbianus* Becc. of Singapore that it is impossible to distinguish it when out of flower. The stem is about 12 feet long densely covered with the sheaths which are densely bristly brown. The rattan has joints 3 inches long 1 inch through; the flagella about 10 feet long covered with half circles of black tipped hooks except on the very slender narrow sheaths about 3 or 4 on each flagellum. The leaf is about 3 feet long, petiole 6 inches and $\frac{3}{8}$ inch wide flat above and covered with brown scurf armed with short sharp thorns along the edge, and longer needle like ones at the base. Leaflets very numerous and close alternate equidistant 8 inches long $\frac{3}{4}$ inch wide linear setaceously acuminate green above white beneath with scattered black bristles above and beneath on the nerves and tip. Spadices 2 or 3 erect $3\frac{1}{2}$ -4 feet tall, peduncle $\frac{3}{4}$ inch wide whitish scurfy armed with a circular thorns $\frac{3}{4}$ inch long or less along the edges. Spathes silvery scurfy 5 or 6 unarmed lower ones 9 inches long with a long irregularly torn limb 2 inches long. Branches recurved about 6 paniculate 6 inches long. Spathels scurfy tubular not dilated upwards with no limb. Spikes

1 inch or more long on branchlets 3 inches long, flowers (female) not distichous but irregularly arranged, crowded. Spathels very short green. Calyx swollen short very shortly 3 lobed corolla half as long again, lobes oblong obtuse. Staminodes represented by a thin membranous corona with short filaments. Style short and thick, arms stout.

The whole inflorescence more resembles that of a *Licuala* such as *L. spinosa* than that of a rattan.

Pinanga limosa, n. sp.

A small dwarf single-stemmed palm one to two feet tall with strong roots. Stem $\frac{1}{4}$ inch through woody distinctly ringed internodes 1 inch long. Leaves a foot long 6 inches wide pale green, sheaths broad, petiole 3 inches long, blade entire obtuse deeply bifid at the top or more often split into about 5 lobes, lower ones acuminate or truncate with numerous short teeth, nerves numerous conspicuous. Spathe not seen, spadix deflexed simple or with 3 branches slender 2 inches long. Flowers distichous alternate about 28. Calyx lobes (female) short broad orbicular. Fruit small $\frac{1}{4}$ inch long, drying subacute, white oblong.

Singapore, Selitar; Johore on Sungei Tebrau.

This little palm inhabits wet sloppy forest swamps along river banks. It is allied to *P. disticha* Bl. but the stems are solitary and it does not branch, the leaves light green and often cleft, the spadix often 3 branched and the fruit smaller and blunter.

P. riparia, n. sp.

Stems several distant 12 to 13 feet tall $\frac{1}{2}$ to $1\frac{1}{2}$ inch through, internodes 3-4 inches long. Leaf about 3 feet long, rachis angled scurfy, blade pinnate with 3 lateral lobes and one terminal bilobed one, lobes linear or linear lanceolate acuminate with 3 to 6 nerves 3 to 9 inches long, $1\frac{1}{4}$ to 2 inches across tip entire long acuminate, terminal lobes broad coarsely toothed many nerved.

Spadix decurved, peduncle stout $\frac{3}{4}$ inch long, branches 3 to 4 stout 6 or 7 inches long, flowers close distichous. Females globose $\frac{1}{8}$ inch long. Sepals orbicular ribbed, petiole barely longer. Fruit $\frac{1}{4}$ inch long oblong obtuse, top ringed. Stigmas very short capitate.

Johor, swampy forest on the banks of the Sungei Tebrau near Castlewood.

This palm is allied to *P. coronata* Bl. but has a very much smaller spadix. It grows in very wet mud close to the river banks.

P. acanlis, n. sp.

Stem very short hardly 4 inches long covered with the fibrous sheaths of the leaf bases, solitary. Leaves few, petiole obscurely angled 22 inches long, blade entire cuneate tip bifid toothed 15 inches long 6 inches wide, nerves 13 pairs, base unequally narrowed, terminal lobes 4 inches long with 4 to 6 acuminate teeth; or pinnate with three pairs of linear oblong acuminate lobes not toothed, 4 nerved 8 inches long rather distant opposite, lowest pair $1\frac{1}{2}$ upper 3 inches wide terminal pair cennate. All light green glaucescent at the back. Spathes sessile oblong 2 oblong acute boat-shaped strongly keeled brown erect $1\frac{1}{2}$ inch long $\frac{3}{4}$ inch wide. Spadix 2 inches long densely covered with male flowers, at first quite concealing the females. Males white $\frac{1}{4}$ inch long calyx very short 3 lobed lobes acute; petals subsymmetric ovate triangular acute. Stamens 8 or 12 shorter than the petals, filaments short conical rachis crimson. Female flowers small opposite, petals and sepals orbicular rose pink. Stigma irregularly oblong capitate white. Rachis in front lengthening to 6 inches. Fruit cylindrical narrow $\frac{3}{4}$ inch long.

Perak, Kamuning Woods, Sungei Siput (Machado).

This most curious dwarf palm was discovered in abundance by Mr. Machado in the woods at Kamuning where he has already discovered so many other remarkable plants. It is unique in Pinangas in its exceedingly short

stem covered by the old leaf sheaths from which arises a short thick double spathe which just protrudes above the sheaths. When it opens, the short stout spadix is densely covered with ivory white male flowers, which fall off next day, and the bright crimson rachis bearing small pink female flowers is seen. The rachis then elongates remaining pink and bearing its small cylindric fruit. A number of live plants have been sent by the discoverer to the Botanic Gardens Singapore, where it seems likely to do well.

Licuala lanuginosa, n. sp.

Leaf with a stout bluntly 3 angled petiole over a foot long $\frac{1}{4}$ inch through, thorny for about half its length, thorns conic short brown, blade 6 lobed, lobes linear stiff with short broad teeth 13 inches long one inch wide, with 3 or more ribs on each. Inflorescence a foot long thick covered with silvery wool, branches 2 or three with a short thick peduncle, spikes stout 2 inches long thick woolly spathes silvery lacerate. Flowers numerous sessile $\frac{1}{8}$ inch long globose. Calyx broadly cylindric shortly 6 lobed covered with dense shining hair. Petals little longer ovate lanceolate silky. Staminal cup 6-lobed.

Johor, on Gunong Pulai, and Gunong Panti (Ridley).

This species is allied to *L. kiingana* Becc., but the flowers are larger.

Borassus Machadonis, n. sp.

Stem as tall and nearly as thick as a cocoanut palm, ringed with the remains of the fallen leaves. Leaf stalk 12 to 15 feet long $1\frac{1}{2}$ inch thick unarmed deeply channelled green, blade suborbicular 4 feet across about 6 feet long split nearly to the base into sharp edged linear acuminate lobes. Male inflorescence of three cylindrical catkins 14 inches long $1\frac{1}{4}$ inch thick. Bracts oblong with an ovate obtuse limb. Calyx 3 lobed, $\frac{1}{4}$ inch long, as long as the bract, lobes oblong unequal, one with a broad rounded top, the others acute, split about half way down. Corolla

with three linear narrow lobes edges rounded fringed, $\frac{3}{4}$ inch long. Stamens filaments short, anthers long linear narrow acute. Female spadix 12 in. long with a broad flattened orange peduncle 3 inches long. Flowers about 20, crowded, terminal portion of spadix barren, about 2 inches long. Bracts 2 broadly semicircular 1 inch long and as wide, (in young fruit) edges lacerate, orange brown outside, yellowish white within stigmas. Young fruit obovoid dark green with 3-4 white lines corresponding to cells sepals obovate orange 2 inches long paler at base. Petals longer rounded truncate. Seeds 3 oblong woody, outer face convex inner face obscurely 3 angled, 3 inches long 1 inch through covered with rough brown hair.

Perak in dense forest at Kamuning near Sungei Siput, (Machado). Native name "Chang-hai."

The genus *Borassus* has hitherto been considered to consist of a single species *Borassus flabelliformis* L. This species including *B. aethiopum* Mart. is a native of Africa and probably India. A sacred tree of the Hindus it has been carried all over the east, and more or less established itself chiefly in sandy places near the sea, or in temple grounds. It does not thrive in damp spots nor does forest country suit it at all. It is evidently a desert plant by nature. This plant is known as Lontar by the Malays. Lon being an old name for Pohon "tree," and Tah being the Hindu Tal, the name of the *Borassus*. I was therefore much surprised when Mr. Machado sent me a leaf and seeds of a *Borassus* he had found in the forests of Kamuning in some quantity. He has since sent me complete material of this remarkable palm, which proves to be quite distinct from the well-known Lontar or Palmyra palm. It differs from that species in the entirely thornless petiole, and the blade of the leaf split to the base in the three lobed calyx, and narrow petals of the male flower, and in the long narrow anthers. I can find no description of *Borassus* to agree with this. All the Indian descriptions are undoubtedly those of *B. flabelliformis*, Rumphius

Herb, Amboin. I p. 4-5. t. 10 describes and figures "Lontarus domesticus" which is certainly the same plant, and Loureiro's *B. flabelliformis* is the same. The latter author describes also a *B. tunicata* from the Decan and Guzerat, which has unarmed petioles and is referred by Wendland to *Pholidocarpus*. But the description does not fit the new *Borassus* and no *Pholidocarpus* is known from that region and what Loureiro intended is quite obscure.

CYPERACEÆ.

Mapania longispica, n. sp.

A large tufted plant. Leaves linear gradually acuminate 5 feet long 1 inch wide, margins with close pale thorns. Scape stout over a foot tall with a head of 4 to 8 cylindric spikes. Bracts ovate acute ribbed $\frac{3}{8}$ inch long. Spikes $1\frac{1}{4}$ inch long $\frac{1}{4}$ inch through cylindric. Bracteoles ovate obtuse ribbed down the back. Squamellæ $\frac{3}{8}$ inch long fringed. Style trifid slender, nut trigonoglobose, endocarp hard black, ectocarp separable green.

Perak, Larut Hills, above the Tea Gardens (Ridley 11424) on banks in the forest.

This plant is allied to *M. kurzii* Clarke which occurs in the same district. It differs in its large cylindric spikes and stouter scape.

M. valida, n. sp.

Rhizome stout woody $\frac{3}{8}$ inch thick. Leaves numerous linear acuminate $2\frac{1}{2}$ feet long $\frac{3}{4}$ inch wide edges roughly thorny point very long and slender, bases of leaves shining dark brown. Scapes stout $4\frac{1}{2}$ inches long with numerous sheaths at the base. Heads of 3 or 4 spikes oblong conic over $\frac{1}{2}$ inch long bracts ovate ribbed $\frac{1}{4}$ inch long. Bracteoles ovate dark brown ribbed. Squamellæ linear margins ciliate. Style trifid. Nut pear-shaped with a ridge on one side pale brown very small.

Singapore Bukit Timah and Changi (Ridley 1714, 5998). In forests.

This is allied to *M. Wallichii* Clarke a common plant in our woods but has longer more slender peduncles and usually 3 or 4 spikes in a head but one of the Bukit Timah specimens has only a single spike in the head. In the flora of British India Vol. VI. p. 682. Mr. Clarke refers this to the Javanese *M. multispicata* Clarke based on *Pandanophyllum humile* Zoll. Verz. Ind. Arch. ii. 61 but in a letter received lately he states that it is a distinct species. I am indebted to him for pointing out the distinction of both of these species from any described, and for notes on them.

Mapania montana, n. sp.

Stem short and thick emitting stolons 4 inches long covered with acuminate sheaths. Leaves linear base narrowed into a distinct petiole, apex abruptly acuminate, petiole 4 inches long, blade 22 inches long 2 inches wide 3 nerved, point 2 inches long armed with short thorus. Scape 15 inches long rather slender. Bracts 3, lowest oblong ovate $1\frac{1}{2}$ inch long, with an abrupt point 3 inches. Capitalum $1\frac{1}{2}$ inch through of about 40 heads densely crowded $\frac{1}{4}$ long. Bracteoles oblong rounded at the tip long ribbed margins lacerate. Squamellæ narrow, edges ciliate. Style shortly trifid.

Borneo. Mt. Kinabalu, Penokok, Haviland 1801, at 3000 feet alt.

Apparently only a single specimen of this very distinct plant was obtained and it is not mentioned in Stapf's account of Dr. Haviland's plants. It has the foliage of *M. humilis* Naves, but the inflorescence resembles that of *M. palustris*.

GRAMINEÆ.

Isachne sylvestris, n. sp.

Stem ascending geniculate rather stout 9 inches tall. Leaves lanceolate acuminate with a broad base, 3 inches long $\frac{1}{2}$ inch wide, margins thickened glabrous above, pubescent beneath, sheaths hairy. Panicle 6 inches long

much branched, 3 inches across, branches slender sub-whorled spikelets solitary $\frac{1}{10}$ inch long subglobose. Glume I ovate ciliate ribbed Gl. II ovate obtuse cuspidate with short bristles Gl. III elliptic obtuse shorter coriaceous paleate male Gl. IV similar but pubescent, female. Grain free brown.

Dindings in Woods at Telok Sera (Ridley 7265).

Ischæmum læve, n. sp.

A tall grass resembling *I. magnum* in habit, nodes glabrous. Leaves linear lanceolate acuminate from a broad base 3 inches long $\frac{1}{4}$ inch wide edge scabrid at the tip glabrous, ligule short bilobed, mouth of sheath ciliate. Spikes 2 appressed 4 inches long spikelets in pairs one sessile one shortly pedicelled $\frac{1}{4}$ inch long joints and angles of pedicels shortly white ciliate. Glume I. narrowly elliptic oblong submucronate smooth edge ciliate, II. lanceolate shorter edge ciliate III. these lanceolate ciliate paleate IV. shorter lanceolate with a short straight pale awn.

Singapore at Galang (Ridley 9143).

I do not think this can be a form merely of *I. magnum* Rendle. The first glume is narrower and not wrinkled at all.

Mnesithea pubescens, n. sp.

Stems slender three feet tall nodes ciliate leafy. Leaves linear acuminate 6-12 inches long $\frac{1}{4}$ to $\frac{1}{2}$ inch wide softly pubescent spikes slender on long slender pubescent peduncles 4 inches long solitary $1\frac{1}{2}$ inch long yellow breaking below the node so that each joint is shortly stalked, internodes short $\frac{1}{8}$ inch long dilated upwards bearded at the base. Spikelets 2 sessile with a narrow linear pedicel between longer than the internode Glume I ovate lanceolate acute, tip curved base channelled with 4 or 5 grooves above, with numerous linear perforations from each of which rises a cilium. Gl. II

lanceolate acute as long. III lanceolate hyaline smaller. IV smaller hyaline.

Johor, Batu Pahat at Minyak Buku (Ridley 11017).

There are two other species only known of this curious genus *Mn. laevis* Kunth. of India and China and *Mn. geminata* Ridl. (*Rottbællia geminata* Hack.) a native of Pahang. This species from the rocky cliffs on the Western coast of Johore differs from the other two in the pubescence of its leaves and spikes, and in the curious perforations each containing a hair on the outer glume.

Pollinia rupestris, n. sp.

A perennial grass several feet tall, stout, nodes bearded. Leaves acuminate 7 to 8 inches long, $\frac{1}{2}$ inch wide narrowed to the base glabrous above covered with scattered hairs beneath, mouth of sheath hairy, ligule short truncate. Spikes several erect appressed 4 inches long fragile stout. Spikelets callus not ciliate. Glume I ovate lanceolate boat shaped mucronate keel ciliate, margins hyaline. II similar in shape with strong bristles on the back cartilaginous ribbed reddish. III hyaline shorter oblong, palea narrower pubescent. IV short hyaline with a long twisted awn from between two linear acuminate points.

Johor, on rocks at Batu Putih near Batu Pahat Ridley (1018).

Bambusa magica, n. sp.

Stems about 20 feet tall and half an inch or less through, branches slender tufted at the nodes, internodes 1 inch long leaves lanceolate acuminate glabrous 3 inches long $\frac{1}{2}$ inch wide, margins scabrid, the thickened base narrowed into a very short petiole sheath auricled with white cilia on the auricles. Spikelets in short panicles lanceolate pale $\frac{3}{4}$ inch long $\frac{1}{8}$ inch across, empty glume I ovate lanceolate. Flowering glumes 7 lanceolate mucronulate keeled, margins ciliate, palea shorter lanceolate bifid tips ciliate, lodicules 3 lanceolate ciliate.

Perak Gunong Berumbun (Wray 1560) "Bulu Perindu."

This plant is referred to the Chinese Hedge Bamboo (*B. nana* Roxb) by Gamble Ann. Gard. Calc. VII. 41. But it is very improbable that Wray's plant could have been introduced on Berumbun and the adjacent hills and it differs from *B. nana* in its taller stem, quite glabrous leaves and less strongly ribbed glumes ciliate at the edges. Wray writes of it (Journ. Roy. As Soc. S. br. vol. 21. p. 139. "The small bamboo called by the Malays "Bulu Perindu" is extremely plentiful on Berumbun and comparatively scarce on the other hill. I was fortunate in being able to collect flowering specimens of this elegant little bamboo which is credited with mystic properties by the natives and is, much in request by love-lorn swains whose mistresses are cold and irresponsible."

B. elegans, n. sp.

A tufted bamboo with stems 15 to 20 feet tall, and $\frac{1}{4}$ inch through green and red like, nodes elevated, internodes over a foot long. Culmsheaths narrow acuminate a foot long $1\frac{1}{2}$ inch across, ligule ciliate with the cilia in tufts, limb extremely narrow linear acuminate slightly scabris $1\frac{1}{2}$ inch long $\frac{1}{16}$ inch across. Leaf and flowering branches whorled with numerous sheaths at the base. Leaves lanceolate acuminate 2-6 inches long $\frac{1}{2}$ inch wide finely ribbed and minutely pubescent on the back base rounded with a very short petiole, ligule short ciliate. Spikes numerous subremote not whorled or crowdep. Bracts oblong dry and pale, outer one $\frac{3}{8}$ inch long, inner ones smaller more ovate mucronulate, spikelets $\frac{1}{2}$ inch long. Basal one of three empty glumes. Second flower $\frac{1}{4}$ inch long. Glumes I and II lanceolate green tipped with purple edges ciliate palea not keeled edges ciliate enclosing a conical cylindrical pistil with 2 short stigmas. Lodicules none. III. Flower male, glumes and palea as in II. Stamens 6, anthers with two points at the tip. Flowers IV and V abortive. Rachilla flattened dilated upwards ciliate. Fruit not seen.

Selangor. On the Ulu Semangko hill, (Buru-Murdach. Ridley).

This elegant tufted bamboo is abundant at the top of the big hill above the Semangko pass. As nearly all the flowers both in Mr. Burn-Murdoch's original specimens and the ones got afterwards by me have nearly all the flowers destroyed by insects I have had some difficulty in making out the structure and am not very certain as to which genus this bamboo should be referred to, but I think it should be referred to *Bambusa*. The stems are tall and slender, half scandent among the low trees of the hill top.

Dinochloa montana, n. sp.

Culms long and scrambling slender smooth with whorled branches. Leaves lanceolate acuminate 8 inches long, one inch wide glabrous, tips scabrid bases unequal slightly alternate into a short petiole $\frac{1}{8}$ inch long, sheaths smooth flattened striate with a low callus minutely pubescent, not ciliate. Panicle long, rachis very pubescent with distant heads of spikelets $\frac{1}{2}$ - $2\frac{1}{2}$ inches apart spikelets $\frac{1}{8}$ to $\frac{1}{4}$ inch long, straw colored one flowered. Empty glumes 4 ovate obtuse strongly keeled and mucronate rachilla stout flexuous. Flowering glume lanceolate, ribbed minutely mucronate. Palea oblong with two nerves not keeled nor ciliate. Lodicules 6 spatulate oblong strongly nerved edges ciliate. Grain oblong beaked narrowed at the base channelled along one side, beak minutely hairy.

Penang Hill forming dense masses at an altitude of 3000 feet, in forest (Ridley 7064, 7265, 10171).

This slender climbing bamboo differs from *D. Tjankorreh* in its larger spikelets with 4 empty glumes, and lanceolate flowering glume, and the presence of 6 lodicules.

Dendrocalamus pendulus, n. sp.

Culms about 60 feet tall arched, 3 inches through, with long slender pendulous branches dark green below

glaucous above, walls rather thick, internodes 9 inches long nodes rough with short projecting rootlets at the base. Culmsheaths 6 to 9 inches long hard, covered at first with white woolly appressed hairs in fascicles, limb narrow lanceolate acute 4 inches or more long caducous. Auricles large dark red with long white cilia. Leaves lanceolate oblong acuminate thin glabrous 5-6 inches long $\frac{3}{4}$ inch wide, base broad truncate, edges scabrid at the tip, petiole short thick $\frac{1}{8}$ inch long sheaths minutely pubescent, top truncate ligule very short, with few or no cilia at the mouth. Panicle of simple spikes of heads on the ends of the leafy branches with occasionally one or more branchlets. Heads of spikes crowded $\frac{1}{2}$ inch long, with broad sheaths yellow with a short limb at the base. Spikelets $\frac{1}{6}$ inch long glabrous shining oblong cylindric numerous 1 flowered. Empty glumes ovate glabrous 2. Flowering glumes longer lanceolate. Palea as long 2 nerved not keeled convolute, lanceolate. Lodicules none. Stamens 6, anthers oblong minutely apiculate filaments narrow linear free. Ovary conic short hairy, style simple hairy.

Selangor Pahang Track (Ridley 8482) alt. 2000 feet.

This superb bamboo with its long arching culms and long pendulous branchlets has long been cultivated in Singapore Botanic Gardens, but has not flowered there. The flowers are described from a plant in high forest in Selangor, quite resembling that cultivated in the Singapore Gardens. The young culm sheaths are covered with fine white hair, as if coated with mildew. This disappears in the full grown sheaths altogether.



Ridley, H. N. 1905. "New and little known Malayan Plants. Series II." *Journal of the Straits Branch of the Royal Asiatic Society* 44, 189–211.

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