

New and Rare Malayan Plants.

Series IX.

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In continuing my work on the Flora of the Malay Peninsula, I find a number of plants in the earlier collections which have been overlooked and not described, as well as several genera in which the species, chiefly described from more or less inadequate dried specimens, seem to have been much confused; such genera are *Glycosmis*, *Ventilago* and *Allophyllus*. In critical genera like these a really big series of specimens is required and this we seldom possess in any tropical genus. Some also differ more in habit than in what may be called herbarium characters. In the field one could not mistake the one for the other; but specimens without adequate notes as to height, and form of growth may look so far similar that a botanist who has not seen the plants alive may easily be led into thinking that they are all mere forms of one somewhat variable species. We really want more collecting and observation done. I have been surprised to note how very badly many of our commonest plants are represented in herbaria. The collections of an amateur who, just commencing the study of botany collects every weed he can find, are often extremely valuable, as the plants he gathers are just the plants that others neglect.

ANONACEAE.

Unona. Safford in Bull. Torrey Club, xxxix. p. 502, shows that the original species of this genus was an American plant to which were later added among others the species known as *Unona* in the East Indies: and eventually the original *Unona discreta*, Linn. fil., was actually excluded from the genus. This plant proves to be a *Xylopia*. The East Indian plants are quite distinct from it so that the generic name *Unona* disappears as a synonym of *Xylopia*. The earliest name for the East Indian "Unona" is *Desmos* of Loureiro and the following are the names of the Malay species of *Unona* now referred to that genus.

Desmos cochinchinensis, Lour. Fl. Cochinch. I. 352. *Unona desmos*, Dunal.

- Desmos chinensis**, Lour. l.c. p. 352. *Unona discolor*, Vahl.
Desmos Dunalii, Safford l.c. p. 506. *Unona Dunalii*, Wall. Cat.
Desmos dumosa, Safford l.c. p. 506. *Unona dumosa*, Roxb.
Desmos dasymaschala, Safford l.c. 507. *Unona dasymaschala*, Bl.
Desmos filipes, Ridl. *Unona filipes*, Ridl.

The genus when confined to the shrubs with large rather thin flowers with two series of unequal petals and moniliform fruiting carpels forms a well-defined genus: but to it has unfortunately been added a section *Stenopetalae* including *Desmos Wrayi*, *D. desmantha*, *D. crinita*, *D. stenopetala* all *Unonas* of Hook. fil. & King, and kept in *Desmos* by Safford. These are small trees about 20 feet tall with the flowers and fruit exactly of *Polyalthia* and closely allied to *P. Beccarii*. The ovaries in the species referred to *Unona* (*Desmos*) contain from 2 to 5 ovules. The distinction given to *Polyalthia* from *Unona* is that it has but one or two ovules. None of the species of this supposed section of *Unona* have moniliform fruit, but 3 seeds are often developed.

I propose to remove all of them to their correct genus *Polyalthia* and transfer them to their real affinity with *P. Beccarii*, under the names of **Polyalthia Wrayi**, **P. desmantha**, **P. crinita** and **P. stenopetala**.

Unona pycnantha, Hook. fil. only known from Maingay's specimen looks to me to be a young specimen of one of these species probably *P. desmantha*, in which the flowers are not fully developed.

Polyalthia cauliflora, Hook. fil. and Thoms., Fl. Ind. 138; Hook. fil., Fl. Brit. Ind. 1. 60, was based on Wallich's *Uvaria cauliflora* (Wall. Cat. 6476) a plant collected in Singapore. King omitted it altogether from the "Materials for a flora of the Malay peninsula" but quoted the description in the Annals of the Botanic Gardens of Calcutta (*Anonaceae*) and said it was indeterminable. I have examined the type in Wallich's herbarium and find it to be identical with *Polyalthia Teysmanni*, Boerl., Ic. Bogor. 1 107; *Gutteria Teysmanni*, Miq. Fl. Ind. Bat. Suppl. 378.

This species is very common in Singapore and much resembles *P. Beccarii*. It is a small tree with a stem 3 inches through with transversely wrinkled bark. The flowers are orange yellow, and not cinnamon brown as in *P. Beccarii*; the fruit is larger and sometimes at least pubescent.

It occurs in SINGAPORE, at Chan Chu Kang (6231 of my collection), Toas river and Changi (5980); also on Gunong Pantu in JOHORE; at Sepang in SELANGOR; and on the Tahan river in PAHANG, usually in rather sandy open woods.

Unona latifolia, Hook. fil., Fl. Brit. Ind. I. 60.

Unona Brandisana, Pierre, Fl. Forest Cochinch. p. 19 is referred by Safford to the genus *Canangium*, as *Canangium Brandesanum*, Safford (l.c. p. 504).

It is certainly closely allied to *Canangium Scortechinii* having the long conic anther appendage and elongated style of that species. The style of *Canangium odoratum* is however quite different.

It is regrettable that Safford published the name as *Canangium Brandesanum* as Pierre intended to associate the plant with Sir Dietrich Brandis and called it *Brandisana*. It should have been in correct Latin *Brandisianum*.

Canangium monospermum (*Cananga monosperma*, Hook. fil.).

"A tree about 5 feet high: stem about the size of a man's thumb found on the top of Gov. Hill." "Large tree with a thick stem found about half way going up Government Hill" in Maingay's collections. This has been treated by Hooker and King as a doubtful plant; and the fruit with the specimens perhaps does not belong. It is no *Canangium* and I am very doubtful as to what it is. It has not been collected since Maingay's time; neither Curtis nor Mhd. Haniff nor I myself have been able to find it. It requires searching for again.

Sphaerocoryne, Scheff. ms. in Boerlage, Ic. Bogor. LXIX.

The species on which Scheffer apparently intended to base this genus, *S. siamensis*, was put by Boerlage into the genus *Polyalthia* as *P. siamensis*, when he described Scheffer's species. It had however been already described by Pierre, Fl. Forest. Cochinch., as *Unona Mesnyi* (Pl. 17). Pierre seemed doubtful as to where to place the plant, as in Herb. Kew he writes notes on it referring it also to *Popowia*: and Craib (Kew Bulletin, 1914, p. 5) makes a new combination of this as *Popowia Mesnyi*. *Popowia edulis*, Pierre, seems to me the same thing. Two other species closely allied to this species are *Polyalthia affinis*, Teijsm. and Binn., in Tijdschr. Nederl. Ind. xxvii (1864) 37; Boerlage, Ic. Bogoriensis, t. LXIII, of unknown origin cultivated at Buitenzorg and *Polyalthia aberrans*, Maingay in Hook. fil. Fl. Brit. Ind. i. 67 of Malacca and Perak.

It does not seem possible to refer these three plants to any of the genera suggested, and I therefore propose to keep up the proposed genus of Scheffer's *Sphaerocoryne* which I define below. The affinities of these plants are obscure, but they are certainly allied to Scheffer's *Rauwenhoffia* from which *Sphaerocoryne* differs mainly in its small stigmas, cylindric style and single or 2 ovules. *Rauwenhoffia* has very large stigmas, a very short style and many ovules.

Sphaerocoryne, Scheff. ms. genus ined.

Shrubs erect or scandent or small trees. Leaves coriaceous. Flowers axillary, solitary. Sepals small, ovate, valvate. Petals outer ovate, inner ones much smaller, flat not excavate at the base. Stamens oblong, numerous, connective flat, truncate. Torus globose. Pistils projecting beyond the stamens. Ovary hairy. Style cylindric, glabrous. Stigma small bilobed. Ovules 1 basal or 2, lateral. Carpels subglobose on long stalks. Seed 1 oblong.

Species 3.

- S. aberrans**, Ridl. *Polyalthia aberrans*, Maingay ex Hook. fil., Fl. Brit. Ind. i. 67; King, in Journ. As. Soc. Beng. lxi. pt. 2, p. 63; and in Ann. Calc. Bot. Gard. IV., 78. pl. 109a.

PERAK.

- S. siamensis**, Scheff. *Polyalthia siamensis*, Boerl., Ic. Bogor. LXIX. *Unona Mesnyi*, Pierre, Fl. Forest. Cochinch., t. 17. *Popowia Mesnyi*, Craib, in Kew Bull. 1914, p. 5. *Popowia edulis*, Pierre.

SIAM, CAMBODIA.

- S. affinis**, Ridl. *Polyalthia affinis*, Teijsm. and Binn. ex Boerlage, Ic. Bogor. t. LXIII.

Cult. in Hort. Bogor. origin unknown.

TILIACEAE.

Elaeocarpus acmosepalus, Stapf. ms.

A tree with young parts silky pubescent. Leaves thinly coriaceous drying brown, glabrous, elliptic acute or acuminate, base cuneate, margins entire, slightly thickened, nerves 3 pairs inarching within the margin, elevate beneath, reticulations wide not conspicuous, 7 cm. long, 4 cm. wide; petiole slender, geniculate .75 in. long. Racemes slender in upper axils, 6—7 cm. long, puberulous. Pedicels 6—7 mm. long. Sepals 5, lanceolate acuminate, sparsely hairy or glabrous, 6 mm. long. Petals cuneate, fimbriate, edges ciliate, nearly as long. Stamens 20—25, filaments glabrous, as long as the anthers which are awned, the awn nearly as long as the anther and tipped with hairs. Torus of 5 rounded tomentose glands grooved on the back. Ovary ovoid conic silky pilose, 3-celled, 2 ovules in each cell. Style glabrous above, pilose at base.

JOHORE. Pengerang (*N. Cantley*). Also in SARAWAK (*Beccari* 3433), and Bau (*Haviland* 2035).

Allied to *E. parvifolius*, Wall., and *E. robustus*, Roxb., which latter it resembles in having some of the leaves shewing signs of pustulations, but the leaves are quite entire and dry

dark brown above and red brown beneath. The sepals are very narrow and when dry at least are curiously hooked at the long acuminate tip. Haviland's plant is more pubescent and the leaves show slight signs of crenation.

Dr. Stapf recognized this species as distinct in the Kew Herbarium but never published his description of it.

GERANIACEAE.

Connaropsis glabra, n. sp.

Tree? branches with pale bark, glabrous. Leaves simple, thinly coriaceous, oblong acuminate acute, base rounded, nerves 5—6 pairs ascending inarching within the margins, reticulations conspicuous beneath, not glaucescent, 4 in. long, 1.6 in. wide, petiole .5 in. long, petiolule .2 in. Panicles axillary and terminal, erect, 3.5 in.—4.5 in. long, lax; branches short .2—.3 in. long; pedicels .01 long. Sepals ovate acute, glabrous. Petals oblong, narrower at the base, obtuse. Stamens 10 in 2 whorls of unequal length; ovary glabrous, ovoid, obscurely angled.

PERAK. On Hermitage Hill at 1000 feet, alt., flowering in December, (*Curtis* 1345).

This species has thinner and longer leaves, (not glaucous on the backs,) than *C. monophylla*, Planch. The panicle is laxer and the whole plant glabrous.

Connaropsis laxa, n. sp.

Tree 40 to 50 feet tall, the bark of the branches pale. Leaves simple, coriaceous, lanceolate acuminate, shining, the base rounded; nerves 6 pairs slender, inarching within the margin, elevated beneath, reticulations fine conspicuous beneath, 3—4.5 in. long, 1.4—2 in. wide, petiole .5 in. long, petiolule .2 in. long. Panicles terminal and axillary, slender, lax, puberulous 2.5 to 6 in. long; branches distant 2—3 in. long with the branchlets crowded at the tip. Sepals connate at base, 5, oblong, obtuse, glabrous. Petals 5, cuneate truncate, cherry red. Stamens 10, 5 short alternating with 5 long. Ovary oblong ovate. Styles 5, short. Fruit globose, 2-celled, dark red. Seed 1.

PERAK. Taiping Hills, within 300 feet of Sea level (*Kunstler* 2384); Tea Gardens (*Curtis* 2896).

The appearance of this plant suggests a *Dapania* but it appears to be a tree and to have indehiscent fruits.

Impatiens polycycla, Hook. fil. ms.

A branched herb with nearly glabrous stem. Leaves in whorls of 2 to 5, lanceolate acuminate, narrowed to the base, serrate spinulose, with scattered long hairs on the upper sur-

face, glaucous beneath and glabrous, nerves hardly visible 1 to 1.5 in. long, .4 in. wide; petiole .2 in. long. Stipules filiform. Peduncle 1.5 to 2 in. long. Flower patent 1 in. across, rose pink. Sepals .2 in. long, ovate caudate, glabrous, spurred one ovate lanceolate, flat, spur long and slender, 1.5 in. long. Capsule ovoid dilate in middle .5 in. long. Seed obovoid, compressed hairy .1 in. long.

PERAK. Temengoh on a sand bank in the river (*Ridley* 14591). I could find but a single plant anywhere.

Allied to *T. Griffithii*, Hook. fil. but a more branched stouter plant, with broader leaves, hairy above with the nerves almost invisible, in whorls of 5, the lower ones in pairs. The spur is also much longer and more slender.

Impatiens exilipes, Hook. fil. ms.

A branched glabrous herb about 2 feet tall. Leaves opposite or in whorls of 3, broadly lanceolate acuminate, narrowed to the base, serrate spinulose, quite glabrous, beneath glaucous, nerves 6 pairs conspicuous, 3 to 4.5 in. long. .7 to 1 in. wide; petiole .5 in. long. Pedicels 2 to 3 in. long. Flowers rose pink, centre darker. Sepals ovate oblong, cuspidate, spurred one boat-shaped, mucronate, .4 in. long, spur slender 1.3 in. long. Standard obovate, cuneate, truncate with a short point and a short rounded keel, wings broad bifid, basal lobe oblong retuse, upper one obovate retuse. Capsule short .6 in. long, broadly fusiform, beaked. Seed obovoid, flattened, glabrous.

PERAK. On the road between Tapah and Jor, abundant at one spot (*Ridley*).

I got this pretty balsam in the return from the expedition to Telom. Like the last species Sir Joseph Hooker examined it and made notes on it shortly before his death and gave it the above manuscript name. It belongs to the same section as the last but is distinct in being quite glabrous like *I. Curtisii* of the Taiping Hills but has lanceolate not ovate leaves. *I. Wrayi*, Hook. fil. from the same district has hairy leaves, an orbicular standard not narrowed at the base and a central raised line with an erect tooth in the centre, the wings are very unequally lobed and the seed is hairy. *I. sarcantha*, Hook. fil. from the Telom river has broad hairy leaves and an obovate standard, emarginate with a strong central keel running the whole length, and oblong truncate unequal lobes to the wings. The seeds are glabrous.

RUTACEAE.

Glycosmis. The various species of this genus of shrubs or small trees occurring in the Malay Peninsula have been reduced

first by Oliver, Journ. Linn. Soc. V. Suppl. it. 31, and later by Hooker in the Flora of British India and King in the Materials who have followed Oliver's classification, into three species only *G. pentaphylla*, Correa, the *Limonia pentaphylla* of Retz. and Roxburgh, *G. sapindoides*, Lindl. and *G. puberula*, Lindl., the greater number of the Indian and Malayan species being reduced to forms of *G. pentaphylla* "a very variable and most perplexing species."

The typical *G. pentaphylla* is based upon what appears to me a very distinct species which is confined to India, and does not occur at all in our area. After examining the various plants included under the names of this and the other two species, I have come to the conclusion that the various forms, perhaps a little difficult to make out from poor herbarium specimens can be quite well distinguished into species, and are not really so variable as would at first sight appear.

G. citrifolia, Lindl. Hort. Soc. Trans. VI. 72. *Limonia parviflora*, Bot. Mag. t. 2416. ?*G. simplicifolia*, Spreng. Syst. Veg. IV. 2, p. 162; Miq. Fl. Ind. Bat. I. ii. 521.

A short stiff shrub about 5 feet tall, with thinly coriaceous 1- to 3-foliolate leaves, elliptic lanceolate or oblanceolate, narrowed to the base, shortly blunt apiculate; nerves very fine, nervules nearly as conspicuous, usually distinctly gland-dotted, 4—5 in. to 6 in. long and 1.5 in. wide; petiole 1—2.5 in. long, petiolule .1 in. long. The panicles are axillary and terminal, erect and spike-like about .5 to 2 in. long, the peduncle .1—.75 in. long, but occasionally much longer. The flowers fairly numerous, are sessile or nearly so, .1 in. long. Sepals ovate acute, stiff; petals about twice as long, oblong obtuse. Stamens with linear-subulate filaments and very small anthers elliptic or elliptic lanceolate. Ovary 3—4-lobed, flask-shaped on a small disc, papillose, glabrous. Fruit as big as a pea, pale pink, translucent.

This plant does not appear to be very common in the Malay Peninsula, but I have it from Tanglin in SINGAPORE from the heaths in SETUL, and Kampongs at Kota Bahru, KELANTAN.

It is abundant in HONGKONG, and JAVA, Bandong (*Forbes* 1215): and also occurs in DUTCH BORNEO, Banjarmasin (*Molley* 271), BRITISH NORTH BORNEO (*Fraser*): PHILIPPINES (*Cuming* 1200; *Loher* 215), Manila (*Merrill* 112778).

The form with unifoliolate leaves, has usually stiffer and larger leaves and is probably the *G. lanceolata*, Spreng. It occurs also in French Guyana (*Glycosmis americana*, Sagot) and Jamaica. "According to Dr. Broughton it was introduced into Jamaica from England under the name of Mandarin orange in 1788 by Hinton East, Esq." (note in Herb. Kew). These American forms, undoubtedly both introduced, resemble

the Hongkong plant in having a tomentose inflorescence. The Malayan form is quite glabrous.

G. macrocarpa, Wight, Ill. i. 109.

A tree or shrub quite glabrous. Leaves 1- to 5-foliolate on the same plant, subcoriaceous, the trifoliolate leaflets are lanceolate, distant acuminate, shortly narrowed to the base, 3 in. long, .7 in. wide, petiolule .1 in.; the unifoliolate leaflets elliptic lanceolate, acuminate, base shortly narrowed, 7.5 in. long, 2.7 in. wide, very finely gland-dotted, nerves often distinctly elevate beneath in the larger leaflets, 8 pairs. The flowers white are .2 in. long 2 to 3 on very stout axillary racemes in the only Malay specimen I have seen, in terminal clusters .5 in. long in the Indian type, rachis and calyx scurfy. Sepals short ovate. Petals quite 3 times as long, linear oblong, subacute. Stamens with broad truncate linear filaments and short oblong anthers. Ovary glabrous, cylindric on a moderately large disc. Berry .75 in. long, globose with 2 large plano-convex seeds.

PERAK. At 4500 feet, "a tree, flowers white" (Wray 264). SOUTH INDIA: Courtallum (Wight).

A very distinct plant in its large flowers and very large fruit as big as a cherry. Wight gives it as shrubby, Wray as a tree.

G. malayana, n. sp.

A glabrous shrub, about 6 feet tall, with light green leaves. Buds red tomentose. Leaves 5-foliolate, thin, submembranous, leaflets elliptic, bluntly acuminate, shortly narrowed at the base, nerves 5 pairs impressed above conspicuously elevate beneath, inarching .3 in. within the margin, very finely gland-dotted above, sometimes but not always beneath, 3.5—5.5 in. long, 1—2 in. wide, petiole .5—1 in. long, petiolules .1—2 in. long. Panicles axillary and terminal 2—3 in. long, branches spreading 1 in. long, glabrous, rarely red scurfy. Buds globose. Sepals orbicular ciliate on the edges. Filaments broad, flat. Ovary cylindro-conic, 5-celled, glabrous. Fruit white, globose, narrowed at the base, .2 in. through.

SINGAPORE. Chan Chu Kang (Ridley 3912). JOHORE. Bukit Murdom (Kelsall), and Sedenah (Ridley 13508). SELANGOR. Kuala Lumpur. PERAK. Larut (King's Collector 2035, 2839). PENANG. (Wallich 6373D); Muka Head (Curtis 722); Government Hill (Maingay).

This is our commonest species. The very smooth leaves with strong elevate nerves beneath and very inconspicuous nervules and reticulation beneath are very characteristic points. Frequently they are not at all gland-dotted but in the more northern Perak and Penang specimens conspicuously so.

Kunstler's specimen No. 2035 described as a tree 20—30 feet tall has a tomentose inflorescence. This is unusual though the buds in all specimens are red tomentose. The Penang plants have more distinct nervules and reticulations and are gland-dotted on both sides, and the branchlets are pustular, while the inflorescence is much more copiously branched and compact. In this it approaches *G. sapindoides*, Lindl. In the Kew herbarium specimens have been tentatively named *G. chlorosperma*, Spreng., the description of which is too incomplete to identify any species by, but as the type was obtained in Java where this species does not seem to occur, it is probable that that species is something else.

G. sapindoides, Lindl. in Wall. Cat. 6373; Hook. fil. Fl. Brit. Ind. I. 501, was collected by Wallich in Penang in 1822. The leaves are 5- to 7-foliolate with 11 or 12 pairs of fairly well elevated nerves and conspicuous nervules and reticulations, the branches are pustular, the inflorescence fascicled racemose axillary short and red tomentose, the ovary is rufous tomentose at the base.

The plant collected by Maingay on Government Hill, PENANG, described in his field note as 30 feet high and as thick as a man's thumb, is quite glabrous, and has a terminal inflorescence; so I refer it to *G. malayana*. No one has apparently seen *sapindoides* since Wallich's time.

G. macrophylla, Lindl. Wall. Cat. 6377, not of Miquel.

A shrub 2—3 feet tall. Leaves always simple, thinly coriaceous, elliptic, narrowed slightly at the base, acuminate, frequently not gland-dotted, pale beneath, nerves strongly elevate beneath 10 pairs inarching shortly within the margin, reticulations conspicuous, 8 in. long, 3.5 in. wide, petiole thick .2—1 in. long. Panicles terminal, or 1 axillary in the uppermost leaf axil, 2.5 in. long with very short branches .1 in. long. The flowers very small in umbels at the end of the branches. The sepals ovate not ciliate. The petals short oblong. Ovary conic cylindric, glabrous on a very large disc.

PENANG. (*Wallich* 6377; *Curtis* 89).

var. macrorachis, King.

An erect shrub 2 to 4 feet. Leaves lanceolate acuminate, 13 in. long, 3—7 in. wide, narrowed to the base. Panicle slender elongate, 6 in. long, quite glabrous, base 1 in. wide, floriferous part 6 in., branches distinct .1—.4 in. long with small terminal umbels of flowers at the ends. Fruit round and white.

PENANG. Waterfall and Pulau Butong (*Curtis* 89).

A very distinct plant peculiar apparently to Penang.

G. tomentella, n. sp.

Shrub. Buds red tomentose. Leaves 5-foliolate, rhachis finely tomentose, 4 in. long; leaflets elliptic ovate bluntly acuminate, base rounded, submembranous, nerves 5 pairs elevate beneath, inarching within the margin, 4 in. long, 2 in. wide, terminal one 7 in. long 2.25 in. across, petiolule tomentose .1 in. long. Panicle terminal; peduncle 1.5 in. long, floriferous portion 1.5 in. long, lower branches 1.2 in. long, patent, rhachis scurfy, flowers .1 in. long, sessile in small clusters on the branches. Sepals ovate obtuse. Petals oblong obtuse. Stamens: filaments linear, flat, oblong, anther elliptic. Ovary conoid on a rather large cushion-like disc, glabrous.

SELANGOR. Menuang Gasing, Langat (*Kloss*).

A very distinct plant in its ovate leaflets with rounded bases, and finely scurfy tomentose rhachis, petiolules and inflorescence: a little scurf occurs too on the midrib and back of the leaves generally.

G. crassifolia, n. sp.

Branches stout, woody. Leaves simple, very coriaceous, oblong, elliptic lanceolate, narrowed to the base, bluntly acuminate, gland-dotted above, less conspicuously beneath, nerves fine not elevate inconspicuous, 10 pairs, nervules nearly as conspicuous, reticulations very inconspicuous, 8 in. long, 2.1 in. wide, petiole thick .5 in. Flowers small sessile in very short axillary clusters .1 in. long, very few in the cluster, rhachis and ovate sepals red tomentose. Petals broadly lanceolate blunt, glabrous. Stamens short "connective of anthers with a glandular blunt apiculus." Ovary conoid cylindric, glabrous. "Fruit fleshy."

MALACCA. (*Maingay 3374*).

A very curious plant of which I have only seen a single specimen of Maingay's with one open flower. The coriaceous simple leaves and small flowers in very small axillary clusters distinguish it readily from any other species. Hooker referred it to the var. *longifolia*, Oliv. of *G. pentaphylla*, an Assam plant which I think is distinct though allied.

G. monticola, n. sp.

Shrub glabrous. Leaves 5 in. long, leaflets 5, coriaceous, dotted above, narrow lanceolate, acuminate cuspidate tip blunt, base long, narrowed, cuneate, nerves 6 pairs faint, 3 to 4 in. long, .5 to 1 in. wide, petiolules .1 in. long. Panicle terminal 1 in. long, branches .2 in. long, few flowered. Sepals rounded. Petals ovate. Stamens: filaments very short, anthers apiculate. Pistil cylindric.

MALACCA. Mt. Ophir (*Ridley* 3285).

Distinct in its very narrow elongate, coriaceous leaves, gland-dotted above, finely reticulate beneath ending in a long blunt tipped point and much narrowed to the base.

G. puberula, Lindl. Wall. Cat. 6375; Oliv. l.c. 39; Hook. fil. Fl. Brit. Ind. I. 501.

A small leaved shrub with usually trifoliolate leaves and red tomentose inflorescence and ovary. Fruit as big as a pea, globose, glandular.

PENANG. (*Wallich* 6375 A and B); Government Hill at 500 feet (*Curtis* 88). PERAK. (*Scortechini*). A variety with stiff coriaceous leaves with a broad blunt point, nerves invisible above.

Wallich 6375B is labelled Singap(ore) but it may be doubted if it too did not come from Penang, as it has never again been found so far south.

G. rupestris, Ridl. is allied to *G. puberula*, but its ovary is always glabrous, as is the whole inflorescence.

KEDAH. On Gunong Geriang, Pulau Adang, Rawei Island; PERLIS, on Bukit Lagi, (*Ridley* 15752).

var. tomentosa, n. var. has the inflorescence red hairy though the ovary is glabrous, but glandular.

KEDAH. Lankawi, Pulau Segai (*Ridley* 15566). Pulau Adang (*Ridley* 15844 and 15843) both larger leaved than type. SOUTHERN SIAM. Koh Samui (*Robinson*).

A plant very closely allied to *G. rupestris*, if not identical specifically, was collected at Montalban in the Philippines in the Province of Rizal (*Loher* 6767 and 6774) but the leaves are all unifoliolate.

BURSERACEAE.

Santiria laxa, King. *Canarium laxum*, Benn. -

The female flowers of this tree have not been described. They are distinctly larger than the male flowers, the blunt oblong petals being .3 in. long and are borne on longer slender pedicels, .5 in. or more in length. The stamens (abortive) are as long as the pistil, the anther thick linear and blunt, longer a little than the filament. The ovary is thick oblong and somewhat distinctly 3-lobed. The stigma sessile, large three-lobed, thick and overlapping the ovary.

Icicaster Planchoni, n. gen.

I found the genus *Icicaster* for the plant formerly known

as *Santiria Planchoni*, Benn. Fl. Brit. Ind. I. 536 and Engler, Mon. Phan. IV. 154. *Canarium Planchoni*, King, Mat. Mal. Pen. p. 482.

Planchon named it *Icicopsis* in Herb. Hook., but this generic name was never published and Engler unfortunately used it for certain American plants now reduced to *Icica*. In the Pflanzenfamilien it is put as a section of *Santiria* under the name *Icicopsis*, and *Trigonochlamys* is also put as a section of *Santiria*.

The plant in fruit resembles *Trigonochlamys Griffithii* except for the small calyx lobes but the flowers are small and resemble those of a *Santiria* except that they have but three stamens.

The characters of the genus *Icicaster* may thus be given. A tree with pinnate leaves of 7 to 13 leaflets, unisexual. Panicles axillary, shorter than the leaves. Flowers small crowded near the tips of the branches. Calyx campanulate deeply cleft into 3 ovate triangular lobes, small. Petals 3, slightly larger, deltoid. Stamens three, anthers ovate, filaments shorter, flat, inserted on the edge of a large cupular fleshy disc. Ovary in the female flowers small, ovate, three-lobed. Style terminal, short. Stigma 3-lobed. Drupe ovoid globular, slightly gibbous, style persistent, slightly lateral.

It appears to be not rare in the south of the Peninsula in SINGAPORE, MALACCA and PERAK as far north as Taiping. The fruit is yellow and bead-like.

MELIACEAE.

Amoora malaccensis, n. sp.

Tree, bark of branches wrinkled, young branches red pubescent (when dry). Leaves 9—12 in. long, imparipinnate, rhachis scurfy puberulous; leaflets 11—13, opposite, elliptic or elliptic-lanceolate, acuminate, base cuneate or rounded, slightly inaequilateral, coriaceous, glabrous, smooth, slightly shining above, red brown beneath when dry, nerves about 16 pairs, very fine and inconspicuous, depressed above, faint beneath, 2.1 to 4.25 in. long, .75—1.8 in. wide, petiolules .1—.2 in. long. Panicles axillary 6—8 in. long with ascending branches 1—2 in. or less long, scurfy, pubescent. Flowers male .05 in. long in threes or fours at the ends of the branchlets, sessile. Calyx lobes short, rounded base thick campanulate, pustular. Petals ovate obtuse longer incurved. Stamen-tube nearly as long as the petals, broadly oblong globose, wide open at the top, lobes rounded, short, anthers 6, not exerted. Ovary glabrous, oblong. Fruit globose, 2 in. through, densely minutely velvety tomentose, pericarp very thick, woody.

MALACCA. Ayer Panas (*Goodenough; Ridley 1797*) flowers; (*Maingay 1455*) fruit.

Nearest to *A. lanceolata*, Hiern, but the leaves are thinner, larger and less coriaceous with more distinct nerves, the flowers are smaller and glabrous, the staminal tube has rounded short lobes.

***Aglaia rufibarbis*, Ridl.**

I find that the plant described by me in the Journ. Roy. As. Soc. Str. Branch vol. 54, p. 32, as *Aglaia rufa*, Miq. is not that species but is a distinct and previously undescribed one. I therefore give it the name of *A. rufibarbis*.

***Dysoxylon pulchrum*, n. sp.**

A small tree, glabrous except the flowers. Leaf over a foot long, rachis stout. Leaflets more than 11, alternate, rather distant, coriaceous, oblong, rather abruptly blunt acuminate, base cuneate or broadly rounded, equilateral or very nearly so, midrib stout, prominent beneath, nerves 11 pairs, slender but prominent beneath, 8—9 in. long, 3—3.5 in. across, petiolules .2—.3 in. long, stout. Panicles large over a foot long, branches 8—12 in. long, stout, scurfy, branchlets scattered, 1—2 in. long with short terminal cymes of 1—3 flowers. Pedicels .1 in. long. Flowers nearly .2 in. pure white, buds truncate, oblong. Calyx flat, saucer-shaped with 4 or more irregular lobes. Petals much longer, oblong obtuse, glabrous outside, puberulous inside. Stamen-tube cylindrical, thick pubescent outside, villous inside, mouth nearly entire, anthers included 10. Disc cylindrical, hairy, longer than ovary. Style very stout, glabrous above. Stigma large capitate.

PENANG. At the top of the hill, 1800 feet alt. (*Ridley*) in thick forest.

A beautiful plant which was a mass of white bloom when I collected it in March 1915.

The leaves closely resemble those of *D. thyrsoides*, Griff. but the panicles and flowers are far larger, the petals broader, the stamen-tube quite hairy inside and out.

***Walsura tenuifolia*, n. sp.**

A tree glabrous except the flowers. Leaves 5 in. long; leaflets 5, thin membranous, glaucous beneath, elliptic acuminate acute, base rounded or shortly cuneate, nerves about 8 pairs, elevate beneath, reticulations fine, conspicuous when dry, 2—4 in. long, 1—1.5 in. wide, 1.5 in. apart on the rachis; petiolules .2 in. long. Panicles long, 12—14 in., lax with distant branches 1.5 in. long, glabrous below, scurfy above. Flowers few .2 in. long, pedicels .05 long. Calyx minutely puberulous, short;

lobes acute 5. Petals oblong obtuse puberulous outside, glabrous within. Stamens connate for half their length, pubescent on both sides, filament (free part) linear subulate, anthers small. Ovary cylindric, glabrous. Style stout, shorter than the stamens. Stigma capitate. Disc thick fleshy annular.

PERAK. Kamuning (*Ridley* 3022).

Allied to *W. neurodes*, Hiern. but with much thinner leaves, the stamens much more united, and ovary glabrous.

OLACACEAE.

Gonocaryum crassifolium, n. sp.

Shrub with flexuous branches, glabrous except the inflorescence. Leaves alternate, stiffly coriaceous, ovate acuminate or oblong acuminate, base rounded, midrib above channelled, beneath strongly elevate, almost keeled, yellow, nerves elevate beneath, 5 pairs ascending, rather slender, 7 in. long, 3.5 in. wide, petiole thick rugose .75 in. long, yellow. Spikes 3—4 together in an axil, slender, pubescent, 2—2.2 in. long. Flowers .05 in. long, scattered. Bracts small ovate. Calyx base campanulate, 5-lobed, lobes ovate obtuse, pubescent outside, imbricate. Petals twice as long hardly cohering, glabrous, ovate oblong, apex incurved, fleshy edges thickened, concave. Stamens 5, filaments much shorter than the anther, which is oblong obtuse, red. Disc small annular undulate. Pistillode small, pilose. Female flowers and fruits unknown.

SELANGOR. Sempang mines (*Ridley* 15695).

In foliage this resembles *G. pyriforme*, Scheff. but the flowers are very much smaller and the rhachis and calyx pubescent.

CELASTRACEAE.

Celastrus malayensis, n. sp. *C. Championii*, King, Mat. Mal. Pen. p. 353 (not of Bentham).

A glabrous woody climber with black stem. Leaves usually stiffly coriaceous, elliptic to ovate, acute or acuminate, serrate or nearly entire, base shortly cuneate; nerves 5 to 6 pairs, prominent beneath, 3.5 to 4.5 in. long, 1.5 to 1.7 in. wide, petiole .25—5 in. long. Racemes several from one axil 2 in. long with the flowers in small lax cymes, pedicels .01. Flowers nearly .1 in. across. Calyx very small, obscurely 5-lobed. Petals very small, oblong round-tipped. Fruit on pedicels 2 in. long, three-valved, orange colour, valves ovate .3 in. long and as wide. Seed 1.

PAHANG. Sungei Jelai (*Ridley* 11581); Telom (*Ridley*).

PERAK. Gunong Batu Putih (*Wray*), Maxwell's Hill (*Ridley*).

PENANG. Penang Hill (*Ridley*); Penara Bukit (*Curtis*).

PATANI. Tomoh (*Machado*).

Native name "Akar Surukop."

This plant appears to me to be quite distinct from the Hongkong plant, the flowers of which are larger and in umbellate cymes on the ends of branches, not as in this case in racemes of small cymes. The petals are smaller and narrower, and the fruit smaller, the valves being as long as they are wide.

Microtropis valida, n. sp.

Branches stout. Leaves thickly coriaceous, shining, elliptic, acuminate acute, base cuneate, 3.5 to 6 in. long, 1.5 to 3 in. wide, nerves 6 to 8 pairs, slender, nervules and reticulations equally prominent on both sides, petiole thick grooved .5 in. long. Cymes stout, 3 in. long, peduncle 1.5 in. long, branches .5 in., branchlets .2 in. long. Flowers clustered in threes on the end of each branchlet, .4 in. across, sessile. Sepals 4, imbricate, rounded in two unequal pairs, glabrous, coriaceous with thinner edges, the inner pair the largest. Petals connate below, lobes 4, short, broad, rounded. Stamens 4 inserted on the tube, filaments broad. Pistillode truncate.

PERAK. Hermitage Hill (*Curtis* 1331).

Euonymus rufulus, n. sp.

Small tree with grey rather knotted branches. Leaves opposite, coriaceous, glabrous, elliptic, blunt, acuminate at both ends, base subacute, nerves about 5 pairs, invisible above, obscure beneath, midrib elevate on both sides, 1.5—4 in. long, .5—.75 in. wide; petiole .25 in. long, thick, grooved. Cymes several in an axil, slender, peduncle .4 in. long, pedicels as long, about 3. Flowers dull red, .15 in. across. Sepals orbicular 5. Petals transversely rounded, oblong, minutely denticulate punctate. Stamens 5, very short, filaments subtriangular, flat; anthers transversely oblong; style short.

PAHANG. Gunong Tahan at 5000 ft. alt. (*Robinson and Wray* 5332). Small tree, flowers dull red.

A very distinct species with more coriaceous leaves, and smaller flowers with shorter, broader petals than *E. Wrayi* which is probably its nearest ally.

Salacia rubra, Lawson in Hook. fil., Flora of British India, I. 627.

Of this dubious plant collected formerly by Maingay, who had only fruiting specimens, we have now adequate material, collected in the garden jungle in Singapore by me, (No. 10164 of my collections), so I give a complete description of it.—A climbing shrub with whitish bark. Leaves opposite, elliptic cuspidate, narrowed to the base entire, coriaceous and drying dark brown, nerves 5 to 6 pairs, faint inarching far from the

margin, 3.5 in. long, 2 in. wide, petiole .2 in. long. Flowers .15 in. across in fascicles of 5 or 6, pedicels 2 in. long, slender. Calyx flat, lobes short, blunt, rugose. Petals lanceolate, obtuse, rather fleshy with a keel on the back. Stamens 3 from the top of the disc which is tall and fleshy; filaments short, linear recurved rather broad, anthers rounded, elliptic. Ovary quite immersed in the disc. The fruit about 1 in. through, rugose bright red.

S. verrucosa, Wight Ill. i. 134 (1831). This is identical with *S. polyantha*, Korthals, Flora, XXXI (1848) 379, and is the earlier name. It is a native of Mergui and Borneo and has been collected also at Tongkah, and Lankawi by Curtis.

S. ovalis, Lawson l.c. 627: *S. Lawsonii*, King in the Materials, appears to me to be nothing more than a state of the common *S. flavescens*, Kurz.

S. Lobbii, Lawson, seems to be merely a form of *S. Maingayi*, Lawson.

Salacia Korthalsiana, Miq.; *S. radula*, Hassk. Pl. Jav. p. 231 (not of Don.).

A climbing shrub with rather large alternate coriaceous leaves, oblong with a short blunt point; nerves elevate beneath the 7 pairs, 7 in. long and 2.75 in. wide. Flowers in small cymes at the ends of axillary panicles with rather thick dichotomous branches, 1.5 in. long, including the rather long peduncle. Sepals rounded, 5. Petals oblong, yellow, .1 in. long. Disc rather large and thick. Fruit ovoid blunt, .75 in.

SINGAPORE. Bukit Timah Road at $7\frac{1}{2}$ miles (Hullett 905). Also occurs in Java.

This plant has been omitted by King from the Materials. It does not appear to be common anywhere. The branches are in Javanese specimens especially dotted over with raised lenticels hence the name *S. radula*, but Hullett's plant hardly shows them. The long stalked inflorescence is peculiar, and gives it the appearance of a *Hippocratea*.

Hippocratea nigricaulis, n. sp. *H. macrantha*, King l.c. 357, not of Korthals.

Slender climber 10 to 30 feet long, stem black, rough. Leaves coriaceous, shining, bright green, elliptic, blunt, rounded at the base, crenulate sometimes very slightly, nerves 6 pairs, elevate beneath, 2—5 in. long, 1.3 to 2.75 in. wide, petiole .01 in. long. Panicles 1 in. long, red puberulous. Flowers .3 in. across, pale yellow or greenish yellow. Calyx cupular with broad shallow teeth. Petals triangular lanceolate, minutely puberulous, outside, quite glabrous within. Disc deep fleshy,

glabrous with some minute hairs on the upper part. Fruit elliptic oblong of 2 carpels 3.2 in. long, .75 in. wide, thin woody striate. Seeds 2.25 in. long.

MALACCA. In forests, (*Griffith*). SELANGOR. Rawang Caniphor forest (*Ridley*). PERAK. Larut Hills (*Kunstler* 7570, 5118). PENANG. Government Hill (*Ridley*). BURMAH. ASSAM. Duffla Hills (*King's collector* 83). BENGAL. Chittagong (*Lister*).

This plant was referred by King to *H. macrantha*, Korth. Verh. Nat. Gesch. 187 t. 39 which plant is undoubtedly the same thing as *H. Cumingii*, Laws. Flor. Brit. Ind. I. p. 624. Korthal's figure and a specimen from him in Herb. Kew clearly represent the river-bank plant known as *H. Cumingii*. The black rugosè stem, crenate leaves very variable in size, red pubescent inflorescence, absence of hairs on the petals and larger fruit distinguish *H. nigricaulis*, Korth. readily from the true *H. macrantha*.

H. macrantha, Korth. is not rare in the south of the Malay Peninsula, Borneo and the Philippines. There is a specimen from the Hookerian Herbarium at Kew labelled Ceylon collected by Colonel Walker. It does not seem to have been met with in Ceylon again and the specimen was perhaps from Singapore where also Colonel Walker collected. It occurs on the banks of tidal rivers and is called Akar Bintang by the Malays from its yellow star-shaped flowers.

H. ferruginea, King. An examination of the type plant of *Salacia Griffithii*, Lawson Fl. Brit. Ind. I. 628, shows that this plant collected by Griffith in Malacca is no *Salacia* at all but *Hippocratea ferruginea*, King.

RHAMNACEAE.

Ventilago. The species of this genus have been very much confused in the Flora of British India and in King's Materials for a Flora of the Malay Peninsula, and the whole genus confined to the Indo-Malayan region with outliers in China and Formosa requires revision. The type of the genus is *V. madraspatana*, Gaertn. a native of India as far as Mergui. It has not been met with apparently in Java, for the plants so identified belong to a distinct species. *V. calyculata*, Tul. has much the same distribution, but occurs also in Siam and CochinChina. Its curious yellow fruits covered half way by the cupshaped calyx and entirely pubescent distinguish it readily.

Ventilago leiocarpa, Benth. in Journ. Linn. Soc. V. 77; Fl. Hongkongensis was described shortly from plants from Hongkong collected by Champion, some of Griffith's Malacca plants and

a West African plant collected by Barter. All these separate gatherings belong to distinct species, which merely have in common the covering of the nut half way up by the calyx. It seems probable that Bentham first employed the name *leiocarpa* for the Hongkong plant and for that it had better be kept. It has nearly entire small leaves, branches quite glabrous, flowers in cymes of 3, axillary in the axils of full-sized leaves; the fruit has the nut covered for a quarter of its length only by the cupshaped calyx and its wing is slightly narrowed towards the base and acute at the tip.

V. malaccensis, n. sp. *V. leiocarpa*, Benth. in part. (Malacca specimens).

A big climber, branchlets velvety pubescent. Leaves elliptic acuminate, rather abruptly and bluntly, base shortly narrowed; edge bluntly serrate, 2.5 to 3.5 in. long, 1.25 to 2 in. wide, thinly coriaceous, drying dark brown, nerves 4—8 pairs, prominent beneath, faint and sunk above, petiole pubescent thick grooved .2 in. long. Flowers in compact axillary cymes of about 12 or more, and about .15 across on slender pubescent branches with small leaves about 1 in. long soon caducous so that the branches eventually appear as panicles often over 6 in. long. Bracts ovate acute, pubescent, pedicels .1 in. long, glabrous. Buds flattened at top, bluntly 4-angled, glabrous. Calyx campanulate, lobes 5, triangular acute, glabrous with a keel on the inner face near the tip. Petals much smaller, spatulate bilobed, lobes rounded. Stamens a little longer, filament slender, anthers small. Ovary immersed in disc, hairy. Styles 2. Nut globose, covered half way by the calyx, .2 in., wing oblong linear blunt, glabrous, not narrowed at the base, 2 in. long, .3 in. wide.

SINGAPORE. (*Cantley* 190). MALACCA. (*Maingay* 1669, 1148, 406, 408, 1670; *Griffith*). PERAK. Larut (*Kunstler* 3461, 7644), Batang Padang district (*Kunstler* 7750). PENANG. Chalet (*Curtis*). BORNEO. Rejang (*Haviland* 2863).

There is a considerable amount of variation in specimens as to size of leaves, amount of serrulation and development of panicle. Some specimens have small but well developed leaves on the slender branches which bear the flowers, but these are never as large as the stem-leaves and appear to fall off very soon. In many specimens I see no trace of these leaves, so that the whole inflorescence forms a panicle with numerous branches bearing the small scattered cymes. Occasionally the branchlets appear to be glabrous.

V. gracilis, Rolfe and Merrill, is apparently closely allied but the flowers are pubescent. I am very doubtful about *V. lucens*, Miq. of Sumatra. The description is hardly adequate and the only specimen I have seen in Herb. Kew has rather

stiffy coriaceous leaves not narrowed to the petiole but with a short rounded point like a small form of *V. Maingayi*.

V. gladiata, Pierre, Fl. Forest. Cochinch. t. 314, C.

Leaves lanceolate acuminate, narrowed to the base, membranous, minutely serrulate and minutely pustulate on the back, nerves 6 pairs, slender elevate beneath, transverse nervules not seen, 2.6—3 in. long, 1—1.1 in. wide, petiole .15 all glabrous. Inflorescence axillary racemes the cymes very small and few flowered, rhachis puberulous. Flowers unknown. Fruit glabrous, pedicel .1 in. long, nut .2 in. globose enclosed in the calyx cup for $\frac{3}{4}$ its length, wing lanceolate narrowed to the base and acute at the tip, 2.5 in. long, .4 in. wide.

PERAK. Süngei Larut (Wray 2276).

Distrib. Cambodia.

V. oblongifolia, Bl. Bijdr. 1144; Miq. Fl. Ind. Bat. I. i. 640. *Smythea macrocarpa*, var. *pubescens*, King.

A stout liane with membranous lanceolate acuminate acute leaves, base rounded serrate, glabrous on both sides or tomentose beneath, nerves 7 to 9 pairs, strongly elevate beneath, 4 to 4.5 in. long, 1.5 to 1.75 in. wide; petiole .1 in. or less. Inflorescence axillary or terminal, rhachis rather stout, tomentose; branches 4 in. long with distant cymes of several flowers. Fruit glabrous, nut .2 in. long, ovoid; calyx not enclosing it; wing linear oblong obtuse twisted at the base 3.1 in. long, .5 in. wide.

SELANGOR. Batu Caves (Ridley 13349). PERAK. Waterfall hill (Wray 2211, *Scortechini*).

Distrib. Java and Philippines.

Smythea pacifica, Seem. Bonplandia, 1861. 255. *Sm. reticulata*, King, Mat. l.c. 381. *Berchemia trichantha*, Miq. Fl. Ind. Bat. Supp. 331.

This plant seems to be distributed over the sea shores from the South of the Peninsula, from SINGAPORE, Serangoon (Ridley 9151), Bajau (3592a), Toas (6379), JOHORE, Scudai river (12211), Tana Runto (1917) to PENANG, Pulau Jerajak (Curtis 2424) and also Pulau Sangian. BORNEO, TIMORLAUT, ARU, NEW GUINEA and PHILIPPINES to the FIJI ISLANDS.

AMPELIDACEAE.

Vitis pyrrodasys, n. comb. *Cissus pyrrodasys*, Miq. Fl. Ind. Bat. Suppl. 517 is in King's Materials, put as a synonym of *V. adnata*, Wall. Cat. It seems to be abundantly distinct in its dense red tomentum covering the stem and the backs of

the leaves, *V. adnata*, Wall. having only a thin rusty pubescence in place of it. I have not seen it from the Malay Peninsula.

V. glaberrima, Wall. in Roxb. Fl. Ind. (ed. Carey II. 476) is given as a synonym of *V. hastata*, Miq. by King on the ground that Wallich distributed a mixture of this and another species which he described as *V. cerasiformis*, Teysm. var. *Wallichii* and that the description agrees with *V. hastata*, Miq. Carefully reading the description however I find that it does not apply at all to the latter species but it is a good description of the plant King describes as *V. cerasiformis* var. *Wallichii*. It seems to be a very distinct species and not very common. The fruit is by no means large.

V. hastata, Miq. is a common and conspicuous plant in Singapore, and occurs in Pahang at Pekan, in Malacca, Selangor, Province Wellesley, Perak and Lankawi, also in Sumatra and Borneo. It is easily recognised by its square-winged stem, almost white and succulent, and bright red tendrils. The flowers in moderately large cymes with red tinted peduncles, have a cup-shaped entire calyx of a pale green. The petals are oblong thick and shoe-shaped, excavate, reddish outside with a darker red spot at the tip, widely expanded in flower. The filaments narrowed upwards are green, anthers short, oblong, yellowish edged red. The disc is flat, rather thick with wavy margins, orange colour. The ovary immersed in it is pale green, the style stout and shorter than the stamens with a capitate yellow stigma. The flowers have a faint scent of cowslips. The fruit small and black. The glaucous stems and red tendrils with the red tinted flowers give it quite a pleasing appearance.

Vitis (Tetrastigma) Curtisii, n. sp.

Stem smooth, black, terete. Leaves trifoliate; leaflets coriaceous, glabrous, entire, obovate cuspidate, narrowed to the base, nerves about 8 pairs, nervules and reticulations as prominent, 2.5 to 3.6 in. long, 1.3 to 1.9 in. wide, petiolules .2 in. long, median one .4. Petiole .5 in. Cymes numerous .3 in. long, graceful, spreading, compound, puberulous. Flowers .1 in. long, pedicels as long. Calyx very short, cup-shaped. Petals oblong, apex incurved fleshy, 4. Stamens shorter; filaments broad linear. Ovary globose, free. Stigma large, conic, lobed.

PENANG. Government Hill, close to Gun Hill (*Curtis* 3363).

Vitis polystachya, Wall. Cat. 6028.

King and Planchon both say "in part;" but the type is a single specimen from herb. Pinlayson. *V. nitida*, Lawson

from Penang is the same. *V. polythyrsa*, Miq. a much more slender plant does not occur in the Malay Peninsula at all; nor does *V. thyrsoflora*, Miq. which resembles *V. polystachya*, but is very thickly tomentose instead of being nearly glabrous beneath the leaves. All the specimens put under these two species quoted by King, which I have seen, are *V. polystachya*, Wall.

V. *capillaris*, n. sp.

Slender vine; stem arachnoid hairy. Leaves compound, petiole 1.75 long, base thickened and red hairy, leaflets membranous, central one elliptic lanceolate rather abruptly narrowed to a broad or acute mucronate point 2.5 in. long, 1 in. wide, petiolule short red hairy, lateral petiolules .3 in. long, blade hairy trifoliate, uppermost leaflet biggest, lanceolate acuminate, laterals oblique narrowed to base, sparsely toothed on the outer edge, nerves 3—4 pairs, slender, hairy beneath, .5—1.5 in. long, .4—.9 in. wide. Peduncle 4 in. long, slender pubescent, panicle 2.75 in. long, branches .5 in. long or less, all pubescent, lower ones branched again. Flowers distichous, .05 in. sessile. Calyx cup-shaped, obscurely 4-toothed, glabrous. Petals 4, oblong. Ovary conic, style conic, stout.

BORNEO. Sarawak (*Beccari*, 748).

Nearest to *V. polythyrsa*, Miq. but much more slender, much less hairy, leaves thinner, leaflets fewer-nerved and toothed and more oblique.

V. *pterisanthella*, n. sp.

A slender vine nearly completely glabrous except the inflorescence. Leaves trifoliate, membranous, petiole 1.2—2 in. long, leaflets thin, elliptic acuminate nearly entire with about three short obscure teeth towards the apex, narrowed at the base, median elliptic lanceolate, laterals with an oblique rounded base, nerves very fine and inconspicuous, 6 pairs, median 2.75—4 in. long, 1.2—2 in. wide; petiolule .4—.6 in. long; laterals smaller; petiolule .2, a few red hairs at the base of the petiolules. Inflorescence very slender, 3.5 in. long, peduncle nearly 3, bearing a slender tendril 1.5 in. long and sometimes twining itself. Spikes few, about 7, .4 in. long, pubescent, rhachis at base flattened broadly and narrowed to tip. Flowers distichous, pubescent, .05 in. long, sessile. Calyx lobes ovate, subacute. Petals 4, much larger, puberulous outside. Stamens 4, anthers large, oblong, filaments short. Ovary subglobose with a thick conic style, glabrous.

BORNEO. Sarawak; Siul (*Ridley*).

I collected this very curious vine in September 1905 in the forests on the Siul Hill near Kuching. It seems most nearly allied to *V. capillaris*, Ridl., but is very peculiar in the

rhachis of the branches of the inflorescence being flattened as in *Pterisanthes* and the flowers distichous on the edge. It has the peduncular tendril of *Pterisanthes* which however occurs also in species of *Ampelocissus* and on the whole seems a connecting link between *Pterisanthes* and *Ampelocissus*.

***Pterisanthes Dalhousiae*, Planch.**

This species was described by Planchon from a specimen from "Indes Orientales? Lady Dalhousie in herb. Delessert ex herb. Graham 1846." As no species of the genus has been met with except in the Malay Peninsula and Archipelago it is as he suggests improbable that it came from India. The description given is very short but it applies very fairly well to a plant collected by Mr. Curtis in Penang except that the leaves are smaller. Planchon gives no measurements of his specimen unfortunately, but says that they are much smaller than those of *P. cissoïdes*, "3—4 cent. de long sur $\frac{1}{2}$ —1 cent. de large."

I do not quite understand the passage. In the herbarium of Kew is a coloured drawing of a plant evidently this, of unknown origin from "Prince of Wales Island." Lady Dalhousie we know did collect in Penang.

***Leea saxatilis*, n. sp.**

A low herbaceous plant. Leaves pinnate, petiole 18 in. long to 3 feet, smooth, red, leafy portion 12 in. or more, rhachis when young sparsely hairy, leaflets 9, oblong lanceolate acuminate with a long acute point, base rounded slightly oblique, terminal one larger narrowed to base, serrate or biserrate, submembranous above, glabrous with an elevate midrib beneath, the nerves 12—13 pairs elevate slender hairy tomentose, nervules and reticulations conspicuous, 4—7 in. long, 2 in. wide; terminal one 7 in. long, 2.6 in. wide; petiolules lowest .6 in., median .4, terminal 1 in. long. Flowers in a dense capitulum .75 in. through on a peduncle hairy .5 to 1.5 in. long, dull red, small globose. Bracts ovate acuminate hairy. Calyx thin, 5-lobed mucronate hairy. Petals as long, oblong obtuse, glabrous, calyptrate. Stamens with filaments long, anthers large oblong, urceolus with blunt rounded lobes. Fruit dull red, dry elliptic, depressed, .3 in. across, 5-lobed on a peduncle 3 in. long and a cyme of 1 in.

SELANGOR. On limestone rocks at the base of the Batu caves, (*Ridley* 305, 8260); also PAHANG on the Tahan river and at Kuala Dipang in PERAK and Lankawi (KEDAH).

SAPINDACEAE.

***Allophyllus scandens*, n. sp.**

A woody climbing shrub with cinnamon brown bark densely covered with paler lenticels, glabrous except the very

young parts and inflorescence which are puberulous. Leaves trifoliolate, petiole thick 1.75 in. long, leaflets coriaceous, obovate, narrowed to the base, apex shortly blunt acuminate, entire, nerves about 8—10 pairs conspicuous though slender beneath, midrib moderately stout, 4—6 in. long, 2—3 in. wide, the median leaflets biggest, petiolules .2—3 in. long. Inflorescence extra-axillary, peduncle 1—1.5 in. long, stout, deciduously puberulous, racemes usually 2 (occasionally only one, rarely 3) widely divaricate 1—1.5 in. long, usually unequal, rhachis pubescent. Flowers numerous, crowded small on pedicels longer than themselves, glabrous. Bracts minute, acuminate. Sepals glabrous, suborbicular, imbricate. Petals shorter, claw and bifid limb glabrous, scale silky. Fruit unknown.

SINGAPORE. Bukit Panjang, climbing on trees in swampy forest (*Ridley*). BORNEO. Mt. Gading, Lundu (*Haviland* 987), Baram (*Hose* 123).

In spite of the number of species of *Allophyllus* described more or less insufficiently by Blume and Radlkofer I can find no description of any species that fits this; but it seems to be nearest to *A. timorensis*, Bl.

ANACARDIACEAE.

Gluta virosa, n. sp.

A large branching tree 50 to 70 ft. tall. Leaves coriaceous lanceolate 9 in. long, 2.75 in. wide, acuminate at both ends blunt, nerves about 18 pairs slightly raised beneath, reticulations small fine conspicuous; petiole 2 in. long. Panicles in the terminal axils short. Calyx tube red spathaceous, .2 in. long, split on one side. Petals twice as long, linear oblong, white. Ovary pubescent. Fruit obovoid, smooth, light brown, fleshy, 2.5 in. to 4 or 5 in. long.

SELANGOR. Rantau Panjang (*Ridley*). PERAK. Gunung Pondok (*Kunstler*). PENANG. Telok Bahang (*Curtis* 3005), and Penara Bukit (*Curtis* 1527), Moniots Road (*Ridley*).

Native name "Rengas Kerbau Jalang," *i.e.* Buffalo on the warpath, on account of its poisonous character.

I have seen no good flowers of this plant though it does not seem to be rare. Some of the specimens I at first thought were *Gl. Wrayi*, King, but having seen good specimens of that species at Kew, I am now sure it is a distinct species. Malay collectors are very shy of gathering specimens of any of the Rengas plants, *Gluta* and *Melanorrhæa*, as they are apt to be poisoned by them.

LEGUMINOSAE.

Bauhinia monticola, n. sp.

A slender glabrescent climber. Leaves ovate deltoid, tip acuminate very shortly bifid or entire, coriaceous glabrous, nerves 7, 2—2.5 in. long, 1.5—2 in. wide, petiole 1 in. long. Racemes short 1—2 in. long lax glabrous or nearly so. Pedicels long slender 1.5 in. long sparsely hairy. Bracts minute caducous. Buds ovoid. Calyx tube cylindric .4 in. long red, appressed hairy; lobes ovate .3 in. long hairy. Petals oblong obtuse, conspicuously veined when dry, sparsely hairy on the back, claw .1 in. long, blade .7 in. long, .5 in. wide. Stamens very short hairy at base. Ovary stalked, cylindric red-hairy on the sutures, .2 in. long. Style almost half as long, hairy on the upper edge. Stigma large peltate.

SELANGOR. Gunong Menkuang at 5000 ft. (*Robinson*).
PERAK. Gunong Kerbau, 4500—5500 ft. (*Robinson*).

This plant is certainly allied to *B. Kingii*, Prain, for which I at first mistook it and to *B. cornifolia*, Bak. but it has much larger flowers than either of these species. The flowers are apparently red. It belongs to the big set of showy Bauhinias which with their masses of yellow flowers turning red, make such a magnificent show in our forests, a group very characteristic of the Malay Peninsula for few of them seem to occur elsewhere.

Bauhinia holosericea, n. sp.

A big climber, branches, petioles and inflorescence densely red velvety. Leaves coriaceous, orbicular cordate, entire or retuse at the tip, nerves 7 or 9 elevated beneath, glabrous above, densely red velvety beneath on the nerves and reticulations, less so on the rest of the surface, 2—2.5 in. long, 2.4—3 in. wide, petiole 1.25 in. long. Panicles of a few stout axillary and terminal racemes from 2.5 lengthening to 5 in. long, the branches with numerous distinct elevated scars where the flowers have fallen, densely red, velvety. Bracts lanceolate acuminate, .1 in. long. Pedicels slender .6 in. long. Buds ovate acute with a shorter tube. Calyx tube cylindric, dilate at base, .2 in. long, lobes oblong 2 in. long, hairy. Petals oblong, rather short clawed, very red hairy .35 in. long, .2 in. wide, apparently red. Stamens fertile, 3, glabrous. Ovary hairy all over. Style about as long, slender, glabrous. Stigma peltate. Pod woody, firm, .8 in. long, 2.5 in. wide, oblong blunt, slightly narrowed at the tip. Seeds flat orbicular 1.1 in. long.

PERAK. Forests at Temengoh (*Ridley* 14674).

This also belongs to the same group as the last, but seems distinct from any species in its very velvety stem, round leaves, and thick velvety racemes of which the rhachis is rough with

the short processes from the base of the pedicel scars. The panicles are mostly really reduced to simple racemes, but occasionally have one or two branches.

Crudia lanceolata, n. sp.

A glabrous tree. Leaves with a rachis 1.5 in. long; leaflets 3, subcoriaceous lanceolate or ovate acuminate obtuse, base rounded, quite glabrous, nerves fine 7 pairs, reticulations conspicuous beneath, drying grey 3.5—5.75 in. long, 1.5 in. wide, petiole .1 in. long thick. Raceme about 6 in. long, fairly stout, puberulous. Flowers distant, .3 in. across, on pedicels .3 in. long puberulous. Calyx tube short puberulous, lobes oblong reflexed puberulous outside, glabrous inside. Stamens glabrous. Ovary dense pale, woolly, stalk very short.

KEDAH. Lankawi; Gunong Rayah, (*Mohamed Haniff*).

This is allied to *C. gracilis*, Prain, but the leaves are lanceolate. The sepals, pedicels and rachis are pubescent, and the flowers are distinctly pedicelled.

ROSACEAE.

Parastemon spicatum, n. sp.

A glabrous shrub. Leaves coriaceous, elliptic, abrupt caudate acuminate, blunt, base long narrowed, nerves 6 pairs, 2.5 to 2.75 in. long, 1 in. wide, petiole .15 in. long. Spike axillary 3.5 in. long shortly peduncled with many very small sessile flowers. Bracts linear oblong. Calyx tube short campanulate, interior pubescent. Petals 0. Stamens 2 glabrous, from the edge of the tube.

BORNEO. Sarawak, Rejang, Sibn, (*Haviland* and *C. Hose* 3240); and 2 miles from Kuching (*Haviland* 723).

This species differs from the only other one, *P. urophyllum*, in its being a shrub, (whereas the other is a large stout tree) and in its flowers being sessile.

Parinarium rubiginosum, n. sp. *P. costatum* var. *rubiginosum*, Ridl. in Journ. F. M. S. Mus. iv. 143.

A tree about 20 ft. tall, the branches rather thick and when young covered with velvety yellowish tomentum. Leaves stiffly coriaceous, ovate lanceolate, acuminate, base rounded, glabrous above, beneath pale reddish, woolly, nerves strongly elevated about 20 pairs, midrib strong beneath, depressed slightly above, 3.5—4 in. long, 1.25—1.75 in. wide, petiole red-woolly .2 in. long. Panicles .5 in. long densely red woolly. Flowers few hardly .2 in. long. Bracts ovate acute woolly and hairy on the back. Calyx tube funnel-shaped deep woolly red outside, densely villous with long hairs inside, teeth ovate acute. Petals a little longer white oblanceolate rounded, edges pubes-

cent. Stamens much shorter than sepals glabrous. Style very short with the ovary densely villous. Stigma discoid.

PAHANG. Gunong Tahan in woods across the Teku (*Ridley*).

The indumentum and short racemes and more coriaceous leaves are so different in this plant from those of true *P. costatum* that I consider it advisable to separate it specifically, though it is certainly allied to that species.

Pygeum coriifolium, n. sp.

Small tree, leaves coriaceous elliptic shortly blunt and acuminate, base very shortly narrowed, glabrous, nerves invisible above prominent beneath distant 5 pairs, midrib very prominent, reticulations invisible, 6 in. long 3.5 in. wide, petiole 5 in. long. Racemes solitary axillary .5 in. long, pedicels very short, puberulous. Calyx tube campanulate, pubescent, lobes 6 unequal, ovate acute pubescent, inside of tube glabrous. Petals 0. Stamens with filaments long, rather thick, 20. Style stout, shorter. Stigma clubbed, flattened, ovary short, globose, hairy.

PERAK. Temengoh and Kertai rivers; in forests (*Ridley*).

Allied to *P. parviflorum*, Teysm. but the leaves are larger and rather more fleshy, with distant and fewer nerves. The raceme is almost a spike, solitary, very short.

SAXIFRAGACEAE.

Polyosma grandis, n. sp.

A tree 40 to 50 feet tall with spreading branches. Stem 1.5—2 ft. through. Leaves membranous drying black, ovate elliptic, cuspidate, acuminate, base cuneate, margins denticulate, glabrous except the midrib and prominent 12 pairs of nerves beneath, secondary nerves nearly as prominent 6—7 in. long, 3—4 in. wide, petiole stout .5 long, flattened, pubescent. Raceme 6 in. long, peduncle 1 in. long, flattened, pubescent. Buds narrow cylindric blunt, pedicels .1 in. long, pubescent. Calyx-tube cylindric, lobes broad, ovate, acute as long as the tube. Petals subglabrous, narrow, linear, sparsely villous inside. Stamens shorter, filaments villous.

PERAK. Larut Hills at 3500 to 4000 ft. (*Kunstler* 3802). Flowers white, base greenish.

This plant was referred by King to *P. integrifolia*, Bl. but is clearly very distinct from that species and is most closely allied to *P. ilicifolia*, Bl. but from this it differs in its large size and very large ovate elliptic leaves and thick petals.

Polyosma conocarpa, n. sp. *P. mutabilis*, King in part.

Tree 20—30 feet tall, young parts appressed, hairy. Leaves membranous, elliptic lanceolate, acuminate, long narrowed to base, quite entire, glabrous, nerves about 8 pairs, conspicuous beneath inarching well within the margin, 3.5—6 in. long 1.25—2 in. wide, petiole .2 in. long appressed and hairy when young. Raceme 5 in. long appressed hairy. Flowers white, scattered or in little groups; pedicels .1 in. in fruit .2 in. Calyx tube campanulate, hairy, teeth very small, subacute. Petals linear .2 in. long sparsely hairy outside, villous inside. Stamens nearly as long. Fruit conoid, truncate strongly 4-ribbed when dry, .25 in. across at base, narrowing upwards.

SINGAPORE. (Wallich 8472). PERAK. Larut Hills (Kunstler), Birch's Hill (Wray). KEDAH. Lankawi, Gunong Raya (Mohamed Haniff). SUMATRA. Padang at Ayer Mantjur (Beccari 524). Forests up to 1000 ft. Flowers scented like privet.

This is quite different from Blume's *P. mutabilis* of Java in the fruit, which resembles that of *P. velutina*, Bl. as figured in Koorder's and Valenton's Boomsorten.

P. glaucescens, n. sp.

A small tree 20—30 feet tall, or shrub. Leaves elliptic to lanceolate acute, base narrowed, thick, coriaceous, glabrous beneath, nerves very obscure 3—3.5 in. long, 1.75 to 1.5 in. wide, petiole 1 in. long. Raceme pubescent 2.5—3 in. long. Flowers crowded .2 in. long. Buds oblong, dilate at base. Calyx very short funnel-shaped, lobes acute spreading, pubescent. Petals oblong, blunt, sparsely strigose outside, densely villous at tip inside. Stamens shorter.

PAHANG. Gunong Tahan (Robinson 5388, 5493; Ridley 16260): on the Padang and on Skeat's ridge (Ridley 16018, 16019).

I originally referred this to varieties *intermedia* and *lanceolata* of King's *P. coriacea*, but on closely examining it conclude it to be specifically distinct not only in the foliage, the leaves being thicker with very inconspicuous nerves, and usually glaucous beneath, but with shorter, broader flowers less pubescent and dilate at the base. The leaves vary in form somewhat, perhaps according to the amount of exposure on these rocky ridges and growth of the plant.

P. fragrans, Bemm. Pl. Jav. Rar. 196; *Itea fragrans*, Wall. 8472.

The only plants of this I have seen are those collected by Wallich in SINGAPORE (mixed unfortunately with *P. Wallichii* from Khasia distributed under the next number in many distributions by accident) and one which appears the same collected in PERAK without locality by Scortechini. In Havi-

land's SARAWAK collections are two plants I take to be this, though the flowers are rather smaller .15 in. long. Dr. Haviland notes "Ovary 2-celled, 3 in one case, several ovuled."

They were obtained at Kuching (*Haviland* 944 and 1886).

Polyosma velutina, Bl. Mus. Bot. Lugd. Bat. I. 261.

To this species King refers a plant which occurs in PERAK at Goping and in Larut (*Kunstler*), the DINDINGS, Bruas (*Ridley*) and in PENANG on Penang Hill and at Balik Pulau (*Curtis* 1165) with bright yellowish green leaves, like those of *P. laetevirens*. He had not seen specimens of Blume's plant, nor have I seen types of Blume's plant. But I have not seen anything like King's species from Java; and the plant identified with *P. velutina*, Bl. by Koorders and Valetton (*Boomsorten* Pl. 195) and distributed as this plant No. 24404b is entirely different, and belongs to the section of *Polyosma* with membranous and black drying leaves. I conclude therefore that King's *P. velutina* cannot be Blume's plant and give the name of *P. flavovirens* to it. Blume's description of *P. velutina* is short; but the only species I have seen from Java with velvety leaves is the above mentioned plant from Koorders' collections and one from Zollinger No. 886: and these agree with Blume's description as far as it goes. It has membranous black drying leaves densely fuscous velvety beneath and curiously angled branches. The fruit is ovoid and .2 in. long in these specimens. Specimens collected at Kuching in SARAWAK by Haviland (No. 2914) seem identical.

Polyosma fasciculata, n. sp.

Leaves sub-coriaceous, elliptic sparsely toothed along the edge, base blunt and shortly narrowed, tip subacute, quite glabrous, nerves 6 to 10 pairs branched at the tip, rather obscure and not elevate, 4—6 in. long thick. Spikes rather slender 6 in. long puberulous. Flowers numerous, .4 in. long, sessile, fascicled in groups of 2—4 or 5. Buds cylindric blunt very sparsely puberulous. Bracts hairy acute. Calyx tube very short sub-companulate, lobes ovate acute spreading. Petals rather broad in proportion to length, sparsely villous inside. Stamens a little shorter.

KEDAH. Gunong Jerai (*Ridley* 5219).

King refers this dubiously to *P. coriacea*, King, but it seems to me in its small very sparsely hairy flowers much more nearly allied to *P. Scortechinii* a very little known plant which has however quite entire leaves and distinct pedicels to the flowers. The flowers in this species are not evenly scattered over the rachis, but clustered together in small lots.

***Polyosma pisocarpa*, n. sp.**

Stem pale not angled; young parts velvety hairy. Leaves stiffly coriaceous elliptic, acute or obovate blunt, nerves fine about 12 pairs very irregular faint on both sides, glabrous except at first the midrib slightly hairy, 3—4 in. long, 1.5—1.75 in. wide, petiole .5 in. long rather stout sometimes pubescent. Raceme 6—7 in. long dense many flowered pubescent. Flowers green, pedicels stout much longer than calyx, hairy. Calyx tube campanulate, lobes triangular acute. Petals .35 in. long sparingly pubescent linear subacute villous inside. Stamens distinctly shorter. Style very slender. Fruit pea-shaped globose, .2 in. long, glabrous "blue" on pedicels slender, glabrous, .2 in. long. Seed smooth globular.

BORNEO. Sarawak at Kuching and between it and Santubong (*Haviland*, 2911, 2912, 2913, 1464, 1988).

This species in nearest *P. coriacea*, King, but it has longer flowers on longer pedicels. The small pea-shaped blue fruit is peculiar. The raceme long and dense. The leaves as *Haviland* points out are of two forms, in one lanceolate and acuminate, in the other obovate and retuse, but there are more or less intermediate forms on the different specimens and in other respects the plants are the same.

HAMAMELIDACEAE.***Rhodoleia ovalifolia*, n. sp.**

A big shrub up to 10 feet tall with thick branches, the young parts densely red-hairy. Leaves, young lanceolate acute base acuminate, older 4 to 6 in. long 1.5 to 2 in. wide, rigidly coriaceous ovate with a rounded subcordate base, apex acute, at first red-scurfy beneath later becoming white-glaucous, nerves strongly elevate 6—8 pairs with some of the secondary nerves nearly as strongly elevate both nerves and reticulations depressed on the upper surface, 4—4.5 in. long, 2.5 in. wide, petiole at first densely velvety, later glabrous. Capitula solitary but often numerous axillary on the ends of the branches, one inch across. Peduncles thick decurved red, hairy. Bracts rounded, red, velvety, much larger than in *R. Teysmanni*. Petals narrow linear spatulate round at tip, .5 in. long, .1 in. wide, shorter than the stamens. Filaments .75 in. long, anthers oblong. Capsule .5 in. long, densely red-hairy.

PAHANG. Gunong Tahan (*Robinson, Ridley*).

This is the third described species of the genus. One species *Rhodoleia Championi* of Hongkong, a shrub, has flowers as large as this, but the petals are much broader, and the plant is much more glabrous. *R. Teysmanni* of Sumatra and of the mountains of the Malay Peninsula is a tree. It is

nearly glabrous, and the leaves are all lanceolate or oblong, capitula smaller, and fruit smaller all glabrous except a little pubescence on the bracts. *R. ovalifolia* is remarkable for the dense red velvety hair covering the shoots, peduncles, bracts and fruit. The leaves in Robinson's flowering specimens are much the shape of those of *R. Teysmanni* but more acuminate the nerves hardly more visible, but the midrib is red-scurfy. In the fruiting plants the leaves are quite different; they are remarkably coriaceous with the nerves depressed above and strongly elevate beneath. At first these leaves are red beneath with a deciduous red scurf; but this at last disappears and the leaves appear nearly white beneath. There is a certain amount of variation in the leaves of *R. Teysmanni* but nothing at all like this. The capitula densely red-hairy, are as big as those of *R. Championi* or nearly so but the petals are quite as narrow as those of *R. Teysmanni*.

SAMYDACEAE.

Casearia albicans, Wall.

There has been a considerable amount of confusion about this species which requires clearing up. In Wallich's Herbarium are three sheets of plants under the number 3197, labelled 3197, 3197.2, 3197.3. The only one labelled *C. albicans* is 3197.3 from Penang; and it appears to be *C. esculenta*, Roxb. No. 3197.2 from Singapore is in fruit, and seems also to be *C. esculenta*, No. 3197.3 from Penang, is identical with another plant No. 7432; and this is probably the plant described by King as *C. albicans*, Wallich. It has no name in Wallich's Herbarium, and is not the same as the plant so named by Wallich. It, therefore, being a distinct plant, requires a name. I call it *C. latifolia*. I have collected the plant myself on the side of the track to West Hill in Penang. What Clarke called *C. albicans* in the Flora of British India, King has already altered to *C. Clarkei*. No specimens of it occur at all in Wallich's Herbarium.

Casearia velutinosa, n. sp.

A shrub. Branches velvety, flexuous. Leaves thinly coriaceous, oblong to ovate, abruptly acuminate, base rounded or shortly narrowed, nerves 12 pairs ascending prominent beneath and depressed above, glabrous above, soft, tomentose beneath, 6—10 in. long, 3—4 in. wide, petiole tomentose .2 in. long. Glomeruli .15 in. across. Flowers .1 in. wide. Sepals 5, imbricate, pubescent, suborbicular oblong, hairy outside. Petals 0. Stamens 10, glabrous, anthers small, forming a tube with the spatulate oblong hairy staminodes. Ovary conic, glabrous. Stigma large, capitate.

PERAK. Gunong Keledang (*Ridley*). DINDINGS. Lumut and Bruas (*Ridley*).

Allied to *C. latifolia*, Ridl., but differing in the very tomentose branches, backs of leaves and petioles.

Homalium spathulatum, n. sp.

A glabrous tree. Leaves thinly coriaceous, elliptic acuminate, tip blunt, base narrowed, entire or undulate on the edge; nerves about 7 pairs, very fine and rather obscure, as are the reticulations, shining, 4 in. long, 1.5 in. wide; petiole .2 in. long. Racemes axillary, simple, 3 in. long, tomentose, slender. Flowers numerous, not clustered, subsessile .2 in. across. Calyx-tube funnel-shaped, tomentose .1 in. long; lobes very narrow linear, 10, edged with long white hairs. Petals 10, a little longer, linear spathulate. Stamens shorter, 2 opposite each petal. Glands villous. Styles 3, glabrous.

DINDINGS. Pangkor (*Curtis* 1370).

This differs from *H. myrianthum*, Bak. in Kew Bull. 1896, p. 23, of Sandakan in the paniced racemes, funnel-shaped calyx and nearly sessile flowers.

BEGONIACEAE.

Begonia phoeniogramma, n. sp. *B. paupercula*, Ridl. in Journ. Roy. As. Soc. Straits Branch, 54, p. 42, not of King.

This little plant I find, on seeing the co-type of King's *B. paupercula* in Herb. Kew, is not the species he intended, I therefore give it the above name which refers to the red stripes on the small flowers. It was formerly very common on the path leading up to the Batu Caves, Selangor; but at my last visit I noticed that it had become scarce owing to a series of steps having been made up the slope where it grew. I have seen it nowhere else.

Begonia tricornis, n. sp. *B. Roxburghii*, Ridl. in Journ. Fed. Malay States Mus. iv. 20, not of DC. This plant is really more near allied to *B. inflata*, Clarke, of the Himalayas, but is distinct from all species of the section. It is the only one in the Malay Peninsula of the section *Casparya*, (with pulpy 3-angled not winged green fruit).

Begonia longicaulis, n. sp.

Stem elongated, red, with internodes 2.5 in. long, glabrous. Leaves ovate cuspidate, base deeply cordate, very unequal, 3 in. long, 2.5 in. wide; petiole 4—6 in. long. Stipules persistent, oblong with a terminal setiform process, 1.1 in. long, .2 in. wide. Peduncle 6 in. long, with 2 terminal flowers on

peduncles 1 in. long. Flowers pinkish-white. Sepals of male flowers broad ovate rounded, .75 in. long and as wide; petals oblong-lanceolate, blunt, .3 in. wide. Stamens in a globose head on a short stalk.

PERAK. Gunung Kerbau (*Robinson*). PAHANG. Gunung Tahan (*Ridley*).

This plant is rather puzzling. It seems closely allied to *B. venusta*, King, with which species it occurred; but instead of having a creeping rhizome with leaves and peduncles arising directly from it, it has long erect stems with long internodes and large stipules with a long-setaceous point. In this, except for the form of the stipules which have no seta, it resembles *B. megaptera*. I cannot distinguish King's *B. megapteroidea* from *B. venusta*. Is it possible that this plant sometimes develops a caulescent stem, and that it is a form or state of *B. venusta*? The specimens are neither very complete.

Begonia eiromischa, n. sp.

Rhizome short, stout. Leaves fleshy, obliquely reniform peltate, acuminate, dark green, glabrous 3—3.5 in. long and as wide, nerves 7: petiole 2—3 in. long, with dense thick red wool. Peduncles glabrous, red, about 5 in. long. Flowers on two branches, small, .5 in. across, rose pink. Male sepals 2, broad, orbicular, rounded. Petals very narrow, linear. Style of female flower trifid; branches bifid. Capsule .6 in. long lateral wings very short, posterior rather thin, broad, oblong, rounded .3 in. long and as wide.

PENANG. Pulau Butong (*Curtis* 1028).

I have seen specimens of this and a good coloured drawing made in the Penang Gardens. It is undoubtedly near *B. Hasskarli* but differs conspicuously in the woolly stalk of the leaf. In the drawing the fruits are figured as equally 3 angled and bright red; perhaps they were not ripe when drawn.

Begonia rhoephila, n. sp.

Rhizome stout, creeping, 1 in. long. Leaves nearly or quite glabrous, lanceolate, erect, caudate-acuminate, base decurrent on the petiole, sparsely distantly toothed, apex closely toothed, nerves 4 pairs, often hairy on the underside, midrib always hairy with appressed hairs, 5—6 in. wide, petiole 1.5—4 in. long, glabrous or hairy. Peduncle 1—2 in. long in flower, stouter and up to 12 in. in fruit, glabrous. Flowers few, short pedicelled white tinted on the back or all pink. Sepals of the male flower oblong-ovate, .3 in. long, .2 in. wide. Petals narrower, oblong. Stamens numerous, anthers oblong, apiculate as long as the free filaments. Female flowers 5-petalled.

Capsule 1.1 in. across, .5 in. long; lateral wings blunt, triangular; posterior .75 in. long, .3 in. wide, oblong rounded, thick ribbed.

SELANGOR. Ulu Gombak, on rocks in the stream (*Ridley*).

This belongs to the jungle stream set of Begonias with narrow lanceolate leaves hardly or not lobed or unequal at the base, viz. *B. Kunstleriana* (*B. Scortechinii*) and *B. perakensis*, King. The latter has the leaves rounded. The former has them narrowed but not decurrent on the petiole as in *rhoephila* and very hairy. I take *B. Scortechinii*, King, of unknown locality to be a narrow leaved form of *B. Kunstleriana*.

ARALIACEAE.

Schefflera, Forst. This genus was made by Forster for two species of plants, one from New Zealand and the other from Fiji. Later the genus *Heptapleurum* was founded by Gaertner, to which a considerable number of Asiatic species were attributed. The difference between the two genera is however, too slight to warrant their being kept distinct and Harms in the *Pflanzenfamilien* has placed the *Heptapleurums* under the earlier name *Schefflera*, in which I follow him, excluding however, the genus *Brassaia* which appears to me sufficiently distinct. It may however, be found necessary to separate from *Schefflera* such abnormal plants as *S. (H.) Wrayi*, with racemose not umbellate flowers; and I am rather dubious of the following new species which has the number of stamens double that of the perianth lobes and ovary cells.

Schefflera polyandra, n. sp.

Leaves digitate; petiole 9 in. long; leaflets 5, oblanceolate or oblong lanceolate acuminate, blunt, base narrowed, edge serrate, coriaceous, glabrous, smooth, nerves 7 pairs faint, reticulations faintly visible beneath, 4—6 in. long, 1.25 to 1.75 in. wide, petiolule 1.3 in. long. Panicle 5 in. long, branchlets .5 in. long, umbels of 4—5 flowers; pedicels .2 in. long, stout. Calyx campanulate, edge thin, truncate, entire .1 in. long. Petals shorter, ovate, 5. Stamens 14 to 16; anther as long as filament. Style conic, cylindrical. Ovary 8-celled.

PERAK. Gunong Keledang (*Ridley* 9763).

Arthrophyllum pinnatum, Clarke. Under this name in King's Materials two plants have been combined, one the true *A. pinnatum* of the Penang Hills. The other a smaller plant with many more smaller leaflets and smaller flowers, *A. alternifolium* Maingay, MS. a native of Mt. Ophir.

Arthrophyllum lancifolium, n. sp.

Tree. Branchlets slender, angled, yellow, glabrous. Leaves coriaceous, lanceolate caudate at the tip, acuminate at both ends, edge crenulate, undulate, midrib winged on both sides, nerves and reticulations fine, 3—3.5 in. long, 1—1.5 in. wide; petiole 1—2 in. long only .3 in.; uppermost leaves jointed with the stem. Umbels 4—5, on short pedicels .4 in. long. Flowers 10—13 in an umbel, .05 in. long. Calyx short campanulate; limb undulate, not toothed. Petals 5, calyptrate valvate, oblong, connate at the tip. Stamens 5; anthers oblong, connate at the tip. Stamens 5; anthers oblong, longer than the filament. Style columnar, stout. Ovary 1-celled.

PERAK. Ulu Batang Padang, at 4,900 feet (*Wray* 128).

In the Kew Herbarium a sheet of this is written up by King as *Mastixia gracilis*, King, but the description of that species (based on a plant collected in Perak at 3,900 feet by *Wray* No. 1528) does not apply to the plant at all well, especially in the length of the petiole is given as .2—.25 in. long, and the inflorescence as cymose. This plant has umbellate inflorescence much resembling that of *A. alternifolium* and is clearly an Araliaceous plant.

Brassaia singaporensis, n. sp.

Leaves digitate, petiole over 6 in. long, base widely dilate; leaflets 15, stiffly coriaceous, oblong ovate, blunt, rounded at both ends, 3—4 in. long, 1.75 in.—2.5 in. wide; petiolules 1.5 in. long. Panicle 18 in. long, stout; branches 1.5 in. long, thick, bearing heads of about 10 sessile flowers .5 in. through. Bracts 4, ovate, acuminate, longer than the calyx-tube. Calyx very short, margins undulate. Corolla calyptrate rounded, coriaceous. Petals connate 5. Stamens 9 to 12, filaments short, anthers oblong linear. Stigma subsessile conic.

SINGAPORE. Bukit Timah (*Ridley* 8061).

When dry this plant resembles much *B. actinophylla*, Br. of Australia and the flowers are as big, but the leaves are quite different in form and size. The genus consists of four or five species ranging from Sumatra through New Guinea to Australia.