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CAPTAIN J. H. TULL WALSH, J. M. S.

NATURAL HISTORY SECRETARY.

... naturalists, chemists, mineralogists, philologists, and men of science
... will transmit their observations to writing, and send them to
... Calcutta. If will likewise, if their communications shall be long
... will be away, if they shall entirely cease." SIR WM. JONES.

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No. III.—Containing pp. 237—324, with Plates I, II, III, IV, V and VI, was issued on January 24th, 1893.

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JOURNAL

OF THE

ASIATIC SOCIETY OF BENGAL.

Part II. — NATURAL SCIENCE.

No. 1. — 1892.

Materials for a Flora of the Malay Peninsula. — By GEORGE KING, M. B.,
LL. B. F. R. S., C. I. E., Superintendent of the Royal Botanic
Garden, Calcutta.

No. 4.

As explained in No. 1 of these papers, I was unable to take up the
entire Family of Anonaceae in its natural sequence. Having now
been able to work it out, I present my account of it to the Society.
The order of the *Thalamiflorae* families (*Dipterocarpaceae*) still remains to be
settled out before beginning the *Disciflorae*. In the present paper
to be followed, for the most part, the arrangement of tribes and the
divisions of genera adopted by Sir J. D. Hooker in his *Flora of
British India*; and in most of the instances where I have not done
so, the fact has been noted.

ORDER IV. ANONACEÆ.

Trees or shrubs, often climbing and aromatic. *Leaves* alternate,
petiolate, simple, quite entire. *Flowers* 2, rarely 1-sexual. *Sepals* 3,
connate, usually valvate, rarely imbricate. *Petals* 6, hypogynous,
free, or the inner absent. (*Flowers* dimersous in *Discipalium*). *Stamens*
rarely definite, hypogynous, closely packed on the torus, filaments
long or 0; anthers adnate cells extrorse or sublateral, connective pro-
longed into an oblong dilated or truncate head. *Ovaries* 1 or more, apo-

carpous, very rarely (*Anona*), syncarpous with distinct or agglutinated stigmas, style short or 0; ovules 1 or more. Fruit of 1 or more, sessile or stalked, 1- or many-seeded, usually indehiscent carpels. Seed large; testa crustaceous or coriaceous; albumen dense, ruminated, divided almost to the axis into several series of horizontal plates; embryo small or minute, cotyledons diverging.—Distrib. Tropical the Old World chiefly; genera about 45 with 500 or 600 species.

Tribe I. UVARIA. Petals 2-seriate, one or both series imbricate in bud. Stamens many, close-packed; their anther-cells concealed by the overlapping connectives. Ovaries indefinite.

Sepals imbricate; trees or shrubs.

Flowers small, globular, scarcely opening; often unisexual and from the older branches or trunk; ovules 6 to 8, or indefinite.

Trees; flowers 1-sexual, ovules many; torus conical or hemispheric 1. *Stelechocarpus*.

Trees or shrubs; flowers unisexual or hermaphrodite; ovules 6 to 8; torus flat 2. *Scorpaena*.

Sepals valvate; climbers.

Flowers small, mostly hermaphrodite; petals incurved, ovules 6 to 8; torus flat 3. *Cyathostemma*.

Flowers usually large and from the leafy branches, petals spreading; torus flat.

Flowers 2-sexual; ovules many 4. *Uvaria*.

Flowers 1- or 2-sexual; ovules solitary, rarely 2 5. *Ellipcia*.

Tribe II. UNONIA. Petals valvate or open in bud, spreading in flower, flat, or concave at the base only; inner subsimilar or 0. Stamens many, close-packed; their anther-cells concealed by the overlapping connectives. Ovaries indefinite.

Flowers trimerous.

Petals conniving at the concave base and covering the anthers and ovaries.

Ovaries 1-3, many-ovuled; peduncles not hooked 6. *Cyathostemma*.

- Ovaries many, 2-ovuled; peduncles hooked ... 7. *Artabotrys*.
- Ovaries many; ovules 4 or more; peduncles straight ... 8. *Urepananthes*.

Petals flat, spreading from the base.

- Ripe carpels indehiscent.
 - Ovules many, 2-seriate; petals lanceolate, stamens with acute apical appendage ... 9. *Gana-glym*.
 - Ovules 2-6, 1-seriate on the ventral suture ... 10. *Unona*.
 - Ovules 1-2, basal or subbasal ... 11. *Polyalthia*.
- Ripe carpels follicular ... 12. *Anaxagorea*.
- Flowers dimerous ... 13. *Discipalium*.

III. MITREPHOREE. Petals valvate in bud, inner spreading; inner dissimilar, concave, connate, arching over the stamens and pistils, (urgent in some *Mitrephoras*). Stamens many, 4 in *Orophyea*, closely packed; anther-cells (except in *Orophyea*) concealed by the overlapping anther-cells. Pistils numerous (few in some *Orophyes*).

- Inner petals clawed.
 - Inner petals connivent in a cone, but not vaulted ... 14. *Goniothalamus*.
 - Inner petals vaulted,
 - Stamens about 6, Milinoid; inner petals longer than the outer ... 15. *Orophyea*.
 - Stamens numerous, Uvarioid; inner petals not longer or very little longer than the outer ... 16. *Mitrephora*.
- Inner petals not clawed.
 - Flowers globose; petals subequal ... 17. *Popowia*.
 - Flowers elongate; inner petals much shorter than the outer ... 18. *Ozymitra*.

IV. XYLOPIAE. Petals valvate in bud, thick, connivent; the inner similar but smaller, ...

- Outer petals broad; torus convex ... 19. *Melodorum*.
- Outer petals narrow, often triquetrous; torus flat or concave ... 20. *Xylopia*.

MILIUSEE. Petals valvate in bud, the

outer sometimes very small like the sepals. *Stamens* often definite, loosely imbricate; anther-cells (except in *Phacanthus*) not concealed by the connectives. *Ovaries* solitary or indefinite.

Ovaries indefinite.

Sepals and outer petals similar and minute; inner petals very large, often cohering by their edges.

Ovules 1 or 2; stamens numerous, quadrate, with broad truncate apical processes concealing the anther-cells from above ... 21. *Phacanthus*

Ovules 1 or 2, rarely 3 or 4; stamens few or numerous, compressed, the apical process of the connective compressed, not broad or truncate, and not concealing the anther-cells from above ... 22. *Milium*

Petals larger than the sepals, often saccate at the base, subequal or the inner smaller ... 23. *Alphonsea*

Ovaries solitary.

Outer petals valvate, inner imbricate ... 24. *Kingdon*

All the petals valvate ... 25. *Mezzettia*

I. STELECHOCARPUS, Blume.

Trees. *Leaves* coriaceous. *Flowers* dioecious, fascicled, on wood. *Sepals* 3, small, elliptic or orbicular, imbricate. *Tepees*. *Stamens* indefinite; connective dilated, truncate. *Ovaries* in ovoid; stigma sessile; ovules 6 or more. *Ripe carpels* large, globose, 4-6-seeded.—Distrib. Species 3 or 4, all Malayan.

Leaves pellucid-punctate ... 1 S. p.

Leaves not pellucid-punctate.

Flowers of both sexes alike ... 2 S. p.

Male flowers smaller than the female ... 3 S. p.

1. STELECHOCARPUS PUNCTATUS, King n. sp. A tree 20 to high: young branches slender, cinereous-puberulous, becoming glabrous. *Leaves* membranous, minutely pellucid-punctate, elliptic-ovate, acuminate, slightly narrowed in the lower fourth to the round, oblique base; upper surface shining, glabrous except the primary impressed midrib; lower surface shining, paler than the upper, puberulous or glabrous, the reticulations minute and distinct; nerves 12 to 14 pairs, bold and prominent on the lower, slightly

of the upper surface: length of blade 7 to 10 in., breadth 3 to 4 in.;
 is 1.5 to 2 in., stout, pubescent. *Male flowers* in several-flowered
 cymes from woody tubercles on the trunk, pedunculate: buds turbinate,
 nearly 5 in., in diam.; peduncles 1 to 1.5 in. long, stout, thickened
 upwards, bracteolate, puberulous. *Sepals* very coriaceous, rotund,
 five, conjoined at the base, spreading, rugose, pubescent outside,
 glabrous inside. *Petals* very coriaceous, rotund, concave, glabrous;
 the outer 3 puberulous outside; the inner three smaller than the outer,
 all glabrous, otherwise like them and all of a dark brownish colour.
 The ovary sessile, flat, the cells elongate on the anterior surface, the back
 of the ovary: apex without any appendage from the connective. *Female
 flowers* and *fruit* unknown.

Perak; King's Collector, No. 7183.

Although female flowers and fruit of this have not yet been found, I
 take it as a new species of *Stelechocarpus* without any hesitation.
 The male flowers have exactly the facies of those of *S. Burahol*, Bl.; but
 they are larger. They, however, differ as to shape of petals; the leaves
 of this species are distinctly pellucid-punctate (while those of *S. Burahol*
 are not) and they are broader and have slightly more nerves than those of
Burahol. When boiled, the flowers of the two have exactly the same
 or a sweetish smell.

STELECHOCARPUS STRIATUS, King, n. sp. A tree 30 to 60 feet
 tall, all parts glabrous except the inflorescence: young branches
 cinereous, slender. *Leaves* coriaceous, oblong-lanceolate, shortly
 truncate, the base acute; both surfaces shining, very minutely scaly,
 the midrib and nerves deeply impressed on the upper, bold and prominent
 on the lower; the reticulations distinct on both: main nerves 10
 or 12 pairs, curved, sub-ascending, inter-arching within the edge: length
 of blade 6 to 9 in., breadth 1.8 to 3.25 in., petiole .35 in. *Male flowers*
 in many-flowered fascicles from tubercles on the trunk, pedicellate;
 buds turbinate: flowers when open probably nearly 1 in. in diam.:
 peduncles stout, thickened upwards, 1 to 1.5 in. long, scurfy-puberulous,
 with several sub-rotund glabrous bracteoles mostly near its base.
 The *sepals* very coriaceous, shortly oblong, obtuse, concave, spreading, con-
 joined at the base, puberulous or glabrescent, warted externally. Outer
 sepals much larger than the sepals and somewhat larger than the inner
 sepals, rotund, concave, very coriaceous, glabrous, with scurfy warts
 especially near the middle: inner 3 petals coriaceous, rotund, blunt,
 all glabrous. *Female flowers* like the males, stamens none:
 anthers very numerous, obscurely 3-angled, adpressed-sericeous. *Torus*
 spheroid. *Ripe carpels* broadly ovoid, blunt, 2.5 in. long, 1.75 in. in
 diameter, puberulous, minutely warted; pericarp thick, fleshy. *Seeds*
 8 in 2 rows, flattened, 1.25 in. long, and .5 in. thick.

Pendak; in dense forest at low elevations, King's Collector, Nos. 8223 and 8224.

This species has the flowers of both sexes alike. The calyx of this species are much larger than those of *S. Burahol*, Bl.; and the leaves are more thickly coriaceous and shining, the nerves and midrib much more depressed on the upper and prominent on the lower side.

3. *STRELOCHOCARPUS* BERANON, H. 1. and T. Fl. Ind. 94. A tree 20 to 60 feet high: young branches slender, dark-coloured, glabrous; leaves thinly coriaceous, oblong-lanceolate, acute or very shortly mucronate, the base cuneate: both surfaces glabrous, shining, the venation minute and distinct, the lower with minute black dots, the upper with very minute scales; main nerves 10 to 12 pairs ascending, prominent, inter-arching 2 in. within the margin; of blade 5 to 8 in.; breadth 1.75 to 2.75 in.; petiole 3 to 4 in. *Male flowers* much smaller than the female (only about 4 in. in diameter) in fascicles of 8 to 16 from minutely bracteolate woody tubercles on the branches and trunk, pedicellate; the pedicels slender, chartaceous-tomentose, from 5 to 75 in. long. *Sepals* coriaceous, triangular, shining. *Petals* much longer than the sepals, oblong, sub-acute, pubescent inside: anthers with obtuse terminal, dilated, 2-lobed appendages from the connective; ovaries 0. *Female flowers* three times as large as the males, and on similar pedicels; calyx not persistent; as in the male. *Ovaries* numerous, on an ovoid-conic torus, obovate, the outer surface compressed, the inner with a vertical groove and adpressed, pale hairs; stigma sessile, minutely lobed. *Fruit* on peduncles 2 to 3 in. long, thickened upwards. *Ripe carpels* long, stalked, globose, obovate, about 1.5 in. long, and 1.25 in. in diameter; young puberulous, verrucose, afterwards nearly smooth; pericarp coriaceous externally. *Seeds* 4 to 6, large, oval, sub-compressed, rugose. Hook. fil. Fl. Br. Ind. 1, 47. *Varia Burahol*, Binna Bijl. Fl. Java Anon. 48, t. 23, and 25 C.; Schott in Nat. Tijdsch. Ned. Ind. XXXI, 5.

Singapore; Lobb. Distrib. Java.

There is sometimes a remarkable difference in the length of the petioles in this species, some of those on the same specimen being times as long as others.

2. *SABREAPA*, DALZ.

Trees. Leaves shining, and branches glabrous. *Flowers* axillary, or fascicled on woody tubercles, 1-2-sexual. *Sepals* ovate, imbricate. *Petal* 6, imbricate in 2 series, nearly equal, orbicular, very concave. *Stamens* 6-21, imbricate in 2 or more

oblong, thick, fleshy; anther-cells dorsal, oblong; connective
 red. *Ovaries* 3-6; style short, stigma obtuse or capitate; ovules
 on the ventral suture. *Ripe carpels* globose or ovoid, stalked.—
 Species 6, tropical Asiatic.

genus closely allied to *Bocagea*, St. Hilaire, but differing from
 having its sepals and petals much imbricate instead of valvate;
 ring more ovules, and more seeds in its ripe carpels; in its
 cells being more lateral and not so entirely dorsal as in *Bocagea*,
 the apical process of the connective being truncate. The flowers
 are small and the sepals and petals are very concave; and
 respects, as well in the comparative firmness of the seeds in
 carpels, they diverge from those of typical *Uvaria*. Hooker
 and Thomson (in their *Flora Indica*), Bentham and Hooker (in
Genera Plantarum), and Baillon (in his *Histoire des Plantes*, Vol.
 31) retain *Sageraea* as a genus,—an example which I would have
 without any hesitation had not Sir Joseph Hooker united it
 in his *Flora of British India*. The extreme imbrication
 the sepals and petals appears to me however, in spite of Sir
 Hooker's more recent view, so insurmountable an argument
 its reduction to a genus in which both these sets of organs are
 strictly valvate, that I adhere to the earlier view that *Sageraea*
 remain distinct and be put in the tribe *Uvaria*.

SAGERAEA ELLIPTICA, Hook. fil. and Thoms. Fl. Ind. 93. A large
 parts glabrous except the ciliate petals; young branches rather
 gland. *Leaves* coriaceous, narrowly oblong, acute (obtuse, when
 the base narrowed, obtuse or minutely cordate, oblique; both
 striate; main nerves 11-15 pairs, spreading, faint; length 8 to 12
 inch 2-25 to 3-5 in.; petiole 1-5 in., very thick. *Flowers* monoecious
 solitary and axillary; or fascicled on tubercles on the larger
 small, red; pedicels 25 in. long, with several basal and medial
Sepals small, semi-orbicular, glabrous, ciliate. *Petals* thick,
 concave, tubercular outside, glabrous, the edges ciliate,
 the inner smaller than the outer. *Stamens* 13 to 19, the
 sub-quadrate at the apex; anthers exserted. *Ovaries* in female
 3, glabrous; ovules about 8. *Ripe carpels* sub-sessile, glo-
 bous, 1-2 in. diam.; seeds several. *Sageraea Hookeri*, Pierre *Flora*
Boch-Chine t. 15. *Bocagea elliptica*, H. f. and Th. Fl. Br. Ind. 1,
 F. *Flora Burma*, 1, 50. *Uvaria elliptica*, A. DC. in *Mem. Soc.*
 27; Wall. Cat. 6470, 7421. *Diospyros? fraxinea*, Wall. Cat.

all to Penang.

perfectly known species, badly represented in collections.

3. CYATHOSTEMMA, Griffith.

Scandent shrubs. *Flowers* subglobose in di- or tri-chotomous cymes from the old wood (flowers dimorphous in sp. 3.) *Sepals* connate, hirsute. *Petals* 6, 2-seriate, short, sub-equal, their bases all valvate at the base, the tips imbricate. *Terns* flat, margin. *Stamens* many, linear; anthers sub-introrse; process of connection, incurved. *Ovaries* many; style cylindric, glabrous, notched; many. *Ripe carpels* oblong-ovoid, many-seeded.

The petals in this genus are so unmistakably imbricate in position, that I remove it from the tribe *Uncocae* to *Uenciae*. The ripe moreover much resemble those of some species of *Uearia*. Of species described below, three are quite new. The first (*C. viride*) is the plant upon which Griffith founded the genus; while the two others have been hitherto referred to *Uearia* under the specific name *U. parva*. Flowers uniform and hermaphrodite.

Flowers in more or less elongated pendent cymes

Leaves oblong-lanceolate or oblanceolate; inner petals contracted at the base ... 1. *C. viride*

Leaves obovate-elliptic to obovate-oblong; petals not contracted at the base ... 2. *C. Scorpa*

Flowers in stem-fascicles of 10 to 14, or in axillary pairs; leaves with pubescent midribs ... 3. *C. Wro*

Flowers in 2- or 3-flowered extra-axillary or leaf-opposed fascicles or cymes; leaves quite glabrous ... 4. *C. Hood*

Flowers dimorphous, the females with a few abortive anthers ... 5. *C. ecua*

1. *CYATHOSTEMMA VIRIDIFLORUM*, Griff. *Natalis* IV, 767. *IV*, t. 650. Scandent (?) the young branches thin, glabrous, scoured when dry. *Leaves* coriaceous, oblong-lanceolate or oblanceolate; the base slightly narrowed, minutely cordate; surfaces rather dull; the upper glabrous except the minutely pubescent midrib; the lower darker, puberulous on the midrib and 8 or 10 pairs of rather prominent spreading main nerves; length 4.5 to 5 in., breadth 1.5 to 2 in., petiole 2 in. *Cymes* dichotomous, or several inches long from warty tubercles on the older rough branches, few-flowered, corymbose, minutely rusty-tomentose. *oblong bract* at each bifurcation and another about the middle of the pedicel. *Flowers* 5 in. in diam. *Sepals* broadly cordate, slightly sub-reflexed. *Petals* acute, the base contracted especially in

er row, coriaceous, tomentose. *Ovaries* tomentose. *Ripe carpels* 1 to 1.5 in. long, oblong-ovoid, blunt, glabrous; stalk .75 in. *Fl. Br. Ind.* I, 57; *Kurz For. Fl. Burm.* I, 33. *Eastern Peninsula*; Griffith. *Penang*; *Maingay* (Kew Distrib.)

specimens known by only a few imperfect specimens. According to the wood of this species resembles that of a *Menisperm.* I see this as a native of the *Andamans*; but I have seen no specimens from those islands.

CYATHOSTERMA SCORTECHINI, n. sp. King. A climber 50 to 70 ft. branches of all ages, except the very youngest, dark-coloured, the very youngest slender and rufous-pubescent. *Leaves* ovate-oblong to obovate-oblong, shortly apiculate, slightly cordate to the sub-ovate, not cordate, base; upper surface rather bronzed except the minutely pubescent midrib; lower glabrous, slightly nervulate, the reticulationa line, distinct; main nerves pairs, prominent beneath; length 6 to 10 in., breadth 2.5 to 4 in., .25 in. *Ovules* 25- or tri-lobotomous, on pedicels 2 to 1.2 in. long older branches; minutely rufous-tomentose, bracteate in the axils, the bracts numerous, ovate to rotund, concave. *Flowers* 5 diam. *Sepals* sub-rotund, united into an obscurely 3-angled cup. *Petals* equal, not much longer than the stamens, sub-puberulous, coriaceous. *Connectives of stamens* produced at the apex, slightly truncate. *Ovaries* numerous, cylindric, pubescent; truncate; ovules numerous. *Rhizomorphs* oblong, slightly oblique, transversely furrowed, glabrous, shortly stalked, 1.25 to 1.5 in. *Pericarp* thin. *Seeds* 8 to 10, flattened, ovoid, smooth.

Loc.—*Scortechini*, King's Collector, No. 5857. *Singapore*;

specimens collected by the late Father *Scortechini* were referred to *Cyathostema viridiflorum* Griff., from which species it differs by its larger, more obovate, more glabrous, leaves; the fruit formed by the entirely connate sepals; more rotund petals, and the fruit at the base; and narrower shorter-stalked fruit.

CYATHOSTERMA WRAYI, King n. sp. A creeper 20 to 60 feet long. *Branches* rufous-puberulous, ultimately glabrous and shining. *Leaves* membranous, broadly oblanceolate, shortly and broadly acuminate, narrowed below the middle to the rounded surfaces finely reticulate, the upper dull when dry, glabrous; lower minutely pubescent; lower surface shining, glabrous except the minutely puberulous midrib; main nerves 8 to 9 pairs, oblique, the upper arches inside the margin, impressed on the upper, pro-

minent on the lower surface; length 7 to 9 in., breadth 2.5 to 3 in., petiole 2 in. *Flowers* in fascicles of 10 to 15 from tubercles on older branches, or in pairs from the axils of the leaves, subsessile, about .5 in. in diam.; pedicels .25 to .4 in. long, granular, pubescent and with a small ovate bracteole near the base. *Sepals* ovate, spreading, rufous-pubescent and granular outside, inside, 1 in. long. *Petals* concave, cartilaginous, slightly minutely pubescent especially towards the edges; the outer row orbicular, sub-acute, .35 in. long; the inner row smaller, thicker and more imbricate than the outer. *Stamens* numerous; the row with a rather thick truncate, 4- or 5-sided apical process, some apices of the linear dorsal anthers. *Ovaries* numerous, obliquely curved, glabrous, pubescent at the base, 1 to 2-ovuled, with a narrow, inflexed stigma. *Ripe carpels* reddish, ovoid, 4 to 6, glabrous, with a single ovoid or 2 plano-convex shining pale brown stalks about as long as the carpels, slender.

Perak; Seortechini, Wray, Klug's Collector.

4. *CYATHOSTEMMA HOOKERI*, King n. sp. A climber 40 to 50 ft. long; all parts, except the inflorescence, quite glabrous. *Leaves* hirsute, broadly oblanceolate to oblong or ovate-elliptic, acute shortly and obtusely acuminate, the base rounded or sub-erect, surfaces shining, glabrous, minutely reticulate; main nerves pairs, spreading or ascending, curving, inter-arching within the length 5.5 to 7 in., breadth 2.25 to 2.75 in., petiole .8 in. *Flowers* in diam., sub-globose, in extra-axillary or leaf-opposed fascicles of 2 or 3; pedicels slender, pubescent, .3 to .4 in. long with bracteoles. *Sepals* spreading, broadly and obliquely ovate, slightly thickened at the base, 1 in. long. *Petals* concave, the outer row slightly longer than the sepals but narrower, obovate, thickened into a pseudo-claw at the base, sparsely pubescent outside, the inner row narrower, thicker, and more concave, oblique. *Stamens* numerous, short, with a thick incurved apical process from the connective cells dorsal. *Ovaries* numerous, oblong, thickened upwards, with the stigma large, sub-quadrate, slightly 2-lobed. *Ripe carpels* numerous, oblong to ovoid, blunt at each end, glabrous, .75 to 1 in. long and .6 to .9 in. in diam.; stalk 1.5 to 2 in. stout. *Seeds* 1 to 2 per row, compressed, oblong, pale brown, shining. (*Vegetaria parviflora* Bl. and Thoms. Fl. Ind. 103; Fl. Br. Ind. I, 51.)

Penang; Phillips, Curtis. Perak; Seortechini, Wray, Klug's Collector.

For upwards of seventy years this plant had been known to Phillips' scanty specimens from Penang. In 1887 Mr. J. H. R. ...

specimens of it, together with a single ripe carpel from the
 ad; while copious flowering and fruiting specimens were, about
 time, received from Perak. In all its parts the plant is *caen-*
anthostemum.

PAIHOUTENNA ACUMINATUM, n. sp. King. A climber; branches
 ish, the youngest tender, dark-coloured, rufous-pubescent,
 pubescent, obtusoculate-oblong, caudate-acuminate, the base
 of surfaces glabrous shining and minutely reticulate; the
 crossed above and pubescent, beneath prominent and minutely
 main nerves 10 to 11 pairs, spreading, curved, sub-ascending,
 beneath, depressed above: length 8 to 9 in.; breadth 22
 petiole 15 in., tomentose. *Cymes of hermaphrodite flowers*
 sessile, 4 to 6 in. long; pedicel about as long as the branches,
 with numerous distichous, oblong, urceate bracts. *Flowers* 4
 diam., on short pedicels. *Sepals* triangular, lobed, spread-
 ing as in *C. Scortechinii*; connective of stamens forming at the
 black incurving point. *Ovaries* as in *C. Scortechinii* but with
 stigma. *Cymes of female flowers* much shorter than those of the
 male, dichotomous, few-flowered, about 1.5 in. long (of which
 the style is 1 in.); slightly rufous-pubescent; bracts few, lanceolate,
 about 4 in. in diam. when open; buds conical. *Sepals* broadly
 cordate, acute, spreading, pubescent. *Petals* coriaceous,
 pubescent, concave; the outer broadly ovate-triangular, the
 outer, incurved in bud; the inner row smaller, narrower,
 divaricate. *Stamens* absent. *Ovaries* as in the hermaphrodite,
 but larger, and not conical.

Perak, Wray, No. 3308.
 remarkable species of which I have seen only Wray's incomplete
 specimens. These specimens are accompanied by some loose young
 ovate-globular, oblique, with persistent recurved styles, and a
 number two seeds. If these carpels really belong to the species
 the definition of the genus will have to be modified. The structure
 of hermaphrodite and pistillate flowers agrees perfectly with
 the other species above described.

4. *URAPIA*, Linn.

A or a woody shrub, usually stellately pubescent. Flow-
 ers leaf-opposed, rarely axillary, cymose, fasciated or solitary,
 white or brown. *Sepals* 3, often confluent, imbricate, valvate. *Petals* 5,
 2 or oblong, imbricate in 2 rows, sometimes confluent at the
 base indefinite; top of connective ovoid-oblong, truncate or
Tor's depressed, pubescent or tomentose. *Ovaries* im-

definite, linear-oblong; style short, thick; ovules many, 2-seriate
 few or 1-seriate. Ripe carpels many, dry or bearded, few-
 seeded.—DISTRIB. About 119 species—many tropical Asia
 African species, and some Australian.

A genus characterised by the usually large showy 5-
 imbricate Rosaceous corolla:—allied to the American genus
 Ruiz and Pavon (*Cananga*, Aubl.) and distinguished from it
 its multi-ovulate ovaries.

Flowers more than 5 in. in diam.

Connective of anthers slightly produced at the
 apex, compressed, oblique.

Carpels stalked, oblong, rugulose ... 1. *U. l...*

Carpels ovoid to sub-globular.

Carpels 1.5 to 2.25 in. long, not taber-
 culate, very pulpy, tomentose ... 2. *U. ill...*

Carpels not more than 1 in. long, taber-
 cular, with little pulp.

Carpels ovoid, oblique, leaves woolly-
 tomentose beneath, even when old ... 3. *U. dul...*

Carpels globular or globular-ovoid,
 leaves glabrous when adult ... 4. *U. l...*

Connective produced beyond the apex to about
 half the length of the anther, flattened, ob-
 liquely truncate; flower 1.5 in. in diam. ... 5. *U. ma...*

Connectives produced, those of the inner an-
 thers truncate, those of the outer flattened
 and oblique; flower 2 to 3 in. in diam.;
 leaves conspicuously stellate-tomentose be-
 neath ... 6. *U. pu...*

Connectives of anthers slightly, or not at all,
 produced at the truncate apex.

Whole plant stiffly hairy ... 7. *U. l...*

Whole plant softly hairy ... 8. *U. l...*

Connectives of anthers produced into a broad
 flattened sub-quadrate process; the outer
 anthers changed into staminodes ... 9. *U. l...*

Anthers oblong-cuneate, the connectives pro-
 duced at the apex and always truncate.

Leaves pubescent beneath.

Flowers in terminal umbellate ra-
 cemes ... 10. *U. pu...*

Flowers in terminal umbels or in

- many-flowered lateral narrow
panicles... .. 11. *U. Scottalpinæ*
Leaves glabrous except the midrib, 2.5 to
5 in. long; flowers less than 5 in. in
diam. 12. *U. micrantha*.
Small (less than 5 in. in diam.)
Leaves glabrous except the midrib ... 13. *U. micrantha*.
Leaves pubescent.
Leaves on under-surface stellate rufous-
pubescent; young branches and flow-
ers outside with scurfy rufous tomen-
tum 13. *U. andamanica*.
Leaves on under surface and young
branches minutely tawny-tomentose .. 14. *U. excelsa*.
? doubtful position.
Probably near *U. Lobbiana* 15. *U. astrodicta*.
With axillary flowers 16. *U. subrepanda*.

EVANIA LINDL., *Miq. Fl. Ind. Bat. Suppl.* 370. A climber 20
ft. long; youngest branches and petioles sparsely covered with
only stellate hairs; the older cinereous, lenticellate, glabrescent,
membranous, elliptic or sub-obovate-elliptic, shortly acuminate,
narrowed in the lower fourth to the rounded sub-emarginate,
to base; upper surface glabrous, shining, the midrib minutely
pubescent; lower surface with a few short spreading hairs on the midrib
and the nerves, otherwise almost glabrous; main nerves 10 to
12, spreading, interarching within the edge, bold in the lower, im-
perfect in the upper, surface; length of blade 5 to 8 in., breadth 2 to
3 in. *Panicles* from half-way between the leaves,
1- to 2-flowered (one of the flowers often abortive), warty
or high-pubescent; pedicels 75 in. long, with 1 or 2 reniform
lobes 1.5 to 1.75 in. in diam. *Sepals* small, (2 in. long) reniform,
at the base, reflexed, pubescent. *Petals* oblong-obovate, sub-
orbiculate, 75 in. long, sub-coriaceous, puberulous. *Anthers* sessile in
the rows, flattened; the connective slightly produced, flattened,
series numerous, angled, puberulous, with a few long pro-
cesses near the apex. *Twigs* of the fruit small, sub-globular,
with *Ripe carpels* numerous, stalked, cylindrical-oblong, oblique,
slightly apiculate, rugulose, minutely rufous-pubescent, 1.25 to
1.5 in. long, and .5 in. in diam. *Seeds* about 10, in 2 rows, compressed,
stalks 1.25 to 1.5 in. long, rufous-tomentose.

King's Collector, No. 4011, Wray No. 1826.

MARIA HAMILTONI, Hook. fl. and Thoms. Fl. Ind. 96. A

powerful climber: young branches slender, softly rufous-tomentose, becoming glabrous. Leaves membranous, elliptic-oblong to elliptic, sometimes slightly obovate, acuminate; the base narrowed or rounded, sometimes slightly unequal, never cordate; upper surface adpressed-pubescent, almost glabrous when old, the midrib minutely rufous-tomentose, the surface softly stellate-tomentose; main nerves 14 to 17 pairs, rather prominent beneath; length of blade 4 to 8 in., breadth 1 to 1.5 in., petiole 1.5 to 2 in. Peduncles solitary or 2 to 3 together, 1 to 1.5 in. long, extra-axillary, 1-flowered; flowers 1.5 to 2.5 in. in diam., single, sub-orbicular, rufous-tomentose outside, shortly hispid inside, buds turbinata, tomentose. Sepals broadly triangular, ultimately flexed, membranous. Petals much longer than the sepals, obovate, the apices obtuse and incurved, minutely tomentose, surfaces brick-red. Anthers sub-sessile, equal, obliquely truncate apex, 1.5 to 2 in. long. Ovaries slightly shorter than the anthers, compressed, pubescent. Torus hemispheric, tomentose, pits small. Ripe carpels on long slender stalks, ovoid to sub-globular, 1.5 in. long, and 1 in. in diam. when fresh, tomentose, scarcely dry slightly constricted between the seeds; stalks slender, 1 to 1.5 in. long. Seeds about 6, flat, shining. Hook. fil. Fl. B. 43. *U. grandiflora*, Wall. Cat. 6485 B.

In the Forests at the base of the Eastern Himalaya; Malacca Forest in E. Bengal; Assam; Khasia; Shan Hills (Prinsep).

Var. *Kurzii*, King. Leaves with broader bases often minutely cordate; fewer nerves (12 to 14 pairs); smaller flowers (1.3 in. diam.) on shorter pedicels (1 to 1.25 in.); petals yellowish, ovate-oblong. South Andaman: Kurz, Kings' Collector.

This was referred by Kurz who first collected it, to *U. Roxb.*, then to *U. purpurea*, Bl.: but was finally considered as "altogether doubtful." The fuller materials recently received to be, in my opinion, a very distinct variety of *U. Hamiltonii*, doubt to *U. purpurea*, Bl., but a much larger plant with smaller and more globular fruit.

3. *UVARIA BULOIS*, Dunal Anon. 90, t. 13. A powerful climber, often 80 to 100 feet long; youngest branches softly cinereous, the older sub-glabrous or glabrous, dark-coloured, rather rough, coriaceous, elliptic or oval, sometimes unequal-sided, acute or obtuse, the base broad, rounded, or sub-truncate, minutely cinnamomeous, surface sparsely adpressed-stellate-pubescent. The midrib is tomentose; lower surface densely sub-ferruginous or cinereous-tomentose; main nerves 8 to 10 pairs, spreading, slightly prominent beneath; length of blade 4.5 to 7 in., breadth 2.5

in., stout. *Peduncles* 5 in. long, lateral, not axillary, 1-flowered, 2 to 3 together, each bearing a small ovate deciduous bract; globose, tomentose; flowers 1.25 to 1.5 in. in diam. *Sepals* triangular, sub-acute, slightly reflexed, fleshy, tomentose on faces. *Petals* much longer than the sepals, sub-coriaceous, acute, sub-acute, sub-reflexed, minutely tomentose on the outer, pubescent on the inner. *Stamens* and *pistils* forming a compact mass; anthers sub-sessile, 1 in. long, the connective much flattened at the apex, compressed, oblique. *Ovaries* numerous, densely tomentose, slightly shorter than the stamens, tomentose. *Torus* depressed, stellate-tomentose, pitted when adult. *Ripe carpels* numerous, ovoid, oblique, blunt, much and unequally tuberculate, and loosely ferruginous stellate-tomentose as are the 1 in. long. *C. Prod.* 1, 88; *Hook. fil. and Th. Fl. Ind.* 98; *Miq. Fl. Ind.* 2, p. 24; *Ann. Mus. Ind. Bat.* II, 8. *U. javana*, *Dunal* t. 14, *Blume Bijdr.* 12; *Fl. Java* t. 3 and 13 B.; *DC. Prod. aurita* *Blanc Fl. Java* t. 3.

ca. Griffith; *Maingay* (*Kew Distrib.*), No. 25. *Perak*, King's Penang, *Curtis*, No. 1414.

As regards the size of its leaves and the colour of its flowers (which vary from green through yellow to purple) this is rather a species. One of its forms, barely distinguishable from the type, *U. javana* by *Dunal* who also gave a figure of it. *Blume*, who figured *U. javana*, distinguished it from *U. dulcis* by the (not simple) hairs on the upper surface of its leaves. But, as *Dunal* and *Th.* point out (*Fl. Ind.* 98), both kinds of hairs occur on it. In all the specimens named *U. javana*, received from the Peninsula, the leaves are much smaller and less densely woolly than those collected in the Malay Peninsula. *Miquel* suggests (*ibid.*, III, 2) only a form of this. By neither figuring nor naming the fruit of what he understood as *U. dulcis*, *aurita* and *ca.* neglected one of the best characters in this rather persistent, and it may be that when fruit of the small-leaved Java form from the Herbarium of Buitenzorg shall be forthcoming, the name made will have to be cancelled.

U. lobriana, *H. f. and T. Fl. Ind.* 100. A powerful climbing 100 to 150 feet in length; young branches pubescent, glabrous and dark-coloured. *Leaves* sub-coriaceous, oblong lanceolate, acute or very shortly acuminate, rarely obtuse, the rounded or sub-cordate base; both surfaces when very young are furfuraceous, speedily becoming glabrous except the puberulent; the upper (when dry) pale green, the lower brown; main

nerves 13 to 16 pairs, curving slightly, spreading below, suber-
thin but prominent beneath; length of blade 4 to 7 in., bread-
2.25 in., petiole .25 in. *Peduncles* only .25 in. long or even 1
nal or leaf-opposed, 2- or 3-flowered, tomentose, each flower with
rotund amplexicaul bract; buds depressed-globose, tomentose
1 to 1.2 in. in diam. *Sepals* conjoined into a wavy cup, tomentose
side, minutely pubescent inside. *Petals* coriaceous, often 7 or
unequal, broadly oval, obovate, blunt; slightly warty on
faces, minutely tomentose on the outer, pubescent on the inner,
sessile, flattened, 1 in. long, the connectives produced at
compressed, obliquely truncate, the outer row sterile. *Ovaries*
pubescent except the truncate lobulate stigma. *Bipe carpels*
stalked, globular or globular-ovoid, slightly oblique, boldly
pubescent, .5 to .75 in. in diam., and sometimes 1 in. long
thin; stalks slender, 1.5 to 2 in. long, glabrescent. *Seeds* 4 to
plano-convex, smooth; *Miq. Fl. Ind. Bat. I, Pl. 2, 34; Hoo.*
Br. Ind. I, 49.

Malacca; Griffith, Maingay (Kaw-Distrib.), Nos. 27 and
pore and Perak; King's Collector. Penang; Curtis. *Samalt.*
No. 2059.

5. *UVARIA MACROPHYLLA*, Roxb. *Pl. Ind. II, 663.* Scand-
to the extent of 15 to 20 feet, but sometimes reaching 50
young branches and petioles rusty-tomentose. *Leaves* coriaceous
oblong, rarely elliptic-rotund, sometimes slightly obovate,
shortly and abruptly acuminate, very slightly narrowed to 1
or minutely cordate base; upper surface (when adult) gl-
glabrous except the tomentose midrib and nerves; lower
sometimes stellate, rusty tomentum, especially along the
to 18 pairs of prominent spreading or oblique nerves; length
to 10 in., breadth 2.5 to 4 or (in some Burmese specimens
petiole .25 in. *Peduncles* extra-axillary or terminal, de-
tomentose, 3- to 5-flowered, each pedicel with an oval or rot-
buds globose; flowers 1.5 in. in diam. *Sepals* connate, im-
wavy obscurely 3-toothed edge. *Petals* much larger than
rotund, blunt, coriaceous, purple, tomentose outside, pube-
anthers sessile, 3 in. long; the connective produced
nearly half the length of anther, compressed, obliquely tran-
narrow, compressed, tomentose, the stigmas truncate. *Ty-*
woody, hemispheric, 1 in. in diam. sparsely pubescent, pitted,
pels stalked, oblong, blunt at each end, glabrous, .75 to 1.25 in.
carp thin; stalks .5 to 1 in. long; seeds numerous, oval,
shining. *Wall. Pl. As. Rar. I, 122; Cat. 6487 (excl. F. in*
2-6

Ind. 97; Hook. fil. Fl. Br. Ind. I, 49; Miq. Fl. Ind. Bat. I, Thwaites Enum. Pt. Ceyl. 6; Kurz Fl. Burm. I, p. 28; Bedd. Ind. Or. t. 81. *U. rufescens*, DC. Mem. Anon. 26. *U. cordata*, Wall. Cat. 6486. *Guatteria cordata*, Dunal Anon. 129 t. 30; DC.

Chittagong, Baniash, Malayan Peninsula, Java, Ceylon.

Of the most widely distributed species of the genus and reduced to *U. ovalifolia*, Bl. I reduce to this species the *Ucaria* (Wall. Cat., No. 6486); but not without some hesitation, as I and Kurz referred it to *U. ovalifolia*, Bl.

U. PURPURA, Blume Bijdr. 11: Fl. Jav. 13, t. 1 and t. 13. A woody shrub, often climbing to 20 or 30 feet: young parts softly pubescent or tomentose. Leaves thickly membranous, ovate to elliptic-oblong, sometimes slightly obovate, acute or the base rounded or slightly cordate, shortly petiolate; when adult, shining, glabrous or glabrescent, the midrib and the nerves tomentose; under surface rather sparsely stellate-tomentose; main nerves 14 to 17 pairs, rather prominent beneath, the lower spreading, the upper sub-erect; length 9 or even 11 in., breadth 2.5 to 3.75 in.; petiole 15 to 20 lines 1 to 1.5 in. long, extra-axillary or terminal, usually 2-flowered; flowers 2 to 3 in. diam.; bracts 2, large, undulate; buds turbinate. Sepals broadly triangular, sub-concave, fulvous-tomentose on the outer, glabrescent on the inner; petals longer than the sepals, coriaceous, oblong to obovate, glabrous, dark purple, the inner 3 slightly smaller. Anthers very numerous, equal, about 3 in. long; the connective much shorter, the apex rhomboid in the inner, compressed and oblique in the outer. Ovaries numerous, densely crowded, slightly shorter than the styles, tomentose; ovules numerous. Torus depressed-hemispherical, pitted when ripe. Ripe carpels numerous, stalked, oblong, blunt at each end with 2, more or less obscure, ridges and densely fulvous-tomentose, sub-tuberculate, 1.5 to 2 in. long, 1 in. in diam.; stalks .5 to 1 in. long, fulvous-tomentose. Seeds 1 in. diam. Hook. fil. and Thoms. Fl. Ind. 95; Miq. Fl. Ind. Bat. I, Ann. Mus. Lloyd Bat. II, 6; Hook. fil. Fl. Br. Ind. I, 47; King Kong, 9; Vidal y Soler, Revis. Fl. Filipinas, 39; Scheffer Bot. Java, 26, 65; Ann. Jard. Bot. Buitenz. II, 1. *U. grandiflora*, Bl. II, 665; Wall. Pl. As. Rsr. II t. 121; Wall. Cat. 6485, A. Wight and Arn. Prod. 9. *U. platypetala*, Champ. in Kew Bot. Beechey, II, 257. *U. rhodantha*, Hausskn. in Walp. Ann. II, 19. *Unona* DC. Prod. I, 90.

In all the provinces. Distrib: Malayan Archipelago, Philippines.

Var. *tuberculata*; fruits prominently tuberculate.

Perak; King's Collector, Nos. 960, 4786.

A plant collected in the island of Bangka, closely resembling in leaves, but with larger flowers with yellow petals, has been described by Messrs. Peyssonier and Binuendyk under the name of *U. Tijds. Ned. Ind. XXIX*, 419). It has also been figured (Ann. Mus. Lugd. Bat. II, 6, t. 1). I fear it is merely a variety of *U. purpurea*; but not having seen fruiting specimens, I hesitate to place it here.

7. *UVARIA HIRSUTA*, Jack Mal. Misc. (Hook. Bot. Mi.

A sarmentose shrub but often climbing to the length of from 10 to 20 feet: young branches and petioles with numerous rather stiff brown hairs. Leaves thinly coriaceous, narrowly elliptic-oblong, rarely obovate-oblong, acute or sub-acute, the base minutely cordate; upper surface with scattered sub-ascending hairs, mostly simple hairs, the midrib tomentose; lower surface with numerous stellate and simple hairs: main nerves 9 to 14 primary, depressed on the upper surface (when dry) but prominent on the lower; length 4 to 7 in., breadth 2.25 to 3.25 in., petiole 1 to 2 in. long, lateral or terminal, not axillary, 1- rarely 2 flowers 1.25 to 1.5 in. in diam.; bract solitary (rarely 2 or 3) deciduous: buds ovoid-globose, stiffly hairy. Sepals membranaceous, ovate, acute, connate, pilose outside, reflexed. Petals rather more than the sepals, broadly ovate, acute; outside tomentose with stiff hairs, inside sub-glabrous; anthers 1.5 in. long, sub-sessile, five at the apex often slightly produced and obtuse. Gynoecium truncate, rufous-tomentose, shorter than the anthers. Ovary numerous, stalked, cylindrical, blunt, 1.5 to 2 in. long, covered with stiff hairs and tomentum (with dense darkly ferruginous tomentum on the stalks and torus) with dense darkly ferruginous tomentum and stiff hairs: stalks 1 to 1.25 in. long: torus hemispherical, 1.5 in. long, ovoid, plano-convex. Blume Fl. Javae, Anon. 22, t. 1, p. 6458 (excl. C.); Hook. fil. and Thoms. Fl. Ind. 99; H. & A. Bot. Beechey, Fl. Ind. I, 48; Miq. Fl. Ind. Bat. I, Pt. 2, p. 24; Ann. Mus. Lugd. Bat. II, 6, t. 1, p. 1; Scheff. in Nat. Tijdsch. XXXI, 2; Zoll. in Linnæa XXI, 1, p. 1; Flora Burm. I, 28; Scheff. Observ. Phyt. I, 2. *U. trichomalla*, Jav. Anon. 42, t. 18. *U. velutina*, Blume (not of Roxb.) Fl. Ind. pilosa, Roxb. Fl. Ind. II, 665.

In all the provinces. Distrib. Malayan Archipelago and

There is some difference amongst individuals as to the shape of the leaves, and on one of the forms with comparatively short leaves Blume founded his species *U. trichomalla*.

VARIA CURTISII, King n. sp. A large climber: young branches tomentose, slender. *Leaves* oblong-lanceolate, sometimes lanceolate, acuminate, slightly narrowed to the rounded base; glabrous except the strong rusty-tomentose midrib and under surface stellate-rufous-tomentose, especially on the petioles, and 7 to 12 pairs of ascending, curving, bold main veins 4 to 9 in., breadth 1.7 to 3.25 in.; petiole .15 to .2 in., diameter 1 to 1.25 in. in diam., solitary or in pairs, axillary: length 1.75 in., densely tomentose like the outer surface of the leaf with an ovate supra-median bracteole. *Sepals* broadly ovate, spreading, puberulous within, .35 in. long. *Petals* thinly imbricate, subequal, ovate-oblong, obtuse; the outer rather broader than the inner, .5 in. long, puberulous on both surfaces but especially on the inner. *Stamens* numerous, all perfect; connective truncate at the base and prolonged into a process; the anthers linear, lateral. *Ovaries* crowded, elongate, 3-angled, tomentose, with 12 ovules in each; stigma sessile, large, sub-capitate, corrugated, glabrous. *Ripe fruit* unknown.

Found on Utu Babong, King's Collector, No. 8543. Penang: elev. 1000 ft. Curtis No. 1415.

VARIA RILEYI, King n. sp. A strong climber; young branches stellate-rufous-tomentose, ultimately dark-coloured, striate; anticellate. *Leaves* sub-coriaceous, elliptic-oblong, acuminate, narrowed to the rounded base; both surfaces with short, stellate, hairs, scabrid on the upper, soft on the lower surface; the veins 10 to 15 pairs of spreading curving slightly prominent main veins 3 to 5 in., breadth 2 to 3 in.; petiole .15 in., stellate-tomentose. *Flowers* .75 to 1 in., 2 or 3 together in short supra-axillary cymes; pedicels spreading like the outer surface of the calyx, 3 or 4 in. long, with a sub-orbicular amplexicaul bracteole. *Sepals* orbicular, connate, scarcely 3-toothed spreading cup .4 in. in diam., glabrescent. *Petals* spreading, sub-orbicular to broadly oblong, very blunt, outer thin, minutely pubescent on both surfaces but especially on the inner, dark reddish-brown. *Stamens* numerous (the outer row of sub-quadrate staminodes) compressed, broad, without filiform process of the connective broad and flat; anther-cells of the connective, linear. *Ovaries* numerous, crowded, crowded, compressed, ridged, minutely stellate-tomentose, the stigma sessile, short and broad, fleshy, obliquely spreading. *Ripe carpels* ovoid or obovoid, blunt at both ends, minutely 2 to 1.5 in. long; stalks nearly 1 in., stellate-tomentose.

Seeds numerous in two rows, horizontal, oval, compressed; shining.

Pahang: Ridley. Perak: Scortechini.

10. *UVARIA PANCIOVULATA*, H. f. and T. in Hook. fl. I, 51. A sub-scandent shrub: young branches densely serotomentose. Leaves coriaceous, rigid, narrowly elliptic or elliptic-obtuse or obtusely acuminate, the base rounded or cordate; (in adult leaves) shining, quite glabrous; the lower dull, serotomentose; main nerves 10 to 14 pairs, sub-ascending, curving beneath and impressed above: length of blade 2.5 to 6 in., to 3 in., petiole .2 in. Racemes terminal, umbellate, few-flowered, 2.5 in. long, scurfily rufous-tomentose; bracts numerous on the peduncles towards the apex, rotund to ovate, tomentose; buds and flowers 1.5 in. in diam. Sepals small, (.3 in. long) orbiculate, connate to the middle and densely tomentose outside, densely puberulous inside. Petals very much larger than the sepals, connivent, coriaceous, ovate-rotund, obtuse, the inner 3 narrow, scaly-tomentose externally, densely and minutely pubescent internally; anthers sub-sessile, cuneate; connective slightly below the apex, truncate; ovaries longer than the stamens, flattened, hairy; stigma truncate, ovules 1 to 3. Hipo carpels numerous, sub-globose, mucronate, densely and minutely fulvous-tomentose, .5 in. in diam., 1- to 2-seeded; stalk .5 to .75 in., rather slender, compressed, shining.

Malacca; Maingay (Kew Distrib.), No: 104. Penang: King 825: at elevations of 500 to 600 feet.

11. *UVARIA SCORTECHINII*, King n. sp. A sarmic shrub; young branches and petioles densely covered with serotomentose. Leaves coriaceous, elliptic to elliptic-obovate, very slightly or not at all narrowed to the rounded or emarginate base: upper surface shining, glabrescent or glabrous, the dorsal midrib and nerves tomentose, transverse veins depressed, under surface minutely and softly rufous, pubescent or serotomentose; midrib nerves and reticulations which are all bold and primary, nerves 10 to 12 pairs, spreading below, sub-ascending at the tips, forming double arches within the edge: length of blade 4 to 7 in., to 4 in., petiole .2 to .4 in. Flowers 1.5 in. in diam., either in umbels of 2 or 3, or in many-flowered lateral panicles 4 to 6 in. long; peduncles .5 to .75 in. long; bracts numerous, but chiefly on the apices of the peduncles, ovate-orbicular, covered with the same flocculent tomentum as are the branches and axes of the plant. Sepals fleshy, triangular, sub-acute, connate in the lower third

minutely pubescent. *Petals* fleshy, about 1 in. long, con-
 outer 3 ovate-rotund, very obtuse, tomentose-pubescent on
 s, the outer surface with some small superficial scales, the
 round glabrous spot at the base: inner 3 petals obovate,
 scent outside, glabrous inside except a broad pubescent
 apex. *Anthers* sessile, angled, the connective projecting
 apex, broadly truncate, almost peltate. *Ovaries* (side
 "several, with few stellate hairs, 2-3 ovuled: style cylin-
 glabrous." *Fruit* unknown.

Scortechini, No. 1990.

These are the only specimens I have seen, and they have

Uvaria micrantha, H. f. and Th. Fl. Ind. 103. A large clim-
 branches slender, softly rufous-tomentose, afterwards glab-
 and dark-coloured with pale warts. *Leaves* thinly coriace-
 lanceolate, acuminate, the base rounded or slightly concave;
 glabrous except the rufous-pubescent midrib: main nerves
 (even when dry), 12 to 15 pairs, spreading; length of
 6.5 in., breadth .8 to 1.4 in., petiole .15 in. *Peduncles* ter-
 minal, very short, 2- to 4-flowered, softly rufous-tomen-
 more or less orbicular; buds globose, slightly pointed, .15 in.
 diam. *Sepals* sub-rotund, densely pubescent
 glabrous inside. *Petals* broadly ovate, sub-obtuse, granular
 tomentose outside, pubescent inside. *Ripe carpels* numer-
 ous, void-globose, rounded at each end, glabrous, 2- to 4-seeded.
 apex, smooth; Hook. fil. Fl. Br. Ind. I, 51; Kurz Fl.
 Ind. Bat. I, Pt. 2, 26; *Uvaria sumatrana*, Kurz
 29; Hook. fil. Fl. Br. Ind. I. 51. ? *Uvaria elegans*, Wall.
Gutteria micrantha, A. DC. Mem. 42; Wall. Cat. 6449.
Uvaria elegans, A. DC. l. c. 42; Wall. Cat. 6430. *Anaxagorea*
 Fl. Ind. Bat. Suppl. 382.

Uvaria, Penang. Distrib. Sumatra.

These leaves, this closely resembles *Popowia nitida*, King—a
 Andaman and Nicobar Islands; and there is reason to
 think some specimens of that *Popowia* from those islands have
 been in the Calcutta Herbarium as *Uvaria micrantha*. I am
 of opinion that *Uvaria sumatrana*, Kurz Andaman Report, 29,
 Hook. fil. and Thoms. Fl. B. Ind. I, 51, is possibly *Popowia nitida*,

Uvaria ANDAMANICA, King n. sp. Scandent: young branches
 densely stellate-tomentose. *Leaves* oblong-ob lanceolate,
 apex acute, much narrowed to the rounded, unequal, or minutely

cordate base; upper surface glabrous, the midrib and secondary nerves coarsely puberulous; under-surface reticulate, stellate pubescent on the midrib and 18 to 22 pairs of spreading nerves; length 5.5 to 9 in., breadth 1.75 to 4 in.; petiole 3 in. *Flowers* small, in short terminal or axillary cymes, rarely pedicels 3 in. long, densely covered like the outside of the fruit with sub-deciduous coarse, rusty, stellate tomentum; bractescolar, ovate, close to the flower. *Sepals* valvate, orbicular, concave, glabrous inside. *Petals* imbricate, orbicular, fleshy, puberulous outside, glabrous within; the inner rather smaller than the outer but both under (in the young state) .25 in. in diameter. *Stamens* numerous, narrowly elongate, the apex truncate more or less, anther-cells lateral. *Ovaries* absent in the stamiferous flowers. *Carpels* oblong, blunt (almost truncate) at each end, sub-quadrate and densely covered with loose, sub-deciduous, rusty tomentum: pericarp rather thick. *Seeds* about 8 in 2 rows.

South Andaman; King's Collector.

This has been collected only on two occasions, once with developed male flowers and once with immature fruit. The full development by the flowers is not known, and the measurements of sepals above given are taken from buds. By its leaves and peculiar rusty stellate tomentum, the species is however readily recognized.

14. *UVARIA EXCELSA*, Wall. Cat. 6477. A creeper 3 to 4 ft. long: young parts stellate-pubescent; the branchlets turn rapidly becoming glabrous dark-coloured and furrowed. *Leaves* lanceolate, oblanceolate, obovate-oblong to elliptic, the apex acuminate (sometimes very shortly), acute, rarely obtuse, slightly minutely cordate base; upper surface shining, glabrous, lower surface puberulous depressed midrib; lower surface minutely tomentose. *Main nerves* 10 to 12 pairs spreading, slender; length 3 to 4 in., breadth 1.5 to 4 in.; petiole 3 to 5 in. pubescent. *Flores* .5 to .75 in. in diam., in contracted cymes from the branches or axillary; pedicels only about 2 in. long, rufous-tomentose. *Bract* large bract close to the flower. *Sepals* semi-orbicular, concave, valvate, concave, spreading, tomentose outside, glabrous within; in bud imbricate only at their apices, sub-equal, thick, minutely pubescent on both surfaces: the outer acute, a little larger than the sepals: inner petals ovate, as the sepals. *Anthers* numerous, narrow, the cells linear, the apical process of the connective thick, sub-quadrate, oblong, minutely pubescent. *Ovaries* narrow, elongate, grooved,

sub-capitate, sub-truncate; ovules numerous, in two rows, sub-globular, slightly obovoid, blunt at each end, densely tomentose, 1-1 in. long and .9 in. in diam. *Seeds* about 6, horizontal, half-oval, flat, smooth, brown. *Mitrephora ex-*
d. Fl. Ind. 114; Hook. fil. Fl. Bor. Ind. I, 77; Miq. Fl.
 (2, 31)

Wallich, Curtia. Perak: King's Collector. Scortechini.
 in Gray (Kew Distrib.), No. 38 in part.

It was originally named as a *Uvaria* by Wallich. His
 name, however, bore no mature flowers; and Sir Joseph Hooker
 has since referred them doubtfully to *Mitrephora*. The excellent
 specimen collected by Mr. Curtis and by the Calcutta Garden
 shows the petals to be sub-equal and concave, imbricate at the
 base, the sepals being quite valvate. This of course is not the
 case of a *Uvaria*, in which the petals are much imbricate. But
 the characters and ripe fruit are more those of *Uvaria* than of any

U. ASTROSTICTA, Miq. Fl. Ind. Bat. Suppl. 370. A climber?
 This is decidedly rufous-stellate-tomentose with simple hairs
 ultimately glabrous striate and dark-coloured. *Leaves*
 long-lanceolate, sometimes slightly oblanceolate, acuminate,
 alternate or minutely cordate; upper surface minutely subercul-
 ifero and sometimes the nerves softly rufous-pubescent;
 lower surface at first densely and softly tomentose, ultimately sparsely
 tomentose, sub-scaberulous; main nerves 12 to 16 pairs, spread-
 out on the lower surface; length of blade 4 to 6 in.,
 1-1 1/2 in., petiole 2 in. *Peduncles* extra-axillary, very short,
 2- or 3-flowered, rufous-stellate-tomentose as are the 2 or
 3 bracts; buds sub-globular; flowers 6 in. in diam. *Sepals*
 5, united half way. *Petals* nearly three times as long
 as the sepals, sub-coriaceous, broadly oval, slightly obovate, sub-acute,
 with a small point. *Anthers* sub-sessile, the connective produced
 into a flattened and truncate, 3 outer anthers barren: torus
 unknown; Miq. Ann. Mus. Lugd. Bat. II. 8.

Scortechini, No. 121. Distrib. E. Sumatra.

Specimens of this plant agree perfectly with those from
 which the species was founded. It is allied to *U. heterocarpa*
 (Miq.), and also to *U. timoriensis*. I have never seen the
 author's entire description of it consists of the two words
 "Astro-sticta."

Doubtful Species.

U. SUB-REPANDA, Wall. Cat. 6483. A climber: young

branches very slender, rather sparsely scurfy-pubescent. Leaves branched, oblong or obovate-oblong, acute, the base rounded: upper surface shining, glabrous except the pubescent midrib; under-surface yellowish-brown when dry, dull, at first puberulous, ultimately glabrous including the midrib, the reticulations distinct; main nerves 10 to 14 pairs, spreading, thin but rather prominent beneath: length of blade 5 to 7.5 in., breadth 2 to 2.25 in.; petiole .15 to .25 in., densely scaly-pubescent. Peduncles axillary, rufous-stellate-tomentose, 1-flowered bracts cucullate, sub-orbicular. Petals narrowly oblong. Ripe carpels unknown. Hook. fil. and Thoms. Fl. Ind. 161: Hook. fil. Fl. Br. J. 60.

Singapore, Wallich.

A very imperfectly known species, the only specimens being Wallich's which are not good and which are in flower only. The only specimen which agrees with Wallich's specimens as regards leaves and branches is from Penang (Curtis No. 1408): but this has a 2-flowered, extra-axillary peduncle, and I hesitate to identify it with *sub-repanda*.

5. ELLIPRIA, H. f. and T.

Characters of *Uvaria*, but with solitary, ventral or sub-basal ovules. 1-seeded carpels, the style sometimes elongate.

Distrib. Malaya: species 10 or 11.

Flowers all hermaphrodite.

Flowers in groups.

Leaves oblong or narrowly obovate-oblong, acuminate, pubescent, puberulous or glaberrulous beneath: flowers in short panicles

E. cuneifolia.

Leaves obovate-oblong, obtuse, softly tomentose beneath, peduncles 3- or 4-flowered

E. leptopoda.

Leaves oblong or elliptic-oblong, acute, glabrous, cymes 3-to 5-flowered

E. glabra.

Flowers solitary.

Leaves oblong-lanceolate to ovate-lanceolate, acuminate, minutely granular above when dry

E. costata.

Flowers unisexual or polygamous, solitary or in pairs.

Leaves shortly acuminate, both surfaces minutely granular when dry, not reticulate: stalks of carpels .15 in. long

E. pumila.

Leaves acute, rarely acuminate, not granular,
 reticulations transverse and very distinct;
 stalks of carpels 75 to 1 in. long ... 6. *E. nigrosa*.

1. *ELLIPPIA CUNEIFOLIA*, H. f. and T. Fl. Ind. 104. A climber 20
 to 100 feet long: young branches at first shortly and densely rufous-
 tomentose, ultimately sub-glabrous. Leaves thinly coriaceous, oblong or
 narrowly obovate-oblong, the apex broadly abruptly and shortly acumi-
 nate; the base rounded or sub-cordate: upper surface glabrous, shining,
 the midrib and often the main nerves tomentose; lower minutely rufous-
 tomentose to pubescent, very often glabrous: main nerves 16 to 19
 pairs, spreading to sub-ascending, prominent beneath; length of blade
 2 to 7 in., breadth 1.5 to 3 in.; petiole 1.5 to 2 in., tomentose. Flowers
 1.5 to 2 in. diameter, in short few-flowered pedunculate rufous-tomentose
 umbels: bracts at the bases of the pedicels ovate, that at the base of
 the flower round; pedicels .25 to .4 in. long: buds ovoid-conic. Sepals
 small, fleshy, sub-orbicular, slightly united below, spreading, coriaceous,
 tomentose. Petals fleshy, connivent; outer 3 much larger than the
 sepals, rotund, densely pubescent on both surfaces; inner 3 not much
 larger than the sepals, rotund, pubescent externally, glabrous internally.
 Anthers sessile, short, the cells on the outer surface; the apex with a broad,
 round, oblique, truncate appendage from the connective; pistils oblong,
 tapering to each end, pubescent. Torus small, sub-globose. Ripe carpels
 numerous, on long stalks, ovoid, oblique, blunt, with a faint partial ridge
 and a short lateral, conical process, minutely yellowish-tomentose. Seed
 smooth, ovoid. Hook. Ic. Plant. t. 1025; Hook. fil. Fl. Br. Ind. I, 52.

Malacca: Griffith, Maingay (Kow Distr.) No. 31. Perak, very
 common.

In the Perak specimens the tomentum on the under-surface of the
 leaves is usually less dense than in specimens from Malacca: moreover
 the flowers are smaller in the Perak specimens, and the floral bract is not
 so close to the calyx but a little way under it. In other respects, however,
 they agree.

ELLIPPIA LEPTOPODA, King, n. sp. A climber, 50 to 70 feet long:
 branches and petioles densely covered with scurfy cinereous
 tomentum. Leaves coriaceous, obovate-oblong, rarely elliptic, obtuse, or
 cuneate, with a very short blunt apiculus, narrowed in the lower half to the
 base, minutely cordate, rarely entire, base: upper surface pale-green when
 young, sparsely and minutely stellate-pubescent when young, afterwards
 glabrous except the pubescent midrib; lower surface densely covered
 with soft, short, dense, pale brown tomentum; main nerves 10 to 12 pairs,
 spreading, obsolete on the upper, slightly prominent on the lower, sur-
 face: length of blade 3.5 to 5 in., breadth 2.25 to 2.5 in., petiole 2 to

.25 in. *Peduncle**extra-axillary, about, 5 in. long; the flowers 3 on short pedicels, each subtended by a rotund-obovate, cucullate bract the whole inflorescence and calyx rather sparsely stellate-tomentose buds depressed-globose: flower 75 in. in diam. *Sepals* often 4 in number, semi-orbicular, very obtuse, slightly united below, spreading. *Petal* coriaceous, three times as long as the sepals, ovate-rotund, obtuse recurved, minutely pubescent on both surfaces, dark crimson. *Anthers* sessile, very small, the connective produced beyond the apex, flattened oblique. *Ovaries* about as long as the anthers; the stigmas truncate hairy. *Torus* hemispheric. *Carpels* numerous, on long slender stalks ovate-rotund, 5 in. long, slightly oblique with a slight lateral bend minutely cinereo-pubescent. *Stalks* slightly thickened and ridged towards the apex, 5 to 2.5 in. long. *Seed* ovoid, flattened on one side smooth.

Perak; at low elevations, King's Collector. Singapore, Ridley.

A species in its leaves resembling *Ucuvia heterocarpa*, Bl. but with different fruit: also like *U. timorensis*, Miq., but with much more obovate leaves.

3. *ELLIPSEA GLABRA*, H. f. and T. Fl. Br. ind. I, 52. A tree young branches and inflorescence brown-pubescent. *Leaves* coriaceous, oblong or elliptic-oblong; the base rounded or acute; both surfaces glabrous, not shining, the upper rigid, the lower paler and reticulate: main nerves about 9 pairs, curved, sub-ascending, prominent beneath; length 4 to 5.5 in., breadth 1.5 to 2 in., petiole .25 in. *Cymes* shortly pedunculate, axillary, 3- to 5-flowered, 1 to 1.5 in. long. *Flowers* 1.5 in. in diam. bracteole oblong, sub-amplexicaul, recurved. *Sepals* ovate-lanceolate acute, recurved, .25 in. long. *Outer petals* obovate-lanceolate, sub-acute, flat, with one claw, 1 in. long; the inner shorter, obovate, obtuse. *Ovaries* glabrous below, strigose above; ovule 1, erect (Maingay). *Ripe carpels* sub-globose, .65 in. long; pedicels slender, .75 to 1.25 in. long; pericarp thin. *Seed* oblong, pale, with a deep longitudinal furrow Malacca; Maingay No. 66 (Kew Distribution).

Except Maingay's [I have seen no specimens of this.

4. *ELLIPSEA COSTATA*, King. A shrub about 10 feet high: young branches pale, rusty-tomentose. *Leaves* coriaceous, oblong-lanceolate to ovate-lanceolate, acuminate, the base cuneate: upper surface glabrous but rather rough; lower pale, softly and laxly pubescent, sub-glabrescent when old; main nerves 8 to 9 pairs, bold, sub-ascending, rather straight. Length 4 to 6 in., breadth 2 to 2.5 in.; petiole .25 in., tomentose. *Flowers* solitary, extra-axillary, .75 to 1 in. in diam.: pedicels woody tomentose, .15 in. long, with 3 ovate acute bracts at their bases. *Sepals* ovate, obtuse, half as long as the petals and, like them, sericeous exte-

ly and glabrous or sub-glabrous internally. *Petals* subequal, oblong, base, 35 to 45 in. long. *Ripe carpels* ovoid-cylindric, slightly apiculate, shortly stalked, glabrous, 8 in. long and 35 in. in diam.; pericarp

Burmah; on Moolyet at 5,000 ft. Gallatly.

I have seen no entire fruit of this species but only some loose carpels. When ripe they are said by Mr. Gallatly to be red.

ELLIPEIA PUMILA, King, n. sp. A shrub 2 to 8 feet high; young branches with minute pale rufous tomentum; when older dark-coloured, glabrous and furrowed. *Leaves* coriaceous, oblong-lanceolate to elliptic-lanceolate, tapering from the middle to the shortly acuminate apex to acute base; both surfaces minutely granular when dry, the upper glabrous; the lower sparsely adpressed-pubescent; the midrib rufous-pubescent; main nerves about 9 pairs, oblique, rather straight, faint on lower surface, obsolete on the upper; length 4.5 to 7 in., breadth 1.5 to 2.25 in.; petiole .25 to .35 in., pubescent. *Flowers* solitary, or in pairs, extra-axillary, sub-sessile; .75 in. in diam. when expanded, the corolla globose; pedicels .1 in. long, coarsely hirsute, bracteate. *Sepals* much shorter than the petals, broadly ovate, sub-acute, strigose-pubescent outside and sub-glabrous inside as are the petals. *Petals* imbricate, spreading, lanceolate or oblanceolate-oblong, the outer at first much shorter than, but ultimately sub-equal to, the inner. *Male-flower*: stamens numerous, with transversely elongate, truncate, heads; pistils 0. *Female flower* like the male but with fewer stamens; pistils about 10, pubescent, 1-ovuled; stigma short, flat, pubescent. *Carpels* 4 to 5, sub-cylindric, tapering to each end, .75 in. long and .25 in. diam., minutely granular and strigose; stalks tomentose, .15 in. long; torus very small. *Fruit* solitary, oblong, pale.

In leaves and in general facies this is very like *Popocia nervifolia*, Gaing., but its petals are distinctly imbricate.

ii) Perak on Ulu Babong; King's Collector, Scortechini.

3. *ELLIPEIA NERVOSA*, Hook. fil. and Thoms. Fl. Br. Ind. I, 52. A shrub 10 feet high; young branches glabrous, dark-coloured, slightly furrowed. *Leaves* coriaceous with pellucid dots, elliptic-oblong, or lanceolate-oblong, acute or rarely shortly acuminate, the base acute; upper surface glabrous; the lower sparsely strigose, the reticulations transverse and very distinct; main nerves 10 or 11 pairs, oblique, rather straight; length 8 to 11 in., breadth 2 to 3.5; petiole .35 to .5 in., glabrous. *Flowers* polygamous, solitary, extra-axillary, rarely in pairs, .75 in. in diam., globose; pedicels stout, 1 to .2 in. long, rufous-pilose, bracteate. *Sepals* broadly ovate, acute, pubescent, much smaller than the petals. *Petals* white, spreading, imbricate; the outer broadly ovate-oblong, ob-

fast; the inner rather shorter and narrower, oblong; all pubescent especially externally. *Stamens* in the male flowers numerous, with reddish flat heads. *Ovaries* in the female flower many, curved. *Carpels* rather numerous, ovoid, slightly apicalate, narrowed into the stalk, reddish when ripe (Wray), about 1 in. long and .5 in. in diam., glabrous; their stalks .75 to 1 in. long.

Maiaceae; Maingay, (Kew Distrib.), No. 47. Perak; common on low elevations. Penang; Curtis.

In the texture and nervation of its leaves this species has a strong resemblance; to *Japowia nervifolia*, Maing. and other species in neighbourhood. But the petals are not those of a *Popowia*, both rows being distinctly imbricate. The fruit moreover is larger than that of *Popowia*, and the albumen is much more cellular in structure being, in this respect, like that of *Blippia cuneifolia*, H. & Th.

6. CYATHOCALYX; Champion.

Trees. *Leaves* glabrous. *Flowers* fasciated, terminal or leaf-opposed. *Sepals* free or united into a 3-lobed cup. *Petals* 6, 2-seriate, valvate in bud, subequal, bases concave conniving, blade flat spreading. *Stamens* indefinite, long-cuneate, truncate; anther cells linear, dorsal. *Ovary* solitary or 2-6, on a concave torus; stigma large, grooved; ovules many. *Ripe carpels* berried.—*DISTRIB.* Tropical India and Malaya, species 8.

Ripe carpels ovoid	...	...	...	<i>C. virgatus</i>
Ripe carpels globular	...	...	...	2 <i>C. Maingay</i>

In its petals this genus resembles *Actinotryx* to some extent, but *Polyalthia* still more. The ovaries in the first two species are usually solitary; in the third they are 3 in number; the ripe carpels of all three being large succulent and many-seeded. Baillon admits the genus as it was established by Champion and accepted by Hooker filius & Thunberg. In the above diagnosis I have however modified the definition so as to provide for the species with more than one ovary.

1. *CYATHOCALYX VIRGATUS*, King. A tree 40 to 60 feet high; young branches slender, pale, glabrous, the tips alone pubescent. *Leaves* unbranched, elliptic-oblong to oblong-lanceolate, shortly and obtusely acuminate, the base cuneate or sometimes rounded; both surfaces shining, the lower rather darker when dry; the upper glabrous, the lower pubescent on the 8 or 9 pairs of sub-ascending rather prominent nerves; length 4 to 6.5 in., breadth 1.25 to 2.75 in.; petiole .25 to .35 in., pubescent. *Flowers* in axillary, sub-sessile fascicles of 2 or 3, about 1 in. long. *Sepals* united at the base, ovate to ovate-lanceolate, spreading, tomentose, shorter than the inner petals. *Petals* tomentose-sericeous, the outer row much longer than the inner, lanceolate, much acuminate.

about, 75 in. long; inner row with orbicular concave base and much acuminate apex, 5 in. long. Connective of *stamens* slightly produced at apex and obliquely truncate. *Ovaries* 4 to 6, hirsute; ovules many, 2-seriate; stigma thick, discoid, sessile; torus conic, truncate, pubescent. *Ripe carpels* solitary, or in pairs and divergent, oblong-ovoid, blunt at each end, minutely tomentose, 2 to 3 in. long, and 1 to 1.5 in. in diam.; pericarp thick; seeds 8 to 10, compressed, elongate and narrowly sub-reniform, transversely substriate. *Urena virgata*, Blume Bijdr. 14; Fl. Java Anon. 43 t. 19 and 25B.; Miq. Fl. Ind. Bat., I. Pt. 2, p. 42. *Meiogyne virgata*, Miq. Ann. Mus. Lingl. Bat. II., 12. *Cananga virgata*, Hook. fil. and Thoms. Fl. Br. Ind. I., 57.

Malacca: Maingay (Kew Distrib.), No. 92. Perak: King's collection. Distrib. Java.

Blume describes the carpels as from 3 to 5; but I have never found more than two, and it is difficult to understand how more can come to perfection on the comparatively small torus. In Java this is said often to be a bush from 6 to 8 feet high: in Perak it is a tall tree.

2. *CYATHOCALYX MAINGAYI*, Hook. fil. and Thoms. Fl. Br. Ind. I., 53. A tree 50 or 60 feet high: young branches rather stout, puberulous, speedily glabrous and dark-coloured. *Leaves* elliptic to oblong, thinly coriaceous, slightly obovate, shortly caudate-acuminate, the base rounded or slightly cuneate; upper surface shining, quite glabrous; the lower puberulous when young, ultimately glabrous; the main nerves 13 to 15 pairs, bold and prominent, spreading, interarching near the edge; length 4.8 to 8.8 in., breadth 2.75 to 3.75 in., petiole 3 in. *Flowers* 2 to 3 in. in diam., solitary or in short, 2- to 3-flowered racemes, axillary or extra-axillary: pedicels 5 to 75 in. long with a large stem-clasping bracteole near the apex. *Sepals* spreading or sub-reflexed, ovate, sub-acute, slightly connate at the base, puberulous on both surfaces, 4 in. long. *Petals* thinly coriaceous, subequal, puberulous, obovate or broadly obovate-lanceolate, blunt, the base with a short claw, pale greenish with a blotch of reddish yellow at the base, all (but especially the inner row) more or less convex, the inner row slightly concave and glabrous at the base inside. *Stamens* numerous, cuneate, short; the connective produced into a broad, flat, orbicular, oblique expansion which over-hangs the dorsal linear anthers. *Ovaries* 3, narrowly ovoid, pubescent, ovules about 10 in 2 rows: style short, lateral: stigma large, lobed, villous. *Ripe carpels* 1 or 2, globular, 1.5 to 1.75 in. in diam., slightly tuberculate when dry and minutely pubescent. *Seeds* 10 in 2 rows, elongated, compressed.

Malacca: Maingay (Kew Distrib.), No. 94. Singapore: Ridley. Perak: King's Collector.

This species is doubtfully referred to *Cyathocalyx* by its authors, and chiefly on the ground that the petals, although valvate at the base, are slightly imbricate above. An examination of the large number of specimens sent from Perak by the Calcutta Botanic Garden Collector enables me to state that in bud the petals are truly valvate, but that as they develop they undoubtedly overlap. The anthers, ovaries and ripe fruit appear to me to be those of *Cyathocalyx* and in habit and general appearance of its leaves this plant agrees with the other species above described. In addition to the species above described, there are, in the Calcutta Herbarium, fruiting specimens from Perak of a small tree which is apparently a fourth species of *Cyathocalyx*. The leaves of this are oblong-lanceolate to oblong-ovate, 8- to 10-nerved, glabrous above and puberulous beneath; and the ripe carpels are in pairs, ovoid, puberulous, about 1.5 in. long. None of the specimens has any trace of flower.

7. ARTABOTRYE, R. Brown.

Sarmentose or scandent shrubs. Leaves shining. Flowers solitary or fascicled, generally on woody, usually hooked, recurved bristly peduncles. Sepals 3, valvate. Petals 6, 2-seriate, bases concave-convex; limb spreading, flat, sub-terete or clavate. Stamens oblong or cuneate; connective truncate or produced; anther-cells dorsal. Torus flat or convex. Ovaries few or many; style oblong or columnar; ovules 2, erect, collateral. Ripe carpels berried.—Dispersal. Tropical Africa and Eastern Asia; described species about 32.

This genus is at once distinguished by the curious hooked flower-peduncles. The petals are thick and mostly narrow, concave and closely convex at the base, while the limb is spreading. The habit of all is scandent. Besides those described below, there are in the Calcutta Herbarium imperfect materials of five undescribed species from Perak, and of one from the Andaman Islands.

Petals lanceolate to elliptic.

Flowers less than 1 in. long.

- | | |
|---|-----------------------------|
| Petals very fleshy, broadly elliptic, blunt | 1. <i>A. grandifolius</i> . |
| „ coriaceous, broadly lanceolate, acuminate | 2. <i>A. Scortechinii</i> . |
| „ slightly fleshy, elliptic-oblong, obtuse | 3. <i>A. pleurocarpus</i> . |

Flowers about 1 in. long.

- | | |
|---|----------------------------|
| Outer petals ovate-lanceolate; the inner lanceolate or linear | 4. <i>A. tenuistylus</i> . |
|---|----------------------------|

Flowers less than 1 in. long.

- Leaves elliptic to oblong, obtuse or shortly
and bluntly mucronate, coriaceous ... 5. *A. crassifolius*.
- Leaves oblong, acuminate, coriaceous ... 6. *A. oblongus*.
- Leaves oblong-lanceolate.
- Leaves shortly caudate-acuminate,
flower nearly 2 in. long ... 7. *A. Louianus*.
- Leaves shortly acuminate; flower 1.5
to 1.75 in. long; ripe carpels nar-
rowly elliptic, tapering to both ends,
glabrous ... 8. *A. oxycarpus*.
- Limb of petals linear, sub-triquetrous, cylindric, or
sub-clavate.
- Petals thickly coriaceous, linear, blunt, ad-
pressed-pubescent ... 9. *A. speciosus*.
- Petals linear-oblong, obtuse, (glabrous?) ... 10. *A. Mainyayi*.
- Petals fleshy, the outer 3 flattened; the
inner 3 obtusely triquetrous ... 11. *A. gracilis*.
- Petals fleshy, the limb cylindric to clavate ... 12. *A. suarcolens*.
- 1 perfectly known species ... 13. *A. costatus*.
- ... 14. *A. Wrayi*.

1. *ARTABOTRYA GRANDIFOLIUS*, n. sp. King. A powerful creeper 60 to 80 feet long; young branches stout, pale, striate, glabrous. Leaves thinly coriaceous, large, minutely pellucid-punctate, pale yellowish-green when dry, elliptic-oblong to elliptic-obovate; the apex broad, obtuse or abruptly sub-acute; the base caudate; both surfaces glabrous; distinctly reticulate, the upper shining, the lower duller; main nerves 10 to 12 pairs, oblique, inter-arching boldly .25 in. from the edge; length of blade 8 to 14 in., breadth 3 to 5 in.; petiole .4 in., stout. Petals very fleshy, densely and minutely tomentose, unequal; the outer 3 broadly elliptic, sub-acute or blunt, slightly concave, .75 in. long and .4 in. broad; inner 3 obovoid, spreading but with incurved apices, slightly shorter than the outer. Peduncles (in fruit) nearly 3 in. long, stout; torus hemispheric, 1 in. in diam. Ripe carpels numerous, glabrous, lenticellate, elliptic-obovoid, the apex mammillate, narrowed at the base into a short stout pseudo-stalk nearly .5 in. long; length of ripe carpel about 1.5 in., diam. .1 in.; pericarp hard, about 1 in. thick. Seed solitary, narrowly elliptic, blunt, 1.1 in. long, and .6 in. in diam.; the testa pale, rugulose. *A. macrophyllus*, King MSS. (not of Hook. fil.).
Perak; at Goping, elevation 500 to 800 feet, King's Collector, No. 477; Scortechini No. 1068.

Some specimens of this were unfortunately distributed from the Calcutta Herbarium under the MSS. name of *A. macrophyllus*,—a name

occupied by an African species described by Sir J. D. Hooker (Niger Flora, 207).

2. *ARTABOTRYS SCORTECHINII*, n. sp. King. A climber. All parts except the flower and possibly the fruit glabrous: young branches slender, dark-coloured. Leaves thinly coriaceous, ovate-lanceolate, shortly acuminate, the base cuneate; upper surface shining; the lower dull when young, very minutely scaly, afterwards glabrous; main nerves 9 to 11 pairs, spreading, inter-arching 1 in. from the edge, slender but rather prominent beneath: length of blade 2.25 to 3.25 in., breadth .9 to 1.3 in., petiole 2 in. Peduncle rather slender, 3- to 4-flowered; pedicels 3 in. long, thickened upwards, puberulous, with a small ovate bractlet at the very base. Flowers 6 to 8 in. long. Sepals very coriaceous, triangular, acuminate, the apices slightly reflexed, conjoined at the base only; rugulose and adpressed-pubescent externally, .25 in. long. Petals coriaceous, broadly-lanceolate acuminate, tomentose on both surfaces; inner three smaller than the outer 3. Anthers with broad connectival apical appendages. Torus rather flat, sericeous; ovaries glabrous. Fruit unknown.

Perak, Scortechini.

A species near *A. polygynus*, Miq., but with glabrous leaves and different flowers from that species.

3. *ARTABOTRYS PLEUROCARPUS*, Maingay in Hook. fil. Fl. Br. Ind. I. 54. A large climber; all parts except the flowers glabrous; young branches lenticellate, striate, dark-coloured. Leaves coriaceous, oblanceolate-oblong, the apex abruptly and shortly acuminate, the base much narrowed: both surfaces shining and reticulate, the upper paler; main nerves about 10 pairs, spreading, slender; length of blade 4 to 6.5 in., breadth 1.5 to 2.25 in.; petiole .5 in., thick. Peduncles flat, stout, much hooked, bearing several ebracteolate pedicels, .5 in. long, densely pubescent. Flowers 1.5 in. long. Sepals broadly ovate, obtuse. Petals subequal, flat, elliptic-oblong, obtuse, pubescent on both surfaces, the outer 1 to 1.35 in. long, the inner smaller. Anthers with apiculate connectives. Ovaries many, slender. Ripe carpels broadly elliptic, mammillate, obscurely grooved, narrowed into the short stout stalk, .75 in. long. Seeds 2, with hard testa.

Malacca; Maingay. Perak, Scortechini, No. 331.

4. *ARTABOTRYS VENUSTUS*, n. sp., King. A large climber, 30 to 80 feet long; young branches at first puberulous, afterwards glabrous, dark coloured, striate. Leaves coriaceous, elliptic to elliptic-oblong, abruptly and shortly acuminate, the base rounded or very slightly narrowed: both surfaces glabrous, the upper shining, the lower dull, adult leaves pale brown (when dry): main nerves 7 to 10 pairs, spreading

sub-ascending, curved, inter-arching freely '1 to '2 in. from the edge, prominent on the lower, less so on the upper, surface; length of blade 3.5 to 6 in., breadth 2 to 3 in., petiole '2 to '25 in. *Peduncles* extra-axillary, rather slender in flower, (stout in fruit), minutely tomentose, bearing 3 or 4 flowers, '75 to 1 in. long; pedicels slender, pubescent or glabrescent, from '5 to 1 in. long, ebracteate. *Sepals* coriaceous, broadly triangular, sub-acute, slightly conjoined at the base, sub-reflexed, puberulous externally, glabrous within, '15 in. long. *Petals* coriaceous, minutely tomentose, subequal; the outer 3 with small claw, glabrous inside, ovate-lanceolate sub-acute; the inner 3 shorter than the outer, lanceolate or linear. *Anthers* short, slightly compressed; the apex orbicular, flat. *Ovaries* about 10, oblong, granular. *Carpels* about 6, sessile, narrowly obovoid, apiculate, slightly narrowed to the base, at first puberulous, ultimately glabrous, 1.5 in. long and '8 in. in diam.; pericarp thin. *Seeds* 2, oblong, plano-convex, about 1 in. long and '6 in. broad, smooth.

Perak; at elevations up to 1,000 feet, King's Collector, Nos. 3725, 4392, 6499, 6969, King's Collector.

5. *ARTABOTRYS CRASSIFOLIA*, H. f. and T. in Hook. fil. Fl. Br. Ind. *l. v.* A large climber; young branches minutely rusty-tomentose. *Leaves* very coriaceous when adult, obovate to oblong, obtuse or shortly and bluntly mucronate, the base acute or rounded; upper surface glabrous, shining; the lower dull, paler in colour when young, sparsely adpressed-pilose, afterwards glabrous; main nerves 9 or 10 pairs, oblique, when dry faintly impressed on the upper and slightly prominent on the lower surface; length of blade 6 to 6.5 in., breadth 1.75 to 2.75 in.; petiole '3 to '4 in., stout. *Peduncles* det. much hooked, stout; each with several stout rusty-tomentose pedicels '3 to '4 in. long; bracts few, ovate. *Flowers* 1.25 in. long. *Sepals* ovate-lanceolate, sub-obtuse, softly rusty-pubescent outside, pubescent within. *Petals* coriaceous, oblong-lanceolate, sub-ovate, densely tomentose on both surfaces; the inner 3 smaller than the outer 3. *Fruiting pedicel* very stout; the torus sub-globose. *Ripe carpels* about 8, sessile, sub-obovoid to ovoid, glabrous, slightly rugose, 1.25 to 1.65 in. long and '75 to 1.15 in. in diam.; pericarp thick, pulpy. *Seeds* 2, collateral, oblong, compressed, grooved along the edge, '9 in. long and '6 in. broad. Kurz For. Flora Burma, I, 30.

Barmah; Martaban, King, Brandis. Perak; King's Collector, No. 8384.

6. *ARTABOTRYS OBLONGUS*, n. sp., King. A climber 50 to 70 feet long, ultimately all parts except the inflorescence glabrous; young branches slender, rufous-pubescent; the bark dark-coloured when very young, afterwards rather pale, striate. *Leaves* when adult coriaceous, oblong, shortly acuminate, the base acute, when adult both surfaces

glabrous, the upper shining, the lower dull and when young sparingly pubescent along the midrib; main nerves 10 to 12 pairs, inconspicuous on the upper, slightly prominent in the lower surface, spreading, forming 2 or 3 series of arches within the margin; length of blade 6.5 to 9 in., breadth 2.5 to 3 in., petiole 4 in. *Peduncles* stout, pubescent when young, bearing 3 or 4 pedicels; flowers 1.35 in. long; pedicels about 1 in., pubescent, slightly thickened upwards. *Sepals* coriaceous, triangular, acute, concave, spreading rufous-pilose on both surfaces, slightly conjoined at the base, .25 in. long. *Petals* coriaceous, the portion above the saccate base lanceolate, subacute, strigosely tomentose on both surfaces, the claw partly glabrous and partly covered with minute white hair. *Anthers* compressed, with oblong, obliquely truncate, flattened heads. *Ovaries* few, oblong, glabrous; the stigma broad, oblique. *Fruit* unknown.

Perak; King's Collector, No. 6524.

7. *ARTABOTRYX LOWIANUS*, n. sp., Scortechini MSS. A stout climber; all parts except the flowers glabrous; young branches slender, dark-coloured. *Leaves* thinly coriaceous, oblong-lanceolate, shortly caudate-acuminate, the base cuneate; both surfaces shining, minutely reticulate; main nerves 8 to 10 pairs, spreading, inter-arching .2 in. from the margin, faint; length of blade 3.5 to 6 in., breadth 1.25 to 1.75 in., petiole .25 in. *Poduncles* extra-axillary, 2- to 3-flowered, glabrous; pedicels thickened upwards, .5 to .75 in. long, glabrous. *Sepals* triangular, acute, glabrous, .25 in. long, enlarging a little with the fruit. *Petals* fleshy, adpressed-puberulous, elliptic-lanceolate above the concave base, obtuse; the outer three 1.75 in. long, the inner three smaller. *Anthers* with a rounded apical process from the connective. *Ovaries* many, glabrous. *Carpels* (quite young) sessile, ovoid, apiculate; ripe carpels unknown.

Perak; Scortechini; No. 2012.

This species is near *A. pleurogynus*, Miq., but is perfectly glabrous, not sub-strigose pubescent; its ripe fruit is unknown.

8. *ARTABOTRYX OXYCARPUS*, n. sp., King. A stout climber, 60 to 80 feet long; all parts except the flower glabrous; young branches slender, black when dry. *Leaves* oblong-lanceolate, shortly acuminate, the base cuneate, both surfaces shining, reticulate; main nerves 6 to 8 pairs, spreading, slender; length of blade 3 to 5.5 in., breadth 1.25 to 1.5 in. *Poduncles* short (.75 in. long), glabrous, bearing about 2 minutely bracteolate pedicels .75 in. long. *Flowers* 1.5 to 1.75 in. long. *Sepals* coriaceous, small, broadly ovate, acute, .2 in. long, conjoined at the base, spreading. *Petals* coriaceous, very much longer than the sepals, lanceolate, obtuse; the inner 3 smaller; all adpressed-pubescent, and the

saccate base small in all. *Torus* small, sericeous. *Ovaries* glabrous. *Ripe carpels* numerous, sessile, glabrous, narrowly elliptic, tapering to each end, the apex caudate, 1 to 1.2 in. long and .4 in. in diam.; pericarp thin. *Seeds* 2, plano-convex, compressed, blunt, .25 in. long.

Perak; King's Collector, Nos. 5150 and 5605; Wray No. 3283.

This species comes near the Bornean *A. polygyne*, Miq. (Ann. Mus. Lugd. Bat. II, 4). But this species has more pointed and perfectly smooth ripe carpels; while those of *A. polygyne* are more ovoid, with shorter terminal point, and have many vertical ridges. *A. polygyne* moreover is sub-strigosely pubescent, this is glabrous.

9. *ARTABOTRYX SPECIOSUS*, Kurz in Hook. fil. Fl. Br. Ind. I, 55.

A large climber; young branches slender, dark-coloured, sparsely adpressed-pilose, afterwards glabrous. *Leaves* coriaceous, oblong or oblong-anceolate, rarely oblanceolate, shortly and obtusely acuminate, the base acute; both surfaces glabrous, shining; main nerves 7 to 10 pairs, spreading, inter-arching at some distance from the edge, slender; length of blade 6 to 8 in., breadth 2 to 2.5 in., petiole .25 in. *Peduncles* extra-axillary, flattened, short and not much hooked, puberulous, each bearing several short puberulous 1-flowered bracteolate flower-pedicels: flowers from 1.25 to nearly 2 in. long, yellow. *Sepals* 2 in. long, broadly ovate, acute, pubescent outside, glabrous inside. *Petals* thickly coriaceous, adpressed-pubescent, linear above the concave base, rather blunt; the inner smaller than the outer; *torus* pilose: fruit unknown. Kurz For. Flora, Burm. I, 32.

Andaman Islands: along Middle Straits, Kurz. S. Andaman; at Caddollgunge, King's Collector.

10. *ARTABOTRYX MAINGAYI*, H. f. and T. in Hook. fil. Fl. Br. Ind. I,

55. A powerful creeper, 40 to 80 feet long: all parts glabrous except the flowers; the young branches slender, dark-coloured. *Leaves* thin, elliptic, acuminate at base and apex: both surfaces shining, finely reticulate: main nerves 7 to 9 pairs, spreading, faint; length of blade 3.5 to 6 in., breadth 1.35 to 2 in., petiole .25 to .5 in. *Peduncles* flat, much curved, glabrous. *Flowers* 1 in. in diam., fasciated, peduncle .5 to 1.5 in., hoary-pubescent. *Sepals* small, obtuse, 2 in. long. *Petals*: the outer linear-oblong, obtuse, concave the saccate base small and sub-orbicular, 1 to 1.25 in. long and .25 to .35 broad; the inner smaller and narrower and much curved. *Ovaries* 3 or 4 ovoid, glabrous. *Ripe carpels* sessile, elliptic-globose, mammillate, yellow, glabrous, when ripe 2.5 in., long and 1.5 in. in diam. *Seeds* 2, plano-convex, testa stony.

Malacca; Maingay.

11. *ARTABOTRYX GRACILIS*, n. sp. King. A slender woody climber,

50 to 80 feet long: young branches dark-coloured: all parts quite

glabrous except the petals. Leaves thinly coriaceous, ovate-lanceolate, shortly acuminate, the base cuneate; both surfaces glabrous and shining, the upper when dry tinged with green: main nerves 7 or 8 pairs, spreading, inter-arching inside the edge, very faint on both surfaces; reticulations rather distinct: length of blade 2.5 to 3 in., breadth 1 to 1.5 in. Petiole 1.5 to 2 in. Peduncles extra-axillary, short, much hooked, glabrous, usually 4- to 6-flowered: pedicels .35 in. long, thickened upwards, bracteolate, glabrous: flower .3 to .4 in. long. Sepals very coriaceous, semi-orbicular, slightly pointed at the apex, very little joined at the base, concave, spreading. Petals fleshy, sub-equally sized, spreading, densely tomentose, the outer 3 flattened; the inner 3 obtusely 3-angled, tumid at the base, smaller than the outer 3. Anthers with broad apical connectival processes. Ovaries 3 or 4, oblong, with large discoid lobed stigmas, torus villous. Ripe carpels 3 or 4, sessile, obovoid, with several vertical ridges, the base contracted, glabrous, .5 in. long and .7 in. in diam. Seeds 2, compressed-ovoid, obtuse at each end, shining.

Perak: at low elevations, King's Collector, Nos. 3746, 4987 and 7543.

Allied to *A. suaveolens*, Bl.; but with differently shaped petals, pistils and carpels.

12. *ARTABOTRYS SUAVEOLENS*, Blume Fl. Javae Anon. 62, t. 30, 31 D. A climber 20 to 30 feet long; the petals always tomentose, the other parts mostly glabrous, but sometimes the young branches, peduncles, and under surfaces of the midribs of the leaves adpressed-puberulous. Leaves thinly coriaceous, oblong-lanceolate to ovate-lanceolate, acute or shortly acuminate, the base acute; both surfaces shining, the reticulations rather distinct, the upper often deeply tinged with green when dry. Peduncles extra-axillary, thin at first, but becoming stout and flat with age, glabrous or puberulous, bearing from 5 to 15 flowers; pedicels .3 to .45 in. long, thickened upwards, sparsely adpressed-pubescent, with a small narrowly ovate bract at the base; flowers about .4 in. long. Sepals broadly ovate, the apex pointed, thinly coriaceous, sparsely adpressed-pubescent externally, very slightly conjoined at the base, spreading, .1 in. long. Petals fleshy, adpressed-tomentose, dilated and thin at the base, the limb cylindrical to clavate, sub-erect, slightly spreading, sometimes with the apex incurved. Anthers short, with a very broad oblique flattened apical appendage from the connective; torus slightly pubescent. Ovaries broadly ovoid, sub-compressed, the stigma small. Ripe carpels few, ellipsoid, the apex blunt, the base slightly contracted, smooth, glabrous, .4 to .5 in. long and .25 in. in diam.; pericarp thin, fleshy. Seed single, ellipsoid, blunt at each end, the testa granular. Wall. Cat. 6416; H. f. & T.

Fl. Ind., 129; Hook. fil. Fl. Br. Ind. I, 55; Miq. Fl. Ind. Bat. I. Pt. 2, 39. *A. mi* Mus. Lugd. Bat. II, 43; Kurz For. Fl. Burm. I; *Artabotrys parviflora*, Miq. Fl. Ind. Bat. Supp., 375. *Unona suaveolens*, Blume Bijdr. 17.

Iu all the Malayan Provinces at low elevations: common. Sylhet to Malacca in British India.

This species varies somewhat as to size of flowers and texture of leaf. The form named *A. parviflora* by Miq. in his Sumatra Supplement was, by himself, subsequently reduced to a variety of this species (Ann. Mus. Lugd. Bat. II, 38).

13. *ARTABOTRYS COSTATUS*, n. sp. King. A climber from 15 to 80 feet long: young branches slender, dark-coloured, scantily tawny-puberulous when young, afterwards glabrous. *Leaves* thinly coriaceous, elliptic-oblong, slightly oblanceolate, abruptly and shortly acuminate, the base cuneate; upper surface shining, glabrous except the lower part of the midrib which is tomentose; lower surface paler, dull, sparsely puberulous towards the base when young, afterwards glabrous; main nerves 12 to 14 pairs, spreading, forming one series of very bold arches 3 in. from the margin, with a series of smaller arches outside it, very stout and prominent on the lower, slightly so on the upper, surface, reticulations distinct on both: length of blade 7 to 9 in., breadth 2.5 to 3.25 in., petiole 2 in. *Peduncles* rather small, much hooked. *Flowers* unknown. *Carpels* (unripe) 2 to 5, sessile, ellipsoid, blunt at each end, about 1 in. long and .6 in. in diam. (unripe), glabrous: pericarp thin; seeds 2, elliptic.

Perak; on Ulu Bubong at elevations of from 500 to 800 feet, King's Collector, Nos. 4291 and 10184.

I have ventured to describe this although its flowers are unknown, and the only fruit collected is unripe. By its oblong costate leaves it differs from every other described *Artabotrys* except *A. macrophyllus*, mihi.

14. *ARTABOTRYS WRAYI*, King. A climber: young branches rather stout, softly pale rusty-tomentose; ultimately glabrous pale and furrowed. *Leaves* thinly coriaceous, large, oblong-elliptic to elliptic, shortly acuminate, the base rounded; both surfaces boldly reticulate; the upper glabrous and shining, sub-bullate when dry; the lower shortly and rather softly cinereous-pubescent; main nerves 10 to 12 pairs, oblique, curving, inter-arching freely within the edge, depressed above and bold and prominent beneath like the midrib; length 8 to 11 in., breadth 2.75 to 5 in., petiole .35 in., stout, tomentose when young, glabrescent when old. *Peduncles* extra-axillary, rather short, very thick in fruit, sometimes straight when young and curving only when in fruit, few-flowered, glabrous; pedicels 1 in. long, stout, softly tawny-tomentose with several

bracteoles at the base. *Flowers* 1 in. long. *Sepals* broadly ovate at the base, tapering rapidly upwards, acuminate, about $\frac{5}{8}$ in. long, densely sericeous-tomentose outside, sub-glabrous inside especially at the base. *Petals* thick, sub-equal, ovate-oblong, sub-acute, slightly contracted above the claw, softly adpressed-sericeous except on the glabrous concavity of the claw inside. *Ovaries* numerous. *Ripe carpels* obovoid, tapering much to the base, the apex mucronate, densely tawny-tomentose, sessile; nearly 1 in. long.

Perak; Wray, King's Collector.

Next to *A. grandifolius*, this has the largest leaves of any of the Asiatic species of the genus, but from that species it differs in having them pubescent beneath. Only a single flower has hitherto been collected.

8. DREPANANTHUS, Maingay MSS.

Trees. *Leaves* large, pubescent beneath. *Racemes* very short, fasciated on woody truncal tubercles. *Sepals* 3, nearly free. *Petals* 6, valvate, 2-seriate, subequal; bases concave, connivent; limb erect or spreading, broad or narrow. *Stamens* many, cuneate, truncate; anthers linear, cells lateral; connective very slightly produced. *Ovaries* 4-12; stigma sub-sessile; ovules 4 or more, 2-seriate. *Ripe carpels* globose, several-seeded. Two species.

This genus differs from *Arhabotrys* in its members being trees, not climbers; and in having 4 or more ovules in its ovaries. Dr. Scheffer (Ann. Jard. Bot. Buitenzorg II, 6) proposed to make it a section of *Cyathocalyx*.

Petals of both rows with more or less ovate limb 1. *D. pruniferus*.

" " with narrowly cylindrical limb 2. *D. ramuliflorus*.

1. DREPANANTHUS PRUNIFERUS, Maing. in Hook. fil. Fl. Br. Ind. I, 56. A tree 40 to 50 feet high; branches stout, rufous-pubescent at first, finally glabrescent. *Leaves* coriaceous, elliptic to elliptic-oblong, acute or obtuse, the base rounded or sub-cordate, often unequal; upper surface glabrous, except the depressed tomentose midrib and main nerves; lower surface shortly rufous-pubescent when young, glabrescent when adult; main nerves 14 to 16 pairs, prominent beneath; intermediate nerves stout, parallel, oblique; length 7.5 to 14 in., breadth 3 to 6.5 in.; petiole $\frac{5}{8}$ to 1.5 in. stout, channelled. *Racemes* 6- to 8-flowered, crowded; flowers $\frac{7}{8}$ in. long, their pedicels rufous-tomentose, $\frac{5}{8}$ to $\frac{7}{8}$ in. long, each with a large oblanceolate bract. *Sepals* and *petals* unequal, very coriaceous, densely covered (except the inside of the claws of the petals) with a layer of minute whitish tomentum; sepals united by their base, ovate-oblong, spreading; petals of outer row broadly ovate,

subcapitate, slightly constricted above the claw, those of the inner row closely connivent, much constricted above the claw, their apices broad and emarginate. Ovaries oblong, sericeous-tomentose. Ripe carpels 6 to 8, 4-5-merous, sub-globose, minutely pubescent to glabrescent, 1 to 1.25 in diam. Seeds numerous, oblong, flat, shining.

Malacca: Maingay (Kew Distrib.) No. 90. Perak; King's Collector, Serripahin. Penang, Curtis No. 1417.

3. *DREPANANTHUS RAMULIFLORUS*, Maing. Hook. fil. Fl. Br. Ind. I, 10. A tall tree, the young branches as in *D. pruniferus*. Leaves as in *D. pruniferus*, but slightly broader at the apex and narrowed at the base. Flowers 2 to 5 in long, much crowded in very short fascicles from the nodes on the branches below the leaves: pedicels about 3 in long and pubescent, rat-as-tomentose as is the single sub-orbicular bracteole. Sepals much shorter than the petals, broadly triangular, acuminate, spreading, sericeous-tomentose especially outside. Petals with concave, connivent, tomentose claw and fleshy, sub-cylindric, spreading, much curved, adpressed-pubescent limbs. Ovaries about 5, sessile, oblong. Carpels 6-7, ovoid, slightly oblique; densely rufous-tomentose; walls of pericarp very thick: seeds few: ripe fruit unknown.

Malacca: Maingay (Kew Distrib.), No. 91. Distrib. Sumatra; Curtis, No. 2913.

9. *CANANGIUM*, Baill. (*Cananga*, Rumph.)

Tall trees. Leaves large. Flowers large, yellow, solitary or fascicled on short axillary peduncles. Sepals 3, ovate or triangular, valvate. Petals 6, 2-seriate, subequal or inner smaller, long, flat, valvate. Stamens 12-14, anther-cells approximate, extrorse; connective produced into a lanceolate acute process. Ovaries many; style oblong (or 0?); stigmas sub-capitate; ovules numerous, 2-seriate. Ripe carpels many, berried, stalked or sessile. Seeds many, testa crustaceous, pitted, sending spinous processes into the albumen.—Two species.

The tree known as *Cananga odorata* H. f. and T. was by Rumphius (who wrote an account of it in Herb. Amb. II, 195, published in 1750) named *Cananga* (Latinice) and *Banga Cananga* (Malaise). Rumphius' description is of the usual pre-Linnaean sort, there being no differentiation of generic and specific characters and his name of course is not binomial. In the chapter of his book following that in which *Cananga* proper is treated of (l. c. p. 197), Rumphius proceeds to describe the wild *Canangas* as distinguished from the *Cananga* proper, which was in his time, (as it is still) much cultivated by the Malays on account of the fragrance of its flowers. These wild *Canangas* Rumphius calls *Canangas sylvestres* and of them he distinguishes three sorts.

1. *Cananga sylvestris prima sive trifoliata* (Malacca Octan).
2. *Cananga sylvestris secunda sive angustifolia.*
3. *Cananga sylvestris tertia sive latifolia.*

Of the first two Rumphius gives figures on t. 66 of the same volume and judging from these figures, the plants fall into the modern genus *Polyalthia*.

Linnaeus' *Species Plantarum* was published in 1753, therefore, Rumphius' names are in point of time, as they are in point of form, pre-Linnaean. Linnaeus does not accept *Cananga* as a genus and he refers to the *Cananga* of Rumphius only in a note under *Uvaria Zeylanica*. And the first botanists to adopt the *Cananga* of Rumphius as a genus are Hook. fil. and Thomson (in *Fl. Ind.* 130). But in 1775 Aublet (in his *Histoire des Plantes de la Guiane Francaise*), published, in regular Linnaean fashion, the genus *Cananga* for the reception of a single species named *C. cureyana* of which he gave a figure (t. 244). Nineteen years later (1794) Ruiz and Pavon, (in their *Prodromus Florae Peruviana et Chilensis*), published under the name of *Guatteria* a genus with exactly the same characters as Aublet's *Cananga*. Unless therefore Hook. f. and Thomson are right in making a special case in establishing as a genus in the Linnaean sense, the *Cananga* of Rumphius, Aublet's genus *Cananga* must stand, and to it must be relegated all the American species referred to Ruiz and Pavon's genus *Guatteria*. Authorities vary in their treatment of the *Cananga* of Rumphius. Donal (in his *Monographie de la famille des Anonacees*) pronounces for the suppression of Aublet's *Cananga* in favour of that of Rumphius who, he incorrectly says, assigned *two* species to it; the fact being as already shown, that Rumphius divided *Cananga* into (a) cultivated (with one sort) and (b) wild (*sylvestres*) with three sorts. Donal (and I think wrongly) refers all the *Cananga* of Rumphius to *Unona*. In their *Genera Plantarum*, Mr. Bentham and Sir J. D. Hooker retain the *Cananga* of Rumphius and reduce *Cananga* of Aublet to *Guatteria*. Baillon, on the other hand, retains the *Cananga* of Aublet as a genus, and to it refers all the S. American species of *Guatteria*. He reduces *Cananga odorata* H. f. and Th. to *Unona* and, altering the termination of its generic name, he makes it a section of *Unona* under the sectional title of *Canangium*.

The grounds for separating *Cananga* from *Unona* as a genus are thus stated by the authors of the *Flora Indica*. "In habit and general appearance this genus closely resembles *Unona*; but the indefinite ovules prevent its being referred to that genus. The peculiar stamen (with a long conical apical point) and the seeds are themselves, we think, sufficient to justify us in distinguishing it as a genus." The simplest solution of the synonymic knot, and one for which there is some justice

fiction on the ground of structure, appears to lie in the acceptance of Baillon's suggested name, giving up that of the authors of the Flora Indica.

The synonymy of *Guatteria* is further complicated by the fact that a large number of species with valvate aestivation were referred to it by Wullich and others. These, however, were separated by Hook fil. and Thomson, by whom the genus *Polyalthia* was formed for their reception. Sir Joseph Hooker refers to *Cananga*, not only the species *C. odorata*, but another named *C. virgata*. The latter plant appears to me, in the light of full material recently received, to be a typical *Cyathocalyx*, and to that genus I have ventured to remove it. A third species doubtfully referred to the genus *Cananga* under the specific name *monosperma*, appears to me from the description (I have seen no good specimen) to be so doubtful that I exclude it altogether. The seeds both of this species and of *C. odoratum* are peculiar; I quote the following excellent description of those of *C. odoratum* from Hooker fil. and Thomson's Flora Indica, page 130. "The seeds are pitted like those of the section of *Melocorup*, and of some *Cucurbitaceae*; and the inner surface of the brownish-yellow, brittle testa is covered with sharp tubercles, which penetrate into the albumen, taking the place of the flat plates which are found in the rest of the order."

Flowers 2 or 3 in. long ... 1 *C. odoratum*.

" 1 to 1.25 in. long ... 2 *C. Scortechinii*.

1. *CANANGIUM ODORATUM*, Baill. Hist. des Plantes, I, 213 (in note).

A tree 30 to 60 feet high; young branches rather slender, sub-atriate, at first puberulous, slightly lenticellate, dark ashy-coloured when dry. Leaves membranous, ovate-oblong or oblong-lanceolate, sometimes broadly elliptic, acute, shortly acuminate or sub-obtuse; the base rounded or ovate, unequal; quite glabrous, the midrib and nerves puberulous; nerves about 8 pairs, ascending, rather straight and slender: length 3.5 to 8 in., breadth 1.75 to 3 in., petiole .5 in. Flowers 2 to 3 in. long, in 2- to 3-flowered shortly pedunculate racemes: pedicels 1.5 to 2 in. long, recurved, puberulous, with one median and basal, small, often deciduous bracts. Sepals free or joined at the base on reflexed, adpressed, sericeous when young. Ovaries sessile, narrowly oblong: ovary hemispheric. Ripe carpels from 10 to 12, pedicellate, oblong-glabrous, blunt, .65 to .9 in. long, nearly black when ripe, stalks from .5 to .75 in. long. Seeds 6 to 12, flattened, sub-ovate. *Cananga odorata*, H. f. and Th. Fl. Ind. 130; Fl. Br. Ind. I, 56; Miq. Fl. Ind. I, Pt. 2, 40. Kurz For. Fl. Burm. I, 3. *Uvaria odorata*,

Lamb. III. 495, f. 1 f. Roxb. Fl. Ind. ii. 661; Wall. Cat. B457; W. & A. Prodr. 8; Blume Bijdr. 14, Fi. Jav. Anon. t. 9. Pierre Flore For. Coch. Chine, Anon. t. 18; Griff. Notul. iv. 712. *U. fracta*, Wall. Cat. B457. *U. axillaris*, Roxb. Fl. Ind. ii. 667. *Unona odorata* and *U. leptopetala*, Danal Anon. 108 and 114; DC. Prodr. i. 90 and 91; Deless. Ic. Sol. t. 88.

In all the provinces, planted. Indigenous in Tenasserim, Java, and the Philippines.

2. *CANANGIUM SCORTECHINI*, King n. sp. A tree 30 to 40 feet high; young branches puberulous but speedily glabrous, dark-colored and lenticellate. Leaves membranous, broadly ovate, sub-acuminate, the base broad rounded, slightly oblique; both surfaces pubescent when very young, ultimately glabrescent, the midrib and 6 or 7 pairs of nerves adpressed-pubescent, glandular-dotted; length 2.5 in., breadth 1.5 in. (see Scortechini; length 3 to 7 in., breadth 2 to 3 in.) Cymes short, from the axils of leaves or of fallen leaves, few-flowered, shortly pedunculate. Flowers 1 to 1.25 in. long; pedicels under 1 in., pale-pubescent with a narrow, ovate, obtuse, mesial bracteoole .25 in. long. Sepals ovate, sub-acute, recurved, minutely yellowish-pubescent, .35 in. long. Petals subequal, linear-obtuse, 1.25 in. long; the claw short, thickened, pubescent on both surfaces like the sepals. Stamens numerous; the connective with an apical process, butious at the base, suddenly tapering into a sharp point. Ovaries numerous, oblong, glabrous except at the pubescent base, with 6 or 8 ovules in two rows; stigma sessile, truncate. Ripe carpels unknown.

Perak: Scortechini.

Scortechini's specimens are in bud only and none of them has any fruit. The foregoing description has been prepared partly from his notes and partly from his specimens. The species differs from *C. odorata* in having smaller leaves, a different inflorescence, with smaller, quite inodorous, flowers. It is also a smaller tree.

Doubtful Species.

Cananga? monosperma H. f. and Th. Fl. Br. Ind. I, 57. Of this I have seen only leaf-specimens.

10. *USONA*, Linn.

Trees or shrubs, erect or climbing. Flowers often solitary, axillary, terminal or leaf-opposed. Sepals 3, valvate. Petals 6, valvate or open in aestivation, 2-seriate; 3 inner sometimes absent. Torus flat or slightly concave. Stamens cuneate; anther-cells linear, extrorse, top of connective sub-globose or truncate. Ovaries numerous; style ovoid or recurved, grooved; ovules 2-8, 1-seriate (rarely sub-2-seriate). Ripe

carpels many, elongate and constricted between the seeds or baccate.
Seeds few or many.—*DISTRIB.* Tropical Asia and Africa; species about 50.
 Sect. I. *DESMOS*, H. f. and T. Petals 6, in two rows, ripe carpels jointed.

Flowers solitary and always axillary; leaves
 elliptic-oblong to oblong-lanceolate ... 1. *U. Dunalii*.

Flowers solitary, and extra-axillary, terminal
 or leaf-opposed.

Flower-peduncles 4 to 6 in. long, slender ... 2. *U. Desmos*.

Flower-peduncles 1 to 2 in. long.

Lower surfaces of leaves glaucous;
 petals glabrous or at most sparsely
 adpressed-sericeous ... 3. *U. discolor*.

Flower-peduncles from .5 to 1 in. long.

Leaves more or less oblong or ovate or
 lanceolate, rufous-pubescent or to-
 mentose beneath ... 4. *U. dumosa*.

Sect. II. *DASYMACHALON*. Petals 3, or sometimes only 2; the inner
 row always absent; ripe carpels jointed.

Flowers 3.5 to 6 in. long; petals linear-lanceo-
 late, caudate-acuminate, not constricted be-
 tween claw and limb ... 5. *U. longiflora*.

Flowers 1.5 to 3.5 in. long; petals from ovate
 to lanceolate, more or less constricted above
 the claw ... 6. *U. Dasyrachala*.

Sect. III. *STENOPETALON*. Petals 6, in two rows, usually very narrow;
 carpels baccate, not jointed.

Flowers solitary ... 7. *U. Wrayi*.

Flowers in fascicles from the larger branches
 or stem.

Petals linear-oblong, 1 to 1.5 in. long; ripe
 carpels globose, glabrous, their stalks 1
 to 1.5 in. long ... 8. *U. desmantha*.

Petals narrowly linear, 3 to 3.5 in. long;
 ripe carpels globose, densely rufous-
 velvety, shortly stalked ... 9. *U. crinita*.

Petals narrowly linear, 1.25 to 3 in. long;
 ripe carpels sub-globular or bluntly ovate,
 softly tomentose, ultimately sub-glabrous,
 sub-sessile ... 10. *U. stenopetala*.

1. *UNONA DUNALII*, Wall. Cat. 6425. A climber 60 to 100 feet
 long; young branches slender, rather pale, sub-rugose, lenticellate,
 glabrous. Leaves thickly membranous, pale when dry, elliptic-oblong

to oblong-lanceolate, acute or shortly acuminate, the base rounded, the upper surface glabrous, shining, the lower slightly glaucous, sometimes with a few scattered hairs on the midrib; main nerves 10 to 13 pairs, spreading, not prominent; length 3 to 4 in., breadth 1.2 to 1.75 in., petiole .2 in. *Flowers* axillary, solitary, 1.25 to 1.4 in. long; pedicels .5 to .5 in long, slender, pubescent, with a minute bracteole about the middle. *Sepals* broadly ovate, acute, puberulous, reflexed, .25 to .3 in. long. *Petals* narrowly oblong-lanceolate, sub-acute, puberulous to glabrous, 1 to 1.25 in. long, the inner row smaller. *Ripe carpels* numerous, stalked, glabrous, constricted between the 3 to 5 ovoid joints, 1.25 to 1.75 in. long; the stalks about 1 inch. Hook. fl. and Th. Fl. Ind. 131, (excl. the Concan plant); Miq. Fl. Ind. Bat., I. Fl. 2, 41; Hook. fl. Fl. Br. Ind. I, 58.

Penang; Wallich. Perak; King's Collector.

2. *URONA DESMOS*, Dunal Anon., 112. A spreading shrub, often climbing; young branches slender, striate, adpressed, rufous-pubescent, often lanceolate. *Leaves* thinly coriaceous, oblong, acute or acuminate, the base rounded; upper surface glabrous or nearly so, the midrib sparsely pubescent; under-surface paler in colour, puberulous or pubescent; main nerves 12 to 14 pairs, spreading, rather prominent beneath; length 4.8 to 8.8 in., breadth 1.65 to 3.25 in., petiole .35 in. *Flowers* solitary, extra-axillary, 1.35 to 1.75 in. long; peduncle slender, 4 to 6 in. long, glabrous; bracts few, lanceolate, minute, deciduous. *Sepals* ovate-acuminate, spreading, adpressed-pubescent, .3 in. long. *Petals* coriaceous, ovate-lanceolate, adpressed-pubescent, nerved; the outer 2 in. long by about .85 in. broad; the inner smaller. *Ripe carpels* numerous, stalked, .5 to .75 in. long, glabrous, constricted between the 2 to 3 oval joints. H. E. and T. Fl. Ind. 134; Miq. Fl. Ind. Bat. I, Pt. 2, 42; Hook. fl. Fl. Br. Ind. I, 59; Kurz For. Fl. Barin. I 34. *U. cochinchinensis* A. DC Prod. i, 91; *U. pedunculosa*, A. DC Mem. Anon 28; *U. pedunculosa* Wall. Cat. 6422. *U. fulva*, Wall. Cat. 6427. *Desmos cochinchinensis* Lour. Fl. Coch. Ch. I, 352. *U. discolor*, Wall. (not of Roxb.) Cat. 6420 D and E.

From Assam to Singapore. Distrib. Cochin-China.

3. *URONA DISCOLOR*, Vahl Symb. II, 63, t. 36. A spreading shrub, often also climbing; young branches slender, sub-rugose, pubescent towards the tips. *Leaves* membranous, oblong or oblong-lanceolate, acute, the base rounded; upper surface glabrous, shining; the lower glaucous, glabrous or pubescent; main nerves 8 to 10 pairs, sub-ascending, slightly prominent beneath; length 3 to 7.5 in., breadth 1 to 2 in., petiole about .25 in. *Flowers* solitary, extra-axillary, 2 to 2.5 in. long; peduncles 1 to 2 in. long, rather slender, pubescent, with a minute linear

bracteole below the middle, thickening when in fruit and lenticellate. *Sepals* ovate-lanceolate, spreading, nearly glabrous, 4 to 6 in. long. *Petals* coriaceous, narrowly lanceolate, 2 to 2.5 in. long, glabrous or sparsely adpressed-sericeous. *Ovaries* oblong, hairy. *Stigma* laterally grooved. *Ripe carpels* numerous, stalked, .75 to 1.5 in. long, glabrous or pubescent, the constrictions between the 2 to 5 oval joints pubescent; stalks .25 in. long. Dunal Anon. 111; DC. Prodr. i. 91; Wall. Cat. 6420 (partly); Roxb. Fl. Ind. ii. 669; W. & A. Prodr. 9; H. f. & T. Fl. Ind. 133; Miq. Fl. Ind. Bat. I, Pt. 2, 41; Beddome Ic. Pl. Ind. Or. t. 51; Bl. Fl. Javæ Anon. 53; A. DC. Mem. 28; W. and A. Prod. 9; Thwaites Enum. 9; Karz For. Fl. Ind. Burm. I. 34; Hook. fil. Fl. Ind. I, 59. Scheff. Obs. Phyt. Anon. 5. Nat. Tijdsch. Ned. Ind. XXXI, 5. *U. cordifolia*, Roxb. Fl. Ind. II, 602? *U. Dunalii*, H. f. & T. Fl. Ind. 131 (the Canean plant); Dalz. & Gibs. Fl. Bomb. 3 (not of Wallich). *U. Amherstiana*, A. DC. Mem. 28. *U. biglandulosa*, Bl. Bijdr. 16. *U. Roxburghiana*, Wall. Cat. 6423 B. *U. Loureiriana*, Dunal Anon. 107. t. 26; DC. Prodr. I, 90. *Dennis chinensis* Lour. Fl. Coch. Ch. 1, 352.

Of this variable and abundant species, Sir Joseph Hooker distinguishes four varieties as follows:—

Var. 1, *pubiflora*; leaves 5-7 in., oblong acute, base often cordate, flowers silky.

Var. 2, *levigata*; leaves 3-4 in., oblong or lanceolate, acute, base rounded, flowers almost glabrous.—*U. chinensis*, DC. Prodr. i. 90. *U. undulata*, Wall. Pl. As. Rar. iii. and 42. *U. discolor*, Dalz and Gibs, Fl. Bomb. 3. t. 265; Wall. Cat. 6428.—Perhaps cultivated only in India, common in the Archipelago and China.

Var. 3, *pubescens*; leaves as in 1, but densely pubescent beneath.

Var. 4, *latifolia*; leaves 3-5 by 2-2½ in., broad-oval, acute, flowers silky. *U. discolor* and var. b, *bracteata* Bl. Fl. Jav. Anon. 53, t. 26 and 31A.

From the base of the eastern Himalaya through the Assam range to Burmah and the Malayan Peninsula; in tropical forests. Distrib. The Malayan Archipelago, Chinese Mountains.

4. *UNCINA DUMOSA*, Roxb. Fl. Ind. II, 670. A large bushy climber: young branches slender, softly rufous-tomentose. *Leaves* membranous, broadly ovate to oblong-ovate, obovate to oblanceolate-oblong, obtuse, sub-acute or broadly mucronate, the base rounded or sub-cordate, or sub-cuneate; when young rufous-tomentose on both surfaces; the upper except the midrib glabrescent when old: main nerves 10 to 12 pairs, sub-ascending, rather straight; length 3 to 5.25 in., breadth 1.25 to 2.5 in.; petiole .15 in., to 3 in., rufous-tomentose. *Flowers* solitary, leaf-opposed or extra-axillary, 2 to 2.5 in. long; pedicels .5 to .75 in. long,

rufous-tomentose, with a single ovate bract near the base. *Sepals* coriaceous, cordate or ovate, sub-acute or acute, spreading, rufous-tomentose, $\frac{1}{4}$ in. long. *Petals* obovate-spathulate to broadly ovate-lanceolate, tapering to each end, vertically nerved, densely pubescent at first, less so when old; the inner row smaller. *Ripe carpels* numerous, stalked, glabrous, $\frac{7}{8}$ to $1\frac{1}{4}$ in. long, much constricted between the 2 to 3 ovoid joints. *Seeds* shining, the albumen with transverse fibres. Wall. Cat. 6429. H. f. and Th. Fl. Ind. 181; Hook. fl. Fl. Br. Ind. I, 59.

Malacca: Maingay, Nos. 42 and 43 (Kew Distrib.). Perak; King's Collector, L. Wray Junior. Sylhet; Roxburgh, Wallich. Assam; Simons.

The form which occurs in the Malayan Peninsula has narrower petals than that which is found in Assam and Silhet, and its leaves are more oblong and less ovate.

5. *UNONA LONGIFLORA*, Roxb. Fl. Ind. II, 668. A glabrous shrub or small tree, the leaf-buds silky; young branches slender. *Leaves* membranous, narrowly oblong or oblong-lanceolate, more or less acuminate, the base rounded or slightly cuneate; upper surface shining, the lower glaucous; main nerves 12 to 16 pairs, oblique, rather prominent beneath; length 6.5 to 11 in., breadth 1.75 to 3.25 in., petiole $\frac{1}{4}$ in. *Flowers* solitary, pedunculate, axillary, pendulous, 3.5 to 6 in. long; the peduncles minutely bracteolate and jointed near the base, slender, from 1.25 to 8 in. long, still longer in fruit. *Sepals* very small, broadly triangular, spreading, mucronate, rufous-pubescent externally. *Petals* linear-lanceolate, much acuminate, cohering by their margins, the base slightly expanded, no constriction between the limb and claw, adpressed, sericeous when young but afterwards glabrous, yellowish; the inner row absent. *Stamens* with the connective produced and truncate at the apex. *Ovaries* 10 to 20, sessile, hairy; *ovules* few; *stigmas* large, recurved. *Ripe carpels* about 10, stalked, moniliform, 3- to 4-jointed, all the joints except the lowest often falling off; individual joints elongated-ovoid, $\frac{1}{5}$ in. long, glabrous. *Seeds* with thin smooth testa, the albumen intersected by numerous horizontal fibrous processes. Wall. Cat. 6419; Hook. fl. and Th. Fl. Ind. 134; Hook. fl. Fl. Br. Ind. I, 61; Kurz Fl. Burm. I, 35.

Perak; in forests under 3,000 feet. E Himalaya; Assam; Khasia Hills, Chittagong.

Most of the specimens which I have seen from Assam, the Khasia Hills, and Chittagong have flower-pedicels under 2 inches long, and petals quite 6 inches long. Specimens from Perak, on the other hand, have shorter flowers (3 to 4 in. long); and much longer (5 or 6 in.) and more slender peduncles: otherwise the two sets agree. In many of the flowers from both sets of localities there are only two petals.

6. *UXONA DASYMARCHALA*, Blume Fl. Jav. Anon. 55, t. 27. An erect or sarmentose shrub: young branches sometimes glabrous from the beginning, but usually at first softly rufous-pubescent and sometimes permanently so. *Leaves* thinly coriaceous, elliptic-oblong, oblong, or oblong-lanceolate or oblanceolate, acute or shortly acuminate, the base rounded or narrowed; upper surface glabrous; the lower sub-glaucous, glabrous or sometimes puberulous on the midrib and nerves; length 4.5 to 8.5 in., breadth 1.5 to 3 in., petiole about 1 in. *Flowers* pedunculate, solitary, axillary, pendulous, 1.5 to 3 in. long; peduncles 1.25 to 1.75 in. (longer in fruit), minutely bracteolate at the very base. *Sepals* fleshy, very short, broadly triangular, pubescent, reflexed. *Petals* fleshy, varying from ovate-acute to lanceolate-acuminate, concave and (in the narrower forms) expanded at the base, with a constriction between the claw and limb; the edges united when young, adpressed-puberulous but ultimately glabrous. *Anthers* with the connective expanded at the apex and oblique. *Ovaries* densely villous; the stigma narrow, glabrous. *Ripe carpels* numerous, shortly stalked, moniliform, pubescent to glabrous, the joints oval, about .35 long. *Seeds* oval, smooth, the albumen with fibrous processes. A. DC. Mem. Anon. 28; Wall. Cat. 6421; Hook. fil. and Thoms. Fl. Ind. 135; Miq. Fl. Ind. Bat. I, Pt. 2, 42; Kurz Fl. Barm. I, 36; Hook. fil. Fl. Br. Ind. I, 61. Scheff. Obs. Phyt. Anon. 6; Nat. Tijdsch. Ned. Ind. XXXI, 6.

From Barmah to Singapore; the Andaman Islands. Distrib.—Sumatra, Java.

Var. *Blumei*, Hook. fil.; branches glabrous; leaves pale-yellowish or grey beneath, glabrous or nearly so. Wall. Cat. 6420 B. (*U. discolor*.)

Var. *Wallichi*, Hook. fil.; branches brown-tomentose; lower surfaces of leaves glaucous and tinged with purple.

This species, in the absence of the inner row of petals and in other respects, resembles *M. longiflora*, Roxb.; but the outer petals are neither so long nor so narrow, and there appear always to be three of them, and not often only two as in *M. longiflora*. The peduncles are moreover shorter. The two species, however, are closely allied. In open, exposed situations this is a non-scandent bush; but under the shade of trees, it often develops into a climber,—a habit which it shares with many species of this family. Blume's figure of this plant (quoted above) is inaccurate as respects the flowers and fruit.

7. *UXONA WRATI*, Hemsl. in Hook. Ic. Plant. t. 1553. A tree: young branches slender, tawny-tomentose. *Leaves* thickly membranous, elliptic-oblong, shortly acuminate, often obtuse (from the breaking off of the acumen), slightly narrowed to the rounded base; upper surface glabrous except the puberulous midrib; lower much reticulate,

(puberulous, the midrib pubescent : main nerves 8 to 10 pairs, rather prominent beneath, spreading, and forming two sets of intra-marginal arches : length 5.5 to 7.5 in., breadth 2 10 2 25 in. ; petiole .2 in., tomentose. *Flowers* 3 to 3.5 in. long, solitary or in fascicles from tubercles on the larger branches : pedicels .75 to .9 in., slender. *Sepals* ovate-lanceolate, snb-acute, about .3 in. long, puberulous. *Petals* white changing to deep claret, subequal, rather coriaceous, linear-lanceolate, acuminate, about 3 in. long, sparsely puberulous outside : breadth about .3 in. *Ovaries* numerous, pubescent, with about 4 ovules. *Ripe carpels* red when ripe, stalked, slightly pulpy, ovoid or oblong, obtuse, glabrous, 1 to 1.25 in. long : stalks .5 to .75 in. long. *Seeds* about 3, oval, compressed, rugulose, aromatic, .6 in. long.

Singapore ; Maingay (Kew Distrib.), No. 51. Perak ; Wray, No. 530 ; King's Collector. Distrib.—Java.

8. *UNONA DESMANTHA*, H. f. and T. in Hook. fil. Fl. Br. Ind. I, 61. A small tree : youngest branches with soft yellowish-brown pubescence, the older with smooth, shining, yellowish-brown bark. *Leaves* coriaceous, elliptic-oblong, or elliptic-lanceolate, or oblanceolate, shortly and acutely or obtusely acuminate, the base acute ; upper surface glabrous except the pubescent midrib ; under-surface paler, puberulous especially on the midrib and nerves : main nerves 8 to 11 pairs, rather prominent beneath when dry, oblique. *Flowers* 2.5 in. diam., pale red, densely crowded on 1 to 2 in. broad flat tubercles on the older branches : peduncles .75 in., puberulous, bracteolate. *Sepals* ovate, acute, .3 in. long. *Petals* unequal, linear-oblong, tapering to the apex, the base not dilated, sparsely pubescent, 1 to 1.5 in. long ; the inner rather narrower. *Torus* and *ovaries* as in *U. pycnantha*, but ovules 3 to 5, superposed. *Ripe carpels* stalked, globose, dark-coloured, glabrous, nearly 1 in. in diam. : stalk 1 to 1.5 in.

Malacca : Maingay (Kew Distrib.), No. 48.

9. *UNONA CRINITA*, Hook. fil. and Thoms. Fl. Br. Ind. I, 61. A tree ? young branches slender ; their bark pale, rugose ; the youngest densely rufous-tomentose. *Leaves* membranous, oblong, elliptic-oblong or oblanceolate-oblong, acute or acuminate ; the base rounded ; upper surface quite glabrous, the lower pubescent especially on the nerves and veins : the midrib tomentose on both surfaces ; main nerves 10 to 12 pairs, slender, but slightly prominent beneath : length 3 to 8 in., breadth 1.25 to 2.5 in. ; petiole .15 in., tomentose. *Flowers* 3 to 5 in. long, pedicellate, in dense crowded fascicles from very broad (1 to 2 in. in diam.) tubercles on the larger branches ; pedicels .15 to .25 in. long, rusty-tomentose ; bracteole linear, or absent. *Sepals* ovate-lanceolate, much acuminate, spreading, .5 in. to .75 in. *Petals* subequal in length,

narrowly linear, unequal in breadth, .15 in. broad at the base, and at the middle, narrower between and from the middle upwards; 1-nerved; finely pubescent; the inner slightly shorter and narrower. *Torus* columnar, truncate. *Ovaries* strigose; ovules 3 to 5, 1-seriate; stigma punctiform. *Ripe carpels* globose, densely rufous-velvety, shortly stalked.

Malacca: Maingay (Kew Distrib.), No. 41.

10. *UNONA STENOPETALA*, Hook. fil. and Thoms. Fl. Ind. 136. A tree 20 to 35 feet high: young branches softly rufous-tomentose; the older dark-coloured, glabrous, striate. Leaves thinly coriaceous, oblong-obovate or oblanceolate, more or less acuminate, narrowed below to the slightly cordate and oblique base: both surfaces glabrous, the midrib more or less pubescent on the lower; under-surface faintly reticulate when dry; main nerves 7 to 9 pairs, curving upwards, anastomosing doubly at some distance from the edge, thin but slightly prominent: length 4 to 7 in., breadth 1.25 to 3 in.; petiole .1 to .25 in., rufous-tomentose. *Flowers* 1.5 to 2 in. long, almost sessile or shortly pedicelled, in fascicles of 2 to 4 on minutely bracteate extra-axillary tubercles from both branches and stem. *Sepals* united at the base, lanceolate, acuminate, the bases broad, ribbed, spreading, pubescent externally, .4 to .5 in. long. *Petals* sub-equal, narrowly linear, concave, slightly wider at the base, keeled, sparsely pubescent, 1.25 to 3 in. long. *Stamens* numerous, short with broad flat apices hiding the lateral anthers. *Ovaries* 4 to 7, villous, 4- or 5-ovuled. *Ripe carpels* few, sub-globular or bluntly ovate, softly tomentose at first, ultimately sub-glabrous; the pericarp thick, .5 to .65 in. long and .5 in. in diam. *Seeds* 1 to 3, thickly discoid, bi-concave with grooved edge, rugulose. Hook. fil. and Th. Fl. Ind. 1, 66; Miquel Fl. Ind. Bat. 1, pt. 2, 43; Kurz B. Flora Burmah, 1, 35.

Singapore: Lobb, Ridley. Penang: King's Collector, Scortechini; common. ? Burmah, (in Tenasserim): Lobb.

This is a rare plant in Burmah, if indeed it occurs there at all. The leaves of some of the Perak specimens have petioles .5 in. long; but usually they are as above described.

11. *POLYALTHIA*, Blume.

Trees or shrubs with the habit of *Unona*. *Sepals* 3, valvate or sub-imbricate. *Petals* 6, 2-seriate, ovate or elongated, flat or the inner slightly vaulted. *Torus* convex. *Stamens* cuneate; anther-cells extrorse, remote. *Ovaries* indefinite; style usually oblong; ovules 1-2, basal and erect, or sub-basal and ascending. *Ripe carpels* 1-seeded, beaked.—
DISTRIB. Tropical Asiatic sp. about 45, African sp. 3; Australasian species 2.

Sect. I. MOSOON. Ovi; le solitary, usually basal, erect.
Flowers from the axil? of the leaves or of fallen
leaves, not from the trunk.

Flowers solitary.

Leaves under 5 in. in length (7 in. in *P.*
Sumatranica), more or less lanceolate.

Leaves not glaucous beneath; petals
ovate, acute ... 1. *P. dumosa*.

Leaves very glaucous beneath; petals
linear-oblong, obtuse.

Ripe carpels smooth ... 2. *P. hypoleuca*.

Ripe carpels vertically ridged ... 3. *P. sumatranica*.

Leaves over 5 in. in length, not glaucous.

Flowers axillary.

Petals more or less narrowly lan-
ceolate.

Leaves ovate-lanceolate, gla-
brous; ripe carpels oblong,
blunt at each end ... 4. *P. andamanica*.

Leaves oblong to obovate-ob-
long, more or less pubescent;
ripe carpels elliptic, un-
nate ... 5. *P. magnoliaeflora*.

Petals oblong-elliptic, slightly
obovate, 1.3 to 2.25 in. long ... 6. *P. macrantha*.

Flowers terminal; petals ovate-elliptic,
1 to 1.25 in. long ... 7. *P. pulchra*.

Flowers solitary or in pairs; ripe carpels little
more than .25 in. long.

Flowers .4 in. in diam.; petals broadly
oblong-ovate, obtuse ... a *P. Kunstleri*.

Petals 1.5 to 2 in. long, lanceolate-ob-
long; leaves narrowly lanceolate-
oblong or elliptic-oblong ... 9. *P. Scortechinii*.

Petals .85 to 1.5 in. long, broadly
lanceolate or oblanceolate; leaves
oblong-lanceolate to ovate-elliptic ... 10. *P. Jenkinsii*.

Flowers in pairs; petals obovate-oblong, 1 in.
long; ripe carpels ovoid; .65 in. long ... u. *P. Hookeriana*.

Flowers always in fascicles or cymes, axillary
or from the branches below the leaves ... 12. *P. simiarum*.

Flowers in fascicles from the young branches

below the leaves, [^] from the larger branches;
never axillary.

Leaves 8 to 15 in. long with 12 to 16
pairs of prominent oblique or spread-
ing nerves 13. *P. lateriflora*.

Leaves 6 to 8 in. long with 10 to 12
pairs of slender, spreading nerves... 14. *P. sclerophylla*.

Flowers in fascicles from tubercles on the main
stem, often near its base; never axillary, and
probably never from the branches.

Inflorescence aerial.

Leaves under 8 in. in length.

Leaves oblong-lanceolate;
nerves 8 or 9 pairs; torus
of ripe fruit 1.25 in. in
diam.: stalks of ripe carpels
.75 in. long 15. *P. macropoda*.

Leaves oblong; nerves 7
pairs; torus of ripe fruit .5
in. in diam.; stalks of ripe
carpels 1.5 in. long ... 16. *P. clavigera*.

Leaves elliptic to oblong,
slightly oblique ... 17. *P. glomerata*.

Leaves 9 to 16 in. long; oblong-
elliptic 18. *P. congregata*.

Inflorescence sub-hypogaeal ... 19. *P. hypogaea*.

Sec. II. EUPOLYALTHIA. Ovales 2 (3 in *P. Korinfi*), superposed.

Flowers solitary.

Leaves under 5 in. long, not cordate at the
base.

Leaves oblong-lanceolate.

Petals oblong 20. *P. obliqua*.

Petals broadly ovate or ovate-
orbicular, leaves glaucous ... 21. *P. aberrans*.

Leaves upwards of 5 in. long, cordate at
the base.

Petals narrowly linear 22. *P. bullata*.

Petals oblong.

Flowers 1 in. diam. 23. *P. subcordata*.

Flowers 1.25 to 1.75 in. in diam. 24. *P. oblonga*.

Flowers in fascicles from the older branches.

Petals linear-oblong, 1 to 1.5 in. long; ripe

carpels .35 in. long, their stalks .6 to .75

in. long. 25. *P. Beccarii*.

Petals linear-oblong, 2 to 3 in. long; ripe

carpels .75 to 1 in. long, sub-sessile ... 26. *P. cinnamomea*.

Petals oblong-lanceolate or oblanceolate, .3

to 1.5 in. long; ripe carpels 1.75 in. long,
their stalks .25 in. long 27. *P. pachyphylla*.

Petals linear, obtuse, .5 to .75 in. long ... 28. *P. pycnantha*.

1. *POLYALTHIA DUMOSA*, King, n. sp. A shrub; young branches slender, glabrous. Leaves thinly coriaceous, lanceolate or oblong-lanceolate, acuminate, the base rounded; both surfaces dull, glabrous, very minutely lepidote; main nerves 8 or 9 pairs, spreading, faint, inter-arching far from the margin; length 2.5 to 3.25 in., breadth .5 to .9 in., petiole less than .1 in. Flowers solitary, leaf-opposed, .3 to .35 in. long; pedicels slender, glabrous, .3 to .4 in. long with a small lanceolate bractlet about the middle. Sepals thick, spreading, broadly ovate, acute or acuminate, .1 in. long, glabrescent outside, quite glabrous inside. Petals leathery, subequal, narrowly oblong, acuminate, not widened at the base, sub-corrugated and glabrous outside, puberulous inside, 3 in. long. Stamens numerous, short; the apical process very broad, rhomboid, truncate, projecting much over the apices of the short dorsal anther-cells. Ovaries very few, oblong, pubescent; stigma broad, sessile, hairy. Ripe carpels one or two, ovoid-globose, glabrous, cherry-red when ripe, .25 to .3 in. long.

Perak; elevat. about 1,200 feet; Wray, Soortechini.

Near *P. suberosa*, H. f. and Th. but with different venation, fewer carpels, and without hypertrophied bark.

2. *POLYANTHIA HYPOLEUCA*, Hook. fil. and Thoms. in Fl. Br. Ind. I, 63. A tree 50 to 80 feet high; young branches slender, rather pale, striate; all parts glabrous except the flowers. Leaves coriaceous, oblong-lanceolate or elliptic-lanceolate, shortly acuminate, the base acute, the edges slightly recurved when dry, upper surface shining, the lower dull, pale; main nerves many pairs, invisible on either surface except in some occasional leaves when dry; length 2.5 to 5 in., breadth .75 to 1.75 in., petiole .2 to .3 in. Flowers sub-erect, small (only .3 to .4 in. long) pedicelled, solitary or sub-fascicled, mostly from the axils of fallen leaves; pedicel stout, about .15 in. long, tomentose and with about two cucullate bracts near the base. Sepals very small, triangular, pubescent, deciduous. Petals linear-oblong, obtuse, not dilated at the base, grey-pubescent on both surfaces. Ripe carpels few, often solitary, stalked, elliptic-oblong, obtuse, glabrous, .8 in. long; stalks .1 to .25 in. Seed ovoid-elliptic, blunt, dark-coloured, transversely striate.

Singapore: Maingay, No. 50, (Kew Distrib.) Perak; King's Collector.

This approaches *Guatteria sumatrana*, Miq. in its leaves: but that species has much larger flowers. But this is still more allied to *Guatteria hypoglauca*, Miq., from which it differs by its much larger fruit. The plant named *P. hypoleuca* by Kurz in his Forest Flora of Burmah is, as he himself informed Sir Joseph Hooker in a letter, really *P. sumatrana*. Neither species, however, appears to me to occur either in the Andamans or Burmah.

3. *POLYALTHIA SUMATRANA*, King (not of Kurz.) A tree 30 to 60 feet high: young branches pale, the older much furrowed: all parts glabrous except the flowers. *Leaves* coriaceous, oblong-lanceolate, acuminate, the base acute: upper surface shining, the lower dull glaucous, both pale (when dry); main nerves 15 to 20 pairs, very slender and little more prominent than the secondary; length 4.5 to 6.5 in., breadth 1.25 to 1.75 in., petiole .25 in. *Flowers* 1.4 to 1.75 in. long, solitary or in fascicles of 2 or 3 from the younger branches below the leaves, or axillary; their pedicels .6 to .9 in. long, minutely bracteolate near the base, glabrous. *Sepals* vary small, half-orbicular-ovate. *Petals* narrowly linear-oblong, sub-acute or obtuse, puberulous, pale green to yellowish, the outer slightly longer than the inner, 1.35 to 1.75 in. long and .15 to .2 in. broad. *Ovaries* glabrous, sub-cylindric, with a single ovule: stigma hairy. *Carpels* ovoid, tapering to each end, ridged (when dry), pubescent or glabrous, about 1 in. long and .6 in. in diam.; their stalks .5 to .6 in. long. *Guatteria sumatrana*, Miq. Fl. Ind. Bat. Suppl. 380. *Monocn sumatranum*, Miq. Ann. Mus. Lugd. Bat. II., 10.

Perak; at elevations up to 2,500 feet, common. Distrib.: Sumatra, Korthals, Beccari P. S., No. 613. Borneo, Korthals.

This is allied to *P. hypoleuca*, H. f. and Th.; but has larger leaves, much larger flowers, and slightly different carpels.

4. *POLYALTHIA ANDAMANICA*, Kurz Andam. Report (1870) p. 29. A shrub: young branches slender, tomentose. *Leaves* membranous, ovate-lanceolate, acute; the base broad and rounded, slightly unequal; some of the large nerves underneath and the midrib on both surfaces pubescent near the base, otherwise glabrous and shining; main nerves 6 or 7 pairs, distant, spreading and forming bold arches far from the margin: reticulations minute, distinct: length 4.5 to 6 in., breadth 2 to 2.4 in.; petiole .2 in., pubescent. *Flowers* axillary or extra-axillary, solitary, 2 in. in diam.; the pedicel .4 to .75 in. long, sub-pubescent, minutely bracteolate. *Sepals* minute (.1 in. long), broadly triangular, pubescent. *Petals* thinly coriaceous, sub-equal, oblong, blunt, 1 in. long. *Ripe carpels* 6 to 8, oblong, smooth, glabrous, slightly apiculate, .5 or .6 in.

long and 15 to 2 in. in diam., their stalks nearly as long. *P. Jenkinsii*, Benth. and Hook. fil. in Hook. fil. Fl. Br. Ind. I, 64 (in part); Kurz Flora Burma. I, 38.

S. Andaman: Kurz, Man, King's Collector.

Allied to *P. Jenkinsii*, H. f. and T.; but with much smaller flowers, and leaves with broader bases.

5. *POLYALTHIA MAGNOLLEFLORA*, Maing. MSS. ITOC fil. Fl. Br. Ind. I, 64. A tree 30 to 40 feet high; young branches rusty-tomentose. *Leaves* thinly coriaceous, oblong to obovate-oblong, obtuse or acuminate, the base rounded or minutely cordate; upper surface glabrous, the nerves and midrib minutely tomentose; under surface at first pubescent, ultimately glabrous or glabrescent: main nerves 15 to 20 pairs, rather straight, oblique, prominent beneath, the transverse veins almost straight, distinct; length 8 to 12 in., breadth 2.5 to 3.5 in.; petiole .25 in. stout, tomentose. *Flowers* large, shortly pedunculate, solitary, axillary, 2.5 to 3 in. long; peduncle .3 in. long, tomentose, with 2 large ovate bracts. *Sepals* coriaceous, short, broadly ovate, acute, spreading, tomentose. *Petals* coriaceous, white, linear-oblong or oblong-lanceolate, sub-acutif, tomentose. *Torus* conical. *Ovaries* hirsute. *Carpals* (an-rip(S) stalked, oblong-ovoid, blunt at either end, the apex mucronate, pubescent. *Seed* with smooth shining testa.

Malacca; Maingay. Perak; King's Collector, No. 10039.

Evidently a rare species. I have seen only Maingay's imperfect specimens from Malacca, and two collected on Ulu Bubong by the late Mr. U. H. Kunstler, Collector for the Bot. Garden, Calcutta. Sir J. D. Hooker states (F. B. Ind. I. a.) on Maingay's authority that the flowers have the colour and odour of those of a *Magnolia*.

6. *POLYALTHIA MACHANTHA*, King n. sp. A tree 20 to 70 feet high; young branches rather slender, glabrous. *Leaves* large, thinly coriaceous, oblong to elliptic-oblong, acute, slightly narrowed below the middle to the rounded or minutely cordate base; upper surface shining, glabrous except the depressed slightly puberulous midrib; lower surface paler when dry, glabrous, very minutely lepidote; main nerves 20 to 24 pairs, spreading, thin but prominent beneath; length 12 to 18 in., breadth 4.5 to 7.5 in., petiole 4 in., stout. *Flowers* solitary, axillary or slightly supra-axillary, 2.5 to 4.5 in. in diam.; pedicels 1.5 to 2 in. long (longer in fruit) glabrescent, with a sub-orbicular bracteole about the middle; the buds conical when young. *Sepals* thick, sub-orbicular, spreading, connate by their edges and forming a cup 7.5 in. in diam., puberulous on both surfaces, corrugated outside. *Petals* much larger than the sepals, white, thick, fleshy, flattish, oblong-elliptic, widest above the middle, blunt, puberulous on both surfaces except at the glabrescent

bases, nerved inside; the outer row 1.3 to 2.5 in. long, the inner smaller. *Stamens* numerous, compressed; apical process of connective truncate. *Ovaries* few, oblong, puberulous; stigmas large, capitate-truncate, pubescent. *Ripe carpels* elliptic-ovoid, sometimes oblique, blunt at each end, the apex mucronate, glabrous, 1 to 1.25 in. long, and .75 in. in diam. *Seed* ovoid, solitary, the testa corrugated.

Perak; King's Collector, Seortechini.

A remarkable species with handsome white flowers, allied in many ways to *P. congregata*; but at once distinguished from it by its axillary, solitary flowers and glabrous ripe carpels.

7. *POLYALTHIA PULCHRA*, King. A small tree, glabrous except the inflorescence. *Leaves* thinly coriaceous, elliptic to oblong-lanceolate or oblong-oblancoolate, acute or acuminate, the base acute; both surfaces minutely muriculate, the lower paler and dull; length 4.5 to 6 in., breadth 2.5 in. (only 1.75 in. in var. *angustifolia*), petiole .25 in. *Flowers* large, solitary, terminal, 2 in. or more in diam. when expanded (often 3.5 in. in diam. in var. *angustifolia*): pedicels 1.4 to 1.75 in. long, puberulous, with a lanceolate foliaceous bracteole at the base. *Sepals* ovate, acute or sub-acute, nerved, glabrous, .6 to .75 in. long. *Petals* coriaceous, sub-equal, ovate-elliptic, sub-acute, the base slightly cordate (narrowly oblong-lanceolate in var. *angustifolia*) greenish-yellow with a triangular blotch of dark purple at the base. *Stamens* numerous; apical process of connective broad, truncate, sub-orbicular, projecting over the apex of the linear anther-cells, pubescent. *Ovaries* oblong, adpressed-pubescent, 1-ovuled; style short, cylindrical, thick, crowned by the convex, terminal, pubescent stigma. *Ripe carpels* numerous, elliptic-ovoid, blunt, slightly contracted at the base, sparsely pubescent but becoming almost glabrous, purple when ripe; pericarp sub-succulent; stalks thick, crimson when ripe, 1.5 in. long. *Seed* solitary, elliptic.

Perak; at Weld's Rest, Seortechini.

Var. *angustifolia*, King. *Leaves* oblong-lanceolate or oblong-oblancoolate, scarcely muriculate; petals lanceolate or narrowly oblong-lanceolate, often 1.75 in. long; sepals often .75 in. long.

Perak; on Gunung Bubu; elevat. 5,000 feet, Wray.

8. *POLYALTHIA KUNSTLERI*, King n. sp. A shrub or small tree; young branches puberulous, speedily glabrous. *Leaves* oblong-lanceolate rarely elliptic-lanceolate, shortly and rather bluntly acuminate, the base narrowed and sub-acute or rounded; upper surface glabrous, shining; the lower paler, dull, puberulous on the midrib and nerves; main nerves 6 to 12 pairs, rather prominent beneath, ascending, inter-arching .1 to .2 in. from the margin; length 4.5 to 8 in., breadth 1.5 to 2.35 in.; petiole .2 in., pubescent. *Flowers* 4 in. in diam., axillary or extra-axillary,

solitary or in pairs; peduncles .25 in. long, each with two rather large unequal, broadly ovate bracts above the base. *Sepals* broadly triangular-ovate, obtuse, nearly as long as the petals and, like them, minutely tomentose. *Petals* sub-equal, broadly oblong-ovate, obtuse. *Ovule* solitary. *Fruit* 2 in. in diam.; individual carpels numerous, ovoid-globular, apiculate, .3 in. long; stalks slender, .5 in. long, adpressed rufous-pubescent like the carpels. *Ellipeia parviflora*, Scortechini MSS.

Perak: King's Collector, Scortechini, Wray.

Til[^] much resembles *P. Jenkinsii* and *P. andamanica* in its leaves but its flowers are totally different.

1. *POLYALTHIA SCORTECHINII*, n. sp. King. A small tree 15 to 20 feet high; young branches minutely rufous-tomentose, but speedily glabrous. *Leaves* thinly coriaceous, oblong or oblong-elliptic, acute or shortly acuminate, the base rounded or sub-acute; upper surface glabrous, shining, the midrib pubescent; the lower dull, very minutely dotted, the midrib and sometimes nerves pubescent; main nerves 8 to 11 pairs, bold and prominent on the lower surface, oblique, inter-arching close to the edge: length 4 to 8 in., breadth 1.15 to 2.25.; petiole .25 in., pubescent. *Flowers* pedicelled, solitary or in pairs, from the axils of leaves or of fallen leaves: pedicels .5 to .75 in. long, rufous-tomentose, with a rather large bract about the middle. *Sepals* small, triangular, pubescent. *Petals* fleshy, sub-equal, greenish-yellow changing into dark dull yellow, oblong-lanceolate or oblong-oblanccolate, acute or rather blunt, the edges wavy, both surfaces minutely pubescent, 1.5 to 2 in. long. *Ovaries* narrowly elongate-adpressed, pubescent, each crowned by large fleshy glabrous stigma. *Ovule* solitary, basal. *Fruit* shortly stalked; ripe carpels numerous pedicelled, ovoid, crowned by the remains of the stigma, sparsely pubescent, .3 in. long; pedicel slender, pubescent, .75 in. long. *Seed* with pale smooth testa. *P. Jenkinsii*, H. f. and T. (in part). *Ellipeia undulata*, Scortechini MSS.

Malacca: Griffith, No. 413. Perak, King's Collector, Scortechini.

Distrib. —Sumatra, Beccari, Nos. 935, 976.

10. *POLYALTHIA JENKINSII*, Benth. and Hook. fil. Gen. Pl. I, 25. A tree: young shoots sparsely rufous-pubescent. *Leaves* membranous, oblong-lanceolate to elliptic-ovate, acute or shortly acuminate, slightly narrowed to the acute or rounded sub-oblique base; both surfaces glabrous, minutely reticulate, the upper shining and the midrib pubescent; main nerves about 7 pairs, slender, slightly prominent beneath, inter-arching at some distance from the edge: length 4 to 7 in., breadth 1.35 to 3 in., petiole .2 to .3 in. *Flowers* large (1.75 to 3 in. in diam.), pedicelled, solitary, rarely in pairs, axillary; pedicels .6 to .75 in. long, pubescent, and with several small rounded bracts near the base. *Sepals*

very small, sub-orbicular, puberulous. *Petals* sub-coriaceous, spreading, greenish changing to yellow, broadly lanceolate or oblanceolate, sub-acute or obtuse, the base much narrowed, puberulous or glabrous. *Ripe carpels* numerous, stalked, oblong, slightly apiculate, glabrous, 4 in. long: stalk slender, 6 in. long. *Seed* smooth. Hook. fil. Fl. Br. Ind. Ind. I, 64 (*in part*); Kurz For. Fl. Burm. I, 375 (*in part*); *Guatteria Jenkinsii*, Hook. fil. and Thoms. Fl. Ind. 141; Miq. Fl. Ind. Bat. I, pt. 2, p. 46. *Guatteria Peruviana* Miq. Fl. Ind. Bat. Vol. I, Pt. 2, p. 48, and Suppl. 378. *Uvaria canangioides*, Reichb. fil. et Zoll. MSS. *Monoon canangioides*. Miq. Ann. Zool. Lugd. Bat. II, 18.

Malacca; Griffith; Maingay, No. 46 (and 45 *in part*) (Kew Distrib.). Perak; King's Collector, No. 3910. Assam and Silhet.

Specimens from Perak have larger flowers than those from Assam; but otherwise they agree fairly well, and both appear to be specifically identical with the Sumatra plant named *Guatteria* or *Monoon canangioides* by Miquel. The Andaman plant which Kurz originally (Andam. Report (1870) p. 29) named *Polyalthia andamanica*, but which Sir Joseph Hooker (dealing with imperfect materials) reduced (with Kurz's assent) to this species, I have restored to specific rank. Recently received specimens show its flowers to be different from those of true *P. Jenkinsii* (the petals being shorter and narrower), while the carpels are larger.

11. *POLYALTHIA HOOKERIANA*, King n. sp. A tree 20 to 70 feet high: young branches softly tawny-pubescent, ultimately glabrous and darkly cinereous. *Leaves* membranous, obovate-elliptic or oblanceolate, shortly acuminate, narrowed from above the middle to the sub-cuneate base; both surfaces reticulate, the upper glabrous except the pubescent midrib and nerves: lower glabrous, the midrib and nerves adpressed-pubescent: main nerves 10 or 11 pairs, oblique, forming imperfect arches close to the edge, prominent beneath; length 5 to 7 in., breadth 2.25 to 3.25 in.; petiole .15 to .2 in., tomentose. *Flowers* in pairs from peduncles with several aborted flowers near their bases, extra-axillary: pedicels .5 to .75 in. long, lengthening in fruit, stout, pubescent, with 1 or 2 small ovate bracteoles at the middle or below it. *Sepals* broadly ovate, concave, free or connate only at the base, pubescent outside, glabrous within, .2 in. long. *Petals* coriaceous, yellowish, subequal, ovate or obovate-oblong, sub-acute, puberulous except at the base inside, only slightly contracted at the base, nearly 1 in. long. *Stamens* numerous, very short, cuneate; the apical process of the connective thick with a truncate orbicular top hiding the linear dorsal anthers. *Ovaries* short, oblong, puberulous, with 1 ovule: stigma sessile, large, obovate with sub-truncate lobed apex. *Ripe carpels* numerous, ovoid, slightly apicu-

late at the top and somewhat narrowed at the base, 65 in. long, stalic 1·2 in. long. Seed solitary, ovoid, smooth, with a vertical furrow.

Malacca: Maingay (Kew Distrib.) No. 96. Perak: King's Collector; Wray.

This is a common tree in Perak. In Malacca, however, it appears to be rare; for it is so very imperfectly represented in Maingay's great Malayan collection (of which the best set is at Kew), that Sir Joseph Hooker, while recognising it as a *Polyalthia*, had not sufficient material to enable him to describe it in his Flora of British India.

12. *POLYALTHIA SIMIARUM*, Benth. and Hook. fil. Gen. Pl. 1, 25; Hook. fil. Fl. Br. Ind. I, 63. A tree 50 to 80 feet high; all parts glabrous except the puberulous leaf buds, under surface of nerves of leaves and inflorescence; young branches pale brown, striate, sparsely lenticellate. Leaves sub-coriaceous, ovate-oblong to oblong-lanceolate, acute or shortly acuminate, the base rounded or sub-acute; upper surface shining; lower dull, sometimes puberulous on the midrib and nerves; main nerves 12 to 16 pairs, oblique, prominent beneath; length 5 to 11 in., breadth 2 to 4·5 in., petiole 25 in. Flowers pedicelled, in few-flowered sessile fascicles from the axils of fallen leaves or from tubercles on the larger branches: pedicels minutely pubescent, with a small bract below the middle, 1 to 1·25 in. long. Sepals small, bluntly triangular, recurved, pubescent outside. Petals spreading, linear, sub-acute or acute, greenish-yellow to purplish, puberulous outside, glabrous inside, 1 to 1·25 in. long, the inner rather the longer. Ripe carpels stalked, ovoid-elliptic, slightly mammillate, contracted towards the base, glabrous and orange-red to bluish-black when ripe, 1·25 to 1·5 in. long: stalk from 1 to 1·75 in. Seed ovoid, grooved, transversely striate. Kurz For. Fl. Burm. I, 37; Hook. fil. Fl. Br. Ind. I, 63. *Guatteria simiarum*, Ham., Wall. Cat. 6440; Hook. fil. and Thoms. Fl. Ind. 142. *G. fasciculata*, Wall. MSS. ex Voigt Hort. Sub. Calc. 16. *Polyalthia lateriflora*, Kurz (not of King), Journ. As. Soc. Beng., Pt. 2, (for 1874) 52. *Usnea simiarum*, H. Bn., Pierre Fl. Forest. Coch-Chine, t. 23.

Andamans, Bot. Garden Collectors. Perak, King's Collector. Forests at the base of the Eastern Himalaya, the Assam range, Chittagong, Burmah.

Var. *parcifolia*, King: leaves smaller than in typical form (3·5 to 6 in. long and 1·25 to 2·25 in. broad) puberulous beneath.

Perak; at elevation of 3,000 to 4,000 feet. Distrib. Sumatra: on Goengung Trang, Lampongs. (Forbes, No. 1536).

13. *POLYALTHIA LATERIFLORA*, King. A tree 50 to 70 feet high: young branches lenticellate and striate; all parts except the inflorescence quite glabrous. Leaves coriaceous, oblong to elliptic-oblong

abruptly acute or shortly acuminate, slightly narrowed to the rounded rarely sub-cordate and unequal base: upper surface shining, the lower paler, rather dull: main nerves 12 to 16 pairs, rather prominent, oblique spreading, evanescent at the tips: length 8 to 15 in., breadth 2.5 to 7 in.; petiole .3 in. stout. *Flowers* in fascicles from tubercles on the stem and larger branches, pedicelled, 1.25 to 2 in. long; pedicels slender, thickened upwards, pubescent, with 2 bracteoles about the middle, 1.25 to 1.75 in. long. *Sepals* coriaceous, ovate-orbicular, very short, densely and minutely tomentose outside. *Petals* coriaceous, greenish-yellow, dull crimson at the base, oblong-lanceolate, gradually tapering to the sub-acute apex, the outer rather shorter than the inner, minutely pubescent especially on the outer surface. *Ripe carpels* ovoid-elliptic, blunt, slightly narrowed to the base, glabrous, 1.25 in. long and .7 in. in diam.; the pericarp thin, fleshy: the stalks stout, glabrous, sub-asperulous, 1.25 to 2 in. long. (*Quatteria lateriflora*, It). J. J. Dr. 20: Fl. Jav. p. 100, t. 50 and 52 D.: Miq. Fl. Ind. Bat. I, pt. 2 p. 47. *Mouou lateriflorum*, Miq. Ann. Mus. Lugd. Bat. II, 19.

Perak; at low elevations, Wray, King's Collector. Distrib: Java.

This is closely allied to *P. simiarum*, Benth. and Hook. fil.: but has smaller flowers which are often borne on the smaller branches; smaller leaves; and shorter stalked carpels. Moreover the leaves and young branches of this are invariably glabrous. The leaves of old trees are very markedly smaller than those on young specimens. Specimens in young fruit of a plant which may belong to this species have been recently received from the Andamans from the Collectors of the Bot-Garden, Calcutta: but, until the receipt of fuller material, I hesitate to include these islands in the geographical area of the species.

14. *POLYALTHIA SCLEROPHYLLA*, Hook. fil. and Thoms. Fl. Br. Ind. 65. A glabrous tree: young branches pale. *Leaves* coriaceous, oblong, ovate or linear-oblong, acute or obtusely acuminate, the base broadly cuneate, shining on both surfaces and with the reticulations distinct; main nerves about 10 to 12 pairs, spreading, slender: length 6 to 8 in.: breadth 1.5 to 2.6 in., petiole .5 in. *Flowers* pedunculate, in fascicles from small tubercles on the trunk, 2 in. in diam., greenish: tubercles .5 to 1 in. in diam.: peduncles 1 to 1.5 in. long, stout, rusty-pubescent, becoming glabrous; bracts small, orbicular, from about the middle of the peduncle. *Sepals* ovate, obtuse, short. *Petals* linear-oblong, obtuse, the base slightly concave, puberulous on both surfaces, 1.6 in. long, the inner rather smaller. *Torus* broad, flat, the edge raised. *Ovaries* pilose, shorter than the cylindric style. *Ripe carpels* elliptic-oblong, slightly narrowed at either end, 1 to 1.5 in. long, glabrous, the pericarp thin: stalks 1 to 1.5 in. long. *Seed* oblong, the testa shining, pale.

Malacca; Maingay (Kew Distrib), No. 101,

I have seen only Maingay's Malacca specimens of this plant.

15. *POLYALTHIA MACROPODA*, King n. sp. A tree 50 to 60 feet high; young branches rather pale, pubescent but speedily glabrous. *Leaves* membranous, oblong-lanceolate, shortly acuminate, the base acute; the edge slightly revolute; upper surface shining, glabrous except the puberulous sulcate midrib; the lower paler when dry, minutely lepidote, sparsely strigose on the midrib and 8 or 9 pairs of curving rather prominent nerves; length 3.5 to 5.5 in., breadth 1.4 to 2.1 in., petiole .25 in. *Flowers* nearly 1 in. long, in fascicles on short broad rugose woody tubercles from the stem close to its base: pedicels about 1 in. long, woody in fruit and 2 in. or more in length, glabrous; bracteoles (if any) deciduous. *Sepals* broadly ovate, acute, spreading, corrugated and glabrescent outside, glabrous inside, connate at the base to form a cup .65 in. in diam. *Petals* elliptic, blunt, slightly constricted about the middle, sub-equal, puberulous, coriaceous. *Stamens* numerous, compressed especially the outer rows; apical process of connective transversely elongated, truncate. *Ovaries* numerous, oblong-ovoid. *Ripe fruit* with large woody sub-globular torus 1.25 in. in diam.; *ripe carpels* numerous, oblong-ovoid, tapering to the apex, the base gradually narrowed into a stalk, 2.5 to 3.5 in. long (including the stalk); pericarp rather fleshy, glabrous. *Seed* solitary, elongated-ovoid, grooved vertically.

Perak: King's Collector, Singapore, Ridley.

A species remarkable for its large ripe carpels borne on the stem near the ground. It is possible that Mr. Ridley's plant, collected in Singapore, may really belong to a distinct species, the only specimen of it which I have seen being very imperfect. This comes very near *P. clavigera* King.

16. *POLYALTHIA CLAVIGERA*, King n. sp. A tree 30 to 40 feet high; young branches slender, at first puberulous but speedily glabrous and pale. *Leaves* thinly coriaceous, oblong, tapering to each end, acuminate; both surfaces reticulate; the upper shining, glabrous except the puberulous sulcate midrib; lower surface slightly puberulous at first but ultimately quite glabrous; main nerves 7 pairs, ascending, curved, not inter-arching, slightly prominent beneath, obsolete above; length 5.5 to 8.5 in., breadth 1.75 to 2.5 in.; petiole .4 in. slightly winged above. *Flowers* unknown. *Peduncle* of ripe fruit stout, woody, 2 in. or more in length; the torus depressed-globular, woody, about .5 in. in diam.; *ripe carpels* ovoid-elliptic, tapering to each end, the base gradually passing into the stout puberulous slightly scabrid stalk, greenish-yellow when dry, glabrous; the pericarp succulent; length 2.25 in., breadth nearly 1 in.; stalk 1.5 in. puberulous; seed solitary, ovoid.

Penang: Pinara Bukit, elevat. 2000 feet. Curtis (No. 2444).
Perak: Waterfall Hill, Wray. Distrib. E. Sumatra, Forbes (No. 1638).

This species is known only by a few fruiting specimens collected by Messrs. Curtis and Wray Junior. It is nearly allied to *P. macropoda*, King; but its leaves have different venation and texture, the torus of the ripe fruit is smaller, while the carpels themselves are larger and have longer stalks.

17. *POLYALTHIA GLOMERATA*, King n. sp. A tree 40 to 50 feet high: young branches glabrous, pale, rather slender. *Leaves* membranous, elliptic to oblong, slightly oblique, acute or shortly acuminate, the base slightly cuneate or rounded; both surfaces reticulate, glabrous; the midrib alone puberulous on the upper, adpressed-puberulous on the lower; main nerves 7 to 8 pairs, curved, ascending, not inter-arching, thin but slightly prominent beneath; length 4 to 6 in., breadth 1·8 to 2·6 in., petiole ·25 to ·35 in. *Flowers* about 1 in. long, in clusters of 20 to 30 from nodulated puberulous-tubercles on the stem; pedicels long (1·5 to 2·5 in.), slender, puberulous, with an ovate-lanceolate bracteole about the middle. *Sepals* thick, lanceolate-acuminate with broad connate bases, sub-erect, puberulous. *Petals* coriaceous, sub-erect, linear-oblong, slightly concave and glabrous at the base inside, otherwise minutely tomentose, the inner slightly smaller than the outer. *Stamens* numerous; the connective with an orbicular sub-convex apical expansion concealing the linear dorsal anther-cells. *Ovaries* much less numerous than the stamens, oblong, hirsute, apparently 1-ovuled; the stigma small, oblong, slightly pubescent.

Perak; King's Collector, Wray. Distrib. Sumatra; Forbes, No. 2804.

In all the flowers I have examined the pistils are very small (as if undeveloped) and I have not been able to find more than one ovule. In the Sumatran specimens the flowers are much longer than in those from Perak.

18. *POLYALTHIA CONGREGATA*, King n. sp. A tree 40 to 60 feet high; young branches at first rusty-puberulous but speedily glabrous and dark-coloured. *Leaves* thinly coriaceous, oblong-elliptic, acute, slightly narrowed to the rounded or minutely cordate base; upper surface glabrous except the depressed puberulous midrib; the lower pale when dry, glabrous, minutely lepidote; main nerves 13 to 19 pairs, oblique, curving, thin but prominent beneath; length 9 to 16 in., breadth 3·75 to 7 in.; petiole ·3 or ·4 in. stout. *Flowers* large, in short, much divided, rough, tubercular, woody cymes from the stem near its base; the pedicels 1·25 to 1·75 in. long, glabrescent; bracteole single, sub-orbicular, clasping, infra-median. *Sepals* thick, broadly ovate-triangular.

SF reading, slightly cuneate at the base, concave, corrugated and puberulent outside, glabrous inside, often reflexed, 5 in. long. Petals thick, white, ovate-elliptic, sub-acute, hoary-puberulous except at the base inside on both surfaces; the outer row 1.5 to 3 in. long and .65 to 1 in. long, the inner row narrower. Stamens numerous, compressed; the anther-cells of the connective truncate, oblique, granular; anther-cells linear, dorsal. Ovaries 2 to 30 oblong, strigose, with a single basal ovule; stigma oblong, pubescent. Ripe carpels elliptic, beaked, 1 in. or more long, hoary-pubescent, narrowed at the base into the short, thick style. Seed solitary, pale brown, shining, elliptic.

This resembles *P. macrantha*, King; but is distinguished from it by its cymose, cauline inflorescence, smaller flowers and puberulous fruit. H. O. Forbes collected in the Lampongs in Eastern Sumatra a plant (No. 1642 of his Herb.) which greatly resembles this.

POLYALTHIA HYPOGAEA, King, n. sp. A tree 25 to 30 feet high; young branches rather stout, densely but minutely tomentose, ultimately rather pale, striate. Leaves large, thinly coriaceous, oblong or elliptic-oblong, sometimes slightly obovate, gradually narrowed to the rounded base; both surfaces glabrous when adult, the lower puberulous when young, the veins transverse and, (like the reticulations), distinct; main nerves 18 to 22 pairs, oblique, inter-arching within the edge, thin, prominent on the lower and depressed on the upper surface when dry; length 10 to 20 in., breadth 3 to 7 in.; petiole .4 in., stout, tomentose. Flowering branches from the stem near its base, 1 to 8 feet long, flexuose, rufous-pubescent like the lanceolate bracteoles. Flowers .75 to 1 in. long, cream-coloured; pedicels .75 to 1.5 in. long, usually with one lanceolate, tomentose bracteole near the middle and a second sub-orbicular and acuminate, close to the flower. Sepals broadly triangular-ovate, acute, spreading, tomentose outside, glabrous inside, .75 to 1 in. long. Petals coriaceous, the inner row rather smaller than the outer, narrowly oblong, sub-acute, pubescent outside except the glabrescent base and edges, inside almost glabrous. Stamens numerous, short, compressed; apical process of connective broad, slightly convex, slightly oblique, sub-granular, deeply ridged in front, the anther-cells linear dorsal. Ovaries few, oblong, villous, 1-ovuled; stigma large, ovoid, granular, sessile. Immature carpels narrowly ovoid, sub-compressed, the apex beaked, the base slightly contracted, minutely tomentose. Seed solitary, elongated, ovoid, smooth.

Perak; near Laroot, King's Collector. Gunong Batu, atch; elev. 3,400 feet, Wray.

A species remarkable for its hypogoeal inflorescence. The flower-

ing branches, which vary from 1 to 8 feet in length, originate from the stem near its base, pass into the soil underneath the surface of which they run for some distance, and bear on their emerging tips the flowers and fruit.

20. *POLYALTHIA OBLIQUA*, Hook. fil. and Thoms. Fl. Ind. 138. A tree: young branches minutely pubescent, lenticellate. *Leaves* subsessile, oblong-lanceolate, acute or shortly acuminate, the base cuneate, minutely and obliquely cordate; shining and glabrous on both surfaces, the lower pale; main nerves 7 or 8 pairs, slender, curving and forming bold arches $\cdot 15$ in. from the margin; length 4 to $6\cdot 5$ in., breadth $1\cdot 5$ to $2\cdot 2$ in.; petiole 1 in., very stout. *Flowers* $\cdot 4$ to $5\cdot 4$ in. in diam., solitary, pedicellate, extra-axillary; each pedicel rising from a short conical woody tubercle, curving, $\cdot 25$ in. long. *Sepals* coriaceous, broadly triangular, blunt, less than half as long as the petals, pubescent. *Petals* coriaceous, sub-equal, oblong, obtuse, sericeous outside. *Ripe carpels* pisiform, with stalks $\cdot 5$ in. long, dark brown. Hook. fil. Fl. Br. Ind. I, 67; Miq. Fl. Ind. Bat. I, Pt. 2, p. 44.

Malacca; Griffith, Maingay, No. 44 (Kew distrib.). Chittagong Hill Tracts; Lister. Distrib. Sumatra.

Lister's plant from the Chittagong Hill Tracts agrees well with Griffith's specimens from Malacca.

21. *POLYALTHIA ABERRANS*, Maing. ex Hook. fil. Fl. Br. Ind. I, 67. A large climber, glabrous except the flowers and fruit: young branches slender, black. *Leaves* membranous, oblong-lanceolate, acuminate, the base slightly cuneate; both surfaces reticulate, glabrous, the lower glaucous; main nerves 14 to 18 pairs, very faint, the secondary nerves quite as well marked: length $3\cdot 5$ to 5 in., breadth $1\cdot 4$ to $1\cdot 8$ in., petiole $\cdot 2$ to $\cdot 25$ in. *Flowers* $\cdot 5$ to $\cdot 75$ in. in diam., solitary, axillary; pedicels slender, $1\cdot 25$ in. long (longer in fruit), with one minute bracteole below the middle and another at the base. *Sepals* ovate-orbicular, sub-acute, quite connate into a 3-angled glabrous cup $\cdot 25$ in. in diam. *Petals* leathery, ovate-orbicular, sub-acute, spreading, concave; the outer row $\cdot 35$ in. long and $\cdot 3$ in. broad, yellowish-pubescent on both surfaces except a glabrous patch near the base on the inner: inner petals half the size of the outer but more concave, hoary-puberulous outside, glabrescent inside. *Stamens* numerous; apical process of connective broad, discoid, depressed in the centre, quite concealing the long linear lateral anther-cells. *Ovaries* narrowly oblong, glabrous, 1 or 2-ovuled: style as long as the ovary, curved: stigma small. *Ripe carpels* ovoid, slightly spiculate, puberulous or glabrescent, $\cdot 35$ in. long and $\cdot 3$ in. in diam.; stalks $\cdot 7$ to $\cdot 8$ in., slender, glabrous. *Seeds* solitary, rarely 2, ovoid, shining, smooth. *Melodorum glaucum*, Scortechini MSS.

Malacca: Maingay. Perak; Scortechini, Wray.

In some carpels there are two seeds, such carpels being about twice as long as those with a single seed. Although referred by the lamented *Ft*ther Scortechini to the genus *Melodorum*, this is an undoubtedly *Polyalthia* in its stamens, in its 1- rarely 2-ovuled ovaries, and in its carpels with usually solitary, ovoid seeds. In externals, save and except the much smaller **to of** the flowers, this much resembles the plant figured by Pierre under the name of *Unona Mesnyi* (Flore Forest. Coch-Chine, t. 17) to which indeed Pierre reduces *P. aberrans*.

22. *POLYALTHIA BULLATA*, King n. sp. A shrub 6 to 8 feet high: young branches densely covered with long soft spreading golden hairs. *Leaves* thinly coriaceous, bullate (at least **when** dry), narrowly oblong, acuminate, narrowed but slightly to the deeply cordate auricled base: **bo**th surfaces boldly reticulate, the upper **shin** glabrous except the **Him** sulcate puberulous midrib; the lower glabrescent except the midrib and nerves which have sparse hairs like those on the young branches: main nerves 25 to 40 pairs, spreading towards the base, sub-ascending towards the apex, forming a double series of arches within the margin, bold and prominent on the lower, depressed on the upper, surface: secondary nerves and reticulations prominent: length 12 to 14 in., breadth 2.75 to 3.35 in.; petiole .25 in., pubescent like the young branches. *Flowers* solitary, terminal or axillary, 1 in. long; pedicels slender, 1 in. long, pubescent, bracteole small, mesial. *Sepals* small, lanceolate, spreading, free, sparsely pubescent outside, glabrescent inside, about .25 in. long. *Petals* narrowly linear, slightly wider at the base, subequal, sub-concave, sparsely pubescent. *Stamens* numerous, the apical process of the connective sub-convex, orbicular, slightly granular. *Ovaries* much fewer than the stamens, oblong, pubescent; the stigma sub-capitate-truncate, puberulous. *Ripe carpels* globular-ovoid, blunt at each end, puberulous, .4 in. long; stalks slender, .2 in. long. *Seeds* 2, plano-convex, the testa rugose, pale: the albumen horny.

Singapore: Ridley. Perak; King's Collector.

Evidently a rare shrub; readily recognisable by its elongate very bullate leaves.

23. *POLYALTHIA SUB-CORDATA*, Blume Fl. Javae, 71 t. 33 and 36 B. A shrub or small tree: young branches sparsely hispid-pubescent, afterwards glabrous and furrowed, not pale. *Leaves* membranous, sub-sessile, oblanceolate-oblong or elliptic-oblong, shortly and obtusely exadate-acuminate; the base slightly narrowed, sub-cordate, auriculate at one side; both surfaces glabrous except the sometimes puberulous midrib: main nerves 9 to 12 pairs, slender, the reticulations lax and faint: length 4.5 to 9 in., breadth 1.6 to 3 in.; petiole .05 in., pubescent. *Flowers*

about 1 in. in diam., solitary, axillary or extra-axillary; peduncles slender, .5 to .75 in long, puberulous and with 1 or 2 lanceolate bracteoles. *Sepals* ovate, sub-acute; united into a cup. *Petals* coriaceous, yellowish, oblong, sub-acute, the inner rather smaller, slightly pubescent outside. *Carpels* numerous, broadly ovoid, not apiculate, furrowed, glabrous, .4 in. long; stalks slender, .25 in. long; pericarp thin. Miq. Fl. Ind. Bat. I, Pt. 2, p. 44; Ann. Mus. Ludg. Bat. II, 14. *Unona subcordata*, Bl. Bijdr. 15.

Perak; elev. about 800 feet, King's Collector, No. 2373. Distrib. Java.

24. *POLYALTHIA OBLONGA*, King, n. sp. A shrub or small tree 10 to 15 feet high; young branches at first rufous-tomentose, afterwards glabrous, pale and furrowed. *Leaves* thinly coriaceous, sub-sessile, oblong or oblong-oblancoate, abruptly and shortly acuminate, narrowed to the minutely cordate, unequal base; upper surface glabrous, except the pubescent midrib; lower puberulous, the midrib prominent as are the 14 to 20 pairs of little curving, sub-ascending, main nerves; reticulations open and distinct; length 9 to 14 in., breadth 3.5 to 5 in.; petiole .15 in., tomentose. *Flowers* 1.25 to 1.75 in. in diam., solitary, axillary or extra-axillary, from small tubercles; pedicels 1.25 to 2.5 in. long, puberulous and with 2 lanceolate bracteoles near the base. *Sepals* semi-orbicular, acute, very short, united into a cup, pubescent outside. *Petals* coriaceous, yellow, unequal, oblong, tapering to the sub-acute apex, minutely adpressed-pubescent on both surfaces but especially on the outer, length .75 to 1.15 in. *Ripe carpels* 10 to 20, ovoid to orbicular, apiculate, .3 to .35 in. long, pubescent or sub-glabrous; stalks slender, .6 to .75 in. long. *Seeds* usually solitary and ovoid, or sometimes two and plano-convex.

Perak: very common at elevations of from 1,000 to 2,500 feet.

This plant closely resembles *Gutteria* (= *Polyalthia*) *elliptica* Blume: but its leaves have more numerous nerves and its carpels are stalked, those of *P. elliptica* (according both to Blume's description and figure) being sessile and of larger size.

25. *POLYALTHIA BECUARI*, King n. sp. A tree 15 to 40 feet high; young branches slender, rufous-tomentose; the older coarsely striate and lenticellate. *Leaves* thickly membranous, narrowly oblong or oblong-lanceolate, acuminate, slightly narrowed to the rounded base; both surfaces shining and reticulate, the midrib pubescent on the upper tomentose on the lower; main nerves 6 or 7 pairs, slender, spreading, forming bold arches far from the edge, the secondary nerves distinct; length 3 to 4.5 in., breadth .75 to 1.35 in.; petiole .1 in., tomentose. *Flowers* 1 in. long, in fascicles from bracteolate tubercles on the older

branches, their pedicels slender, pubescent, minutely bracteolate near the base, about 1 in. long. Sepals ovate-obtuse, .15 in. long, pubescent inside. Petals coriaceous, dark-ye How, sub-equal, linear-oblong, sub-acute, 1 in. to 1.5 in. long and from .1 to .2 in. broad, minutely pubescent especially outside. Ovaries pubescent, 2-ovuled. Ripe carpels numerous, broadly ovoid, apiculate, glabrous, sub-granular when ripe, .35 in. long; their stalks granular, pubescent, .6 to .75 in. long.

Perak: at low elevations. Scortechini, King's Collector, Wray. Disti-ib. Sumatra; Beccari P. S., No. 401. Boracoo; Motley No. 743.

The leaves of this Bpt species, although smaller, have much the same venation as those of *P. Teysmannii*, King. The carpels of this are, however, very much smaller than those of *P. Teysmannii*.

26. POLYALTHIA CINNAMOMEA, Hook. fil. and Thoms. Fl. Ind. 138; fil. Fl. tree 50 to 70 feet high; young branches

rusty-tomentose. Leaves thinly coriaceous, narrowly oblong to oblanceolate, tapering to each end, acute or shortly acuminate, the base rounded; upper surface glabrous, shining; the lower sparsely lucid-pubescent, (glabrescent when old), the midrib tomentose; main nerves about 4 per inch. Tendrils slender, curved, ascending, inter-arching freely; length 4.5 to 7; taller than the leaves, dull red, 2 to 2.25 in. long; peduncles 12 or 15 in. long, rusty-tomentose, bracteolate at the base. Sepals spreading, suborbicular, .25 in. long, tomentose. Petals sub-equal, thick, linear-oblong, sub-acute, slightly narrowed at the base, adpressed-pubescent externally, glabrous within, 2 to 3 in. long. Anthers numerous, short, compressed; connective with broad, flat, apical, truncate process. Pistils oblong, pubescent; stigma large, sub-truncate. Torus convex, tomentose. Fruit globose, 2.5 in. in diam.; the individual carpels pyriform with very short stalks, .75 to 1 in. long and .5 to .75 in. in diam., densely rusty-tomentose; pericarp thick. Seeds 2, plano-convex, with scaly testa, Miq. Fl. Ind. Bat. 1, Pt. 2, p. 44. Guatteria cinnamomea, Wall. Cat. 6444. G. multinervis, Wall. Cat. 6445. Unona cauliflora, H. f. and Th. Fl. Ind., 137; Fl. Br. Ind. 2, 60. Miq. Fl. Ind. Bat. 1, Pt. 2, 43.

Singapore; Wallich, Ridley. Penang; Wallich, Curtis No. 2470. Malacca, Maingay (Kew Distrib.) No. 37.

Apparently not a common species. Maingay's specimens from Malacca have rather larger and smoother leaves than those from Singapore and Penang.

27. POLYALTHIA PACHYPHYLLA, King, n. sp. A tree 50 to 100 feet high; young branches softly pubescent, afterwards glabrous and furrowed. Leaves rigidly coriaceous, elliptic-oblong, sub-acute; the edge

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slightly recurved, the base broad and rounded, or narrowed and sub-acute; both surfaces glabrous; the lower slightly paler, the midrib tomentose at the base beneath; main nerves 11 or 12 pairs, spreading, prominent, evanescent at the tips; length 4.5 to 7.5 in., breadth 1.75 to 3.5 in., petiole .35 to .5 in., tomentose when young. *Flowers* about 1.5 in. long, in few-flowered fascicles from small tubercles on the older branches; their pedicels 2 in. long, bracteolate about the middle, softly tawny-tomentose. *Sepals* broadly half-orbicular, very short, reflexed, tomentose. *Petals* coriaceous, nerved, pale green, oblong-lanceolate or oblanceolate, sub-acute or obtuse, pubescent on the outer, tomentose on the inner, surface; the outer slightly shorter and narrower than the inner, from .9 to 1.5 in. long and .3 to .5 in. broad. *Stamens* numerous, compressed, the apical process of connective truncate; anthers linear, dorsal. *Ovaries* numerous, glabrous, vertically striate; stigma sessile, truncate, puberulous. *Ripe carpels* numerous, crowded when young, densely covered with minute pale tomentum; when ripe narrowly obovoid, blunt, narrowed to a short stalk, sub-tomentose, 1.75 in. long and about 1 in. in diam.; pericarp thick, fleshy; seeds two, plano-convex.

In its leaves this resembles *Guatteria pondok*, Miq. (Fl. Ind. Bat. Suppl. 380), but that species has carpels with stalks from 2 to 3 in. long.

Perak; at elevation under 1,000 feet, King's Collector, Nos. 6655 and 7516.

28. *POLYALTHIA PYCNANTHA*, King. A tree? Young branches rather stout, covered with soft yellowish pubescence. *Leaves* coriaceous, elliptic-oblong, or oblong-lanceolate, obtusely acuminate, the base obtuse or rounded; upper surface glabrous; lower paler and puberulous on the midrib; main nerves arching, prominent; length 6 to 9 in., breadth 2.5 to 3.5 in.; petiole .2 in., pubescent. *Flowers* .5 to .75 in. in diam., in fascicles from tubercles on the larger branches, 1 to .5 in. in diam.; flower-peduncles .25 in. long, pubescent, ebracteate. *Sepals* ovate, acute, .2 in. long. *Petals* linear, obtuse, flat, sub-equal, the bases of the inner three concave, .5 to .75 in. long, pale sericeous outside, glabrescent inside. *Torus* columnar-flat-topped, glabrous; ovules 2, superposed. *Uuona pycnantha*, Hook fil. in Fl. Br. Ind. I, 60.

Malacca; Maingay.

12 • *ANAXAGOREA*, St. Hilaire.

Trees or shrubs. *Leaves* with pellucid dots. *Flowers* small, greenish, leaf-opposed. *Sepals* 3, valvate, connate at the base. *Petals* 6 or 3, sub-equal, 2-seriate, valvate, the inner row sometimes absent. *Torus* convex.

Stamens indefinite; anthers 6 or 8, extrorse or sublateral; connective with a terminal process. *Ovaries* few, style variable; ovules 2, sub-basal, collateral, ascending. *Ling.* *Ripe carpels* follicular; stalk clavate. *Seeds* 1-2, exarillate, testa shining.—*Distrib.* Tropical Asia and America; species about 8.

stamens 6 1 *A. luzonensis*

„ 3 2 *A. Scortechinii*.

1. *ANAXAGOREA LUZONENSIS*, A. Gray Bot. U. S. Expl. Exped. 27. A shrub; all parts glabrous. *Leaves* membranous, oblong or elliptic-oblong, shortly acuminate, the base cuneate, the under surface pale; main nerves 7 or 8 pairs, spreading, slightly prominent beneath, the reticulations wide, rather distinct; length 5 to 7 in., breadth 1.75 to 2.5 in., petiole .25 to .35 in. *Flowers* about .5 in. long, solitary; pedicels .25 in. long (twice as long in fruit), with 1 or 2 amplexicaul bracteoles. *Sepals* small, ovate-rotund, obtuse. *Petals* subequal, elliptic, obtuse, thin, nerved, white. *Ovaries* few. *Ripe carpels* 1 to 3, cuneate-clavate, somewhat compressed, narrowed into a long stalk, 1 to 2-seeded. *Seeds* plano-convex, obovate, black, shining. Hook. fil. Fl. Br. Ind. I, 68. Kurz F. Flora Burm. I, 39. *A. zeylanica*, H. f. and Th. Fl. Ind. 144: Thwaites Enum. 10; Miq. Fl. Ind. Bat. I, Pt. 2, 49; Beddome Ic. Pl. Ind. Or. t. 46. *Rhopalocarpus fruticosus*, Teysm. and Binn. in Miq. Ann. Mus. Lugd. Bat. II, 22 t. 2 fig. B. *Anaxagorea fruticosa*, Scheff. in Nat. Tijdsch. Ned. Ind. XXXI, 9.

Burmah; The Andaman Islands; Malacca; Ceylon. *Distrib.* Philippines, Cambodia, Sumatra.

2. *ANAXAGOREA SCORTECHINII*, King, n. sp. A bush or small tree: all parts, except the flower, glabrous; the young branches sub-rugulose, 2-ridged. *Leaves* thinly coriaceous, elliptic-oblong or elliptic-obovate, shortly and abruptly acuminate, slightly narrowed to the rounded or sub-acute base; main nerves 7 to 9 pairs, rather prominent beneath, the reticulations open and distinct: length 6 to 8 in., breadth 2.5 to 3.5 in.; petiole .3 to .4 in. *Flowers* .75 in. long, solitary; pedicels .3 in. (much longer in fruit) with 1 or 2 amplexicaul bracteoles. *Sepals* membranous, their edges thin, broadly ovate, acute, pubescent outside. *Petals* in a single row, much larger than the sepals, oblong-lanceolate, sub-acute, scurfy-pubescent outside, glabrous within, very fleshy, slightly concave at the base. *Stamens* numerous, those next the pistils barren, elongate and bent over the pistils. *Ovaries* numerous, obovoid, pubescent: styles curved. *Carpels* as in *A. luzonensis*, but two or three times as numerous. *Seeds* obovoid, concavo-convex, compressed, black, shining.

Perak: at low elevations; Scortechini, King's Collector, Wray.

I have altered the diagnosis of this genus as regards the petals to

admit this species in which the inner whorl of petals is absent. In other respects the species agrees perfectly with the original diagnosis. Teysmann and Binnindyk's mono-specific genus *Rhopalocarpus* (Miq. Ann. Mus. Lagd. Bat. II, 22, t. 2 fig. B.) is an unmistakable *Anaxagorea* in which the inner petals are narrow and incurved. It is probably near *A. luzonensis*, A. Gray, and *A. javanica*, Bl. (See Benth. and Hook fil. Gen. Plant. I, 957).

13. DISEPALUM, Hook. fil.

Trees or shrubs. *Sepals* 2, large, concave, valvate. *Petals* 4, narrowly linear-spathulate, incurved, inserted remotely from each other on the margin of the very broad, sub-concave torus. *Stamens* numerous; the apical process of the connective broadly orbicular, sub-convex. *Pistils* 10 to 15 or numerous, ovoid; style short, terete; stigma small, terminal; ovule solitary. *Leaves* minutely pellucid-punctate. *Flowers* in long terminal peduncles, solitary or in pairs. Distrib. Three species, all Malayan.

1. DISEPALUM LONGIPES, King, n. sp. A glabrous tree 30 to 40 feet high; young branches slender, pale brown. *Leaves* minutely pellucid-punctate, membranous, oblong, sometimes slightly oblanceolate, rarely oblong-elliptic, abruptly and shortly acuminate, the base cuneate; main nerves 7 to 10 pairs, spreading, (sub-horizontal) very faint; length 4 to 7 in., breadth 1.5 to 2.25 in., petiole .25 in. *Flowers* on long pedicels, dark red, solitary or in pairs, terminal, .5 in. in diam.; pedicels slender, bracteolate, 1.25 to 2 in. long. *Sepals* reflexed, concave, broadly ovate, blunt. *Petals* remote from each other, linear-spathulate, sub-incurved, 2 in. long. *Stamens* numerous; apical process of the connective orbicular, sub-convex. *Ovaries* numerous, stalked, slightly obovoid, glabrescent or sparsely pubescent, 1-ovuled; style short, straight; stigma small, terminal. *Immature carpels* ovoid, sub-glabrous, slightly corrugated; pericarp fleshy, fragrant. *Seed* solitary, ovoid.

Johore; on Gunung Panti at 1,500 feet; King's Collector, No. 231. Distrib. Borneo, Beccari (P. B. 1645).

The genus *Disepalum* was founded by Sir Joseph Hooker on a Bornean shrub collected by Lobb, and the only species known to its founder was that described and figured under the name of *D. anomalum* in the Linnæan Transactions (Vol. XXIII, 156, t. 29 A.) The characters which separate the genus from any other in the family are the dimerous symmetry of the sepals and petals, and the small size of the latter, which originate at some distance from each other from the edge of the broad sub-concave torus. The species here described differs from *D. anomalum* in its arboreous habit, larger leaves, and much more numerous

ovaries, **which** are moreover nearly glabrous and have long stalks. Quite ripe fruit is as yet unknown.

14. GONIOTHALAMUS, Blume.

Small trees or shrubs. *Leaves* with small nerves, forming intramarine loops. *Flowers* solitary or fascicled, axillary or extra-axillary; peduncles with basal, scaly, distichous bracts. *Sepals* 3, valvate. *Petals* 6, valvate in 2 series; outer thick, flat or nearly so; inner smaller, shortly clawed, covering in a **faulted** cap over the stamens and ovary. *Stamens* many, linear-oblong; anther-cells remote, dorsal; connective produced into an oblong or truncate process. *Ovaries* many; style simple or 2-rid; ovules solitary or 2, superposed, sub-basal (4 in *G. uvarioides*.) *Ripe carpels* 1-seeded.—*Distrib.* About 47 species, natives of Eastern tropical Asia and its islands.

The plants referred to this genus are, by Billson, treated as part of *Melodorum*.

Ovules 1 or 2.

- | | | | | |
|---|-----|-----|-----|----------------------------|
| Style cylindrical, slender; stigma Eubulate, entire | ... | ... | ... | 1. <i>G. suberectus</i> . |
| Style very short; stigma funnel-shaped, slit on one side, its edges toothed | ... | ... | ... | 2. <i>G. tenuifolius</i> . |
| Style cylindrical; stigma truncate, entire. | | | | |
| Flowers in fascicles from the stem only; ripe carpels 1.25 in. long | ... | ... | ... | 3. <i>G. Prainianus</i> . |
| Flowers solitary from the axils of the leaves or fallen leaves; ripe carpels 4 in. long | ... | ... | ... | 4. <i>G. Kunstleri</i> . |
| *Style subulate or cylindrical; stigma deeply 2-cleft, petals 3 to 5 in. long | ... | ... | ... | 5. <i>G. giganteus</i> . |
| Style cylindrical; stigma unequally 2-toothed | ... | ... | ... | 6. <i>G. malayanus</i> . |
| Style cylindrical; stigma minutely and equally 2-toothed. | | | | |
| Flowers axillary or from the axils of fallen leaves; outer petals more than 1 in. long. | | | | |
| Antlers with slightly convex, orbicular apical appendages | ... | ... | ... | 7. <i>G. fulvus</i> . |
| Anthers with very pointed, conical apical appendages. | | | | |
| Nerves of leaves 28 to 34 pairs | ... | ... | ... | 8. <i>G. Curtisii</i> . |
| Nerves of leaves fewer than 20 pairs. | | | | |

- Leaves shining, reticulate,
glabrous; ripe carpels
oblong, .5 to .6 in. long 9. *G. Griffithii*.
- Leaves glabrous, opaque,
doil, not reticulate; ripe
carpels globular-obo-
void; .4 in. long. ... 10. *G. macrophyllus*.
- Flowers in fascicles from tubercles near
the base of the stem ... 11. *G. Ridleyi*.
- Style cylindrical; stigma 3-toothed; apices
of anthers acuminate.
- Leaves thickly coriaceous; nerves in-
conspicuous ... 12. *G. Tapis*.
- Leaves strongly and prominently nerved.
- Sepals large, orbicular-ovate, ob-
tuse, .65 to 1 in. long ... 13. *G. Scortechinii*.
- Sepals small, ovate, acuminate, .2
in. long ... 14. *G. Wrayi*.
- Ovules and seeds 4 ... 15. *G. uvarioides*.

1. *GONIOTHALAMUS SUBVENIENS*, King, n. sp. A shrub or small tree; young branches slender, puberulous; otherwise glabrous except the flower. *Leaves* membranous, narrowly oblong, tapering at each end; upper surface shining, pale-greenish when dry; the lower paler, dull; main nerves 10 to 12 pairs, sub-horizontal, invisible or very faint on either side; length 3.5 to 6.5 in., breadth 1.25 to 1.75 in., petiole .2 in. *Flowers* solitary, axillary, .75 to .9 in. long; pedicels .4 to .6 in. long, ebracteate. *Sepals* broadly ovate, bluntly acuminate, 3-nerved, minutely pubescent on both surfaces, .3 in. long. *Petals* thinly coriaceous, puberulous except towards the base inside, lanceolate, sub-acute; the inner petals half as large as the outer, slightly clawed. *Stamens* with broad orbicular sub-convex apical process. *Ovaries* narrowly oblong, style cylindrical, curved; stigma subulate, entire. *Ripe carpels* ovoid to oblong, obtuse, tapering very little at the base, glabrous, .5 to .75 in.; stalks .35 to .45 in.

Perak; at low elevations, King's Collector.

2. *GONIOTHALAMUS TENUIFOLIUS*, King, n. sp. A shrub 6 to 8 feet high; glabrous except the petals; young branches slender, dark-coloured, striate. *Leaves* thinly membranous, lanceolate, or oblong-lanceolate, shortly acuminate, the base acute; main nerves 8 to 11 pairs, spreading, inter-arching within the minutely undulate margin, faint on both surfaces; length 4.5 to 7 in., breadth 1 to 1.75 in., petiole .2 in. *Flowers* axillary, solitary, drooping; pedicels slender, bi-bracteolate at the base,

35 to 45 in. long. *Sepals* free, large, membranous, green, many-nerved and reticulate, broadly ovate, acute or acuminate, glabrous, .75 to 1.1 in. long. *Petal*s whitish, thinly coriaceous, faintly nerved, broadly lanceolate, acuminate, much contracted at the base, pubescent, 1 to 1.2 in. long, (smaller in var. *aborescens*); inner petals less than half as long, ovate, acuminate, the base contracted, pubescent. *Anthers* numerous, compressed, the apices broad, flat, pubescent. *Ovaries* few, narrow, short, 1 rarely 2-ovuled; the style long, straight, thickened upwards; stigma hollowed like a funnel, the edges toothed. *Ripe carpels* partly enveloped by the persistent calyx, ovoid, very slightly apiculate, puberulous or glabrescent, .4 to .5 in. long; stalks .2 in. long. *Seeds* usually 1, rarely 2.

Perak; at a low elevations, King's Collector, No. 3019; Wray, Nos. 3379, 3558.

Var. *aborescens*, King; a small tree 15 to 25 feet high; leaves 4 to 4.5 in. long; petals coriaceous, adpressed-pubescent, about half as long as in the typical form; *sepals* only .3 in. long.

Perak; elevations from 2,000 to 3,000 feet, King's Collector.

This possibly ought to be considered a distinct species; but as its anthers and ovaries are exactly the same as in the typical shrubby *G. tenuifolius*. I prefer to consider it a mountain form of that species. Both the typical form and the variety have remarkable stigmas, shaped like funnels and with toothed edges.

3. *GONIOTHALAMEA PRAINIANGA*, King, n. sp. A tree 50 to 70 feet high: young branches rather slender, pale; all parts, except the inflorescence, glabrous. *Leaves* membranous, oblong-oblanco-late to elliptic-oblong, abruptly shortly and bluntly acuminate, the base slightly cuneate; main nerves 14 to 18 pairs, oblique, inter-arching within the margin, prominent beneath; length 7 to 11 in., breadth 2.25 to 2.8 in., petiole .35 in. *Flowers* 1.25 to 1.5 in. in diam., on long pedicels from large, woody, puberulous tubercles at the base of the stem: pedicels 2 to 4 in. long with two minute bracteoles at the base. *Sepals* coriaceous, united so as to form a spreading cap with three broad sub-acute triangular teeth, puberulous outside, glabrous inside. *Petals* thickly coriaceous, pale yellow; the outer row large, obovate-rotund, concave, incurved, (ovate-oblong in var.) pubescent on both surfaces, nearly 1 in. long: inner row much smaller, clawed. *Stamens* numerous, the connective prolonged into a blunt, conical, puberulous, apical process. *Ovaries* narrowly oblong, glabrous; style cylindric, not lobed, truncate. *Ripe carpels* obovoid, slightly apiculate, tapering to the base, glabrous, 1 to 1.25 in. long; stalks .25 in. long. *Seed* solitary, smooth.

Perak; King's Collector, Wray; at low elevations.

Var.: *angustipetala*, King; petals oblong-ovate, sub-acute.

Perak: King's Collector.

A species collected by Forbes in Eastern Sumatra (Herb. Forbes, No. 3172) resembles this closely. The specimens are in fruit only, and the individual carpels being a little smaller and less obovoid, it probably belongs to a distinct species. Forbes' specimens have no flowers.

4. *GONIOTHALAMUS KUNSTLERI*, King. A shrub 4 to 10 feet high: young branches minutely rufous-tomentose, the older pale, glabrous and much striate. *Leaves* thinly membranous, oblanceolate to elliptic-oblanceolate, abruptly and bluntly acuminate, the base cuneate; both surfaces pale-brown when dry, minutely pellucid-punctate, glabrous; the midrib alone puberulous on the upper; main nerves 1; to 13 pairs, spreading, curved and inter-arching boldly a little within the margin, slightly prominent on the under surface: length 6 to 9 in., breadth 2 to 3.25 in.; petiole .35 in. puberulous. *Flowers* solitary, slightly supra-axillary; pedicels .15 in. long. *Sepals* green, thinly membranous, puberulous, nerved and reticulate, broadly ovate, acute, spreading, very slightly cuneate at the base, .3 to .4 in. long. *Petals* sub-coriaceous, yellow or orange-coloured; the outer lanceolate, acuminate, slightly narrowed at the base, puberulous outside, .8 to 1.25 in. long; inner petals about one-third as long, ovate, acute, pubescent. *Anthers* many, short, compressed, the tops broad, flat, pubescent. *Ovaries* about as long as the stamens, narrowly cylindrical; style long, straight, thick; stigma notched. *Ripe carpels* crowded, broadly ovoid, slightly apiculate, .4 in. long.

Perak; at Goping, King's Collector, Scortechini, Wray.

Var. *marcantha*, King; leaves narrowly elliptic or oblong, bluntly acuminate, puberulous beneath; outer petals 1.25 to 1.5 in. long.

Penang and Province Wellesley: Curtis.

5. *GONIOTHALAMUS DIDACTEUS*, Hook. fil. and Thoms. Fl. Ind., 109. A tree 30 to 70 feet high; young branches very pale, glabrous. *Leaves* coriaceous, oblong, shortly acuminate, the base cuneate, the edges slightly recurved (when dry); upper surface shining, glabrous; the lower dull, puberulous, the midrib very prominent; main nerves 10 to 14 pairs, very slender, spreading, more conspicuous above than below: length 6 to 10 in., breadth 2.25 to 2.75 in.; petiole .25 in., deeply channelled. *Flowers* very large, from the axils of fallen leaves and from the younger branches; peduncles recurved, 1 in., or more, long (elongated in the fruit), pubescent. *Sepals* ovate, acute, pubescent outside, spreading or recurved, about 5 in. long. *Petals* very coriaceous, yellowish tinged with green; the outer broadly ovate to ovate-oblong, with a dark thick triangular spot at the base, 3 to 5 in. long, minutely pubescent; the inner only about 6 in. long, ovate-acute, densely golden sericeous.

Anthems very numerous, their apices convex. *Ovaries* hairy, 2-ovuled: style long, slender, much curved; stigma 2-lobed. *Ripe carpels* oblong, apiculate, tapering to the stalk, minutely granular and with obscure vertical ridges when dry, 1.25 to 1.5 in. long and .6 in. in diam.: stalks .75 in., stout. *Seeds* 1 or 2, oblong, slightly compressed, the testa brown; Hook. at. Fl. Br. Ind. I, 75: Miq. Fl. Ind. Bat. I, pt. 2, 28. *Uvaria gigantea*, Wall. Cat. 6469 A. B. (in part). *Anonacea* Griff. Icon. ant. t. 652?

Singapore, Malacca, Selley, Hullett, Penang; Curtis. Perak; King's Collecto

6. GONIOTHALAMUS MALAYANUS, Hook. fil. and Thoms. Fl. Ind. 107. A small tree, 15 to 20 feet high; bark of branches very pale.

Leaves coriaceous, oblong to elliptic-oblong, shortly and abruptly acuminate, the base slightly cuneate, rarely rounded, the edges recurved; upper surface shining, the lower dull, darker (when dry); main nerves 12 to 15 pairs, sub-horizontal, faint; length 5.5 to 9 in., breadth 1.5 to 2.75 in.; petiole .25 in., deeply channelled. *Flowers* slightly supra-axillary, solitary, greenish; pedicels .35 to .5 in., pubescent, bracteolate at the base. *Sepals* ovate-triangular, acuminate, pubescent, connate at the base, persistent, .25 in. long. *Petals* coriaceous, the outer broadly ovate, acuminate to ovate-lanceolate, minutely tomentose on both surfaces, with a triangular glabrous basal spot, keeled outside, 1 to 1.25 in. long; the inner about a third as long, ovate, acuminate, sericeous or tomentose. *Anthems* numerous. *Pistils* about 15, the ovary hairy, ovules 3 to 4; style long, slender, much bent air wards; stigma sub-capitate, unequally 2-lobed. *Ripe carpels* narrowly oblong apiculate, tapering to each end, glabrous, 1.5 in. long, and .5 in. in diam.; stalks .1 in., thick. *Seeds* 2 or 3, flattened-ovoid, nearly black. Hook. fil. Fl. Br. Ind. I, 75; Miq. Fl. Ind. Bat. I, Pt. 2, 28. *Goniothalamus Slingerlandtii*, Scheff. Tijdsch. Ned. Ind. XXXI, 341. *Uvaria* sp. Griff. Notul. IV, 710.

Malacca; Griffith, Maingay (Kew Distrib.) No. 63. Perak; common. 1)istrib. Bangka.

7. GONIOTHALAMUS FULVUS, Hook. fil. and Thoms. Fl. Br. Ind. I, 75. A shrub: young branches slender, dark-coloured, at first rufous-pubescent, afterwards glabrous. *Leaves* membranous, pellucid-dotted, oblong-oblanccolate, obtuse or with a short broad point; upper surface glabrous, the lower puberulous; main nerves 14 to 16 pairs, slightly prominent beneath, spreading; length 7 to 10 in., breadth 2.5 to 3.25 in.; petiole .3 in., pubescent. *Flowers* solitary, axillary, pedicels .25 in., puberulous. *Sepals* broadly ovate, obtuse, pubescent, connate at the base, .25 in. long. *Petals* coriaceous, densely sericeous, the outer oblong-

lanceolate, attenuate to the apex, slightly keeled outside, 1 to 1.25 in. long; inner about .3 in. long, ovate, acute. *Stamens* numerous, apices of anthers very convex, puberulous. *Ovaries* oblong, pubescent, style cylindrical, glabrous: stigma bifid. *Fruit* unknown.

Malacca; Griffith.

Known only by Griffith's imperfect specimens.

8. *GONIOTHALAMUS CURTISII*, King, n. sp. A shrub or small slender tree: young branches densely rusty-tomentose, the larger pale and glabrous. *Leaves* stoutly membranous, narrowly oblong to obovate-oblong, more or less abruptly and shortly acuminate, slightly narrowed to the rounded base; upper surface shining, glabrous except the puberulous midrib; the lower sparsely puberulous, the midrib and nerves dark rusty-tomentose; the latter 28 to 34 pairs, sub-horizontal, inter-arching near the margin, very prominent, as is the midrib, on the lower and depressed on the upper surface: length 9 to 15 in., breadth 3 to 5.5 in.; petiole .35, channelled, pubescent. *Flowers* solitary, from the stem; pedicels stout, decurved, with two deciduous bracteoles at the base, .6 in. long. *Sepals* large, green, rigidly membranous, conjoined into a cup with 3 broadly-ovate, sub-acute teeth, boldly nerved and reticulate, minutely rufous-pubescent, persistent; length from .75 to 1 inch. *Petals* coriaceous, velvety-tomentose, yellowish, tinged with red: the outer broadly lanceolate, acuminate, slightly narrowed and thickened at the base, from 1.25 to 1.75 in. long; the inner rather more than half as long, ovate, acuminate. *Anthers* numerous, compressed, with acute granular conical apices. *Ovaries* numerous, narrowly oblong, densely pubescent, 1-ovuled; style straight; stigma oblique, minutely lobed. *Ripe carpels* obliquely ovoid with long pointed, slightly hooked apices, rufous-pubescent, .75 in. long: stalks only .1 in. long, stout.

Selangor; Curtis, Nos. 310 and 2316. Perak; King's Collector, No. 10548: Scortechini, No. 660.

A very distinct species.

9. *GONIOTHALAMUS GRIFFITHII*, Hook. fil. and Th. Fl. Ind., 110. A large shrub or small tree; all parts glabrous except the ovaries and carpels: young branches dark-coloured. *Leaves* coriaceous, oblong, sub-acute, or shortly and obtusely acuminate, the base cuneate; both surfaces shining and reticulate; main nerves 12 to 20 pairs, faint, spreading, inter-arching within the edge: length 7 to 12 in., breadth 1.8 to 3.5 in.; petiole .25 to .5 in., thick. *Flowers* solitary, axillary or extra-axillary; pedicel .5 to 1 in. long with a few scale-like bracteoles near the base. *Sepals* thinly coriaceous, orbicular-ovate, blunt, connate below, nerved and reticulate, persistent, .5 to .75 in. long. *Petals* thickly coriaceous;

the outer broadly lanceolate, acuminate, 1·5 to 2·5 in. long; the inner ovate, acute, '6 to '8 in long. *Anthers* with an acute apical process. *Ovaries* strigose; style long, subulate; stigma slightly bifid. *Ripe carpels* orb-sessile, oblong, '5 or '6 in. long, glabrescent or glabrous. Hook. fil. Fl. Bor. Ind. I, 73; Kurz F. Flora Burma, I, 42.

Burma: Mergui, Griffith. Moulmein, Falconer.

10. *GONIOTHALAMUS MACROPHYLLUS*, H. f. and Th. Fl. Ind. I, 74. A glabrous shrub 5 to 15 feet high; young branches very stout, dark-coloured. *Leaves* coriaceous, large, oblong-lanceolate to oblong-oblong-ovate, acute or shortly acuminate, slightly narrowed to the sub-acute or rounded base; main nerves 16 to 20 pairs, spreading, impressed above and slightly prominent beneath; length 10 to 18 in., breadth 2·5 to 4·5 in.; petiole '6 to 1 in., very stout. *Flowers* slightly supra-axillary or in.; the branches below the leaves, solitary or in pairs, green; pedicels '35 in. long, sub-clavate. *Sepals* broadly ovate, acute, connate at the base, '65 in. long, slightly puberulous, tinged with purple. *Petals* coriaceous, the outer oblong-lanceolate, acute or acuminate, 1 to 1·5 in. long; the inner half as long, ovate, acuminate, the edges ciliate. *Stamens* numerous, linear. *Ovaries* 12 to 18, glabrous, 1-ovuled; style slender, dilated above, stigma 2-lobed. *Ripe carpels* globular-obovoid, slightly apiculate, glabrous, 4 in. long. *Seed* pale brown. Miq. Fl. Ind. Bat. I, Pt. 2, 28; Ann. Mus. Lúgd. Bat. II, 38. *Polyalthia macrophylla*, Blume Fl. Jav. Ann. 79 t. 39. *Unona macrophylla*, Blume Bijdr. I, 17.

It is possible that two species may be included here, there is some difference between the specimens in the nervation of the leaves.

Malacca; Griffith, Maingay, (Kew Distrib.) No. 62. Perak, K. Collector. Penang; Curtis. Kedah; Curtis. Distrib. Sumatra, Forster, 1870.

11. *GONIOTHALAMUS RIDERYI*, King, n. sp. A tree: young branches slender, puberulous. *Leaves* membranous, broadly elliptic, shortly and abruptly acuminate, the base sub-acute, pale when dry; both surfaces reticulate; the upper dull, glabrous, except the puberulous midrib and nerves, the lower shining, puberulous on the midrib, nerves and reticulations; main nerves about 6 pairs, curving, ascending; length about 8 in.; breadth 4·5 in.; petiole '25 in., puberulous. *Flowers* 1·75 to 2 in. long, in fascicles on long pedicels from warted, puberulous, woody tubercles on the stem; pedicels 2·5 to 3·5 in. long, minutely bracteolate at the base. *Sepals* coriaceous, broadly ovate-elliptic, obtuse, nerved, '6 in. long, free, spreading, puberulous. *Petals* coriaceous, pale brown; the outer elliptic-oblong to ovate, obtuse or sub-acute, with a broad thickened claw, puberulous, 1·65 to 2 in. long; inner row a little longer than the sepals, obovate, apiculate, with narrow claw. *Stamens* numerous,

long, narrow, much compressed; the apical process of the connective small, sub-conic. *Ovaries* oblong, narrow; style cylindrical, puberulous; stigma 2-lobed. *Ripe carpels* obvoid-globular, tapering slightly to the short stalk, glabrous, about 1 in. long.

Singapore; at Sungai Murai, Ridley.

It is possible that in the above description the size of the leaves may be understated, as the only one which I have seen may not be of average size.

12. *GONIOTHALAMUS TAPIS*, Miq. Fl. Ind. Bat. Suppl. 371. A tree 15 to 40 feet high; all parts, except the flowers, glabrous; young branches pale brown. *Leaves* coriaceous, oblong, abruptly shortly and bluntly acuminate, the base rounded or slightly cuneate, the edges recurved (when dry); both surfaces dull, brown when dry, the lower paler; main nerves 10 to 12 pairs, thin, spreading, very indistinct, the midrib prominent beneath; length 5.5 to 9 in., breadth 2.5 to 3.25 in., petiole .3 in. *Flowers* solitary and supra-axillary, or in fascicles from tubercles on the branches; pedicels curved, .4 in. long, bracteolate at the base. *Sepals* free, ovate, acute, spreading, pubescent, persistent, .4 in. long. *Petals* coriaceous, puberulous; the outer ovate-lanceolate, acuminate, contracted and thickened at the base, 1.75 in. long; the inner ovate, acute, much contracted and thickened at the base, .65 in. long. *Anthers* numerous and with conical apices. *Ovaries* narrow, hairy; style straight; ovules solitary. *Stigma* sub-discoid-capitate, 2- to 3-lobed. *Ripe carpels* crowded, obovoid, smooth, sub-sessile, .4 to .5 in. long. Miq. Ann. Mus. Lugd. Bat. II, 35.

Perak; at low elevations, very common; Scortechini, Wray, King's Collector. Penang and Pangkore; Curtis. Distrib. Sumatra, Borneo.

13. *GONIOTHALAMUS SCORTECHINII*, King, n. sp. A shrub or small tree, glabrous, except the flowers; young branches with rather pale striate bark. *Leaves* membranous, oblanceolate or oblong-oblanceolate, very shortly acuminate, narrowed from the above the middle to the acute or sub-acute base; when dry the upper surface greenish, the lower pale brown; main nerves 18 to 24 pairs, spreading and inter-arching near the edges, slender, slightly prominent beneath; length 10 to 15 in., breadth 2.75 to 4 in., petiole .3 in. *Flowers* solitary, rarely in pairs, from the branches below the leaves; pedicels clavate, decurved, bi-bracteolate at the base, .5 in. long. *Sepals* rigidly membranous, large, orbicular-ovate, obtuse or sub-acute, much nerved and reticulate, connate below, persistent, from .65 to 1 in. long (according to age). *Petals* coriaceous, rusty-puberulous; the outer oblong-lanceolate, sub-oblique, not much longer than the full grown sepals; the inner broadly ovate, acute, about .5 in. long. *Anthers* numerous, narrow, with elongate, conical apical pro-

cesses. *Ovaries* narrow, puberulous. **L-oi**uled: style straight; stigma 2- or 3-lobed. *Ripe carpels* crowded, ovoid-oblong, apiculate, glabrous, narrowed to the short stalks, .45 in. long; stalks .2 to .25 in. *Seed* smooth, pale.

Perak; at low elevations; Scortechini. **Wray, King's** Collector.

The leaves of this species much resemble those of *Polyalthia oblonga*,

MONIOTHALAMUS WRAYI, King, n. sp. A shrub 6 to 15 feet high, except the flowers: young branches slender, very pale. *Leaves* membranous, oblanceolate to lanceolate or oblong, shortly and acutely acuminate, the base cuneate: both surfaces pale (when dry), finely reticulate: main nerves 14 to 18 pairs, spreading, straight, slender and very slightly prominent even when dry: length 4.5 to 9 in., breadth 1.25 to 2 in., petiole .2 to .25 in. *Flowers* solitary, slightly supra-axillar; pedicels slender, decurved, minutely bracteolate, .35 in. long, ovate-acuminate. *Sepals* membranous, slightly nerved and reticulate, ovate, acuminate, spreading or recurved, puberulous outside, .2 in. long, persistent. *Petals* sub-coriaceous, greenish-yellow, puberulous: the outer narrowly lanceolate, acuminate, the bases thickened and not narrowed to a claw, .65 to .75 in. long: inner petals about half as long, ovate-acuminate. *Anthers* numerous, half as long as the ovaries, compressed, their apices with a long thin point from a broad base. *Ovaries* about 20, narrowly cylindrical, hairy like the stout, straight style 1- to 2-ovuled: stigma truncate. *Ripe carpels* narrowly obovoid to oblong, apiculate, gradually tapering to the stalk, glabrous, .6 in. long, usually 1, rarely 2; oblong.

Perak: at low elevations very common; Wray, Scortechini, King's Collector.

15. **MONIOTHALAMUS UVARIODES**, King, n. sp. A shrub 6 to 15 feet high: all parts glabrous except the flower and fruit; young branches pale. *Leaves* thinly coriaceous, oblong, slightly obovate, slightly narrowed to the cordate base: both surfaces rather dull when dry, lower pale brown, the edges slightly recurved; main nerves 22 to 25 pairs, spreading, rather straight, inter-arching near the margin; length 10 to 15 in., breadth 3 to 6 in.; petiole .4 in., stout, channelled. *Flowers* solitary (solitary?); pedicels curved, stout, .35 in. long. *Sepals* coriaceous, semi-orbicular, blunt, pubescent, 2 in. long. *Petals* very coriaceous, yellow: the outer broadly lanceolate, thickened and truncate at the base, rufous-pubescent, 1.5 in. long: inner petals like the outer but with contracted bases and only 1 to 1.2 in. long. *Anthers* with conical apices. *Ovaries* hairy; style cylindrical; stigma small, truncate, minutely bifid. *Ripe carpels* oblong, tapering to each end, puberulous,

1.5 in. long, and .65 in. in diam.; stalks 7 in. long. Seeds 4, compressed, rugose, .5 in. long.

Perak: Ulu Slim, King's Collector, No. 10664. Ulu. Bui.ong, King's Collector, No. 10126. Distrib., Borneo; Motley, No. 960.

Motley's Bornean specimen above-quoted is in flower only; but as so entirely resembles in leaves and wood those of my collector in Perak which are in fruit only, that I have ventured not only to consider them as belonging to the same species, but to draw up the above description of the flowers from the Bornean and of the fruit from the Perakian specimens. The species resembles *G. fulvus* in leaves and flower and *G. malayanus* in flower. The fruit is more like that of a *Uearia* than of a *Goniothalamus*, having 4, sub-horizontal, rugose seeds.

15. OROPHREA, Blume.

Trees or shrubs. *Flowers* usually small, axillary, solitary, fasciated or cymose. *Sepals* 3, valvate. *Petals* 6, valvate in 2 series; outer ovate; inner clawed, usually cohering by their margins into a mitriform cap; sometimes oblong and slightly approximate below the middle, the apices divergent not vaulted: rarely without claws and in one species slightly imbricate. *Stamens* definite, 6-12, ovoid, fleshy; anther-cells dorsal, large, contiguous, the connective sometimes prolonged into a conical apical point, not truncate. *Staminodes* 0, or 3 to 5. *Ovaries* 3-15; style short or 0; ovules 4. *Ripe carpels* 1- or more-seeded, globular or oblong (very long in several species.)—*DISTRIB.* Species about 25; all Eastern Asiatic.

Intermediate between *Mitrephora* and *Bocagea*, having the perianth of the former and stamens of the latter.

Inner petals distinctly vaulted, the limbs coherent by their edges.

Stamens 12	...	...	...	1. <i>O. setosa</i> .
Stamens 6.				
Leaves glabrous at all ages (see also No. 5)				2. <i>O. Katschallica</i> .
Leaves more or less pubescent (except No. 5).				
Carpels globose when ripe		...		3. <i>O. hirsuta</i> .
Carpels oblong when ripe.				
Carpels under 2 in. in length		...		4. <i>O. hexandra</i> .
Carpels 3 to 5 in. long.				
Leaves quite glabrous, main nerves 6 or 7 pairs		...		5. <i>O. enterocarpa</i> .
Leaves puberulous beneath, main nerves 10 or 12 pairs				6. <i>O. maculata</i> .
Inner petals slightly vaulted, trapezoid			...	7. <i>O. gracilis</i> .

Inner petals spreading, not vaulted and not trapezoid.

Stamens 10 or 12.

Inner petals hastate; ripe carpels globular 8, *O. hastata*.

Inner petals linear-oblong, the apices
divergent and recurved; ripe carpels

ovoid or slightly obovoid ... 9. *O. dodecandra*.

Stamens 6.

*Inn*er petals cuneiform or cuneiform-retuse;

ripe carpels cylindric ... 10. *O. cuneiformis*.

Inner petals irregularly oblong, their
apices broad and curved outwards, ripe

carpels globular ... 11. *O. polycarpa*.

1. *Orophea setosa*, King, n. sp. A shrub: young branches densely covered with a layer of minute pubescence with numerous, long, brownish, straight bristles projecting beyond it; the older branches dark-coloured and almost glabrous. *Leaves* membranous, oblong or oblong-oblancoate, shortly acuminate, the base rounded: main nerves 8 to 10 pairs, oblique, inter-arching near the edge; both surfaces sparsely setose, more densely so on the midrib and nerves, the lower also with sparse, minute pubescence; length 5.5 to 7.5 in., breadth 2 to 2.75 in., petiole .05 in., setose. *Flowers* solitary, extra-axillary, about 2 in. in diam. when expanded: pedicels very slender, .75 in. long, pubescent, with a single minute bracteole below the middle. *Sepals* sub-orbicular, blunt. *Outer petals* much larger than the sepals, broadly ovate, sub-acute, pubescent outside and glabrous inside like the sepals. *Inner petals* longer than the outer, vaulted, .22 in. long, the limb trapezoid-sagittate, pubescent on the back and edges, glabrous in front; the claw narrow, shorter than the limb. *Male flower* stamens numerous, cuneate, the connective broadly truncate at the apex. *Ovaries* unknown. *Ripe carpels* 4 or 5, sessile, globose or oblong-globose, .3 in. in diam., densely and minutely pubescent and with a few long setae besides. *Seeds* solitary, rarely 2; the testa pale, rather rough; the albumen very dense.

Perak: at elevations from 800 to 1,200 feet; King's Collector, Scortechini.

2. *Orophea katschallica*, Kurz in Trimen's Journ. Bot. 1875, p. 323. A small tree 25 to 30 feet high: young branches slightly puberulous at first, ultimately glabrous, black and furrowed. *Leaves* membranous, oblong-lanceolate to oblong or elliptic, shortly and bluntly acuminate, the base sub-cuneate or rounded; upper surface glabrous, shining; the lower much reticulate, slightly adpressed-puberulous; main nerves 3 to 10 pairs, ascending, slender; length 4 to 7 in., breadth

1.5 to 2.75 in., petiole .15 in. *Peduncles* extra-axillary, solitary, .5 to .75 in. long, with numerous ovate-acuminate, rusty-pubescent bracts. *Flowers* 1 to 4, rather large; their pedicels about .4 in. long, pubescent and with a single adpressed ovate-lanceolate bracteole. *Sepals* ovate-acuminate, adpressed-pubescent outside, sub-glabrescent inside. *Outer petals* much larger than the sepals, ovate-orbicular, acute, veined, pubescent on the outer surface and on the upper half of the inner, .4 in. long. *Inner petals* .75 in. long, trapezoid, acute, tomentose on both surfaces except a glabrous patch bearing a transverse callosity on the inner; the claw long, narrow and glabrous. *Stamens* 6 perfect, with a few imperfect in an outer row: anther-cells large, dorsal; the connective oblique, slightly produced above their apices. *Ovaries* about 3, narrowly ovoid, densely sericeous, 3-ovuled; stigmas sessile, truncate. *Fruit* unknown.

Nicobar Islands; Kurz, King's Collector.

3. *OROPHREA HIRSEUTA*, King, n. sp. A shrub 8 to 12 feet high: young branches at first densely rufous-hirsute, afterwards becoming glabrous and dark-coloured. *Leaves* elliptic or elliptic-oblong, often slightly obovate, shortly and bluntly acuminate, narrowed from below the middle to the rounded minutely cordate base: upper surface glabrous, shining, the lower pale, dull, sparsely hirsute, the midrib setose at the base: main nerves 8 to 9 pairs, spreading, very faint: length 3.5 to 4.5 in., breadth 1.24 to 1.75 in.; petiole .05, setose. *Peduncles* extra-axillary, about .5 in. long, 1- to 3-flowered, rufous-hirsute like the pedicels: pedicels about .75 in. long and with several minute bracteoles. *Flowers* .5 in. in diam. *Sepals* broadly ovate, acute, coarsely hirsute outside and on the edges, glabrous inside. *Outer petals* much larger than the sepals, broadly obovate, blunt, sparsely pubescent outside and on the edges, glabrous inside, .15 in. long. *Inner petals* .25 in. long, vaulted: the limb trapeziform, rather thick, glabrous outside, pubescent inside; the claw very narrow, longer than the limb, glabrous. *Stamens* 6, in a single row, curved: anthers broad, dorsal, the connective not produced above their apices. *Ovaries* about 6, ovoid, glabrous, 1- to 2-ovuled: stigma sessile, roundish. *Carpels* 4 to 5, globular, yellow when ripe, sparsely hirsute, .4 in. in diam.; stalks .1 in.

Perak: King's Collector, No. 4283.

Only once collected. In its leaves this resembles *Mitrephora setosa*.

King,
4. *OROPHREA HEXANDRA*, Blume Bijdr. 18. A small tree: young branches slender, minutely tomentose, soon becoming dark-coloured, glabrous and furrowed. *Leaves* thinly coriaceous, oblong-lanceolate to elliptic-oblong, rather abruptly acuminate, the base sub-cuneate or

rounded; upper surface glabrous, shining; the lower reticulate, puberulous; the midrib pubescent; main nerves 7 to 9 pairs, oblique: length 4.5 to 6 in., breadth 1.5 to 2.25 in., petiole 2 in. Peduncles axillary or supra-axillary, slender, 1- to 3-flowered, pubescent; bracts several, subulate, hairy. Fibers about .35 in. long, greenish-white. Sepals minute, ovate to ovate-lanceolate, densely pubescent outside. Outer petals thin, ovate-cordate, acuminate, pubescent; the inner larger, trapezoid with long narrow claw, glabrous with pubescent margins. Stamens 6, in one row. Ovaries about 6, pubescent, 2-ovuled. Ripe carpels oblong, subsessile, acuminate, minutely 8-nerved. Seeds usually solitary, sometimes 2 in. long, narrowly cylindrical. Kurz For. Flora Burma, I, 49; Miq. Fl. Ind. Bat. I, pt. 2 p. 29. *O. acuminata*, A. D. C. in Mem. Soc. Genev. V, 39; Hook. fil. and Thoms. Fl. Ind. 112; Hook. fil. Fl. Br. Ind. I, 91; Wall. Cat. 6432. *Bocagea hexandra*, Blume Fl. Jav. Anon. 83 t. 40.

Burma prov. Tenasserim, Wallich. Great Coco Island; Kurz. S. Andaman; King's Collectors.

Pierre (Flore Forestiere Cochinchine t. 44) figures a species called *O. Thorelii* which, as he remarks, must be closely allied to this.

5. *OROPHEA ESTEROCARPA*, Maingay ex Hook. fil. Fl. Br. India, I, 92. A small tree 15 to 30 feet high; all parts, except the inflorescence, glabrous: young branches slender, black, striate. Leaves membranous, ovate or sometimes obovate-lanceolate to elliptic, acuminate (sometimes abruptly so); the base rounded, sometimes sub-cuneate; both surfaces shining: main nerves 6 or 7 pairs, spreading, slender: length 2.5 to 3 in., breadth 1.2 to 2 in., petiole .1 in. Flowers nodding, solitary, axillary: the pedicels very slender, .75 to 1.25 in. long, glabrous beneath, pubescent above and with several ovate-lanceolate bracteoles. Sepals small, broadly ovate, acuminate, pubescent. Outer petals much larger than the sepals, ovate, acuminate, puberulous, the inner a little longer (.6 to .5 in. long); the inner elongated-trapezoid, puberulous; the claw narrow and glabrous, yellowish with a reddish band; staminodes 6. Stamens 6, with broad connective, not apiculate. Ovaries 6, cylindrical, glabrous, 2- to 7-ovuled; stigma small, sessile. Carpels 4 to 6, elongate-cylindrical, glabrous, moniliform when dry, 3 to 5 in. long and .3 in. in diam. Seeds 2 to 7, linear-oblong.

Malacca: Maingay. Perak; Scortechini, King's Collector.

6. (*OROPHEA MACULATA*, Scortechini MSS. A shrub or small tree: young branches slender, rusty-tomentose at first, afterwards glabrous, black and striate. Leaves membranous, elliptic-oblong, caudate-acuminate, narrowed from below the middle to the rounded or sub-cuneate slightly unequal base: upper surface glabrous, the lower

glabresceni, the midrib and nerves pubescent; main nerves 10 to 12 pairs, spreading, rather faint; length 3.25 to 7 in., breadth 1.5 to 2.25 in., tomentose. *Peduncles* solitary, 1- to 3-flowered, extra-axillary, very slender, .5 to 1 in. long, pubescent, with numerous, distichous, sub-deciduous, linear-lanceolate, pubescent bracts. *Flowers* large, sub-pendulous. *Sepals* narrowly lanceolate, acuminate. *Outer petals* larger than the sepals, mottled red and yellow, ovate, very acuminate, veined, pubescent on both sides, .5 in. long. *Inner petals* 1 in. long, with lanceolate, much acuminate, very pubescent limb; the claw long, narrow, pubescent. *Stamens* 6, broad, not apiculate, hairy at the base. *Staminodes* 3, orbicular. *Ovaries* 3 to 6, cylindrical, very hirsute, 6- or 7-ovuled: stigma sessile. *Carpels* 4 to 6, much elongate, cylindrical, puberulous, 3 to 5 in. long, and about .3 in. in diam., moniliform when dry. *Seeds* 4 to 7, linear-oblong.

Perak; Scortechini, King's Collector.

7. *OROPHEA GRACILIS*, King, n. sp. A tree 20 to 30 feet high; young branches slender, at first minutely tomentose, afterwards darkly cinereous and glabrous. *Leaves* thinly coriaceous when adult, lanceolate, much acuminate, the base cuneate or slightly rounded, both surfaces glabrous: main nerves 5 or 6 pairs, spreading, inter-arching far from the edge, very indistinct; length 2.5 to 3.5 in., breadth .9 to 1.2 in., petiole .05 in. *Flowers* solitary, .25 in. in diam., extra-axillary; pedicels .75 to 1 in. long, very thin, glabrous, jointed, and with several minute, subulate bracteoles above the middle. *Sepals* broadly ovate, sub-acute, connate at the base, spreading or reflexed. *Outer petals* larger than the sepals, ovate, acute, .15 in. long; both surfaces glabrous, the edges alone minutely pubescent. *Inner petals* .25 in. long, slightly vaulted; the limb thick, trapezoid, with pubescent edges; the claw narrow, not so long as the limb, glabrous. *Stamens* 6, in a single row, the connective much produced above the rather small dorsal anther-cells. *Ovaries* 4 to 10, ovoid, glabrous, 2-ovuled: stigma large, sessile. *Ripe carpels* 6 to 10, globular, glabrous, .45 in. in diam., the stalks .25 in. long. *Seeds* solitary or two together, depressed-globose, with a transverse groove and ridge, shining, pale.

Perak: Scortechini, King's Collector.

This is closely allied to the W. Peninsular *O. uniflora*, but that species has twice as many stamens.

8. *OROPHEA HASTATA*, King, n. sp. A tree 20 to 40 feet high: all parts glabrous except the inflorescence: young branches rather slender, dark-coloured. *Leaves* thinly coriaceous, elliptic to elliptic-oblong, shortly caudate-acuminate; the base cuneate, rarely rounded; both surfaces shining, the lower pale: main nerves 6 to 8 pairs, spreading,

inter-arching within the edge; length 3.5 to 5.5 in., breadth 1.6 to 2.4 in., petiole *2 in. *Peduncles* axillary or supra-axillary, solitary, about .25 in. long, bearing towards the apex 3 or 4 1-bracteolate, pubescent pedicels. *Flowers* 4 in. long. *Sepals* broadly ovate, acute, pubescent, outside, glabrous inside as are the outer petals. *Outer petals* twice as large as the sepals, broadly ovate acute. *Inner petals* .35 in. long; the limb hastate, triquetrous, thickened, the edges and the base ciliate; the claw long, narrowed to the base, glabrous. *Staminodes* 0. *Stamens* 10, in 2 rows, curved, slightly apiculate; the anther-cells large. *Ovaries* about 10, obliquely oblong, curved, pubescent, 2-ovuled; stigma small, capitate, sessile. *Ripe carpels* 5 or 6, globular, glabrous, .4 in. in diam., their stalks about .25 in. *Seeds* solitary.

Perak: Wray, King's Collector, at low elevations.

This is closely allied to *O. dodecandra*, Miq.

9. *OROPHEA DODECANDRA*, Miq. in *Ann. Mus. Lugd. Bat.* II, 25.

A tree 20 to 40 feet high; young branches sparsely adpressed-pubescent, upward glabrous dark-coloured and striate. *Leaves* membranous, coriaceous, rarely elliptic-oblong, slightly unequilateral, shortly caudate-acuminate, the base cuneate; upper surface glabrous, shining, the lower paler with a few scattered, pale, adpressed hairs; main nerves 5 or 6 pairs, bold beneath, inter-arching .25 in. from the margin; length 3.5 to 5.5 in.; breadth 1.75 to 2.3 in., petiole .2 in. stout, channelled. *Peduncles* supra-axillary, longer than the pedicels, 3- to 7-flowered, glabrous; pedicels .5 in. long, clustered near the apex, bracteolate above the middle. *Flowers* .5 in. long. *Sepals* smaller than the outer petals, spreading, dotted, conjoined at the base, slightly tubercular outside, glabrous inside. *Outer petals* broadly ovate, acuminate, narrowed at the base, .15 in. long. *Inner petals* thick, linear-oblong, blunt, pubescent outside, slightly arched below the middle, the apices divergent and recurved. *Staminodes* 0. *Stamens* 12, in 2 rows; the connective rather narrow, prolonged beyond the apices of the large, broad, dorsal anthers. *Ovaries* 6 to 8, oblong, curved, oblique, glabrous, 2-ovuled; stigma oblong, sessile. *Ripe carpels* ovoid or slightly obovoid, blunt, glabrous, .85 in. long; their stalks .8 to .9 in. *Seed* solitary, sub-rotund or oblong, with rugose, pale, scaly testa.

Perak; Seortechini, King's Collector; at low elevations.

10. *OROPHEA CUNEIFORMIS*, King, n. sp. A tree 20 to 40 feet high; young parts rusty-pubescent or tomentose; the branchlets rather stout; ultimately glabrous, dark-coloured and furrowed. *Leaves* thinly coriaceous, oblong, narrowly elliptic or oblanceolate-oblong, more or less sharply acuminate, very little narrowed to the rounded or minutely cordate base; upper surface at first with many long, thin, pale,

adpressed hairs, ultimately glabrous; lower softly but rather coarsely pubescent, the midrib and 8 to 12 pairs of oblique, rather prominent main nerves rufous-tomentose; length 3.5 to 6 in., breadth 1.1 to 2.2 in.; petiole .05, tomentose. *Peduncles* 4- or 5-flowered, solitary, supra-axillary, slender, sub-glabrous below, rufous-sericeous above, longer than the pedicels; bracts numerous, linear-lanceolate; pedicels .3 in. long, rufous-sericeous like the outer surface of the sepals and outer petals, bracteolate at the base. Flower buds globose. *Sepals* ovate, much acuminate, glabrescent inside like the outer petals. *Outer petals* ovate, acute, veined. *Inner petals* with a cuneiform, sometimes retuse, thick limb and a short, narrow claw. *Staminodes* 3, in an outer row, sub-orbicular, fleshy. *Stamens* 6, with broad flat connective, not produced at the apex, and large dorsal anthers. *Ovaries* about 6, oblong, oblique, densely villous, 2- or 3-ovuled, *Stigma* sessile, broad. *Ripe carpels* 2 to 4, sessile, cylindric, tapering a little at each end, puberulous, 1.5 to 1.75 in. long and about .35 in. in diam. *Seeds* 2, oblong.

Perak; Scortechini, King's Collector.

This is readily distinguished from the closely allied species *O. maculata*, by its scorpioid cymes, globular flower-buds, and by the cuneiform (not lanceolate) limbs of its petals.

11. *OROPHEA POLYCARPA*, A. DC. in Mem. Soc. Genev. V, 39. A large shrub or small tree: young branches slender, pubescent at first, but speedily glabrous, furrowed and dark-coloured. *Leaves* membranous, ovate to ovate-oblong, obtusely and very shortly acuminate, the margins undulate, the base rounded or narrowed; both surfaces glabrous; main nerves 6 to 8 pairs, spreading, faint; length 2 to 4 in., breadth 1 to 1.75 in., petiole .05 in. *Peduncles* axillary or supra-axillary, slender, 1- to 3-flowered, pubescent; bracteoles several. *Sepals* ovate, acute, very pubescent. *Outer petals* ovate, acuminate, more than twice as large as the sepals, pubescent on the outer, glabrous on the inner, surface. *Inner petals* twice as long as the outer, irregularly oblong, the apices broad and curved outwards, the base slightly narrowed, puberulous outside, glabrous within, .4 in. long. *Stamens* 6 or 7 in a single row; the anther-cells quite dorsal, separate, the connective flat and very slightly prolonged above their apices. *Ovaries* about twice as many as the stamens, glabrous, ovate, oblique; stigma small, sessile, sub-capitate. *Ripe carpels* globular, glabrous, shining, .35 in. in diam.: their stalks .25 in. long. *Seeds* 1 or 2. Hook. fil. and Thoms. Fl. Ind. 111; Hook. fil. Fl. Br. Ind. I, 91; Kurz F. Flora Burma, I, 49; *Anonacea* Griff. Ic. Pl. Ind. Or. IV, t. 654. Wall. Cat. 6431. *Bocaya polycarpa*, Steud. Nomen. 212. *Melodorum?* *monospermum* Kurz in Andaman Report, App. B. p. 1. *Bocaya polycarpa*, Steud.

S. Andaman; Kurz, Mng. Burmah: Martaban, Wallich.

Orophea undulata, (Pierre Fl. Forest. Coch.-Chine t. 45) must be closely allied to this, as must also the same author's *O. anceps*, (l. c. t. 46).

16. MITREPHORA, Blun;e.

Trees. *Leaves* coriaceous, strongly ribbed, plaited in veneration. *Flowers* usually terminal or leaf-opposed, sometimes 1-sexual. *Sepals* 3, orbicular or ovate. *Petals* 6, 2-seriate, valvate; outer ovate, thin, veined; inner clawed, vaulted and cohering. *Stamens* oblong-cuneate; the anther-cells dorsal, remote, the connective broadly truncate at the apex. *Ovaries* oblong; style oblong or clavate, ventrally furrowed; ovules 4 or more, 2-seriate. *Ripe carpels* globose or ovoid, stalked or sub-sessile.—DISTRIB. Species about 10; tropical Asiatic.

Flowers hermaphrodite 1. *M. Maingayi*.

Flowers unisexual.

Ripe carpels ovoid, apiculate, rugulose ... 2. *M. reticulata*.

” ” globular, not apiculate, not rugulose 3. *M. macrophylla*.

” ” sub-globular, sub-truncate at each

end, i Ugult-se 4. *M. Prainii*.

1. MITREPHORA MAINGAYI, Hook. fil. and Thoms. Fl. Br. Ind. 77.

A tree 20 to 50 feet high: young branches softly rufous-tomentose afterwards glabrous dark-coloured and striate. *Leaves* coriaceous, oblong to ovate, (oblong-lanceolate in var. *Kurzii*), acute or shortly and bluntly acuminate, the base rounded or sub-cuneate; upper surface shining, glabrous except the pubescent midrib; under surface glabrescent, the midrib and nerves thinly adpressed-pubescent; (pubescent in var. *Kurzii*); main nerves 6 to 10 pairs, oblique, curving, slightly prominent beneath: length 3 to 5.5 in., breadth 1.5 to 2 in., petiole .3 to .5 in. *Flowers* 1 in. or more in diam., axillary or leaf-opposed, solitary or 2 or 3 in a multi-bracteolate and tomentose raceme; pedicels .5 to 1.5 in. (lengthening with age), bracteolate. *Sepals* connate into a cup, broadly ovate, acute, (or obtuse in var.) tomentose. *Petals* rather thinly pale yellow mottled with red, all more or less pubescent outside, the outer orbicular or obovate with undulate crose edges, slightly narrowed at the base, (oblong in var. *Kurzii*); inner shorter, the outer very pubescent inside, vaulted, ovate or cordate with a long linear claw. *Antheri* minisrous, short, with broad flat smooth tops. *Ovaries* gradually narrowed into the short style; ovules 4; stigma sub-capitate-discoid. *Ripe carpels* broadly ovoid, blunt at each end, densely tomentose, 1 in. long, and .75 in. in diam.: their stalks stout, .75 in. *Seeds* 4, compressed. *M. Teymannii*, Scheff. in Flora LII (1869), 302. *Ucaria obtusa* (not of

Blume), Hook. fil. and Thoms., Fl. [nd. 113; Hook. fil. Fl. Br. Ind. I, 76; Wall. Cat. 6484.

Penang; Wallich, Curtis. Pangkore; Curtis. Malacca; Maingay, (Kew Distrib.) No. 65. Perak: King's Collector, Seortechini, Wray. Burma, Karz. Distrib. Java.

Var. *Kurzii*. Leaves oblong-lanceolate, acuminate to elliptic: peduncles of racemes woody, 1 in. or more long, tomentose; outer petals narrowly oblong. *M. vaudaeiflora*, Kurz F. Flora Burma I, 45.

Burma; Kurz, Brandis.

Allied to the Cambodian species *M. Thorellii*, (Pierre Fl. Forest. Cochin-Chine, t. 37).

2. *MITREPHORA RETICULATA*, Hook. fil. and Thoms. Fl. Br. Ind. I, 77. A tree 20 to 30 feet high: young branches tawny-tomentose, ultimately glabrous and dark-coloured. Leaves narrowly oblong, often slightly obovate, acuminate, the base cuneate or rounded; both surfaces shining, reticulate, glabrous; the midrib puberulous on the upper, sparsely setose on the lower, surface; main nerves 12 to 14 pairs, spreading, prominent, distinct beneath; length 5 to 14 in., breadth 2 to 4.5 in.; petiole .25 in., swollen. Flowers 2 in. in diam., axillary, solitary or in pairs, or in few-flowered, puberulous cymes; pedicels long, slender, with many lanceolate bracteoles. Flowers as in *M. macrophylla*, monœcious. Ripe carpels ovoid, apiculate, rugose, hoary, .8 in. long and .65 in. diam. Seeds 2.

Kurz F. Flora Burma, 1, 44. *Orophea reticulata*, Miq. Ann. Mus. Lugd. Bat. II, 23. *Uexia reticulata*, Blume Fl. Jav. Anon. 50, t. 20. *Pseudocaria reticulata*, Miq. Fl. Ind. Bat. i. pt. 2, 30.

Burma: prov. Tenasserim; Helfer. Malacca; Maingay (Kew Distrib.), No. 64. Perak: Wray, King's Collector, Seortechini; not so common as *M. macrophylla*, Oliver.

This species has the inner petals rather larger than the outer and much vaulted; and in this respect it conforms to the characters of *Orophea*; but its stamens are uniovoid in character and they are numerous; its flowers, moreover, are unisexual. The characters of *Mitrephora* therefore preponderate, and it is better located in the latter genus. But there is no doubt it forms a connecting link between the two genera.

3. *MITREPHORA MACROPHYLLA*, Oliver in Hook., Ic. Plant, t. 1562. A small tree; young branches more or less puberulous, speedily becoming glabrous and cinereous. Leaves thinly coriaceous, elliptic-obovate or oblong-oblanccolate, acute or shortly acuminate; the base rounded, slightly oblique; both surfaces puberulous at first but speedily glabrous, shining, minutely reticulate; main nerves 14 to 20 pairs, oblique, inter-arching .15 in. from the margin, prominent beneath; length 7 to 13

in breadth 1.75 to 4 in.; petiole .25 in., swollen. *Flowers* .25 to .3 in. in diam., axillary, usually in pairs, or in cymes, 1 to 2 in. long, the cymes minutely pubescent; bract: few, lanceolate; pedicels long, with several broadly lanceolate, partly leciduous bracteoles, or ebracteolate. *Sepals* free, or connate below, reniform, or broadly ovate, puberulous outside and on the edges, glabrous inside. *Outer petals* larger than the sepals, orbicular-ovoid, sub-acute, slightly narrowed at the base, puberulous on both surfaces. .15 in. long. *Inner petals* .3 in. long, thick, vaulted reniform-sagittate, puberulous, with a glabrous callosity on the inside near the base, the edges pubescent; the claw shorter than the limb, pubescent. *Male flower: stamens* very numerous, short, cuneate; the connective truncate, small and not concealing the tops of the anthers; pistils 3, or a few rudimentary. *Female flower: staminodes* in two imperfect rows. *Ovaries* about 12, ovoid-cylindric, oblique, pubescent, 4-ruled; stigmas sessile, large, fleshy, truncate, often oblique. *Rip. carpels* globose, densely and minutely fawny-tomentose, .4 or .5 in. diam.; stalks .2 in. long. *Seeds* several, compressed, the testa membranous.

Penang; Maingay, Curtia. Perak; Scortechini, King's Collector, Wray.

This species, although rare in Penang, is very common in Perak. Specimens of it vary considerably in several respects. In some plants the young shoots are densely puberulous, in others they are almost glabrous; the leaves also vary in size and in amount of pubescence. In the specimen figured by Professor Oliver (Hook. Ic. Pl. 1562), the flowers are in axillary pairs; but, in the majority of the Perak specimens, they are in cymes. The species is practically dioecious, the staminate flowers having no ovaries at all or only a few rudiments; while the pistillate flowers have rarely a few perfect stamens, and not always any staminodes. The best marks of distinction between this and *M. reticulata*, of which this must be a very close ally, are the smaller number of the nerves in the leaves of this and the ovoid shape of its rugose fruit. In its leaves this plant somewhat resembles some of the species of *Popocia*. And, inasmuch as its inner petals are larger than the outer and are vaulted, it is related to *Orophea*, from which however its numerous unvarioid stamens and unisexual habit exclude it.

4. *MITREPHORA PRAIRII*, King, n. sp. A tree 30 to 40 feet high; young branches tawny-pubescent, speedily becoming glabrous and dark-coloured. *Leaves* membranous, elliptic-oblong, rather abruptly and shortly acuminate, the base cuneate and often slightly unequal-sided; upper surface glabrous except the depressed, strigulose midrib; lower surface much reticulate, glabrous but with a few scattered hairs on the

midrib and 12 to 14 pairs of rather bold, oblique, curving nerves; length 6 to 9 in., breadth 2.25 to 3 in., petiole .25 in., pubescent. *Flowers* bisexual, from the axis of the fallen leaves, solitary, .4 in. in diam.; pedicels about .5 in. long, softly tomentose, minutely bracteolate at the base. *Sepals* broadly ovate, acute, concave, tomentose outside, glabrous inside. *Outer petals* much larger than the sepals, ovate-orbicular, sub-acute; tomentose outside, glabrous inside. *Inner petals* longer but narrower than the outer; the limb trapezoid, densely tomentose, glabrous inside at the base; the claw narrow, about as long as the limb, tomentose on both surfaces. *Stamens* in the male flower numerous, short, cuneate; the apical process of the connective truncate, concealing the apices of the dorsal anthers. *Pistils* 0. *Female flowers* unknown. *Ripe carpels* sub-globose, rather truncate at base and apex, rugulose, minutely pubescent, .65 in. in diam. *Seeds* about 5, plano-convex, the testa membranous, rugulose.

Andaman Islands; Prain, King's Collector.

The inner petals of this species are undoubtedly longer than the outer; but they are much narrower. Technically they are the petals of *Orophea* rather than of *Mitrephora*; but the numerous Uvarioid stamens and the unisexual habit are those of the latter, to which I accordingly refer it. I have been able to examine only a few flowers of the species, and these are all tetramerous; but whether this arrangement is normal or only occasional I am unable to say until larger suites of specimens are obtained.

17. *POPOWIA*, Endl.

Trees. *Flowers* small, sub-globular, opening but slightly, usually hermaphrodite, sometimes polygamous, extra-axillary or leaf-opposed. *Sepals* 3, ovate, valvate. *Petals* 6, valvate in 2-series, (the inner series imbricate in *Kurzii*), more or less orbicular; outer like the sepals, spreading; inner thick, concave, connivent, acute, the tip sometimes inflexed. *Stamens* indefinite or sub-definite, short, cuneate; anther-cells dorsal, remote. *Carpels* about 6, ovoid; style large, oblong or sub-clavate, straight or recurved; ovules 1-2 on the ventral suture, rarely 1, basal, erect. *Ripe carpels* berried, globose or ovoid, stalked.—*DISTRIB.* About 20 Asiatic species, 12 Australian and 1 African. (The Australian and African species may be generically separable).

There has been considerable variety of opinion as to the place of the genus *Popowia* amongst the genera of *Anonaceæ*. The genus was founded by Endlicher (Genus No. 4710) to accommodate the species named *Bocagea pisocarpa* by Blume (*Flora Javæ* (*Anonaceæ*) 90, t. 45).

Endlicher placed it next to *Orophea* from which it is distinguished by its inner row of petals being free and having their apices inflexed in aestivation, while those of *Orophea* are clawed, vaulted, attached by their edges, and not inflexed in aestivation. In their *Flora Indica*, Hooker filius and Thomson added the species *P. ramosissima* to the original plant of Endlicher, with a remark to the effect that *Uraria Vogelii* H. f. should be included in the genus. Farther they associated *Popowia* with the genera *Orophea*, *Mitrephora* and *Goniothalamus* in the tribe *Mitrephoreae*. In their *Genera Plantarum*, Mr. Bentham and Sir Joseph Hooker take a different view of the position of *Popowia* and, in the arrangement adopted in that great work, *Popowia* is put amongst the *Uouneae*; *Orophea* is relegated to the tribe *Miliaceae*; while *Goniothalamus* and *Mitrephora* are retained side by side in the tribe *Mitrephoreae*. Now the character of the tribe *Uouneae* is:—"petals flat, slightly unequal, or those of the inner row smaller than those of the outer, or absent," while in several of the *Popowias*, e. g., *P. piscocarpa*, *P. ramosissima* the inner petals are longer than the outer. Baillon, whose arrangement of tribes differs from that of Messrs. Bentham and Hooker, puts *Popowia* into *Uouneae*, leaving *Mitrephora* and *Orophea* side by side in his tribe *Oxymitreae*.

Dr. Scheffer differs from the opinion of the authors of the *Genera Plantarum* and of Baillon and rather inclines to that of the authors of the *Flora Indica*. He points out with much force that the proper place for *Popowia* is in the tribe characterised by its "outer petals being open, the inner connivent over the andro-gynoecium, erecto-connivent or connate"—that is to say in the tribe *Mitrephoreae* of these authors. The stamens of *Popowia* present considerable diversity, but on the whole they have the character of those of *Urariae* rather than those of *Uouneae*. As Scheffer remarks, there is little difference between the genera *Orophea* and *Mitrephora* except that the outer petals of *Mitrephora* are usually larger than those of *Orophea*. And if M. Baillon's plan of reducing the number of the genera in *Anonaceae* were to be carried out, Dr. Scheffer would suggest the union of these two and of *Popowia* into a single genus, from which would be excluded, however, all the African species. Of this new genus *Orophea* would be the typical form, and the other two would form sub-genera.

There is no doubt than in externals many *Popowias* are like *Oropheas*, and the non-unguiculate character of the inner petals of *Popowia* is really the chief character which separates them.

I venture to follow Dr. Scheffer and the authors of the *Flora Indica* in putting *Popowia*, *Orophea* and *Mitrephora* together in the tribe *Mitrephoreae*.

Flowers hermaphrodite.

Both surfaces of leaves glabrous except the nerves

Both surfaces minutely granular; nerves

9 or 10 pairs, sparsely pilose beneath ... 1. *P. pauciflora*.

Lower surface granular, the midrib and

6 to 8 pairs of nerves pubescent ... 2. *P. ramosissima*.

Both surfaces shining, reticulate, glabrous

except the tomentose midrib on the

upper; nerves about 10 pairs, very faint

3. *P. nitida*.

Upper surface of leaves glabrous, the lower

minutely granular and sub-strigose; nerves

4 or 5 pairs 4. *P. Helferi*.

Upper surface of leaves glabrous except the

puberulous midrib, the lower yellowish-to-

mentose; nerves 11 to 13 pairs; fruit very

large 5. *P. fastida*.

Upper surface of leaves glabrous except the

tomentose midrib and 8 to 10 pairs of nerves;

lower surface pubescent and sub-granular ...

6. *P. perakensis*.

Both surfaces minutely granular; upper short-

ly puberulous, lower pubescent; nerves 8 to

11 pairs i. *P. fusca*.

Both surfaces minutely granular; upper with

a few scattered hairs; lower fuscous, densely

and softly pubescent; the nerves 6 or 7

pairs, tomentose or pubescent 8. *P. velutina*.

Both surfaces, but especially the lower, softly

pubescent; nerves about 10 pairs 9. *P. tomentosa*.

Flowers polygamous.

Upper surface of leaves glabrous except the

puberulous midrib; nerves 10 or **n** pairs;

flowers .5 to .75 in. in diam.; petals of inner

row larger than those of outer, valvate, their

apices inflexed in bud 10. *P. nervifolia*.

Upper surface of leaves sub-granular, minutely

and sparsely adpressed-pubescent; nerves 9

u, **12** pairs; flowers .4 in. in diam.; inner

petals slightly smaller than the outer, im-

bricate 11. *P. Kurzii*.

Both surfaces of leaves glabrous, the lower

silvery, shining; nerves 7 pairs 12. *P. Hookeri*.

1. *POPOWIA PAUCIFLORA*, Maingay MSS. Hook. fil. Fl. Ind. I, 69. A tree? Young branches slender, cinereous, strigose. *Leaves* membranous, elliptic-lanceolate, acuminate, the base acute; both surfaces glabrous, minutely granular; the midrib and 9 or 10 pairs of oblique, little curving main nerves sparsely pilose beneath; length 5 to 6 in., breadth 1.5 to 2 in., petiole .2 in., pubescent. *Flowers* extra-axillary, solitary or axillary, .25 in. in diam.; pedicels .15 to .25 in. long, with a basal bracteole, rusty-strigose. *Sepals* minute, ovate. *Petals*; the outer small and like the sepals; the inner three times as large, sub-orbicular, concave, their apices inflexed. *Stamens* many. *Ovaries* about 6, strigose; ovule solitary, erect. *Ripe carpels* sub-sessile, globular, glabrous.

Malacca: Maingay (Kew Distrib.) No. 56.

Known only by Maingay's imperfect specimens; an obscure species.

2. *POPOWIA RAMOSISSIMA*, Hook. fil. and Thoms. Fl. Ind. 105. A small spreading tree; young branches at first rufous-pubescent; the older dark-coloured and furrowed. *Leaves* membranous, sub-sessile, narrowly elliptic to lanceolate, sometimes slightly obovate, shortly, bluntly and abruptly acuminate, the base rounded or slightly narrowed; both surfaces glabrous, the lower granular and pubescent on the midrib and 5 to 8 pairs of ascending rather straight nerves; length 2.75 to 4 in., breadth 1 to 1.75 in., petiole .05 in. *Flowers* globular in bud, leaf-opposed, solitary or in small fascicles, .2 in. in diam.; pedicels .15 to .25 in. long (longer in fruit), minutely bracteolate, rufous-tomentose. *Sepals* broadly triangular-ovate, acute, IKearly as large as the outer petals and like them tomentose outside, and glabrous inside. *Petals* sub-equal, coriaceous, rotund, concave; the inner rather larger and with incurved points. *Stamens* short, with very broad truncate concave heads. *Ovaries* 5 or 6, villous; ovules 1 or 2. *Ripe carpels* globose with short stalks, pubescent, .25 to .35 in. in diam. Miq. Fl. Ind. Bat. I, Pt. 2, 27; Hook. fil. Fl. Br. Ind. I, 68. *Gutteria ramosissima*, Wall. Cat. 7294, 8006. *Popowia rufula* and *P. affinis* Miq. Ann. Mus. Lugd. Bat. II, 20.

In all the provinces, common. Distrib. Sumatra, Borneo.

3. *POPOWIA XTIDA*, King, n. sp. A shrub? Young branches sparsely and softly rufous-pubescent, the bark brown. *Leaves* thinly coriaceous, oblong-lanceolate to oblong-ovate, bluntly acuminate, the base rounded; both surfaces reticulate, glabrous and shining, the midrib tomentose on the upper; main nerves about 12 pairs, very faint, spreading and forming double arches inside the edge; length 2.5 to 4 in., breadth .6 to 1.25 in., petiole .1 in. *Flowers* few, in short extra-axillary racemes, sub-globular, .25 in. in diam.; pedicels about as long as the flowers, each with 2 sub-orbicular, stem-clasping, pubescent bracteoles. *Sepals* orbicular, concave, puberulous on both surfaces, about .15 in. in

diam. *Petals* sub-equal, about twice as large as the sepals, orbicular-ovate, sub-acute, cordate at the base, the edges incurved. *Stamens* about 27, in three rows; anther-cells linear, lateral, the apical process of the connective obliquely truncate, papillose. *Pistils* numerous, forming a large mass with their stigmas agglutinated. *Ovaries* sub-cuncate, pubescent especially near the truncate apex; stigma very large and viscous, sessile; ovules 1 to 3, ascending. *Ripe carpels* ovoid, pointed, glabrous, .4 to .5 in. long. *Seeds* 1 to 3, compressed, the testa pale brown, shining.

S. Andaman: King. Nicobars: Kurz.

In its leaves this much resembles *Ucaria micrantha*, H. f. and T. to which I have reason to believe some specimens of this have been distributed from the Calcutta Herbarium.

4. *POPOWIA HELPERI*, Hook. fil. and Thoms. Fl. Ind. I, 69. A small spreading tree; young branches coarsely hairy. *Leaves* membranous, lanceolate or oblong-lanceolate, acuminate, the base narrowed but rounded; upper surface glabrous; the lower granular, sub-strigose, especially on the midrib; main nerves indistinct, about 4 or 5 pairs, ascending; length 2 to 4 in., breadth .8 to 1.25 in., petiole .05 in. *Flowers* minute, globose, extra-axillary; peduncles .05 to .2 in., tomentose. *Sepals* ovate, strigose. *Outer petals* like the sepals, the inner orbicular, larger than the outer, concave, very strigose, their apices inflexed. *Stamens* 15. *Ovule* solitary. *Carpels* about 6, globular, strigose. Kurz. F. Flora Burm. I, 39.

Andamans; North of Port Mouat; Kurz. Burmah: Tenasserim, on King's Island; Helfer.

A very little known species closely resembling *P. Boddomiana*, Hook. fil. and Th.

5. *POPOWIA FETIDA*, Maingay, Hook. fil. Fl. Br. Ind. I, 69. A large tree; young branches tawny-tomentose. *Leaves* sub-coriaceous, elliptic-lanceolate, shortly caudate-acuminate, the base sub-acute; upper surface glabrous except the puberulous midrib, lower densely covered with yellowish-grey tomentum as are the petioles; main nerves 11 to 18 pairs, rather prominent beneath, curved, spreading, inter-arching close to the margin; length 4.5 to 6.5 in., breadth 1.6 to 2 in., petiole .2 in. *Flowers* solitary, .35 in. in diam.; pedicels .2 in., tomentose. *Sepals* minute, ovate, obtuse. *Petals* unequal, the outer oval-elliptic, obtuse, yellow; the inner slightly larger, apiculate, concave, the margins thick. *Stamens* about 30, the connective large. *Ovaries* about 6, strigose, 2-ovuled. *Ripe carpels* few, very large, oblong-ovoid, obtuse, sessile, densely and shortly yellowish-tomentose, 2.25 in. long, and 1.5 in. in diam. *Seed* solitary, oblong, the testa bony.

Malacca; Maingay, (Kew Distrib.) No. 55.

6. *POPOWIA PERAKENSIS*, King, n. sp. A shrub 6 to 15 feet high; young branches densely and minutely dull rusty-tomentose, the older dark and furrowed. *Leaves* elliptic to oblong-elliptic, very shortly and rather abruptly acuminate, the base slightly narrowed, sometimes sub-oblique; upper surface glabrous, the midrib and nerves tomentose; lower pubescent, sub-granular: main nerves 8 to 10 pairs, spreading, slightly prominent beneath; length 4 to 5.5 in., breadth 2 to 2.5 in.; petiole .1 in., tomentose. *Flowers* extra-axillary, usually in pairs (but not contemporaneous) .3 in. in diam.; pedicels .4 in. long, ferrugineous-tomentose, minutely bracteolate. *Sepals* smaller than the petals, semi-orbicular, acute, coarsely tomentose outside, sub-glabrous inside. *Petals* thick ovoid-orbicular, sub-acute, sub-concave, densely whitish-sericeous outside, glabrous within; the inner row slightly larger than the outer, neither their edges nor apices incurved. *Stamens* numerous, flattened, with truncate, corrugated heads. *Ovaries* about 10, thin, glabrous, except a few long hairs near the base, 2-ovuled: stigmas large, rounded. *Ripe carpels* few, ovoid, with sub-truncate apices, slightly narrowed to the stalks, glabrous or sparsely pubescent, with several horizontal constrictions when ripe .5 in. long and .25 in. in diam.; stalks .25 to .5 in. long. *Seeds* 2, superposed, plano-convex.

This resembles *P. ramosissima* in its leaves but has much larger flowers of which the inner petals are not inflexed and the carpels have 2 seeds.

Perak: King's Collector, Wray; from 200 to 2,500 feet.

7. *POPOWIA FUSCA*, King, n. sp. A tree 40 to 50 feet high; young branches densely covered with purplish-brown tomentum; the older cinerous, sub-pubescent and much furrowed. *Leaves* coriaceous, obovate-oblong, obtuse or sub-acute, the base rounded; both surfaces minutely granular, the upper shortly puberulous, the lower pubescent, the midrib on both; length 2.5 to 3.5 in., breadth 1.4 to 1.8 in.; petiole .2 in., purplish-tomentose like the flower pedicels. *Flowers* in small extra-axillary fascicles from small bracteate tubercles, .25 in. in diam.; pedicels .15 to .25 in. *Sepals* ovate-obtuse, tomentose outside, glabrous inside. *Petals* sub-equal, rotund, very thick and fleshy, tomentose outside, puberulous inside. *Ripe carpels* few, globular, densely tomentose, .25 in. in diam.; stalks .1 to .2 in. long, tomentose. *Seeds* solitary.

Perak, near Ulu Kerling, at an elevation of 500 feet, King's Collector, No. 8602.

This much resembles *P. velutina*, King, but its leaves are more oval, have more nerves, and are not so pubescent.

8. *POPOWIA VELUTINA*, King, n. sp. A tree 20 to 40 feet high;

their points are not inflexed. And in these respects they do not answer to the diagnosis of *Popowia* as heretofore understood. I have therefore ventured to modify the generic character of *Popowia* in these points, and to institute a section of it to receive this and other two species. This species is closely allied to the plant originally described and figured by Blume as *Guatteria macrophylla*, (Fl. Jav. Anon. 96 t. 47.) and to receive which Miquel founded his genus *Trivalvaria* (Ann. Mus. Lagd. Bat. II, 19). But, in Blume's and Miquel's plant, the inner petals are distinctly valvate, although their apices are not inflexed. And in the non-inflexion of its petals it also does not conform to the character of *Popowia* as originally defined, by its founder Endlicher.

12. *POPOWIA HOOKERI*, King. A shrub; young branches dark-coloured, glabrous. *Leaves* thinly coriaceous, broadly lanceolate or oblanceolate, acute or acuminate, the base acute: both surfaces glabrous, the lower silvery, shining: main nerves about 7 pairs, spreading, $1\frac{1}{2}$ to 2, curving, rather prominent beneath, evanescent at the tips; length 5 to 7 in., breadth 1.6 to 2.4 in. *Flowers* solitary or in fascicles from short extra-axillary, woody tubercles, polygamous, minute; males as in *Popowia Kurzii* but smaller; the females with many pubescent ovaries and a few imperfect stamens; bracts many, strigose. *Carpels* many, 75 in. long, oblong, granulate, glabrous; length 35 in." *Guatteria pallida*, H. f. and Th. Fl. Ind., 143 (not of Blume). *Polyalthia argentea*, Hook. fil. and Thoms. Fl. Br. Ind. I, 67. Assam and Sylhet; in dense forests, Hook. fil. and Thomson; Nagas and Masters. Khasia: Griffith.

A species of which I have seen only imperfect specimens. The description given above of the flowers is copied from Sir Joseph Hooker. In my opinion the plant is a *Popowia* rather than a *Polyalthia* and to the former genus I have ventured to remove it.

Doubtful Species.

Popowia purvifolia, Kurz in Journ. of Botany for 1875, p. 324. Of this I have seen only leaf specimens with a few detached fruits. It appears to have also had the MSS. name *P. nitida* given to it by Kurz.

18. OXYMITRA, Blume.

Climbing shrubs. *Leaves* parallel-nerved; nervules transverse, not forming intra-marginal loops. *Flowers* leaf-opposed or extra-axillary. *Sepals* 3, valvate, connate below. *Petals* 6, valvate, in 2 rows, outer large, long, flat or triquetrous and narrow, leathery, more or less spreading or connivent; inner much smaller, ovate-lanceolate or oblong (long and narrow in *O. filipes* and *O. glauca*), conniving over the stamens and

ovaries. *Sitimens* many, linear-oblong; or cre. neate, truncate; anther-cells dorsal, remote (small and ovoid in *O. glauca*). *Ovaries* oblong, strigose; style oblong or clavate, recurved; ovules 1-2, sub-basal, ascending. *Ripe carpels* 1-seeded, stalked.—Distrib. About 28 species, Asiatic and African.

A genus of which the flowers have some resemblance to those of *Goniothalamus*: but in this the inner petals are not contracted into a law as in *Goniothalamus* find the calyx in this is smaller and not persistent.

Outer petals flat 1. *O. affinis*.

Outer petals concave.

Pedicels slender, much longer than the flowers ... 2. *O. filipes*.

Pedicels shorter than the flowers.

Leaves oblong-elliptic, more or less obovate, blunt 3. *O. calycina*.

Leaves oblong-elliptic to oblong-lanceolate or elliptic-lanceolate, not obovate, acute, or acuminate.

Outer petals expanded and concave at the lower third; the inner only one fourth as long as the outer, very acuminate 4. *O. biglandula*.

Outer petals narrowly linear-lanceolate, slightly expanded and concave at the very base 5. *O. glauca*.

1. *OXYMITRA AFFINIS*, Hook. fil. and Thoms. Fl. Br. Ind. I, 76
 spreading shrub or climber: young branches at first densely tomentose, afterwards dark-coloured and glabrous. *Leaves* membranaceous, elliptic to oblong-elliptic, sometimes slightly obovate, acute or very shortly acuminate, rarely obtuse, the base rounded or slightly narrowed; upper surface shining, minutely scaly, glabrous except the pubescent midrib; under surface slightly glaucous, pubescent especially on the midrib and nerves; main nerves 8 to 14 pairs, spreading, ascending, rather prominent on the lower surface; length 3.5 to 10 in., breadth 1.25 to 4.5 in.; petiole .3 in., tomentose. *Flowers* solitary, extra-axillary; pedicels .25 to .4 in. *Sepals* slightly connate at the base, spreading, broadly ovate or orbicular-ovate, sub-acute, 3- to 7-nerved, adpressed, pubescent, .5 in. long and slightly narrower than the base of the petals, persistent in the fruit. *Petals* flat, very unequal; the outer coriaceous, oblong-lanceolate, sub-acute, the midrib thick and with several strong sub-parallel nerves, adpressed-pubescent on both surfaces, 1.5 to 1.75 in. long and .4 to .6 in. broad; inner petals thickly coria-

ceous, ovate, sub-acute, $\frac{5}{8}$ in. long, pubescent outside, glabrous inside. *Ripe carpels* cylindrical, blunt at each end, pubescent, $\frac{5}{8}$ to $\frac{3}{4}$ in. long and $\frac{3}{8}$ in. in diam. : stalks pubescent, $\frac{1}{2}$ in. long. *Seed* solitary.

Malacca; Maingay, (Kew Distrib.) No. 39. Perak; King's Collector, Scortechini. Distrib., Siam.

2. *OXYMITRA FILIPES*, H. f. and Th. Fl. Br. Ina. i, 71. A climber: young branches softly brown-tomentose, dark-coloured and lenticellate when old. *Leaves* membranous, oblong-lanceolate or oblong-elliptic, often slightly obovate, acute or shortly acuminate, slightly narrowed to the sub-cordate sometimes slightly oblique base; upper surface glabrous, minutely scaly, sometimes pubescent, the midrib and nerves always so; under surface paler, sub-glaucous, pubescent, the midrib tomentose; main nerves 12 to 14 pairs, spreading, prominent beneath; secondary nerves obliquely transverse, prominent: length $4\frac{1}{2}$ to $7\frac{1}{2}$ in., breadth $1\frac{1}{4}$ to $2\frac{1}{2}$ in.; petiole $\frac{1}{2}$ to $\frac{1}{4}$ in., tomentose. *Flowers* very long and narrow, often curved, $1\frac{7}{8}$ to $2\frac{1}{2}$ in. long, solitary on slender extra-axillary pedicels 3 or 4 in. long, which are pubescent and have a subulate bract near the middle. *Sepals* $\frac{1}{4}$ in. long, spreading, ovate, acute, pubescent. *Petals* very unequal; the outer fleshy, very narrow, triquetrous, expanded and concave at the base, pubescent; the inner less than one fifth of the outer in length, lanceolate with caudate-acuminate apex, glabrous. *Stamens* numerous: ovaries 1-ovuled. *Ripe carpels* numerous, ovate-cylindric, shortly apiculate, softly pubescent, $\frac{5}{8}$ in. long and $\frac{1}{4}$ in. in diam.; stalks $\frac{3}{8}$ in. long, pubescent. *Seed* solitary, pale.

A species readily distinguished in this genus by the extreme length and narrowness of the outer petals. Evidently closely allied to *O. cuneiformis*, Miq. (*Polyalthia cuneiformis*, Bl. Fl. Javae Anon. 75 t. 35, 36b, 37), which it resembles in that respect as also in its filiform, elongated pedicels.

Malacca; Maingay, (Kew Distrib.) No. 60. Perak: King's Collector.

3. *OXYMITRA CALYCINA*, King, n. sp. A slender, woody creeper; young branches densely rusty tomentose. *Leaves* coriaceous, oblong and sub-acute or cuneiform-oblong, very blunt or even emarginate, always slightly narrowed to the rounded or minutely cordate base; upper surface glabrous, shining, the midrib sometimes rufous-pubescent; under surface pale, glaucous, pubescent especially on the midrib and nerves: main nerves 7 to 14 pairs, prominent on the under, impressed on the upper, surface, spreading; the secondary nerves obliquely transverse, prominent: length 6 to 12 in., breadth $2\frac{1}{2}$ to $7\frac{1}{2}$ in., petiole $\frac{1}{2}$ to $\frac{1}{4}$ in., rufous tomentose. *Flowers* solitary, extra-axillary; pedicels $\frac{3}{8}$ to $\frac{1}{2}$ in.,

rufous-tomentose, bearing two bracts, one small, the other large, obovate, ribbed. *Sepals* free, nearly half as long as the outer petals, elliptic, sub-acute; the edges undulate, rufous-tomentose on both surfaces. *Petals* thick, lanceolate, caudate-acuminate, the midrib prominent, the base concave, both rows glabrous inside, the outer about 1 to 1.25 in. long, tomentose outside; the inner about .5 in. shorter, connate into a narrow, acute cone, puberulous outside. *Ovaries* 1-ovuled. *Ripe carpels* elliptic, apiculate, pubescent, .35 in. long: stalks .2 in., pubescent.

This closely resembles *Oxymitra cuneiformis*, Miq. of which Blume (under the name of *Polyalthia cuneiformis*) gives an excellent description and three admirable figures (Fl. Javae Anon. 75 t. 35, 36D. and 37. But in Blume's plant the flowers are much larger, the petals are falcate, while the sepals are much smaller and have caudate apices: the pedicels too are much longer and have smaller bracteoles.

Perak: Ulu Bubong at elevations of 500 to 1,000 feet, King's Collector, No. 10604. Singapore: Ridley. Penang: Curtis.

4. *OXYMITRA BIGLANDULOSA*, Scheffer in Nat. Tijdsch. Ned. Ind. XXXI, 341. A creeper 50 to 100 feet long; young branches minutely rufous-sericeous, afterwards dark-coloured and glabrous. *Leaves* coriaceous, elliptic to elliptic-oblong, acute or shortly acuminate, the edges slightly recurved when dry, the base rounded or slightly emarginate; upper surface glabrous, the midrib puberulous; the lower paler, subglaucous, puberulous or glabrescent; main nerves 7 to 9 pairs, ascending, prominent beneath; length 3.5 to 7.5 in., breadth 2 to 3.5 in., petiole 2 to 4 in. *Flowers* shortly pedicelled, solitary, extra-axillary, 1 to 1.15 in. long: pedicels .4 in. long (elongating in fruit) angled, slender, with 1 subulate bracteole. *Sepals* fleshy, ovate, much acuminate, spreading or reflexed, adpressed, rusty-puberulous. *Petals* fleshy, yellow, very unequal: the outer lanceolate-oblong, obtuse, expanded and concave in the lower third, rusty adpressed-pubescent; the midrib prominent, sub-glabrous inside; the inner only as large as the sepals, with broad bases (cleft in the middle) and long acuminate points. *Ripe carpels* oblong-ovoid, blunt at each end or slightly apiculate at the apex, yellow when ripe, puberulous or glabrous, .75 in. long: stalks .5 in. *Polyalthia biglandulosa*, Hook. fil. Fl. Br. Ind. 1, 65. *Gnatteria biglandulosa*, Blume Fl. Javae Anon. 102, t. 51; Miq. Fl. Ind. Bat. 1, Pt. 2, p. 48; Hook. fil. and Thoms. Fl. Ind. 143.

Malacca; Griffith, Maingay, (Kew Distrib.) No. 49. Selangor: Ridley. Perak, King's Collector. Distrib.: Malayan Archipelago.

The structure of the flowers of this species appears to me to be that of an *Oxymitra* rather than of a *Polyalthia* or *Gnatteria*, and therefore I have transferred it to this genus.

5. *OXYMITRA GLAUCA*, H. f. and Th. Fl. Ind. 146; Hook. fil. Fl. Br. Ind. I, 71. A slender woody climber: young branches slightly tomentose, soon becoming glabrous. Leaves thinly coriaceous, elliptic, elliptic-lanceolate to lanceolate, obtuse, acute or shortly acuminate; the base rounded, sometimes slightly narrowed; upper surface glabrous, the midrib and sometimes the nerves pubescent; the lower very pale, glaucous, glabrous or sparsely puberulous, the midrib pubescent; main nerves 8 to 12 pairs, spreading, prominent beneath: length 4 to 6 in., breadth 1.5 to 2 in.; petiole .2 in., pubescent. Flowers solitary, extra-axillary, narrow and elongate; pedicels slender, .5 in. long, with a median subulate bract, longer in fruit. Sepals connate at the base, broadly ovate, much acuminate, adpressed-pubescent, .25 in., long. Petals very unequal: the outer thickly coriaceous, linear-lanceolate, sub-acute, slightly expanded and sub-concave at the base, outside minutely pubescent; inside glabrous, the midrib prominent: inner petals with sub-orbicular bases (cleft in the middle), and long acuminate points, glabrous, only about one-fifth as long as the outer. Ovaries hairy; ovule solitary. Carpels many, ovoid, slightly apiculate, .4 in. long and .25 in. in diam., minutely tomentose; stalks slender, .75 in. long. Miq. Fl. Ind. Bat. I, Pt. 2, 50.

Ponang, Malacca: Maingay (Kew Distrib.) No. 58. Perak; common at low-elevations. Distrib.: Sumatra, Beccari, No. 626.

19. MELOBORUM, Dunal.

Climbing shrubs. Flowers terminal, axillary and leaf-opposed, fascicled or paniced; buds triquetrous. Sepals 3, small, valvate, connate below. Petals 6, valvate, in 2 rows; outer plano-convex or trigonous; inner triquetrous above, hollowed below on the inner face. Stamens many; anther-cells dorsal, contiguous; top of connective more or less flattened, triangular, quadrate or orbicular. Pistils many, free; style oblong; ovules 2 or more. Ripe carpels bearded.—Distrib:—species about 35. Tropical Asia and Africa; Australia.

Section I. MELOBORUM proper. Outer petals oblong-ovate; ovaries hairy, ovules usually more than 4. Seeds smooth (unknown in *M. litseaefolium*).

Flowers not more than .4 in. long (often .5 in. in *M. fulgens*), flower-buds broadly pyramidal.

Flowers .2 to .25 in. long, in few-flowered, lax, axillary racemes; leaves beneath hoary-pubescent with a superficial layer of flexuose hairs: ovules 4

Flowers .4 to .5 in. long; solitary, or in l. *M. litseaefolium*.

- fe • v-flowered terminal or leaf-opposed
 cymes; leaves beneath sparsely and
 minutely^l strigose: ovules 4 ... 2. *M. fulgens.*
 Flowers 5 in. ... re in length (see also
M. fulgens). or nio-
 Flower-buds broadly pyramidal.
- Fl** Flowers racemose, rarely solitary.
 Leaves glabrous above except the
 midrib, beneath densely golden-
 brown sericeous. Ripe carpels
 ovoid-globose, 1.25 in. long, their
 stalks 2 to 3 in. long ... 3. *M. maunbriatum.*
 Flowers in axillary or terminal
 panicles. Leaves minutely pubes-
 cent above, softly brown-tomen-
 tose beneath: Ripe carpels glo-
 bose to ovoid, velvety-tomentose,
 1 to 2.25 in. long; stalks .75 to
 1.75 in. ... 4. *M. latifolium.*
 Flowers always solitary and axil-
 lary. Ripe carpels cylindric,
 sub-tubercular, 1 to 1.75 in. long 5. *M. cylindricum.*
 Flower-buds narrowly pyramidal, race-
 mose or paniculate.
 Leaves glabrous above except the
 midrib, beneath glaucous hoary-
 puberulous. Ripe carpels glo-
 bose or ovoid-globose, tubercled,
 1 in. long, their stalks 1 in. ... 6. *M. hypoglauca.*
 Leaves glabrescent or glabrous
 above, except the midrib; beneath
 softly rufous-pubescent. Ripe
 carpels globular, densely and
 minutely dark brown-tomentose,
 .8 in. in diam.; their stalks
 slightly longer ... 7. *M. parviflora.*
 Leaves harshly pubescent above,
 uniformly and softly pubescent
 beneath. Ripe carpels globose,
 harshly and minutely pubescent,
 1.1 in. in diam.; stalks slender,
 twice as long ... 8. *M. sphaerocarpon.*

Section II. PYRAMIDANTHE. Outer petals very long, linear-lanceolate, 1·2 to 5 in. long. Flowers solitary or in pairs, axillary, rarely leaf-opposed (cymose in *M. lanuginosum* and *M. rubiginosum*.)

Ovules more than 4.

Flowers 1·25 to 1·5 in. long; outer petals rufous-lanate externally; ripe carpels sub-globose, 79 in. in diam. ... 9. *M. lanuginosum*.

Flowers 1·25 to 1·5 in. long; outer petals minutely rufous-tomentose externally; ripe carpels oblong, tapering to both ends, 1·5 to 2 in. long ... 10. *M. Maingayi*.

Flowers 1·5 to 2 in. long; outer petals minutely rufous-tomentose outside; ripe carpels ovoid, tuberculate, 1·4 in. long ... 11. *M. prismaticum*.

Ovules 4.

Flowers 3 to 5 in. long; outer petals adpressed-puberulous externally ... 12. *M. macranthum*.

Section III. KENTIA. Outer petals not much longer than broad, broadly ovate or sub-orbicular, with broad thick margins: flowers axillary; ovaries glabrous, 2 to 8-ovuled: seeds pitted.

Ovules about 8: ripe carpels ovoid or ovoid-globose; leaves oblong-lanceolate ... 13. *M. elegans*.

Ovules 2; ripe carpels globular: leaves elliptic or elliptic-oblong, sometimes obovate ... 14. *M. pisocarpum*.

1. MELODORUM LITSEIFOLIUM, King, n. sp. A powerful climber: young branches densely but minutely rusty-tomentose, afterwards tuberculate and sub-glabrous. Leaves coriaceous, oblong-ovate to oblong, acute, the base rounded or slightly cuneate; upper surface greenish when dry, glabrous, shining except the rufous-pubescent midrib; lower reticulate; uniformly hoary-pubescent with a superficial layer of deciduous yellowish or reddish flexuose hairs; main nerves 8 to 10 pairs, oblique, curving, prominent beneath; length 2·75 to 4·25 in., breadth 1·35 to 1·6 in. Flowers 2 to 2·5 in. long, in few-flowered lax axillary rufous-tomentose racemes or in terminal panicles; pedicels 25 to 35 in. long with a single small median bracteole. Sepals broadly ovate-acute, concave, connate at the base, spreading, 1 in. long. Petals broadly ovate-oblong, acute, leathery; outer 3 in. long, slightly concave and glabrous at the base, otherwise puberulous inside, rufous-tomentose outside; the inner petals much smaller, hoary-puberulous except the pitted glabrous concavity at the base inside. Stamens numerous, apical process of the connective broadly and bluntly triangular;

filaments short. Ovaries few, oblong, oblique, rufous-pubescent, 4-ovuled; stigma lateral, oblong. Ripe carpels unknown.

Perak: King's Collector, Nos. 4063 and 4986.

The flowers of this resemble those of *M. fulgens*, H. f. and Th., but they are smaller and more numerous than those of *M. fulgens*; the petals of this species also are thinner and the apical process of the anthers is broader and blunter. The leaves too of this are broader and, in the indumentum on their lower surface, they differ considerably from those of *M. fulgens*. Fruit of this species is as yet unknown. The ovaries have only 4 ovules.

2. *MELIOPORUM FULGENS*, Hook. fil. Fl. Br. Ind. 120. A large climber; young branches minutely tawny-pubescent, speedily becoming glabrous and dark-coloured. Leaves oblong-lanceolate, acuminate, the base rounded or sub-acute; upper surface pale olivaceous when dry, glabrous, the midrib strigose; under surface brown when dry, sparsely and minutely strigose, especially on the midrib. Main nerves 11 to 13 pairs, oblique, curving; length 3 to 4.5 in., breadth 1.2 to 1.5 in.; petiole .25 to .4 in. pubescent. Flowers .4 to .5 in. long, solitary or in terminal or leaf-opposed, few-flowered cymes; pedicels .3 to .4 in. long, adpressed tawny-pubescent with one sub-medial and one basal bracteole. Sepals broadly ovate, sub-acute, connate at the base, spreading, .1 in. long, pubescent outside, glabrous inside. Petals thick; the outer flat, ovate-oblong, sub-acute, tawny-pubescent outside, glabrous at the base inside; .5 in. long; inner petals like outer but concave at the base, only .3 in. long and glabrous, except near the apex outside. Stamens numerous; apical process of connective of the outer lanceolate and as long as the anthers, that of the inner shorter. Ovaries narrowly oblong, oblique, curved, minutely pubescent, with 4 ovules in two rows; style lateral, half as long as the ovary, stigma small. Ripe carpels ovoid-globous, densely and minutely silky tawny-tomentose like the stalks, 1 to 1.5 in. long, and .9 in. in diam.; stalks .85 to 1.5 in. long, stout. Seeds oblong, plano-convex, brown, shining. Hook. fil. Fl. Br. Ind. I, 82. Miq. Fl. Ind. Bat. I, Pt. 2, 35. *Uvaria fulgens* and *Myristica Finlaysonianae*, Wall. Cat. 6482 and 6793.

Malacca, Perak, Singapore. Distrib. Borneo, Philippines.

3. *MELIOPORUM MANUBRIATUM*, Hook. fil. and Thoms. Fl. Ind. 118. A large creeper; young branches minutely rufous-pubescent. Leaves thinly coriaceous, oblong-lanceolate, acuminate, the base rounded or slightly narrowed; upper surface olivaceous when dry, glabrous, the midrib rufous-pubescent; lower uniformly covered with rather thin brown or golden sericeous tomentum; main nerves 12 to 18 pairs, oblique, slightly curved, rather prominent beneath; length 2 to 4.5 in.,

breadth .75 to 1.5 in.; petiole .3 in., tomentose. *Flowers* .6 to .75 in. long, leaf-opposed or extra-axillary, in short racemes, rarely solitary; pedicels .25 to .75 in., softly pale rufous-tomentose, with one broad clasping bracteole near the base. *Sepals* broadly ovate, shortly sub-acuminate, spreading, connate at the base, sericeous outside, glabrous inside. *Petals* leathery, ovate-lanceolate, sub-acuminate, concave, the outer .6 to .75 in. long, outside sericeous, inside puberulous in the upper half, glabrous in the lower; the inner petals smaller, minutely pubescent in the upper half outside and near the apex inside, otherwise glabrous, the base very concave. *Stamens* numerous, the connective bluntly triangular at the apex. *Ovaries* numerous, oblong, densely sericeous; ovules 8 in 2 rows; stigma sessile, glabrous, bifid. *Ripe carpels* numerous, ovoid-globose, with thick pericarp, about 1.25 in. long, densely rufous-tomentose; stalks 2 to 3 in. long. *Seeds* about 8, in two rows. Hook. fil. Fl. Br. Ind. I, 79; Miq. Fl. Ind. Bat. I, Pt. 2, 35. *Melodorum bancanum*, Scheff. Nat. Tijds. XXXI, 343. *Uvaria manubriata*, Wall. Cat. 6456.

Penang, Malacca, Singapore. Perak: very common. Distrib.: Bangka.

4. *MELODORUM LATIFOLIUM*, Hook. fil. and Thoms. Fl. Ind., 116. A large climber; young shoots velvety rufous-tomentose. *Leaves* coriaceous, oblong or narrowly elliptic, sub-acute or obtuse, the base rounded; upper surface minutely pubescent, the midrib tomentose; lower surface uniformly covered with short, soft, brown tomentum; main nerves 16 to 24 pairs, spreading, bold, not inter-arching; length 3 to 7.5 in., breadth 1.75 to 2.5 in.; petiole .4 to .7 in., stout, channelled, tomentose. *Flowers* from .6 to 1.25 in. in diam. when expanded, brown, in lax axillary or terminal racemes or panicles; pedicels .35 to .5 in. with bracteole at the base. *Sepals* broadly ovate, blunt, connate into a flat triangular cap, .25 in. wide, tomentose outside, glabrous within like the outer petals. *Petals* thick, fleshy, ovate, acuminate, .4 to .7 in. long; the inner much smaller. *Stamens* very numerous, the apex of the connective triangular, acute; anther-cells linear, lateral. *Ovaries* about 6, obliquely oblong, densely sericeous, 6- to 8-ovuled; stigma small, sessile. *Ripe carpels* globose to ovoid, slightly apiculate and slightly tapering to the base, densely velvety and minutely tomentose, 1 to 2.25 in. long and 1 to 1.2 in. in diam.; stalks stout, velvety, .75 to 1.75 in. long; Hook. fil. Fl. Br. Ind. I, 79; Miq. Fl. Ind. Bat. I, pt. 2, 35; Wall. Cat. 9411. *M. mollissimum*, Miquel Fl. Ind. Bat. Suppl. 374. *Uvaria latifolia*, Blume Fl. Jav. Anon. t. 15. *Unona latifolia*, Dunal Anon. 115. *Uvaria longifolia*, Bl. Bijdr. 13.

Malacca; Griffith. Singapore; Maingay, Hullett. Perak: very common. Distrib.:—Sumatra, Java, Philippines.

Uvaria latifolia, Blume, as described and figured by that author has larger flowers than the common Perak plant and its carpels are globular, whereas those of the Perak plant are ovoid and apiculate. The plant figured by Blume does, however, occur there, but it is not common. The forms may be characterised thus:

Var. *typica*: flowers 7 in. long: fruit globular, not apiculate, 1 in. in diam. *Uvaria latifolia*, Blume l. c. t. 15. Perak, Java.

Var. *ovoides*: flowers 5 in. long: fruit ovoid, slightly apiculate, often oblique, as much as 2.25 in. long, very oblique and warty when young. *M. latifolium*, H. f. and Th. Fl. Br. Ind. 79. Malacca, Perak, Singapore. The common form in the Malay Peninsula.

5. *MELODORUM CYLINDRICUM*, Maingay in Hook. fil. Fl. Br. Ind. I, 80. **A climber**: young branches minutely rusty-pubescent, speedily glabrous and dark-coloured. *Leaves* coriaceous, elliptic-oblong, brownish when dry, acute or acuminate, the base rounded or slightly narrowed; upper surface quite glabrous, the lower paler, minutely pubescent; main nerves 8 to 10 pairs, spreading, very faint; length 2.5 to 4.25 in., breadth 1.6 to 1.8 in., petiole .5 in. *Flowers* 5 in. long, solitary, axillary, drooping; buds short, pyramidal, adpressed, brown-pubescent: pedicel short, stout, with minute bracteole. *Sepals* small, triangular, connate, forming a flat spreading cup. *Outer petals* triangular-ovate, triquetrous with an excavated base; the inner very small, triangular, glabrous. *Stamens* numerous, the apex of the connective orbicular. *Ovaries* 4 to 6, sericeous. *Ripe carpels* cylindrical, carved, both ends obtuse, sub-tubercular, minutely brown-pubescent, 1 to 1.75 in. long and .35 to .75 in. in diam.; pericarp thin; stalk .5 in. long, stout. *Seeds* many, horizontal, in two series, compressed, .65 in. long, shining, with a small cartilaginous arillus.

Malacca; Maingay (Kew Distrib.) No. 78. Singapore: Ridley, No. 2115.

6. *MELODORUM HYPOGLAUCUM*, Miquel in Ann. Mus. Lugd. Bat. II, 37. **A strong creeper**: young branches minutely rufous-pubescent, ultimately glabrous, rather pale and much tubercled. *Leaves* thinly coriaceous, oblong-lanceolate to oblong-elliptic, acute or shortly acuminate, the base rounded or cuneate; upper surface glabrous except the rufous-puberulous midrib; lower minutely hoary-puberulous, the 10 or **11** pairs of bold oblique curving main nerves ultimately glabrous and darker-coloured; length 3 to 5.5 in., breadth 1.35 to 2.2 in., petiole .25 in. *Flowers* 5 to 8 in. long, in lax, 2- to 3-flowered, axillary racemes or (by abortion of the leaves) in lax, terminal, 10- to 12-flowered panicles; pedicels as long as the flowers, slender; bracteoles 1 or 2, minute. *Sepals* ovate, acute, concave, conjoined only at the base, rufous-pubescent outside; puberulous within. *Petals* leathery, linear-lanceolate,

the base expanded and concave: the outer minutely rufous-tomentose on the external surface, paler and pubescent on the internal, .5 to .3 in. long, concave for their whole length: the inner one-third shorter with a glabrous concavity at the base only, the rest triquetrous, and puberulous. *Stamens* numerous; apical process of connective large, broader than the anther-cells, sub-globular. *Ovaries* about 12, oblong, golden-silky: with 4 to 6-ovules in 2 rows; stigma large sub-capitate; style Bbori. *Ripe carpels* globose or ovoid-globose, tubercled, puberulous or glabrescent, 1 in. long; stalks about the same length, striate. *Seeds* about 4 or 5, oval, compressed, smooth, brown, shining.

Perak: Scortechini, King's Collector.

This plant agrees fairly well with the only specimens of *Melodorum hypoglaucum*, Miq. which I have been able to consult. It also agrees fairly with Miquel's description of that species. But its petals and stamens, and its ovaries externally are rather those of *Xylopia* than of *Melodorum*; although its habit, its torus and carpels are emphatically those of the latter genus. In the number of ovules it agrees with the majority of the species of *Melodorum*. It thus forms a connecting link between the two genera.

7. *MELODORUM PARVIFLORUM*, Scheffer in Nat. Tijdsch. Ned. Ind. XXXI, 344. A powerful climber; young shoots minutely rusty-tomentose, the bark dark-coloured. *Leaves* coriaceous, more or less broadly elliptic, abruptly acute; the base broad, rounded: upper surface pale yellowish-green when dry, when young minutely stellate-pubescent, on old glabrescent or quite glabrous, the midrib always tomentose; under surface softly rufous-pubescent, the nervation and venation very prominent; main nerves 13 to 15 pairs, oblique, curving, inter-arching close to the edge; length 3 to 6 in., breadth 2.25 to 3.2 in., petiole .4 in. *Flowers* .5 in. long, in lax axillary or terminal rusty racemes often more than half as long as the leaves: pedicels .4 to .6 in. long with 1 or 2 small bracteoles. *Sepals* triangular, spreading, connate at the base, rusty-tomentose outside, glabrescent inside like the petals, 1 in. long. *Petals* thick, leathery, oblong-lanceolate with broad bases; the outer .5 in. long; the inner smaller, concave at the base, triquetrous in the upper half. *Stamens* numerous, the connective with compressed sub-quadrate apical appendage. *Ovaries* narrow, elongate, densely sericeous, 6- to 8-ovuled. *Ripe carpels* globular, sometimes very slightly apiculate, densely but minutely dark-brown tomentose, .8 in. diam.; stalks rather longer, slender, tomentose.

Perak: King's Collector.—Distrib.: Bangka.

A species closely allied to *M. sphaerocarpum*, Blume. The leaves of this are, however, larger, the upper surface is stellate-tomentose

when young and dries a pale yellowish-green; the flower-racemes are much longer and laxer, and the flowers larger.

8. *MELODORUM SPHAEROCARPUM*, Miq. Fl. Ind. Bat. 1, pt. 2, p. 35. A strong climber: young branches and all other parts more or less dark rusty-velvety tomentose. *Leaves* elliptic-oblong, obtuse and very slightly apiculate, slightly narrowed to the rounded base; upper surface with harsh, short pubescence, the midrib tomentose; lower surface uniformly and minutely soft-pubescent: main nerves 8 to 12 pairs, oblique not inter-arching at the tips, prominent beneath; the connecting veins transverse oblique, rather prominent, length 2.5 to 4.5 in., breadth 1.25 to 2 in., petiole .35 in. *Flowers* .6 or .7 in. in diam., in axillary or terminal racemes or panicles; pedicels .35 to .5 in. long with a small supra-basal bracteole. *Sepals* ovate-acuminate, connate at the base, spreading, minutely tomentose outside, glabrescent inside. *Petals* thick, leathery, brown outside, pink within, ovate, acuminate, slightly pouched at the base; the outer .3 to .35 in. long, tomentose outside, puberulous within: the inner smaller than the outer, more concave at the base, glabrous or glabrescent, the upper part very thick. *Stamens* numerous, the apex of the connective thick, obliquely triangular; anther-cells linear, lateral. *Ovaries* about 6, elongate, oblique, pubescent, with 6 to 8 o
rules: style short, glabrous: stigma small. *Ripe carpels* globular, harshly and minutely pubescent, 1.1 in. in diam.: stalks rather slender, about twice as long. *Unona sphaerocarpa*, Blume Bijdr. 12: Fl. Javae Anon. 79 t. 16.

Perak: King's Collector.

This is allied to *M. latifolium*; but has smaller leaves with fewer nerves; its pubescence is very dark rusty, not tawny; and the apices of the anthers are truncate, not bearing a broad triangular, acute point. It is also allied to *M. parviflorum*, Scheff.

9. *MELODORUM LANUGINOSUM*, Hook. fil. and Thoms. Fl. Ind. 117. A strong creeper; young branches softly rufous-tomentose. *Leaves* coriaceous, oblong, sometimes sub-obovate-oblong, abruptly acute or shortly acuminate, rarely obtuse, the base rounded; upper surface glabrous, the midrib rufous-tomentose, olivaceous when dry; lower surface densely rufous-lanate; main nerves 12 to 20 pairs, oblique, curving, inter-arching close to the edge, prominent beneath; length 3.5 to 9 in., breadth 1.9 to 3.5 in.; petiole .4 to .6 in., stout, tomentose. *Flowers* 1.25 to 1.5 in. long, axillary or leaf-opposed, solitary, or in short 2- to 4-flowered cymes; pedicels stout, lanate, .5 in. long, with a single basal br
bracteole. *Sepals* ovate, spreading, slightly connate, golden or rufous-lanate outside, glabrous inside like the outer petals. *Petals* thick, leathery, oblong-lanceolate from a broad base, sub-acute, the outer 1.25

to 1.5 in. long; the inner smaller, glabrescent or glabrous, concave at the base. *Stamens* numerous, the connective obliquely triangular at the apex; the anther-cells very narrow, lateral. *Ovaries* obovoid, oblique, curved, densely sericeous, 4- to 6-ovuled; style glabrous. *Ripe carpels* sessile, shortly stalked, sub-globose, narrowed to the base; densely and softly rufous-tomentose, about .75 in. in diam. when ripe; seeds about 4. Miq. Fl. Ind. Bat. I, Pt. 2, 35; Hook. fil. Fl. Br. Ind. I, 79. *Uvaria tomentosa*, Wall. Cat. 6454.

Penang: Wallich, Curtis. Singapore; Wallich. Pangkore: Curtis. Penang; Scortechini; Wray, King's Collector.

At once distinguished by its large flowers, lanate leaves and sessile, or shortly stalked, rufous-tomentose fruit.

10. *MELODORUM MAINGAYI*, Hook. fil. and Thoms. Fl. Br. Ind. I, 80.

A climber: young branches pubescent, dark-coloured. *Leaves* coriaceous, reddish-brown when dry, broadly elliptic or oblong, rounded at both ends, the tip sometimes minutely apiculate; upper surface glabrous except the puberulous midrib; lower glaucous and finely pubescent; main nerves 14 to 16 pairs, spreading, slightly prominent and dark-coloured beneath; length 3 to 6 in., breadth 1.5 to 2.35 in.; petiole .6 in. *Flowers* 1.25 to 1.5 in. long, solitary, axillary; buds swollen at the base, narrowed and triquetrous above: pedicels .25 to .5 in., stout; bracteoles several, small. *Sepals* orbicular, sub-acute, quite connate into a disk, .35 in. in diam. *Petals* leathery; the outer oblong-lanceolate, with broad base, flat but keeled down the middle inside, outside minutely rufous-tomentose, inside hoary-pubescent; inner very small, triangular-ovate, glabrous. *Stamens* numerous, small, with a broad rounded apical process, convex. *Ovaries* about 6, sericeous on one side; stigma subsessile. *Ripe carpels* oblong, tapering to each end, the apex shortly beaked, rusty-puberulous; the pericarp thick, 1.5 to 2 in. long and .75 in. in diam.; stalks .5 in. long, stout. *Seeds* many, in horizontal rows, .5 in. long testa shining, not margined.

Penang; Maingay (Kew Distrib.) No. 108, Curtis, No. 1046. Perak: Wray, 1112.

11. *MELODORUM PRISMATICUM*, Hook. fil. and Thoms. Fl. Br. Ind.

121. A large creeper; young branches glabrous, dark-coloured. *Leaves* coriaceous, oblong, elliptic-oblong, rarely obovate-oblong, abruptly and shortly acuminate; the base broad, rounded: upper surface glabrous except the minutely puberulous midrib; lower surface glaucous, reticulate, finely pubescent especially on the midrib; main nerves 12 to 18 pairs, spreading, faint especially near the tip, the secondary nerves prominent; length 4.5 to 8.5 in., breadth 2.3 to 3.3 in., petiole .5 to .7 in. *Flowers* 1.5 to 2 in. long, axillary, solitary; pedicels .3 to .6 in. long,

rufous-tomentose, with 1 large bracteole above the middle and several smaller near the base. *Sepals* quite connate into a flat, obtusely 3-angled disk, 3 in. broad, pubescent outside, glabrous and tubercled inside. *Petals* very thick: the outer linear-lanceolate, 1.5 to 2 in. long, triquetrous, is, rufois-tomentose outside, puberulous inside: the inner thinner and only about 3 in. long, triangular, ridged outside, much excavated and glabrous at the base inside, otherwise puberulous. *Stamens* numerous, with very short filaments, anthers linear, apex of connective obliquely triangular. *Ovaries* elongate, oblong, tapering to the apex, shortly pubescent: ovules about 14, in 2 rows; style short, lateral; stigma sub-capitate, lobulate. *Ripe carpels* ovoid, blunt, tuberculate, us, becoming sub-glabrous, 1.4 in. long and .8 in. in diam.: stalks .8 to 1 in., stout. *Seeds* in 2 rows, horizontal compressed, oval, pobemlohining. Hook. fil. Fl. Br. Ind. 81; Miq. Fl. Ind. Bat. I, Pt. 2, 36. *Pyramidanthe rufa*, Miq. Ann. Mus. Lugd. Bat. II, 39. *Uvaria rufa*, Wall. Cat. 6455. *Oxymitra* *is. Iiafolia*, Tezani, and Binnin. in Tijdsch. Ned. Ind. XXV, (1863), 419.

Penang, Malacca, Perak, Singapore: common. Distrib.: Borneo.

Authentic specimens both of *Pyramidanthe rufa* (T) and of *Oxymitra bassierfolia*, T. and B. shew that they are unmistakably belong to this species. Specimens of the former from Bangka and from the Buitenzorg Botanic Garden have, however, their leaves rather more hairy beneath than is usual in Perak specimens and their flowers are also rather longer.

11. MELODORUM MACRANTHUM, Kurz in Journ. As. Soc. Bengal, 1872, Pt. II, 291; 1874, Pt. II, 56; F. Flora Burma, I, 42. A small tree: all parts except the young leaf-buds and the flower glabrous; young branches dark-coloured, rather slender. *Leaves* membranous, elliptic-oblong, sometimes slightly obovate, shortly and abruptly acuminate, the base cuneate; upper surface shining, the lower dull; main nerves 12 to 16 pairs, faint and much more prominent than the secondary, forming a double set of intra-marginal arches: length 6 to 8 in., breadth 2.5 to 3.5 in., petiole .3 to .4 in. *Flowers* solitary, axillary or from the branches below the leaves, 3 to 5 in. long, drooping; pedicels .5 to .75 in. long, obscurely bracteolate at the base only. *Sepals* broadly ovate, sub-acute, coriaceous, pubescent at the edges inside, glabrous outside, connate for half their length, .45 in. long. *Petals* greenish-white, becoming yellowish, coriaceous; narrowly linear-lanceolate, acuminate, the outer row flat, adpressed-puberulous with a glabrous patch at the base inside, 3 to 5 in. long; the inner row only 1 to 1.25 in. long, cohering by their edges, vaulted at the base and with a glabrous patch; the limb keeled inside, puberulous on both surfaces. *Stamens* numerous, the anther-cells linear, elongate; apical process of connective narrowly tri-

angular, pointed. *Ovaries* numerous, narrowly oblong, adpressed-rufous-pubescent, 4-ovuled: style nearly as long as the ovary, cylindric, bent outwards, glabrous; stigma small, slightly bifid. *Ripe carpels* oblong, blunt, tapering at the base, slightly rugose, glabrous, 1.25 to 1.5 in. long and about .5 or .6 in. in diam.: stalk .4 to .5 in. *Seeds* 1 or 2, compressed, ovoid, smooth. *Unona macrantha*, Kurz. in Andam. Report, Ed. I, App. B. I: *Pyramidanthe macrantha*, K. in. 1, c. I. Ed. 2, p. 29.

S. Andaman; Kurz, King's Collector.

In some of its characters, (e. g., the erect habit, the fewness of the ovules, and the thin texture and flatness of the much elongated outer petals) this does not quite conform to the characters of typical *Melodorum*. By its thin elongated outer petals, it approaches the *Dasymaschalon* section of *Unona*; but the fewness of its ovules excludes it therefrom. From *Xylopi*a, which it in some respects resembles, it is chiefly excluded by the very convex torus of its flowers, and by the very pointed apical appendage of its stamens. The stamens on the other hand are those of *Melodorum*, and the petals resemble those of *M. prismaticum* [*Pyramidanthe rufa*, Miq.]. On the whole therefore, I think, it best to leave this plant in the genus to which Kurz finally referred it.

13. *MELODORUM ELEGANS*, Hook. fil. and Thoms. Fl. Ind. 122. A large climber: young branches slender, puberulous at first, ultimately glabrous, dark-coloured. *Leaves* thinly coriaceous, oblong-lanceolate, acuminate, slightly narrowed to the rounded base: upper surface olivaceous when dry, glabrous: lower paler, puberulous, minutely reticulate, the 12 or 13 pairs of main nerves spreading, faint: length 2.5 to 3.5 in., breadth 1 to 1.25 in., petiole .25 to .35 in. *Flowers* axillary, solitary or 2 or 3 in a fascicle, .35 to .65 in. long: pedicels slender, .35 to .6 in. long often deflexed, with 2 or 3 minute basal bracteoles. *Sepals* ovate, acute, united at the base only, spreading, outside tubercular and pubescent, inside glabrous and concave, .1 in. long. *Petals* leathery, the outer broadly ovate, sometimes minutely ovate-oblong, silky, rufous-tomentose outside, hoary-puberulous within, with a perfectly glabrous patch at the concave base, .35 to .6 in. long: inner petals only .25 in. long, very thick, triquetrous and puberulous above, concave and glabrous at the base, inside. *Stamens* numerous, with filaments half as long as the anther-cells; apical process of connective short, thick, obliquely triangular. *Ovaries* narrowly oblong, glabrous, with 8 ovules in 2 rows: style short, lateral. *Ripe carpels* ovoid or ovoid-globose, blunt at each end, glabrous, .35 to .5 in. long: stalks slender, .25 in. long, compressed, black, shining, pitted. Hook. fil. Fl. Br. Ind. I, 82: Miq. Fl. Ind. Bat. I, pt. 2, p. 36. *Uvaria elegans*, Wall. Cat. 6474A.

This is closely allied to *M. fulgens*, H. f. and T.; but its flowers have

more slender and usually longer pedicels: the ovary of this is moreover glabrous, while that of *M. fulgens* is pubescent and the carpels of this are under half an inch in length, while those of *M. fulgens* are three times as long. This is also allied to *M. Kentii*, H. f. and Th., the ovaries of which have, however, never more than two ovules.

Penang: Wallich. Malacca: Maingay (Kew Distrib.) No. 75. Perak: King's Collector, Wray, Scottichini.

14. *MELODORUM HISOCARPUM*, Hook. fil. and Thoms. Fl. Ind. 123. A powerful climber: young branches glabrous, black. Leaves coriaceous, elliptic or elliptic-oblong, sometimes obovate-elliptic, shortly and abruptly acuminate; the base rounded or sub-cuneate: upper surface olivaceous when dry, glabrous, shining; the lower glaucous, slightly puberulous when young: main nerves 10 to 12 pairs, spreading, very indistinct; length 2.5 to 4 in., breadth 1.25 to 1.8 in., petiole .35 in. Flowers 3 to .65 in. long, axillary, solitary or in pairs; pedicels rather stout, deflexed, rufous-puberulous, bi-bracteolate at the base, 25 to 35 in. long. Sepals broadly ovate, acute, concave, connate into a triangular cup, rufous-puberulous outside, glabrous inside, persistent. Petals thick: the outer flat, oblong-ovate, acute, minutely silky, rufous-tomentose outside, hoary pubescent inside except on the glabrous basal excavation, 3 to .65 in. long: inner petals less than half as long, with a large glabrous basal concavity and a short, thick, triquetrous point, hoary-puberulous. Stamens numerous, filament very short, apical process of connective orbicular. Ovaries narrowly oblong, glabrous, pitted, 2-ovuled: style lateral, nearly as long as the ovary. Ripe carpels globular, slightly tubercled, glabrous, .25 in. in diam.: stalks about as long. Seeds 2, plano-convex, dark-brown, shining, pitted. Hook. fil. Fl. Br. Ind. I, 82; Miq. Fl. Ind. Bat. I, Pt. 2, 37. *M. pyramidale*, Maingay MSS. *Ucaria unibiformis*, Griff. Notulæ, IV, 700.

Malacca: Griffith, Maingay (Kew Distrib.) No. 77. Singapore: Ridley. Penang: Curtis. Perak: common. Distrib. Sumatra, Forbes, No. 2182.

Only two species of *Melodorum* besides this have glabrous ovaries (*M. Kentii* and *M. elegans*); but whereas those of this and *M. Kentii* are 2-ovuled, the ovaries of *M. elegans* have 8, or, according to Sir Joseph Hooker, sometimes 10 ovules. This species has however different leaves from the two above mentioned, and its carpels are much smaller and quite globular. As in other species of *Melodorum*, there is considerable variability in the size of the flowers in this species.

20. *XYLOPIA*, Linn.

Trees or shrubs. Leaves coriaceous. Flowers axillary, solitary

cymose or fascicled; buds triquetrous, conic, often slender. *Sepals* 3, valvate, connate. *Petals* 6, elongate, valvate, in 2 series; outer flat or concave; inner nearly as long, trigonous, concave at the base only. *Torus* flat, or hollow and enclosing the carpels. *Stamens* oblong, truncate or connective produced; anther-cells remote or contiguous, often septate and with a large pollen-grain in each cellule. *Ovaries* 1 or more; style long, clavate; ovules 2-6 or more, 1- to 2-seriate. *Ripe carpels* long or short, continuous or moniliform, usually several-seeded.—Distrib. Tropics generally; species 50 to 70.—Closely allied to *Meliodorum*, but very different in habit.

Leaves quite glabrous.

Leaves 6 or 7 in. long ... 1. *X. oxyantha*.

Leaves between 3 and 5 in. long.

Ripe carpels cylindrical, boldly tubercled ... 2. *X. dicarpa*.

" " " smooth ... 3. *X. malayana*.

Leaves between 2 and 3 in. long.

Flowers always solitary; pedicels with 2 or 3 orbicular bracteoles, apical process of stamens rounded, anther-cells septate ... 4. *X. Maingayi*.

Flowers solitary or in pairs, .5 in. long; pedicels with orbicular basal bracteoles; apical process of stamens rounded; anther-cells septate... 5. *X. pustulata*.

Flowers in fascicles or solitary, .75 in. long; pedicels ebracteolate; apical process of stamens oblong; anther-cells not septate ... 6. *X. jusca*.

Both surfaces of leaves glabrous, the midrib alone pubescent in its lower half on the upper surface; length 5.5 to 9.5 in. ... 7. *X. Curtisi*.

Leaves glabrous on the upper surface (the midrib pubescent in *X. caudata*), the lower slightly pubescent or puberulous.

Leaves more or less lanceolate, acute or acuminate, not at all obovate.

Leaves 2 or 3 in. long.

Leaves not glaucous beneath.

Flowers .5 to .57 in. long, solitary, axillary, obtuse ... 8. *X. elliptica*.

Flowers .2 to .25 in. long, axillary, solitary, or 2 to 3 together ... 9. *X. caudata*.

- Leaves glaucous beneath ... 10. *X. stenopetala*.
- Leaves 3·5 to 5·5 in. long, leaves glaucous beneath; petals very long and narrow ... 10. *X. stenopetala*.
- Leaves more or less obovate or oblanceolate, 4 to 7 in. long.
- Leaves 1·75 to 4 in. broad; flower pedicels ·2 to ·25 in. long; ripe carpels broadly ovoid, blunt, sub-glabrous ... 11. *X. Scottschinii*.
- Leaves 1·75 to 2·5 in. broad; flower pedicels ·5 to ·8 in. long; ripe carpels globular, densely and minutely yellowish-tomentose ... 12. *X. olicacea*.
- Upper surfaces of leaves glabrous (the midrib alone pubescent in some): under surfaces uniformly pubescent.
- Under-surface of leaves adpressed-rufous-sericeous; length 2 to 3 in. ... 13. *X. obtusifolia*.
- Under-surface of leaves deep brown, the pubescence slightly paler; length 3 to 4·5 in.; ripe carpels obovoid-oblong, blunt ... 14. *X. magna*.
- Under-surface of leaves purplish-brown, pubescent; length 3·5 to 5·5 in.; main nerves 10 to 12 pairs; ripe carpels much elongate, cylindric, many-seeded ... 15. *X. ferruginea*.
- Under-surface of leaves brownish-tomentose; length 6·5 to 8·5 in.; nerves 12 to 14 pairs ... 16. *X. Ridleyi*.

1. *XYLOPIA OXYANTHA*, Hook. fil. and Thoms. Fl. Br. Ind. I, 85. A tree: young parts pubescent; the branchlets rather stout, striate. Leaves coriaceous, ovate or oblong, abruptly and shortly acuminate, glabrous, glaucous on the lower surface; main nerves 12 to 15 pairs, spreading, thin; length 6 to 7 in., breadth 2·5 to 3 in., petiole ·35 in. Peduncles axillary, in fascicles, ·35 to ·5 in. long, adpressed-pubescent. Sepals broadly ovate. Outer petals narrowly linear, tapering at the apex, yellowish pubescent, slightly keeled at the back, 1·25 to 1·5 in. long. Stamens and ovaries as in *X. ferruginea*. *Habzelia oxyantha*, Hook. fil. and Th. Fl. Ind. 124; Miq. Fl. Ind. Bat. I, pt. 2, 37. *Ucaria oxyantha*, Wall. Cat. 6478.

Singapore: Wallich.

2. *XYLOPIA DICAERPA*, Hook. fil. and Thoms. Fl. Br. Ind. I, 85. A tree 20 to 25 feet high; branches glabrous, dark-coloured, minutely

dotted. *Leaves* coriaceous, elliptic-lanceolate, acute or acuminate, the base acute; both surfaces glabrous, minutely reticulate; main nerves about 10 pairs, spreading, very faint, the secondary nerves almost as distinct; length 3 to 4.5 in., breadth 1.5 to 1.75 in., petiole .25 in. *Flowers* solitary or in pairs, pendent, 1.5 in. long: pedicel very short with 1 to 3 orbicular, amplexicaul, glabrous bracteoles. *Sepals* ovate, obtuse, tubercled, connate to the middle. *Petals* linear-oblong, slightly expanded and concave at the base, hoary, pubescent; the inner narrower and shorter than the outer, sub-trigonous. *Stamens* numerous, the inner rudimentary: apical process rounded; anthers linear, septate. *Ovaries* 2 to 4, pilose, multi-ovular: style short. *Ripe carpels* cylindric, blunt at each end, much tubercled, puberulous, 1.5 in. long and about .75 in. in diam. *Seeds* 7 or 8, compressed, the testa pale, scaly.

Singapore: Maingay (Kew Distribution *in part*) No. 84, King's Collector No. 7079.

3. *XYLOPIA MALAYANA*, Hook. fil. and Thoms. Fl. Ind. 125. A slender tree: young branches thin, glabrous, the buds pubescent. *Leaves* thinly coriaceous, shortly and bluntly acuminate, the base cuneate; both surfaces glabrous; main nerves about 8 pairs, faint, spreading; length 3.5 to 5 in., breadth 1.5 to 2 in., petiole .2 in. *Flowers* .6 to .9 in. long, solitary or in pairs, axillary; pedicels rufous-pubescent, .1 in. long, with several bracteoles at the base. *Sepals* broadly ovate, sub-nate, puberulous outside and on the edges, glabrous inside, .15 in. long and as broad. *Petals* linear-oblong, tapering to the apex, concave and glabrous at the slightly expanded base, densely pubescent elsewhere; the inner slightly narrower and shorter than the outer and more concave at the base. *Stamens* numerous, the apices rhomboid, papillose; the anthers long, lateral, with transverse divisions. *Pistils* about 6; the ovaries oblong, densely pale-hirsute, about as long as the stamens, 2-ovuled; styles about as long as the ovaries and projecting far above the stamens, glabrous, sub-cylindric, clavate. *Ripe carpels* (vide Maingay) .35 to 1 in., several-seeded; stalk short, thick. Hook. fil. and Thoms. Fl. Br. Ind. I, 85; Miq. Fl. Ind. Bat. I, Pt. 2, 38. *Parartubotrys sumatrana*, Miq. Fl. Ind. Bat. Suppl. 374; Scheffer in Nat. Tijdsch. Ned. Ind. XXXI, 15.

Malacca; Griffith, Derry, Maingay (Kew Distrib.) No. 81. Singapore, Ridley. Perak: Scortechini. Distrib., Sumatra.

4. *XYLOPIA MAINGAYI*, Hook. fil. and Thoms. Fl. Br. Ind. I, 85. A tree? Young branches rusty-pubescent, afterwards glabrous and with white dots. *Leaves* small, coriaceous, elliptic or elliptic-oblong, subacute or obtusely acuminate, the base sub-cuneate: both surfaces glabrous and reticulate, the upper pale, the lower dark; main nerves slender; length 2

to 3 in., breadth 1 to 1.25 in.; petiole .25 to .3 in. *Flowers* solitary, pendent, pale-orange; pedicels very short, stout, curved; bracteoles 2 or 3, orbicular, rusty-tomentose. *Sepals* broadly ovate, connate to the middle, rusty-tomentose. *Petals* flat, linear-oblong, sub-acute, softly tomentose except the glabrous concave base; the inner narrower, almost as long, trigonous. *Stamens* with rounded apiculus: the anthers narrow, septate. *Ovaries* about 9, with 6 ovules; style glabrate. *Ripe carpels* unknown.

Malacca: Maingay.

5. *XYLOPIA PUSTULATA*, Hook. fil. and Thoms. Fl. Br. Ind. I, 85. A tree: young branches pale, glabrous, minutely white-dotted. *Leaves* coriaceous, small, elliptic, sub-obtuse, the base acute, both surfaces glabrous, the lower reddish brown and reticulate: main nerves faint, not more prominent than the secondary. *Flowers* solitary or in pairs, axillary, .5 in. long, pendent; pedicels very short, with orbicular, ciliate, deciduous basal bracteoles. *Sepals* short, ovate, sub-acute, rusty-pubescent, united to the middle. *Petals* linear, sub-acute, densely adpressed-pubescent; the outer obtuse with a rather broad concave base, the inner shorter and much narrower with a broader concave base. *Stamens* linear with rounded apiculus: the anthers long, septate. *Ovaries* 5 to 8, hirsute; the style slender with clavate stigma; ovules several. *Ripe carpels* unknown.

Malacca: Maingay (Kew Distribution) No. 86.

6. *XYLOPIA FUSCA*, Maingay ex Hook. fil. Fl. Br. Ind. I, 85. A tree; young branches rather stout, glabrous, black: buds silky. *Leaves* coriaceous, oblong, obtuse, the base cuneate; upper surface glabrous shining; the lower dull, dark, reticulate; main nerves 8 or 9 pairs, very faint; length 2 to 3 in., breadth .75 to 1 in.; petiole .2 in., stout. *Flowers* .75 in. long, supra-axillary, solitary, racemed, or fasciated; peduncle .25 to .75 in. with several bracts; pedicels .25 in., puberulous, ebracteolate. *Sepals* ovate, acute, connate into a cup with 3 spreading, acute teeth, puberulous outside. *Petals* linear-oblong, tapering to the sub-acute apex: the outer adpressed golden-sericeous outside; the inner narrower and shorter, concave at the base. *Stamens*: with an oblong apical process; anthers linear, lateral, not septate. *Ovaries* 4 or 5, cohering into a cone, golden-silky; ovules 10 to 16, in two rows. *Ripe carpels* unknown.

Malacca: Maingay, (Kew Distribution) No. 86.

7. *XYLOPIA CURTISII*, King, n. sp. A tree 30 feet high: young branches stout, glabrous, striate, dark-coloured. *Leaves* very coriaceous, oblong, acute or shortly acuminate; the base cuneate, slightly oblique; upper surface glabrous, shining; the lower dull, darker (when dry),

puberulous on the midrib near the base; main nerves 12 to 20 pairs, very prominent beneath and connected by straight transverse veins; length 5.5 to 9.5 in., breadth 2 to 3 in.; petiole .35 in., stout. *Flowers* 1 or 2, on stout woody extra-axillary peduncles; pedicels .2 in. long, rufous-pubescent, with a single large bracteole. *Sepals* thick, spreading, broadly ovate, sub-acute, minutely tomentose on both surfaces but especially on the outer. *Petals* thick, subequal, linear-oblong, obtuse, keeled outside; the claw orbicular, vaulted over the andro-gynæcium and glabrous inside, otherwise minutely tomentose, .75 in. long. *Stamens* numerous, the heads obliquely truncate and concealing the linear, lateral anthers. *Ovary* solitary, cylindrical, fluted, glabrous, multi-ovulate. *Ripe carpel* ovoid, compressed, silvery-grey, many-seeded, 3 in. long, and 2.5 in. in diam.

Penang: Curtis, No. 1569.

8. *XYLOPIA ELLIPTICA*, Maingay ex Hook. fil. Fl. Br. Ind. I, 86. A tall tree: young branches dark-coloured, glabrous, the youngest pubescent. *Leaves* membranous, small, elliptic, obtusely acuminate, the base rounded or acute: upper surface glabrous, pale; the lower brown, minutely adpressed-pubescent; both reticulate: main nerves 6 or 7 pairs, oblique, very faint; length 1.5 to 2 in., breadth 1 to 1.25 in.; petiole .2 in., slender. *Flowers* solitary, erect, axillary, .5 to .75 in. long: peduncle about half as long, rusty-pubescent like the calyx, bracteoles minute. *Sepals* ovate, sub-acute, united to the middle. *Petals* pale brownish-tomentose; the outer linear-subulate with a broader concave base: the inner trigonous, shorter and narrower than the outer. *Stamens* numerous, minute, the apex rounded; anthers linear. *Ovaries* 1 to 3, densely hairy, 4- to 6-ovuled. *Ripe carpels* unknown.

Malacca: Maingay (Kew Distrib.,) No. 82. Perak: Wray No. 3194. Penang: Curtis, No. 2482.

9. *XYLOPIA CAUDATA*, Hook. fil. and Thoms. Fl. Ind. 125. A shrub or small tree: young branches very slender, minutely pubescent. *Leaves* thinly coriaceous, lanceolate, long and obtusely acuminate, the base concave; upper surface glabrous except the pubescent midrib; the lower sparsely adpressed-sericeous: main nerves about 10 pairs, spreading, faint; length 2 to 2.25 in., breadth .6 to .8 in.; petiole .1 in., slender. *Peduncles* 1 to 3, axillary, very short, minutely bracteolate at base and apex. *Flowers* .2 to .3 in. long. *Sepals* ovate, sub-acute, connate at the base, adpressed-pubescent outside, glabrous inside. *Petals* linear-oblong, obtuse, pubescent except a small glabrous concave spot at the base, the inner about as long as, but narrower than, the outer. *Anthers* rather numerous, compressed, the apical process narrow. *Ovaries* 2, elongate, sericeous, 2-ovuled: style long, pointed, glabrous, exerted.

Ripe carpels (slide Hooker) 2 or 3, sub-globose or ovoid, pubescent, $\frac{1}{5}$ in. long, 2-seeded. Hook. fil. Fl. Br. Ind. I, 85; Miq. Fl. Ind. Bat. I, Pt. 2, 38. *Guatteria* (?) *caudata*, Wall. Cat. 6452.

Singapore: Wallich, Maingay (Kew Distrib.) No. 79. Malacca; Griffith.

10. *XYLOPIA STENOPETALA*, Oliver in Hook. Ic. Plantar. t. 1563. A tree 50 to 60 feet high: young branches dark-coloured, glabrescent, minutely leucicellate. *Leaves* thinly coriaceous, elliptic-oblong, shortly and obtusely acuminate, the base sub-cuneate; upper surface glabrous, shining; the lower glaucous or glaucescent, sparsely adpressed-pubescent; both reticulate; main nerves 10 or 12 pairs, spreading, inter-arching close to the edge, faint: length 2.5 to 4.5 in., breadth 1.1 to 1.6 in., petiole $\frac{1}{25}$ in. *Flowers* axillary, solitary or in fascicles of 2 to 5; pedicels slender, often decurved, puberulous, with one minute bracteole, $\frac{1}{5}$ to $\frac{1}{75}$ in. long. *Sepals* united to form a small puberulous cup with acute, spreading teeth. *Petals* fleshy, very narrow, slightly expanded and concave at the base, minutely tawny-pubescent, the inner slightly shorter and narrower. *Stamens* linear, the connective prolonged into a cylindro-conic apical appendage; the anthers fusiform, lateral. *Ovaries* numerous, elongate, pubescent, 6-ovuled; style filiform; stigma sub-clavate. *Ripe carpels* oblong, sub-terete, narrowed to the stalk, 2 to 2.5 in. long and $\frac{1}{5}$ in. diam.: pericarp fleshy. *Seeds* 1 to 4: stalks thick, $\frac{1}{3}$ in. long.

Penang; on Government Hill at 600 feet: Curtis Nos. 857 and 880.

11. *XYLOPIA SCORTECHINI*, King n. sp. A tree 50 to 60 feet high: young branches rusty-tomentose, ultimately glabrous, much striate and pale brown. *Leaves* coriaceous, obovate-elliptic to elliptic-oblong, very shortly and abruptly acuminate, slightly narrowed to the sub-cuneate rounded slightly oblique base: upper surface glabrous, the midrib slightly rufous-puberulous near the base: lower surface pale, sparsely rufous-pubescent especially on the midrib and 10 to 14 pairs of oblique, rather straight, prominently raised main nerves; length 4 to 7 in., breadth 1.75 to 4 in.; petiole $\frac{1}{35}$ in., pubescent. *Flowers* rarely solitary, usually in fascicles of 2 to 5 on tubercles in the axils of leaves or of fallen leaves; pedicels short, $\frac{1}{2}$ to $\frac{1}{25}$ in., stout, rusty-tomentose with a sub-mesial bracteole. *Sepals* quite free, broadly ovate, blunt, pubescent outside, glabrous inside. *Petals* thickened, linear-obtuse with an orbicular concave claw, vaulted over the stamens and pistils, 1.25 to 1.75 in. long, pubescent everywhere except on the glabrous concavity of the claw. *Stamens* numerous, with truncate 4- or 5-angled apices concealing the lateral anthers. *Ovaries* few, short, oblong, pubescent, 4- or 5-ovuled; stigma large, oblong. *Ripe carpels* broadly ovoid, blunt, rufous-pubes-

cent when young, glabrescent when old, 8 in. long and 6 in. in diam. Seeds about 4, discoid, pale brown, shining. *Dioponanthus stenopetala*, Scortechini, MSS.

Perak: Scortechini, No. 1781; King's Collector, No. 8241.

A species allied to *X. olivacea*, King; but with broader leaves, shorter flower pedicels, narrower petals and ovoid sub-glabrous fruit.

12. *XYLOPIA OLIVACEA*, King n. sp. A shrub or small tree: young branches pubescent, ultimately brown, striate and glabrous. Leaves thinly coriaceous, elliptic-oblong, sometimes slightly obovate, shortly and abruptly acuminate, the base cuneate; both surfaces dull olivaceous when dry; the upper glabrous, the lower paler, slightly scurfy; main nerves 6 to 8 pairs, oblique, curving, inter-arching boldly 15 in. from the margin, prominent beneath; length 3.5 to 7 in., breadth 1.75 to 2.5 in., petiole .25 in., swollen, puberulous, black when dry. Flowers solitary or in pairs, supra-axillary; pedicels rather stout, .5 to .8 in. long, cinereous-tomentose with an ovate-lanceolate, mesial bracteole. Sepals thick, especially at the base, ovate, acute, connate below the middle, pale cinereous-puberulous on both surfaces. Petals sub-equal, fleshy, narrowly linear with a tapering limb and slightly expanded concave vaulted claw, densely and minutely cinereous-tomentose, 1 to 1.5 in. long, the inner shorter. Stamens short, cuneate, the broad oblique heads covering the apices of the linear anthers. Ovaries few, oblong, densely sericeous, 6- to 8-ovuled; style short, cylindrical: stigma large, fleshy. Ripe carpels few, globular, with slightly flattened minutely apiculate apex, and an imperfect lateral ridge, densely and minutely yellowish-tomentose, 6 in. in diam., stalks very short. Seeds 4 or 5, discoid, smooth, pale brown, shining, separated from each other by imperfect dissepiments.

Perak: up to elevations of 3,000 or 4,000 feet, common. Scortechini, Wray, King's Collector.

13. *XYLOPIA OBTUSIFOLIA*, Hook. fil. and Thoms. Fl. Br. Ind. I, 85. A tree: young branches glabrous, dark-coloured, striate: buds silky. Leaves coriaceous, oblong, obtuse or retuse, the base cuneate, upper surface glabrous, shining; the lower adpressed rufous-sericeous: main nerves 8 or 10 pairs, oblique, very faint; length 2 to 3 in., breadth 1 to 1.5 in., petiole .25 in. Flowers .5 in. long, axillary, solitary or 2 or 3 in small sub-racemose cymes; pedicels .2 to .25 in., rufous-pubescent with a single bracteole. Sepals thick, broadly ovate, acute, united to the middle, pubescent outside, glabrous inside. Petals linear-oblong, tapering towards the blunt apex; the outer petals adpressed-rufous-pubescent outside, puberulous within, slightly concave and glabrous at the base; the inner smaller, more concave at the glabrous base, puberu-

lons elsewhere. *Stamens* numerous, elongate, narrow, with an acute apiculus; the anther-cells linear, lateral. *Pistils* one or two, conical, adpressed-pubescent; the style short, thin. *Ripe carpel* oblong, cylindrical, sub-oblique, blunt, 1.25 in. long .7 in. in diam. *Seeds* 3 or 4, globular.

Malacca: Griffith. Perak: King's Collector, No. 2816.

14. *XYLOPIA MAGNA*, Maingay ex Hook. fil. Fl. Br. Ind. I, 84. A tree: young branches tomentose, becoming glabrous and darkly cinereous. *Leaves* coriaceous, ovate-lanceolate to elliptic, sub-acute, the base rounded, the edges slightly revolute when dry; upper surface shining, reticulate, glabrous except the pubescent midrib; under surface deep brown, with rather pale pubescence; main nerves about 10 pairs, spreading, inter-arching some way from the edge, faint: length 3 to 4.5 in., breadth 1.25 to 2 in.; petiole .25 in., pubescent. *Flowers* 2 to 2.5 in. long, solitary or in pairs, axillary; pedicels stout, tomentose, with a single large, ovate, acute, often bifid bract. *Sepals* thick, ovate acute, connate into a 3-toothed cup, adpressed-pubescent outside, glabrous inside. *Petals* sub-equal, the inner narrower and shorter, narrowly linear, slightly expanded and concave at the base, tapering towards the apex, pubescent except in the basal concavity. *Stamens* numerous, elongate, with an oblong obtuse apical process; the anthers lateral, linear, septate. *Pistils* about 15, narrowly oblique, hirsute on the outer side, 4-ovuled. *Style* filiform, long. *Ripe carpels* obovoid-oblong, compressed, blunt, minutely tomentose, 1.4 in. long and .65 in. diam.; stalks thick, only .15 in. long. *Seeds* about 4, in two rows, arillate, the testa bony.

Malacca: Maingay. (Kew Distrib.) No. 83. Singapore; Ridley. Perak; Scortechini.

15. *XYLOPIA FERRUGINEA*, Hook. fil. and Thoms. Fl. Br. Ind. I, 85. A tree 20 to 60 feet high; young branches brownish-pubescent. *Leaves* coriaceous, narrowly oblong, acute; the base slightly narrowed and oblique, rounded or minutely sub-cordate; upper surface glabrous, shining; the lower glaucous and softly purplish-brown pubescent: most densely so on the midrib; main nerves 10 to 12 pairs, oblique, inter-arching near the edge, prominent beneath; length 3.5 to 5.5 in., breadth to 2 in.; petiole .2 in., channelled. *Flowers* solitary or in pairs, axillary or extra-axillary, erect or pendulous, yellow; pedicels .4 to .75 in., rusty-pubescent; bracteoles 1 to 3, small, lanceolate. *Sepals* broadly ovate-acuminate, connate at the base, spreading, small, pubescent outside, glabrous within. *Petals* linear, fleshy, tapering at the very apex, very long; the outer rufous-pubescent outside, cinereous-puberulous inside, concave at the very base, 1.25 to 2 in. long; inner petals much

narrower and thinner and a little shorter than the outer, cinereous-puberulous. *Stamens* about 24, narrow: anthers linear, lateral, the connective ending in a broadly oblong apical process. *Ovaries* numerous, narrowly oblong, pointed, densely rusty-hirsute, multi-ovular: style short, filiform, glabrous; stigma minute. *Ripe carpels* numerous, much elongate, cylindrical, glabrescent, with transverse partitions between the seeds, many-seeded, sub-moniliform when dry, 2 to 5 in. long. *Seeds* oblong, rugose, minutely pellucid-dotted, 3 in long. *Habzelia ferruginea*, H. f. and T. Fl. Ind. 123. Miq. Fl. Ind. Bat. I, Pt. 2, 37. *Artabotrys malayana*, Griff. Notul. IV, 713.

Malacca: Griffith. Maingay (Kew Distrib.) No. 85. Perak: Scortechini, King's Collector, Wray: common. Selangor: Curtis.

16. *XYLOPIA RIDLEYI*, King n. sp. A tree? Young branches stout, densely rusty-tomentose. *Leaves* coriaceous, obovate-elliptic, abruptly and very shortly acuminate, narrowed from below the middle to the slightly cuneate base: upper surface glabrous except the rufous-puberulous midrib: lower softly rusty-tomentose with longer, superficial, paler hairs: main nerves 12 to 14 pairs, oblique, inter-arching boldly within the margin, prominent on the lower, depressed on the upper, surface; length 6.5 to 8.5 in., breadth 2.75 to 3.5 in.; petiole .5 to .6 in. stout, tomentose. *Flowers* in extra-axillary (often leaf-opposed) fascicles of 3 to 5: pedicels stout, rufous-tomentose, with a single bracteole, .25 to .3 in. long. *Sepals* broadly ovate, long-acuminate, rufous-pubescent outside, glabrous within, .35 in. long. *Petals* filiform, triquetrous, with expanded concave vaulted bases concealing the andro-gynœcium, and glabrous inside, otherwise pubescent, 2.5 to 3.5 in. long. *Stamens* numerous, with truncate 4- or 5-angled heads concealing the elongate, lateral anthers. *Ovaries* obliquely ovoid, densely sericeous, 4- to 6-ovuled: stigmas fleshy, agglutinated. *Ripe carpels* unknown.

Singapore: Ridley.

21. *PENANTHES*, H. f. and T.

Trees or climbers. *Flowers* solitary, terminal or in extra-axillary fascicles. *Sepals* 3, small, valvate. *Petals* 6, valvate in 2 rows; outer small like the sepals; inner large, flat, coriaceous. *Stamens* numerous, oblong or quadrate, truncate; anther-cells dorsal, distant. *Carpels* numerous; style cylindrical or clavate, sometimes grooved ventrally. *Ovules* 1-2, sub-basal, ascending. *Ripe carpels* staked, 1-seeded.—DISTRIB. Species about 6; one in Southern Peninsular India, the rest Malayan.

Leaves softly pubescent	...	...	1. <i>P. nutans</i> .
Leaves glabrous.			
Ovules and seeds solitary	...	...	2. <i>P. lucidus</i> .
Ovules and seeds in pairs	...	...	3. <i>P. andamanicus</i> .

1. *PHEANTHUS NUTANS*, H. f. and Th. Fl. Ind. 147. A small tree; young branches rusty tomentose. *Leaves* membranous, oblong-lanceolate or oblanceolate to obovate-elliptic, caudate-acuminate, the base always narrowed and sometimes acute; upper surface glabrous, the midrib and main nerves tomentose; lower softly pubescent, the midrib tomentose; main nerves 10 to 14 pairs, spreading, prominent beneath, inter-arching near the edge: length 5 to 9 in., breadth 1·3 to 4·5 in.; petiole 3 in., tomentose. *Flowers* foetid, solitary or 2 or 3 together, drooping, extra-axillary; pedicels 5 to 1·5 in. long with 1 or 2 linear bracteoles, pubescent. *Sepals* linear-lanceolate, spreading, tomentose, 2 in. long. *Petals* very unequal; the outer small like the sepals; inner ovate-oblong, acute, yellow, pubescent, 5- to 7-ribbed, 75 to 1 in. long. *Ripe carpels* ovoid, pubescent, beaked, 6 in. long and 35 in. in diam.; stalk nearly as long. Hook. fil. Fl. Br. Ind. I, 72; Miq. Fl. Ind. Bat. I, pt. 2, 51. *Ucaria nutans*, Wall. Cat. 6481. *U. tripetala*, Roxb. Fl. Ind. ii, 667. *U. ophthalmica*, Roxb. ex Don Gen. Syst. i, 93.

Singapore; Wallich and others. Penang; Curtis. Malacca; Main-gay, (Kew Distrib.) No. 67. Perak; at low elevations. Sugei Ujong; Ridley. Distrib. Moluccas, Sumatra.

2. *PHEANTHUS LUCIDUS*, Oliver in Hook. Ic. Pl. t. 1561. A tree 40 to 50 feet high: young branches minutely rusty pubescent or almost glabrous, dark-coloured and furrowed. *Leaves* thickly membranous, oblong-elliptic to lanceolate, acuminate, the base cuneate; both surfaces shining, glabrous except occasionally the puberulous midrib; main nerves about 8 pairs, oblique, rather prominent beneath: length 4·5 to 6·5 in., breadth 1·25 to 2·25 in.; petiole 2 in. *Flowers* solitary, rarely in fascicles of 2 or 3, extra-axillary, erect, 6 in. to 1 in. in diam., buds triquetrous; peduncles 1 to 1·25 in. long, slender, puberulous, with 2 minute bracteoles. *Sepals* ovate, acute, less than 1 in. long. *Outer petals* like the sepals but a little longer; inner petals thick, greenish-yellow, oblong-ovate, acute, about 5 in. long, glabrescent with puberulous edges. *Anthers* with square truncate heads. *Ovaries* numerous, 1-ovulate. *Ripe carpels* oblong, 6 in. long and 3 in. in diam., minutely granular, sub-glabrous as are the 5 to 6 in. long stalks.

Penang; Curtis. Perak: at low elevations: King's Collector, Nos. 7275 and 10044.

3. *PHEANTHUS ANDAMANICUS*, King n. sp. A small glabrous shrub: young branches pale brown, slender. *Leaves* membranous, elliptic or elliptic-lanceolate, acute, slightly narrowed to the rounded base, both surfaces rather pale when dry; main nerves 15 to 20 pairs, faint, slender, horizontal, forming double loops near the margin, the reticulations faint; length 4 to 7·5 in., breadth 1·75 to 2·5 in., petiole 35 in. *Flowers*

·5 to ·75 in. in diam., campanulate, solitary, rarely in pairs, extra-axillary; pedicels ·2 in. long, bracteolate at the base. *Sepals* very small, semi-orbicular. *Outer petals* slightly larger than the sepals and about ·1 in. long; inner petals united at the base, oblong-ovate, sub-acute, ·5 to ·7 in. long, 4 or 5 nerved. *Anthers* numerous, flattened from front to back, about as broad as long with truncate not apiculate heads. *Ovaries* numerous, elongate, narrow, 2-ovuled; stigmas elongate. *Ripe carpels* sub-globular, ·5 in. in diam.; stalks ·5 to ·7 in. *Seeds* two, plano-convex, pale.

South Andaman, King's Collector.

This is a very distinct species recognisable at once by the unusual character of having its petals united at the base and by its 2-seeded carpels.

22. MILIUSA, Leschenault.

Trees or shrubs. *Flowers* usually bi-sexual (dioecious or polygamous in No. 1), green or red, axillary or extra-axillary, solitary, fasciated or cymose. *Sepals* 3, small, valvate. *Petals* 6, valvate in 2 series; outer smaller, like the sepals; inner cohering when young by the margins, at length free. *Torus* elongated, cylindric. *Stamens* definite or indefinite; anthers subdidymous; cells contiguous, ovoid, extrorse; connective more or less apiculate. *Ovaries* indefinite, linear-oblong; style oblong or very short; ovules 1-2, rarely 3-4. *Ripe carpels* globose or oblong, 1- or 2- or many-seeded.—Distrib. Species 8; all Indian.

Flowers dioecious or polygamous ... 1. *M. Roxburghiana*.
Flowers hermaphrodite ... 2. *M. longipes*.

1. MILIUSA ROXBURGHIANA, Hook. fil. and Thoms. Fl. Ind. 150. A small tree; young branches softly pubescent, ultimately glabrous, striate and pale. *Leaves* thinly coriaceous, oblong or oblong-lanceolate, shortly acuminate, the base rounded; upper surface glabrous, the lower sparsely adpressed, pubescent to tomentose; main nerves about 10 pairs, spreading, inter-arching ·15 in. from the base; length 2·5 to 4 in., breadth ·85 to 1·4 in.; petiole ·05 in., pubescent. *Pedicels* 1 to 3 together, axillary, slender, ·5 to 1·5 in. long, sometimes on a short peduncle; bracteoles several, linear. *Flowers* dioecious or polygamous, about 5 in. long. *Sepals* and outer petals subequal, lanceolate or linear, rusty-tomentose. *Inner petals* ·5 to ·6 in. long, ovate or oblong-lanceolate, sub-acute, nerved, red. *Stamens* in male flower numerous, with obliquely truncate, broad apices. *Ovaries* (in female flower) oblong, glabrous; style oblong-ovules 1 or 2. *Ripe carpels* ovoid or oblong, blunt, glabrous, granulate, ·25 to ·35 in. in diam.; stalk ·4 in. long, slender. *Seeds* 1, rarely 2, Hook. fil. Fl. Br. Ind. 1, 87; Kurz F. Flora Burma, 1, 47. *M. Wallich-*

iana, H. f. and T. l. c. 149. *M. tristis*, Kurz F. Flora Burma, I, 47; *Uvaria dioica*, Roxb. Fl. Ind. ii. 659. *Phaenanthus dioicus*, Kurz in Flora I.V.I. (1870) 274. *Gnatteria globosa*, A. DC. Mem. Soc. Genev. V, 43; Wall. Cat. 6448. *Hyalostemma Roxburghiana*, Wall. Cat. 6434; Griff. Ic. Pl. Ind. Or. iv. t. 653.

Sikkim, Himalaya; Assam Hill ranges; Chittagong Hills; Burma; Singapore up to 4,000 feet.

Kurz's species *M. tristis*, (F. Flora Burma, I, 47) appears to be a form of this with larger leaves and flowers than usual. The only specimens of it extant are very poor and better material may shew it to be, as Kurz thought, a distinct species. According to M. Pierre, his Cambodian species *M. mollis* (Fl. Forest. Coch.-Chine, 1840) is closely allied to *M. Roxburghiana*. The same author's species *M. campanulata* (l. c. t. 41) is also allied to *M. Roxburghiana* and to *M. macrocarpa*.

2. *MILICIA LONGIPES*, King, n. sp. A small tree 15 to 30 feet high: young branches dark-coloured; all parts glabrous except the edges of the sepals and outer petals. *Leaves* membranous, shining, oblong-ob-lanceolate, acuminate, the base sub-cuneate or rounded; main nerves about 12 pairs, spreading, faint: length 5·5 to 7 in., breadth 1·75 to 2·75 in., petiole 1 to 1·5 in. *Flowers* 5 to 6·5 in. long, axillary, solitary; pedicels slender, 5 to 7·5 in. long, (larger in fruit) with 3 or 4 lanceolate bracteoles at the base. *Sepals* and *outer petals* sub-equal, minute, ovate, sub-acute, the edges ciliate. *Inner petals* very much larger than the outer, ovate-oblong, veined, sub-acute, greenish-yellow, 5 or 6 in. long. *Stamens* about 18, compressed, short, often bent, the apiculus broad, shallow. *Ovaries* numerous, elongate, glabrous; *stigma* large, capitate, sessile. *Ripe carpels* numerous, globular-ovoid, blunt, glabrous, sub-granular, 25 to 3 in. long; stalks 75 to 1 in., slender. *Seeds* ovoid.

Perak: at low elevations, Seortechini, King's Collector.

This species approaches *M. macropoda*, Miq: but its leaves are more narrowed to the base and more acuminate.

23. ALPHONSEA, H. f. & T.

Lofty trees. *Leaves* more or less coriaceous, glabrous, shining. *Flowers* small or middle-sized, in leaf-opposed, rarely extra-axillary, peduncled fascicles; buds conical. *Sepals* 3, small, valvate. *Petals* 6, valvate in 2 series, often saccate at the base, larger than the sepals, equal or the inner rather smaller. *Torus* cylindrical or hemispheric. *Stamens* indefinite, loosely packed; anther-cells dorsal, contiguous; connective apiculate. *Ovaries* 1 or more; style oblong or depressed; ovules 4-8, in 2 series on the ventral suture. *Carpels* sub-sessile or stalked.—Distrib. Species **K** all Indian or Malayan.—Baillon Hist. 215 unites this genus with *Bocagea*.

Leaves rusty-pubescent beneath at all stages ... 1. *A. Maingayi*.
 Leaves glabrous on both surfaces (puberulous on
 the lower in *A. elliptica*).

Leaves more than 3 inches long.

Buds conical; ripe carpels ovoid or glo-
 bose.

Leaves glabrous on the upper sur-
 face, puberulous on the lower
 when young, elliptic or ovate-
 elliptic; main nerves 6 to 8 pairs ... 2. *A. elliptica*.

Leaves quite glabrous, broadly ellip-
 tic, shortly acuminate; main ner-
 ves 7 to 8 pairs ... 3. *A. lucida*.

Buds globose; ripe carpels cylindric ... 4. *A. sub-indehiscens*.

Leaves 3 inches long or less; ripe carpels
 cylindric ... 5. *A. cylindrica*.

Of uncertain position (fruit unknown)... 6. *A. Curtisii*.

1. ALPHONSEA MAINGAYI, Hook. fil. and Thoms. Fl. Br. Ind. I, 90.

A tree: branches rusty-tomentose, ultimately dark-coloured and glab-
 rous. Leaves coriaceous, elliptic-oblong or oblong-lanceolate, shortly, and
 often obtusely, acuminate, the base rounded; upper surface shining,
 glabrous except the midrib, puberulous near the base; lower surface
 rusty, conspicuously reticulate, pubescent, the midrib tomentose; main
 nerves 8 or 9 pairs, oblique, inter-arching far from the edge; length
 5 to 7 in., breadth 1.5 to 2.7 in., petiole .25 in. Flowers .75 in. in diam.,
 supra-axillary, solitary or in small racemes; pedicels .1 in. long, rusty-
 tomentose, bracteole small. Sepals sub-orbicular, very small. Petals
 ovate, pubescent outside, glabrous within, the outer recurved, the inner
 smaller. Stamens with broad short filaments; the anther-cells small,
 diverging below. Ovules about 20. Ripe carpels ovoid, short-stalked,
 2 in. long, by 1 in. in diam. Seeds many, smooth.

Malacca, Maingay (Kew Distrib.) No. 98.

2. ALPHONSEA ELLIPTICA, Hook. fil. and Thoms. Fl. Br. Ind. I, 90.

A tree. Young branches rather stout, grey, glabrous. Leaves coria-
 ceous, elliptic or ovate-elliptic, shortly and bluntly acuminate or acute,
 the base abruptly caudate; upper surface glabrous, shining; the lower
 reticulate, puberulous when young, glabrous when adult, slightly paler
 than the upper; main nerves 6 to 8 pairs, spreading, slightly pro-
 minent beneath; length 3.5 to 5 in., breadth 1.25 to 1.75 in., petiole .2 in.
 Flowers .8 in. in diam., axillary, solitary or 2 to 3; in short racemes;
 peduncles very short, multi-bracteate, pedicels .25 to .35 in. long, with
 1 or 2 minute bracteoles. Sepals sub-orbicular, obtuse, recurved, con-

nate at the base. *Petals* adpressed-pubescent; the outer ovate-lanceolate, reflexed; the inner rather smaller. *Stamens* in several rows, apiculate. *Ovaries* linear-oblong, pubescent; stigma sub-sessile, sub-capitate. *Ovules* numerous, in two series. *Ripe carpels* unknown.

Malacca; Maingay (Kew Distrib.) No. 99.

3. *ALPHONSEA LUCIDA*, King, n. sp. A shrub 6 to 8 feet high: all parts glabrous except the flower; young branches slender, rather dark-coloured. *Leaves* thinly coriaceous, broadly elliptic, shortly, abruptly and rather obtusely acuminate, the base cuneate; upper surface very minutely scaly; main nerves 7 or 8 pairs, oblique, curving, depressed on the upper, bold and prominent on the lower, surface; length 4.5 to 5.5 in., breadth 1.75 to 2.5 in.; petiole 3 in., stout. *Flowers* extra-axillary, solitary or 2 or 3 in racemes; peduncle of raceme short, pedicels shorter than the peduncle, puberulous, ebracteolate, 3 to 4 in. long. *Sepals*, triangular-ovate, connate at the base, reflexed, puberulous outside, glabrous inside. *Petals* yellowish-white, subequal, oblong, oblique, tapering gradually to the sub-acute apex, the base broad, suddenly narrowed and slightly pouches, puberulous, 5 in. long, the inner slightly smaller. *Stamens* in 3 rows; filament very short, connective with a short apiculus. *Ovaries* 4 or 5, oblong, adpressed-pubescent; ovules many, in two rows; stigma sessile, sub-capitate. *Ripe carpels* unknown.

Perak: elevat. 500 feet. King's Collector, No. 5387.

4. *ALPHONSEA SUB-DEHISCENS*, King, n. sp. A shrub or small tree: young branches rather slender, puberulous at first but speedily becoming glabrous. *Leaves* thinly coriaceous, oblong-lanceolate to elliptic, shortly and rather bluntly acuminate, the base rounded or sub-cuneate; upper surface glabrous except the puberulous midrib, the lower reticulate, sparsely puberulous or glabrous; main nerves about 10 pairs, spreading, very faint; length 4 to 6 in., breadth 1.75 to 2.3 in.; petiole .25 in. *Flowers* globular, scarcely opening, .25 in. in diam., solitary or in pairs, slightly supra-axillary, on short pedicels, with several large sub-orbicular pubescent bracteoles. *Sepals* thick, fleshy, connate into a flat cup, .3 in. in diam., with three broad obtuse, spreading lobes. *Petals* larger than the sepals, thick, hard and fleshy, valvate, orbicular, acute, concave, outside tawny-pubescent, inside glabrous except near the apex; the outer 2 in. in diam., the inner row rather smaller than the outer. *Stamens* numerous; the apical process large, fleshy, conical, concealing the apices of the narrow, linear anther cells; torus conical. *Style* solitary, clavate, minutely puberulous, many-ovuled; stigma minute. *Ripe carpels* elongate-clavate, puberulous, 1 to 1.25 in. long, tapering into a stalk, .25 to .3 in. long. *Seeds* about 10.

Perak: King's Collector.

The dried fruits of this species sometimes open longitudinally by a sort of quasi-suture—hence the specific name.

5. *ALPHONSEA CYLINDRICA*, King, n. sp. A small tree 20 to 30 feet high; young branches with long, soft, pale brown pubescence, ultimately glabrous, cinereous, striate. *Leaves* thinly coriaceous, ovate-lanceolate, sometimes oblanceolate, shortly and bluntly acuminate; the base rounded or sub-cuneate, slightly oblique; upper surface glabrous, shining; the midrib pubescent, the lower dull sparsely pubescent on the midrib and nerves; main nerves 7 to 9 pairs, spreading, faint; length 2.5 to 3.5 in., breadth 1.1 in. to 1.5 in., petiole .15 in. *Flowers* .35 in. long, single or 2 or 3 from leaf-opposed or extra-axillary peduncles; peduncles .15 to .4 in. long, with deciduous, distichous, sub-orbicular bracts: pedicels 2 to .35 in. long, pubescent, with 1 bracteole near the base. *Sepals* semi-orbicular, blunt, connate at the base, tomentose outside, glabrous within, reflexed. *Petals* subequal, oblong-ovoid, tapering from the sub-saccate base to the sub-acute apex, tomentose outside, pubescent minutely inside except a glabrous patch at the base, .4 in. long. *Stamens* in 3 rows with short, broad filaments: anthers ovate, the connective very slightly apiculate. *Ovaries* 3, oblong, densely pale yellowish sericeous, with many ovules in two rows: style short, stigma bifid, sub-capitate. *Ripe carpels* 1 or 2, elongate, tereta, tapering to the apex, pubescent or puberulous, nearly 1 in. long and only .2 in. in diam.

Perak: on Ulu Hong, elevat. 400 to 600 feet. King's Collector, No. 10633.

A species resembling *A. sub-dehiscens* in its narrow cylindric fruit.

6. *ALPHONSEA CURTISII*, King, n. sp. A scandent shrub: young branches yellowish-pubescent, speedily becoming glabrous and dark-coloured. *Leaves* coriaceous, oblong-lanceolate, acute at base and apex; upper surface glabrous shining, the lower minutely, sparsely adpressed-puberulous or glabrous, darker than the upper when dry, minutely reticulate; main nerves about 12 to 15 pairs, sub-horizontal, very faint, inter-arching far from the edge; length 4 to 5.5 in., breadth 1.2 to 1.75 in., petiole .2 in. *Peduncles* extra-axillary, 1- or 2-flowered; flowers about .5 in. long, conical in bud: pedicels about .3 in. long, tawny-tomentose; bracteoles 1 or 2, sub-orbicular. *Sepals* connate into a spread-ovate .25 in. broad, tomentose outside and glabrous inside, with 3 sub-acute teeth. *Petals* much larger than the sepals, fleshy, oblong, ovate, sub-acute; the outer tomentose on both surfaces, .4 in. long; the inner narrower, glabrous inside. *Stamens* numerous, with short thick filaments; anther process of connective small, not concealing the short perfo. cells. *Pistils* about 3, oblong, tomentose, many-ovuled; style large, broad, sessile. *Ripe carpels* puberulous, nearly 1 in. long and only .2 in. in diam. Curtis, No. 1410.

25. KINGSTONIA, H. f. and T.

Trees. *Flowers* fascicled on cauline tubercles, bisexual. *Sepals* 3, persistent, ovate, acute, the bases connate. *Petals* 6; outer valvate; inner smaller, oblong, imbricate. *Stamens* about 12, the filament half the length of the extrorse anther-cells; connective obliquely truncate. *Ovary* 1; stigma sessile, peltate, crenate: ovules few. *Ripe carpels* base. *Seeds* several, 2-seriate.

1. KINGSTONIA NERVOSA, Hook. fil. and Thoms. Fl. Br. Ind., 1, 93. Young branches rusty-pubescent. *Leaves* thinly coriaceous, oblong, rarely elliptic, shortly acuminate, the base rounded; both surfaces glabrous, the nerves and midrib puberulous beneath when young; main nerves 12 to 14 pairs, oblique, rather straight, depressed on the upper, strong and prominent on the lower, surface; length 4 to 8 in., breadth 1.5 to 3.25 in.; petiole 4 in., puberulous. *Flowers* 25 in. long, in extra-axillary fascicles of 8 or 10; pedicels .35 to .5 in., slender, rusty-pubescent; bracteoles orbicular, one close to the flower, the others basal and imbricate. *Sepals* ovate, connate at the base, spreading, pubescent outside, glabrous within. *Outer petals* oblong-elliptic, concave, obtuse, cinereous-tomentose outside, pubescent inside; *inner petals* smaller, thick, concave and very tomentose in the upper half. *Stamens* about 15, the connective with a broad truncate apex. *Ovary* one, oblong, angled, pubescent; ovules 4 to 6. *Ripe carpels* broadly ovoid, blunt, minutely velvety pale-rusty tomentose, 1.5 in. long and 1.1 in. in diam.; pericarp woody. *Seeds* about 4, oblong, compressed, separated by dissepiments.

This species above described has only a single pistil. But there are, in the Calcutta Herbarium, specimens from Sumatra (Forbes No. 2713, in fruit but without flower) of what appears to be a second *Kingstonia*, and in these there are two carpels. If this plant proves to be a *Kingstonia*, the diagnosis of the genus will have to be amended.

Malacca: Maingay, (Kew Distrib.) No. 22. Perak: Wray, No. 3376.

26. MEZZETTIA, Beccari.

Trees. *Flowers* small, greenish, axillary or from the axils of leaves, fasciculate or umbellate. *Sepals* 3, ovate, valvate. *Petals* 6, the inner valvate, opening late and accrescent, flat, linear, the inner petals longer than the outer. *Stamens* 9 to 12, in two rows; anther introrse; connectives produced beyond their apices. *Ovary* small, slightly concave, pubescent. *Ovary* solitary, contracted into a very short style; stigma subsessile, peltate, crenate. *Carpel* coriaceous, elliptic or globose. Five species, all Malayan.

1. *MEZZETTIA LEPTOPODA*, Oliver in Hook. Ic. Pl. t. 1560. A tree: young branches dark-coloured, glabrous, striate, rather stout. *Leaves* coriaceous, oblong or narrowly elliptic, obtusely acuminate or acute; the base rounded or acute; upper surface glabrous, shining; the lower dull, obscurely reticulate; main nerves 8 or 9 pairs, forming wide arches far from the margin, very faint; length 2.5 to 4 in., breadth 1 to 1.75 in., petiole .35 in. *Flowers* 5 in. long, on long slender pedicels in axillary fascicles of 2 to 6; pedicels .5 to .75 in., pubescent; bracteoles minute. *Sepals* broadly ovate, connate at the base, tomentose, reflexed. *Petals* tomentose, on both surfaces; the outer linear, obtuse, 2 in. long; the inner shorter and broader. *Ovary* ovoid. *Ripe carpels* unknown, *Lonchomera leptopoda*, H. f. and Th. Fl. Br. Ind. 1, 94.

Malacca: Maingay (Kew Distrib.) No. 102.

This plant is very imperfectly known. The carpels associated with Maingay's specimens do not agree with his description of them (Fl. Br. Ind. 1, 94) and they are evidently those of some species of *Polyalthia*.

2. *MEZZETTIA HERVEYANA*, Oliver Hook. Ic. Plant. t. 1560. A tree; young branches rather stout, nodose, glabrous. *Leaves* coriaceous, elliptic-oblong, shortly acuminate, the base cuneate, both surfaces glabrous, the upper shining; m:in nerves about 10 pairs, spreading, inter-arching within the margin, faint; length 2.5 to 3 in., breadth 1 to 1.25 in., petiole .25 to .35 in. *Flowers* 4 in. long, rather crowded, in sessile axillary or extra-axillary fascicles of 3 to 8; pedicels .3 in. long, puberulous, ebracteolate. *Sepals* broadly ovate, obtuse, connate at the base, pubescent like the petals. *Outer petals* ovate-lanceolate, obtuse, flat, the inner smaller, broadly e)li:tic, obtuse, the tips incurved. *Anthers* sessile, obovate-quadrate, about 12. *Ovary* oblong, tapering into the style: ovules 2, superposed. *Ripe carpels* unknown.

Malacca: Hervey.

3. *MEZZETTIA CURTISH*, King n. sp. A tree, 30 to 40 feet high: young branches cinereous, rugose. *Leaves* thinly coriaceous, oblong-lanceolate or oblong, more or less acuminate, the base acute: both surfaces glabrous; the upper shining, the lower dull; main nerves about 10 pairs, spreading, faint; length 2.5 to 5 in., breadth .5 to 1.5 in., petiole .25 in. *Flowers* 2.5 in. long, in crowded, sessile, axillary or extra-axillary fascicles of 5 to 10; pedicels slender, ebracteolate, scurfily pubescent, .35 to .6 in. long. *Sepals* semi-orbicular, with reflexed tips, connate and forming a spreading, shallow cup, densely and minutely tomentose. *Outer petals* ligulate, acute, tomentose like the sepals but with a glabrous patch at the base inside. *Inner petals* like the outer, but less acute and one-third shorter. *Stamens* about short, about as broad as long, the connective very broad, truncate at the apex. *Ovary* solitary, broadly ovoid,

tapering to the curved, truncate stigma, 2-ovuled. *Ripe carpels* unknown.

Penang, on Government Hill at 1,200 feet; Curtis, No. 2266.

A species with rather longer, thinner leaves than *M. Herveyana*, and a different calyx.

II.—*Noviciae Indicae V. An undescribed Mezoneuron from the Andaman Group.—By D. PRAIN.*

When in the Andamans in 1889 and again in 1890 and 1891 the writer met with a species of *Mezoneuron* which occurs rather frequently in the neighbourhood of Port Blair and which has not hitherto been described. During each of these visits only fruiting specimens were obtained; at length, however, the native collectors who are under the care of Mr. E. H. Man have sent flowering specimens to Calcutta. The subjoined synopsis, in which the position of the new species among the Indian *Mezoneura* described by Mr. Baker, in the *Flora of British India*, 257-259, is shown, is followed by a description of the plant.

MEZONEURON, DESF.

Calyx deeply cleft, disk basal (§ EUMEZONEURON)

filaments hirsute:—

 pods one-seeded, filaments faintly ciliate;

 leaflets glabrous, rigid, opposite, 8-10,

 large, ovate, acute; calyx glabrous ... *M. cucullatum*.

 pods several-seeded, filaments densely pilose:—

 leaflets glabrous:—

 leaflets rigid, alternate, 8-10, large,

 obovate, retuse; calyx glabrous ... *M. andamanicum*.

 leaflets membranous:—

 leaflets alternate, 14-16, small,

 oblong, obtuse; calyx exter-

 nally puberulous ... *M. glabrum*.

 leaflets opposite, 18-22, small,

 oblong, obtuse; calyx glabrous ... *M. cuneaphyllum*.

 leaflets pubescent; membranous, opposite,

 12-16, oblong, obtuse; calyx externally

 and internally pubescent ... *M. pubescens*.

Calyx shallowly cleft, disk extending above the

base (§ TUBICALYX); filaments glabrous, pods

several-seeded; leaflets glabrous, rigid, opposite,

8-10, large, obovate-oblong; calyx glabrous ... *M. sinistransum*.

Baker describes the calyx of *M. glabrum* as glabrous, but both by his diagnosis and figure Desfontaine (*Mem. Mus.* iv, 246, t. 10) indicates that the calyx is tomentose; the writer has not seen any flowering specimens.

MEZONEURON ANDAMANICUM Prain, sp. nov.

A large climber, branches glabrous with a few pale, scattered prickles. Leaf rachis 1-1½ ft., pinnae 4-10, long-stalked, leaflets 8-10, rigidly subcoriaceous, ½-1½ in. long, alternate, obovate, slightly retuse, base cuneate, glabrous on both surfaces, dark green above, paler below. *Racemes* unbranched, 10-12 inches long, pedicels ¼-¾ in. long. *Calyx* leathery, anterior sepal ½ in. long, deeply cucullate, the others ¾ in. diam., orbicular, all green and delicately reticulately yellow-veined, the interspaces dotted with yellow glands. *Petals* yellow with base and veins reddish, ovate-obovular, the lateral and anterior pairs subequal and only slightly longer than the lateral and posterior sepals, with very short claws, slightly hirsute internally, the inner and upper (vexillary) petal with a lamina less than ½ the size of the others, with a thick claw as long as the blade, channelled internally and prolonged at the base of the lamina into a ligular ridge, densely ciliate at its margin, which rests in the angle formed by the declinate filaments. *Stamens* declinate, in two rows, the outer row (5) with lowest stamen single, longer than the rest, curved, the lateral rather shorter, also curved; the upper pair abruptly angularly bent, with the portion of the filaments below the angle thrice as thick as the other filaments and filling up the channel in the claw of the vexillum, the upper portion not thicker than the other filaments, bent backwards over the vexillary ligule. The inner row (5) with upper vexillary stamen smallest of all, simply, declinately curved as are the other four; all filaments densely pilose in the lower 2/3 rds. *Ovary* declinate, about 6-ovuled; style long, stigma terminal, concave, tip slightly fringed. *Pod* thin, 5 inches long, 1 inch wide (including the posterior wing ¼ in. wide) finely reticulated, 3-5 seeded; seed flat, orbicular, embryo exalbuminous, with flat cotyledons and straight radicle.

SOUTH ANDAMAN; near Port Blair at Protheropur, Rangachang.

Prain! King's Collectors!

Fl. January—February.

JOURNAL
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Part II.-NATURAL- SCIENCE

No. II.—1892.

I.—*Catalogue of the Diptera of the Oriental region* by MONS. J. M. F. BIGOT. Part II. Communicated by the SUPERINTENDENT, INDIAN MUSEUM.*

Received Sept. 25th, 1891. Read Nov. 4th, 1891.

Sub-division ANEMPODIATA.

J. Bigot, *advised*.

Family MIDASIDÆ.

Midasid. Leach, *Edinb. Encyclop.* 1815; *Mydas*, Latr., *Gener. Crust. et Ins.*, 1809, page 294; *Mydasid.*, Macquart, *S. d. Bug. Dipl.*, i, Paris, 1834; *Midasidæ*, *Midasina*, Rondani, *Prodr.*, i, p. 14, 1856.

Genus MIDAS.

Mydas, Fabr., *Entom. Syst.*, iv, p. 252, 1794; *Nemotelus* pt. Degeer; *Biblio.* pt. Fabr.

ruficornis, Wiedemann, *Analect. Entomol.*, p. 20.

Hab. Tranquebar, Madras Pr.

Family DASYPOGONIDÆ.

J. Bigot, *advised*; *Dasy Pogonina*, Rondani, *Prodr.*, i, p. 32, 1856.

Parts II and III of this Catalogue all species not belonging to the Oriental region have been struck out. It has also been found necessary to correct many of the references.—Ed.

Genus DASYPOGON.

- Me ax, pt. Scopoli; Cheilo-
 pogon, pt. Itoud.
 nigricauda. Wiedemanu, *Analect. Entomol*, p. 2G, Microstylanu Li Macq.
 Hab India.
 virens, id., *Ann. Europ. Zool. Ins.*, i, p. 395, Hamam, 1828.
 Hab. Java.
 albonotatus, id., *ibid.*, p. 181 j Dioctria, id., *Wied. Dipt. Exot.*, i, p. 151.
 Hab. Beng;al.
 dorsalis, id., *ibid.*, p. 413.
 Hub. India.
 isus, Macquart. *Dipt. Exot. 5th Suppl.* p. 49, Paris, 1855.
 ab. India.
 Inc
 ot, *Ann. Soc. Ent. France*, p. :
 Hi
 pekinense, J. Bigot, *Naturk. Tijdschr. v. Nederl. Indië*, ¹¹⁰ 1878 - *Batavia*, 1856, p. :
 Hab. Java.
Insect. Saunders. Dipt., i, p. 96, London, 1856.
 a.
 iformis, id., *ibid.*, p. 97.
 Hab. India.
 ib. CUina-
 trimelas, id., *ibid.*, p. 97.
 imberbiK, *Hab. India.* 108>
 imbutus, Walker,
 pulverifer, id., *ibid.*, p. 98.
 Hub. Indi.
 ap
 VO latus, id., *List. Dipt. Ins. Brit. Mus.*, i, p. 346, London, 1848.
 Hab. India.
 sordidus, id., *ibid.*, vi, *addenda*, i, p. 505, 1854.
 Hab. China.
 hypson, id., *List. Dipt. Ins. Brit. Mus.*, i, p. 348, London, 1848.
 Hab. China.
 cerco, id., *ibid.*, p. 349.
 Hab. Hongkong.
 SU bauratus, id., *ibid.*, vi, p. 470, 1854.
 Hab. China.
 am bryon, id., *ibid.*, i, p. 311, 1848.
 Hab. Bengal.
 damias, id., *ibid.*, i, p. 313.
 Hab. Bengal.
 aphrices, id., *ibid.*, i, p. 314.
 Hab. Nepal.

ochelus, id., *ibid.*, i, p. 314.

Hab. Nepal.

ambrex, id., *ibid.*, i, p. 315.

Hab. Nepal.

inopinatus, Walker, *Trans. Ent. Soc. London*, 1860, (2) v, p. 278.

Hab. Burma.

inopportunist, id., *ibid.*, p. 278.

Hab. Burma.

decretus, id., *ibid.*, p. 279.

Hab. Burma.

proclivis, id., *ibid.*, p. 277.

Hab. Burma.

polynotus, id., *List. Dipt. Ins. Brit. Mus.* i, p. 305, London, 1848.

Hab. Sylhet.

rhypis, id., *ibid.*, p. 305.

Hab. Sylhet.

balbillus, id., *ibid.*, p. 307.

Hab. Nepal.

sura, id., *ibid.*, p. 315.

Hab. India.

scatophagoides, id., *ibid.*, vi, p. 475, 1854.

Hab. India.

libo, id., *ibid.*, i, p. 342, 1848.

Hab. India.

otacillus, id., *ibid.*, p. 344.

Hab. India.

lanatus, Doleschall, *Naturk. Tijdschr. Nederl. Indie, Batavia*, 1857, p. 302.

Hab. Java.

Genus SAROPOGON.

Loew, *Ann. Entom.*, ii, p. 439, 1847; *Dasypogon*, pt.

scalare, J. Bigot, *Ann. Soc. Ent. France*, 1878, p. 413.

Hab. India.

Genus LOCHITES.

Schiner, *Verhandl. K. K. z. N. Gesellsch.*, Wien, p. 671, 1866.

testaceus, J. Bigot, *Ann. Soc. Ent. France*, p. 425, 1878.

Hab. Burma.

Genus LEPTOGASTER.

ittigen, *Illig. Magaz.*, ii, p. 269, 1803; *Gonypes*, Latr. *Gen. Crust. et Ins.*, vol. iv, p. 301, 1809; *Anilus* pt. *Dogear*; *Dasypogon*, pt.

natalis, Walker, *Journ. Proceed. Linn. Soc., London*, 1857, i, p. 117.

Hab. Borneo.

vitiosus¹ V. d. Wulp, *Tijdschr. Entom.* Hagae, 1872, p. 137.

Hab. J;va.

macilentus, id., *ibid.*, p. 139.

Uab. Java.

levis, W. *ibid.* p. HO.

Hab. I. Sttdliitra.

raripes, id., *ibid.*, xxiii, 1880, p. 166.

Hab. Padang.

simplex* J- Bigot, *Ann. Soc. Ent. France*, 1878, p. 444.

Hab. Ceylan.

marion, Walker, *List. Dipt. Ins. Brit. Mus.* ii, p. 484, London, 1849.

Hab. Tiengul.

tricolor)¹ d., *Journ. Proceed. Linn. Soc., London*, i, 1856, p. 117.

Hab Borneo.

GENUS MICROSTYLICH.

Micquart, *Dipt. Exot.*, i, 2nd pt., p. 2G, Pan's, 1836; *Dasyopogon*, pt. Megapollion, pt. Walker, 1830.

apicalis, Macquart, *Dipt. Exot.*, i, 2nd pt., p. 27, Paris, 1838; *Dasyopogon* id., *Wiedem. 4 uss. Europ. Zierflug. Ins.*, i, p. 372, Hamen, 1828.

Hab. Bengal.

Binense, 'd., *ibid.* p. 29; *Dasyopogon* id. *Fubr. Byst. Antl.*, p. 169; *Dasyopogon* d. ix, *Wied. loc. cit.*, p. 5G8.

Hab. China.

spinitorais, id., *ibid.*, 4th Suppl., p. 61, 185

Hab. Sylhet.

bruanipenne, *fd. ibid.*, p. 62.

Hab. Sylhet.

bicolor, id., *ibid.*, p. 62.

Hab. Sylhet.

fla¹-ventre, id., *ibid.*, p. 62.

Hab. Sylhet; China.

amoyense, J. Bigot, *Ann. Soc. Ent. France*, 1878, p. 101.

Hab. Amoy-

----- (*Melias erytropygatum*), id., *ibid.*, p. 402.

Hab. Assam.

basirufum¹ id., *ibid.*, p. 403,

Hab. Assam.

brevipennatum, id., *ibid.*, p. 403.

Hab. India.

eximium, *Hb.*, *ibid.*, p. 404.

Hab. Burma.

haemorrhoidale, *id.*, *ibid.*, p. 404.

Hab. Burma.

nitidiventris, *id.*, *ibid.*, p. 405.

Hab. Burma.

nigrum, *id.*, *ibid.*, p. 405.

Hab. Cambodia.

indutum, Rondani, *Ann. Mus. Civ. Genova*, 1875, vii, p. 446.

Hab. Sarawak.

vestitum, *id.*, *ibid.*, p. 447.

Hab. Sarawak.

incomptus, Walker, *Journ. Proceed. Linn. Soc. London*, 1837, i, p. 112.

Hab. Borneo.

vica, *id.*, *ibid.*, p. 112.

Hab. Sylhet, Borneo.

GENUS DAMALIS.

Fabr., *Syst. Antl.*, p. 148, 1805; Dioctria, pt. Chalcidimorpha, pt. Westw.

myop, Fabr., *Syst. Antl.*, p. 148, 1805; Chalcidimorpha *id.* Westw.

Hab. Sumatra.

tibialis, Macq. *Dipt. Exot.* i, 2nd pt., p. 154, Paris, 1838.

Hab. India.

planiceps, Fabr., *Syst. Antl.*, p. 148, 1805.

Hab. Tranquebar.

padron, Walker, *List Dipt. Ins. Brit. Mus.*, London, i, p. 489, 1848.

Hab. Hongkong.

fuscus, *id.*, *ibid.*, p. 481.

Hab. Bengal.

fumipennis, *id.*, *ibid.*, vii, 3rd Suppl., p. 765.

Hab. Java.

signatus, *id.*, *Trans. Ent. Soc., London*, Vol. V, 1858-61, p. 284.

Hab. Burma.

maculata, Wiedem., *Ausser. Europ. Zweifl. Ins.* i, p. 216, Hamm., 1828.

Hab. Java.

saigonensis, J. Bigot, *Ann. Soc. Ent. France*, 1878, p. 443.

Hab. Saigon.

marginata, V. d. Wulp, *Nydschr. Entomol.*, 1872, p. 142.

Hab. Borneo.

majus, *id.*, *ibid.*, p. 143.

Hab. Borneo.

patfida, id., *ibid.*, p. 145.

Hab. Borneo, Sumatra.

felder: Schisr, *Verhandl. K. K. z. b. Oeseitsch.*, Wien, 1867, p. 365.

Hab. Ceylon.

grossa, id., *JSbvarr. Reise*, 1868, p. U11.

Hab. Hongkong.

Qenua STICHOPOGON.

Loew, *Linn. Entom.*, ii, 1847, p. 499; *Dasypogon*, pt.

albicapillus, V. (3. Wulp, *Tijdschr. v. Entom.*, (2) vii 1872, p. 147.

Hab. Java.

nicobarensis, Schiner, *Novara. Reise.*, 1868, p. 16 J.

Hab. Nicobar Islands.

Genus LAPKYOTIS.

Loew, *Conspect. Act. Acad. R. Sueciae*, xv, 1859, p. 337.

stigmatalis, J. Bigot, *Ann. Soc. Ent. France*, 1878, p. 430.

Hab. Ceylon.

Genus CYRTOPOGON.

Loew, *Linn. Entom.*, ii, 1847, p. 516; *Dasypogon*, pt.

laphrideo, Walker, *Ins. Saunders. Dipt.*, i, p. 99, London 1856.

Hab. India.

acatophaoides, id., *List. Dipt. Ins. Brit. Mus.* vi, 2nd Suppl. p. 475, London 1854.

Hab. Inri.

Genus XYPHOCERA.

Marquart, *S. & Buff. Dipt.*, i, p. 279, Paris 1834; *Dasypogon*, pt. *Elaamocera*,
j. t. Kondir ii, *Prodr.* i, 1856.

pereheronii, id., *ibid.*, p. 280.

Hab. Sumatra.

Genus HABROPOGON.

Loew, *Linn. Entom.*, 1847, ii, p. 463; *Dasypogon*, pt. *Dactyliscus* pt. *Rondani*,
Prodr. i, 1856, p. 158.

juoundus, V. d. Wulp., B₁; *idr. t. d. Kenn. d. Asilid. v. Ost. Indisch*, Hagus, 1872, p. 148.

Hab. Java.

Genus SCYLATICUS.

Loew *Conspect. Act. Acad. R. Sueciae*, xiv, 1858, p. 342; *Dasypogon*, pt.

retroratus, J. Bigot, *Ann. Soc. Ent. France*, 1878, p. 435.

Hab. Java.

degener, Schiner, *Novara. Reise*, 1868, p. 163.

Hab. Hongkong.

Family ASILIDÆ.

J. Bigot, *ad hoc. in ed.* 1891; *Asilina*, Rondani, *Prodr.*, i, p. 32, 1856; *Asilinae* Schiner, 1862.

Genus EMPHYSONERA.

Schiner, *Novarr. Reise*, 1868, p. 195; *Ommatius*, pt.

spathulata, id., *ibid.*, p. 195; *Ommatius* id., Doloschall *Naturk. Tijdschr. v. Nederl. India, Batavia*, 1858, p. 89; *Ommatius platymelas*, Walker, *Journ. Proceed. Linn. Soc., London*, 1862, p. 8.

Hab. Amboina, Nicobar Islands.

conopsoides, id., *ibid.*, p. 71; *Ommatius* id. Wiedemann, *Ausz. Europ. Zweiflug. Ins.* i, p. 422, *Hamm* 1828.

Hab. Sumatra.

gra, id., *ibid.*, p. 195.

Hab. Nicobar Islands.

pororrina, V. d. Wulp, *Tijdschr. v. Entom.*, vii, Hague, 1872, p. 255.

Hab. Gilolo, Borneo, Sumatra, Ternate, Amboina.

femorata, J. Bigot, *Ann. Soc. Ent. France*, 1875, p. 245.

F. b. Ceylon.

nigrifemorata, id., *ibid.*, 1876, *Bulletin*, p. 86.

Hab. Amoy.

Genus ALLOCOTORIA.

Schiner, *Verhandl., K. K. z. b. Gesellsch., Wien*, 1866, pp. 665, 845; *Ommatius*, pt.

aurata, V. d. Wulp, *Tijdschr. v. Entom.*, (2) vii, 1872, Hague, p. 249; *Asilus* id., *Fabr. Ent. Syst.*, iv, p. 387; *Dasypogon* id., *Fabr. Syst. Anth.*, p. 167; *Ommatius* id., *Wiedem. Dipt. Rept.*, i, p. 213, *Ausz. Zweifl.*, i, p. 420; *Ommatius*, id. *Macquart S. d. Buff.* i, p. 314; *Dipt. Exot.*, i, p. 133, Walker, *List Dipt. Ins. Brit. Mus.* vii p. 759.

Hab. Panjab, India.

triangulum, id., *ibid.*, p. 251.

Hab. Java.

Genus OMMATIUS.

Illiger; Wiedem., *Ausz. Europ. Zweiflug.*, i, p. 418, *Hamm.*, 1828; *Asilus* et *Dasypogon*, pt.

expeditus, Wiedem., *ibid.*, p. 419.

Hab. India. ?

leucopogon, id., *Analect. Entom.*, p. 25.

Hab. India.

nanus, Walker, *Trans. Entom. Soc. Lond.*, i, 1856, p. 153.

Hab. India.

gracilis, id., *Journ. Proceed. Linn. Soc., London*, i, 1857, p. 14.

Hab. Siugapti.

hecale, *id.*, *Trans. Entom. Soc. Lond.*, ii, p. 476, London, 1849.

Hab. Borneo.

chinensis, *id.*, *ibid.*, 1849, p. 470; *Dasypogon id.*, Fabr., *Syst. Antl.*, p. 169.

Hab. China.

pinibarbis, V. d. *Vali**, *Tijdschr. v. Entom.*, p. 265, 1872; *Sensu Ost-Sacken, Ann. Mus. Civ. Genova*, 1880, p. 425; *O. noctifer*, Walker, *Journ. Proceed. Linn. Soc. London*

iii, *ist. J.*, p. 88; *Sensu Schiner, Verhandl. K. K. z. b. Gesellsch., Wien*, 1866, p. 718;

O. minor, Doleschall, *Naturk., Tijdsch. Nederl. Indië, Batavia*, 1857, p. 394.

Hab. Borneo, Amboina, Aru Islands, Ternate.

fraaenfeldi, Schiner, *Novar. Reise*, 1845, p. 193.

Hab. Nicobar Islands.

fulvidus, Schiner, *Verhandl. K. K. z. b. Gesellsch. Wien*, x, 1866, p. 718; *Sensu*

Schiner (*loc. cit.*) *Ommatius id.* *Wied. Ausser. Europ. Zweiflug. Ins.*, p. 420, *Hann.*

1823; *O. pom.*; *ns*, Walker, *List. Dipt. Ins. Brit. Mus.* ii, p. 469; *O. corypho*, Walker,

id., *ibid.*; *O. androclos*, Walker, *ib.*, *ibid.*, p. 470; *Asilus garnoti*, Guerin, *Boy. de la*

Coquille, pl. xx, fig. 8; *Sensu Ost-Sacken, Ann. Mus. Civ. Genova* xvi, 1881, p. 424;

O. inextricatus, Walker, *Journ. Proceed. Linn. Soc. London*, vi, 1862, p. 21.

Hab. Sumatra, Borneo, Celebes, Amboina, Ceram, Corea, Sandwich Islands.

pictipennifl, J. Bigot, *Ann. Soc. Ent. France*, 1875, p. 246.

Hab. Pulo-Penang.

rufipes, Macq., *Dipt. Krot.*, i, 2nd pt., p. 133, Paris, 1838.

Hab. Java.

dispar, *id.*, *Suites du 2nd Suppl.*, p. 28.

Hab. Java.

taeniomerus, Rondani, *Ann. Mus. Civ. Genova*, 1875, p. 449.

Hab. Sarawak.

conopsoides, *id.*, *ibid.*, p. 450.

Hab. Sarawak.

signatus, *id.*, *ibid.*, p. 450.

Hab. Sarawak.

deserti, V. d. Wulp, *Tijdschr. v. Entom.*, 1872, p. 268.

Hab. Java.

impeditus, *id.*, *ibid.*, p. 270.

Hab. Borneo.

argyrochirus, *id.*, *ibid.*,

Hab. Java.

insularis, id., *ibid.*, p. 273.

Hab. Java.

inguis, id., *ibid.*, p. 275.

Hab. Java.

rtibicundus, id., *ibid.*, p. 276.

Hab. Sumatra, Java and Borneo.

suffusus, V. D. Walp, *Tijds. v. Entom.*, Ragus, 1872, p. 271.

Hab. Sangir, Java? Sumatra?

GENUS PROMACHUS.

Loew, *Linn. Entom.*, iii, p. 390, 1848; *Asilus*, pt. *Trupanea*, pt. *Macq. Dipt. Exot.*, i, 2nd pt., p. 91, Paris, 1838.

mroil, Schiner, *Verhandl. K. K. z. b. Gesellsch.*, Wien, 1866, p. 711; *Trupanea* id. *Macq.*, *Dipt. Exot.*, i, 2nd pt., p. 97, Paris, 1838.

Hab. India.

orientalis, id., *ibid.*, p. 711; *Trupanea* id. *Macq. loc. cit.* p. 96.

Hab. India.

rufmistacea, id., *ibid.*, p. 711; *Trupanea* id. *Macq. loc. cit.*, 4th *Suppl.*, p. 80, Paris, 1850.

Hab. Java.

nlbopilous, id., *ibid.*, p. 711; *Trupanea* id., *Macq., loc. cit.*, 5th *Suppl.*, p. 57.

Hab. China.

testaceipes, id., *ibid.*, p. 711; *Trupanea* id., *Macq., loc. cit.* 5th *Suppl.*, p. 56.

Hab. China.

viridiventris, id., *ibid.*, p. 711; *Trupanea* id., *Macq., loc. cit.*, 5th *Suppl.*, p. 58.

Hab. China.

palliponis, id., *ibid.*, p. 711; *Trupanea* id., *Macq., loc. cit.*, 5th *Suppl.*, p. 58.

Hab. China.

J *heteroptori*, id., *ibid.*, p. 711; *Trupanea* id., *Macq., loc. cit.* 2nd pt., i, p. 96, 1838.

Hab. Malabar.

amorges, id., *ibid.*, p. 711; *Trupanea* id., Walker, *List. Dipt. Ins. Brit. Mus.*, ii, p. 391, 1849.

Hab. Borneo.

mcobareii, Schiner, *Novar. Reise*, 1868, p. 177.

Hab. Nicobar Islands.

enicus, Walker, *List. Dipt. Ins. Brit. Mus.*, vii, 3rd *Suppl.*, p. 604, London, 1855; *Asilus* id., Walker, *loc. cit.*, ii, p. 392, 1849.

Hab. China.

BO *bares*, id., *ibid.*, p. 604; *Asilus* id., Walker, *loc. cit.*, 1849, p. 420.

Hab. Sylhet.

at 11, Loew, Linn. *Entom.*, m, p. 106; *Sensu V. d. Tijdschr. Entom.*,
 ma 18^U 7f, *Mag.*; *ABW id.*, Fabr., *S.f. IM*, p. 794; *Asilus id.*, Wiedem., *Zool.*
Mag., p. 28; *Asilas id.*, Meig., «v[^]-» *Tijdschr.*, ii, p. 231; *Trupanea id.*, Macq., *Dipt.*
Esot., i, Pt. 2, p. 99, Paris; Walker, *List. Dipt. Ins. Brit. Museum*,

ab. ind.

, 1838; *Trupanea id.*, V.

872, p. 223; *Trupanea id.*,

rii, 3rd St^{pp}, 1850, p. 585.

Hab. Java

bifasciatus, V. d. Wulp, 3

^ ^, 1

cu. id., Wd., 1

Lb. Ja Vi id., *ibid.*, p. 227.

leucopareuB,

liab Ja

nornatus, id., *ibid.*, p. 231.

Hub. Borneo.

felinus, id., *ibid.*, p. 231.

Hab Borneo.

vittula, id., *ibid.*, 1879-80, i xiii, p. 167.

Hab. IJorneo.

Genus ALCINUS.

Loew, *Linn. Entom.*, 1848, iii, p. 391; *Trupanea*, pt. Macq., *Dipt. Esot.*;
Asilus, Pt.

hospes, Schiner, *Verhandl. K. K. z. b. Gesellsch.*, Wien, 1866, p. 712; *Asilus id.*,
Wiedem., *Zool. Mag.*, iii, p. 32.

Hab. Tranquebar, Madras Pr.

Genus PHILODICUS.

Loew, *Linn. Entom.*, 1848, iii, p. 391; *Asilus* pt.; *Trupanea*, pt. Macq.,
Dipt. Esot.

fuscus, Schiner, *Verhandl. K. K. z. b. Gesellsch.*, Wien, i, 1866, p. 712; *Trupanea*
id., Macq., *Dipt. Esot.*, i, 2nd Pt. p. 104, Paris, 1838.

Hab. Bengal.

agnitus, id., *ibid.*, *Asilus id.*, Wied., *Zool. Mag.*, iii, p. 35.

Hab. Sumatra.

javanus, id., *ibid.*, *Sensu V. d. Wulp*, *Tijdschr. v. Entom.*, 1872, p. 232; *Asilus*
id., Wied., *Zool. Mag.*, iii; *Trupanea javana*, Macq., *Dipt. Esot.*, i, 2nd pt., p. 98,
 Paris, 1838; et. *Trupanea rubritarsata*, Macq., *loc. cit.*, p. 98; *Asilus perplexus*,
Wiedem., *Ausser. Europ. Zool. Ins.*, i, p. 495, Hamn, 1828.

Hab. Java, Sumatra.

innotabilis, id., *ibid.*, p. 712; *Trupanea id.*, Walker, *List. Dipt. Ins. Brit. Mus.*,
 vii, 3rd Suppl. p. 604, London, 1855.

Hab. Java, Sumatra.

externo-testacea, id., *ibid.*, *Trupanea id.*, Macq., *Dipt. Exot.*, 4th Suppl., p. 81, Paris, 1850.

Hab. Java.

rubritarsatus, id., *ibid.*, *Trupanea id.*, Macq., *loc. cit.*, i, 2nd Pt., p. 99, Paris, 1838.

Hab. Java.

westernmanni, id., *ibid.*, p. 712; *Trupanea id.*, Macq., *loc. cit.*, p. 98.

Hab. Java.

barbis, id., *ibid.*, *Alcimus id.*, Macq., *loc. cit.*, *Suites du 2nd Suppl.*, p. 25, 1847.

Hab. Java.

conflnis, id., *ibid.*, *Trupanea id.*, Walker, *List. Dipt. Ins. Brit. Mus.*, vii, 3rd Suppl., p. 606, London, 1855.

Hab. Java.

coylanicus, Schiner, *Novar. Reise*, 1868, p. 179.

Hab. Ceylon.

chinensis, id., *ibid.*, p. 712.

Hab. China.

rufoungulatus, id., *Verhandl. K. K. z. b. Gesellsch. Wien*, 1866, p. 712; *Trupanea id.*, Macq., *Dipt. Exot.*, i, 2nd Pt., p. 99, Paris, 1838.

Hab. Cochin China.

GENUS PHILONICUS.

Loew, *Linn. Entom.*, 1849, iv, p. 144; 1849, *Asilus pt.*

niarosetosus, V. d. Wulp, *Sumatra Exped.*, p. 24.

Hab. Borneo.

GENUS TRUPANEA.

Macq., *Dipt. Exot.*, i, 2nd part, p. 91, Paris, 1838; *Asilus pt. Philonicus*, *Philonicus*, *Promachus*, *Proctachantus*, pt. Loew et auctor.

flavibarbis, Macq., *ibid.*, p. 96.

Hab. Pondicherry.

varipes, id., *ibid.*, p. 97.

Hab. Bengal.

duvaucelli, id., *ibid.*, p. 97.

Hab. Bengal.

bifasciata, id., *ibid.*, p. 98.

Hab. Java.

ftpicalis, id., *ibid.*, p. 100.

Hab. Cochin China.

ftlbopuosa, (*nomen bislectum*), Rondani, *Ann. Mus. Civ. Genova*, v, 1875, p. 452.

Hab. Borneo.

leucopyga, Walker, *Trans. Ent. Soc. London*, 1857, p. 129.

Hab. China.

apivoru, id., *ibid.*, p. 232.

Hub. Giirmah.

insereus, id., *Journ., Proceed. Linn. Soc. London*, 1857, p. 116.

Trans. Ent. Soc. London, 1856.

Hab. Borneo,

Dipt. Ins. Brit. Mus., v, Suppl., p. 302, London, 1855;

id. Wiedem., *Zool. Mag.*, iii, p. 35.

univentris, id., to* Swede* p. 2 U.

Hab. Indii

agnita, id., *List. J.* 05.

Asia^

m < P-

Lra.

maculipes, id., *ibid.*, p. r *Saunders., Dipt., i, p. 120, London, 1856.*

Hab. Hongkong.

contracta, id., *I* 15.

teli'era, id., *ibid.*, p. 1

II

sagittifera, id., *ibid.*, p. 116.

Hab. indta.

oalaa, id., *ibid.*, p. 122.

Qab. Itiia.

Genus ERAX.

Scopoli, *Dipt.*, 1763; Macq. *Dipt. Erot.*, i, 2nd pt., p. 107, Paris, 1838;

Eristicus, pt. Loew; Asilus, pt.

rutiventris, Macq., *Dipt. Erot.*, i, 2nd pt., p. 108, Paris, 1838.

Hab. Bengal.

sinensis, id., *ibid.*, p. 1 (8).

Hab. China.

curvatus, Walker, *Trans. Ent. Soc. Brit. Mus., vi, 2-3 Suppl.*, p. 642, 1855.

Hab. Nepal.

Genus ASILUS.

Linn., *Fdtwi. Buec.*, 1761, p. 469.

tulus, Walker, *List. Dipt. Ins. Brit. Mus., London, vii, Suppl. iii*, p. 724, 1855.

" " Hab. Java.

chin

Hab. China,

annulatus, id., *dt. Ent.*, p. 794.

Hub. India.

loetus, Wiedem., *Anal. Entom.*, p. 24.

Hab. iulia.

bifidus, Wiedem., *Auser. Europ. Zueyfl. Ins.*, 1st Part, p. 444, *Hamm*, 1828 j Dnaj-pogon, id., *Fabr*, *Syst. Antl.*, [i. 17U.

Hab. Tranquebar, Madras Pr.

pusio, id., *Zoolog. Mag.*, iii, p. 36.

Hab. India.

agilis, id., *Auser. Europ. Zueyfl. Ins.*, 1st Part, p. 456, *Hamm*, 1828.

Hab. Java.

bengalensis, Macq., *Dipt. Exot.*, i, 2nd Pt., p. 141, *Paris*, 1838.

b. Bengal.

m.

flavicornis, id., *ibid.*, p. 142.

Hab. Bengal.

trifarius, id., *ibid.*, p. 142.

Hab. Pondicherry.

olanius, id., *ibid.*, p. 142.

Hab. Java.

nudipea, id., *ibid.*, 2nd *Suppl.*, p. 42, 1846.

Uab. Ivi.a.

appendiculatus, id., *ibid.*, *Suites du 2nd Suppl.*, p. 29, 1847.

Hab. Java.

nigrimystaceus, id., *ibid.*, 4th *Suppl.*, p. 91, 1850.

Hab. Pondicherry.

rufibarbis, id., *ibid.*, p. 91.

Hab. Java.

albibi[^]bii, id., *ibid.*, p. 91.

Hab. Java.

ephippium, id., *ibid.*, 5th *Suppl.*, p. 62, 1855.

Hab. Java.

maculifemora, id., *ibid.*, p. 62.

Hab. China.

id., *ibid.*, p. 63.

id.

id., p. 63.

mir id., *ibid.*, p. 63.

Hab. China.

sundaticus, Jaennicke, *Neu. Sect. Dipt.*, p. 55, *Frankfurt*, 1867.

Hab. Java.

shaiumua, Walker, *Trans. Ent. Soc., London*, iv, 1857, p. 131.

Hab. China.

fiagraE⁷ id., *Journ* Proceed. Linn. Soc, London*, 1857, p. 116.

Hab. Sarawa

con tortua, id., *ibid.*, p. 117.

Hnb. Sarawak.

barium, *Li st. Dipt. Ins. Brit. Mus.* P-⁴²⁶, *London*, 1849.

Hab- Ceylon, Singapore, Sarawak.

iusiformis, id., *Journ. Proceed. Linn. Soc., London*, i 1857, p. 13.

Hab. Mala¹ca.

liueoaus, id., *ibid.*, p. 13.

Hab. Singapore.

debiJis, id., *ibid.*, p. 13.

Hab Malacca.

latifascia, >d, *ibid.*, p. 14.

Hab. Singapore.

minttBCUlus, Ronduni, *Ann. Mus. Civ. Genova*, 1875, p. 451.

Hnb. Sarawak.

melanurus, Doleschml A *Naturk. Tijdschr. v. Nederl. Indie, Batavia*, 1856, p. 408.

Hub. Java.

barbatus, id., *ibid.*, 1857, p. 393.

Hab. Amboina.

penultimus, id., *Ins. Saunders. Dipt.*, i, p. 134, *London*, 1856.

Hab. India.

congedua, id., *ibid.*, p. 158.

Hab. India.

• iaiuenus, id., *List. Dipt. Ins. Brit. Mus., London*, ii, p. 428, 1849.

Hab. Bengal.

pftterculus, Id., *Insect. Saunders. Dipt.* i, p. 146, *London*, 1856.

Hab. India.

prteflniens, >d, *ibid.*, p. 146.

Hab. India.

apicata, >d, *ibid.*, p. 436.

Hab. Java.

Genus ANTIPALUS.

Loew, *Linn. Entom.* iv, 1849, p. 136; *Asilus*, pt.

wieneckii, V. der Walp, *Tijdschr. v. Entom.*, 1872, *Hague*, p. 238.

Hab. Timor, Java

Genus STYLOLCUS.

Loew, *Connsp. Act. Acad. R. Suecicæ*, xiv, p. 342, 1858; *Asilus* pt.
xanthopus, V. der Wulp, *Tijdschr. v. Ent.*, Hague, 1872, p. 240.
Hab. Sumatra.

Genus MOCHTERUS.

Loew, *Linn. Entom.*, iv, 1849, p. 58; *Asilus*, pt.
patruelis, V. der Wulp, *Tijdschr. v. Ent.*, Hague 1872, p. 244.
Hab. Java.

Genus ITAMUS.

Loew, *Linn. Entom.*, iv, 1849, p. 54; *Asilus*, pt.
dipygus, Schiner, *Novar. Reise*, 1868, p. 188.
Hab. Nicobar Islands.
ifttC, Schiner, id., *Ibid.*, p. 189. *Asilus* id., Doleschall, *Naturk. Tijdschr. v. Nederl. India, Batavia*, 1857, p. 394.
Hab. Java.
grisMIS, V. der Wulp, *Tijdschr. v. Entom.*, 1872, p. 246; *Asilus* id., Wiedem., *Ausser. Europ. Zweifl. Ins.*, i, p. 442, *Hamm*, 1828.
Hab. Java.
longistylus, id., *Ibid.*, p. 247; *Asilus* id. Wiedem., *loc. cit.*, p. 433.
Hab. Java.
fraternus, id., *Naturlijke Historie IX, Sumatra Reizen*, p. 25, *Asilus* id., Macq., *Dipt. Exot., Suppl.*, 1, p. 91, *Paris*, 1846.
Hab. Borneo, Sumatra, Tasmania.

Genus TOLMERUS.

Loew, *Linn. Entom.*, 1849, iv, p. 94; *Asilus*, pt.
agilis, Schiner, *Verhandl. K. K. z. b. Gesellsch. Wien*, xvi, 1866, p. 717; *Asilus* id., Wiedem., *Ausser. Europ. Zweifl. Ins.*, i, p. 456, *Hamm*, 1828.
Hab. Java.
nicobarensis, Schiner, *Novar. Reise*, 1868, p. 192.
Hab. Nicobar Islands.

Family LAPHRIDÆ.

J. Bigot, *adhuc. ined.*; *Laphrina*, Rondani, *Prodr.*, i, p. 32, 1856; *Laphrina*, Schiner, 1862.

Genus ATOMOS [A.

Macq., *Dipt. Exot.*, t, 2nd Pt., p. 73, Paris, 1838; Laphria, pt. Connansis, pt. Walker.

purpurata, Westwood, *Trans., Ent. Soc., London*, v, 1847-49, p. 233.

Hab. India.

halictoides, (*Normansia* id.) Walker, *Ins. Saunders. Dipt.*, ii, p. 154, London, 1856.

Hab. India.

Genus NUSA.

Walkd., *Ins. Saunders. Dipt.*, i, p. 105, London, 1856.

equalis W., *ibid.*, p. 105; *Anironosoma* id., Schiner, *Verhandl. K. K. z. b. Gesellch. Wien*, 1856, p. 709.

Hab. India.

formio, ^., *ibid.*, p. 106; *Andrenosoma* id., Schiner, *loc. cit.*

Hab. India.

Genus MICHOTAMIA.

Macq., *Dipt. Exot.*, i, 2nd Pt., p. 72, Paris, 1838.

analis, id., *ibid.*, p. 72.

Hab. Bengal, Java.

annulata, J. Bigot, *Ann. Soc. Ent. France*, 1878, p. 239.

Hab. Burma.

Genus LIXENECHERA.

Macq., *Dipt. Exot.*, i, 2nd Pt., p. 77, Paris, 1838; Laphria, pt. Dyseria, pt. Loew; *Acurana* pt. Walker, *Ins. Saunders. Dipt.*, ii, 1856, p. 107.

albibarbis, id., *ibid.*, p. 78; id. *Acurana* sexfasciata, Walker, *Ins. Saunders. Dipt.*, ii, p. 107; See Walker, *List. Dipt. Ins. Brit. Mus.*, vii, *Suppl.*, iii, 1855, p. 572.

Hab. Bengal.

flavibarbis, id., *ibid.*, p. 77; Sensus Walker, *List. Dipt. Ins. Brit. Mus.*, *Linnaea* vii, *Suppl.*, iii, 1855, p. 572; *Laphria hirticornis*? Guerin, *Icon. Règne Anim. Ins.*, pl. 94.

Hab. India.

Genus HYPEROCIA.

Schiner, *Verhandl. K. K. z. b. Gesellch. Wien*, 1856.

xylocopiformis, Walker, *List. Dipt. Ins. Brit. Mus.*, ii, p. 585, London, 1849.

Hab. Madras.

GENUS DASYLLIS.

Loew, *Berner** z. *Fam. d. Asilid.*, 1851, p. 20; Laphria, pt.

Bigft., Schiner, *Verhandl. K. K. z. b. Gesellsch. Wien*, 1866, p. 706; Laphria id., Macq., *Dipt. Ex. 1, 2nd Pt.*, p. 65, Paris, 1838.

Hab. India.

GENUS ANDRENOSOMA.

Eondani, Pro Jr., i p. 160, 1856; Laphria, pt.

crassipes, Schiner, *Verhandl. K. K. z. b. Gesellsch. Wien*, 1866, p. 709; Laphria id., Fabr., *Syst. Antl.*, p. 152.

Hab. Sumatra.

fusifera, id., ibid; Laphria id., Walker, *Journ. Proceed. Linn. Soc., London*, i, 1857, p. 12.

Hab. Singapore.

GENUS ACURANA.

Walker, *Ins. Saunders*, i, 1853, p. 107; Laphria, pt.

sexfasciata, id., ibid., p. 107.

Hab. India.

GENUS OCHRADES.

Walker, *Ins. Saunders*, i, 1853, p. 109; Laphria, pt.

aurigena, id., ibid., p. 109.

Hab. Java, Sumatra.

GENUS POGONOSOMA.

Rondani, *Prodr.*, i, 1856, p. 160; Laphria, pt.

stigmatica, V. (1. Wulp, *Tijdschr. v. Entom.*, 1:ague, 1872, p. 157.

Hab. Sumatra.

bercaril, Rondani, *Ann. Mus. Civ. Genova*, i, 1875, p. 449.

Hab. Sarawak.

GENUS LAMPRIA.

Macq., *Dipt. Exot.*, 1, 2nd Pt., Paris, 1838, p. 60; Laphria, pt.

auribarbis, Macq., id., ibid., *Suites du 2nd Suppl.*, Paris, 1847, p. 23.

Hab. Java.

GENUS MATRA.

Schiner, *Noct. Ross*, 1008, p. 173; Laphria, Dasyllis, Lampria, pt.

spectabilis, Schiner, *Verhandl. K. K. z. b. Gesellsch. Wien*, xvi, 1866, p. 708; Laphria, id., (alias splendens), Guerin, *Voyage Coquille*, ii, p. 292; Laphria kolJari

Doleschall *Naturk. Tijdschr. v. Nederl. Indie, Batavia, 1857, p. 393*; *Laphria*, Socia, Consobrina, Come, Ropleus, Walker, *Journal Proceed. Linn. Soc., London, 1859, pp. 84, 85, et 1861, p. 234*; Sasa, Osten-Sacken., *Laphria congrua*, Walker, *loc. cit., 1861, p. 277.*

Hab. Ambon, etc.

elegans, Schiner, *Verhandl. K. K. z. b. Gesellsch. Wien, 1866, p. 708*; *Laphria id.*, Walker, *List Dipt. Ins. Brit. Museum, London, vii, 3rd Suppl., 1855, p. 551.*

Hab. India.

producta, id., *ibid.*, p. 708; *Laphria id.* Walker, *Journ. Proceed. Linn. Soc., London, 3, 1857, p. 114.*

Hab. Borneo.

icapuli, id., *ibid.*; *Laphria id.*, Wiedem., *Ausser. Europ. Zweiflug. Ins., 1st Part, Hamm, 1828, p. 516.*

Hab. Java.

enea, Ssensu V. d. Wulp, *Tijdschr. v. Entom., 1872, Hague, p. 202*; *Laphria id.*, Fabr., *Syst. Antl.*, p. 161; *Laphria id.* Macq., *Dipt. Exot. Suites de 2nd Suppl. Paris, 1847, p. 21*; *Laphria cyanea*, Macq., *S. 3 Bug. Dipt., 1, p. 286*; *Laphria colorata*, Boisduval, *Foy., de l'Asirolobe.*

Hab. Java, New Guinea.

nyctomera, V. d. Wulp, *Tijd. v. Entom., Hague, 1872, p. 208.*

Hab. Java.

tuberculata, id., *ibid.*, p. 211.

Hab. Java.

hispidella, id., *ibid.*, p. 213.

Hab. Java.

nigrithorax, id., *ibid.*, p. 210.

Hab. Sumatra.

parva, J. Bigot, *Ann. Soc. Ent. France, 1878, p. 230.*

Hab. India.

canbodgeiensis, id., *ibid.*, p. 230.

Hab. Cambodia.

GENUS LAPHRIA.

Fabr., *Syst. Antl.*; *Asilus*, pl. Linn. (*et auctor.*).

reinwardti, Wiedem., *Ausser. Europ. Zweiflug. Ins. 1st Part, p. 503, Hamm, 1828*; Ssensu Schiner, *Verhandl. K. K. z. b. Gesellsch. Wien, 1866, p. 707.* *Laphria fervens*, Walker, *List Dipt. Ins. Brit. Mus., London, vii, 3rd Suppl., p. 554, 1855.*

Hab. Java.

altera, id., *ibid.*, p. 511; Ssensu Walker *List Dipt. Ins. Brit. Mus., London, vii, 3rd Suppl., 1855, p. 555.*

Hab. Java.

vulcanus, id., *ibid.*, p. 514.

Hab. Java, N. Ceram.

IOUQOJ procta, id., *ibid.*, p. 517.

Hab. Java.

javana, Macquart, *S. d. Bug. Dipt.*, i, p. 282, Paris, 1834.

Hab. Java.

sanomera, *M. Dipt. Esot.*, i, 2nd Part, p. 65, Paris, 1838.

Hab. Bengal.

latore-punotuta, id., *ibid.*, p. 66.

Hab. China.

luteipennis, id., *ibid.*, *Sv. ites de 2nd Suppl.*, p. 23, 1847.

Hab. Java.

flavipes, id., *ibid.*, *4th Suppl.*, p. 72, 1850.

Hab. Java.

bipartita, id., *ibid.*, *5th Suppl.*, p. 52.

Hab. Java.

semifulva, J. Bigot, *Ann. Soc. Ent. France*, 1878, p. 223.

Hab. India.

melanota, id., *ibid.*, p. 224.

Hab. Islands of the Indian Archipelago.

claripennis, id., *ibid.*, p. 224.

Hab. Ceylon.

sobria, Walker, *Journ. Proceed. Linn. Soc., London*, i, 1857, p. 12.

Hab. Singapore.

basigutta, id., *ibid.*, p. 11.

Hab. Singapore.

radioa, id., *ibid.*, p. 11.

Hab. Singapore.

basifera, id., *ibid.*, p. 11.

Hab. Singapore.

orona, id., *ibid.*, p. 10.

Hab. Singapore.

notabilis, id., *ibid.*, p. 10.

Hab. Malacca.

maurea, id., *ibid.*, p. 11.

Hab. Singapore.

plana, id., *ibid.*, p. 12.

Hab. Singapore.

imball

Hab. Singapore.

unifascia, id., *ibid.*, p. 113.

Hab. Borneo.

comytissima, id., *ibid.*, p. 113.

Hab. Borneo.

rudis, id., *ibid.*, p. 114.

Hab. Borneo.

lepida, id., *ibid.*, p. 114.

Hab. Borneo.

completa, id., *ibid.*, p. 114.

Hab. Borneo.

incnilis, id., *ibid.*, p. 115.

Hab. Borneo.

partita, id., *ibid.*, p. 115.

Hab. Borneo.

interrupta, id., *ibid.*, p. 115.

Hab. Borneo.

cinguifera, id., *ibid.*, p. 115.

Hab. Borneo.

detecta, id., *ibid.*, p. 116.

Hab. Borneo.

constricta, id., *List Dipt. Ins. Brit. Mus., London, vii, 3rd Suppl., 1855, p. 555.*

Hab. Sumatra.

shalumus, id., *List Dipt. Ins. Brit. Mus., London, ii, 1849, p. 371.*

Hab. Hong-Kong.

abscissa, id., *Trans. Entom. Soc., London, 1858, p. 282.*

Hab. Burma.

horrida, id., *List Dipt. Ins. Brit. Mus., London, vii, 3rd Suppl., 1855, p. 551.*

Hab. Sumatra.

dira, id., *ibid.*, p. 551.

Hab. Sumatra.

chrysozelus, id., *ibid.*, p. 552.

Hab. India.

eltra, id., *List Dipt. Ins. Brit. Mus., London, ii, 1849, p. 445.*

Hab. Bengal.

triangularis, id., *ibid.*, vii, 3rd Suppl., 1855, p. 553.

Hab. Sumatra.

fervens, id., *ibid.*, p. 554.

Hab. Sumatra.

seva, id., *ibid.*, p. 554.

Hab. Sumatra.

blumei, V. d. Wulp, *Tijdschr. v. Entom.*, Hague, 1872, p. 176¹.

Hab. Jat-a.

ignobilis, id., *ibid.*, p. 173.

Hab. Java.

mulleri, id., *ibid.*, p. 174.

Hab. Borneo, Java.

gTAvipoe, id., *ibid.*, p. 175.

Hab. Java.

sollita, id., *ibid.*, p. 178.

Hab. Java.

histrionica, id., *ibid.*, p. 170.

Hab. Java.

aureola, id., *ibid.*, p. 180.

Hab. Java.

futilis, id., *ibid.*, p. 183.

Hab. Borneo, Sumatra.

signatipes, id., *ibid.*, p. 191.

Hab. Sumatra.

diversa, id., *Sumatra Expedi.*, V. d. Wulp, p. 22.

Hab. Silago.

barbatorura, Rondani, *Ann. Mus. Civ. Genova*, 1875, p. 447.

Hab. Saruwak.

fulvicrura, id., *ibid.*, p. 448.

Hab. Saruwak.

satiorura, id., *ibid.*, p. 418.

Hab. Saruwak.

taphius, Walker, *List. Dipt. Ins. Brit. Mus.*, London, 1848, p. 380.

Hab. Ceram, Philippine Is.

Family THEREVIDÆ.

J. Bigot, *ad hoc* in *ed.* 1891; *Xylotomæ*, *Meig.*, *Syst. Besch.*, II, 1820; *Xylotomes*, *Macq.*, *S. & Buff.*, *Dipt.*, I, p. 416, Paris, 1834, Walker, *Schiner*; *Anthracini*, pt. Fallén; *Therevina*; *Therevina*, Rondani, *Prodr.*, I, 1850, pp. 31 et 155; *Bombylida*, pt. (cúm). J. Bigot.

Genus THEREVA.

Fallen, 1820, *Ithicon*.: The[^]n, Latr., *Precis Caract. Ins.* 1796; *Psilcephala* pt. Zetterst., *Dipt. Stand.*, i, 1842; *Dialineura* pt. Rond., *Prodr.*, i, 1856, p. 155; *Bibio*, pt. Panzer, *Fal Ion*; *Nemotelis*, pt. Degeer.

niffilla, Wiedemann, *Ausser. Europ. Zweiflug. Ins.*, i, p. 232, *Hamm*, 1828.

Hab. Tranquebar, Madras Pr.

albifl., *Zool. Magaz.*, iii, p. 3.

Hab. Java.

bigoti, (= *Psilcephala indica* Bigot, name already occupied by Walker's *ipecius*)
J. Bigot, *Ann. Soc. Ent. France*, 1889, p. 326.

Hab. India.

sequens, Walker, *Ins. Saunders Dipt.*, i, p. 167, *London*, 1856.

Hab. India.

beduensis, *ibid.*, p. 158.

L

Hab. India.

persequa, *id.*, *ibid.*, p. 158.

Hab. India.

nirani, *id.*, *ibid.*, p. 159.

Hab. India.

indica, *id.*, *ibid.*, p. 159.

Hab. India.

cylindrica, *id.*, *List Dipt. Ins. Brit. Mus.*, *London*, i, 1848, p. 224.

Hab. India.

latealis, Wiedem., *Ausser. Europ. Zweiflug. Ins.*, i, p. 231, *Hamm*, 1828.

Hab. Ternate, Manila.

præcedens, Walker, *Journ. Proceed. Linn. Soc.*, *London*, i, 1857, p. 118.

Hab. Iorneo.

Family EMPIDÆ (Hybotidæ).

Empidi, J. Bigot, *Ann. Soc. Ent. France*, 1889, p. 111 et 114; Hybotidæ, Hemerodromyidæ, Tachydromyidæ, *id.*, *loc. cit.*; Empides, Latr., *Nouv. Dict. Hist. Nat.*, 1804; Empidi, Fallen, *Spec. Ent.*, 1810; Empidæ, *id.*, *Diap. Dipt.*, 1817; *id.*, Loew, Meigen; Empidæ, Leach, *Sam. Comp.*, 1819; Meigen, *Syst. Besch.*, 1820; Hybotina, pt. Tachydromyidæ et Tachydromynæ, Latr. Zetterst. Macq., Wiedem.; Tachydromia, pt. Macq., *S. à Def. Dipt.*; Empides, Hybotides, J. Bigot (*olim*); Empidii, Rondani, *Prodr.*, i, 1856; Empidæ, Empidina, Tachydromynæ, Philodromyia, Hybotidina, (*olim*). Empidina, Walker, *List Dipt. Ins. Brit. Mus.*, *London*, iii, p. 485, 490, 1849; Meig., *Syst. Besch.*, 1820; Asillus Scopoli, pt. Empidæ, Hybotina, Schiner, 1862.

Genus HYBOS.

Meigen., pt. Illig. Magaz., ii, 1803, p. 269; Musca, pt. Linn.; Empis, Dasypogon, Asilus, pt. Fabr.; Acromyia, Bonelli, *Manuser., Encyclop.* xi, 1819; Hybotidina, Rond., pt. Prodr., i, 1856, p. 152.

rogatinus, J. Bigot, *Ann. Soc. Ent. France*, 1889, p. 127.
Hab. India.

brachialis, Rondani, *Ann. Mus. Civ. Genova*, 1875, p. 446.
Hab. Borneo.

Genus PTEROSTYLUS.

Konig., Prodr., i, 1856, p. 152; Harpamerus, J. Bigot, *Rev. et Mag. Zool.*, Guerin, 1859, p. 309; Epiceia, pt. Walker, *Journ. Proceed. Linn. Soc.*, London, 1861, p. 149.

bicolor, J. Bigot, *Ann. Soc. Ent. France*, 1889, p. 127.
Hab. India.

Genus LIILARA.

Meigen., 8/*ist. Besch.*, 3rd Pt., Hamm, 1823; Bibio, pt. Panzer; Tachydromyia, pt. Fabr.; Empis, pt. Fabr. Fallen.

bares, Walker, *List. Dipt. Ina. Brit. Mus.*, iii, p. 491, London, 1849.
Hab. India.

Family DOLICHOPODÆ.

Dolichopodi, J. Bigot, *ad hoc. in sed.* 1891; Dolichopodes, Latr., *Gen. Crus. et Ina.*, iv, 1809; Dolichopidae, Leach, *Syn. Comp.*, 1819; Dolichopodes, Macq., *S. à Bug. Dipt.*, Paris, i, 1834, p. 484; Dolichopidae, Rondani, *Prodr.*, i, p. 29, 1856; Dolichopinae, (olim), Rond., *loc cit.*; Dolichopinae, Rondani, *Prodr.*, p. 140, et Raphina, p. 145; Dolichopodii, (olim), J. Bigot; Dolichopidae, Schiner; Dolichopodes, Walker, *List. Dipt. Ina. Brit. Mus.*, London, iii, 1849, p. 491.

Genus SPATHILOPUS.

J. Bigot, *Ann. Soc. Ent. France*, 1890, p. 268; Pailopus, Pailopodius, Rondani, pt. globifer, J. Bigot, *loc. cit.* p. 268; Pailopus, id., Wiedem., *Ausser. Europ. Zweiflug. Ina.*, 2nd Pt., Hamm, IB30, p. & 1.
Hab. China.

Genus PSILOPODIUS.

Rondani, *Prodr.*, iv, Pt. 3, 1861, p. 11; Pailopodius, J. Bigot, *Ann. S. Ent. France*, Pailopus, Meig., *Syst. Besch.*, iv, p. 35, Hamm, 1824; Leptopus, pt. Fallen, 1823; Sciapus, pt. Zeller, 1842; Agonosoma, (alias Chryso-soma) pt. Guérin, *Foy. de la Coquille*, 1830, p. 293. *menus*, Wiedem., *Ausser. Europ. Zweiflug. Ina.*, ii, Hamm, 1830, p. 214.
Hab. Java.

GENUS MESORHAGA.

Sclunor, *h'var. Reise*, 1808, p. 7.

tore nata*, J. Bigot, *Ann. Soc. Ent. France*, 1890, p. 294.

. Hab, Oajlon.

GENA T DOLICHOPUS.

Latr., *Precis Caract. Gener.*, 1796; Nemo'solus, pt. Panzer; Satyra, pt. Meig.

tuscipennis, Wiedem., *Analect. Entomol.*, p. 40.

Hab. India.

aicnac, id., *ibid.*, p. 40.

Hab. India.

electus, Walker, *Journ. Proceed. Linn. Soc., London*, i, 1857, p. 121.

Hab. Borneo.

alligatus, id., *ibid.*, p. 121.

Hab. Borneo.

collec-us, id., *ibid.*, p. 121.

Hab. Borneo.

GENUS ABOYRA.

Macq., *S. à Buff. Dipt.*, i, Paris, 1834, p. 456; Schiner, Bondani, Zetterst., id.; Porphyrops, Meig. pt.

spinipes, Doleschall, *Naturk. Tijdschr. Nederl. Indie, Batavia*, 1856, p. 410.

Hab. Java.

GENUS DIAPHORUS.

Meig., *Syst. Besch.*, iv, 1824, p. 32; Dolichopus, Fallen; Nematoproctus? Loew, *Neu. Beitr.*, 1857, p. 40.

mandarinus, Wiedem., *Aussig. Europ. Zweifl. Ins.*, ii pt., Hamm, 1830, p. 212.

Hab. China.

dilegftt, Walker, *Journ. Proceed. Linn. Soc., London*, i, 1857, p. 122.

Hab. Borneo.

genus, Doleschall, *Naturk. Tijdschr. v. Nederl. Indie, Batavia, new series*, 1856, p. 469.

Hab. Java.

GENUS PEODES.

Loew, *V. Neu. Beitr.*, 1857, p. 29.

nicobarensis, Schiner, *Novar. Reise*, 1868, p. 221.

Hab. Nicobar Islands.

Family BOMBYLIDÆ.

J. Bigot, adhauc. inced., 1891; Bombyliarii, Latr., *Gen. Crust. et Ins.*, iv, p. 313, 1809; Bombyliarii, Fallen, *Spec. Ent.*, 1810; Bombyliden, Leach, *Edinb. Encyclop.*, 1815; Bombylidae, Leach, *Sam. Comp.*, 1819; Bombylicus, Macq., *S. à Buff. Dipt.*, i, 1834; Bombylidae et Bombylina, Rondani, *Prodr.*, i, 1856, pp. 14, 33, 162; Bombylidae, Schiner, 1862; Anthracii, pt. Latr., *Gen. Crust. et Ins.*, iv, p. 309, 1809; Anthracini, pt. Fallen, *Sp. Ent.*, 1810; Anthracides, pt. Leach, *Edinb. Encyclop.*, 1815; Anthracidae, id., *Sam. Comp.*, 1819; Anthracidus, pt. Macq., *S. à Buff. Dipt.*, i, 1834; Bombyliarii, Walker, *List. Dipt. Ins. Brit. Museum*, 1849.

Genus EXOPROSOPA.

filacq. I *Dipt. Exot.*, ii, 1st Pt., Paris, 1840, p. 35; Anthrax, pt. Hyperalonia, p. 58, Heteralonia, pt., p. 51, Argyraspila, pt., Rondani, *Archiv. p. l. Zool. Modena*, 1860, p. 58, *Sic. Nat. p. l. Zoolog.*, p. 58, *Modena*, 1860, Trinaris, pt. Mulsant, 1852; Lithorhychus, pt. Macq., *Dipt. Exot.*, ii, 1st Pt., p. 78, Paris, 1840.

pennipes, Macq., *Dipt. Exot.*, ii, 1st Pt., Paris, 1840, p. 47; Anthrax id., *Wiedem. Dipt. Exot.*, i, p. 129.

Hab. Java.

sphinx, id., *ibid.*, p. 37; Bibio id., *Fabr. Mant. Ins.*, ii, p. 329.

Hab. India.

bengalensis, id., *ibid.*, p. 49.

Hab. Bengal.

id., *ibid.*, p. 49.

Hab. Java.

binotata, id., *ibid.*, 5th Suppl., 1855, p. 69.

Hab. India.

flavofasciata, id., *ibid.*, p. 70.

Hab. China.

chrysolampis, Jaennicke, *Neu. Exot. Dipt.*, Frankfurt, 1867, p. 36.

Hab. Java.

albicineta, Macq., *Dipt. Exot.*, ii, 1st Pt., Paris, 1840, p. 38.

Hab. Shanghai.

brahma, Schiner, *Novar. Reise*, 1868, p. 118.

Hab. Ceylon.

aurantiaca, Guérin, *Iconogr.*, Paris, 1829-38, p. 39.

Hab. Bengal.

doryca, Senau Ost-Sacken, *Ann. Mus. Civ. Genova*, 1880, p. 433; Ventrinacula, Dolesch., *Naturk. Tijdschr. v. Nederl. Indie, Batavia*, 1857, p. 399; Anthrax id.,

Boiduval, *Faun. d. l'Océanie. Voy. de l'Australasie*, ii, p. 665; Pelops, Walker, *Journal*

Proceed. Linn. Soc., London, iii, p. 90; Jaenicke, *Neu. Exot. Dipt.*, p. 37.

Hab. Borneo, Amboina, Ternate, N. Guinea, Arn, Moluccas, Gilolo.

Genus HYPERALONIA.

- Rondani, *Archiv. p. I. Zool. Modena*, 1863, p. 57; *Exoprosopa*, pt.
oudouini, Sensus Rondani, id., p. 57; *Exoprosopa* id., Macq., *Dipt. Esot.*, ii,
 1st Part., 1840, p. 36.
 Hab. India.
- fuscanipennis*, Sensus id., *ibid.*, p. 57; *Exoprosopa* id., Macq., *Dipt. Esot., Suites au*
2nd Suppl., 1847, p. 33.
 Hab. Java.
- tantalus*, Sensus id., *ibid.*, p. 453; *Anthrax* id., Fabr., *Ent. Syst.*, iv, p. 660.
 Hab. Java.
- ceconomus* ib., *IL*, *ibid.*, n. 61.
 Hab. Borneo.

Genus ARGYROMEDA.

- Schiner, *Wien Entom. Monatschr.*, iv, 1860, p. 61; *Anthrax*, pt.
semiscita, Sensus Ost. Sacken, *Ann. Mus. Civ. Genova*, 1880, p. 432; *Anthrax* id.,
 Walker, *Journ. Proceed. Linn. Soc., London*, 1857, p. 118.
 Hab. Borneo.
- distigma*, Sensus Schiner, *Novar. Reise*, 1868, p. 122; *Anthrax* id., Wiedem., *Annot.*
Europ. Zociflug. Ins., 1st Part, *Hannov.*, 1828, p. 309; Sensus V. d. Wulp, *Tijdschr.*
Ent., deel, xxiii, *Anthrax argyropyga*, Dolesch., *Naturk. Tijdschr. v. Nederl. India,*
Batavia, 1857, p. 401.
 Hab. Amboina, Java.
- melania*, V. d. Wulp, *Notes f. Leyden Museum*, Not. vii, 1885, p. 8.
 Hab. Java.

Genus ANTHRAX.

- Scopoli, *Entom. Carniol.*, 1763, p. 353; *Nemotelus*, pt. Dogear; *Bibio*, Rossi,
 pt.
- sphinx*, Fabr., *Ent. Syst.*, iv, p. 261.
 Hab. India.
- lar.* id., *ibid.*, p. 257.
 Hab. Bengal.
- bipunctata*, Fabr., *Syst. Antl.*, p. 118.
 Hab. Tranquebar Madras Pr.
- dia*, Wiedem., *Annot. Entom.*, p. 23.
 Hab. Tranquebar Madras Pr.
- trogloodyta*, Sensus V. d. Wulp, *Notes f. Leyden Mus.*, 1885, p. 8.
 Wiedem., *Dipt. Esot.*, i, p. 141; *Anthrax lacens*, Walk.,
London, 1856, p. 180.
 Hab. India, Java.

fulvula, Wiedem., *Dipt. Exot.*, i, p. 148.

Hab. Java.

absalon, id., *Aussur. Europ. Zool. Ins.*, 1st Part, *Hamm.*, 1828, p. 817.

Hab. India.

satyrus, (*Bibio*) Fabr., *Mantissa Ins.*, ii, p. 329.

Hab. China.

duvaucellii, Macquart, *Dipt. Exot.*, ii, 1st part, p. 63.

Hab. Bengal.

appendiculata, id., *ibid.*, 5th Suppl., 1855, p. 74.

Hab. Chin(1).

purpuraria, Walker, *Ins. Saunders. Dipt.*, i, London, 1856, p. 169.

Hab. Java.

bucida, id., *ibid.*, p. 170.

Hab. India.

albida, id., *ibid.*, p. 171.

Hab. India.

auriplena, id., *ibid.*, r-171.

Hab. India.

insulata, id., *ibid.*, p. 172.

Hab. India.

ca. bonaria, id., *ibid.*, p. 173.

Hab. India.

manifesta, id., *ibid.*, p. 178.

Hab. India.

etara, id., *ibid.*, p. 179.

Hab. India.

lucida, id., *ibid.*, p. 179.

Hab. India.

limpida, id., *ibid.*, p. 179.

Hab. India.

aperta, id., *ibid.*, p. 180.

Hab. India.

aurantiaca, id., *ibid.*, p. 183.

Hab. Ceylon.

coryca, Sens. Cat. p. 183.

Delesch., *N. S. C.*

Bonival, *Zool.*

Presid. L. in S.

hab.

dives, *id.*, *List Dipt. Ins. Brit.* 2*Ins.*, London, 1840, ii, p. 2U.

Hab. Sylhet.

bimacula, *id.*, *ibid**, p. 254.

Hab. China.

alexon, *id.*, *ibid*-, p. 246.

Hab. India.

collaris, *id.*, *ibid.*, p. 247.

Hab. Madras.

basifascia, *id.*, *ibid.*, p. 248.

Hab. Bengal.

oombinata, *id.*, *Trans. Ent. Soc., London*, (2), iv, 1857 p. 143.

Hab. Chir.

degoneira, *id.*, *Journ. Proceed. Linn. Soc., London*, i, 1857, p. 15.

Hab. Singapore.

eateilitia, *id.*, *ibid.*, i, 1857, p. 119.

Hab. Borneo, N. Ceram.

carbo, *Rodani, Ann. Mm. Civ. di Stor. Nat. Genova* *h im*, p. 453.

Hab. Sarawak.

ruficollis, *Saunders, Trans. Ent. Soc., London*, iii, 1841 p. 59.

Hab. India.

GENUS BOMBYLIUS.

Linn., *Faun. Suec.*, 1761.

maculatus, *Fabr., Syst. Anth.*, p. 503.

Hab. Tranquebar, Iladrae Pr.

orientalis, *Macq., Dipt. Exot.*, ii, 1st Part, Paris, 1840, p. 90.

Hab. India.

socius, *Walker, Ins. Saunders. Dipt.*, i, London, 1856, p. 201.

Hab. India.

ardens, *id.*, *List Dipt. Ins. Brit. Mus., London*, 1849, ii, p. 223.

Hab. India.

tricolor, *Guerin, Iconogr., Paris*, 1829-30, p. 538.

Hab. India.

GENUS COMASTES.

Oit.-Sack, *Western Dipt.*, 1877, p. 256; *Washington; Bombylius*, pt.

chellus, *V. d. Wulp, (G. Bombylius), Tijdschr. v. Entom.*, xiii, p. 164.

Hab. Jura.

GENUS ANASTOËCHUS.

Ost.-Sack., *Western Dipt.*, Washington, 1877, p. 252; Bombylius, pt.
longirostris, V. d. Wulp, *Notes f. Leyden Mus.*, 1885, p. 85.
Hab. Himalayas.

GENUS PHTHIRIA.

Meig., *Illig., Magaz.* ii, 1803, p. 268; Bombylius, pt. Mikan; Volucella, pt.
Fabr.
tcracilis, Walker, *Ins. Saunders. Dipt.*, i, London, 1856, p. 194.
Hab. India.

GENUS TOXOPHORA.

Meig., *Illig. Magaz.*, ii, 1803, p. 270; Bombylius, pt. Fabr.
javana, Wiedem., *Dipt. Exot.*, I, p. 1; 9.
Hab. Java.
zilpa, Walker, ¹*List DipP. ha. Brit. Museum, London*, ii, 1843, p. 298.
Hab. China.

GENUS SYSTROPUS.

Wiedem., *Nov. Dipter. Genera*, 1820.
yphionens, Westwood, *Trans. Ent. Soc., London*, 1876, p. 574.
Hab. India.
polistoides, id., *ibid.*, p. 575.
Hab. Siam.
tipuloides, id., *ibid.*, p. 576.
Hab. Sulu.
sumenoides, Westw. *Guerin. Mag. Zool.*, 1843, p. 4, pl. 90.
Hab. India.

FAMILY PIPUNCULIDÆ.

J. Bigot, *ad hoc ined.*, 1891; Pipunculini, *Zetterst., Dipt. Scandia.*, i, 1842;
Pipunculidae, Schiner, 1862; Pipunculidae, Rondani, *Prodr.*, i, p. 13,
1856, et Pipunculina, *ibid.*, p. 139; Megacephali, Walker, *List Dipt.*
Int. Brit. Mus., London, 1849, iii, p. 630.

GENUS PIPUNCULUS.

Latr., *Qm. Oxyt. Ins.*, iv, p. 232, 1809; Cephalops, Fallen; Microcera,
Meig.; Cephalops (olim) Fallen.
armatus, Thomson, *Eugenies Resa, Stockholm*, 1858-08, p. 513.
Hab. China.
abscissus, id., *ibid.*, p. 514.
Hab. China.

Family CONOPSIDÆ.

J. Bigot, *ad hoc* ined., 1891; Conopsarise, Latr., *Gen. Crust. et Ins.*, iv, p. 332; 1809; Conopsarii, id., *Hist. Nat.*, 1804; Conopsides, Leach, *Edinb. Encyclop.*, 1815; Conopica, Nitzsch, *German. Magaz. Entom.* 1818; Conopsarina, Meig., 1824; Conopidae, Leach, *Steph. Catal.*, 1829, id., *ibid.*, *Sam. Comp.*, 1819; Conopsarise, Macq., *S. & Buff.*, ii, 1835; Conopsarise, Walker, *List.*, *Dipt. Ins. Brit. Mus.*, London, 1849, p. 661, Conopidae, Rondani, *Pradr.*, i, p. 11, 1856, et Conopina, *ibid.*, p. 56, (cf. *Conopinæ*); Conopsidii (olim), J. Bigot; Conopidae, Schin., 1862.

Genus CONOPS.

Linn., *Faun. Suec.*, 1761; Brachyglossum, Leopoldius, Conopsides, Conopceus, Conopilla, Sphirocoma, Spariglossum, cephala, pt. Rondani; Bombibia, Lioy, 1863.

erythrocephala, Fabr., *Syst. Antl.*, iv, p. 302.

Hab. India.

testacea, Macq., *Dipt. Exot.*, ii, 3rd Pt., Paris, 1848, p. 9.

Hab. Bengal.

gigas, id., *ibid.*, *n in*

Hab. Java.

pactyas, Walker, *Ins. Saunders.*, *Dipt.*, i, London, 1856, p. 255.

Hab. Java.

javanica, Dolesch., *Naturk. Tijdschr. v. Nederl. Indië.*, Batavia, 1856, p. 409.

Hab. Djokjakarta.

calopus, J. Bigot, *Ann. Soc. Ent. France*, 1887, p. 33.

Hab. Pondicherry.

tenellus, J. Bigot, *Ann. S. Ent. France*, 1887, p. 35.

Hab. Ceylon.

nubeculosus, id., *ibid.*, p. 36.

Hab. Ceylon.

annulosus, id., *ibid.*, p. 36.

Hab. Islands of the Indian Archipelago.

Family SYRPHIDÆ.

J. Bigot, *ad hoc* ined., 1891; Syrphix, Latr., *Gen. Crust. et Ins.*, iv, p. 319, 1809; Syrphides, Leach, *Edinb. Encyclop.*, 1815; Syrphici, Fallen, *Disp. Dipter.*, 1817; Syrphida, Leach, *Sam. Comp.*, 1819; Syrphici, Meig., *Syst. Besch.*; Syrphida, Macq., *S. & Buff. Dipt.*, i, p. 468, Paris, 1834; Syrphici, Walker, *List.*, iii, p. 537, London, 1849; Syrphida, p. 11, et Syrphina, p. 46, Rondani, *Pradr.*, i, 1856; Syrphidia, *Wiedem.*; Syrphina, (Olim). Rondani; Syrphida, Schiner, 1862; Syrphidii (olim), J. Bigot.

GENUS CERIA.

Fabr., *Entom. System.*, iv, p. 277; *Conops*, pt. Seur.; *Syrphus*, pt. Panzer.;
Sphiximorpha, pt. Rondani, *Prodr.*, i, 1856, p. 55; V. Loew, *N. Beitr.*,
 1852; Saunders, *Trans.* 1845-57, p. 63, Monog.

javana, Wiedem., *Analect. Entom.*, p. 33.

Hab. Java.

eumonioides, Saunders, *Trans. Ent. Soc., London*, 1841-43, iii, p. 60.

Hab. Bengal.

GENUS SPHIXIMORPHA.

Rondani, *Prodr.*, i, 1856, p. 55; *Ceria* pt. Fabr.

anchorata, J. Bigot, *Ann. Soc. Ent. France*, 1883, p. 319.

Hab. Sarawak.

GENUS SPHIXIA.

Rondani, *Prodr.*, i, 1856, p. 46; *Milesia*, pt.

fulvipes, J. Bigot, *Ann. Soc. Ent. France*, 1883, p. 340.

Hab. Java.

fuscicosta, id. *ibid.*, 1875, p. 469.

Hab. Sarawak.

flavifacies, id. *ibid.*, 1875, p. 471.

Hab. Sarawak.

GENUS MILEZIA.

Latr., *Gen. Crust. et Ins.*, iv, p. 329, 1809; *Syrphus* pt. Fabr.; *Eristalis*, pt.
 Fabr. *Sphixia*, pt. and *Calliprobola*, pt. Rond., *Prodr.*, i, 1856, p. 47.

reinwardtii, Wiedem., *Anal. Entom.*, p. 33.

Hab. Java, Singapore.

macularis, id. *ibid.*, p. 34.

Hab. Java, Singapore.

nigra, Macq., *Dipt. S. à Haf.*, i, Paris, 1834, p. 533.

Hab. Java.

umbipennis, id., *Dipt. Esot. Suit. du 2nd Suppl.*, 1847, p. 42.

Hab. Java.

meyeri, Jaenicke, *N. Esot. Dipt.*, Frankfurt, 1857, p. 35.

Hab. Java.

vesioides, Walker, *Journal. Proceed. Linn. Soc., London*, 1857, p. 13.

Hab. Singapore.

Genus CHRYSOTOXUM.

Meig., *Illig. Magaz.*, ii, 1803, p. 275; Coupsa, pt., Scopoli; Mullo, pt., Fabr.,
Fallen; Syrphus, pt., Panzer; Milesia, pt., Fabr.

baphyrus, Walker, *List Dipt. Ins. Brit. Mus., London*, iii, 1849, p. 542.
Hab. Bengal.

antiquum, id., *Ins. Saunders. Dipt.*, i, 1856, London, p. 218.
Hab. India.

indicum, id., *ibid.*, p. 218.
Hab. India.

Genus MICRODOR.

Meig., *Illig. Magaz.*, ii, p. 275, 1803; Mullo, Stratiomyz, pt. Panzer; Aphrisis,
Latr., *Gen. Crust. et Ins.*, iv, p. 329, 1809; id. Macq., *B. a Belg., Dipt.*, i,
Paris, 1834, p. 486.

stilboides, Walker, *List Dipt. Ins. Brit. Mus., London*, 1849, iii, p. 538.
Hab. India.

sumatranus, V. d. Wulp, *Sumatra Exped.*, p. 29.
Hab. Sumatra.

apicalis, id., *ibid.*, p. 29.
Hab. Sumatra.

Genus ASCIA.

Meig., *Syst. Besch.*, 3rd pt., Hamm, 1822, p. 180.

brachystoma, Wiedem., *Auser. Europ. Zeevlig. Ins.*, 2nd Part, Hamm, 1830, p. 90.
Hab. India.

Genus BACCHA.

Fabr., *Syst. Antl.*, 1805, p. 109; Meig., Fall, Latr., Wiedem., Walker, Macq.,
Bondani; Syrphus, pt. Fabr.; Baca vel Bacha, Schiner, 1862.

sapphirina, Wiedem., *Auser. Europ. Zeevlig. Ins.*, 2nd pt., Hamm, 1830, p. 98.
Hab. India.

vittata, ? (Wiedem) nomen bisectum, Macq., *Dipt. Ecot.*, ii, 2nd Pt., 1842, p. 108.
Hab. Java.

maculata, Walker, *Ins. Saunders., Dipt.*, i, London, 1856, p. 223.
Hab. India.

amphitoe, id., *List Dipt. Ins. Brit. Mus., London*, iii, 1849, p. 549.
Hab. India.

tripartita, id., *Journal. Proceed. Linn. Soc., London*, vii, 1864, p. 212; v. Schiner,
Noenr. Reiss., p. 344.
Hab. Batchian; Nicobar Islands.

pedicellata, Dolesch., *Naturk. Tijdschr. v. Nederl. Indie, Batavia, 1856, p. 411.*
Hab. Java.

gratiosa, J. Bigot, *Ann. Soc. Ent. France, 1883-84, p. 335.*
Hab. Sarawak.

Genus LYCASTRIS.

Walker, *Trans. Ent. Soc., London, 1857, p. 155.*

albipes, id. *ibid.*, p. 155.
Hab. India.

Genus TIGRIDOMYIA.

J. Bigot, (*olim*, *Tigridomyia* vel. *Tigridomyia*); J. Bigot, *Ann. Soc. Ent. France, 1883, Bullet. No. 13, p. 348.*

picifipes, id. *Ann. S. Ent. France, p. 348, 1883-84.*
Hab. Java.

Genus ISCHYROSTEPHUS.

J. Bigot, *Ann. Soc. Ent. France, 1882, Bullet. No. 6, p. 63.*

siwa, id. *ibid.*, p. 78.
Hab. India.

tigerinus, id., *Ann. Soc. Ent. France, 1885, p. 249.*
Hab. India.

Genus ANCYLOSTYPHUS.

J. Bigot, *Ann. Soc. Ent. France, 1882, Bullet. No. 6, p. 63.*

calvise, id. *ibid.*, *Syrphus id.*, Fabr., *Ent. Syst.* iv, p. 306, (1794); *Sensu* Wiedem. *Auss. Europ. Zuecht. Ins.* ii, p. 122; *Sensu* Osten-Sacken, *Ann. Mus. Civ. Genova, 1880, p. 438*; *Syrphus ericetorum*, Fabr., *Ent. Syst.*, iv, p. 287; *Syrphus incisuralis?* Macquart, *Dipt. Escl., 6th Suppl.*, Paris, 1855, p. 94; *Didea macquarti*, Doleschall, *Naturk. Tijdschr. v. Nederl. Indie, Batavia, 1857, p. 408.*

Hab. Java, Amboina, Ternate, Celebes, New Guinea, etc.

Genus SIMOSYPHUS.

J. Bigot, *Ann. Soc. Ent. France, 1882, Bullet. No. 6, p. 79.*

planifacies, id. *ibid.*, p. 79; *Syrphus id.* Macq., *Dipt. Escl., Suites du 2nd Suppl.*, 1847, p. 43.
Hab. Java.

Genus EUMEROSYPHUS.

J. Bigot, *Ann. Soc. Ent. France, 1883, 349.*

indicus, (*olim* *indianus*); id. *ibid.*, p. 349.
Hab. India.

GENUS *ENDOIARIMTIA*.

J. Bigot, *Ann. Soc. Ent. France*, 1883, *Bullet.* No. 15, p. 549.

indiana, *id. ibid.*, p. 549.

Hab. India.

GENUS *CARTOSYEPHUS*.

J. Bigot, *Ann. Soc. Ent. France*, 1883-84, p. 280, 1st pt.

philipos, *id. ibid.*, p. 551, 1st pt.

Hab. India.

GENUS *PRIOMERUS*.

Macquart (et Serville), *Suit. d. Bug. Dipt.*, i, Paris, 1834, p. 511.

fasciatus, *id. ibid.*, p. 512.

Hab. India.

GENUS *SPHEGINA*.

Meigen, *Syst. Besch.*, iii, *Hamm.*, 1822, p. 193; *Milesia*, pt., Fall.; *Syrphus*, pt., Panzer.

macropoda, J. Bigot, *Ann. Soc. Ent. France*, 1883-84, p. 331.

Hab. Burma.

GENUS *MINGAFIS*.

Macq., *Dipt. Exot.*, ii, 2nd part, Paris, 1842, p. 27; *Eristalis* pt. *Phytomyia*, Guerin, *Voy. Bellanger*, *Zool.*, p. 509; *Syrphus*, Fabr. pt.

chrysoptera, Sennu Macq., *Dipt. Exot.*, ii, 2nd Pt., 1842, p. 27; *Eristalis* *id.* Wied., *Auser. Europ. Zweiflug. In.*, 2nd Pt., *Hamm.*, 1830, p. 152; *Phytomyia*, *id.* Guerin (*loc. cit.*).

Hab. India, Sylhet, Java, etc.

crassus, *id. ibid.*, p. 28; Sennu Walker, *List. Dipt. In. Brit. Mus.*, London, 1849, iii, p. 631; *Syrphus*, *id.*, Fabr., *Ent. Syst.*, iv, p. 281; *Syrphus megacephalus*, Fabr., *Ent. Syst. Suppl.*, 561, 17.

Hab. Tranquebar.

zonalis, *id. ibid.*, 5th *Suppl.*, 1855, p. 86; *Syrphus* *id.* et, *zonatus*, Fabr., *Ent. Syst.*, iv, p. 294, Sennu V. d. Walp, *Sumatra Exped.*, *Eristalis*, *id.*, Fabr., *Syst. Anth.*, p. 242, et Wiedem, Sennu Ost-Sacken, *Ann. Mus. Cis. d. Stör. Nat. Genua*, 1880, p. 411; *Eristalis flavofasciatus*, Macq., *Dipt. Exot.*, 4th *Suppl.*, 1850, p. 136.

Hab. China, Java, Sumatra, India.

errans, Sennu V. d. Walp, *Tijdschr. v. Entom.*, 1879-80, p. 170; *Eristalis* *id.*, Fabr., *Ent. Syst.*, iv, p. 294; Sennu Ost-Sack., (*loc. cit.*), *Erist.* *varipes*, Macq., *Dipt. Exot.*, ii, 2nd Pt., Paris, 1842, p. 46; *Eristalis macquarti*, Dolesch., *Naturk. Tijdschr. v. Nederland. Indië, Batavia*, 1856, p. 410; *Eristalis amphicrates*, Walker, *List. Dipt. In. Brit. Mus.*, London, iii, 1849, p. 623.

Hab. India, Java, China.

Genus ERISTALIS.

Latr., *Gen. Crust. et Ins.*, iv, p. 323, 1809; *Conops*, pt., Scopoli; *Syrphus*, pt., Fab., Zett.; *Elophilus*, pt., Latr; *Axona*, pt., Walker, *Journ. Proceed. Linn. Soc., London*, vii, 1864, p. 210; *Eristalinus et Eristalomyia*, pt., Rondani, *Prodr.*, ii, 1857, p. 40.

cerealis, Fabr., *Syst. Anth.*, p. 232.
Hab. China.

proserpina, Wiedem., *Ausser. Europ. Zweiflug.*
Hab. China.

vestitus, id. *ibid.*, p. 159.
Hab. Java.

vilis, id. *ibid.*, p. 164.
Hab. Java.

quadrivittatus, id. *ibid.*, p. 163, et *Zool. Usd*
Hab. Bengal?

bengalensis, id. *ibid.*, et, *Zool. Mag.*, iii, p. 167.
Hab. Bengal.

sinensis, id., *Anal. Entom.*, p. 37.
Hab. China.

cognatus, id. *ibid.*, p. 37.
Hab. Tranquebar Madras Pr.

orientalis, id. *ibid.*, p. 38.
Hab. Java.

niger, id. *ibid.*, p. 38.
Hab. Java, Bengal.

arvorum, Sensu Wiedem., *Ausser. Europ. Zweiflug. Ins.*, ii, Hamm, 1830, p. 184.
Syrphus id., Fabr., *Ent. Syst.*, iv, p. 289.
Hab. Bengal, Java, China.

quadrilineatus, Sensu Wiedem., id. *ibid.*, p. 185; *Syrphus*, id. Fabr., *Ent. Syst.*, iv, p. 289.
Hab. Tranquebar Madras Pr., Bengal.

obliquus, id., *Anal. Entom.*, p. 38.
Hab. Bengal.

quinquestriatus, Sensu id., *Ausser. Europ. Zweifl. Ins.*, ii, Hamm, 1830, p. 187;
Syrphus id., Fabr., *Ent. Syst.*, iv, p. 289.
Hab. India.

luctus, id. *ibid.*, p. 192.
Hab. China.

sugens, id. *ibid.*, p. 193.
Hab. China.

ja, TUNUS, Macq., *Dipt. Exot.*, ii, 2nd Pt., Paris, 1842, p. 32.

Hab. Java.

dentipes, id. *ibid.*, p. 37.

Hab. Java.

vinctorum, *Col. Syst. L.*, p. 562, et Macq., *Dipt. Exot.*, ii, 2nd Pt., Paris, 1842,

Hab.

arky,

2nd Ft., *Fari**, 18-i², p. 45.

pam,

Hab. Bengal.

latus, id. *ibid.*, p. 35.

Hab. India.

quadristriatus, id. *ibid.*, *Suppl.*, 1846, p. 127.

Hab. India.

tomentosu*, id. *ibid.*, *Suites du 2e 2d Suppl.*, 1847, p. 39.

Hab. Java.

violaceus, id. *ibid.*, p. 40.

Hab. Java.

tarsalis, id. *ibid.*, *5th Suppl.*, p. 87.

Hab. China.

exterus, Walker, *Ina. Saunders. Dipt.*, i, London, 1856, p. 248.

Hab. India.

multifarius, id. *ibid.*, p. 248.

Hab. India, Java.

solitus, id., *List Dipt. Ina. Brit. Mus.*, iii, London, 1849, p. 619.

Hab. Nepal.

se; pu<, id. *ibid.*, p. 625.

Hab. China.

annidatus, id. *ibid.*, p. 626.

Hab. China.

andramon, id. *ibid.*, p. 627.

Hab. Sylhet.

JOS ymnus, id. *ibid.*, p. 530,

Hab. India.

chalcopygus, Sensus Ost.-Sacl-ton, *Ann. Mus. Civ. d. Stor. Nat. Genova*, 1850, p. 440.

Axona volucelloides, Walker, *Journ. Proceed. Linn. Soc.*, London, vii, p. 212, and,

Eristalis maxima, Dolesch., *Nederk. Tijdschr. v. Nederl. India, Batavia*, 1857, p. 405.

Hab. Manilla, Amboina.

singularis, Walker, *Journ. Proceed. Linn. Soc. London*, iii, 1857, p. 17.

Hab. Singapore.

nitidus, V. d. Walp, *Compt. Rendus, Soc. Ent. J. Belgique*, 1884, p. 231.

Hab. Java.

transpositus, Walker., *Trans. Ent. Soc., London*, v, 1860, p. 289.

Hab. Borneo.

curvipes, Schiner, *Novara. Reise*, 1868, p. 303.

Hab. Ceylon.

quinquefasciatus, Fabr., *Spec. Ins.*, ii, p. 425, *Genus Schiner, Novara. Reise*, 1868, p. 304. *E. quinquefasciatus*, Loew, *Faun. Sudetica*, i, p. 396, (324).

Hab. Ceylon, South Africa?

urainus, Jaenicke, *N. Ent. Dipt., Frankfurt*, 1867, p. 93.

Hab. Java.

ventralis, Thomson, *Fragatt. Eugenie's Reise, Stockholm*, 1858-68, p. 480.

Hab. China.

barbatus, J. Bigot, *Ann. Soc. Ent. France*, x, 1880, p. 214.

Hab. India.

ursinus, (nom. bisectus), id. *ibid.*, p. 215.

Hab. India.

albiteris, id. *ibid.*, p. 215.

Hab. India.

Genus ERISTALONTIA.

Rondani, *Prodr.*, ii, 1857, p. 40; *Eristalis*, pt.

orientalis, Rondani, *Ann. d. Mus. Civ. d. Stor. Nat. J. Genova*, 1875, p. 421.

Hab. Borneo.

paris, J. Bigot, *Ann. Soc. Ent. France*, x, 1880, p. 218.

Hab. India.

pieta, id. *ibid.*, p. 219.

Hab. India.

fo, id. *ibid.*, p. 220.

Hab. Amoy.

Genus MERODON.

Meig., *Illig. Magaz.*, ii, 1803, p. 274; *Syrphus* pt. *Milesia*, pt. *Latr.*, Fabr.

albifasciatus, Macq., *Dipt. Exot.*, ii, 2nd Pl. *Paris*, 1842, p. 71.

Hab. India.

vai-toctor, Walker, *Journal. Proceed. Linn. Soc., London*, 1857, p. 122.

Hab. Sarawak.

Genus TROPIDIA.

Meig., *Syst. Besch.*, iii, *Hamm*, 1822, p. 346; *Eristalis*, pt. *Fallen*.

sinensis, Macq., *Dipt. Exot.*, 5th *Suppl.*, *Paris*, 1855, p. 91.

Hab. China.

Genus IMATISMA.

Macq., *Dipt. Exot.*, ii, 2nd Pt., *Paris*, 1842, p. 63; *Son*, u J. Bigot, *Zetterstedtia*, *Rondani*.

orientalis, Macq., *id. ibid.*, p. 69.

Hab. India.

Genus HELOPHILUS.

Meig., *Illig. Mag.*, ii, 1803, p. 274; *Conops*, pt. *Scopoli*; *Syrphus*, pt. *Panzer*, *Eristalis*, *Fabr.*, *Wied*; *Elophilus*, *Latr. Rhinglow*, pt. *Fabr.*

benz-alen < *is*, *Son* u Macq., *Dipt. Exot.*, ii, 2nd Pt., *Paris*, 1842, p. 63; *Eristalis*, *id. Wiedem.*, *Zool. Magaz.*, iii, p. 16.

Hab. Bengal.

notabilis, *id. ibid.*, p. 63.

Hab. Java, Sumatra?

insignis, *Walker*, *Journal. Proc. Linn. Soc.*, *London*, 1857, p. 17.

Hab. Singapore.

in *signis*, (*sem. bisectum*), *Doleschal*, *Naturk. Tijdschr. v. Nederl. Indie, Batavia*, 1857, p. 403.

Hab. Java.

philipes, *id. ibid.*, p. 410.

Hab. Java, Amboina.

Genus SENOGASTER.

Macq., *S. d. Buff. Dipt.*, i, *Paris*, 1834, p. 519.

lutescens, *Dolesch.*, *Naturk. Tijdschr. v. Nederl. Indie, Batavia*, 1856, p. 410.

Hab. Java.

Genus EOMERUS.

Meig., *Syst. Besch.*, iii, *Hamm*, 1822, p. 202; *Syrphus*, pt. *Panzer*; *Eristalis*, pt. *Fabr.*; *Milesia*, pt. *Latr.*

macrocerus, *Wiedem.*, *Auser. Europ. Zurlflug. Ins.*, ii, *Hamm*, 1830, p. 113.

Hab. China.

aurifrons, *id. ibid.*, p. 114.

Hab. India.

splendens, id. *ibid.*, p. 114.

Hab. India.

albifrons, Walker, *Ins. Saunders, Dipt.*, i, London, 1856, p. 224.

Hab. India.

nicobarensis, Schiner, *Novar. Reise.*, 1868, p. 368.

Hab. Nicobar Islands.

Genus SYRITTA.

St. Farg. Servill, *Encyclop. Method.*, x, 1825, p. 808; Conops, pt. Scopoli;
Syrphus, pt. Fallen; Milesia, pt. Fabr. Latr.; Xylota, pt. Meig. West-
wood; Coprina, pt. Zetterst.

rufifacies, J. Bigot, *Ann. Soc. Ent. France*, 1883-84, p. 538.

Hab. Pondicherry.

orientalis, Macq., *Dipt. Exot.*, ii, 2nd Pt., Paris, 1842, p. 76.

Hab. Pondicherry.

Genus XYLOTA.

Meig., *Syst. Besch.*, iii, *Hann.*, 1822, p. 211; Syrphus, pt. Panz.; Milesia,
pt. Fall. Latr. Micramptoma, Westw.; Helophilus, pt. Meig. (*olim*),
Eumerus, id. (*olim*); Microdon, Thoreva, pt. Fabr.; Eristalis, pt. Fallen;
Xyloteja, pt. Rondani, *Prodr.*

calopus, J. Bigot, *Ann. Soc. Ent. France*, 1883-84, p. 543.

Hab. Java.

indica, Wiedem., *Anal. Entom.*, p. 33; Synon., Eumerus, id. (*olim*).

Hab. India.

æqualis, Walker, *Ins. Saunders, Dipt.*, London, i, 1856, p. 226.

Hab. India.

methusa, id., *List. Dipt. Ins. Brit. Mus.*, London, Pt. iii, 1849, p. 559.

Hab. India.

conformis, id., *Journal. Proceed. Linn. Soc.*, London, 1857, p. 18.

Hab. Singapore.

cuprina, J. Bigot, *Ann. Soc. Ent. France*, 1885, p. 247.

Hab. India.

nigroaeneocens, Rondani, *Ann. Mus. Civ. J. Stor. Nat. Genova*, 1875, p. 422.

Hab. Borneo.

Genus GRAPTOMYZA.

Wiedem., *Auser. Europ. Zweiflug. Ins.*, 2nd pt., *Hann.*, 1830, p. 206.

rentalis, Wiedem., *ibid.*, p. 207.

Hab. Java.

longirostris, id. *ibid.*, p. 208.

Hab. Java.

interrupta, id. *ibid.*, p. 209.

Hab. Java.

brevirostris, id. *ibid.*, p. 209.

Hab. Java, Nicobar Islands.

GENUS BARTTEROCERA.

Walker, *Journ. Proceed. Linn. Soc., London*, 1857, p. 123; *Graptomyza*, pt.

inclusa, Walker, id. *ibid.*, p. 123.

Hab. Borneo.

GENUS CITIENA.

Walker, *Journ. Proceed. Linn. Soc., London*, 1857, p. 124.

aurata, Walker, id. *ibid.*, p. 124.

Hab. Borneo.

GENUS VOLUCELLA.

Geoffroy, *Hist. Nat. des Insectes d. Paris*, II, 1764; *Conopa*, pt. Scopell
Syrphus, pt. Fabr., Fallén; *Cosmogaster*, Dumeril, 1801; *Ornidia*, pt.
 St. Fargéan.

peleteri, Macq., *S. & Buff. Dipt.*, I, Paris, 1834, p. 495.

Hab. Java.

opalina, Wiedem., *Ausw. Europ. Zweiflug. Ins.*, 2nd Pt., Haum, 1830, p. 203.

Hab. Bengal.

trifasciata, id. *ibid.*, p. 193.

Hab. Java.

nubeculosa, J. Bigot, *Ann. Soc. Ent. France*, 1875, p. 474.

Hab. China.

aurata, Macq., *S. & Buff.*, I, Paris, 1834, p. 494.

Hab. Java.

obesa, (G. *Ornidia*, St. Farg.), Fabr., *Syst. Ent.*, p. 763.

Hab. Inter Tropica ferè undique.

GENUS TEMNOCERA.

St. Fargéan, Servillo, *Encyclop. Method.*, x, 1805, p. 737; *Volucella*, pt.
 Wiedem.

violacea, Macq., *S. & Buff. Dipt.*, I, Paris, 1834, p. 495; Sensus Macq., *Volucella*

mutata, Wiedem., *Ausw. Europ. Zweiflug. Ins.*, II, Haum, 1830, p. 193.

Hab. China.

Genus LASIOPRTHICUS.

Rondani, *Prodr.*, i, 1856, p. 51; Syrphus, pt.; Catabomba! Oot.-Sacken,
Western Dipt., Washington, 1877, p. 325.

annamites, J. Bigot, *Ann. Soc. Ent. France*, 1885, p. 250.

Hab. Cochin China.

Genus PARAGUS.

Latr., *Gen. Crust. et Ins.*, iv, p. 326, 1809; Mullo, pt. Fabr; Syrphus, pt.
 Panzer; Pipiza, pt. Fallen.

serratus, Wiedem., *Auser. Europ. Zweiflug. Ins.*, i, Hamm, 1830, p. 88; Senna Wied.
 Mullo, id. Fabr., *Syst. Antl.*, p. 186.

Hab. Tranquebar, Ceylon.

politus, id. *ibid.*, p. 89.

Hab. China.

crenulatus, Thomson, *Fregat. Eugenes Resu, Stockholm*, 1858-68, p. 503.

Hab. China.

Genus SYRPHUS.

Fabr., *Syst. Ent.*, 1775; Musca, pt. Linn.; Scova, Fabr., Fall., Panzer,
 Zetterst.; Leucozona, pt. Schiner, *Wien. Entom. Monatschr.*, vi, 1860,
 p. 214; Eriozona, pt. *ibid.*, p. 214; Spatigaster, or Spanigaster, pt.
 Rondani, *Rev. Entomol.*, 1843; Pyrophacta, pt. Schiner, *Wien. Entom.
 Monatschr.*, 1860, p. 213; Platycheirus, pt. St. Farg. Servillo, *Encycl.
 Method.*, x, 1825, p. 513; Melanostoma, pt. Schiner, *Wien. Entom.
 Monatschr.*, iv, 1860, p. 213; Ischyrosyrphus, Ancylosyrphus, Simosyr-
 phus pt. J. Bigot, *Ann. Soc. Ent. France, Bullet.*, 1882, pp. 68, 69.

cegrotus, Senna Wiedem., *Auser. Europ. Zweiflug. Ins.*, i, Hamm, 1830, p. 118 Synon.
 Kristalis, id. Fabr., *Syst. Antl.*, p. 243; Senna Ooten-Sacken, *Ann. d. Mus. Civ. d.
 Stor. Nat. d. Genova*, 1880, p. 437, Didea Eilensiederi, Dolasch., *Naturk. Tijdschr.
 v. Ned. Indië, Batavia*, 1857, p. 407, Syrphus fascipennis, Macq., *B. d. Belg. Dipt.*,
 i, Paris, 1834, p. 537, et, Syrphus indrmas, Rondani, *Ann. d. Mus. Civ. d. Stor. Nat.
 d. Genova*, 1875, p. 323; Senna Macq., *Dipt. Esot.*, ii, 2nd Pt., Paris, 1842, p. 88.

Hab. China, Borneo, Ternate, Sumatra, Java, India, N. Ceram.

trilimbatus, J. Bigot, *Ann. Soc. Ent. France*, 1884, p. 86.

Hab. India.

erythropygus, id. *ibid.*, p. 87.

Hab. India.

nectarinus, Wiedem., *Auser. Europ. Zweiflug. Ins.*, i, Hamm, 1830, p. 128; Senna
 Ooten-Sacken, *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1880, p. 438, Syrphus
 alternans, Macq., *Dipt. Esot.*, ii, 2nd Pt., Paris, 1842, p. 89, et, triligatus,
 Walker, *Journal. Proceed. Linn. Soc., London*, i, p. 19; Senna V. d. Walp, *Sumatra
 Expedit.*, p. 33, balteatus, de Geer, Meig., Macq., Zetterst., Alternata, Schrank,
 Nectarinus, Fabr., Nectarinus, Fb. Wied.

Hab. China, Ternate, Java, Sumatra, India et Europa.

atriatus, V. d. Walp, *Sumatra Exped.*, p. 82.

Hab. Sumatra.

confrater, Wiedem, *Ausser. Europ. Ziesflug. Ins.*, ii, *Hann.*, 1830, p. 120.

Hab. China.

neglectus, id. *ibid.*, p. 134.

Hab. Borneo, (Sensu Roadani).

corollae, (Fabr. Europa) Wied. *ibid.*, p. 121.

Hab. China; Europe.

lunatus, Wied., *ibid.*, p. 121.

Hab. China.

serarius, id. *ibid.*, p. 128.

Hab. China.

viridureus, id. *Anat. Entom.* p. 35, p. 137.

Hab. Java.

javanus, id., *Anatol. Entom.*, p. 34.

Hab. Java.

scutellaris, (G. Scava), Fabr., *Syst. Antl.*, p. 252.

Hab. Tranquebar.

coromandelensis, Macq., *Dipt. Exot.*, ii, 2nd Pt., Paris, 1842, p. 89

Hab. Coromandel.

assimilis, id. *ibid.*, *Suppl.* 1846, p. 135.

Hab. India.

rufofasciatus, id. *ibid.*, 4th *Suppl.*, 1850, p. 149.

Hab. Java.

consimilis, id. *ibid.*, p. 150.

Hab. Java.

mundus, Walker, *Ins. Saunders, Dipt.*, London, 1856, i, p. 230.

Hab. India.

cranapex, id. *ibid.*, p. 231.

Hab. India.

orsua, id. *ibid.*, p. 231.

Hab. India.

optimus, id. *ibid.*, p. 222.

Hab. India.

pedius, id. *ibid.*, p. 234.

Hab. India.

cothonea, id. *ibid.*, p. 235.

Hab. India.

pleuralis, Thomson, *Fregat. Eugeniae Resa, Stockholm, 1858-58, p. 497.*

Hab. China.

heterogaster, id. *ibid.*, p. 498.

Hab. China.

macropterus, id. *ibid.*, p. 498.

Hab. China.

divertens, Walker, *Journ. Proceed. Linn. Soc., London, 1857, p. 124.*

Hab. Sarawak.

cyathifer, id. *ibid.*, p. 125.

Hab. Sarawak.

consequens, id., *ibid.*, 1857, p. 18.

Hab. Singapore.

duplex, id. *ibid.*, p. 18.

Hab. Singapore.

splendens, Dolesch., *Naturk. Tijdschr. v. Nederl. Indië, Batavia, 1856, p. 410.*

Hab. Java.

GENUS MELANOSTOMA.

Schiner, *Wien. Ent. Monatschr.*, iv, 1860, p. 213; Syrphus, pt.

univittata, Senou V. d. Wulp, V. d. Wulp, *Sumatra Exped.*, p. 33; Syrphus, id. *Wiedem., Anal. Entom.*, p. 36.

Hab. India.

orientalis, Ost.-Sacken, *Ann. Mus. Civ. d. Stor. Nat. d. Genova*, 1880, p. 437; Senou Ost.-Sacken, Syrphus, id., *Wiedem., Anal. Entom.*, p. 36.

Hab. India.

GENUS SPHROPHORIA.

St. Fargeau, Serville, *Encycl. Method.*, 1825; Synon. *Melithreptus*, Loew, *Isis.*, 1840, p. 573; *Allograpta*, pt. Ost.-Sacken, *Bullet. Bufalo Soc.*, 1876; *Mesogramma*, vel *Mesograpta*, pt. Loew, *Dipt. Amer. Septentr. Indig. Centur.*, ii et vi.

indiana, J. Bigot, *Ann. Soc. Ent. France*, 1884, p. 29.

Hab. India.

bengalensis, Macq., *D. Esol.*, ii, 2nd Pt., Paris, 1842, p. 104.

Hab. India.

FAMILY CESTRIDI.

J. Bigot, *ad hoc* *iss.*, 1891; Cestridae, Leach, *Edinb. Encycl.*, 1815; Cestridae, et Cestridae, Leach, 1817-19; Cestrinidae, Meig., *Syst. Besch.*, iv,

Hamm, 1824; *Cestrinæ*, Rob. Desvoidy, *Myodaires*, 1830; *Hammatomyxa*, Fallen. *Cestrinæ*, Macq., *S. & Bug. Dipt.*, 1835; *Cestrinæ*, Schiner, *Cestrinæ*, *Cestrina*, *Hypodermina*, Rondani, *Prodr.*, i, 1856, p. 19; *Cestrinæ*, J. Bigot, (*olus*), *Cestrinæ*, Brauer, 1863, *Verhandl. K. K. z. b. Gesellsch. Wien*.

GENUS GASTROPHILUS.

Leach., *Eprobosc. Ins. Warner. Soc.*, 1817; *Gastrus*, pt. Meig., 1824; *Cetrus*, pt. Latr.

bengalensis, Brauer. *Sensu Brauer. Gastrophilus Equi*, Fab., Macq., *Dipt. Exot.*, ii *Paris*, 1843, p. 25.

Hab. Bengal.

GENUS TRYPODERMA.

Brauer, *Verh. K. K. z. b. Gesellsch. Wien*, 1862, p. 1231; *Trypoderma* pt. *Wiedem., Anser. Europ. Zoolog. Ins.*, ii, Hamm, 1830, p. 256.

abdominalis, Brauer, (*loc. cit.*), p. 1231; *Synon.*, *Trypoderma*, id. *Wiedem., Anser. Europ. Zoolog. Ins.*, ii, Hamm, 1830, p. 260.

Hab. Bengal.

II.—*Catalogue of the Diptera of the Oriental region* by MONS. J. M. F. BIGOT. PART III. *Communicated by the SUPERINTENDENT OF THE INDIAN MUSEUM.*

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Circulus CALYPT*TK

J. Bigot, *adhuc inedit.* 1891.

FAMILY MYOPICTE.

J. Bigot, *adhuc inedit.* 1891.

GENUS MYOPA.

Fabr., *Syst. Entom.*, 1775, p. 798. *Cenops*, pt. (anctor) *Phorosis*, *Myopella*, id., *Parpurellia*, id., *Gaustellia*, id., *Myopia*, id., *Tairmairia*, id., *Lanchopalpus*, id., *Pictina*, id., pt. Rob. Desvoidy, *Des Myopides*, 1859. *Gomriynchus*, Rondani *Prodr.* i, p. 58, 1856. *Dalmannia*, pt. Rob. Desv. *Myod.* 1830 p. 248, *Sicus*, pt., Latr. *Proc.* i, *Caract. Ins.* 1803.

cincta, Fabr. *Syst. Antl.*, p. 151.

Hab. India.

Family PHASIADÆ.

J. Bigot, *adhuc inedit.* 1891.

Phasianæ, Rob. Desv. *Myod.*, 1830, pp. 25, 280, Westw. Meig. *Rhysomyza*,
Fallen *Phasiaria*, Zetterst., *Dipt. Scandin.*, 1841. *Phasidæ*, J. Bigot,
(olim) *Gastroden*, Rob. Desv. *loc. cit.* p. 245, *Gymnolera*, pt., Macq.,
S. & Buff., *Dipt.*, ii, 1835, p. 187, Paris. *Phasius*, Schin., *Faun. Austriaca*,
d. *Flieg.*, ii, p. 71, 1862, *Phasius*, Rond., *Prodr.* ii, pp. 22, 80, 1856.

Genus GYMOSOMA.

Meig., *Illig. Magaz.*, ii, pp. 278, 1803, *Tachina*, pt., Latr. Meig. *Ocyphro*,
pt., Fabr.

indica, Walker, *Insect. Saunders.*, *Dipt.*, i, p. 257, London, 1856.

Hab. India.

Genus PHASIA.

Latr., *Nouv. Diet. Hist. Nat.*, 1806; *Thereva*, pt., Meig. (olim).

indica, Walker, *Insect. Saunders.*, *Dipt.*, p. 256, *La^{mlr}ou*, 1856.

Hab. India.

Family TACHINIDÆ.

J. Bigot, *adhuc inedit.* 1891 *Creophilus* Latr., *Fam. Nat. Calypterato*,
pp. 21, 25 *Tachinaria*, p. 185, *Zoobio*, p. 25, *Entomobio*, p. 26,
pt., Rob. Desv., *Myod.*, 1830, *Tachinaria*, *Ocypterato*, pt., Macq., *S. &*
Buff. Dipt., ii, pp. 59, 179, Paris, 1835; *Tachinarida*, J. Bigot, (olim)
Tachinina, Schiner, *Faun. Austr.* d. *Flieg.*, i, 1862, p. 423; *Tachinina*,
Rondani, *Prodr.*, i, p. 59, 1856.

Genus JURINIA.

Rob. Desvoidy, *Myod.*, 1830, p. 31; *Syiu* n., *Jurinea*, (auctor).

indica, id., *ibid.*, p. 50.

Hab. India.

Genus GONIA.

Meig., *Illig. Maaa*, ii, p. 280, 1803; *Reaummia*, p. 79, *Rhedia*, p. 74,
Spallanzania, p. 78, *Peleteria*, p. 40, pt., Rob. Desv., *Myod.*, 1830;
Isomera, pt. id., *Ann. Soc. Ent. France*, 1851, p. 315; *Tachina*, pt.,
Fall. (et auctor) *Darnaucelia*? Rob. Desv. *Myod.*, 1830, p. 227.

lavaiica, Rob. Desv., (*Peleteria* id.) *Myod.*, 1830, p. 40.

Hab. Java.

atra, id., (*Rhedia*, id.) *ibid.*, p. 78.

Hab. Batavia, Cape of Good Hope (*Secundum*, Wied.)

bicinota, id., (*Darnaucelia*, id.) *ibid.*, p. 228.

Hab. India.

Javana, Macq., *Dipt. Ecot. Suit du 2nd Suppl.*, Paris, 1847, p. 43.

Hab. Java.

Javana, (*nem. bislectum*), id., *ibid.*, 4th Suppl., Paris, 1850, p. 178.

Hab. Java.

rufitibialis, id., *ibid.*, p. 178.

Hab. Pondicherry.

indica, Brauer., (*G. Trichomorpha*), p. 463; *Synon.*, *Gonia* id., Walker, *Ins. Scandin.*, *Dipt.*, i, London, 1856, p. 305.

Hab. India.

cestroides, Walker, *Trans. Ent. Soc.*, London, i, 1857, p. 13.

Hab. India.

minuta, V. d. Wulp, *Samatra Exped.*, p. 35.

Hab. Sumatra.

Genus *ESCHMERTIA*

Dumeril, *Zool. Anal.*, 1806; *Tachina*, pt. Meig., *Illig. Magazin.*, 1803, p. 280,

Fabricia, p. 42, *Faurellia*, p. 41, *Peleteria*, p. 39, *Serrillia*, p. 40, *Rob.*

Deriv., *Myol.*, 1830.

rufo-analis, Macq., *Dipt. Ecot.*, 4th Suppl., Paris, 1850, p. 169.

Hab. India.

topens, Walker, *List. Dipt. Ins. Brit. Mus.*, London, iii, 1849, p. 723.

Hab. Syhet.

sacotala, id. *ibid.*, p. 723.

Hab. Nepal.

Javana, V. d. Wulp, *Tydschr. v. Natom.*, xxiii, p. 171; *Synon. Tachina*, id., *Wiedem.*, *Zool. Magazin*, iii, p. 24.

Hab. Java, Sumatra.

platymesa, Walker, *Trans. Ent. Soc.*, London, 1857, p. 7.

Hab. China.

brevipennis, Walker, *Journal. Proceed. Linn. Soc.*, London, i, 1857, p. 19.

Hab. Mount Ophir, Malacca.

lithanthrax, Wiedem., (*Tachina*, id.), *Asser. Europ. Zoolog. Ins.*, 2nd Part, *Hann.*, 1820, p. 283.

Hab. Java.

varia, Fabr. (*Musca* id.), *Ent. Syst.*, iv, p. 327.

Hab. India.

flavopilosa, J. Bigot, *Ann. Soc. Ent. France*, 1888, p. 80.

Hab. Java.

Genus LATREILLIA.

Rob. Desv., *Myod.*, 1830, p. 104; *Tachina*, etc. (auctor.) pt.

psamathe, Walker, (*Tachina*, id.) *List. Dipt. Ins. Brit. Mus.*, London, 1849, 4th Pt., p. 765.

Hab. Madras.

Genus MRIGENIA.

Rob. Desv., *Myod.*, 1830, p. 198.

ciliata, V. d. Walp, *Sumatra Exped.*, p. 38-
Hab. Sumatra.

latestriata, id. *ibid.*, p. 39.

Hab. Sumatra.

Genus MASICERA.

Macq., *S. d. Buff. Dipt.*, II, Paris 1835, p. 118; *Tachina*, pt. Phryxé, p. 158; *Carulia*, p. 176. *Lyellia*, p. 112, pt. Rob. Desv., *Myod.*, 1830, *Blepharipa*, p. 71, *Ceromasia*, p. 71, pt. Rondani, *Prodr.*, I, p. 71, 1856.

tenuisetosa, Macq., *Dipt. Exot.*, *Suit. du 2nd Suppl.*, Paris, 1847, p. 46.

Hab. Java.

niveiceps, id. *ibid.*, *Atk Suppl.*, 1850, p. 111.

Hab. Java.

cillipes, V. d. Walp, *Sumatra Exped.*, p. 35; *Synon. Tachina*, id., Macq., *Dipt. Exot.*, II, 3rd Pt., p. 52, 1843.

Hab. India, Sumatra.

vicaria, Waller, *Journal. Procéd. Linn. Soc.*, London, I, 1857, p. 20.

Hab. Singapore.

ingivica, id., *Trans. Ent. Soc.*, London, 1857, p. 38.

Hab. India.

albescens, id. *ibid.*, p. 11.

Hab. India.

rubi-ventris, V. d. Walp, *Sumatra Exped.*, p. 37.

Hab. Sumatra.

elongata, id. *ibid.*, p. 37.

Hab. Sumatra.

longiseta, id. *ibid.*, p. 38.

Hab. Sumatra.

Genus NEMOREA.

Rob. Desv., *Myod.* 1830, p. 71; *Tachina*, pt. (auctor), *Ernestia*, p. 60, *Fausna*, p. 62, *Mericia*, p. 64, *Erigone*, p. 65, *Panzeria*, p. 68, *Moriana*, p. 69.

Winthemia, p. 173, pt., Rob. Desv. *loc. cit.*, Platychira, p. 64, Chetolyga, p. 66, Chetina, p. 65, Nemorilla, p. 66, pt. *Rond. Prodr.*, i, 1856.

bicolor, Macq., *Dipt. Exot., 4th Suppl., Paris, 1850, p. 182.*

Hab. Java.

GENUS PHROCERA.

Rob. Desv., *Myod.*, 1830, p. 131; Tachina pt. (auctor.), Doria, pt., Meig., *Syst. Besch.*, vii, *Hamm*, 1838, p. 263; Blondella, p. 122, Palus, p. 154, Medina, p. 138, Rhynomya, p. 123, Latreillia, p. 104, pt., Rob. Desv. *loc. cit.*, Metopia, Lydella, pt. Macq., *S. à Buf. Dipt.*, ii, p. 121 et 132, 1835; Pericheta, p. 67, (alias Polycheta) Chetogena, p. 68, Locanipa, p. 156, (v. 3, 1859), Machareon, p. 159, (vol 3, 1859), Bothria, p. 68, Campylocheta, p. 169, iii, 1859; Istocheta, p. 171, iii, 1859, pt. *Rondani, Prodr.*, i, 1856 et iii, 1859.

Javana, Macq., *Dipt. Exot., 4th Suppl., Paris, 1850, p. 197.*

Hab. Java.

hyalipennis, id. *ibid.*, p. 197.

Hab. Java.

sebina, Walker., *List Dipt. Ins. Brit. Mus., London.* iii, 1849, p. 772.

Hab. Bengal.

GENUS DLGEEBIA.

Meig., *Syst. Besch.*, vii, p. 249, *Hamm*, 1838; Tachina, pt., p. 139, Metopia, pt., p. 122, Macq., *S. à Buf. Dipt.*, ii, *Paris*, 1835, Medina, pt., Rob. Desv., *Myod.*, 1830, p. 138.

albipca, Macq., *Dipt. Exot., 4th Suppl., Paris, 1850, p. 207.*

Hab. Java.

GENUS BLEPHARIPEDA.

Macq., *Dipt. Exot.*, ii, 3rd pt., 1843, p. 54; Blepharipa, *Rondani, Prodr.*, i, 1856, p. 71; Blepharipoda, p. 96, Tricomorpha, p. 163, Sisyropa, p. 163, pt. Brauer et Bergenstamm, *D. Zweifl. d. K. Mus. z. Wien*, 1889; Gonla, pt. Walker, *List Dipt. Ins. Brit. Mus. London*, 737, pt. 3, 1849.

indica, (G. Tricomorpha, Brauer, p. 163); Wiedem., (G. Tachina?)

Hab. India, Bengal.

thermophila, (G. Sisyropa, p. 163, Brauer); Brauer, *loc. cit. Synon. Tachina*, *id.*, *Wiedem., Anst. Europ. Zweifl. Ins.*, ii, *Hamm*, 1830, p. 325.

Hab. Java.

GENUS ZAMBEZA.

Walker, *Journ. Proceed. Linn. Soc., London*, 1, 1867, p. 21.

ocypteroides, id. *ibid.*, p. 21.

Hab. Singapore.

GENUS TACHINA.

Meig., *Illig. Magaz.*, ii, 1803, p. 280; Oedipastor, pt. Macq., *Ann. Soc. Ent. France*, ii, 1854; Voria, p. 105, Acemyia, p. 202, Marshamia, p. 57, pt., *Revue Mycol.*, 1830.

cinerea, (*Musca Tub.* b.), *Fabr., Ent. Syst.*, iv, p. 331.

Hab. India.

potans, (*Marshamia*, R.-Dew.) *Wiedem., Abhandl. Zool. Zweifluz. Ins.*, 2nd Pt., p. 299, *Hann.*

Hab. China.

sugons, id. *ibid.*, p. 306.

Hab. Java.

rufifrons, id. *ibid.*, p. 318.

Hab. China.

convergans, *id. ibid.*, p. 320.

Hab. India.

nigricornis, id. *ibid.*, p. 322.

Hab. India.

munda, id. *ibid.*, p. 324.

Hab. Tranquebar.

navipennis, id. *Anal. Entomol.*, p. 44.

Hab. India.

metallica, id. *ibid.*, p. 46.

Hab. India.

errans, id. *ibid.*, p. U.

Hab. India.

macularis, id. *ibid.*, p. 45.

Hab. India.

melica, id. *ibid.*, p. 49.

Hab. Java.

viridiaurea, id. *ibid.*, p. 43.

Hab. India.

nigriventris, id. *ibid.*, p. 43.

Hab. India.

mollitor, id. *ibid.*, p. 45.
Hab. India.

orientalis Wiedem., *Austri. Europ. Zootiflug. Ins.*, 2nd Pt., Hamm, 1830, p. 333.
Hab. India.

innocens, id. *ibid.*, p. 336.
Hab. China.

orbata, id. *ibid.*, p. 336.
Hab. India.

fasciata, id. *ibid.*, p. 337.
Hab. China, (Macao).

salva, id. *ibid.*, p. 340.
Hab. China.

Javana, Macq., *Dipt. Exot.*, 4th Suppl., Paris, 1850, p. 204.
Hab. Java.

bombolus, Walker, *Ins. Saunders, Dipt.*, i, London, 1856, p. 271.
Hab. India.

nitida, id. *ibid.*, p. 271.
Hab. India.

sobria, id. *ibid.*, p. 272.
Hab. India.

subcinerea, id. *ibid.*, p. 272.
Hab. India.

dorsalis, id. *ibid.*, p. 275.
Hab. Java.

fulva, id. *ibid.*, p. 276.
Hab. India.

grandis, id. *ibid.*, p. 278.
Hab. India.

striventris, id. *ibid.*, p. 290.
Hab. India.

umbrosa, id. *ibid.*, p. 291.
Hab. India.

adnata, id. *ibid.*, p. 292.
Hab. India.

alta, id. *ibid.*, p. 293.
Hab. India.

tricineta, id. *ibid.*, p. 301.
Hab. India.

ophricea, id. *ibid.*, 1857, p. 19.

Hab. Mount Oplfir.

Genus LINNEMYIA.

Rob. Desvoidy, *Myod.*, p. 52, 1830; *Tachina*, pt., (auctor).

titan, Walker, *List. Dipt. Ins. Brit. Mus., London*, iv, p. 735, 1849.

Hab. Sylhet.

Genus LYSELLA.

Rob. Desvoidy, *Myod.*, p. 112, 1830; *Tachina*, pt., (auctor.)

lucagus, Walker, *List. Dipt. Ins. Brit. Mus., London*, iv, p. 768, 1849.

Hab. China.

Genus MYOBIA.

Rob. Desv., *Myod.*, p. 99, 1830; *Tachina*, pt. Orellia, p. 765, *loc. cit.*, Solieria, *Ann. Soc. Ent. France*, 1841, 48, pt. Rob. Desv.

nigripes, Dolosch., *Naturk. Tijdschr. v. Nederl. Indie, Batavia*, 1856, deel x, p. 411.

Hab. Java.

robusta, V. d. Wulp, *Sumatra Exped.*, p. 11.

Hab. Sumatra.

Genus EURIGASTER.

Macq., *S. & Buff. Dipt.*, ii, p. 115, Paris, 1835; *Tachina*, pt. (auctor.), *Phryno*, p. 143, *Roesellia*, p. 145, pt., Rob. Desv., *Myod.*, 1830.

subferrifera, Walker, *Journl. Proceed. Linn. Soc., London*, i, 1857, p. 125.

Hab. Borneo.

luusoides, id. *ibid.*, p. 20.

Hab. Singapore.

languida, id., *Trans. Ent. Soc., London*, iv, Pl. vi, 1857, p. 198.

Hab. India.

cuprescens, id. *ibid.*, p. 196.

Hab. India.

Genus ORECTOCERA.

V. d. Wulp, *Sumatra Exped.*, p. 18,

micans, id. *ibid.*, p. 40.

Hab. Sumatra.

GENUS HERMYIA.

Robi. Desv., *Myod.*, p. 226, 1839; *Tachina*, pt. (auctor).

beelseba..., Bigot, *Synon. Tachina*, id., *Wiedem., Ausser. Europ. Zeeiflug. Ins.*, ii, Hamm, 1830, p. 301.

Hab. *b. Java.*

itii buta, J. Bigot, *Synon. Tachina*, id., *Wiedem., loc. cit.*, p. 303; *Paralophosia* ? Brauer, *d. Zeeiflug. d. K. Mus. z. Wien.*, 1889, p. 164.

Hab. India.

alacri (i J. Bigot, *Synon. Tachina*, id., *loc. cit.*, p. 303.

Hab. Java.

GENUS EXORISTA.

Moig., *III*; *Magen.*, ii, p. 280, 1803; *Tachina*, pt. (auctor.); *Senomotopia*, p. 104, *Lydella*, p. 132, *Masicera*, p. 118, *Kerigaster*, p. 115, pt., *Macq., Dipt. N. & Belg.*, ii, Paris, 1835; *Hubneria*, p. 602, *Dorbinia*, pt., p. 272, *Rob. Ocar.*, *Ann. Soc. Ent. France*, 1847, *Carcellia*, p. 176, *Pkryno*, p. 143, *Phryxo*, p. 158, *Zenillia*, p. 152, *Winthemia*, p. 173, *Rob. Desv., Myod.*, 1830, *Lomacantha*, pt., p. 151, Vol. 3, 1859, *Aporomyia*, pt., Vol. 3, p. 90 (nota) *ibid.*, *Rondani, Prodr.*

fasciata, Jaennicke, *N. Zool. Dipter., Frankfurt*, 1867, p. 75.

Hab. Java.

GENUS THRYPTOCERA.

Macq., *S. & Belg. Dipt.*, ii, Paris, 1835, p. 87; *Tachina* pt. (auctor.); *Actia*, p. 85, *Oamea*, p. 84, *Nazra*, p. 84, pt. *Rob. Desv., Myod.*, 1830, *Herbatia*, p. 10, *Ramberia*, pt., p. 17, id., *Ann. Soc. Ent., France*, 1851; *Bigoni-cheta*, p. 61, pt., *Rondani, Prodr.*, i, 1856.

«eti nervis, Thomson, *Frigate Eugenie's Rese.*, Stockholm, 1858-68, p. 412.

Hab. China.

GENUS BLEPHARELLA.

Macq., *Dipt. Zool.*, 4th Suppl., Paris, 1850, p. 205.

lateralis, id. *ibid.*, p. 204.

Hab. Pondicherry.

GENUS OCHROPLEURUM.

Macq., *Dipt. Zool.*, 4th Suppl., Paris, 1850, p. 212.

javanum, id. *ibid.*, p. 212.

Hab. Java.

GENUS CRESSOICQNEMA.

J. Bigot, *Ann. Soc. Ent. France*, 1885, p. 207.

javana, id. *ibid.*, p. 208.

Hab. Java.

Family DEXIDÆ.

J. Bigot, *ad hoc inedit.*, 1834; *Descar's*, *Maeq., S. & Buff. Dipt.*, ii, Paris, 1835, p. 295; *Dexina*, *Roudani, Prodr.*, i, p. 23, 1856; *Dexina*, *Schluer*, 1862, *Patris, Austriaca, & Flieg.*, p. 1.

GENUS DEXIA.

Meig., *Syst. Dipt.*, v, 1822, p. 33; *Dexilla*, *Westw. Myocera*, p. 328; *Catilla*, 310, *Estrella*, p. 305, *Thalera*, p. 314, *Zelia*, p. 314, *Sophia*, p. 317, pt., *Rob. Desv., Myod.*, 1830.

lepida, *Wiedem.*, *Unter. Europ. Zweifels. Ins.*, ii, *Hann.*, 1830, p. 376.

Hab. Java.

macropus, id. *ibid.*, p. 375.

Hab. Java.

javanensis, *Maeq., S. & Buff. Dipt.* (ii), Paris, 1835.

Hab. Java.

subcompressa, *Walker, Ins. Savanera, Dipt.*, 5, *Le. Lou.*, 1853, p. 313.

Hab. India.

festiva, *V. L. Wulp., Sumatra Exped.*, p. 41.

Hab. Sumatra? Java?

munia, *Walker, Journal. Proceed. Linn. Soc., London*, i, 1857, p. 126.

Hab. Borneo.

extendens, id. *ibid.*, p. 126.

Hab. Borneo.

divergens, id. *ibid.*, 1857, p. 21.

Hab. Singapore.

GENUS RUTILIA.

Rob. Desv., Myod., 1830, p. 319.

angusticarinata, *Maeq., Dipt. Exot., Suit. du 3^{me} Suppl.*, Paris, 1847, p. 5.

Hab. Java.

navipennis, id. *ibid.*, p. 50.

Hab. Java.

nitens, id. *ibid.*, 4th Suppl., Paris, 1850, p. 216.

Hab. India.

Genus SILBOMYIA.

Macq., *Dipt. Exot.*, ii, 3rd Pt., p. 118, Paris, 1843; Musca, pt. Fabr., Wied.
micans, Macq., *Dipt. Exot.*, (loc. cit.), p. 118; Synon., Musca, id. Fabr., *Syst. Antl.*,
p. 291.

Hab. India, Sumatra, Java.

fuscipennis, id. *ibid.*, p. 119; Synon. Musca, id. Fabr. *Ibid.*, p. 291.

Hab. Java, Sumatra.

infixa, Walker, (*Musca*) *Journal. Proceed. Linn. Soc., London*, i, 1857, p. 25.

Hab. Singapore.

fumi-pennis, id. *ibid.*, p. 25.

Hab. Singapore.

Genus MORISIA.

Rob. Desv., *Myod.*, 1830, p. 264; Dexia, pt. Valenciennes, pt. Schrank. *Melan-*
phora, pt., Macq., *S. & Buff. Dipt.*, ii, Pt. 3, 1843, p. 173; *Melanomya*,
pt. Rondani, *Prodr.*, i, 1856, p. 53.

chloa, V. d. Walp, *Senatra Exped.*, p. 42; Synon. Dexia, id. Wiedem., *Ausser. Europ.*
Zurflug. Ins., 2nd Pt., Hamm, 1830, p. 383.

Hab. Sumatra.

Family SARCOPHAGIDÆ.

Sarcophagid, Macq., *S. & Buff. Dipt.*, ii, 1843, p. 219; *Theromyza*, Rob. Desv.,
Myod., 1830, pp. 25, 302; Sarcophagidæ, Zetterstedt., *Dipt. Scand.*, i, 1843,
p. 5; Sarcophagidæ, Schin., 1842, *Faun. Austroica, D. Fliegen.*, 1st Pt.,
p. 70; Sarcophagidæ, Westw. Dexina, pt. Rondani, *Prodr.*, i, 1856, p. 23.

Genus MEGISTOGASTER.

Macq., *Dipt. Exot.*, 4th Suppl., Paris, 1850, p. 212; Dexia? pt. (nactor).

fuscipennis, id. *ibid.*, p. 213.

Hab. Java.

coalatus, Rondani, *Ann. d. M. Civ. d. Star. Nat. d. Genova.*, vol. vii, 1875, p. 423.

Hab. Sarawak.

imbricatus, Walker, *Journal. Proceed. Linn. Soc., London*, i, 1857, p. 126; Synon. Tachina,
id., *List. Dipt. Ins. Brit. Mus.*, iv, London, 1849, p. 781.

Hab. Borneo, China.

Genus CORDYLIGASTER.

Macq., *Dipt. Exot.*, ii, 3rd Pt., Paris, 1843, p. 90; Dexia? pt. (nactor).

fuscifacies, J. Bigot, *Ann. Soc. Ent. France*, 1868, p. 101.

Hab. Java.

GENUS DOLESCHALLA.

Walker, *Journ. Proceed. Linn. Soc., London*, 1861, p. 242; *Dexia?* pt. (auctor.).

nigra, J. Bigot, *Ann. Soc. Ent. France*, 1888, p. 98.

Hab. Indian Archipelago.

pieta, id. *ibid.*, p. 99.

Hab. Indian Archipelago.

GENUS RHAPHIS.

V. D. Wulp, *Tijdschr. v. Entom.*, xliii, 1885, p. 199; *Dexia?* pt. (auctor.).

elongata, id. *ibid.*, p. 200.

Hab. Ceylon.

GENUS CATAPICEPHALA.

Macq., *Dipt. Exot.*, 4th *Suppl.*, Paris, 1850, p. 237.

ipLendens, id. *ibid.*, p. 237.

Hab. Java.

GENUS PHEISSOFODIA.

Macq., *S. & Buff. Dipt.*, ii, Paris, 1835, p. 222; *Peckia*, Rob. Desv., *Myod.*, 1830, p. 235.

metallica, V. d. W., *Sumatra Exped.*, p. 43.

Hab. Sumatra.

GENUS SARCOPHAGA.

Meig., *Syst. Besch.*, v, p. 14, 1826, et, auctor.; *Phorella*, p. 362, *Agris*, p. 376, Rob. Desv., *Myod.*, 1830.

ruficornis, Fabr., *Ent. System.*, iv, p. 314, 3.

Hab. India.

prince, Wiedem., *Ausser. Europ. Zootifug. Ins.*, 2nd Pt., *Hann.*, 1830, p. 359.

Hab. Sumatra.

taenionota, id. *ibid.*, p. 360.

Hab. Java, Tranquebar.

tenuipalpis, Macq., *Dipt. Exot.*, ii, 3rd pt., Paris, 1843, p. 101.

Hab. Pondicherry.

lineatocollis, id. *ibid.*, p. 101.

Hab. Java, Coronandel.

javana, id. *ibid.*, 4th *Suppl.*, Paris, 1850, p. 232.

Hab. Java.

sericea, Walker, *Ins. Saunders. Dipt.*, vol. 1, London, 1856, p. 326.

Hab. India.

reciproca, id., *Journ. Proceed. Linn. Soc., London*, 1, 1857, p. 23.

Hab. Malacca.

aliena, id. *ibid.*, p. 22.

Hab. Java.

rufipalpis, V. d. Wulp, *Sumatra Exped.*, p. 42.

Hab. Sumatra.

emigrata, Rondani, *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1875, p. 424.

Hab. Sarawak.

indicata, Walker, *Journ. Proceed. Linn. Soc., London*, 1, 1857, p. 127.

Hab. Borneo.

GENUS SARCOPHILA.

Rondani, *Prod.*, 1, 1856, p. 86; *Sarcophaga*, *Agrin.*, pt.

alba, Schiner, *Neser. Reise*, 1868, p. 315.

Hab. Ceylon.

GENUS MYOPHORA.

Rob. Desv., *Myod.*, 1830, p. 337; *Sarcophaga*, pt. (auctor.).

fulvicornis, id. *ibid.*, p. 341.

Hab. Bengal.

duvancelli, id. *ibid.*, p. 351.

Hab. Bengal.

GENUS MORELLIA.

Rob. Desv., *Myod.*, 1830, p. 405.

affixa, (*Musca*) Walker, *Journ. Proceed. Linn. Soc., London*, 1, 1857, p. 27.

Hab. Singapore.

GENUS CYNOMYIA.

Rob. Desv., *Myod.*, 1830, p. 363; *Sarcophaga*, pt. (auctor.); *Volucella*, pt. Schrank.

violacea, Macq., *S. d. Belg. Dipt.*, II, Paris, 1835, p. 233.

Hab. Java.

fortis, Walker, *Journ. Proceed. Linn. Soc., London*, 1, 1857, p. 127.

Hab. Borneo.

fulviventris, Rondani, *Ann. Mus. Civ. d. Stor. Nat. Genova*, 1875, p. 425.

Hab. Sarawak.

Family OCYPTERIDÆ.

- J. Bigot, *adhuc inedit.*, 1891; Ocyptera, Meig., *Syst. Besch.*, iv, 1824; Ocypterata, Rob. Desv., *Myol.*, 1830, p. 222; Rhyzomyza, pt. Fallen. Ocypterata, Macq., *S. & Buff. Dipt.*, ii, Paris, 1835, p. 179; Ocypterina, Schin., *Faun. Austr., d. Fliegen.*, 1862, p. 41; Tachinina, pt. Rond., *Prodr.*, i, 1856, pp. 22, 59.

Genus PHAXIA.

Meig., *Syst. Besch.*, iv, 1824, p. 218.

indica, Walker, *Ins. Saunders.*, i, London, 1856, p. 261.

Hab. India.

Genus DEVAUCELIA.

Rob. Desv., *Myol.*, 1830, p. 227.

bicolor, id. *ibid.*, p. 228.

Hab. Bengal.

Genus OCYPTERA.

Loth., *Dict. Hist. Nat.*, 1904; Syrphus, pt. Panzer; Bosseria, pt., Rob. Desv., *Myol.*, 1830, p. 232; Ocypterata, Exogaster, pt. Rondani, *Prodr.*, i, 1856, p. 78.

bicolor, Wiedem., *Zool. Magaz.*, III.

Hab. India.

rufipennis, id. *ibid.*

Hab. India.

umbripennis, V. d. Walp., *Sumatra Exped.*, p. 35.

Hab. Sumatra.

Family ACHLASIDÆ.

J. Bigot, *adhuc inedit.*, 1891.

Genus ACHIAS.

Fabr., *Syst. Antl.*, 1805; Anaxropsis, pt., J. Bigot, *Ann. Soc. Ent. France.*, 1866, p. 201.

oculatus, Fabr., *Syst. Antl.*, 1805.

Hab. Java.

ichneumonca, Westw., *Trans. Ent. Soc.*, v, London, 1850, p. 7.

Hab. India.

horfieldii, id. *ibid.*, p. 7.

Hab. India.

Family MUSCIDÆ.

J. Bigot, *adhuc inedit.*, 1891; Muscidae, Latr., *Hist. Nat. d. Ins.*, 1802; Musceformes, pt. Meig., *System. Caschreb.*, i, 1818; Muscidae, pt. Lough., *Sam. Comp.*, 1819; Muscina, pt. Rob. Desvoidy, *Myol.*, 1830, p. 406; Muscaria, pt. Zetterst., *Dipt. Scandin.*, 1842; Muscoidæ, Muscina, Rond., *Prodr.*, i, 1856, pp. 23, 39; Muscides, Walker, *Musca. Westw.*, Muscidæ, pt., J. Bigot, (*olim*), Muscidae, Schin., *Faun. Austriac. d. Fliegen*, i, 1862, p. 398; Muscidia, pt. Wiedem., *Ausser. Europ. Zweiflug. Ins.*, 2nd Pt., Hamm, 1830, p. 262; Muscia, pt. Macq., *S. d. Buf. Dipt.*, ii, Paris, 1835, p. 235; Anthomyzidae, pt. (auctor.).

Genus STOMOXIS.

Geoffr., *Hist. d. Ins.*, i, 1764; *Consp. pt.*, Linn.; Musca, pt. Degeer; Hemitobis, pt. Rob. Desv., *Myol.*, 1830, p. 388; Syperozia, pt. Rond., *Prodr.*, i, 1856, p. 93.

hibatrix, Rob. Desv., *Myol.*, 1830, p. 387.

Hab. CoromanJ.i

navipennis, Wiedem., *Ausser. Europ. Zweiflug. Ins.*, 2nd Pt., Hamm, 1830, p. 248.

Hab. Java.

calcitrans, Linn. (et auctor.), V. d. Wulp, *Sumatra Exped.*, p. 49; Schiner, *Novar. Reise*, 1868, p. 311.

Hab. Sumatra, Java, Batavia, Ceylon, Sydney, Europe.

aurinotatus, J. Bigot, *Soc. Zool. France, Paris*, 1887, p. 593.

Hab.

Genus RHYNCHOGYA.

Rob. Desv., *Myol.*, 1830, p. 424; Tachina, pt. Meig., 1802; Idia, pt. Loew.

bicolor, Macq., *Dipt. Exot.*, ii, 3rd Pt., Paris, 1843, p. 125.

Hab. Pondicherry.

obsolata, Walker, *List. Dipt. Ins. Brit. Mus.*, iv, London, 1849, p. 810; Synon. Idia, id. Wiedem., *Ausser. Europ. Zweiflug. Ins.*, 2nd Pt., Hamm, 1830, p. 355.

Hab.

palliceps, J. Bigot, *Soc. Zool. France, Paris*, 1887, p. 594.

Hab. India.

plumata, Schiner, *Novar. Reise*, 1868, p. 315.

Hab. Ceylon.

aberrans, id. *ibid.*, p. 316.

Hab. China.

indica, Rond., *Ann. d. Mus. Civic. d. Stor. Nat. d. Genova*, vol. vii, 1875, p. 424.

Hab. Sarawak.

Genus STOMORTINA.

- Rondani, *Prodr.*, iv, 1801, p. 9; *Idia*, pt. *Muscina*, pt. Rondani.
quadrinotata, (*Idia*) J. Bigot, *Ann. Soc. Ent. France*, 1874, p. 238; *Synon. Muscina*,
 id. Rondani, *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1875, p. 429.
 Hab. Borneo.
- bivittata*, id., *Soc. Zool. France*, 1887, p. 592.
 Hab. India.

Genus RHINIA.

- Rob. Deav., *Mysol.*, 1830, p. 422; *Idia* (auctor.) pt.
testacea, Schin., *Novar. Reise*, 1868, p. 310; *Synon. Idia*, id. Macq., *S. à Buff. Dipt.*,
 ii, Paris, 1835, p. 243.
 Hab. Nicobar Islands and Ile d. France.
- fulvipes*, J. Bigot, *Ann. Soc. Ent. France*, 1874, p. 239.
 Hab. Ceylon.

Genus IDIA.

- Meig., *Syst. Besch.*, v, 1826, p. 1802; *Musca*, pt. (auctor.).
xanthogastera, (*nomen bialectum*), Rob. Deav., *Mysol.*, 1830, p. 420.
 Hab. Java.
- flavipes*, id. *ibid.*, p. 420.
 Hab. India.
- bengalensis*, id. *ibid.*, p. 421.
 Hab. Bengal.
- xanthogaster*, Wiedem., *Nov. Dipter. Gener.*, p. 21.
 Hab. Java.
- mandarina*, id., *Asser. Europ. Zoolog. Ins.*, 2nd Part, *Hann.*, 1830, p. 350.
 Hab. China.
- discolor*, Fabr. *Ent. Syst.*, iv, p. 320.
 Hab. India, Java.
- melanostoma*, Wiedem., *Asser. Europ. Zoolog. Ins.*, 2nd Pt., *Hann.*, 1830, p. 350.
 Hab. Java.
- metallica*, Macq., *S. à Buff. Dipt.*, ii, Paris, 1835, p. 246.
 Hab. Bengal.
- flavipennis*, id., *Dipt. Exot.*, ii, 3rd Pt. Paris, 1843, p. 125.
 Hab. Java.

- inibi* pennis, id. *ibid.*, *Suit. d. 2nd Suppl.*, Paris, 1847, p. 54.
Hab. Java.
- marginata*, id. *ibid.*, *4th Suppl.*, Paris, 1850, p. 240.
Hab. Java.
- quadrinaculata*, id. *ibid.*: p. 240.
Hab. Java.
- unicolor*, id. *ibid.*: p. 240.
Hab. Java.
- lateralis*, V. d. Wulp, *Sumatra Etycol.*, p. 44.
Hab. Sumatra.
- tenebrosa*, Walker, *Journal, Proceed. Linn. Soc., London*, i, 1857, p. 23.
Hab. Java.
- bicolor*, id. *ibid.*, p. 23.
Hab. Malacca.
- bivittata*, id. *ibid.*, 1856, p. 128.
Hab. Borneo.
- simplex*, id., *Trans. Ent. Soc. London*, 1857, p. 24.
Hab. India.
- tripartita*, J. Bigot, *Ann. Soc. Ent. France*, 1874, p. 236.
Hab. India.
- nigricauda*, id. *ibid.*, p. 237.
Hab. Burma.
- cineta*, id. *ibid.*, p. 238.
Hab. Ceylon.
- fulvipes*, id. *ibid.*, p. 239.
Hab. Ceylon.

GENUS COSMINA.

Rob. Desv., *Mycol.*, 1830, p. 423; *Idia* pt.

- varia*, (G. *Idia*), Walker, *Ins. Savanera, Dipt.*, vol. i, London, 1856, p. 350.
Hab. Ceylon?
- micans*, J. Bigot, *Ann. Soc. Ent. France*, 1874, p. 241.
Hab. Palo-Penang.
- pinangiana*, id. *ibid.*, p. 241.
Hab. Palo-Penang.

GENUS BENGALIA.

Rob. Desv., *Myod.*, 1830, p. 425; *Ornia*, pt. *ibid.*, p. 428.
labiata, *id. ibid.*, p. 426.
 Hab. Bengal.

pallens, *id. ibid.*, p. 426.
 Hab. Bengal.

melanocera, *id. ibid.*, p. 426.
 Hab. Bengal.

lateralis, Macq., *Dipt. Exot.*, ii, 3rd Pt., Paris, 1843, p. 420.
 Hab. Pondicherry.

dioclea, (G. Musca), Walker, *List. Dipt. Ina. Brit. Mus.*, Pt. iv, London, 1849, p. 809.
 Hab. Borneo.

GENUS PHORMIA.

Rob. Desv., *Myod.*, 1830, p. 465.

dentata, (G. Musca), Walker, *Journal. Proceed. Linn. Soc. London*, i, 1857, p. 25.
 Hab. Singapore.

GENUS PHUMOSIA.

Rob. Desv., *Myod.*, 1830, p. 427.

fulvicornis, J. Bigot, *Soc. Zool. France*, 1887, p. 611.
 Hab. Java.

GENUS OCHROMYIA.

Macq., *S. à Buff. Dipt.*, ii, Paris, 1835, p. 248; *Bengalia*, p. 425, *Ornia*, p. 428; *Palpostoma*, p. 429, pt. Rob. Desv., *Myod.*, 1830.

jejuna, Macq., *id. ibid.*, p. 249; *Synon. Musca*, *id. Fabr., Syst. Antl.*, *Bengalia testacea*, Rob. Desv., *Myod.*, 1830, p. 426.
 Hab. Bengal, Java, Australia, Cayenne?

fasciata, *id.*, *Dipt. Exot.*, ii, 3rd Pt., Paris, 1843, p. 133.
 Hab. India.

javana, *id. ibid., Suppl.*, Paris, 1846, p. 193.
 Hab. Java.

bicolor, V. d. Walp., *Sumatra Exped.*, p. 45.
 Hab. Sumatra.

quadrinotata, J. Bigot, *Soc. Zool. France*, 1887, p. 605.
 Hab. Ceylon.

fulvescens, *id. ibid.*, p. 609.
 Hab. Indian Archipelago.

Genus MORELLIA.

Rob. Desv., *Myod.*, 1830, p. 405; *Musca*, pt.

affixa, Walkar, *Journl. Proceed. Linn. Soc., London*, i, 1857, p. 27.
Hub, Java.

Genus CALLIPHORA.

Rob. Desv., *Myod.*, 1830, p. 433; *Musca*, *Lucilia*, pt. (auctor.), *Melinda*, pt.,
p. 439, Rob. Desv. loc. cit.

ruficeps, Macq., *Dipt. Esot.*, ii, 3rd Pt., *Paris*, 1843, p. 129.
Hab. Java.

fulvipes, V. d. Wulp., *Sumatra Exped.*, p. 44.
Hab. Sumatra.

Genus MEUWJIA.

Rob. Desv., *Myod.*, 1830, p. 430 = *Calliphora*, pt. (auctor.).

metiliana (Musca), Walkar, *List. Dipt. Ina. Brit. Mus.*, iv, *London*, 1849, p. 893.
Hab. Nepal.

Genus CATAPICEPHALA.

Macq., *Dipt. Esot.*, 4th Suppl., *Paris*, 1850, p. 237.

splendens, id. *ibid.*, p. 237.
Hab. Java.

Genus CYNOMYIA.

Rob. Desv., *Myod.*, 1830, p. 363; *Musca*, *Volucella*, Schrank, *Sarcophaga*,
(auctor.).

violacea, Macq., *S. à Buff. Dipt.*, ii, *Paris*, 1835, p. 233.
Hab. Java.

quadrivittata, Wulp., *ibid.*, 5th Suppl., 1855, p. 108.
Hab. India.

Genus CYRTONEVRA.

(*Cyrtonevra* vel *Curtonevra*, olim), Macq., *S. à Buff. Dipt.*, ii, *Paris*, 1835,
p. 274; *fusc.* *Anthomyia*, pt. (auctor.); *Morellia*, p. 405; *Musca*, p.
406, Rob. Desv., *Myod.*, 1830.

pruinosa, V. d. Wulp., *Tijdschr. v. Entom.*, 1879-80, p. 2-1.
Hab. Java.

GENUS CHRYSOMYA.

Rob. Desv., *Myod.*, 1830, p. -iiii Lmilia, pt. (auctor.)

duvaucei:1, Rob. Desv., id. *ibid.*, p. 451,

Hab. I
tengal

tifata, (Musca), Walker, *List. Dipt. Ins. Brit. M.*, iv, London-, 1849, p. 871.

Hab. China.

remuria, (Musca), id. *ibid.*, p. 871-

Hab. China.

fiaviceps, Walker, *Journl. Proceed. Linn. Soc., London*, 1, 1857, p. 23; Synon. Lucilia,
id. 3; *Acq., Dipt. Exot., ii, 3rd Pt., Paris*, 1843, p. 145.

Hab. Coromandel.

chrysoidea, id. *ibid.*, p. 23.

Hab. Java, Indian Archipelago.

GENUS CHRYSOMYA (Sic).

~Rondani, *Bertol. G., Affid. Acad. d. Bologna*, 1362; Mnsca, Galliphora, Lucilia,
pt. (auctor.); Phormia, p. 465, Molindia, p. 439, Mufetia, p. 431,
Chrysomya (Sic), p. 444; Rob. Desv., *Myod.*, 1830 j Mya, pt., (olima),
Rondani, *Prodr.*, i, 1856, p. VO; Myochrysa, id., *Arch. d. l. Soc. d. Zool.*,
iii, 1864, p. 48.

pa.godina, J. Bigot, *Ann. Soc. Ent. France*, 1871 p. 40,

Hab. Pondicherry.

fusoeibaota, *id. ibid.*, p. 40.

Hab. Assam.

rabiginosa, id. *ibid.*, p. 41.

Hab. Burma.

birmanensis, id. *ibid.*, p. 11.

Hab. Burma.

infumata, *id. ibid.*, p. 42.

Sab. Burma.

versicolor, id. *ibid.*, p. 43.

Hab. Ceylon.

obesa, id. *ibid.*, p. 43.

Hab. Ceylon.

cceruleocincta, *id. ibid.*, p. 43.

Hab. Pulo-Puang.

pictit'acies, id. *ibid.*, p. 15.

Hab. Java.

Beruleolimbata, id., *Soc. Zool. France*, 1887, p. 599.

Hab. Jr

dives, id. *ibid.*, p. 600.

Hab. Calcutta.

atr[*faoies*, id. *ibid.*, p. 601.

Hab. Calcutta.

melanorhina, id. *ibid.*, p. 602.

Hab. Java, Ternate, Waigion, New Guinea.

pachysoma, id. *ibid.*, p. 603.

Hab. Java.

nitidifaoies, id. *ibid.*, p. 603.

Hab. Ja

oyaneooincta, id. *ibid.*, p. 604.

Hab. Java, Ternate, Timor.

nebulosa, id. *ibid.*, p. 604.

Hab. Java, Ternate.

xanthomera, Kcmdani, *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1875, p. 427.

Hab. Borneo.

GENUS PLINTHONYIA.

Rondani, *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1875, p. 427; *Ochrotonya*,
pt. Macq., *S. à Buff. Dipt.*, ii, Paris, 1835, p. 248.

emimelania, id. *ibid.*, p. 128.

Hab. Borneo.

GENUS LUCILIA.

Rob. Desv., *Myod.*, 1830, p. 452; *Musca*, *Calliphora*, *Melinda*, *Chrysoomyia*,
Somonya, pt. fauctor).

bengalensis, id. *ibid.*, p. 460.

Hab. Bengal.

*brerigtster** Macq., *S. à Buff. D.*, pt. ii, Paris, S35, p. 256.

Hab. Java.

flavidipennis, Macq., *Dipt. Exot.*, ii, 3rd Pt., Paris, 1843, P-139; *Synon. Senm* V d.

Wulp. *matra Exped.*, p. 46; *L. philippen* *g*, Macq., *Dipt. Exot.*, ii, 3rd Pt., p. 146; *

h. flavicalyptata, id., *loc. cit.*, *Suit du 2nd Suppl.*, 1847, p. 55; *L. curra* id.

m^hSvwU., 1850, p. 248; *L. indica*, p. 453, et, *L. eximia*, p. 456, Rob. L. sv.,
Jfyod.f 1830. TMJ

Hab. Bengal, Coromandel, Sumatra, Java, Timor.

cphyrino, (*fMnaca*), Walker, *Journl. Proceed. Lin. Soc., London*, i, 1857, p. 24.

Hab. Mount Ophir.

trita, (Musca), id. ibi. •L p. 24.

Hab. Malacca.

deixa, (Musca), id. ibid., p. 24.

Hab. Singapore.

divisa, (Alima), id., *Ins. Saunders., Dipt., London, 1850, p. 333.*

Hab. India.

inducta, (Musca), id. ibid., p. 335.

Hab. India.

polita, (Musca), id. ibid., p. 338.

Hab. India.

aerenissima, (Musca), id. ibid., p. 340.

Hab. India.

temperata, (Musca), id. ibid., p. 840.

Elab. Iwl'a.

chalybea, (Musca), *Wiedem., Ausser. Europ. Zweiflug. Ins., 2nd Pt., Hamm, 1830, p. 402.*

Hab. Java.

phelisa, (Musca), *Walker, List. Dipt. Ins. Brit. Mus., iv, London, 1849, p. 834.*

Hab. BQxral.

dux, *Eachh., Entomogr., i, p. 114; Synon. Scaen., V. d. Sumatra Exped., • 46 j Musca, id. Wiedem., Ausser. Europ. Zweiflug. Ins., ii, Hamm, 1830, p. 405; Compsomyia, id. Rond., Ann. Mus. Civ. d. Stor. Nat. Genova, 1875, p. 126; Lucila fli viceps, [ai]q., Dipt. Exot., ii, 3rd Pt., Paris, 1843, p. 115; Chrysomya dn vaucellii, Rob. Desv., Myod., 1830, p. 451; Compsomyia, Rondani, Ann. Mus. Civ. d. Stor. Nat. Genova, IS!b, p. 426.*

Hab. PondicLorry, Ceylon, China, Bomoo, Coromaude!, Am, Wokan, Kai) dari, Celeb-on.

ocerulea, *Macq., Dipt. Exot., ii, 3rd Pt., Paris, 1843, p. 140; Byaou. Itusca, id. Wied., Zool. Magaz., iii, p. 27.*

Hab. Java.

orientalis, *Macq., Dipt. Exot., ii, 3rd Pt., Paris, 1843, p. 145.*

Hab. Pondickcny, Suraa.l ra.

rulicornis, id. *ibid., 2nd Suppl., 1347, p. 84.*

Hab. Ind'a.

vittata, *ibid., 2nd Suppl., 1347, p. 56.*

Hab. Java.

ruilceps, id. *ibid., p. 56.*

Hab. Java.

oyanaa, id. *ibid., 4th Suppl., p. 248.*

Hab. Java.

abdominalia, (Knsca), Fabr., 8 *yt. Anst.*, p. 25\.

Hab. Ind'ia.

rectinervis, Macq., *Dipt. Izot.*, 5th *Stppl.*, Paris, 1865, p. 111,

Hab, India.

virens (Musca), Wiedem., *Awaer. Europ. Z<ceiflug. Ins.*, 2nd Pt., Hamm, 1830, p. 409.

Hab. Java.

lauta (iinscaj, id. *ibid.*, p. 410.

Hab. Java.

ligurriens (jtnaca), id- *ibid.*, p. 655,

Hab- Java, China.

viridiaurea (Musca), id., *Zool. Magoz.*, iii, p. 22.

Hab. Java.

pinguis (Musca), Walker, *Journl. Proceed. Linn. Soc. London*, i, 1857, p. 25.

Hab, India.

leuoodes, Franenfd, *Yerh. K. K. z. b. Ges>sch.*, Wien, xvii p_ 453^

Hab. Singapore.

pavonina. Schiner, *Novar Reise*, 1868, p. 305.

Hab. Nicobar Islands.

leonardi, Weyenberg, *Archiv. Nederla?> »^)* 1869, p. 41.

Hab. Serorabaja.

Conus ZONA.

Wa Ikor, *List D>. Ins. Brit. Mus.*, iv, London, 1840, p. 806; Tepliritis, pt. Gray.

Tioloaea, id- *ibid.*, p. 300; Synon, Tepliritis, *id.*, *GritL' th, Anim. Kingd.*

Hab. N'opal.

Genus COJIPSOMYIA.

Eondarn, *Ann. Jtfus. Civ. d. Stor. Nat d. Genova*, 1875, p. 425; Lucilia, California, pt.

accinct^, *id. ibid.*, p. 426.

Hab. Borneo,

coeruleivirens, *id. ibid.*, p. 426.

Hab. Borneo.

violaceinitenti, *id. ibid.*, p. 42G.

Hab. Borneo.

G<nus PrRELMA.

Bob. Desveidy, *Myod.*, 1830, p. 462; Masea, LuciUa, pi. (sucto>),

violacea, Macq., *JXpL Eeot, 4th SupplL] Paris*, 1850, p. 251.

Hab. Asia, Sumatra (V. d, Wulp).

livah, J. Bigot, *Ann. Soc. Ent. France*, 1878, p. 33.
Hab. India.

stella, id. *ibid.*, p. 34.
Hab. Ceylon.

diffidens (*Musca*), Walker, *Jmtrnl. Proceed. Linn. Soc. London*, i, 1857, p. 26.
Hab. Singapore.

conflua (*Musca*), id. *ibid.*, p. 26.
Hab. Java, Mt. Ophir.

reflxa (*Musca*), id. *ibid.*, p. 20.
Hab. Singapore.

perflxa (*Musca*), id. *ibid.*, p. 26.
Hab. Java, Mt. Ophir.

exemptat (*Musca*), id. *ibid.*, 1857, p. 128.
Hab. Borneo.

Genus; METALLEA.

v. a. Wulst., *Tidschr. v. Entom.*, deel xxiii, 1870-80, p. 22.

Hab. Java.

Genus SYNAMPHOS^TECRA.

J. Bigot, *Ann. Soc. Ent. France*, 1886, bulletin, p. 14.

cupina, id. *ibid.*
Hab. Java.

Genus POLLE^AIA.

Rob. Desv., *Myot.*, 1830, p. 42; Mnsea, pt. faucior.) Nitellia, p. 417, pt.
Rob. Desv.

refleotens, Walker, *Journl. Proceed. Linn. Soc., London*, 1856, p. 24.
Hab. Malacca.

mtmda, Ost.-Sackeu, *Ann. Mus. Civ. d. Stor. Nat. Genova*, 1881, p. 450) *Synon. Musca*
id. Wiedem., *Ausser. Europ. Zweiflug. Ins.*, 1830, p. 398.
Hab. Java.

Genus MUSCA.

Linn., *Favn. Suec.*, 1763, p. 49; Volucella, pt. 'Schrk., *Plaxemya*, V. 392,
Byomya, p. 392, pt. Rob. Desv., *Myot.*, 1830.

varicolor, Fabr., *Syst. Anti.*, p. 29.
Hub. Tranquebur.

ftdumbrai a, id., *Anal. Entom.*, p. 48

Hab. J>va.

hortensia, id. *ibid.*, j. 49.

Hab. Java.

planicops, id. *ibid.*, p. 48.

Hab. Java.

albina, Wied., *Ausser. Europ. Zweiflug. Ins.*, 2nd Pt. «*m, 18», „ 415.

Hab. India.

loitulana, *ibid.*, p. 417.

Hab. China.

nilis, id. *ibid.*, p. 418.

Hab. India.

ventrasa, id. *ibid.*, p. 456.

Hab. Sum?. Ind. China.

mediana, id. *ibid.*, p. 457.

Hab. China.

xanthomelas, Fabr., *Anal. Ent.*, p. 49.

Hab. Java.

nebulosa, Fabr., *Ent. Syst.*, iv, p. 321.

Hab. India.

ruffrons, Macq., *Diagn. Esot.* ii (3rd) Pt., Paris, 1843, p. 152.

Hab. Java.

Hab. India.

inducta, id. *ibid.*, p. 335.

Hab. India.

leterminata, id. *ibid.*, p. 345.

Hab. India.

cluviana, id., *Inst. Dipt. Ins. Brit. Mus.*, iv, London, 1849, p. 885.

Hab. India.

domestica, L. > V. d. Wulp, *Sumatra Exped.*, p. 45; Schiner, *Novar. Reise*, 1808.

Hab. Sumatra, Europe (<cosmopolitan).

corvina, Fabr., V. > Wulp, *ibid.*, p. 45; Schiner, *Novar. Reise* 1808.

Hab. Sumatra, Europe (<cosmopolitan).

niveisynana¹¹¹¹¹, Thomson, *JVat. Eugenic Resa*, p. 517.

Hab. China, Manilla, 31 Malacca.

convexifrons, "1" - *Ibid.*, p. 457.

Hab. China.

scapularis, Rondani, *Ann. Mus. Civ. N. Stor. Nat. Genova*, 1875, p. 428.

Hab. Borneo.

eutonata, J. Bigot, *Soc. Zool. d. France*, 1887, p. 105.

Hab. Pondicherry, Cochin China.

cingalesina, id. *ibid.*, p. 106.

Hab. Ceylon.

Family ANTHOMYZIDÆ.

J. Bigot, *ad hoc inedit.*, 1891; Anthomyzides, Latr., *Reg. Anim.*, 1829; Anthomyzæ, Rob. Desv., *Myod.*, 1830, p. 473; Anthomyza, Anthomyzæ, Rondani, *Prodr.*, i, 1856, p. 12-24; Anthomyzæ, Sclöser, *Faun. Austriaca*, 1st Pt., 1862, p. 599.

Genus ARICIA.

Rob. Desv., *Myod.*, 1830, p. 486; Musca, Anthomyza, Anthomyza, pt. (auctor.) *Macrozona*, p. 402, *Phaonia*, p. 482, *Mydina*, p. 495, *Fellæa*, p. 476, *Euphemia*, p. 485; *Trennia*, p. 484, *Rohrella*, p. 489, pt. Rob. Desv., *loc. cit.*, *Hydrophoria*, p. 207, *Spilogaster*, p. 293, pt. Macq., *S. & Belg. Dipt.*, ii, Paris, 1835; *Yctodesia*, pt. Rondani, *Prodr.*, iv, 1861, p. 9; *Azelidæ*, pt. Rob. Desv., *Myod.*, 1830, p. 591.

orgentata, Walker, *Journ. Proc. Linn. Soc.*, i, 1857, p. 27.

Hab. Malacca.

patula, id. *ibid.*, p. 28.

Hab. Borneo, Singapore.

iniperta, id. *ibid.*, 1857, p. 129.

Hab. Borneo.

Genus HYDROTEA.

Rob. Desv., *Myod.*, 1830, p. 509; Musca, Anthomyza, Aricia, pt. (auctor.). *Blainvillia*, pt. Rob. Desv., *loc. cit.*, p. 514; *Onodont*, pt. Rond., *Prodr.*, i, 1856, p. 94.

solennis, Walker, *Journ. Proceed. Linn. Soc., London*, i, 1857, p. 27.

Hab. Mt. Ophir.

chaucogaster, Schiner, *Novar. Reise*, 1868, p. 303; *Synon. Anthomyza*, id., *Wiedem. Ausser. Europ. Zool. Ins.*, 2nd Pt., *Hann.*, 1830, p. 427.

Hab. Java, Nicobars.

Genus OPHIRA.

Rob. Desv., *Myod.*, 1830, p. 516; Musca, Anthomyza, Aricia, pt. (auctor.).

congressa, Walker, *Trans. Ent. Soc., London*, 1857, vol. iv, p. 59.

Hab. 1ml U.

nigra, V. d. Wulp., *Sumatra Exped.*, p. 48; Synon. *Anthomyia*, id. et *Gracilis*,
 V. d. Wulp., *Ausser. Europ. Zweiflug. Ins.*, 2nd Pt., *Hamm*, 1830, p. 432; *Ophira ri-*
paria, Dolesch., *Naturk. Tijdschr. v. Nederl. Indis, Batavia*, 1858, p. 119,
 Hab. China, Sumatra, Ainboina.

Genus LIMNOPHORA.

Hob. Desv., *Jfyod.*, 1830, p. 517; *Musca, Anthomyia, Aricia*, pt. (auctor.),
Holma, p. 403, *Limosia*, p. 535, *Phyllis*, p. 603; pt. Rob. Desv., *loc. cit.*

bengalensis, id. *ibid.*, p. 518.

Hab. Bengal.

macei, W. *ibid.*, p. 519.

Hab. Bengal.

Genus DIPLOGASTER.

J. Bigot, *Ann. Soc. Nat. France*, 1886.

nigricauda, id. *ibid.*

Hab. Ceylon.

Genus ANTHOMYIA.

Meig., *Illig. Magaz.*, II, 1803, p. 281; *Chortophila*, p. 326, *Atomogaster*, p.
 329, *Pegomyia*, p. 350, pt. Macq., *S. a Bug. Dipt.*, II, *Paris*, 1835; *Aricia*,
Anthomyza, pt. Zetterst., *Dipt. Scand.*, *Egeria*, p. 555, *Nerina*, p. 557,
Adia, p. 558, *Phorbia*, 559, *Leucophora*, p. 562, *Delia*, p. 571, *Eglo*, p.
 584, *Azelia*, p. 592, pt. Rob. Desv., *Myod.*, 1830; *Achautiptera*, Rondani,
Prodr., I, 1856, p. 95.

trina, W. *ibid.*, *Ausser. Europ. Zweiflug. Ins.*, 2nd Pt., *Hamm*, 1830, p. 657.
 Hab. China.

exilis, id. *ibid.*, p. 658.

Hab. China.

bina, id. *ibid.*, p. 426.

Hab. China.

quadrata, *ibid.*, *Anal. Entom.*, p. 52.

Hab. Java.

tonitru, id. *ibid.*, p. 32.

Hab. India.

bibax, W. *ibid.*, *Ausser. Europ. Zweiflug. Ins.*, 2nd Pt., *Hamm*, 1830, p. 431.

Hab. China.

catena, *ibid.*, p. 434.

Hab. Sumatra.

ix, id. *ibid.*, p. 434.

Hab. Tranquebar.

metallum, id. *ibid.*, p. 435.

Hab. India.

Walker, *Journl. Proceed. Linn. Soc., London*, i, 1857, p. 120.

Hab. Borneo.

id., *List. Dipt. Ins. Brit. Mus.*, iv, *London*, 1849, p. 939.

Hab. India.

id., *Insect. Saunders, Dipier.*, vol. i, *London*, 1856, p. 352.

Hab. India.

id., *ibid.*, p. 356.

Hab. India.

id., *ibid.*, p. 362.

Hab. India.

id., *ibid.*, p. 363.

Hab. India.

id., *Thomson, Frejal. Eugeniae Rossa, Stockholm*, 1855-56, p. 551.

Hab. China.

id., *ibid.*, p. 553.

Hab. China.

id., *ibid.*, p. 555.

Hab. China.

Genus SILEGASTER.

Macq., *S. à Buff. Dipt.*, ii, *Paris*, 1835, p. 293; *Musca, Anthomyza, Aricia, Anthomyza, Hylemyia*, pt. (auctor.), *Hydrophoria*, p. 297, pt. Macq., *S. à Buff. Dipt.*, ii, *Paris*, 1835, et Rondani, *Prodr.*, i, 1853, p. 94; *Pellaea*, p. 476, *Mydae*, p. 479, *Muscina*, p. 486, *Rol-rella*, p. 489, *Mydina*, p. 495, etc., pt. Rob. Desv., *2Jod.*, 1830.

id., *V. d. Walp, Sumatra Exped.*, p. 47.

Hab. Sumatra.

id., *J. Bigot, Ann. Soc. Ent. France*, 1834, p. 287.

Hab. Ceylon.

id., *ibid.*, p. 291.

Hab. Indian Archipelago.

Genus OENOSIA.

Meig., *Syst. Besch.*, v, 1826, p. 210; *Musca, Aricia, Anthomyza, Anthomyza*, Pt. (auctor.), *Schoenomyza*, pt. Halid., *Ent. Ent.*, 1833; *Limosia*, P-⁵³⁵, *Palusia*, p. 542, *Caricea*, pt., p. 530, Rob. Desv., *Myo'i*, 1830; *Cbelisio*, p. 101, *O. logaster*, p. 98, *Myfycophaga*, p. 102, Roudani, *Prodr.*, h 1856.

torrida, Wiedem., *Ausser. Europ. Zweiflug. Ins.*, 2nd Pt., Hamm, 1830, p. 437.
Hab. China.

macularis, id., *ibid.*, p. 438.
Hab. India.

grata, id. *ibid.*, p. 438.
Hab. China.

pumila, id. *ibid.*, p. 439.
Hab. India*

marginata, id. *ibid.*, p. 440.
Hab. China

loeta, id. *ibid.*, p. 440.
Hab. India.

leucoa^iln, id. *ibid.*, p. 441.
Hab. China.

pulla, id. *ibid.*, p. 441.
Hab. Traouquebar.

modesta, V. d. Wulp, *Sumatra Exped.*, p. 48.
Hab. Sumatra.

maculariB, (*nom. bisectum*), Thomson, *Fregat. Eugeniez Retz*, Stockholm, 1859-68,
p. 559.
Hab. India? China.

boops, id. *ibid.*, p. 65 &
Hab. China.

compressiventris, id. *ibid.*, p. 559.
Hab. Malacca.

simplex, id. *ibid.*, p. 560.
Hab. China, Sumatra.

falcata, id. *ibid.*, p. 560.
Hab. China.

insurgens, Walker, *Journal. Proceed. Linn. Soc., London*, i, 1857, p. 129.
Hab. Borneo.

Genus CARICEA.

Rob. DeBV., *iliod.*, 1830, p. 530 • Cænosia, pt. (auct. ^)

loptoaoma, Rontl., *Ann. Mus. Civ. d. Stor. Nat. Genova*, 1875, p. 429.
Hab. Borneo.

Genus LISPE,

Lftr., *Precis d. Caract. Qenr.*, 1796, Gen. *Crust. et Ins.* iVj p, ^ 7 . -
Rob. Desv., *JTyod.*, 1830, p. 524, *Musca*, pt. (auct. ^, v); ^ P, ^ L iapa,

glabra, Wiedem., *Ausser. Europ. Zweiflug. Ins.* (3rd Pt.) Hamm, 1830, p. 442.
Hab. India.

dilatata, id. *ibid.*, p. 448.

Hab. India.

orientalis, id., *Analect. Entom.*, p. 51.

Hab. India.

assioalis, id. *ibid.*, p. 51.

Hab. India.

vittipennis, Thomson, *Fregat. Eugenes Resa, Stockholm*, 1865-68, p. 551.

Hab. China.

hyalipennis, id. *ibid.*, p. 562.

Hab. China.

sinensis, Schiner, *Nova. Reise*, 1868, p. 296.

Hab. China.

nicobarensis, id. *ibid.*, p. 297.

Hab. Nicobar.

tetrastigma, id. *ibid.*, p. 297.

Hab. Ceylon.

Genus HOMALOMYIA.

Bouché, *Nature. d. Ins.*, i, 1884, p. 88; Musca, *Anthomyia*, Aricia, (partim: actor.), *Fannia*, p. 567, *Pbilinta*, 568, *Aminta*, p. 569, (partim: Rob. Desv., *Myod.*, 1830; *Myaatlia*, p. 95, *Rot.*, i, *Prodr.*, i, 1856; *Cotlomyia*, (partim: Halid.

canicularis, Schiner, *Wovar. Reise*, 1868, p. 295; *Synon. Anthomyia* Id. Moig.

Hab. Nicobars, Europe.

Family SCATOPHAGIDÆ.

J. Bigot, *ad hoc in edict.*, 1891; *Scatomyzides*, Fall., *Spec. Entom.*, 1810; *Scatophagidæ*, Latr., *Macq.*, S. à Buff. *Dipt.*, 1835; *Scatophaginae*, p. 614, *Malacosome*, p. 606, *Rob. Desv.*, *Myod.*, 1830; *Scatophaginae*, Schiner, *Dipt. Austr. d. Philipp.*, 2nd Pl., 1864, p. 14; *Scatophagina*, Rond., *Prodr.*, i, 1856, pp. 24, 98.

Genus EUPTEROMYIA.

J. Bigot, *Rev. et Magaz. d. Zool. Grecin*, No. 7, 1859, p. 6.

trivittata, id. *ibid.*, p. 6.

Hab. Bora.

Genus ACALYPTERICTI.

J. Bigot, *ad hoc in edict.*, 1891; *Acalyptero*, *Macq.*, *Paris*, 1835, p. 354; *Acalypteratæ*, *Macq.*, *Dipt. Exot.*, i, 8rd Pfc, *Paris*, 13*8, p. 173.

Family HELOMYZIDÆ.

J. Bigot, *Atlas inedit.*, 1861; Helomyzides, Westw., *Introduct.*, 1840; Scatomyzides, Latr., pt. Scatomyzides, pt. Fallen; Palomyzide, pt. p. 658, Rob. Desv., *Myod.*, 1830; Helomyzina¹, p. 20, Dryomyzina, p. 38, Scitomyzina, p. 44, pt. Robiner, *Mon. Austr. d. Flieg.*, 1st Pt., 1864, p. 12; Scatophagina, pp. 24, 99, Scitomyzina, pp. 24, 104, pt. Ron*iani, *Prodr.*, 1, 1856.

Genus EELOMYZA.

Fallen, *Dipt. Suec.*, 1820; Helomyza, pt. Meig., *System. Besch.* (et auctor.), *Horbina*, p. 508, Scyllia, p. 643, pt. Rob. Desv., *Myod.*, 1830.

circumfusa, Wiedem., *Answer. Europ. Zweifl. Ins.*, 2nd Pt., *Hamm.*, 1830, p. 588.

Hab. Sumatra.

maura, Walker, *Ins. Saunders. Dipt.*, 1, *London*, 1856, p. 403.

Hab. India.

interema, id., *Journ. Proc. Linn. Soc., London*, 1, 1857, p. 28.

Hab. Mt. Ophir.

exeuus, id. *ibid.*, p. 29.

Hab. Mt. Ophir.

orientalis, id. *ibid.*, 1857, p. 129; Synon. Scitomyza, id. Wiedem., *Answer. Europ. Zweifl. Ins.*, 2nd Pt., *Hamm.*, 1830, p. 575.

Hab. Java, Borneo.

fuacieostata, id. *ibid.*, 1857, p. 129.

Hab. Borneo.

uata, id. *ibid.* ♦ P> 130.

fic

Hab. Borneo.

imbati, id. *ibid.*, p. 130.

Hab. Borneo.

provecta, id. *ibid.*, p. 130.

Hab. Borneo.

in vict:, id. *ibid.*, p. 130.

Hab. Borneo.

Genus SCIOMYZA.

Fallen, *Dipt. Suec.*, 1820, (auctor.); Coloboa, pt. Zetterst., *Dipt. Scand.*, Scatophaga, pt. Fabr.; Anticheta, pt. Halld.; Dycina, p. 692, Phorbella, p. 695, Chetocera, p. 697, Melina, 695, Arina, 696, pt. Rob. Desv., *Myod.*, 1830.

replota, Walker, *Ins. Saunders. Dipt.*, 1, *London*, 1856, p. 399.

Hab. India.

terminalis, id., *Trans. Ent. Soc., London, 1857-60*, p. 31.

Hab. India.

roticulata, Thomson, *Fregat. Eugenie's Resa, Stockholm, 1858-63*, p. 570.

Hab. Chii:a.

pTophiqua, id. *ibid.*, p. 570.

Hab. C'hina.

Genus DRTOMTZA.

Fallen, *Dipter. Svec.*, 1820; Meig. *fet auctoi.*; Dryope, p. 618, pt. Rob.

Desv., *Myod.*, 1830.

maculipennis, Macq., *Dipt. Exot., 4th Suppl., Paris, 1850*, p. 273.

Hab. India.

Genus GAUZANIA.

Walker, *Journ. Proceed. Linn. Soc., London, i, 1857*, p. 130.

devectora, id. *ibid.*, p. 131.

Hab. Borneo.

Genus XkvSUTA.

Walker, *Journ. Proceed. Linn. Soc., London, i, 1857*, p. 28.

leucoteluB) id. *ibid.*, p. 26.

Hab. Singapore.

Genus SAPF;ONYZA.

Fallen, *Vl. S.*, 1820, (et aut-tor.); Tox<nevr, pt. Macq., *S. d. Buff.*

Dipt., ii, Paris, 1835, p. 4U4; Lyoia, p. 637, Sylvia, p. 636, Herhina, p.

698, Suillia, j. 642, Rob. Deev.f & yod, 1830; Palloptera, pt. Fallen;

Daous, pt. Fabr.

conferta, Wiedem., *Aussei. Europ. Zueifug. Ins., 2nd Pt., Hamn, 1830*, p. 454.

Hab. China.

faUeni, id. *ibid.*, p. 445.

Hab. India.

levis, id. *ibid.*, p. 456.

Hab. China.

bengalensis, Macq., *Dipt. Exot., ii, 3rd Pt., Paris, 1843*, p. 168.

Hab. Bengal

biguttata» id. *ibid.*, p. 183.

Hub. Java,

javana, id, ibid., 4th Suppl., 1850, p. 274.

Hab. Java.

pacilit, Schiner, *Novar. Reis*, 1868, p. 179.

Hab. Nicobara,

italians., V. d. Wulp, *Tijdschr. v. Entom.*, deel xxiii, p. 39.

Hab. Jr

Genus JINETTIA.

Rob. Desv., *Myod.*, 1830, p. 6W; *Sapromyza*, pt. (auctor.).

signata, V. d. Wulp, *Sumatra Exped.*, p. 62.

Hab. Sumatra.

Family PSILOMYDÆ.

J. Bigot, *ad hoc inedit.*, 1891; *Psilomydæ*, pt. Macq., *S. à Buff. Dipt.* Paris, 1835, p. 418; *Psilline*, Schiner, *Faun. Austr.*, D. *Flieg.*, 2nd Pt., 1864, p. 196; *Psillites*, pt. O. Heer, *Ins. Fauna*, ii, 1849; *Loxoceridæ*, pt. Macq., *S. à Buff. Dipt.*, ii, Paris, 1835, p. 372; *Cordyluridæ*, Macq., loc. cit., p. 375; *Scatomyxidæ*, pt. Latr. **Fabr.** *Opomyxidæ*, pt. Fall., Zett.; *Palomydæ*, Rob. Desv., *Myod.*, 1830, p. 668; *JUiliza*, pt. E. Jendani, *Prodr.*, i, 1856, p. 122.

Genus Psila.

Meig., *Illig. Magaz.*, ii, 1803, p. 278; *Psilomyda*, pt. Fall. Zetterst. *Psilomyda*, pt. Latr. *Psilomyda*, Macq., *S. à Buff. Dipt.*, ii, Paris, 1835, p. 420; *Oblicia*, p. 620, Rob. Desv., *Myod.*, 1830.

typicalis, Wiclem., *Ausser. En*ip. Zucifl. Ins.*, 2nd Pt., Hamw) 1830, p. 527.

Hsb. China.

Family TETANOCERIDÆ.

J. Bigot, *ad hoc inedit.*, 1891; *Dolichocera*, pt. Latr., *Reg. Anim.*, 1820. *Macq.*, *S. à Buff. Dipt.*, ii, Paris, 1835, p. 361; *Satomyx*, pt. P[^] *Tetanocerina*, Schiner, *Faun. Austr.*, D. *Flieg.*, SmlPfc 1864, n. R2* *Paloniya*, pt. Rob. Desv., *Myod.*, 1830, p. 658; *Sciomyx*, pt. Rond., *Prodr.*, i, 1856, p. 10i; *Tetanoceridæ*, J. Bigot, (*olim*).

Genus SEPIRON.

Latr., *Dict. Scist. Nat.*, vi, 24, 1804, *Gen. Crust. et Ins.* pt., *Mtdi*, pt. Fab., Rossi. **i>^P.>><!** *Syrphus*,

javanensis, Eob. Desv., *Myod.*, 1830, p. 677.

Hab. Java, Sumatra.

ferruginosus,

Hab. ImUft.

plombellus, id. ibid., p. 577.

Hab. China.

eenescens, id- ibid., p. 579.

Hab. China.

orishna, Walker, *List. Dipt. Ins. Brit. Mus.*, iv, (London), 1849, p. 1079.

Hab. Nepal.

Genus TETANOBR.

Latr., (*Gen. Crustac. et Insect.*, iv, p. 350, 1809) • Tetanoœrus, Dufour; Oscinie, P. Fabr.: Btithyeera, pt, Latr.; Dyctin, p. 692, Pherbina, Rob. Desv., *Myod.*, 1830, p. 687.

discalis, Walker, *Trans. Ent. Soc. London*, 1857-60, p. 54.

Hab. Burma.

Family CALOBATIDÆ.

1, Bigot, *ad hoc inedit.*, 1891; Leptopoditæ, Latr., *Cuvier, Regn. Anim.*, 1829; Leptopoditæ, Macq., *Suit à Buf. Dipt.*, ii, Paris, 1835, p. 48b; Opomyzidæ, pt, Fabr. Thelidomydæ, Rob. Desv., *Myod.*, 1830, pp. 704-734; Tanypezime, Schiner, *Faun. Austr. d. Flieg.*, 2nd Pt., 1834, p. 190; Tanypezitia, P. Fabr., *i. rodr.*, •, 1856, pp. 24, 114; Neriades, pt. Westw., *Introd. VJ. -ra. Clavide. Ins.*, 1840; Sepsidæ, pt. Fallen; Leptapodidæ; Longinidi, pi. J. Bigot, (1891).

Genus NKB•US.

rabr., *Syat. Ant.*, 1805; Neria, Rob. Desv., *Myod.*, 1830, p. 736.

fuseus, Wiedem., *A. i. l. Entom.*, p. 15.

Hab. Java, Sarawak.

lineolatus, i[^]., *Aussur. Europ. Zoon. v. g. Ins.*, 2nd Pt., (Homw) 1830, p. 552.

Hab. Java.

duplicatus, id- ^id., j[^]. t 53.

Hab. Java.

iTiermis, Scliiner, Kour, *Rcm.*, 1368, p. 248.

Hab, Nicobars.

indica, Rob. Desv., *Myod.*, 1830, p. 737.

Hab. India.

fusoipennis, Macq., *Dipt. Earot.*, ii, 3rd Pt., Paris, 1842, p. 241.

Hab. Java, Mx. Oplih-j Singapore.

Genus NOTHTBDS.

Rondani, *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1875, p. 439.

longithorax, id. ibul.j p. 43'J.

Hab, Sarawak.

GENUS CALOBATA.

Meig., *Illig. Magaz.*, ii, 1803, p. 276; Coy*, *Dimier. Tanipocla*, pt. Rondani*,
Prodr., i, 1856, p. 116.

leucodes, Wiedem., *Anal. Entom.*, p. 40.

Hab. India.

albitarsis, id., *Zool. Magaz.*, iii.

Hab. Java.

vidua, id., *Auser. Europ. Zueiflug. Ins.*, 2nd Pt., *Hum.*, 1830, p. 540.

Hab. Tranquebar.

splendens, id. *ibid.*, p. 539.

Hab. Ceylon.

stjophora, Schiner, *Notar. Reise*, 1838, p. 539.

Hab. Nicobars.

albimana, Macq., *Dipt. Exot.*, ii, 3rd Pt., *Paris*, 1843, p. 245.

Hab. Java, Port Jackson, Cuba? Philadelphia?

basalis, Walker, *Ins. Saunders. Dipter.*, London, 1856, p. 391.

Hab. India.

contracta, id. *ibid.*, p. 395.

Hab. India.

cyaneimns, id., *Trans. Ent. Soc. Lond.*, 1857-60, p. 61.

Hab. Burma.

ptmdens, Ost-Sacken, *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1881, p. 455.

Hab. Stanatra.

naorbida, id. *ibid.*, p. 417.

Hab. Java, Sumatra.

confinis, Walker, *Journ. Proceed. Linn. Soc., London*, i, 1851, p. 37.

Hab. Singapore, Mt. Ophir.

immixta, id. *ibid.*, p. 37.

Hab. Malacca.

cedens, id. *ibid.*, 1857, p. 135.

Hab. Borneo.

GENUS TANIPODA.

Rondani, *Prodr.*, i, 1856, p. 116 j CfJobat, pt.

strenua, Rond., *Ann. d. Mus. Civ. d. Stor. Nat. d. fifenoro*, 1875, p. 440; *Synon.*
 Calobata, id. Walker, *Journ. Proceed. Linn. Soc., London*, 1857, p. 135.

Hab. Sarawak, Borneo.

caligata, id. *ibid.*, p. 4.

Hab. Sarawak, Borneo.

luteilabris, id. *ibid.*, p. 441.

Hab. Sarawak, Borneo.

cubitalis, id. *ibid.*, p. 441.

Hab. Sarawak, Borneo.

Genus *IBOTOMA*.

Delaporte, *Ann. Sc. Nat.*, xxv, 1832, p. 457; Longina, pt. Wiedem., *Ausser. Europ. Zeevlug. Ins.*, 2nd Pt., *Hama*, 1830, p. 554; Longina, Macq., *Suit. d. Buff. Dipt.*, ii, Paris, 1835, p. 493; Diatcina, pt. Westw., *Griff. Anim. Kingd.*

pelletorii, Delaporte, *loc. cit.*

Hab. Cochinchina.

Genus *TSINIA*.

Macq., *S. d. Buff. Dipt.*, ii, Paris, 1835, p. 491.

albina, Dolesch., *Naturk. Tijdschr. v. Nederl. Indië, Batavia*, New series, 1856, p. 413.

Hab. Djokjokarta.

cinerea, Eipenniri, J. Eiffel, *Ann. Soc. Ent. France*, 1856, p. 376.

Hab. Fanna.

sumatrensis, Wiedem., 1830, p. 373.

Hab. Burma.

Genus *MIMEGRATIA*.

Eodani, *Novo. Ann. d. Scien. Nat. d. Bologna*, 1850, p. 18.

birmanenair, Bigot, *Ann. Soc. Ent. France*, 1880, p. 38a.

Hab. Burma.

Genus *GRAMMICOMYIA*.

J. Bigot, *Bull. Magaz. d. Zool. Guerin.*, No. 7, Paris, 1850, p. 10.

tentoriaea, id. *ibid.*, p. 10.

Hab. Ceylon.

Genus *MICROPEZA*.

Meig., *Illig. Magaz.*, ii, 1803, p. 278; Calobata, pt. (auctor.); *Phantasma*, pt., p. 739, Rob. Dear., Sfyod., 1830.

fragilis, Walker, *Jbuntz. Proreec. Linn. Soc. London*, i, 1857, p. 37.

Hab. Siagapore, Mt. Ophir.

GENUS *CARDIACEPHALA*.

Macq., *Dipt. Exot.*, ii, 3rd Pl., Paris, 1843, p. 242; *Nerius*, *Calebata*, pt.
(aactor.) TM

lougicollis B. Walker, *Journl. Proceed. Linn. Soc., London*, i, 1857, p. 135.
Hab. Borneo.

GENUS *T-3ARA*.

Walker, *Journl. Proceed. Linn. Soc., Londm*, i, 1857, p. 38.

compressa, id. *ibid.*, p. 38.
Hab. Singapore.

GENUS *CSPHJXU*. • ^

Meig., *Syst. Besch.*, v, 1826, p. 169; *Myrmecomya*, pt. Rob. Desv., *Myod.*,
1830, p. 731.

iiicolor, -T. Bigot, *Ann. Soc. Ent. Fr.*, 1886, p. 385.
Hab. Ceylon.

FAMIIY *SEPSIDÆ*.

J. Bigot, *ad. M. inedit.*, 1891; *Sepsidæ*, Macq., *S. d. Hoff. Dipt.*, ii, Paris,
1835, p. 475; *Crtalitta*, pt. (auctor.), *Carpomyza*, pt. Latr.; *Thelidox*,
myde, pt. Desv., *Myod.*, 1830, pp. 704, 731; *Sepsinae*, Schiner,
Faun. Austr. J. Flieg., 2nd Pl., 1854, p. 175; *Tanyperina*, Rond., *Prodr.*,
i, 1853, p. 114.

GENUS *SEPSIS*.

Fallen, *Dt. icr*, *Swec.*, 182C; *Ortalis*, *Tephritis*, pt. (auctor.); *Micropeza*,
Latr., id. *h n^v*, 740, Rob. Desv., *Myod.*, 1830; *Enicita*, pt.
Westw.; *Enicimus*, pt. (auctor.), *List. Dipt. Ins. Brit. Mus.*, iv, London,
1849, p. 1002; *Seteia*, pt. (auctor.).

trivittata, J. Bigot, *Ann. Soc. Ent. France*, 1886, p. 38.
Hab. Ceylon.

indica, Wiedem., *Analect. Entom.*, p. 07.
Hab. India.

nitens, id. *ibid.*, p. 57.
Hab. India,

lateralis, i<-i ^ << ^ r - ®^{uro}P- *Zyseljug. iust* 3nd P t j *Hamm*, 1830, p. 468.
Hab. Chiha.

complicata, id. *ibid.*, p. 468.
Hab. Chir.a.

jiolor, *id. ibid.*, p. 468.
Hab. China.

viduata, Thomson, *Fregat. Engaines Resu*, Stockholm, 1858-68, p. 586.
Hab. China.

monostigma, *id. ibid.*, p. 1157.
Hab. China.

Genus M[CHOC TEE.

Macq., *S. à Buff. Dipt.*, ii, Paris, 1835, p. 483; Cephala, pt. Wiedem.
P. (lystodes, pt., p. 7%), Rob. Desv., *Myod.*, 1830.

bambusarium, Dolesch., *Naturk. Tijdschr. v. Nederl. Indie, Batavia, New Series 1856*,
p. 413.

Hab. Djokjokarta.

J

Family DIORSIDÆ.

J. Bigot, *adhuc inedit.*, 1891.

Genus DIOPSIS.

Linn. *Id. Dzh. Dta. d. B. Ind.*, 1838; Diopsidæ, Macq., *Dipt. Exot.*, i, 3id
Pt., Paris, 1845, p. 234, (et auctor).

circularis, Micq. *S. à Buff. Dipt.*, ii, Paris, 1835, p. 486.
Hab. India, Java, Cape of Good Hope?

subfasciata, *id.*, *Dipt. Exot.*, ii, 3id Pt., Paris, 1835, p. 255.
Hab. Java.

haltoanni, Wiedem., *Austro. Europ. Zoolog. Ins.*, 2nd Pt., *Haww* 1830, p. 560.
Hab. Java.

•neuin ones, Donovan, *Ind. Bees. Encyclop.*, xi pl. 2; Synon. Senau Walker,
List. Diptera, Ins. Brit. Mus., iv, London, 1849, p. 1060; D. indica, *IVertw. /inn.*
Trans. xvii, p. 269.
Hab. Java, India.

^fcwoodii, (Deliam), *Wear. Cabinet, Orient. Entom.*, London, 1848, p. 37.
Hab. India.

teu ueguttata, Walker, *Journ. Proceed. linn. Soc.*, London, i, 1857, p. 36.
^H). Malacca.

spans, *id. ibid.*, 1857, p. X34.
Hab. Borneo.

mata, Dolesch., *Naturk. Tijdschr. v. Nederl. Indie, Batavia, New Series 1856*,
413; Synon. Senau Ost-Sacken, *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1881,
480; Bl I&timana, Kondani, *Ann. Mus. Civ. Genova*, vii, p. 444, et D. lativ
id., *ibid.*, p. 445.
fras
Hab. Java, Borneo, Sarawak.

ipicilis, id. *ibid.*, p. 413; *Synonyma*. *D. graminicola*, id. *ibid.*, 1857, p. 417.
Hab. Java.

dubia, J. Bigot, *Ann. Soc. Ent. France*, 1874, p. 111.
Hab. Bornéo.

belzebuth, id. *ibid.*, p. 113.
Hab. Bornéo.

vxlloia, id. *ibid.*, p. 114.
Hab. Bornéo.

Genus TELEOPSIS.

Rondani, *Ann. d. Mus. Civ. d. Stor. Nat. d. Qmova*, 1875, pp. 442-43; *Diopsis*,
pt. (auctor).

sykesii, Rondani, id. *ibid.*, p. 443; *Synonyma*. *Diopsis*, id. Gray, *Westw., Linn. Trans.*,
xvii, p. 310.

Hab. India, Sarawak.

brevisopium, Rond., *ibid.*, p. 443.
Hab. Sarawak.

longiscorium, id. *ibid.*, p. 444.
Hab. Sarawak.

fulviventris, J. Bigot, *Ann. Soc. Ent. France*, 1880, p. 94.
Hab. India.

Genus SPHINCTROCEPHALA.

Westwood, *Cabinet of Orient. Entomol., London*, 1843, p. 37.

hearseiana, id. *ibid.*, p. 37.
Hab. India)

Family TRYPETIDÆ.

J. Bigot, *ad hoc inedit.*, 1894; *Carpomyzæ*, *Ortalidæ*, *Teparitidæ*, pt.
Fallen, (et auctor. I, *Myodina*, *Rob. Desv. Myod.*, p. 704, et *Aciphoreæ*,
ibid., 1830, p. 748; *Ortaloidi* et *Ortalidina*, pt., p. 3. *T. phritoidi*, pt.,
p. 5, Rondani, *Dipt. Ital. Prod. Part. VII, Bullet. d. Soc. Entom.*
Italiana, vol. i, Fasc. 1 et 2, 1869, et vol. ii, Fasc. 1, 1871; *Ortalina*
et *Trypetina*, Schiner, *Faun. Austriaca D. Entom.*, V » 2nd Pt., pp. 8 et 9,
1864.

Division ORTALIDA,

J. Bigot, *ad hoc inedit.*, 1891; *Ortalidæ*, Fallen, 1810; *Macq. Dipt.* ii, 1835
p. 429; *Carpomyzæ*, pt. Latr., *Rep. Anim.*, *Myodina*, p. 704 et *Aciphoreæ*,
pt., p. 748, *Rob. Desv., Myod.*, 1830; *Ortaloidi* et *Ortalidina*, pt. Ron-
dani, p. 5, *Dipter. Ital. Prodr.*, vii, Fasc. 3, 1861; *Ortalina*, pt. *ScMN6r*
Faun. Austr. d. Flieg., 1864, p. 8.

GENUS BACTROCERA.

Guerin, *Voy. de la Coquille, Dipt.*, 1830, p. 300; Dacus, pt. (auctor.).

fasciipennis, (Bactrocera), Dolesch., *Naturk. Tijdschr. v. Nederl. Indie, Batavia, New Series*, 1856, p. 412.

Hab. Java.

maculipennis, (Bactrocera) id. *ibid.*, p. 412.

Hab. Java.

GENUS DACUS.

Fabr., *Syst. Antl.*, Meig. *Syst. Besch.* i i, 1830, p. 71; Oscinia, pt. Latr. *Brachyopa*, pt. Meig., *Syst. Besch.*, iii, *Hann.*, 1823, p. 262.

ferrugineus (Musca id. Fabr., *Ent. Syst.* i^{iv}) J *Wiedem., *Ausier. Europ. Zwicklug. Ins.*, 2nd Pt., *Hann.*, 1830, p. 515.

Hab. India, Java.

umbrosus, Fabr., *Syst. Antl.*, p. 274.

Hab. Sumatra.

fascipennis, Wiedem., *Zool. Magas.* f iii, p. 28.

Hab. Java.

klugii, id., *Anal. Entom.*, 1869, p. 43.

Hab. India.

longicornis, id., *Ausier. Europ. Zwicklug. Ins.*, 2nd Pt., *Hann.*, 1830, p. 524.

Hab. Java.

limbipennis, Macq., *Dipt. Esol.*, i, 3rd Pt., *Paris*, 1843, p. 217.

Hab. Java.

ritsemæ, Weyenberg, *Archiv. Naturk.*, iv.

Hab. Java.

incl. JUS, Waikt., *Trans. Zool. Soc.*, 1857-60, p. 56.

Hab. Burma.

equilidus, id. *ibid.*, p. 56.

Hab. India.

cylindricornis, V. d. Walp., *Archiv. Naturk.*, lxxiii, 1880, p. 20.

Hab. Java.

GENUS HERINA.

Rob. Desv., *Iyod.*, 1830, p. 724; Musca, Tephritis, pt. Fabr.; Ortalis, pt. Meig.

calcarata, Macq., *Dipt. Esol.*, i, 3rd Pt., *Paris*, 1843, p. 207.

Hab. India.

oymeiven; ris, V. d. Wulp, *Sumatra Exped.*, p. 51.

Hab. Bumi trn.

GENUS SENOPTERINA.

Macq., *S. à Buff. Dipt.*, ii, Paris, 1835, p. 454; Dacus, pt. (auctor.).

sonca, V. d. Wulp, *Sumatra Exped.*, p. 51; *Synon. Dacus*, id. Wiedem., *Zool. Magaz.*, iii, p. 29; *Senopterina labialis*, Rond., *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1875, p. 430.

Hab. Java, Sumatra, Sarawak.

batavensis; Schiner, *Novv. Reise*, 1868, n. 288.

Hab. Batavia.

navipes, id. *ibid.*, p. 283.

Hab. Singapore.

zonalis, Rond., *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1875, p. 430.

Hab. Sarawak.

marginata, Y. d. Wulp, *Tijdschr. v. Entom.*, 1879-80, p. 27.

Hab.

GENUS EURYPALPUS.

Macq., *S. à Buff. Dipt.*, ii, Paris, 1835, p. 443.

testaceus, id. *ibid.*, p. 443.

Hab. Java.

GENUS ICHONETRA.

Macq., *S. à Buff. Dipt.*, ii, Paris, 1835, p. 448; *Platystoma*, pt. (auctor.).

decora, id. *ibid.*, *Synon. Dycia*, id. Fabr., *Syst. Ent.*, *Platystoma*, id. Wiedem., *Auser, Europ. Zweifl. Ins.*, 2nd Pt., *Hann.*, 1830, p. 563.

Hab. Java.

GENUS ICAMPYLOCERA.

Macq., *Dipt. Exot.*, ii, 3rd Pt., V-4 J 843, p. 120.

riyopina, V. d. Wulp, *Tijdschr. v. Entom.*, deel xiii, 1879-80, p. 37.

Hab. Java.

robusta, id. *ibid.*, p. 38.

Hab. Java.

GENUS OXYCEPHALA.

MaWi *Dipt. Exot.*, ii, Erd Pt., i Paris, 1843, p. 197.

picinifl, talker, *List. Dipt. Ins. Brit. Mus.*, London, 1849, addenda, p. U62.

Hab. India.

Genus LAMPROGASTER.

Macq., *Dipt. Exot.*, ii, 3rd Pl., Paris, 1843, p. 211; *Chromatomyia*, Walker, *List. Dipt. Ind. Brit. Museum*, iv, London, 1849, p. 801; *Scholastes*, Guerin, *Voy. Seignille, Zool.*, p. 299.

navipenni; id. *ibid.*, p. 211; *Zigemula*, Pt-Bensn \ Walker; *Pterogenia*, pt. J. Bigot.
Hab. Indian Archipelago.

frauenfeldi, Schiner, *Novor. Reise.*, 1868, p. 255.
Hab. Batavia.

conata, Walker, *Journ. Proceed. Linn. Soc.*, i, 1857, p. 30.
Hab. Singapore.

glabra, id. *ibid.*, p. 30.
Hab. Singapore.

transversa, id. *ibid.*, p. 30.
Hab. Malacca.

vittata, id. *ibid.*, p. 31.
Hab. Singapore.

truncatula, id. *ibid.*, p. 31.
Hab. Singapore.

bssilata, id. *ibid.*, 1857, p. 131.
Hab. Borneo.

divisa, id. *ibid.*, p. 131.
Hab. Borneo.

punctata, id. *ibid.*, p. 131.
Hab. Borneo.

guttata, id. *ibid.*, pp. 31, 131.
Hab. Singapore, Borneo.

Genus PTEROGASTER.

(*Adaptellus*?) Bondari, *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1875, p. 438.

chelyonothus, id. *ibid.*, p. 438.
Hab. Sarawak, b* *eo.*

Genus ZYGENULA.

Dolesch., *Naturk. Tijdschr. v. Nederl. Indie, Batavia*, 1858, p. 117; *Pterogenia*, J. Bigot, *Rev. et Mag. d. Zool. Guerin*, 1850, p. K39.

Genus PTEROGENIA.

J. Bigot, *Rev. et Magaz. d. Zoolog. Guerin*, No. 7, Paris, 1850, p. h

dayak, id. *ibid.*, p. 9.
Hab. Sarawak.

GENUS PLATYSTOMA.

Meig., *Pig. Mayez.*, ii, 1803, p. 277; *Dyctia*, pt. (auctor), *Trupanea*, pt., Schrank, *Hesyquillia*, p. 708, *Palpomyia*, p. 708, pt. Rob. Desv., *Myod.*, 1830; *Megaglossa*, Rond., *Bullet. d. Soc. Ent. Italiana*, 1809, *Prodr.*, vii, p. 32; *Hemigaster*, p. 431, *Elachigaster*, p. 432, *Ditomogaster*, p. 433, pt. Rondani, *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1875.

albovittata, (*Hemigaster*), Rondani, *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1875, p. 431.

Hab. Borneo.

albitarsis, (*Elachigaster*), id. ibid., I, p. 432.

Hab. Borneo.

xanthomerris, (*Ditomogaster*), itl. ilicl., p. 433.

orientalis, Macq., *Dipt. Exot.*, ii, 3rd Pt., Paris, 1843, p. 200.

Hab. India.

irrorata, Thomson, *Fregat. Eugenes Reise, Stockholm*, 1858-59, p. 577.

Hab. Indian Archipelago, Malacca.

punctiplena, Ost.-Sacken, *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1881, p. 471,

id. Walker, *Journal. Proceed. Linn. Soc., London*, 1861, p. 268; *Synon. Stollata*, loc. cit., 1856, p. 32; *Atomaria*, id. ibid., 1859, p. 148, *Parvula Schiner, Noct. Reise*, 1868, p. 286.

Hab. Batavia, Celebes.

superba, V. d. Wulp, *Sumatra Exped.*, p. 50.

Hab. Sumatra.

rigida, Walker, *Journal. Proceed. Linn. Soc., London*, 1861, p. 268.

Hab. Singapore.

GENUS ENICOXEVKA.

Macq., *Dipt. Exot.*, ii, 3rd Pt., Paris, 1843, p. 203.

fenestrata, id. ibid., p. 204.

Hab. India; West Africa?

GENUS ORTALIS.

Fallen, *Dipter. Suec.* 1820? *Dyctia*, *Scatophaga*, *Otites*, pt. Latr., *Reg. Anim.*, *Oscinia*, pt. Latr., *Blainvillia*, p. 514, *Myennis*, p. 717 *Myodina*, 727, pt. *Heramya*, pt., p. 709, Rob. Desv., *Myod.*, 1830.

maritima (Fallen), *List. Dipt. Ins. Brit. Mus.*, iv, London, 1849, p. 994.

Hab. India.

rutilans, (*Boiednvalia*), Rob. Desv., Macq., *S. d. Buff.*, * pt., ii, Paris, 1835, p. 3.

Hab. India.

Genus DASYNEURA.

Saunders, *Trans. Ent. Soc.*, iii, London, 1841, p. 60; *Dacus*, pt. (auctor.).
caudata, Walker, *List. Dipt. Ins. Brit. Mus.*, iv, London, 1849, p. 1073; *Synon.*
Dacus, id. Fabr., *Syst. Ant.*, p. 276.

Hab. Java, H. Benfai.

tau, id. *ibid.*, p. 107*.

Hab. China.

sonata, id. *ibid.*, p. 107⁵.

Hab. Bengal.

Genus THEMARA.

Walker, *Journal. Proceed. Linn. Soc.*, London, i, 1857, p. 33; *Acanthoneura*, pt.
 Macq., *Dipt. Ecot.*, ii, 3rd Pt., Paris, 1843, p. 220; *Achias*, pt. Westw.
maculipennis, Ost.-Sack., *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1881, p. 460]
Synon. Acanthoneura, (Macq.), id. Westw., *Cabin. Orient. Entom.*, London, 181*
 p. 33; *Achias hornfieldi*, Westw., *Trans. Ent. Soc. London*, 1850; *Themara ampla*,
 Walker, *Journal. Proceed. Linn. Soc.*, London, i, 1857, p. 33.

Hab. Singapore.

hirtipes, Rond., *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1875, p. 435.

Hab. Sarawak.

ypsilon, id. *ibid.*, p. 435.

Hab. Sarawak.

Genus XNIU.

Walker, *Journal. Proceed. Linn. Soc.*, London, i, 1857, p. 33.

antlca, id. *ibid.*, p. 36.

Hab. Mt. Ophir.

obliqua, Ost.-Sack., *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1881, p. 463.

Hab. Sumatra.

Genus RHADINOMYIA.

Schiner, *Novar. Reise*, 1863, p. 290.

orientalis, id. *ibid.*, p. 290.

Hab. Java, Batavia.

Genus KTVAFILIA.

Rob. Desv., *Uyod*, 1830, p. 729; *Tephritis*, pt. Lair.; *Pabr. I*
 (factor.).

persicie, J. Bigot, *Indian Economic Entomol.*, i, 1890, p. 192.

Hab. India.

Genus CERATITIS.

MacKay, *Zool. Journal*, iv, p. 475; *Petalophora*, Macq., *S. d. Buff. Dipt.*, H. Paris, 1835, p. 454; *Trypeta*, pt. Wiedem., *Ann. Europ. Zweiflug. Ins.*, 2nd Pt., Hamm, 1830, p. 406, (*Tryp. capitata*).

capitata, (*Trypeta* id.), Wiedem., *Ann. Europ. Zweiflug. Ins.*, 2nd Pt., Hamm, 1830, p. 406; (*C. oitriperda* Mackey, *l. c.*, p. 475.
Hab. India.

Genus ADRAMA.

Walker, *Journal. Proceed. Linn. Soc., London*, 1858, p. 117; *Synon. Senau*
Ont.-Sacken, Ann. d. Mus. Civ. d. Stor. Nat. d. Genova, 1881, p. 479;
Acanthipeza, Rondani, *Ann. id.*, iii, 1875, p. 437.

selecta, id. *ibid.*, p. 117; *Synon. Senau*
Ont.-Sacken, Ann. d. Mus. Civ. d. Stor. Nat. d. Genova, 1881, p. 479; *Enicoptera rufiventris*, Walker, *Journal. Proceed. Linn. Soc., London*, 1860, p. 163; *Psila cruciata*, id. *ibid.*, iii, p. 123; *Acanthipeza maculifrons*, Rondani, *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1875, p. 438.
Hab. Amboina, DBBW Guinea, Wokan.

Genus CHARAX.

Walker, *Trans. Linn. Soc., London*, 1857-60, 11.58.

planidoreum, id. *ibid.*, p. 63.

Hab. Burma.

Genus RIOXA.

Walker, *Journal. Proceed. Linn. Soc., London*, i, 1857, p. 95.

lanceolata, id. *ibid.*, p. 35.

Hab. Singapore, Borneo.

corifinis, id. *ibid.*, 1856, p. 132.

Hab. Borneo.

orebus, Rond., *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1875, p. 436.

Hab. Sarawak.

nox, id. *ibid.*, p. 437.

Hab. Sarawak.

Genus SOPRIRA.

Walker, *Journal. Proceed. Linn. Soc., London*, i, 1857, p. 34.

concinna, id. *ibid.*, i, 132.

Hab. Borneo.

venusta, id. *ibid.*, 1857, p. 35.

Hab. Singapore.

Genus ISBETA.

Rob. Desv., *Myod.*, 1830, p. 778.

laticollis, Walker, *Journal. Proceed. Linn. Soc., London*, i, 1857, p. 133.

Hab. Borneo.

Genus STRUMETA.

Walker, *Journal. Proceed. Linn. Soc., London*, i, 1857, p. 33.

conformis, id. *ibid.*, p. 34.

Hab. Singapore.

Genus VALONIA.

Walker, *Journal. Proceed. Linn. Soc., London*, i, 1857, p. 34.

complicata, id. *ibid.*, p. 34.

Hab. Malacca.

Genus OXYPHORA.

Rob. Desv., *Myod.*, 1830, p. 777.

malacca, Schiner, *Novar. Reise.*, 1865, p. 274.

Hab. Ceylon.

Genus (L.) LYFHORA.

Rob. Desv., *Ann. d. MM. Civ. d. Bot. Nat.*, d. Ocnovv, 1875, p. 433.

borneana, id. *ibid.*, p. 434.

Hab. Sarawak.

Genus AGASTRODES.

J. Bigot, *Rev. et Magaz. d. Zool., Guérin*, No. 7, Paris, 1800, p. 7.

niveitarsis, id. *ibid.*, p. 8.

Hab. Ceylon.

Division TRYPBTIDA.

J. Bigot, *ad hoc inedit.*, 1891; *Carpomyzæ*, pt. Latr., *Regn. Anim.*; *Ortaliidæ*, pt. Fidler; *Tephritidæ*, pt. Macq., *Suit. d. Dipt.*, ii, Paris, 1800, p. 47; *Aciphoræ*, pt., p. 748, Rob. Desv., *J. Myod.*, 1830; *Trypbtidæ*, pt. Schiner, *Faun. Austriaca*, d. *Flieg.*, 2nd Ft., ix, 1804; *Ortaliidæ*, pt. Koud., *Prodr.*, i, 1866, p. 10S.

GENUS TRYPETA.

Meigen, *Hig. Magaz.*, ii, p. 1803; Scatophaga, Dacus, pt. Fabr.; Trupanea, pt. Schrank; Tephritis, pt. (auctor), Sitaxen, p. 763, Terellia, p. 758, pt., Rob. Desv., *Myod.*, 1830; Carpomyia, p. in, Cerajocera, p. in. pt., Rond., *Prodr.*, i, 1856.

atilia, Walker, *List. Dipt. Ins. Brit. Museum*, iv, London, 1849, p. 1021; Synon. Trypeta melaleuca? Walker, *Journ. Proceed. Linn. Soc.*, London, 1864, p. 238; Sensu Osten-Sacken, *Ann. d. Mus. Civ. d. Star. Nat. d. Genova*, 1881, p. 459.
Hab. China, Ceram, Celebes.

sinica id., *Trans. Ent. Soc., London*, 1857-60, p. 41.

Hab. China.

tubifera, UL i *ibid.*, p. 42.

ib. China.

II:

id., *Journ. Proc. Linn. Soc.*, i, 1857, n. 1, 133.

rudis Hab. Borneo.

crux. (Musca, Dacus), Fabr. *Encycl. Syst.*, iv, p. 353, et *Syst. Antl.*, p. 277.

Hab. India.

violacea, Wiedem., *Auser. Europ. Zueiflug. Ins.*, 2^{te} Ft., Hamm, 1830, p. 476.

Hab. Java.

vaga, id. *ibid.*, p. 490.

Hab. Bengal.

modesta, id. *ibid.*, p. 493; Synon. Dacus, id. Fabr., *Syst. Antl.*, p. 278; Sensu Wiedem., *loc. cit.*

Hab. Bengal.

obsoleta, id. *ibid.*, p. 499.

Hab. Java.

incisa, id., *Anal. Entom.*, p. 53.

ib. Bengal.

acrostacta, id. *ibid.*, p. 54.

Hab. India.

tesata, *Auser. Europ. Zueiflug. Ins.*, 2nd Pt., Hamm, 1830, p. 503; Synon. Tephritis, (i. Fabr., *Syst. Antl.*, li. 32C); Sensu Wiedem., *loc. cit.*

Hab. Iraouquebar.

reinhardti, id., *Anal. Entom.*, p. 54.

Hab. India.

bas., id., *Auser. Europ. Zueiflug. Ins.*, 2nd Pt. a Hamm, X83D, p. 510.

Hab. Sumatra.

tucia, Walker, *List. Dipt. Ins. Brit. Mus.*, iv, London, 1849, p. 1021.

Hab. Bengal.

stella, id. *ibid.*, p. 1030.

Hab. Bengal.

antiqua, id., *Insect. Saunders. Dipter.*, vol. i, London, 1856, p. 378.

Hab. India.

cylindrica, id. *ibid.*, p. 380.

Hab. India.

mixta, id. *ibid.*, p. 371.

Hab. India.

contraria, id. *ibid.*, p. 385.

Hab. India.

ferruginea, id. *ibid.*, p. 387.

Hab. India.

incisa, Tli^{(Günson, *Fregat. Eugenia & Rosa, Stockholm, 1858-68, p. 579, (nom. bislect. ?)*}

Hab. China.

sincensis, id. *ibid.*, p. 535.

Hab. China.

Genus EULEIA.

Walker, *Ent. Magaz.*, iii, p. 61; Trypeta; pt-

mutica, (Trypeta) id., *List. Dipt. Ind. Brit. Muscum*, iv, London, 1850, p. 1036.

Hab. India.

Genus VIDALIA.

Rob. Desv., *Myod.*, 1830, p. 719.

impr. afrons, id. *ibid.*, p. 719.

Hab. India.

Genus briOPHORA.

Rob. De3T., (*Myod.*) 1830, p. 720.

zonata, id. *ibid.*, p. 723.

Hab. i. Corouiamiel.

Gen. BOISDUVAUA.

Kob. Deav., ATyed, 1830, v. 730.

rutilans, id. *ibid.*, p. 730.

Hab. I: di

Genus ACANTHON:VRA.

Macq., *Dipt. Exot.*...ii.SrdT., Paris, 1813, p. 220.

fuscipennis, id. *ibid.*, p. 221.

Hab. Bengal.

Genus UROPHORA.

Hob Desv., *Myod.*, 1830, p. 769; *Dacus*, pt. Fabr.; *Trupanea*, pt. Schrank; *Scatophaga*, pt. Germar; *Tephritis*, pt. (auctor.); *Trypeta*, pt. (auctor.).

teeniata, Macq., *Dipt. Esot.*, ii, 3rd Pt., Paris, 1843, p. 222.

Hab. Java.

vittithorax, id. *ibid.*, 4th Suppl., Paris, 1850, p. 286.

Hab. India.

faciata, Walker, *Journl. Proceed. Linn. Soc.; London*, i, 1857, p. 134,

Hab. Borneo.

Genus TEPHRITIS.

Latr., *Dict. Hist. Nat. vol. 36*, 1804; *Tephritis*, pt. Fabr.; *Trupanea*, pt. Schrank; *Trypeta*, pt. Meig.; *Loew*; *Acinia*, pt. Macq., *S. d. Buff.*, ii, Paris, 1835, p. 420; *Walker*. *Id. Dipt. Brit. Mus.*, p. 1024. *Sphenella*, p. 773; *Urella*, p. 774; *Urella*, p. 774, Rob. Desv., *Myod.*, 1830.

lasciventris, (nom. bial>m), *Ue.* *Macq.*, *Dipt. Esot.*, ii, 3rd Pt., Paris, p. 226.

Hab. India.

fasciventris, (nom. bial>m), *Macq.*, *Dipt. Esot.*, 4th Suppl., Paris, 1847, p. 65.

Hab. Java.

paritii, Doleach., *Naturk. Tijdschr. v. Nederl. Ind.*, Batavia, New series, 1856, p. 412.

Hab. Djokjokarta.

asteria, Schiner, *Novar. Reise*, 1863, p. 270.

Hab. Madras.

brahma, id. *ibid.*, p. 27-i.

Hab. Madras.

Genus ENSINA.

Rob. Desv., *Myod.*, 1830, p. 76; *Uis*, pt. Fall., Zetterst.; *Trypeta*, pt. Meig., LOCTV.

guttata, Macq., *Dipt. Esot.*, ii, 8rd J^l, Paris, 1843, p. 230.

Hab. India.

retroflexa, Doleach., *Naturk. Tijdschr. v. Nederl. Ind.*, Batavia, New Series, 1856,

p. U2,

Hab. Djokjokarta.

Genus SCHOJASTES.

Loew, *Monograph Dip. v. N. America*, iii, Washington, 1873, p. 38; *Platystoma*, pt. Guérin; *Acinia*, pt. Doleach.; *Lamprogaster*, pt. (auctor.).

cinetina, Ost.-Sacken, *Ann. d. Mus. Civ. d. Bior. Nat. d. Genova*, 1881, p. 4; 9; 3y:non.
 Platystoma, id. *Gen. d. Voy. d. l. Coquille, Zool.*, p. 259; Acinia, faciestriata,
 Dolensch., *Naturk. Tijdschr. v. Nederl. Indie, Batavia*, 1857, p. 416; Lamprogaster
 transversa, Walker, *Journal. Proceed. Linn. Soc., London*; 1857, p. 30; id. margini-
 fera, id. *loc. cit.*, 1858, p. 111; Lamprogaster sexvittata, id. *loc. cit.*, 18(31), p. 261.
 Hab. Malacca, Port-Jackson, Amboins, Arou, New Guinea, Celebes, Batchian,
 Stuart. Is.

GENUS ACIDIA.

Rob. Desv., *Myod.*, 1830, p. 720; Scatophagina, pt. Fabr.: Tephritis, pt.
 Fall., Wied., Zett. v. St.; Trypeta, [pt. Wiedem., Meig., Loew; Urophora,
 pt. (auct. r.), Acinura, pt. Rob. Desv.; *Afrod.*, 1830, p. 773; Euleia, pt.
 Walker, *List. Dipt. Mus. Brit. Mus.*, iv, London, 1849, p. 1030; Epidesmia,
 p. 112, Myoleja, p. 112, *Food. Prodr.*, i, 1856.
 quadrineta, Schüv., *Novar. Reise*, 1868, p. 264; Synon. Trypeta, id. Wiedem.,
Anal. Entom., p. 55. + % ^ ~
 Hab. India, Nicobara.

Boror, id. *ibid.*, p. 264.

Hab. i). Batavia,

GENUS PTILOSA.

V. d. Wolp, *Tridchr. d. Entom.*, de 1830, p. 31.
 brevis, ornis, id. *ibid.*, p. 33.
 Hab. Java.
 dunlopi, id. *ibid.*, p. 34.
 Hab. Pada Qg.
 n. Dtab Uia, W. *ibid.*, p. 35,
 Hab. Padang.
 nexm. iculata, id., *Sumatra Exped.*, p. 51.
 Hab. Sainatra.

GENUS SPHEMBLIA.

Rob. Deav., *Myod.*, 1830, p. 773.
 sinensis* Schiner, *Kovar, Reise*, 1bG8, p. 267.
 Hab. Shanghai.
 . indica, id. *ibid.*, p. 267.
 Hab. Macassar.

Family ULTIMIDÆ.

J. Bigot, *ad hoc inedit.*, 1891; Ulidmi, pt. Macq., & A. B. *Dipt.*, ii, Paris,
 IS35, p. 498; Ulidime, Schin., *Faun. Austriac. d. Fliegen*, ii, 1864, p.

1864; *Tanipezina*, pt. Rond., *Prodr.*, i, 1836, p. 114; *Ulidia*, Loew, *Monogr. N. American, Diptera*, 3rd Pt., Washington, 1878, p. 64; *Lauzanidic*, pt. Macq., *S. u. Buff. Dipt.*, ii, Paris, 1835, p. 506.

Genus ULIDIA.

Meig., *Syst. Besch.*, v, 1826, p. 385, (et auctor.); *Timia*, pt. Rond., *Prodr.*, i, 1836, p. 115; *Moaililis*, pt. Latr.; *Chrysonomyza*, pt. Fallen; *Tephritis*, pt. Fabr.; *Chloria*, pt. Schiner, *Fauna Austriac. Diptera*, ii, 1804, p. 85.

seneca, Wiedem., *Ausser. Europ. Zweiflug. Ins.*, ii, Hawwn, 1830, p. 566.
Hab. India.

divergens, Walker, *Ins. Saunders, Dipt.*, i, London, 1856, p. 397.
Hab. India.

melanophthalma, id., *List. Dipt. Ins. Brit. Mus.*, iv, London, 1849, p. 1058.
Hab. Bantam.

ruficeps, id., *Trans. Ent. Soc. London*, 1857-60, p. 39.
Hab. India.

Genus GYRORHINA.

Schiner, *Wien. Entom. Zool.*, vi, 1842, p. 151; *Ulidia*, *Tephritis*, *Chrysonomyza*, pt. Fallen.

clausa, v. d. Wulp, *Tijdschr. Dierk.*, vol. xviii, 1860, p. 28; Sjnnon. *Ulidia*, id., *Macq., Dipt. Exot.*, ii, 3rd Pt., Paris, 1843, p. 251.
Hab. Java.

Genus CELYPHUS.

Dalman, *Vet. Acad. Handl.*, 1818, (et auctor.)

obtusus, id., *Anal. Nat.*, p. 32.
Hab. India, Java, Cochin China, Malacca, Phillip. Is.

sontatus, Wiedera., *Ausser, Europ. Zweiflug. Ins.*, 2nd Pt., Hannover, 1830, p. 601.
Hab. India, Java.

fuscipes, Macq., *Dipt. Exot.*, 2^e h Bur., Paris, 1830, p. 301.
Hab. India.

levissimus, V. d. Wulp, *Samctra £/peci.*, p. 63.
Hab. Sumatra.

Genus PARACELYPHUS.

J. Bigot, *Rev. et Magaz. Zool. Guerin*, No. 7, 1859, p. 10; *Celyphng*, pt.

hyscinthus, id. *ibid.*
Hab. Malacca, Cochin China.

Family SAPROMYZIDÆ.

J. Bigot, *ad hoc inedit.*, 1891; Sapromyzides, Fall., *Disc.*, 1820; Scatomyzides, Scomyzides, pt. (auctor.); Sapromyzium, Schiner, *Faun. Austriaca Dipt.*, ii, 1834, p. 5B.

Genus CG:LOPA.

Meig., *Syst. Besch.*, vi, 1800, p. 104; Copomyza, pt. Fall.; Fucomyia, pt. Halid, *Ann. Nat. Hist.*, ii, p. 18(i).
orientalis, Macq., *Dipt. Exot.*, ii, 3rd Pt., Paris, 1843, p. 266.
 Hab. Java.

Genus LAUTANIA.

Lair., *Dict. Hist. Nat.*, v, 1804; *Gen. Crust. et Ins.*, iv, p. 291; Dolichopus, Saigusa, pt. Falder; Calliopo, pt. Halid.
disdemia, Wiedem., *Ausser. Europ. Zweiflug. Ins.*, ii, Hamn., 30, p. 661.
 Hab. Sumatra.
rufiventris, Macq., *Dipt. Exot.*, *Seit. du 2nd Suppl.*, Paris, 1847, p. 118.
 Hab. Java.
nigropunctata, Thomson, *Fregat. Eugenie's Reise*, 1858-63, p. 566.
 Hab. Guam.
curvinervis, id. *ibid.*, p. 567.
 Hab. China.
eucera, Walker, *Jour. L. Proceed. Linn. Soc.*, London, i, 1837, p. 29.
 Hab. Singapore, Borneo.
detergens, id. *ibid.*, p. 29.
 Hab. Mal. Oph.

Family CHYLISIDÆ.

J. Bigot, *ad hoc inedit.*, 1891; Chylizia, Rond., *Prodr.*, i, 1856, pp. 25, 122; Pallomyza, p. 416, Loxocerida, p. 378, Oordjluridre, p. 175, pt. Macq., *S. d. Vuff. Dipt.*, ii, Paris, 1835; Psillides, pt. Walker; Palomyza, Rob. Desv., pt. *Uy~d.*, 1830, p. 658; Psilligo, 3 clan., *Faun. Austriaca die Flieg.*, 2nd Vl., 1864, p. 196.

Genus CHYLIZA.

Fall., *Dipt. Suec.*, 1800; Dasyna, pt. Rob. Desv., *Myod.*, 1830, p. 167; Megachetam, pt. Rond., *Prodr.*, i, 1856, p. 123.
histrionica, Wiedem., *Ausser. Europ. Zweiflug. Ins.*, 2nd Pt., Hamn., 1830, p. 530.
 Hab. India.

oolidfl., id. *ibid.*, p. 532.

Hab. Sumatra.

macularis, id. *ibid.*, p. 531.

Hab. Java.

Family EPHDRINIDÆ.

J. Bigot, *adhuc inæd.*, 1801; Ephydrinidæ, Zetterst., *Dipt. Scandin.*, 1842; Ephydrina, Rond., *Prodr.*, i, 1856, p. L29; Hydromyzidæ, pt. Fall. (et auctor.); Hydrellidæ, p. 787; Desv., *Myod.*, 1830; Pliophilidæ, pt. Macq., *Ann. Mus. Hist. Nat. Paris*, 1830, p. 107; pt. Loew, *Opusc. I etensk. Akad. Forhændl.*, xix, 1862, p. 3.

Genus NOTIPHILA.

Fallon, *Dipter. Succ.*, 1823; Keratocera, pt. Rob. Desv., *Myod.*, 1830, p. 788.

fasciata, Wiedem., *Anal. Entom.*, p. 57.

Hab. India.

albiventris, id. *ibid.*, p. 57.

Hab. Italia.

dorsopunctata, id. *ibid.*, p. 57.

Hab. India.

indica, id. *ibid.*, p. 591.

Hab. India.

perrugina, id., *Ann. Europ. Zoolog. Entom. Pl. Roman.*, 1830, p. 592.

Hab. China.

chinensis, id. *ibid.*, p. 592.

Hab. Oïlina.

immaculata, id. *ibid.*, p. 595.

Hab. China.

sinensis, (Paralimna? Loew), Schiner, *Noct. Reisen*, 1868, p. 241.

Hab. Hong-Kong.

Wulp, *Sumatra Exped.*, p. 55.

ciliata, id. *ibid.*

Hab. Sumatra.

radiatula, Thomson, *Fregat. Ju-nier Resa, Stockholm*, 1858-68, p. 595.

Hab. China.

Genus DKYXO.

Rob. Desv., *Myod.*, 1830, p. 787.

lispoidea, id. *ibid.*, p. 787.

Hab. Sumatra.

Genus DISCOMYZA.

Meig., *Syst. Besch.*, vi, 1830, p. 205; *Psilopa*, pt. Fallen.

palagica, Schiner, *Verhandl. K. K. z. b. Gesellsch. Wien.*, xi, p. 451.

Hab. **Asotars.**

punctipennis. V. d. Wulp, *Sumatra Espe** &, p. 56.

Hab. Sumatra.

Genus OCHTHERA.

Latr., *Hist. Nat. d. Ins.*, vol. 3, 1802; *Gen. Crust. et Ins.*, ix, p. 347; *Macrochiiv* pt. Zetterstedt., *Ins. Japon.*, 1840.

rotundata, Schin. *Novar. Reise*, 1875, p. 213.

Hab. Nicobars.

Genus GYALOPA.

Fallen, *Dipt.*, 1820, (et anctor); *Equalis* pt. Fabr.

gutticifera, Walker, *Journ. Proceed. Linn. Soc., London*, i, 1857, p. 136.

Hab. Borneo.

infusa, d. ibi.

Hab. Borneo.

Family DROSOPHILIDÆ.

J. Bijot, *ad hoc indicat*; *Geomyza*, pt. Fall., 1823; *Psiphilidia*, pt. Macq., *Ann. Mus. Hist. Nat. Paris*, 1833, p. 331; *Drosophilina*, pt. Rond., *Prodr.*, i, 1856, p. 133; *Geomyza*, p. 231, *Drosophilina*, p. 239, *Berberina*, pt., p. 319, Schiner, *Faun. Austriaca D. Flieg.*, ii, 1864; *Trinouria*, Meig., *JZ-V. Magaz.*, ii, 1803, p. 276.

Genus DROSOPHILA.

Fallen, *Dipt. Suss.*, (*Geomyzid.*, pt. l. l., iv, 1823), *Cottoilla*, Salid., *Carl. Guide*, 1838; *Scaptomyza*, pt. Hald.

striventeris, Macq., *Dipt. Exot.*, ii, 3rd Pt., *Paris*, 1843, p. 259.

Hab. Cochin China.

insulana, a Schiner, *Novar. Reise*, 1875, p. 240.

Hab. Nicobars.

lineata, V. d. Wulp, *Sumatra Espe** &, p. 57.

Hab. Sumatra.

Genus BOTBORUS.

Meig., *Illig. Magaz.*, I, 1803, p. 276; *Copromyza*, pt. Fallen, (et anctor.); *Sphærocera*, pt., p. 807, *Nerca*, p. 802, *Mycetia*, p. 805, pt. Rob. Desv.,

Myod., 1890; *Cramomyia*, p. 569, *Apterina*, p. 573, *Ollus*, p. 571, pt. Macq., *S. d. Buff. Dipt.*, ii, Paris, 1835; *Copromyza*, p. 124, *Apterina*, p. 125, pt. Rond., *Prodr.*, i, 1856.

punctipennis, Wiedem., *Anal. Entom.*, p. 59.
Hab. India.

Genus TRINELIRA.

Meig., *Illig. Magaz.*, ii, 1803, p. 276: *Teplnitis*, pt. Fabr.; *Phora*, pt. (auctor.); *Philodendria*, pt. Rond., *Prodr.*, i, 1856, p. 136.

poregrira, Wiedem., *Auss. Europ. Zoolog. Ins.*, 2nd Pt., Hamm, 1830, p. 600.
Hab. Canton.

Genus CLASOPA.

Stenhammar, *Mosq. d. Epagri*, 1844, p. 251; *Notiphila*, pt. (auctor.); *Ditococirina*, Macq., *S. d. Buff. Dipt.*, ii, Paris, 1835, p. 527.

aXbiarsis, V. d. Walp., *Synonym. Zool.*, 1856.
Hab. Sumatra.

Genus GEORITZ.

Fallen, *Dipter. Succ.*, 1823; *Georitis*, pt. Fabr.; *Opomyza*, pt. Meig.

laticosta, Thomson, *Fragm. Entom.*, Stockholm, 1858-68, p. 598.
Hab. Malacca.

sp. n. ria, id. *ibid.*, p. 599.
Hab. China.

Family CHOROPIDÆ.

J. Bigot, *Orthocentrus*, 1891; *Heteromyzides*—*Oscinides*, pt. Fallen, 1820; *Agromyzides*, pt. 11, *Dier.*, 1823; *Chloropius*, p. 207, *Agromyzinae*, p. 209, *Beeborinae*, p. 319, pt. Schiner, *Zool. Asiatica d. Fries.*, 2nd Pt., 1864; *Heteromyzinae*, pt. Meig., *S. d. Buff. Dipt.*, ii, Paris, 1835, p. 6*74 i *Agromyzinae*, pt. 15, 139-140, *Entom.*, pp. 25, 122, *Capromyzinae*, pp. 25, 123, *Chloropinae*, pp. 26, 125, *Oscininae*, pp. 26, 127, *Ephidrinae*, pp. 26, 129 j *Astheninae*, pp. 30, 130, pt. Rond., *Prodr.* y i, 1856.

Genus CHLOROPS.

Meig., *Illig. Magaz.*, vi, 1803, p. 278; *Oscinia*, pt. Fallen (et auctor.); *Tepritis*, pt. Fabr.

extraneus, Wiedem., *Auss. Eur. & j. Zoolog. Ins.*, 2nd Pt., Hamm, 1830, p. 596.
Hab. China.

stiolatus, id. *ibid.*, p. 597.
Hab. China.

confusus, id. *Ibid.*, p. 597.

Hab. China.

longicornis, Thomson, *Fregat. Eugénies Reu, Stockholm*, 1858-68, p. 604.

Hab. China.

nicobarensis, Schiner, *Révue Fregat. Fara*, 1868, p. 245.

Hab. Nicobars.

Genus CERATIS.

V. d. Walp, *Sumatra Exped.*, p. 54.

magnicornis, id. *Ibid.*, p. 53.

Hab. Sumatra.

(Genus OSCINIS.

Lah¹, *Diction.*, vol. 2, 1804; *Gen. Char. et Ins.*, iv, p. 351; *Chloropa*, pt. Meig.

insignis, Thomson, *Fregat. Eugénies Reu, Stockholm*, 1858-68, p. 605.

Hab. China.

ensifera, id. *Ibid.*, p. 605.

Hab. China.

Genus HETEROMYZA.

Fallen, *Dipt. Succ.*, 1820; *Heteromyza*, pt. Meig.; *Lentiplara*, pt. p. 656, Rob. Desv., *Myed.*, 1830; *Heterostoria*, pt. Rond., *Prodr.*, 1800, p. 104.

orientalis, Macq., *Dipt. Exot.*, ii, 3rd Pt., Paris, 1835, p. 262.

Hab. Java.

Genus COELOPA.

Meig., *Syst. Insect.*, vi, 1830, p. 194; *Copromyza*, pt. Fall.; *Fucomyia*, pt. Halid, *Wesph. Modern Class. of Ins.*, 1840.

orientalis, Macq., *Dipt. Exot.*, ii, 3rd Pt., Paris, 1835, p. 260.

Hab. Java.

Genus BOMALURA.

Macleay, *Syst. Insect.*, 1826, p. 10.

maculipennis, Wiedem., *Austri. Europ. Zweifelt. Ins.*, 2nd Pt., Hainn, 1830, p. 574.

Hab. India.

Genus AGROMTZA.

Fallen, *Dipter. Succ.*, 1823; *Chloropa*, pt. Fallen.

tristella, Thomson, *Freyat. Eugeniae Resa*, Stockholm, 1858-68, p. 606.
Hab. China.

GENUS EURHINA.

Meig., *Syst. Besch.*, VI, 1000. p. 191.

albovariej MU., Thomson, *Freyat. Eugeniae* />*«, Stockholm, 1858-68, p. 606.
Hab. Malacca.

FAMILY PHORIDÆ.

J. Eligo, *ad huc in dict.*; *Heteromyzides*, *Trinoureides*, *Phytomyzides*, pt. Falla, *Scotomyzidae*, pt. *Bequa. Anim.*, *Hypocera*, pt. Latr.; *Trinoureidae*, pt. Meig., *Syst. Besch.*, vi, 1830, p. 8; *Spharoceridae*, pt. Macq., *S. d. Buff. Dipt.*, ii, Paris, 1835, p. 58; *Putrescides*, pt. p. 796, Rob. Desv., *Myol.*, 1830; *Phoridae*, Schiner, *Faun. Austr.*, 2nd Pt., 1864, p. 335; *Phoridae*, Rond., *Prodr.*, i, pp. 12-27, 1857; *Hypoceridae*, (olim), J. Bigot.

GENUS PHORIDÆ

Lai, *Précis*, 1793; *Bibio*, pt. Fabr.; *T. Laura*, (olim), Meig., *Klassif.*, 1803, id. *Zetterstedt, Dipt. Scandin.*, Com. *ora*. Meig., *Syst. Besch.*, vi, Hamn., 1830, p. 226; *Metopina*, pt. Macq., *S. d. Buff. Dipt.*, ii, *Suppl.*, Paris, 1835, p. 600.

ainensis, Schiner, *Novar. Reise*, : ffAS . 224.
Hab. China.

orientalis, id. *ibid.*, p. 224.
Hab. Korea.

ciogh>mi, J. Bigot, *Indies Economic. Entomol.*, vol. i, 1890, p. 191.
Hab. Bengal.

ANOMALOCERATI

J. T. Bigot, *Ann. Soc. Ent. France*, 1885, p. 225, etc.; *Pupipara*, Nitzsch, *German. Magaz.*, ii, 1818; *Hippoboscidae*, p. 64; Schiner, *Faun. Austricæ*, d. *Fliegl.*, 2nd Pt., 1864; *Nycterinidae*, id. *ibid.*, p. 650; Leach, *Mem.*, Wern. *Soc.*, 1817; *Coriacæ*, Latr., *H. Nat. Ins.*, 1802, id. Macq., *S. d. Buff. Dipt.*, ii, Paris, 1835, p. 634; *Phthiromyia*, Lær., *H. Nat. Ins.*, iv, 1819; *Hippoboscidae*, *Nycteribidae*, *Streblidae*, pt. Rondani, *Ann. d. Mus.*, *Civ. d. Stor. Nat. d. Genova*, 187j- *Phthiridium*, pt. Hermann, 1804; *Crypto*, *eres*, (olim, 1852), *Zoobio. Melitobia*, *Nycteribidae*, pt. *Streblidi*, *Zoobidi* pt. J. Bigot, *Ann. Soc. Ent. France*, 1885, p. 224, etc.

Family ZOOBID05, Z; ^ M ^

J. Bigot, *Ann. Soc. Ent. France*, 1885, p. 232.

Genus POLYCTENES.

Waterhouse, *Trans. Ent. Soc.*, iv, London, 1879, x, 311.

Lyra, id. *ibid.*, p. 311.

Hab. M. ...

spas mil, id. *ibid.*, 312.

Hab. Java.

Genus MYOPHTEIRIA.

Rond., *Ann. d. Mus. Civic. d. Stor. Nat. d. Genova*, 1875, p. 464.

TOduvioide, id. *ibid.*, p. 464.

Hab. Borneo.

Genus OENITHOCYIA.

Patr., *H. Nat. Crus.*, iii, 1802; Hippoboscæ, pt. Linn. (et auctor.).

nigricant, Leach, *Eprobosc. Ins.*, p. 12.

Hab. Bengal, Sumatra.

coluriboo, Wiedera, *Zool. Entom.*, p. 60.

Hab. Java.

javana, Jaenicke, *N. Exot. Dipter.*, Frankfurt, 1867, p. 98.

Hab. Java.

Genus HIPPOBOSCA.

Linn., *Faus. Suec.*, 1781, p. 471; Niruiomyia, Zool. J.

Bigot, *Ann. Soc. Ent. France*, 1885.

alvie, J. Bigot, *Ann. Soc. Ent. France*, 1885, p. 237.

Hab. India.

calopais, id. *ibid.*, p. 236.

Hab. Ceylon.

variegata, Wiedera, *Ausser. Europ. Zeeiflug. Ins.*, 2nd Pt., 1830, p. 603.

Hab. India.

francilloni, Leach, *Eprobosc. Ins.*, p. 8.

Hab. B. jugalj Africa.

Genus OLFERSIA.

Leach, *Edimb. Encyclop.*, a, 1819, (et auctor.); F. roaia, pt. Leach; Ornithophila, Rond., *Ann. Soc. Ital.*, xi, p. ...; Niruiomyia, pt. Nitch.

HKM alpis, Macq., *S. d. Bug. Dipt.*, > Parti, 1835, p. t40.

Hab. Java.

spinifera, Leach, *Eprob. Ins.*, p. 11; *Synon. Feronia*, Bl. (V. Wiedem. *Aussere. Zweijug. Ins. 2nd Pt., Hessan*, 1830, p. 807; et Schiner
 Hab. " Cape of Good Hope

J. —
 Mus. (jn.

Genus RAYMONDIA.

Prauenfeld, *Wien Akad. Gesell.*, xviii, 1855, p. 320.

kollari, id. *ibid.*, p. 339.
 Hab. Madras.

huberi, id. *ibid.*, p. 331.
 Hab. Madras.

Family NYCTERIBIAE, (Nycteribidae).

J. Bigot, *Ann. Soc. Ent. France*, 1885, p. 236; (Nycteribinae, id. *ibid.*),
 Nycteribidae, Leach, *Mem. Weim. Soc.*, 1817; Nycteribidae, Schiner,
Fauna Entomologica d. Flieg., 2nd Pt., 1864, p. 650.

Genus NYCTERIBIA.

Laet., *H. Nat. Crust.*; (In *1750* vol. iv, p. 384; *Acarus*, pt. Linn.; *Hippoboscas*, pt. Voigt.; *PL. Linn.* pt. Hermann; *Coleripee*, pt. Montaigne,
Linn., *irans.*, ix, IS¹ •.

aykosti, *Trans. of Zool. Soc., London*, 1835, p. 288.
 Hab. " "

hopet, id. *ibid.*, p. 288.
 Hab. Bengal.

roylii, id. *ibid.*, p. 290.
 Hab. India.

jedynsii, id. *ibid.*, p. 291.
 Hab. India, Ceylon, Amboina, Sumatra.

minuta, V. d. Walp, *Sumatra Exped.*, p. 58.
 Hab. Sumatra.

ferrarii, Rond., *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1878, p. 156.
 Hab. Java.

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Part II — NATURAL SCIENCE.

No. III. — 1892.

I.—Note on the Indian Butterflies comprised in the subgenus *Pademna* of the genus *Euploea*:—By LIONEL DE ZEPHOREVILLE, F. E. S., C. M. Z. S.

[Received August 15th;—Read November 2nd, 1892.]

In the August Proceedings of the Society, p. 158 will be found a note on the subgenus *Stictoploea*, mainly based on material received from the Rev. Walter A. Hamilton and collected in the Khasi Hills. The present note owes its origin to the same source, over 200 specimens of *Pademna* having been sent to me from that region by Mr. Hamilton. The subgenus *Pademna* occurs in Ceylon, South India, Bengal as far west as Malabar, the lower slopes of the Sikkim hills, Bhutan, Assam, Bujma, the Malay Peninsula, Siam, Cochin China, Nias Island, and Hainan. Its headquarters appear to be Assam and Burma (especially the former), where it may be said to swarm; everywhere else it is comparatively rare, except perhaps in Calcutta, where *E. kollari*, Felder, may be met with in considerable numbers if looked for in the right places and at the right seasons of the year.

The subgenus as represented in Oeylon, South India, Orissa, Bengal (usually), and in parts of the Malay Peninsula, presents the curious phenomenon that the several species are in both sexes entirely, or slightly, out of the upper side of the wings, more especially

the forewing, unglossed with blue; but in some parts of Bengal (Maldah), and in Sikkim, specimens are met with which are either entirely unglossed, or partly glossed with blue, towards the base of the wing, while in Assam, Arakan and Pegu the whole of the forewing is usually most richly blue-glossed. This phenomenon may be due to mimicry, as in the Khasi Hills of Assam, *AVIre Pademmas* are individually most numerous, *Euploea midamus*, Linnaea (*Unwi*, Moore), is also exceedingly common, and the *Pademmas* probably mimic it or some other blue-glossed species. The only thing to be said against this theory is that in Maldah where many specimens are most distinctly glossed with blue there are no other blue *Euploea*s which these *Pademmas* could mimic. The occurrence of these latter in Maldah may, however, be due to immigration.*

The next point to be dealt with is the extraordinary variability of the subgenus. The species which is found in Ceylon (*E. sinhalensis*, Moore) appears to be quite constant, as do specimens of *E. kollari*, Foldes, received from South India, the Eastern and Western Ghâts, Trissur, and Calcutta. But directly the hills are approached, at Maldah north of the Ganges and at the foot of the Sikkim hills, the species commences to vary and to approach *E. klugii*, Moore, both as regards the presence of a more or less well-marked blue gloss, and in the acquisition of discal markings to the forewing. But for these intermediate specimens, *E. kollari* might be considered to be a good and constant species, but, as it is, in certain parts of north-eastern India it is distinctly variable. As we proceed to the eastwards, in Bhutan, Assam, and the northern and middle divisions of Burma (Arakan and Pegu), blue-glossed species mainly prevail, though occasionally specimens almost as free from the gloss as is *E. kollari* are met with. Lastly, in the southernmost division of Burma (Tenasserim) the blue-glossed species have almost disappeared, being as rare as unglossed are in Assam, and are replaced by unglossed species which differ in the character of the markings from the continental Indian species, *E. kollari*. In the Malay Peninsula *Pademmas* are very rare, and are of the Tenasserim form. To a certain extent, therefore, we can divide up the Indian *Pademmas* into more or less well-defined geographical races, which, were they only constant each in its own region, might be retained as distinct species. But this is not entirely so. *E. kollari* in India gradually merges into *E. klugii* in Maldah and on the lower slopes of the Sikkim hills, and *E. klugii* gradually grades into *E. erichsonii*, Foldes, in the Cinquecento. In the Cinquecento headquarters the two species are perfectly distinct and recognisable at a glance, *E. kollari* being met with in any part of India south of the Ganges, and *E. erichsonii* from Lower Tenasserim or the Malay Peninsula. On the border-lands between these regions the several species are no longer

reliably distinct, and in the Khasi Hills, which may be said to be the head-quarters of the *Pademinas*, as there they exist in the greatest number of individuals, a bewildering multiplicity of various forms is met with. Messrs. Butler and Moore, but especially the latter, have described a great number of these quite inconstant forms as distinct species, and the present writer with the material at his disposal, could if desired, easily describe a dozen or more such species, many of them far more distinct in superficial appearance than several of Messrs. Moore and Butler's. It appears to him that the only way to deal satisfactorily with these puzzling species is to treat all of them (except *E. sinhala* which appears to be constant owing to its insular habitat) as geographical races of the earliest described *E. klugii*. To this end he has given below the full synonymy of the various forms and a brief description of them.

I must once more enter my protest against the erroneous views held by home naturalists on the variability of these species. Messrs. Wood-Mason, Marshall, Distant, Elwes, Adams, Doherty, Watson, and I, all of whom know these insects in life and have lived amongst them, have written page upon page to show how inconstant they are, yet Mr. Moore, who has never been in the East, in his latest work on butterflies ("Lepidoptera Indica"), admits eight distinct species, and eight named "Varieties" of *Pademina*, all but one of the latter of which he described as good and distinct species in 1883. When a species is obviously so extremely variable as *E. klugii*, it can be of no possible scientific use to have names for every possible combination and permutation of the blue-glossing of the upperside and of the disposition of the markings of both sides of the wings. These variations are obviously mainly individual, and from the same hatch of eggs it is almost certain that several at least of these variations would be obtained were they carefully bred. It is, however, of great scientific use to make out the range and to describe the peculiarities of geographical races when these are constant and sufficiently well-marked for definition each in its own area, but this Mr. Moore never makes the slightest attempt to do. It is hoped that whatever has been here written will tend to this desirable result.

I must also mention to shew the absurdity of the views expressed by Mr. Moore in his *Monograph of Euploina* written in 1883, in which seventeen distinct species of *Pademina* are given from India,—that I sent to him, just after the appearance of that paper, 12 very variable specimens of *Pademina* captured in the Arakan Hills, out of which he could only name three. The inference was that the other nine specimens represented as many "new species."

1. *EUPLEXA (PADEMNA) SINHALA*, MOORE.

Euplexa sinhala, Moore, Ann. and Mag. of Nat. Hist., fourth series, vol. xx, p. 46 (1877); id. (part), Marshall and de Nicévide, Bull. of India, vol. i, p. 66, n. 47 (1882); *Isanala sinhalis*, Moore, Lep. Ceyl., vol. i, p. 10, pl. 7, fig. 1, male (1880); *Pademna sinhala*, Moore, Proc. Zool. Soc. Lond., 1883, p. 309, n. 18; *idem*, id., Lep. Ind., vol. i, p. 126, pl. xlvii, figs. 3, male; • 3a, female (1890).

HABITAT: Ceylon.

EXPANSE: ♂, ♀, 3.25 to 3.85 inches.

DESCRIPTION: MALE. UPPERSIDE, both wings dark olive-brown. Forewing with the outer marginal area broadly much paler than the rest of the wing, bearing in the middle of the pale area a series of from six to eight small ochreous-white spots, the one in the first median interspace the largest, often two in the submedian interspace; a marginal series of dots variable in number, but usually four, commencing at the anal angle and never reaching the apex of the wing; the usual oval sexual brand in the submedian interspace. Hindwing with the outer margin paler than the rest of the wing, but less markedly so than in the forewing; the usual flour-like sexual patch about the anterior area of the discoidal cell; a submarginal series of twelve ochreous-white spots, the four anterior ones round, decreasing in size towards the costa, placed one in each interspace, the posterior ones elongated into streaks, placed two in each interspace; an almost complete marginal series of dots much larger than those in the forewing, not quite reaching the apex of the wing, placed in pairs in the interspaces. UNDERSIDE, both wings paler olive-brown than on the upper side. Forewing somewhat darker in the middle of the disc; a costal spot placed between the bases of the first and second subcostal nervules; discal spots placed beyond the cell varying from two to four, the lowermost spot in the submedian interspace the largest, all these spots bluish-white; submarginal and marginal series of spots as on the upper side, but the latter more numerous; inner margin of the wing up to the first median nervule cinereous; the sexual brand black and prominent. Hindwing with none, one, or two discal spots placed just beyond the cell; submarginal and marginal spots as on the upper side. FEMALE, rather paler than the male throughout, lacking all the secondary sexual characters, and having the inner margin of the forewing straight, not strongly outwardly bowed. UPPERSIDE, forewing has the inner margin cinereous as far as the discoidal cell, and the

E. sinhala occurs only in Ceylon, and is, for an *Euplexa* of this group, owing to its insular position, fairly constant.

2. *EUPLEXA (PADEMNA) KLUYFFI*, MOORE.

Euplexa Kluylfi, Moore, Horsfield and Moore, Cat. Lep. Mus. E. I. C., vol. i, p. 130,

n. 258 (1857); idem, Jb., Anderson, Anat. and Zool. Researches, p. 922 (1878); id., Marshall and de Nicéville, Butt. of India, vol. i, p. 64, n. 44 (1882); id., Adamson, Notes on the Danzins of Burmah, p. 9 (1889); idem, id., Cat. of Butt. coll. in Burmah, p. 4, n. 20 (1889); id., Watson, Journ. Bomb. Nat. Hist. Soc., vol. vi, p. 29, n. 8 (1891); *Salpinx stigm.*, Butler, Journ. Linn. Soc. Lond., Zoology, vol. xiv, p. 294, n. 35 (1878); *E. (Pademima) blanchi*, Wood-Mason and de Nicéville, Journ. A. S. B., vol. lv, pt. 2, p. 346, n. 10 (1885); *Pademima blanchi*, Moore, Lep. Ind., vol. i, p. 117, pl. xlii, figs. 1, male; 1a, female; 1b, female (type of *E. grantii*) (1890); *Pademima blanchi*, Moore, Proc. Zool. Soc. Lond., 1883, p. 305, n. 1, pl. xxxii, fig. 1, male; *Euploea (Pademima) blanchi*, Elwes, Trans. Ent. Soc. Lond., 1888, p. 300, n. 9; *Euploea erichsonii*, Felder, Reise Novara, Lep., vol. ii, p. 324, n. 444 (1865); id., Marshall and de Nicéville, Butt. of India, vol. i, p. 63, n. 42 (1882); id., Watson, Journ. Bomb. Nat. Hist. Soc., vol. iii, p. 15, n. 13 (1888); id., Adamson, Cat. of Butt. coll. in Burmah, p. 4, n. 18 (1889); id., Watson, Journ. Bomb. Nat. Hist. Soc., vol. vi, p. 29, n. 7 (1891); id., Shopland, Butt. coll. in Aracan, p. 4; *Euploea (Pademima) erichsonii*, Wood-Mason and de Nicéville, Journ. A. S. B., vol. lv, pt. 2, p. 347, n. 11 (1886); id., Elwes and de Nicéville, Journ. A. S. B., vol. lv, pt. 2, p. 415, n. 7 (1886); *Salpinx erichsonii*, Butler, Journ. Linn. Soc. Lond., Zoology, vol. xiv, p. 295, n. 39 (1878); *Pademima erichsonii*, Meade, Journ. Linn. Soc. Lond., Zoology, vol. xxi, p. 31 (1886); *Pademima erichsonii*, Moore, Proc. Zool. Soc. Lond., 1883, p. 307, n. 11; *Euploea erichsonii*, Alamsso, Notes on Danzins of Burmah, p. 7 (1887); *Euploea kollari*, Felder, Reise Novara, Lep., vol. ii, p. 325, n. 445 (1865); *Pademima kollari*, Moore, Proc. Zool. Soc. Lond., 1883, p. 306, n. 10, pl. xxix, fig. 9, male; id., Swinhoe, Proc. Zool. Soc. Lond., 1885, p. 126, n. 8; id., Hampson, Journ. A. S. B., vol. lvii, pt. 2, p. 348, n. 8; id., Moore, Lep. Ind., vol. i, p. 121, pl. xivii, figs. 2, male; 2a, female (1890); *E. (Pademima) kollari*, de Nicéville, Journ. A. S. B., vol. liv, pt. 2, p. 41, n. 8 (1885); id., Taylor, List of the Butt. of Kherda in (J. Ind., p. 1, n. 8 (1888); id., Elwes, Trans. Ent. Soc. Lond., 1888, p. 301, n. 10; id., Ferguson, Journ. Bomb. Nat. Hist. Soc., vol. vi, p. 435, n. 9 (1891); *Euploea crassa*, Butler, Proc. Zool. Soc. Lond., 1866, p. 278, n. 31; id., Distant, Rhop. Malay., p. 29, n. 9, pl. v, fig. 8, male (1882); p. 410, n. 9 (1886); id., Marshall and de Nicéville, Butt. of India, vol. i, p. 63, n. 41 (1882); id., Watson, Journ. Bomb. Nat. Hist. Soc., vol. iii, p. 18, n. 12 (1888); id., Adamson, Cat. of Butt. coll. in Burma], p. 4, n. 17 (1889); idem, id., Notes on Danzins of Burmah, p. 7 (1889); id., Shopland, Butt. coll. in Aracan, p. 4; *Salpinx crassa*, Butler, Journ. Linn. Soc., Loud., Zoology, vol. xiv, p. 295, n. 38 (1878); id., Moore, Proc. Zool. Soc. Lond., 1878, p. 822; *Prtemma crassa*, Moore, Proc. Zool. Soc. Lond., 1883, p. 307, n. 9; idem, id., Lep. Ind., vol. i, p. 121, pl. xiv, figs. 2, male; 2a, female (1890); *Salpinx illustris*, Butler, Journ. Linn. Soc. Lond., Zoology, vol. xiv, p. 294, n. 36 (1878); *Euploea illustris*, Marshall and de Nicéville, Butt. of India, vol. i, p. 63, n. 46 (1882); id., Shopland, Butt. coll. in Aracan, p. 4; *Pademima illustris*, Moore, Proc. Zool. Soc. Lond., 1883, p. 307, n. 7; idem, id., Lep. Ind., vol. i, p. 119, pl. xlii, figs. 1, male; 1a, female (1890); *Salpinx maculata*, Moore, Proc. Zool. Soc. Lond., 1878, p. 822; *Euploea masoni*, Marshall and de Nicéville, Butt. of India, vol. i, p. 64, n. 43 (1882); id., Adamson, Cat. of Butt. coll. in Burmah, p. 4, n. 19 (1889); id., Notes on Danzins of Burmah, p. 7 (1889); *Pademima masoni*, Moore, Proc. Zool. Soc. Lond., 1883, p. 309, n. 17; idem, id., Lep. Ind., vol. i, p. 121, pl. xvi, fig. 1, male (1890); *Salpinx grantii*, Butler, Journ. Ent. Soc. Lond., 1879, p. 2; *Euploea grantii*, Marshall and de Nicéville, Butt. of India, vol. i, p. 65, n. 45 (1882); id., Adamson, Cat. of Butt. coll. in Burmah, p. 4 (1889); id., Shopland, Butt. coll. in Aracan, p. 4; *Pademima grantii*, Moore,

Proc. Zool. Soc. Lond., 1883, p. 306, n. 2; *Damia rothneyi*, Moore, Ent. Month. Mag., vol. xix, p. 34 (1882); *Euploea sinhala* (part, see Moore), Marshall and de Nicéville, Butt. of India, vol. i, p. 66, n. 47, pl. vii, fig. 13, male and female (1882); *Pademna dharna*, Moore, Proc. Zool. Soc. Lond., 1883, p. 306, n. 3, pl. xxxii, fig. 2, female; *Pademna augusta*, Moore, Proc. Zool. Soc. Lond., 1883, p. 306, n. 4; idem, id., Lep. Ind., vol. i, p. 118, pl. xlii, figs. 2, male; 2a, female (1890); *Pademna indigifera*, Moore, Proc. Zool. Soc. Lond., 1883, p. 306, n. r, pl. xxxii, fig. 3, male; idem, id., Lep. Ind., vol. i, p. 120, pl. xlii, fig. 3, male (1890); *Pademna naimp* *erialis*, Moore, Proc. Zool. Soc. Lond., 1883, p. 307, n. 6; idem, id., Lep. Ind., vol. i, p. 119, pl. xliii, figs. 2, male; 2a, female (1890); *Pademna regalis*, Moore, Proc. Zool. Soc. Lond., 1883, p. 307, n. 8; idem, id., Lep. Ind., vol. i, p. 119, pl. xlii, figs. 1, male; 1a, female (1890); *Pademna pembersi*, Moore, Proc. Zool. Soc. Lond., 1883, p. 309, n. 12, pl. xxxii, fig. 6, male; idem, id., Lep. Ind., vol. i, p. 124, pl. xlii, figs. 3, male; 3a, female (1890); *Pademna watcchellandi*, Moore, Proc. Zool. Soc. Lond., 1883, p. 308, n. 13, pl. xxxii, fig. 4, female; idem, id., Lep. Ind., vol. i, p. 120, pl. xlii, figs. 1, male; 2a, female (1890); *Pademna uniformis*, Moore, Proc. Zool. Soc. Lond., 1883, p. 308, n. 14; idem, id., Lep. Ind., vol. i, p. 124, pl. xlii, fig. 1, male (1890); *Pademna apicalis*, Moore, Proc. Zool. Soc. Lond., 1883, p. 309, n. 15; idem, id., Lep. Ind., vol. i, p. 123, pl. xlii, figs. 2, male; 2a, female (1890); *Pademna apicalis*, Shoptand, Butt. coll. in Aracan, p. 4; *Pademna burmaneri*, Moore, Proc. Zool. Soc. Lond., 1883, p. 309, n. 16; idem, id., Lep. Ind., vol. i, p. 123, pl. xlii, figs. 3, male; 3a, female (1890); *Pademna sharwilli*, Moore, Lep. Ind., vol. i, p. 120, pl. xlii, fig. 1, male (1890).

Geographical race *E. kollari*, Felder.

HABITAT: South India, Orissa, Bengal, lower slopes of the Sikkim Hills.

EXPANSE: ♂, 3.3 to 4.1; ♀, 3.7 to 4.1 inches.

DESCRIPTION: MALE and FEMALE. Differs only from *E. sinhala*, Moore, in the marginal spots of the forewing on both sides being rather large and reaching the apex of the wing usually; the submarginal series also rather larger. In all other respects as in *E. sinhala*.

It is worth stretching a point to admit *E. kollari* as distinct from *E. sinhala*, but as the differences noted above appear to be constant and are just recognisable, I have thought it best to separate them.

Except in Java, where *E. kollari* is found in the Sikkim hills and on the lower outer slopes of the Sikkim hills and in Malabar, it appears to be confined to the littoral, the furthest point from the coast where I have any record of its occurrence being Poona, about 70 miles inland which is about 100. Neither is it found in the hills except at the lower elevations up to about 2,000 feet, save in the Nilgiris, where I took it at 3,500 feet elevation. In South India, Orissa, Bengal (with some exceptions) the species is constant, it is only in Malabar in the Maldah district and on the lower slopes of the Sikkim hills and in

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the Sikkim terai that the species begins to vary, acquiring a more or less well-marked blue gloss on the upperside of the wings, and some discal spots on the forewing, which leads us to the typical form of the species.

Typical form *E. klugii*, Moore.

HABITAT: Maldah, lower slopes of the Sikkim Hills, Bhutan, Assam, Arakan, Pegu.

EXPANSE: ♂, 3.5 to 4.0; ♀, 3.0 to 4.2 inches.

DESCRIPTION: MALE. UPPERSIDE. [Of all the species of *Euploea* known to me this is the most variable. Following the order of the *Pademna* group here adopted, the varieties which most nearly resemble *E. kollari* are first described, while the true *E. klugii*, which is the most divergent form in one direction, is next described, and lastly those variations are described which lead up to the geographical race *E. erichsonii*, Felder, which ends the series.] A specimen from Sikkim in my collection agrees absolutely with typical *E. sinhai*, Moore, from Ceylon, except that at the base of the forewing on the upperside in some lights is slightly blue-glossed; other Sikkim specimens I possess have the submarginal and marginal spots to both wings rather smaller than in typical *E. kollari*, while others again are normal in this respect, both the latter forms being slightly blue-glossed. In the next gradation the dark basal area of the forewing on the upperside is less well marked, and extends more toward the outer margin, while the first discal spots (divided by the lower discoidal nervule) have appeared; these varieties occur in Sikkim, Assam, and Arakan, but always sparingly. In the next group, which includes the typical *E. klugii*, it is quite impossible to describe within reasonable limits all the variations which occur. The dark basal area now gradually disappears altogether, the blue-glossing becomes more and more intense till it reaches its maximum, the spots of the wing are infinitely variable—in some there are the two marginal series only, in some one or both these series are obsolete on the hindwing, in some the marginal series is confined in the forewing to a few at the anal angle, or are absent altogether, while the submarginal series are sometimes reduced from the full number of nine to four mere dots towards the apex; the discal spots vary from a complete series of four to none at all, while in some specimens there is a large spot at the end of the discoidal cell, in others a small spot, and in others again no spot at all; the colour of the spots also varies, some are pure white, others strongly glossed with blue; there is sometimes a costal spot at the base of the first and second subcostal nervules, this being frequently absent. On the hindwing some specimens are richly blue-glossed on the disc, while

others are not glossed at all; some are rich chestnut-coloured towards the abdominal margin, this colour also being found in some examples on the bowed-out inner margin of the forewing. **UNDERSIDE.** The variations of the spots on both wings described above as found on the upper-side of the wings are also found on the underside, though to a less extent. **FEMALE** varies in precisely the same way as does the male. The variations noted above are found throughout the range of the typical form, but they reach their maximum development in the Khaai Hills, where I have been able to accurately match the following species figured in Moore's "Lepidoptera Indica"—*E. klugii*, *E. augusta*, *E. illustris*, *E. imperialis*, *E. regalis*, *E. maccollelandi*, *E. indigofera*, *E. sherrillii*, and *E. uniformis*.

Geographical race *E. erichsonii*, Felder.

HABITAT: [Mali, one female; Cachar, one female, Arakan, Pegu, Tenasserim, Malay Peninsula, Siam, Cochin China.

EXPANSE: ♂, 3.2 to 4.0; ♀, 3.7 to 4.1 inches.

DESCRIPTION: **UPPERSIDE.** [Still continuing the same order of the *Pademna* group, I first take up the description of the varieties most nearly approaching the last geographical race.] The connecting link between the *E. klugii* race and the one now under consideration is *E. masoni*, Moore, which has the basal area of the forewing on the upper-side glossed with bright violet-blue, which character typically connects this race with *E. kollari*, Felder, from which, however, it may be distinguished by a submarginal series of spots, increasing in size from the anal angle till the one in the subcostal interspace is reached, then again rapidly decreasing to the costa. But for this singular character it would, I think, be quite impossible to separate some forms of *E. erichsonii* from *E. kollari*. This geographical race is not as variable as the last, though it is still very variable, Mr. Moore placing in it *E. crassa* (= *E. erichsonii*), *E. burmeisteri*, *E. masoni*, *E. apicalis*, and *E. abertoni*. The spots on both wings are almost as variable as in *E. klugii*, except that the discal spots of the forewing never exceed two in number and are usually absent altogether, and I have seen no specimen with a spot in the discal cell. **FEMALE**, markings throughout similar to those of the male.

The two female specimens, each from Malacca and Cachar mentioned in the habitat above, quite upset the otherwise fairly well-defined geographical distribution of this local race. These two specimens both possess the submarginal series of spots on the forewing of the typical shape of *E. erichsonii*, so I am reluctantly obliged to include them under that race. I have other aberrant male specimens from Arakan which I

have placed under *E. klugii*, as they are very richly blue-glossed at the base of the forewing, and have a large spot in the discoidal cell, but the submarginal spots are typically those of *E. erichsonii*, so these specimens have two characters of *E. klugii* and one of *E. erichsonii*. The two races overlap in Arakan and Pegu, and many specimens from thence are almost intermediate between the two local forms, so that the placing them in one or the other is purely arbitrary.

I have taken great pains to try and define the three geographical races of *E. klugii* which at most can be admitted, but now that I have finished the task, I am almost of opinion that it would have been more philosophical and scientific to have dealt with the very large series of specimens I possess as one species in the way in which I treated *E. (Stictoploea) harrisi*, Felder. There is no doubt, however, that *E. kollari* is constant in certain localities, as also is *E. erichsonii* in other localities, these being the two extremes of the series, just in the same way that *E. harrisi* and *E. hopei* are as distinct in their respective head-quarters, it is only when one comes to consider the intermediate forms which occur in a region geographically intermediate between the two extreme forms, that it is found that the constancy of all the forms immediately breaks down. To deal with species like these it is imperatively necessary to have very extensive series of specimens from all the localities in which they occur, and also to act up to the spirit of the theory of evolution which nearly all naturalists profess to believe in, but some naturalists entirely ignore in their writings when describing different species of animals. If my individual opinions and conclusions be not accepted, I beg that reference be made to the writings of the competent field-naturalists who have studied these butterflies in life. It is needless here to recapitulate what they have recorded: reference to these papers is in all cases given in the synonymy of *E. klugii*.

There is still another point I may mention. Perhaps of all the oriental butterflies, *Euploea*s are, where they occur at all, amongst the most commonly met with, conspicuous, and most easily captured of insects. They are so obviously protected that they float about in the air in the quietest manner and seem to court attention, and moreover are always, or nearly so, the commonest of butterflies. So well has the Indian region been explored that I should almost as soon expect to find a new "Cabbage-White" in a London square as a new *Baydonia* in any part of India; and it is to be hoped that no more "new species" will be described from India unless they are obviously quite different from any hitherto known species. Doubtless from unexplored regions and islands many new species yet remain to be described, but certainly there are none from India.

The Communal Barracks of Primitive Races.—By S. E. PEAL, Esq.

Plates I and II.

[Received _____; Read November 2]*

Among the many social problems relating to the early history of our race which at the present day attract the attention of anthropologists, there are probably few which surpass in interest that of the origin of "Marriage."

The institution of the "family" with its attendant maternal and paternal duties, is so closely interwoven with all human history and customs that it is generally, and perhaps with some reason, taken to have been the normal form of development from the very first.

But in these days when the doctrine of evolution has taken such a firm hold of the scientific world, it is hardly necessary to point out that sooner or later, we may have to reconsider the entire question, guided by the light of recent discoveries.

In our endeavour to unravel the earlier phases of social life, we naturally look amongst the more savage races for traces of the social condition of our ancestors, piecing together slowly and carefully the relics of customs still surviving here and there, which may tend to throw light on this obscure and difficult question, drawing therefrom such deductions as experience teaches may be safe and legitimate.

From a careful study of the evidence recently accumulated, there can be little doubt that very much has yet to be learnt regarding the earlier forms of sexual relation.

MacLennan, to whom we owe so much on the question of "Primitive marriage," has endeavoured to shew that "marriage by capture" probably arose from paucity of females, due to infanticide, and that really some form of monogamy had always existed, but more recent evidence seems to shew that Sir John Lubbock's view is more likely to be correct, i. e., that while marriage, or the private right to one particular woman by any man, arose by capture, this early stage of social development was possibly preceded by one of complete sexual liberty, as in a horde.

The relics of such a stage of sexual communism seem to survive far more extensively among savage and semi-civilized races in our day than is generally supposed, especially in the Indo-Pacific and Australian regions, and the object of the present note is to draw attention to the large stores of information on this question already in hand, but so far unutilized.

Letourneau, in his "*Evolution of Marriage*," in the contemporary science series, has exhaustively traced for us the earlier stages of

"marriage and the family" amongst the lower animals, showing conclusively that they are by no means peculiarly human institutions.

The various and singular forms of sexual association, past and present, he has also clearly laid before us, though singularly enough entirely omitting one which is of the utmost importance, and to which it is desirable to draw attention. The omission is in regard to the peculiar institution of barracks for the unmarried, which under so many surviving forms, and endless names, extends from the Himalaya and Formosa on the north, to New Zealand and Australia on the south; from eastern Polynesia, to the west coast of Africa.

One of the first things to strike the student who is fairly well acquainted with the head-hunting and semi-savage races of the north-eastern frontier of Bengal, on reading travels in the Malayo-Pacific Archipelago, is the similarity, and at times identity, of so many singular customs over a widely scattered region.

Not only do we find, as Sir Henry Yule pointed out in the *Journal of the Anthropological Institute* for February 1889, that head-hunting, pile-dwelling, blackening the teeth, aversion to milk, "jhuming," and barracks for the unmarried, extend from India to New Guinea and other places, but that when the matter is carefully looked into, quite a large number of other singular customs come into view, and that the area on which these customs prevail, extends over a far larger part of the earth's surface than Sir Henry Yule had suspected.

Taken by itself this institution of organized "barracks for the unmarried," is sufficiently suggestive; but when we notice that it is only one of many peculiar social customs, which survive more or less with it, among widely scattered races, the case is doubly noteworthy; first as a proof of former racial affinity among all these people, and secondly, as a most important and suggestive factor in social evolution generally.

Their sociological significance it is the more necessary to study as they are so obviously survivals; and under modified forms are seen amongst Indo-Mongols, Dravidians and Kols, Malays, Papuans, Polynesians, Australians, and African races.

For some years past racial affinity has been suspected among these now distant races, and in these communal barracks we seem to have a clear proof that the "survival of the fittest" among human customs may long outlast both physical and linguistic variation.

As might naturally be expected, with customs handed down from a remote antiquity, among various races, there has been a large amount of local geographical variation, and in some instances the subsidiary customs have died out entirely.

Thus "jhuming" which so strongly differentiates all these, from Aryan races, is not found among the nomadic Australians. Cannibalism again, which at one time was probably universal, has died out in most cases, or survives in the passion for "head-hunting" in several.

The building of houses on piles is another singular habit which persists among many widely scattered groups, and that it is a survival and not locally spontaneous, is beautifully demonstrated by the "araiba" or extension of the platform floor, beyond the end of the roof, which is characteristic of Indo-Mongols, Borneos, Papuans, the dwellers in the Phillipines, and other widely-scattered people.

The platform house, common around Assam, is also seen in New Guinea, Borneo, Formosa, Sumatra, &c.

The vertical double cylinder bellows, seen all over our north-eastern frontier as far as the Lutze, (Among) turns up again in Nias off Sumatra, in the Ké Islands, North Australia, and in Madagascar in identical forms.

Our Nagas and other tribes climb trees by cutting notches for the toes, precisely as do the Australians, and use the bamboo pegged to a tree stem as a ladder, the same as the Dyaks.

The extraordinary hide cuirasses worn by the savages in the island of Nias, to keep out arrows and spears, are absolutely identical with those till lately used by our Nagas, and which are now rendered useless by fire-arms.

The large canoe war drums of Polynesia, the "Lali" of Fiji, and "Tavaka" of the New Hebrides are seen all through our Naga hills, and stranger still, have the "crocodile heads" carved at the extremities, though the animal is unknown locally.

The bamboo Jew's harp of the Phillipines and New Britain, sounds in all our Naga villages. The singular perineal bandage of New Guinea is here also quite common.

These are a few of the very singular instances of survivals, which unexpectedly meet us over a wide area, among races now considered more or less distinct, and which demonstrate a common origin in the far past, among races too, wherein the commonal barracks for the unmarried is a persistent feature.

As before stated, many of these subsidiary social customs have varied, or died out entirely, here and there, due in no doubt to differences in the physical surroundings, and in the barracks themselves we see often variations to suit local, or recent, requirements, which indeed is one good proof of extreme antiquity:

13ut certain features in relation to them have so persistently

remained, that they are probably fundamental necessities in the case.

Firstly, we see in all, except among the Australians, that there is a special and recognized building, or buildings, for the unmarried young men and lads to sleep in, and at times for the young women, also in many cases together.

Secondly, we notice that among the races having these barracks with exception, there is complete liberty between the sexes until marriage.

Thirdly, and most significant of all, these barracks are invariably taboo to the married women, whether the race or tribe is exogamic or endogamic.

We may also note that, as a general rule, we see adult marriages where this social system is in vogue, and conjugal fidelity seems greater than among the more civilized races, by whom juvenileility is valued.

The crux of the entire question appears to be in the fact that from Bhutan to New Zealand from the Marquesas to the Niger, there is a distinct taboo raised against the married woman, as against a social interloper or innovation; and among tribes and races where otherwise there was complete sexual liberty, she is, in all cases, legislated against as an inferior, or slave.

If "marriage" had preceded the barrack system, it would, in many instances, have dominated it; but there are no traces of peaceful equality even between the parties to marriages in the past; everything tends to shew that the wife was a captured slave, and hence private property, as much so as a spear or pig.

As we see (still) among some savage races, the males killed or captured in a raid were invariably eaten, and the females reserved as slaves, or as we say "wives," and hence marriage arose in all these cases through capture, giving the successful warrior a right to one woman.

To inhiiy persons the feature of "barracks" for the unmarried, combined as it is with juvenile sexual liberty, and strict taboo against the married women, may appear so novel, that a few references to particulars and authorities may not be out of place. We can at the same time note the local variations, due to the geographical surroundings, or to the social advancement of the race.

For instance among the semi-civilized Buddhist Shans of eastern Assam the "chang" is a semi-tempie, and boys' school-house, where the lads at times reside for fixed periods, and which is taboo to women.

Among the Abor tribes, north-east of Assam, the "Mosup" is

seen in every village, and Mr. J. F. Needham describes them in the *Proceedings of the Royal Geographical Soc.*, [May 1886, as at times 240 feet long by 30 wide, with 24 fire places. These are not only the guest and council houses, but among head-hunters are the guard-houses in which "the single men warriors reside," and where "certain warriors are told off daily, who keep a look-out day and night."

"The side walls are crammed with the heads of every description of animal, and all down the centre of it, are to be seen the bows, arrows, fishing gear, hats, spears, &c. of the warriors, on bamboo trays. The "Mosup" is close to the entrance to the village and would hold about 100 men."

"The unmarried girls have apparently any amount of latitude given to them," and are very fond of singing and dancing. In the early dawn he was roused by yells throughout the village, and on enquiry was told it was an order from the "Mosup" going round for a general holiday next day, and that every man, woman and child was to remain in, and not go to work in the "jhamis."

Among the Miri these communal buildings are called "De-ri," and there are (as among the Abors) several in each village. They are not only the guest and council houses but the recognized sleeping places for the unmarried young men and young women, boys and girls, between whom until marriage, as in all these cases, there are no restrictions.

As might naturally be expected, they are strictly tabu to the married women.

Among the Miris settled long in the plains, there is a very distinct advance in individualism, and in small communities the "De-ri" is declining into a boy's play house though the freedom between the sexes, in the unmarried state, is not curtailed, and may be called notorious.

The great Naga communities whether savage head-hunters, or peacefully inclined present us with various forms of these communal barracks. In some of the large eastern villages, as many as 10 or 12 for young men, and 4 or 5 for unmarried girls are found. As a rule those for the young men, are guard houses, placed so as to cover the entrances to the village. Each being manned by the lads and young warriors of the adjacent section of the village, or "morong."

Between the Dikhu and Disang rivers among the tribes descended from Sangloi, these barracks or guard houses are called "Pah," and as there are probably an average of 6 to each of the 60 villages; there would be about 360 Pah on an area of some 600 square miles.

In some tribes on this tract, there are no distinct houses or "Pah," for unmarried girls, who sleep at home, and in Zu, the head village

of the Banpara tribe, those for the young unmarried men are named as follows:—

- | | | | |
|--------------------|------|--------------|-------|
| 1. Ra man | Pah. | 7. Ko nu | Pah * |
| 2. Pe ^h | " | 8. Nok sa | " |
| 3. Vong tong | " * | 9. Nai tong | " * |
| 4. Ra Nok | " | 10. O hin | " * |
| 5. Ten tok | " | 11. Pa nu | |
| 6. Lo tong | " * | 12. Pa so | |
| | | 13. Vang hum | Pah |

The first six belong to the smaller half of the village (which is divided by a deep gully, whence water is obtained from natural springs). The other seven are in the other portion of the village which includes the residence of the chief or "Vang hum." The "Pah" marked thus* are large ones commanding entrances to the village and are more or less fortified. Towards the centre of the village there are several Pam Pah (3 or 4) for little boys. The others are manned by the young men who take it in turn to mount guard, day and night, 15 or 20 at a time, but who in this tribe take their meals at home.

Among a few of these tribes, the adults as well as juveniles are habitually nude. All of them, until 17 or 18 years of age, both sexes are absolutely so, except when visiting the plain.

Here is among the "Wild races of S. E. India," (by Colonel Lewin,) "great license is allowed before marriage to the youth of both sexes," p. 193; "every lad before marriage has his sweet-heart and he cohabits with her whenever opportunity serves," p. 205. The intercourse between both sexes is free and unreserved until after marriage," p. 215.

In most cases these "Pah" are obviously associated with communal customs of the highest importance to the tribe, not only are they the schools in which the youths are graded and taught their duties, and use of arms, but they are the recognized rallying centres in times of public danger. Each contributes its share in all public labor, such as repairing fortifications, clearing roads bridging rivers and in building the houses, &c.

They lie in fact at the basis of the social life as relics of a more extensive communal system, which is slowly giving way to individualism, and here, as elsewhere, the "Pah" are taboo to the married woman.

West of the Dilni river we find these communal barracks for young men, are called "Arizu," by the "Ao" or Hainong. Besides being the guest, council, and guard-houses the Arizu has the control of all war matters, and fortification, has charge of the big village drum,

sees to the fastening of the village gates at night, and other public matters.

There are it seems three orders or grades in these "Arizu": 1st, the Scangpur; 2nd, the Tanabanger; and 3rd the Tepue (or Tepou) and those who have passed through all and are still unmarried are called Azminer.

As an illustration of the organization of the "barracks" in one of its many phases, a little detail may here be of some use.

The Scangpur are the lowest grade; they bring wood and water and are the servants of the other grades. No parent can interfere with the discipline, and as the term of each order is for three years, the discipline of the lower order is considerable and valuable.

When the other orders come in at night, tired from labor or from being on the war path, the Scangpur has plenty to do in shampooing and manipulating the legs, arms and backs of the weary or sick.

The second order or Tanabanger have less drudgery, but they have some; if there is wood needed for fencing or repairs of the "Arizu," the two lower grades have to do the irksome parts, and the term of service here also is for three years.

The third order, or Tepue, are the masters and instructors, and on entering it there is much boasting. In a war party they carry spear, shield, and dao, the lower orders carrying the provisions, &c. The Ao have their kidong, or bangoh, and appoint one officer called sensong. Above all is one called "Unger." This last order has a great feast at the end of three years when it retires; the material is what the Arizu tin orders have earned in the three years by going now and then to work on cultivation for rich men.

All of these three orders eat with their parents or elder brothers and usually work for them.

The number of "Arizu" houses in a village depends on circumstances, usually at least two, located near the chief entrance, occasionally there are 5 or 6 so as to afford sleeping places for the boys and young men.

This tribe has been annexed by us for some years, but in most of the village the "Arizu" houses are kept up though there is now no warfare, and the boys are all expected to work for and be subject to their parents.

In some of these Ao villages there are, or used to be, "Arizu" for girls and unmarried young women, under control of elderly matrons.

Among the Mikirs (or Arlang) we again find communal barracks called "Tarengs." Boys enter them at from 8 to 10 years of age and there is generally but one to each village. Those who join the "Tareng" do so for a fixed period of 5 or 6 years or longer, after which it is

broken up, and those who wish to leave go out. When they form one they elect head men to it. The first is called Cleng sarpo and highest, the second is Cleng doon, and the third is called Sodar kota, the fourth Sodar loo.

No married man or one who is a widower ever joins a "Tareng," and there are none for girls. No girls, young women or married women may go near them, and they are used as council and guard-houses as well as being the regular sleeping barracks of the unmarried young men.

Anything happening? is first reported to the Cleng sarpo, and thence to the villagers and head men. Any one visiting the village sleeps in the "Tareng," and any young man from the "Tareng" can go to any house he likes and sleep with an unmarried girl; her parents can make no objection. When once a "Tareng" is formed no one can leave it until it breaks up, or he is fined.

Among the Lumbais a traveller informs us that "the custom is in all these villages, that the young men on arrival at a certain age, are expelled from their father's house at night, and sleep all together in the Zalbuk, or bachelors' house. The Zalbuk is one large room, inside a verandah.

Colonel T. H. Lewis frequently and very clearly refers to this custom in his "*Wild races of S. E. India*" and to the liberty allowed between the sexes before marriage, (see pages 119, 121, 182, 193, 201, 203, 245 and 254), making it particularly clear that among the "Hill tracts" therein referred to, the young unmarried men and lads are graded and governed by special communal laws, and that these dominate the rights of the parent, as will be gathered from the remark:—"his mother abused them much, but the father and mother could not hurt them as they were acting by the Goung's orders."

We constantly indeed find proofs that the right of the parents over their children is more or less subordinate to that of the communal barrack, that "the family" in fact as the social unit, is not yet emancipated, but holds a subordinate position in the body politic.

To a moral certainty, the above few instances do not represent a tenth part of the information which a systematic survey would reveal, in regard to this momentous subject, among the Indo-Mongolian races, but enough has probably been said to shew that these communal barracks are a social feature of importance, deserving more careful study.

Turning now to Bengal and Central India, with its mixed and aboriginal races, we find these barracks in some form or other among the Gonds, Koniks, Son thais, Kols and others. According to the Revd. S. Hyslop, the Konds and Gonds have "in their villages *bothies* for bachelors." Among the Gaiti Gonds and Koitars, "each village has a house, or gotalghar (empty bed house) for single unmarried men to sleep in, and also similar ones for unmarried girls and women."

The Juangs (in Keoujur) have the same, and after work and eating, the young men drum and dance, while the girls sing. Tli, Revd. E. Petrick, who lived as a Missionary for some years at Rauchi, informs me that under the name of "Damkuria" these communal barracks for the unmarried (of both sexes) are seen in all Southali and Oraon villages, and that before marriage there is complete liberty between the sexes.

Mr. W. H. P. Driver, who has had large experience among these races, confirms the above. Speaking of the Koreans (*Journal A. S. B., Volume IX, Part I, No. II, 1887*) he says:—

"Every large village has its "Damkuria" or bachelors' quarter, for boys who are too old to live with their parents, girls stay with their parents until they are married. The dancing ground "acra," is usually an open space in front of the Damkuria, and young people enjoy considerable freedom until they are married.

Turning now to the Archipelago and Pacific region, we find in more or less modified forms this singular social institution common all over New Guinea, and the houses conspicuous as "Jubus, Dobo, Dupu, Marua," &c.

Many of our best travellers and missionaries have given us excellent descriptions of them, and the customs pertaining thereto, though in many cases failing to perceive their sociological significance.

Considering the great difference between the Papuan and Indo-Mongol races, and the distance separating these areas, the similarity between the "Mosey," "Pah," "Arizu," &c., and the Papuan "Dabu," "Marea," &c., is most extraordinary.

Not only are they in each case abnormally large and long, mis-sacred communal buildings, which serve as guest and council halls, decorated with skull trophies of war, or feasting, and specially set apart as the sleeping places for the young unmarried men; but we find the structure and arrangement of the houses almost identical, not only are they characterized by extreme length, but in all cases the floors are raised on piles 6 or 10 feet high, we even see such a detail of construction as the peculiar Naga "tong," Miri "lung gong," or projecting siesta platform which is common among all Indo-Mingol houses, turning up in the Papuan "Arsiba," identical in office and structure.

Internally we see a long hull, with fire-places and sleeping banks each side. Last and most significant of all we find that in all cases these houses are strictly tabu to women.

It is saying that the extraordinary identity seen between these Indo-Mongol and Papuan buildings and their objects, cannot possibly be the result of accidental coincidence we tacitly admit the existence of a far-reaching social relation between these now distinct races.

The Revd. J. Chalmers, describing Ipaivaituni's "Dabu," says:—

"He himself led me by the hand, women and children remaining behind, men and youths preceding and following until we came to the "Dubu" itself, where I was met by a number of old men who waved their hands and bade me welcome. Inside and on each side of the long beautiful aisle were seated young men, legs crossed, and arms folded not speaking a word, while I was led down the aisle by the chief, followed by the other men until we came near the end where we stayed a few minutes, and I was told to turn, on doing which all the seated ones rose, followed me out and a general conversation went on."

This is almost precisely the etiquette observed in our Naga hills, see *Journal A. S. B. Volume XXI, Part I, of 1872* pages 17 and 18.

Further on Chalmers says:—"The temple, for a native building, was really good. In front was a large platform, and immediately under the great high peak in front, was a large verandah, on which the men sat sheltered from the sun and rain. I looked down an aisle nearly 200 feet in length. Inside the whole place was divided into compartments, in each of which there were fires, where the owners spent much of their time in eating and sleeping."

Speaking of the Muisa villages in the Paper. Galt Mr. Lawes says:—"The sacred house, a fine building 120 feet x 24, was assigned for lodging. Inside the building was furnished with series of shelves or platforms, the upright posts were mostly carved, one at the entrance having a full length figure of a crocodile on one side, and a human figure on the other. The Dupu or sacred house has its times of more than ordinary sanctity, at such periods it is profusely decorated, and no woman's or child's eye is permitted to see it. The sacred house of each village generally stands at the end of the single street, and the other houses are of poor construction."

In the *Journal B. G. S. for April 1884*, page 216, the Revd. W. G. Lawes refers to Mr. Chalmers' visit to Maclalchie point. "One Dubu or sacred house is described where two large posts 80 feet high support the large peaked portico, which is 30 ft. wide, while the whole building is 160 feet in length, and tapers down in height from the front. A large number of skulls of men, crocodiles, cats, vipers and pigs, ornamented it. The human skulls are those of victims who have been killed and eaten by them."

These skull trophies which are met with all over the Pacific are a peculiar and suggestive counterpart to the identically similar skull trophies seen among most of the Indo-Mongolian races. Among the head-hunting Nagas, as many as 350 skulls, of men, women, and children, may at times be seen carefully ranged, in a "Pah," like Uiu flower pots in a hot-house, the posts and beams being hung with boar, mithan and deer skulls tier over tier.

Dr. D'Albertis, in several places in his travels in New Guinea, describes the "Marea," as guest and council houses, tabu to women, and situated at the end of a street of houses. At page 194 he refers to a corpse which was "taken to the house of the unmarried young men."

In many works of travel we see illustrations of the Marea or Dubu in New Guinea, as being situated at the end of a street, where the houses of the married people are placed on in rows facing each other. At page 140 D'Albertis illustrates a "Marea" (at Para's village) 300 ft. long \times 36 to 45 wide, this being the public hall and sacred house, but in this instance the huts of the married people are built (also on piles,) as a row of miniature houses along each side of the main communal building, and joined thereto by little flying bridges, across which the women dare not pass, their exit being by little doors and ladders down on the outer side.

Viewed in plan this arrangement of the large communal hall, in the centre, with the married quarters all divided off along each side, is absolutely identical with the ground plan of many Indo-Mongolian houses, where there is a long and wide common central apartment, at times reduced to a passage, and off which on each side, are the rooms of the married couples all partitioned off, with their own fire-places, and with ladders and doors in the outer walls.

Among the *Afak* villages Sr. D'Albertis alludes to the houses built on piles, wherein the men and women live, in one, divided down the middle by a partition, the men one side the women on the other, and they eat apart.

Captain Strachan in his "*Expedition to New Guinea*," page 166, says:—Some of the houses of the Turi Turi were from 100 to 150 ft. long; the women and the men lived in separate houses, not even the married people living together. The houses are raised from the ground and a broad step ladder leads to a platform at either end. There are also platforms at the sides with several small doors or openings; at intervals along the building." Sr. D'Albertis, (pp. 319-20), referring to the Mon, Miori, and Erine villages, says that the houses are in 2 rows, while large houses called "Marea" on piles, and tabu to women, contain great trophies, and have no doors, but platforms in front called "Araiba" 6 or 12 feet high. These are the young unmarried men's sleeping houses.

Dr. D'Albertis also alludes to the "Marea" or "Dubus," when he says: "The young men live together in one building which is distinguished by the figure of a man." (*Pro., R. G. S.* 1888, p. 505).

Mr. J. C. Galton writing in "*Netvn*," (page 205, 1880) of Macclay's travels, says that the "Buam ram ra," or sacred house is strictly tabu to women and children, while the "Barum" or great drum and all musical

instruments are also tabu to them, but are played by the "Malasi" or unmarried young men; and women eat by themselves.

Thus we see on the great island of Papua amongst races now distinct in physique and language from our *hdi*-Mongolians, Dravidians, and Kols, these singular communal barracks. Under the names of "Dubu, Marea, or Buam ram ra," these peculiar and conspicuous semi-sacred houses are built on piles, decorated with skull trophies, used as guest and council houses, with the projecting *si'* platform, are the sleeping places of the young men, and strictly tabu to the women, the family live in subordinate huts.

In Dr. Guppy's "Salmon Islands" page 57, we find that:—"In the large villages, the houses are generally built (on piles) in double rows with a common thoroughfare between; the tambu house occupies usually a central position, and has a staging in front. Page 67:—"In the the tambu houses of St. Christoval and the adjoining Islands, we have a style of building on which all the mechanical skill of which the natives are possessed has been brought to bear. These sacred buildings have many and varied uses. Women are forbidden to enter their walls, and in some coast villages as at Sapuna in the Island of S. Duna, where the tambu house overlooks the beach, women are not permitted to cross the beach in front. The interior of these houses is free to any man to lie down and sleep in."

When we turn to the Bismark Archipelago, the *i*-ouisian Isles, and New Hebrides we find either recent or former traces in the interior of these communal barracks and many of the customs which so commonly accompany them such as "jhuming," tattooing, pile building, head-hunting, &c., and here there are canoe houses.

Mr. W. Powell, referring to the little houses of the natives on New Britain, says:—"For each village two large houses are built; one for the men the other for the women, no man is allowed in the woman's house, nor is any woman allowed in the man's house, the latter is generally used for a council house. They are lined with bunks made of bamboo which extend along both sides, serving as beds or seats."

Near Port Webber he found, in a clearing, several houses, a large one in front, a council or reception house, with the large "garamj:" or wooden drum before it. This house "might have been, as in other parts of New Britain, a young man's sleeping house."

"When in want of women, for their young men to marry (as they may not marry into their own tribe), they make a raid against the bush tribes of Byning and seize the young women; eating the bodies of the men killed or taken prisoner."

Captain C. Bridge in the *Proceedings R. G. S.*, September 1886, page 549, informs us that "at Ambrym (New Hebrides) and some

other islands the young, unmarried men in a village always sleep in a large house specially set apart for them." And in the Pelew Islands "in each village there are large club-houses to which the younger men resort, a few women from neighbouring villages also frequent them. It is not considered *comme il faut* for a woman to enter one in her own village. If she did she would become an outcaste; going into one a mile or two off, however, in no way affects her position."

As far off indeed as New Zealand we find the so-called "bachelors' barracks" have spread from Polynesia. In a 1101 from S. Percy Smith, he says:—"The bachelors' barrack is a Polynesian institution, known in New Zealand as the "Wharee Matoro," which was the sleeping place of the young men, and often of the young women too. *Wharee* means "house" and *Matoro* is the advance made by women towards the other sex (often used *vice versa* also). These "wharee" were also the places where the village guests were entertained. Sexual intercourse between the young and unmarried was quite unconstrained in former times."

Turning north to Formosa we find that Mr. G. Taylor, in the *Proceedings, R. G. S.* for 1889, page 231, says that in the aboriginal villages there are one or more buildings called "Palong Kans," which are large houses built to accommodate the youths from the time they attain puberty until married. Their food is prepared in quantities and taken to the "Palong Kan," the ladies never all go to bed in the paternal home. All public matters are discussed in the "Palong Kans" and it is of the nature of a caravanserai, as any visitor may enter, hang up his belongings and begin cooking at the public fire.

By day the building is watched by the youths in turn. On the receipt of any intelligence necessitating a meeting of the villagers, the watchers attach to their waists the iron bells which always hang at the door, and run through the village, regulating their speed by the importance of the matter to be discussed.

Dr. Warburg again at page 743 refers to the Formosan skull hunts, blood money, and "club-houses for young men."

In Borneo again we find a large number of savage races, many of them notorious head-hunters, and in physique and customs are almost identical with our Indo-Mongols of the hills and south of Assam. Not only among Dyaks and Nagas do we see, jhum cultivation, building on piles, houses 200 and 300 feet long, head-hunting, blackening the teeth, aversion to milk, and barracks for the unmarried youths; but singular details absolutely identical such as the bamboo pegged to a tree stem for a ladder; getting fire by sawing a long strip of dry cane under a dry branch down by the foot, &c.

According to Sir Henry Yule:—"In Borneo as well as among the

tribes of the Assam frontier, we find in each village one or more public halls used for public ceremonies, but which also form dormitories of the unmarried young men of the community and serve thus as a sort of main guard to the village, and in these halls both in Borneo and Assam is often seen suspended the treasure of trophy skulls. Hence St. John often calls them head-houses and sometimes bachelors' houses." Unfortunately St. John's "*Life in the forests of the far East*" is not in our library, and I must be content with the above single quotation.

Wallace, however, in his *Malay Archipelago*, page 56, says, "My things were taken "up to the "head-house," a circular building attached to most Dyak villages, and serving as a lodging for strangers and the place for trade. The sleeping room of the unmarried youths, and the general council chamber."

It may not be out of place to notice here, that in some cases the type of Chief's house is the same as those seen in the hills round Assam, and in New Guinea.

In Mr. D. D. Daly's note on the explorations in British North Borneo, (*Proceedings R. G. S.* January 1883, p. 6) he says:—"At Pampun, the head man is Rendom, who lives in a large house, raised ten feet off the ground; there is a centre passage through the top part with many rooms containing families on either side." This is structurally identical with the Chiefs' houses in the Naga hills, and many other places, see "*Nature*" June 19, 1884 p. 169.

The difficulty of tracing these barracks among the savage tribes in Sumatra has been considerable. So far my only source of information has been the short notice in the "*Illustrated London News*" of September 12th, 1891, p. 335, of M. Julius Claine's trip among the Battak Karo, in May 1890. He says:—"The town of Sirbaya is divided into several "kampongs," separated by bamboo palisade and ruled by their respective chiefs. The houses are built on piles of squared timber. In front of the house is a raised platform with a staircase of bamboo. The interior is one large room with a trench along the middle of the floor serving as a passage from end to end. This abode is occupied by the family Patriarch, with his married sons and daughters and their children, each branch of the family having its allotted place.

They pass much of their time on the outer terrace or platform, and occasionally sleep there at night. A married couple with their offspring, or nearly 100 persons, may inhabit one such dwelling. Unmarried young men live together in a large house sometimes of two stories, which is set apart for them.

So that here again in Sumatra we find unmistakably this singular social institution, and according to "*Nature*" August 13th, 1885, p. 346, these Battaks are "head-hunters."

Whether the segregation of unmarried youths is seen in the island of Nias, and among the Tagal and Igorotte of Luzon, and the forest nomads of central Sumatra I cannot say, but over the whole of Polynesia it seems [to have co-existed with a stage of complete sexual liberty which now appears shocking to us.

For many years one of the greatest difficulties met with by the Missionaries over this region was the absence of terms in all the languages, denoting virtue, modesty and chastity. The attempts to explain these terms to old or young alike, were met by shrieks of laughter as they were utterly incomprehensible.

In all cases this universal and naive immodesty seems to have co-existed with the communal barracks sacred to men only, whether among exogamic or endogamic communities, and even among those as in "Taipi" of the Marquesas, where marriage, as we understand it, had not been fully developed, or hardly begun.

In the "Narrative of a four months' residence in the Types Valley of Nukuhiva, one of the Marquesas, in 1847," Mr. Hermann Melville fully describes the "Ti" or bachelors' hall, "at least 200 feet in length, though not more than 20 in breadth; the whole front of this structure was completely open. Its interior presented the appearance of an immense lot, the entire floor being strewn with successive layers of mats. Thus far we had been accompanied by a troop of the natives of both sexes, but as soon as we approached its vicinity, the females gradually separated themselves from the crowd, and standing aloof, permitted us to pass on. Inside, muskets, rude spears, and war clubs were ranged around."

This is an almost exact repetition of Mr. Needham's description of the Abors' "bachelors' hall", or "Mosup" (*Proceeding, R. G. S. May, 1886, p. 311*). "80 yards long and 10 yards wide," and is entirely open along the whole of one side. In this house all the single men warriors reside, and it is also used as a council room, and the arms are also stored in it as in the "Ti," of the "Marquesas."

The most remarkable feature in regard to typology, that while in that instance the sexual liberty was unusually complete, and the "bachelors' barracks" seen in its purest form, the institution of "marriage" was yet in its infancy; and from the very nature of the conditions was developing on endogamic lines.

The "capture of wives" appears in that case to have been practically an impossibility, as a rule, and hence it may be one of the rare instances where monogamy or polyandry arose by endogamy. But the marriage tie, or "nuptial alliance" seems to have been of a very simple nature, and easily dissolved.

In the case of "Taipi," we see a tribe confined to a valley 9 or 10 miles long by 1 or 2 wide, living on bread-fruit, plantains, coconuts, yams, growing spontaneously; no cultivation, and possessing no cattle: only the pig; their houses scattered among the trees, not grouped into villages; and having perpetual feud with Happar and Nukahira, adjoining tribes, eating these enemies when slain. The absence of marriage except in a rudimentary (endogamic) form, the complete sexual liberty, utter ignorance of modesty, and remarkable development of the Ti, or barracks tabu to women, are as singular as the general happiness and plenty, absence of sickness and crime.

For many years past an obscure relation has been observed in many ways between the Indo-Pacific region and East Africa; it crops up in several matters, and hence we need not be surprized at finding that, in variously modified forms, our communal barracks for the unmarried are seen among the Massai and other races. Dr. Parker noticed them on the Congo. In the *Proceedings, R. G. S.* for December, 1884, page 701, Mr. Joseph Thomson says:—"The most remarkable distinctions characterise the various epochs in the life-history of the Massai. The boys and girls up to a certain age live with their parents, and feed upon meat, grain, and curdled milk. At the age of 12 with the girls, and 14 with the boys, they are sent from the married men's Kral, to one in which there are only unmarried young men and women. There they live in a very indescribable manner till they are married."

"At this stage the men are warriors and their sole occupation is cattle-lifting and amusing themselves at home. The young women attend to the cattle and build the huts, and perform other necessary household duties. So pleasant does the Massai warrior find this life that he seldom marries till he has passed the prime of life and finds his strength decline. The great war spear and heavy buffalo-hide shield, the sword and the knobkerry are laid aside. For a time—a month—he dons the dress of an unmarried woman, and thereafter becomes a staid and respectable member of Massai society." The habits of this strange tribe are purely nomadic, according to the pastures. Their houses are formed of beil-boil";s, plastered with dung."

Again Mr. D. K. Cross, in the *Proceedings, R. G. S.* February 1891, page 87, referring to the Awamwamba of Nyassaland, thus describes the village houses of the unmarried people:—"the unmarried men or 'wakenja' as they are called, live in long-shaped houses often 50 feet or 60 in length built of bamboo. No man is allowed to marry till he is about 30, and able to buy a wife. The herds are kept in separate houses which are long like those of the unmarried men."

Traces of the "bachelors' barracks," young men's clubs, and fetic h houses tabu to women, are, I believe, found all across Africa, both among Bechuanas and Caffres, and the Bakalai of the Gaboon.

Thus we appear to have in the case of the Massai, at least one instance in Africa, of organized sexual promiscuity as a social phase preceding marriage. Hitherto we have seen, this feature among more settled races, in this instance it is seen among semi-nomades, where from the nature of the surroundings, in past times, development of "marriage" appears to have been retarded by the ample supplies of food due to a pastoral life.

In strong contrast to this, we find among the Australian races, who are truly nomadic, and where food is procured with difficulty, that the possession of a wife (*i. e.*, female slave) is of the utmost importance socially and early marriage the rule. A man's wealth is measured by the number of his "lubras." Yet strange to say these races who have no settled villages or permanent buildings, exhibit the two social features so conspicuous in those having bachelors' barracks, *i. e.*, complete sexual liberty among juveniles in the clan or horde, and isolation of the young men from the married families.

It has been urged by MacLennan in his "*Primitive Marriage*," pp. 85, 86 and 87, and by Peschel in his "*Races of Man*," pp. 223, 224 and 5, that the cause of exogamy has been due to the horror of consanguinity, and that it is among rude and savage races "that a horror of incest is developed most strongly." Apparently the fact has been unknown, or overlooked, that it is precisely among such races that we see the most complete, most unlimited, and socially recognized sexual liberty permitted within the tribe or clan until marriage, whether it is endogamic or exogamic; that the "communal barracks" are in fact in many cases directly due to this fact, and hence are universally tabu to the married woman whether a captive or not. It is precisely in consequence of the sexual abuse attached to these barracks, that they are tabu. So that this "horror of incest" is really a fiction. It is much to be regretted that the want of a little more practical knowledge of savages and semi-civilized races, has caused MacLennan, Peschel and others, to make such a serious mistake, as to suppose that exogamy and wife capture, were due to a "horror of consanguinity," a "terror of such alliances," and that (MacLennan, *l. c.* p. 232), "It is precisely nations in the most primitive stage which have the greatest abhorrence of incestuous marriage," and hence practice wife stealing so as to avoid it. This view of the savages' morality is necessarily ludicrous to all who understand the "communal barracks," and the sexual orgies so common among races having this institution, and wherein they are

viewed as *harmless juvenile amusements*. A view which extends from the Himalaya to New Zealand, and from the Marquesas to the Gaboon and beyond.

But to return to our (exogamic) Australian, and the traces of the barrack system among these nomadic races. Mr. R. H. S. Smyth at page 36 of his great work says:—"The unmarried young men have a place set apart for them in the camps, and they are not permitted to associate with the females, page 62. At the "mur rum" initiation of a girl by old women, after being painted, young men (20 or so) approach and take an oath not to assault her, but they may entertain any of them of her own free-will as a lover, till married.

As marriage is only possible by capture or exchange, a man with no female relations (to barter) is an object of suspicion, and has to "share the discomforts of the bachelors' quarters." (page 86). A man calls a woman of the same caste (or clan) "Wartoa," i. e., sister, and cannot marry her, yet connections of a less virtuous character which take place between them, do not appear to be considered incestuous." "Intercourse between the males and females belonging to the same class, appear to be regarded without disfavor." "In arranging the "miamas" (in a camp) care is taken to separate unmarried young men from the married females and their families. It is not permitted to the young men to mix with females, but the young people of both sexes evade all precautions generally," (p. 124).

"When one tribe visits another, huts are built for them by the hosts, and one is set apart for the young unmarried men," (p. 135).

Again young men are taunted by the young women of their own tribe, if they marry outside by peaceful arrangement, (i. e., they object to loss of their lovers), (vol. II, p. 82).

The above are a few references out of many (in one work) to the fact that, excepting the married woman alone, there was complete sexual liberty within the horde or clan, between those calling themselves brothers and sisters. This is observed among races where their strict exogamy, as, or has been, attributed to the dread and "horror" of risk of incestuous intercourse. There can be little doubt that as Mr. Horatio Hale and others believe, the Australians are a degenerate race, or that they have carried with them into adverse surroundings, these two remarkable social features of complete sexual liberty within the clan, and the segregation of the unmarried youths, after exogamy arose. They exhibit one of the rare cases where among savages the increased importance of marriage and the "wife"—as a food gatherer,—has dominated the relics of the barrack system. It is the opposite of what we have seen among the Massai, where the com-

munal barracks appear to have survived in greater purity than elsewhere, due possibly to the absence of inducement to develop the marriage system.

It is instructive to note that while in the main perhaps, the development of social arrangements may have been from a stage of communism, through "wife capture," to endogamy, these three stages are not necessarily so incompatible as to be impossible together at one and the same time. Among many of our Indo-Mongoloid villages we see all the three forms existing together in the same community. Taking the Banpara tribe as an illustration, we see in the head village Zu, as before noted, complete sexual liberty until marriage, and 13 typical bachelors' barracks or Pah, which are also skull-houses, guard-houses, council and guest-halls, strictly tabu to married women.

This sexual liberty before marriage, is part and parcel of the whole social organization, and has been so apparently from time immemorial, producing no bad results, and is strenuously defended by old and young alike. If any grown girl becomes pregnant, which is a rare case until after marriage, there is very little trouble caused, as the young fellow to whom she is most partial is then allowed to marry her, with less delay and expense than usual. A feast in the case is noteworthy, i. e., usually, as a rule, by the time a young man has reached the age of 24 or 25, and a girl 20, both settle down as quiet and sedate parties while still in the early prime of life. The stage of excitement is over, and it is exceedingly rare to find infidelity; divorces being less frequent than among civilized races who value juvenile chastity. But side by side with this unlimited sexual liberty before marriage, we see that among the chiefs of these same tribes, who are great sticklers for etiquette and customs, their marriages are strictly exogamous, they do not marry into their own tribes. The Chopnu ("bear") chief must not marry a "bear," or Chopnu girl, but he may marry a Channu or "tiger," or Yanu, "iron." A Yanu chief may marry a Chopnu but not a Yanu. At the same time, when young, all these chiefs have the same liberty precisely as the other young men, have several sweethearts, and at least before marriage, one or more concubines, from their own tribe, the children of whom, if any, do not become chiefs. These concubines are called "Karstis." Their "Kuries" or true wives are arranged for with other chiefs who have marriageable daughters, often a tedious and costly matter including political alliance. The ceremony when it comes off is largely a mock capture, the bridegroom and large number of elaborately decorated warriors, in full war paint, with guns and spears, meet the bridal party on the tribal boundary, execute their war dances and bring the bride home to

a grand feast and general drinking bout. The "Karsais" or concubines, meanwhile, are kept on, and as before, are practically servants, the Kuri indeed looks on them as indispensable. So that the chiefs are exogamic, and the marriage is a relic of wife capture, the ceremony often a mock capture or fight. But the rank and file of these head-hunting savages are now so closely packed that the difficulty of procuring wives, when so often at hand, has necessitated endogamous marriages, at least between different villages of the same tribe semi-independent. As a rule now, the common folk are endogamous, and the marriage is arranged by parents or relatives, at times by payment, and at others service, or both. In all cases, however, as amongst all the races having barracks, and sexual liberty, these marriages are adult, and not juvenile, as among Hindus and Mohammedans, and the parties themselves are the general agents in the matter, they are not little puppets.

Of the three forms of sexual relation the oldest is probably the communal barrack system, which is so generally seen as at the basis of many tribal customs and which underlies the whole social life, a stage of exogamy, following but not superseding it, survives as a relic among the chiefs, while endogamy is apparently more recent, and in turn does not violently displace either of the others. The elastic relation existing between the villages constituting a tribe, give us indeed the mode of transition from exogamy to endogamy. Occasionally a large village with one or more offshoots, will declare its independence, or two tribes (or clans) at peace agree to found a new element, which in time becomes distinct.

Indeed this has been the normal mode of tribal development over the entire area. Occasionally a single tribe or clan will be comprised in one large village or "chang," and at feud with all others are so for 6 or 8 years, and this has no doubt led to endogamy, especially as so many of these are at times built on detached peaks, and are practically almost distinct villages. But the transition from exogamy to endogamy among these tribes, has evidently been exceedingly slow, possibly not less than thousands of years, judging by their unwritten history, which goes back in some cases about 30 generations, and which unless secured at an early date, will undoubtedly be lost for ever. The remarkable feature in the case is the steady persistence of the "barracks" all through, as a social survival from a period which evidently preceded the origin of these races as we now see them.

The sociological significance of these singular communal institutions, briefly referred to in the foregoing, it is imperatively necessary

to study carefully if we hope to glimpse the earlier forms of social development, or settle whether man has been from the first "a pairing-animal," and the family the unit, as some suppose, or whether the unit has been the small chiefless communal clan.

A general, if somewhat cursory survey in this research, is much more likely to elucidate the truth, than a very careful study of isolated instances, which vary so considerably, as to be at times probably misleading. Collectively these barracks seem to point to a communal origin, incompatible with the pre-existence of monogamy, the universality of the tabu against the married woman, among races wherein there is, and has been complete sexual liberty till marriage, seems to point out the married woman or captured slave, as a social interloper; she is not the superior or even the equal in the situation anywhere, but is universally legislated against as an inferior, the barrack dominates her and even her offspring. They are antagonistic.

One of the dangers of studying this subject exclusively from a few instances only, is seen in the fact that in many cases the tabu against the "wife," has gradually been extended to the other women and girls of the clan, a very natural development. But while there are apparently no cases wherein the married women can visit or sleep in these young men's barracks (in their own tribes) there are a large number wherein the unmarried girls can do so, and not a few in which the latter are expected to do so, or even in which special barracks (*Gabru morongs*) are built for them. Those who know anything of the primitive races, among whom we find these communal barracks and their utter disregard of juvenile chastity, must smile at the remark that "it is precisely among the most primitive stages which have the greatest abhorrence of incestuous marriages," and that this drove them all into wife capture. As to render this view still more ludicrous, Huxley's "marriage of near kin," amounts to a demonstration that consanguineous marriages are not at all necessarily injurious, and may at times even be beneficial, as all breeders of stock well know and the race of Ptolemies demonstrated. That in the earlier stages of human development, such social customs arose regulating the rights of property, there may have been a time when captured women were the public property of the horde, is not impossible. But as soon as rights in captured spoils were recognized by races where there was sexual communism, and hence less internal competition for females, the right of the stronger warriors to keep their female captives as "wives," would be less disputed. The more valuable such females became as slaves, the more "wife capture" would be developed, as in Australia. MacLennan would appeal to have been under misapprehension, when

in arguing against the "origin of marriage" by capture, he thought it unlikely, because savages had "women of their own whom they could marry." It is precisely because in a communal stage, all the females of the tribe, or horde, were public property, that **BO** male could invade, and appropriate one, as his own *exclusively*, that the right to a captive female slave (as a wife) became *transferable*. She *v*-as private property.

The distinct private right to captured weapons, utensils or slaves, resulting from "joint action," is notorious among savages. Hence it is singular to see MacLennan insisting that the public right to a "beautiful captive," would stand as an argument against "marriage by capture." When we examine the matter closely, *in situ*, we find that invariably, the property captured in a joint raid, is never scrambled for, but subject to laws of public minutely regulating the private rights of those engaged. Whether in fishing, hunting, or in raids for much coveted heads, to secure the envied tattooing, there are strict rules as to the rights in the spoils. I have known a case where the youngest lad in a head-hunting party cleared the head, and the honor of tattooing, out of a party of 63 young warriors. Without strict and recognized rules in all such matters, there would be L'chroni^{^^}Bial anarchy. So that when closely examined MacLennan's argument will not hold water. Whether an exhaustive study of these singular "communal barracks" seen among so many distinct races under such various local phases, will eventually show us that they are the relic of a former stage of communism, it is not easy to see, but there are certain persistent features which appear to point in that direction, *just* as others the universal tabu against the married woman, in "marriage" by capture of female slaves, arose while society was in the stage of communal hordes, or clans, it is *very* easy to see that the successful warriors would naturally object to their female captives (or wives as we now call them) associating with the unmarried young; *hence* their communal quarters, and hence tabu them. It is what we might naturally expect under the circumstances, and also that these warriors would generally have the power as well as the inclination to enforce such a social law. If there were no other females available for the rest of the males, it might not have been so easy perhaps, but when we recollect that in all these cases there was complete sexual liberty within the horde itself, among its normal female members, the successful isolation of the captive wives was probably feasible, and hence arose both the "marriage" and "tabu" simultaneously. The almost universal power of these communal relics, over the children, a power which, as a rule, dominates that of the parent, is another indication that marriage and the family are of more recent development. Indeed the

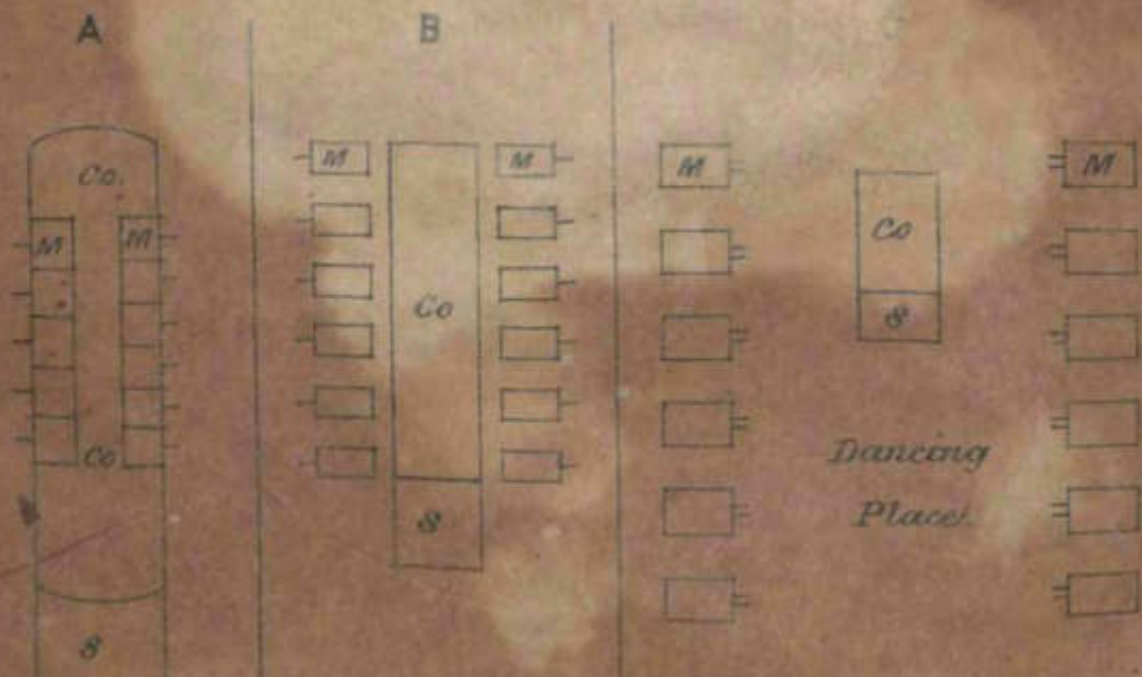
indications that some forms of communal association preceded the isolation of the family turn up in several unexpected ways. At page 140 of his travels D'Albertis illustrates a "Marea" at Paras village 300 ft. long by about 36 wide, this being the great communal building, or sacred house, tabu to women, and in this instance the houses of the married folk, also built on piles, are two rows of little huts, one along each side of the great building, distinct from it, yet with little flying bridges to it, across which the men alone could pass, the women's access to them being by little docks and ladders on the outside, as in fig. U. This arrangement and isolation of the married people's quarters, on either side of a court or passage, seems to underlie the construction of houses very generally over this part of the world, as in figure A. In the case of the "Mou Miori," (D'Albertis) l. c. pp. 319-20, these married quarters are no longer little appendages along each side of the Marea, but are really distinct houses, and set back, so as to form a wide street, which the communal Marea is placed. And here again we see that this arrangement as a street, is very common in the East as far as the Pacific. We even see that the clear space between the rows of houses used for dancing on, has a distinct name, the "L. . . ." of the Orons, the "Imrai" of the Hebrides, &c. fig C. All these houses are built on piles, 3 or 4 or 8-10 ft. long, and have the siesta platform S, projecting in front beyond the eaves; the "Airabà" of New Guinea, the "Tang gong" of Biris, and "Huntong" of Nagas. In all the figures, A, B, C, G, are the communal and the married quarters.

The building of houses on piles which is very common among races having communal barracks, has long been a stumbling block to anthropologists. Mr. Crawford in his "History of the Archipelago," p. 159, attributes it to the people inhabiting marshes, banks of rivers, and the sea coast. Others say it is a means of security from attacks of enemies or wild animals. But as Sir Henry Yule pointed out in the *Journal of the Anthropological Institute*, February 1880, page 296, it cannot be due to these and is really a racial character.

The most likely cause for the custom seems to be the presence of the pig, which, as a domestic, or semi-domestic animal, is kept by almost all pile building races, and which unless there were some means taken to effectuate its depredations, would devour everything edible within reach, infants included, as some of the people themselves point out. They could not go out to their jhums, without leaving a guard all round to; and exhibits the usual variations due to influence of physical surroundings.

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The fact that these barracks are found over such an immense area among such distinct races, and with such marked geographical variations, obviously due to the surroundings, indicates an extreme antiquity, preceding the differentiation of physique and even language, and being essentially of a communal nature they seem relics of a social stage preceding monogamy, and to demonstrate more or less clearly that marriage arose by capture in the extreme, and indeed absolute freedom between the sexes before marriage, culminating in many races, in sexual orgies, and the absence of the idea of modesty and chastity, amply demonstrate that it could not have been the dread of incest which drove them into monogamy. There appears to be absolutely no evidence that a peaceful stage of monogamy preceded the communal barrack system, certainly no evidence of peaceful endogamy, or "marriage" within the horde or clan. Such evidence as we have is distinctly in favor of "marriage by capture," having arisen during a stage of communism, the relics of which we see surviving in these singular communal barracks. That they are doomed, and are long will become extinct, is not at all doubtful to those who have watched them in some cases for 20 years. The trader and the missionary are rapidly changing the old order of things, and, even without their aid, there appears to be some evidence that among many of these races, the importance of the family is in the ascendant. It is most desirable therefore that these social relics should be studied systematically at an early date, the information gained would be of much value to anthropologists, and not entirely useless perhaps to those interested in such questions as infant marriage, and the age of consent.



De Ranunculaceis Indicis Disputationes.—SERUENI P. BRÜHL.

[Tab. iii, iv, v et vi].

PRAEFATIO.

Ex quo tempore Hooker filius et T. Thomson de Ranunculaceis indicis in volumine primo Florae imperii indici conscripserant, maximus numerus exemplarium stirpium exsiccatarum adlatus est a Stoliczka, Anderson, Kurz, Prain, Henderson, Scully, Giles, Aitchison, Duke, Lacc. Brandis, Schlieb, Gamble, Ellis, Baden-Powell, Drummond, Davidson, Tanner, Sedgewick, C. B. Clarke, Watt, Gammie, Pantling, aliisque viris, magnaque speciminum copia cumulata est in herbariis calcattiensi et saharanpurensi summa a iudustria atque cura Dathiei et Doctoris King, clarissimorum virorum illorum de rebus botanicis indicis optime meritorum. Ad peregrinationes laboresque Hancocki, Henryi, Prattii, Davidi, Delavayi, Maximowiczii, Przewalskii, Potaiini, qui, fortes ad pericula, desertorum terroribus vel hostium montiumque altissimorum frigidibus indomiti, Mongoliam et Tibetiam et Chinam propriam peragraverunt, atque species novae in imperio sinensi repertae et ab Maximowiczio, Franchetio, Hemsleyo, aliisque accuratissime descriptae ac definitae comparationem stirpium indicarum cum stirpibus regionum finitimarum redderunt faciliorem.

Quamobrem Ranunculaceas indicas deinceps perscrutari et cum reliquis asiaticis et europaeis comparare instituimus, quamquam regnum nipalense vix exploratum et eius partes Himalayae quae a terra sikkimensi ad orientem vergunt adhuc fere ignotae nos impediunt ne quaestionem plane cumulateque periciamur. Species autem Ranunculacearum valde variabiles sunt namque in modum polymorphae, non parvum sit formas varias in species subspecies variatilesque disponere harumque fines regere. Ita sit ut genera plurima in species permultas, descriptionibus bene definitas, natura plane confusas, divites et quasi discerpta videamus. Facilius enim est apta dissona et quae dissipata connectere.

Et quamvis libellis florae excursoriis dictis conficiendis parvi interest utrum more Jordaniano subvarietates ad speciei dignitatem perducamus, an sequentes O. Kuntze sexcentas species aliorum auctorum ad unam redigamus: maximi momenti esse censimus in plantarum distributione investiganda et ad doctrinam transmutationum aliasque quaestiones physiologicas recte intelligendas non se contingere ea quae gradatim transeuntia unum in alterum natura sunt inacta. Itaque in his disputationibus speciem statuimus esse universitatem omnium stirpium quae, quamvis extremae inter se differant habitu, magnitudine, indumento, partium figura, aliisque notis, ita formis mediis copulatae connexaeque sunt

ut discrimen quod in omnes partes valeat nullum reperiri possit. Sed quoniam summam alicuius speciei cognitionem non possumus consequi, nisi eius varietates scientia complectamur earumque affinitates indagemus; cumque investigatio variationum multum habeat delectationis: subspecies, varietates, subvarietatesque **Ranunculacearum** indicarum nobis investigandas putaviraas. [^]is autem et natura »subspeciei et varietatis in eo est quod quibusdam notis satis distinctae sint, sed tamen quae gradibus aec geneve inter se differant, ita ut discrimen varietatam propinquarum saepe perdifficile sit neque sine comparatione multorum exemplarium in herbariis conservatorum **Linsi'tuta** possit fieri.

Atque in his co'am.on.tai'is nobis siemp' mentio Eacii'nda erit catervarum stii'pinm qu;ie, pTductae ⁱⁱ arocfco ribus quibusdam ad speciei dignitatem, ad subspecies vel varietate **atea TQ** vocandae videantur. Sed temporis spatiique compendiis faciendi causa Interdaiu licebit subspecies vel ipsas varietates tractare tamquam species, si auctores quidem iis speciei nomen invenerint. Si autem dignitatem subspeciei vel varietatis plane praedicare voiiiraus, hoc modo scribere liceat: si speciem ab auctore quodam definitam ^{ti} nro subspeciem **I** habendam; remsimus virgulis utemur et scribemus exempli gratia—*Aquilegia fragrans* **Bentham**; si varietatam—*Aquilegia fragrans* **Bentham**; si autem ipse, qui nomen dedit formae quam subspeciem opinamur esse, eam ⁱ pro SUDFspecie varietateve habuifc, hoc modo scribemus exempli causa—*Clematis sikkimensis* **H f. et T'** Et cum clarissime Doctore **Drude*** asterisco quidem uti licuerit, ita lit ponamus—*Aquilegia* * **Moore**, offi. **Wall.**, vel *Delphinium* * **persicum** **Boiss.**, vel *Thalictrum* * **rufum** **Lecoyer** in locum *Aquilegiae vulgaris* **Lin.**, subsp. *Moorecroftianae* (**Wall.** pro specie) vel *Delphinii campocarpici*, subsp. *persici* (**Boiss.** pro sp.) vel *Thalictri panduani* **Wall.**, subsp. *rufi* (**Lecoyer** pro sp.), sed facilius videtur esse ^{ana V} usque tardum **me** scribere **quain asteriscos** **se mi)**

Atque **Eaillon**, vir file assidua et sa cognitione re ram indaganda sagacissimu?, muh; genera ud subgenera, ubi in Ranunculaceis *Aconitum* ad *Delphinium*, **Calthiam** ad ^l *Thalictrum* revocat. Eam si sequamur, num censimus tantum nomina mutandn et *Delphinium Napellus* vel *Trollius palustris* praec> *Aconito Napell-i* vel *Caltha palustri* scribendum esse? Minime vero. Nam si **Bui** generis pro generis nomine utamur, vix unquam error nobis atque tenebrae erunt; si autem specierum **peruultarm** nomina in alia mutemus, quanta turba erit, quanta confusio. Sic vero ⁰¹¹¹¹⁰ iis qui rebus herbariis operam dent **magis** magisque necessitas imposita erit in synonymis solvendis ac discendis temporis abutent **U** et **historiae** opinioni, nam atque errorum pro cognitione atque

* Vide Schenk, *Handbuch der Botanik*, vol. iii, 2.

indagatione rerum naturae substituendae? Neque Baillon, vir doctissimus, Aconito ad subgenus Delphinii redacto, dinumerat omnes species Aconiti sub nomine Delphinii neque nomen suum nominibus mutatis adiecit. Nam satis est scribere Aconitum Napellus *Lin.* aut, si mavis, Aconitum Napellus *Lin.*, virgula posita post nomen subgeneris. (iujd? Si quis omnino tollat genus aliquod, aut si nomina prisca in libris antiquis indagat atque odoretur, nomen suum nomen mutato affigat? Immoderate sibi illi illi strissimi qui ipsorum nominibus scribendis hunc fessi laboribus aeternitatem adinisei immortalitatemque sibi parere volunt et subterfugum conservandarum omnia iniqui atque perturbant? Immo honorem tantum in eis esse tribuendum quod in notis quibus species nova a reliquis eiusdem generis speciebus distingui possit incurrito ac diligentissime investigantis operam laboremque consumunt, neque iis qui in enumeratione stirpium quae in terra quaevis crescent conscribuntur generis commutato speciebus veteribus nomen imponunt. Itaquo sufficit scribere—Ranunculus Shaftoanus *Aitch. Uetli* (*suboxygraphide*), vel, si placet, uti nos in his disputationibus interdum scribemus, Ranunculus Shaftoanus *Aitch. et Henid.* vel plane Ranunculus Shaftoanus *Aifci. et Henisl.* neque Ranunculus Shaftoanus *Boias.* Et scribere quidem maluissimus—Ranunculus Shaftoanus (*Aitch. et Henid.*) nisi Torrey et Gray in Flora civitatum boreali-americanarum nomen antiquioris nominis speciei inter arcus posuissent neque scripsissent exempli causa—Caltha palustris (*Lin.*) vel Trollius laxus (*Salisb.*).

Sed ad propositum revertatur. In disputatione prima de Aquilegia dicemus fusius, quod magna in herbariis Aquilegiarum indicarum videtur esse confusio; in ultimis omnibus speciebus ordinis Ranunculacearum in subspecies et varietates disponere easque accuratius definire conabimur, ac praecipua addomesticata species in provinciis nonnullis indicis gigantes ratiouo ac via determinandas; in postrenuftenique de variatione atque propagatione Ranunculacearum quae in imperio indico regionibusque finitimis nascuntur proponere institimus.

Materia autem ad has disputationes conscribendas praebuerunt herbaria hortorum calcuttensis et safranpurensis, thesauri illi ditissimi stirpium indicarum exsiccatarum, quarum usum didmi benignitati liberalitatisque Doctorum King et Prain, ac civitati d. i> thiei qui non solum Ranunculaceas in herbario safranpurensi conditas mihi libentissime et, propter studia mea frequenter negotiis publicis longo intervallo intermissa, per longum temporis spatium incommodo suo commodavit, sed cuius exemplaria exsiccata etiam ab ipso magna cura ac diligentia lecta optimeque conservata investigaticum labores mearum aliquanto sabelvavornut.

Nominum autem compendia quibus in his commentariis utomur inter alia haec sunt

F. I. = Flora indica; F. B. I. = Flora of British India; H. E. I. C. = herbarium of the late East India Company; H. C. Lc. = herbarium e(1)ritense; H. Sah. = Herbarium saharanpurensis; A. = Dr. Anderson; Aiteli, = Dr. Aitohisou; Li. = Dr. Brandis; B. P. = Baden-Powell; G. = Gener. Coll. I. = C. B. Clarke; D. = Duthie; i. d. = Davidson; D. r. = Drummond; E. = Ellis; O. = T. V. Giles; J. = Uov. Jaeschke; F. v. = Dr. King; K. O. = viri qui missi sunt a doctore King stirpes legendi causa; Sct. = Dr. Stoliezka; W. = Dr. Watt.

DISPUTATIO ⁿ PRIMA.

DE AQUILEGIA.

Inter genera varibilia Bam QCI Uicearum ac polymorpha vix aliud genia inveniri potest (e quo tam variae Bint seutentio virorum rerum herbariarum peritcirum **fcamqne** digrepautes quara BUit de Aquilegiis, quarum nonnulli dinumerant plus quadraginta species, quas alii ad quinque vel sex redigendas esse censet. Atque H<oker filius et T. Thomson in Flora india et in Flora impe LL h<olici "ianes formas indicas ad Aquilegiam vulgarimTQ vocant, et Aquileg- "••••• //)"••••• luvicianam, fragrante•m, pubiflora•m, **dulosam**, aliasquo cum Aquilegia vulgari form is mediis col nexas esse et ad sam D ducendas affirmant, quamquaia plnrinii qui quidem in artis herbariac coonit:,one versentur illas species omnes in I r se u **laxinn** distinctas et ce]te ab Aquilegia vulgari seiungenda s esse arbitrantur. ^uamobrem a{ pmnes tonnas Aquilegiarum, euro]paeas, sibiricas, cau;isit-as, Bmericanas, praecipue aut^in indicas ec sinenses perscrutandas-)ios confeire constituimus, ut repeximus, si **id fieri** possit, quo notae constant*/s et ad species discerendas aptae **eTadant** quaeque **sint** mut abiles neque a>l species propinquas separan•is valeant. Sed ne rnvolvamur eodem in line qn aestionotracta a da, antequam fora ir-< vai'i: is dou no in species aut subspecies varietatesvc• fiistribuimua, speci & ita a*-cipiemus uti sicut d«finitae iui moacgraphiis Bakeri et Zimmeteri vel in Floris orientali Boissieri, rossica, altaica, da llurici, ta•, gatica, mongolica, aliisque anetorum rossicorum (1) vel in germanicis, italicis, gallicis Kochii, Bertol•nil, aliominque scriptorum.

Bi autem quaerimus [uibus notis ii qui de Aquilegiis scripserint ad harum species internoscendas in monographiis et floris usi sint, animadvertimus auctores indumento, thallomatis ramificationi, foliolorumque figurae ac **tnagtutudini**, partiam **fl,** et mensurae **coi-**paratne vel per se aestimatae, denique folliculorum longitudini et fabricae, sen **structurae** vim discriminis adiudicavisse.

Primun igitur de indumento pauca dicamus. Nam species Aquilegiae saepe ab auctoribus distingui invenimus praesentia aut absentia pilorum glandulorum. Atque mirum quanta confusio exstiterit ex specie illa Gouani, quam auctor propter indumenti naturam Aquilegiam viscosam nominavit, quod nomen doctissimum Boissierum aliosque induxit ut stirpem Gouaniam ab Aquilegia vulgaris typica nullo modo diversam, tabulam autem pictam in Illustrationibus male descriptam esse censerant; Kitaibel vero stirpem eam, cui postea Schott Aquilegiam Kitaibelii dixit non esse eandem speciem Gouaniam, quam quidem Zimmeter cum dnbio ad Aquilegia Kinschlejnam refert. Baker vero in monographia sua Aquilegiarum Aquilegiam viscosam speciem bonam neque Htrm varietate aliqua viscosae Aquilegiae vulgaris Ja Derne cum Aq. Fleaua confundendam esse perit. At vero ex ois plantis vidimus humile unifloram a Riquieno in monte Ventoux Provinciae lectam, cuius folia in ois nominis ita cuti foliis in tabula Gouaniana pictis congruant ut nobis persuasum sit hanc esse formam quam Gouanius diffinitum esse ut suo miifloram. Exemplar autem Requiensi omnino cum exemplari Einseleanae e valle Sassina Savoyensi allatis convenit, ut nemini dubium possit esse, quin A. viscosa Gouan eadem species sit atque A. Einseleana Schott = A. pyrenaica Koch = A. Bautini Schott, quae quidem transitus praebet ad Aquilegiam Kitaibelii Schott = A. viscosam Kitaibel = A. pyrenaicam Visiani et A. thalictrifoliam, quam Nyman sub-speciem censet esse A. Baihrai. De sententia Bakeri et Zimmeter pars inferior canalis foliaque A. Einseleanae glabra sunt, sed in exemplaribus nonnullis, neque tamen a omnibus, in valle Sassina lectis caulis totus petioli petioluli foliaque basilaria manifesto glanduloso-hirta sunt, ita ut nonnunquam inter A. viscosam et A. Einseleanam reperiiri possit nullum. Tamen vero indumentum caulis stirpium indicari non ita variabile est, ut nullius momenti ad species Aquilegiae solungenis opineretur, atrunc caulis totus sit pilosus an pars eius inferior glabrescat. Mentionem autem eia facit licet hoc loco exemplarium himalaicorum A. vulgaris var. Karelini, quorum parastemones apice hirti sunt, quod in aliis formis Aquilegiarum invenimus. Atque in Himalaya Tibetiae occidionalis formae quaedam A. Moercroftianae occurrit, cuius caulis infimus petioli petioluli folia dense vel densiuscule glanduloso-hirta sunt, quamquam illae partes A. Moercroftianae plerumque sunt modice puberulae vel omnino glabrae; et in exemplaribus A. nivalis var. paradoxae P. B. vidimus caulem nunc basin versus glaberrimum nunc prope basin glanduloso-hirtum nunc totum cum petiolis dense hirsutum. Et foliola quidem A. vulgaris typica*

interdum sat dense pubescentia sunt, ut haec nota ad Aquilegiam Ebneri et A. vulgarem discernendas non valeat. De quo concludendam esse censimus indumentum caulium foliorum parastemonum ad species Aquilegiarum internoscendas nullam vim discriminis habere. Meliores notas praebet indumentum carpellorum. Nam formae plurimae, quae cum Aquilegia vulgari et A. canadensi artioribus affinitatis vinculis coniunctae sunt, ovarium habent dense hirtum, cum carpella Aquilegiae sibiricae glabrae sint; videtur tamen pistilla Aquilegiae sibiricae secundam suturam ventraleni pube minuta vestita, et ovaria Aquilegiae brevistylae mine pubescentia nunc glaberrima inveniantur. Atque carpella Aquilegiae leptoceras a Tinianensis glaberrima dicta sunt; sed Ledebour in illustracione exemplarum; in A. pubiflora missis, quorum carpella pubescentia fuerat, et stirpes in horto Schweitzingensibus sibiricae ortas ovaria pubescentia praebuisse scribit. Probabile autem, carpella inniora hirta esse, sed cum maturescant, pubem fundere, ut interdum Erechtium in aliis Aquilegiis, sicut in A. pubiflora.

Nunc veniamus ad staturam et ramificationem caulium foliorumque divisionem. Longitudo caulium floriferorum Aquilegiae glandulosae variat inter 1/2 et 40 cm., Aquilegiae kuraorensis et Aquilegiae pubiflorae inter 15 et 70 cm., Aquilegiae oxysepalae inter 20 et 100 cm., Aquilegiae vulgaris typicae inter 30 et 120 cm. Cum autem caulium ramique cuncti in floribus videntur, videmus quot flores in quarundam caulis Aquilegiarum invenimus. Invenimus in A. vulgari typica 2-6-12, in A. nigricanti 1-5, in Aquilegia glandulosa 1-5, in A. kuraorensi 1-3, in A. oxysepala, canadensi, sibirica 1-4, atque exemplaria repertur in Aquilegiae pubiflorae, et hirtae et aliorum quae stirpes simplices Aquilegiae viscosae G. et alia in mentem revocant, alia proceras 50-70 cm. altitudine octo vel decem floris videntur Aquilegiaeque vulgari similia. Ramificatio igitur caulis valde variat.

Nec foliorum divisio videtur satis constare. Nam folia basilaria ternata Aquilegiae lupuloceras Fisch. et Mey. et Aquilegiae dinaricae Beck foliis biternatis plus minus mixta sunt, et folia plerumque biternata Aquilegiae Bertolonii, A. viscosae, A. pyrenaicae, A. nivalis, A. nigricantis haud raro etiam ternatis nonnulla. His sunt sociata; quin etiam folia simpliciter ternata in A. pubiflora et A. alpina, speciebus foliis insigniter biternatis vel biternatis, haud semper alunt.

Atque foliola media in formis indicis saepius plus minusve profunde divisa, sicut in A. fragranti, A. ... vulgari ... vel in foliis plano triternata sunt; Bed foliola terminalia A. vulgaris typicae et A. canadensis et A. glandulosae nunc ad basin usque trisecta, nunc ad medium tripartita, nunc vix ad quartam partem triloba. Species

ftutem *Aquiloniam* ab *auci* oribus magnitudine foliolorum
 distine stag in venimus; et formae inter se distantes certe foliorum men-
 eura inter dam discerni possunt, uti *A. pyrenaica* ab *A. grata*; sed
 foKola plerumque magnitudine m iram in modum variant. Longitudo
 en; in foliolorum mediorum foliorum basilarium *Aquilegiae nivalis* 3-16
 mm., *A. viscosae* 5-25 mm., *A. glandulosae* 10-40 mm., *A. alpinae*
 12-40. mm., *A. pubiflorae* 10-45 m in., *A. vulgaris* var. *variae* 25-50
 mm., *A. Moorcroftianae* 9-50 mm., *A. cau* adensis 12-50 mm., *A. oxy-*
sep'alae 15-60 mm.

Latitudo quoque foliolorum ram longitiulii e comparata nobis in
 discrimine specierum saepe deest, quod videre licoi si, mensura acta,
 latitudinem nyoli termraalia cum longitudhte comparemus. , >(ani ob
 rem in hac tabellit mensuram latitudinis tanqun m fractaram longitudinis
 expressimus :—

<i>A. oxyci</i>	...	...	$\frac{1}{2} - \frac{1}{3}$
<i>A. vni</i> garis typ...	...	...	$\frac{1}{2} - \frac{1}{3}$
<i>A. alpina</i>	...	...	$\frac{1}{2} - \frac{1}{3}$
<i>A. Bertolon'i</i>	...	...	$\frac{1}{2} - \frac{1}{3}$
<i>A. Einseleaaa</i>	...	...	$\frac{1}{2} - \frac{1}{3}$
<i>A. pyrcauica</i>	...	...	$\frac{1}{2} - \frac{1}{3}$
<i>A. niP</i> it I IS	...	...	«.i $\frac{1}{2} - \frac{1}{3}$
<i>A. glaSMLs</i> ^{08*}	...	...	$\frac{1}{2} - \frac{1}{3}$
<i>A. Mooreroftiana</i>	...	...	$\frac{1}{2} - \frac{1}{3}$
<i>A. pa!</i> illora	...	...	$\frac{1}{2} - \frac{1}{3}$ (raro $\frac{1}{2}$).

A. qiilegia Einseleana i gitur ab *A. pyrenaica* et *A. Bertolonii* lati-
 tudine foliolorum or'm lom? tudine comparata negre distinguitur. Men-
 surae autem inter se comparatae foliolorum figuram partis eorum basin
 spectantis afficiunt efficiuntque ut foliola mai'Lne sese obtegant vel
 attingant aut interv allo plus minus vo tn; nifes to inter se distent. Et
folyola quidem terminalia follorum basilarium b^u s^u i^u Viarsus conspicuo
 cui'eata s^{m+j} i^Q *A. thalictrofolia* et *A. Einse!*'eana et *A. leptocerate*, lato
 cneata in *A. Kitaibelii*, *A. Bertobnii*, *A. oxysepala*, aliisque; sed in
A. vulgari typica nunc subanginto ntiuc late cureata nunc fere rotun-
 data, in *V. alpina* basi ant :-btusa subcneat; aui subtruncata, in *A.*
pyi'onaica late Ci'neata v. subcordata v. rotundato-truncata, in *A. nivali*
 o[^] usa v. sub cordata, rero cueata, ia *A. glandulosa* et *Moorcroftiana*
 late c[±] ni'neata v. obscure cordata v. truncata, in *A. pm* biflora late cuneata
 v. subtruncata. Foliola marginibus btus Hⁱ nnsve sese obtegunt in *A.*
alpina, *A. Bortolonii*, *A. py* renaica, *A. •livi* Lli. *A. grata*; in *A. gland-*
ulosi i folio!a marginibus plerumque imbricata sed etiam subdistantia,
 qu^u l accidit etiam in *A. Mooreroftiana*, *A. vulgari*, *A. oxysepala*, *A.*
pubiflora; cum foliola v. ^ n[^] seleanae e t tlialiutrijul iac semper distantia

sint et in *A. Kitaibellii* sese vix attingant. *Triarifidus* vevy anilnadvertuntur inter *A. Einseleanam* et *V. Bortolonii*; noque *A. fchaliotrifoKa* cum *A. grata* et *A. pyronau-a gra* Libus {er *A. Einseleanam* et *A. Kitaibellii* nou est connexa. Inter *Aquilegias* autem indicua *A. pubiflora* varietatibus foliorum insignia; iolia enira nunc *Aquilegiae vulgaris*, nunc *Aquilegiae alpine*, nunc *Bere Aquilegiae viscosae*.

Sud haec quidemde foliis basilaribus: folia autem caulina inferiori *A. Moorcroftianae*, praesertim eius varietatis, quam Cambessède suaveolentem appellavit, mirifice polymorpha nunc *Aquilegiam* vulgarim, nunc *A. glandulosam*, uunc *A. ; Ipinam*, uunc *A. Bertolonii* in mentem recantant et in exemplaribus afghanicis et kashmericis ex eodem loco (Jatis nunc crenas breves et rotunditas *L. Bertolonii* vel ; yrenaicae nⁿ)C lineu* i-ablongas *A. alpiua* annadverfimus; notue fnHum caulinum infimum *A. Bertolonii* basilaribus semper uissimile, et stirpes *Aquilegiae* a *Ipinam* floribus baid n ro occurrant quae foliorum caulinarum natura inferiorum ab *Aquilegia licrtolonii* ac ?re diseemuntur,

Mibtimufi viro de florum colore dicere: notissimae (MMB) xniVa .v; rietas illa colorum quam in nigriog i bi is amcr i»an is *Aquilegiae* caerulea et formosae; notissimae etiam v. rietates florum. *Aquilegiae glandulosae* quae sepalis eneruleis petala nunc alba, nunc ocbrolucra, nunc caerulea adiungit; notissimae de. "iue ia saltibus Uimalaicis stirpc-N illae *Aquilegiae kanaoreuri* b pu. at is spcciosa ornatae floribus ex calyce albedo consistit vel stramineo et corona, cui suffusus est color nunc gggroituens, uunc albus, nunc violaceus.

Verum haec inissa facimus; illud quaeramus nunc magitudo florum discrimen sit inter species *Aquilegiam*. Hac enim nota auctores saepe usi sunt ad *Aquilegiam* vulgarem et *A. nigricantem*, *A. Bertolonii* pyrenaicamque et *A. alpiuam*, *A. Kitaibellii* et *A. pyreuaicam* et *A. Einseleanam*, *A. vulgarem* et *A. Ebneri*, *A. longisepalam* et *A. nigricantem*, *A. Moorcroftianam* et *A. fragrantem* internoecendas. Longitudinem vero sepalorum, quae nota ad magitudinem. Boris attinet, in exemplaribus Herbariorum iudicorum, millimetris lueusam. hanc reperimus—iu:—

<i>A. vulgari</i>	...	...	...	18-32,
<i>A. atrata</i>	...	...	...	18-32,
<i>A. nigricanti</i>	...	...	...	27-34,
<i>A. alpina</i>	...	...	...	30-45 (rarissime minus 30),
<i>A. Einseleana</i>	...	...	...	14-27,
<i>A. Bertolonii</i>	...	...	...	24-30,
<i>A. glandulosa</i>	...	...	...	16-45,
<i>A. nil ali</i>	...	...	...	14-28,

A. kunaorensi var. a Camb.	...	24,
A. kunaorcusi suaveolenti	...	26-50,
A. oxysepala	...	17-30,
A. pubiflora	...	12-28,
A. fragrans	...	2*2-30,
A. pyrenaica typica	...	17-27,
A. canadensis	...	12-22,
A. caerulea	...	22-40.

Distributio igitur Aquilegiarum in micranthas, mesanthas, macranthas vix hortulanis quidem iis esse potest; neque menaurae sepalo imitanda videtur in discrimine A. Ebueri et A. vulgaris, A. vulgaris genuinae et A. nigricantis. *Utrumquam* in tabella analytica scribitur P. pala A. Kitaibelii (asse 17 mm., Aquilegiae intern. Einselleanae et Pyrenaicae 2.3-27 mm. longis; vidimus tamen exemplaria Aquilegiae Einselleanae in alpinis Savoyensibus lecta quorum sepala in L-18 mm. tantum longa erant; etsi similia reperimus Aquilegiae pyrenaicae et similibus montat. pyrenaei allata sepalis vix plus 17 mm. longis. Non igitur vis discriminis in longitudine sepalorum. Melius autem insigne ad species discernendas manserit sepalorum inter se comparatae praefere videtur nam soala oil. *Utrum* in Aquilegiae pubiflorae et Aquilegiae oxysepalae Junceolata et maiflorae, interdum longis. Similiter, acuminatis sunt; vidimus autem specimina A. pubiflorae sepalis aut orato-lanceolatis longe acuminatis apice acutis aut obtusis, aut ovato-lanceolatis leviter acuminatis; ipse subacutis aut raro ovato-oblongis neque acuminatis apice obtusis, rursus raris ovatis apice obtusis. In hac tabella latitudo sepalorum tantum fractu longitudinis expressa est —

A. pyrenaica genuina,	...	...	$\frac{1}{3} - \frac{2}{3}$,
A. Einselleana	...	...	$\frac{2}{3} - \frac{5}{3}$,
A. vulgaris typica	...	...	$\frac{2}{3} - \frac{9}{3}$,
A. glandulosa	...	...	$\frac{2}{3} - \frac{2}{3}$,
A. moorcroftiana typica	...	...	$\frac{1}{3} - \frac{2}{3}$,
A. kunaorensis suaveolens	...	...	$\frac{1}{3} - \frac{2}{3}$,
A. oxysepala	...	...	$\frac{1}{3} - \frac{2}{3}$,
A. pubiflora	...	...	$\frac{1}{3} - \frac{1}{3}$, raro $\frac{1}{3}$.

Reperiuntur autem seepala Aquilegiae moorcroftianae typicae nunc ovata v. ovate-oblonga apice oblongissima aut eubacuta, nunc ovato-lanceolata breviter acuminata apice obtusiuscula; seepala Aquilegiae kunaorensis var. suaveolentis nunc ovato-oblonga neque acuminata sed apice acutiuscula aut breviter acuminata apice obtusiuscula. LQ fere obtusa, nunc ovato-lanceolata acutiuscula conspicua acuminata j seepala Aquilegiae alpinae nunc late ovata acuta nunc ovato-oblonga subobtusa. Sant

igitur, quoad sepala, fortuae mediae inter *A. pubifloram* et *A. vulgare* typicam, nequie in sepala *A. oxysepalia* latiora sepalis *Aquilegiae vulgaris* indicata figura dissimilia.

Alia nota quam auctores ad species seipsum aptam existimant a longitudine sepalorum et petalorum comparata sumpta est, uti sepala *A. Einseleanae* excedunt petalorum limbum superare 14 mm., *A. pyrenaicae* 9 mm., *A. nigricantis* 21 mm.; eminere vero videntur sepala ultimi petalorum marginem anteriorum 3-14 mm. in *A. Einseleana*, 4-9 mm. in *A. pyrenaica*, 10-21 mm. in *A. nigricanti*; in *Aquilegia portii pubiflora* 6-11 mm., in *A. Moorcroftiana* typica 3-5-12 mm., in *A. oxysepala* 4-11 mm., in *A. kunoensis* suaveolenti 15-22 mm. in *A. nivali* 7-14 mm., in *A. glandulosa* typica 6-22 mm. et *A. viridiflora* intermedia 0-4 mm.

Ne mensurae comparatae limbi petalorum longiorumque staminum nobis ad species seipsum aptus superpetalorum ut. Neque colamnam statimam *A. alpina* aequantur: transpetalorum campanulam 3 mm. tantum praefectam vidimus, quod etiam accidit in *A. vulgaris* typica; in *A. Einseleana* autem ut in *A. alpina* stamina petalis sunt 2-6 mm., in *A. pyrenaica* 2-4 mm., in *A. glandulosa* 2-11 mm. breviora, cum in aliis stamina nunciantur, petalis paullulo breviora nunciantur paullulo longiora. In *Aquilegia* vero caerulea var. typica staminum nectariorum limbo mine 10 mm. breviora nunciantur 6 mm. longiora, iv. * Dimerosissima nunciantur eodem fere numero atque in *A. celsa* Mirfi, nunciantur patentissima nunciantur subparallelis, nunciantur fere eadem longitudine nunciantur inter se valde inaequalia.

Proximum est ut de forma laminae petalorum investigemus inter nos satis consistet ad discrimen specierum an variabilis evadat. Margo autem exterior petalorum manifestus rotundatus reperitur in *A. transsilvanica*, *glaucoscapula*, *incauda*, *Kinseleaua*, *thalictrifolia*, *Bertolonii*, *pubiflora*; rotundatus truncatus est in *A. vulgaris*, *atrata*, *alpina*, *glaucoscapula*, *nivalis*, *fragrans*, *Moorcroftiana*, *Fonosa*, *canadensis*, *Sibirica*. Vidimus tamen exemplaria *A. pyrenaicae* typicae et *A. Einseleanae* et *A. pubiflorae* quorum petala apice rotundato-truncata erant verum plane rotundata; *Aquilegia* autem *glandulosa* genuina Fischeri petala habet apice obtusa; et petala *Aquilegiae* *nivalis* nunciantur fere rotundata, nunciantur truncata ac sinuata, nunciantur profunde marginata sunt. Figura igitur limbi petalorum, quamquam satis utilis ad subspecies inter nos, nos in speciem discrimine fallere videtur,

Masimi vero momenta autem plerumque eorum fere parum magnitudinemque comparatam esse iustitiam erunt. ^

Primum igitur de mensura talis cum laminae longitudine comparata videntur. Neque tamen in illis monstris *Aquilegiae* vulgaris coloratis agerantur, neque de varietate illa *Aquilegiae* formae cui nomen fecerat diuot disseremus cuius calcar longitudine vi-

t

quinta 11

ecima vel vigesima pars est petalo
cum forma illa calcaribus lamina quadrato
ro sub nomine Aquilegiae formosae defi
A. formosa F. ieneri se
arc et in tab
formis Aquilegiae vulgari
autem calcaris ad longitud

pyrenaica tyn	iam laminae redacts-	...	1-3	"
A. vulgaris typica		...	3-3	
A. Moorcroftiana ty		...	3-1	
A. Moorcroftiana ty		...	1-1	
A. Moorcroftiana ty		...	4-2	
piranoorenfiis suaveolens		...	4-1	
P [^] . glandulosa (inel. incmnda)		...	1-1	
A. fragmns		...	3	
A. pjbiflora		...	1-1	

igitn- nequaquam constat. *ft/M*us. Calcar vero xrum
at de forma calcaris quaoi interest ad species i ter-
mum sit an modicc irtcirvum mini manifesto incurvam nequo
tamen ha **Nam crier** m nuncar Kitaibelli, thalietrifolia,
Ottonis, **n»tum**, in A. EinBel, kunoorensi suaveolenti,
pyrenaica. Tabula picta vero Aquilegiae viridiflorae in Iconibus Deles-
sertii ab auctoribus iterum iterumque reprehensa et male descripta
existimata est *fj!* que calcaria exhibeat apice incurva; vidimus
tamen exemplaria mongolica a Potanino lecta calcaribus vertice
manifesto canatis mini meque rectis. Haec observatio nos incitat ad
1TM vestigandam **io** mum ligura calcaris tanti mome **atiad** species
di stinguendas sit quanti eam auctores, perpaucis exceptis, es **ve** credi-
derint. Calcaria Aquilegiae Moorcroftianae in alabastro aepe un-
cinatim in curva; eam stirps noreat, nun-
incurva ac calcaribus Aquilegiae

vero exempla variations calcariu *m ex Aquilegiae* **vix**, eotiora. *J k, h ^*
nivali ducere possumna. *Nam* / . quilegiae ***** pnbiflop** a, fragr **«»«**,
mus p; *opissime* **rat** **veic**, calcaria reperi-
f **tim Czr**, in silvi
provmci. Forma α trrit scpalis onidam i *a ola* tamen
foUisque Aquilegiao *pubifl* nie gonuinae *scd* *UCu*; itis *llfJumi*
uncinato nunc leniter incurvo minimeque *l«m, !^*; et *UaDC* **^to**
Cunningham *ex Himalaya* *potamica attulit*, calcar *pa*
vum sepahs nunc lanceolafcis acuminatia *iUtt* *late ovatis o*
ctum est. Vidimus etiam in herbario *Rni^i-* *ljtusis* **adiu**
U GXemIji^ • Bavaria *mi^*

Aquilegiae vulgaris genuinae calcaribus rectis nroqnaqnam hamatis; et calcaria Aquilegiae alpinae. vix nroqnaqnam recta, in Appeunino aseptent:ionali fere more Aquilegiae vulgaris incurva inveniuntur, stirpes vero foliia Aquilegiae alpinae typicae instructae sunt nroqnaqnam cum Aquilegia Bertolonii confirmendae, Sed ad species himalicas revertamur. Sunt in terra gilgitensi et in Kasbmiria stirpes caule clato insigniter folioso foliis valde divide atque baud raro triter:atis floribusque mediocribus affiuitate artissima inter se iunctae; sed calcaria nunc perbreuia et circinnatim incurva Aquilegiae glandulosae, nunc lanina paulo breviora et manifesto incur vs., uti haud raro sunt in Aquilegia Einseleana, nunc subrecta et lamina sublongiora Aquilegiae Moorcroftiana scopulorum. Neque forma illa, quae in montibus altissimis ad nivem deliquescens miscitur est cul, auctore Bakero, Aquilegiam nivalem nomen dedit Falconer, varietate calcaris minus insignis; stirpes sunt humiliss, foliis biternatis, foliis margine sese obtegentibus reniformibus vel late rotundato-deltaideis, floribus saepius mediocribus, sepalis caeruleis vel violaceis, carpellis quinque, atque omnibus notis, calcaribus exceptis, inter se congruunt ut ne in varietates quidam differant. Flores vero plurimi calcaribus habent crassiuscule conicum et vix incurvum. Formarum quarundam Aquilegiae alpinae; reliquorum autem calcarum nunc graciliora atque omnino Aquilegiae Djyrenaicae, nunc breviora et circinnatim involuta uti in Aquilegia glandulosa; haec est forma cuius Hooker filius et Thomson in Flora imperii indici nomino Aquilegia iucunda mentionem faciunt, neque revera ab Aquilegia iucunda Fischeri distingui potest nisi petalorum lamina truncata vel emarginata nec rotundata staminibusque saepius limbum subaequantibus. Quibus rebus expositis satis docuisse videmus calcarium figuram ad species indicas diacernendas parvi momenti esse.

Jam vero parva nomones propter eorum varietatem praetermittamus. Sed de carpellis pauca dicenda esse putamus. Pistilla autem staminibus longioribus 1-5 mm. breviora vel 4 nun. longiora in A. pubiflora, 2 mm. breviora vel 3 mm. longiora in A. kunaorensi euaveolenti, 4 mm. longiora vel 1 mm. breviora in A. nivali, l. mni. longiora breviora in A. oxysepala, 2 mm. longiora vel 3 mm. breviora in A. Moorcroftiana, 1-5 mm. breviora vel fere 1 mm. longiora in A. alpina. Pauci igitur interest ntrum stylus ultra stamina emineat an a staminibus suberit.

Styli autem primis saepissime recti, sed pollen postquam ventorum disiectumque ope dispersum est, parte stigmatosa saepissimo perillum dilatata, apex styli baud raro plus minusve magis recurvat. Occurrunt styli apice recti plus minusve recurvi nec raro fere revoluti in Aquilegia nivali, vulgari, iragranti, et stylus Aquilegiae pubiflorae et Moorcroftianae mine rectus nunc apice circinnatim curvatus invenitur.

Sed quoniam de carpellis, qualia sunt ante confectionem pollinis cum ovulis factam, insignia ad species distinguendas trahere non possumus, videtur gratis num Hecat notas ad discrimen utiles de carpellis maturis ducere. Et certe formae quaedam ab aliis quibusdam longitudine folliculorum discerni possunt, uti *Aquilegia Skinneri*, cuius carpella matura inter *Aquilegia* longissima et fere 3* cm. longa distinctionem huius speciei et *Aquilegiae carladensis* reddunt facillimam. Sed penam demas enumerationem longitudinum folliculorum, sequentes monographiam *Bakeri* et pollicia *Dianaaram* in millimetra commutantes:—

<i>A. Linselearin</i>, ...	...	8-13 mm.
<i>A. viscosa</i> ...	...	... 13 mm.
<i>H^{at}ialictrifolia</i> ...	...	vix 13 mm.
[^] 1. <i>pyrenaica</i> ...	...	... 13 in m.
<i>A. Bertolonii</i> ...	...	... 13 mm.
<i>A. Amaliao</i> ...	...	fore 13 mm.
<i>A. pubiflora</i> ...	...	12-16 m'a.
<i>A. viridiflora</i> ...	...	12-19 mm.
<i>A. brevistyl</i> ...	...	... 13 mm.
<i>A. flavescens</i> ...	...	12-19 mm.
<i>A. Moorcroft</i> ...	...	5-19 mm.
<i>A. glauca</i> • <i>iana</i> ...	...	... 19 mm.
<i>A. canadensis</i> ...	...	fere 19 mm.
<i>A. fragrans</i> ...	...	18-25 mm.
<i>A. parviflora</i> ...	...	ad 25 mm.
<i>A. leptocentra</i> ...	...	fere 25 mm.
<i>A. vulgaris</i> ...	...	fere 25 mm.
<i>A. sibirica</i> ...	...	fere 25 mm.
<i>A. formosa</i> ...	...	vix 25 mm.
<i>A. chrysantha</i> ...	...	fere 25 mm.
<i>A. glandulosa</i> ...	...	fere 25 mm.
<i>A. caerulea</i> ...	...	plus 24 mm.
<i>A. alpina</i> ...	...	25-30 mm.
<i>A. skinneri</i> ...	...	... 35 mm.

Videm fieri potest ut, maiore stirpium fructiferarum copia inspecta quam fore in Uerberariis inveniat, or, magnitudo carpellorum magis variabilis reperiturque ex illa tabella. Nam folliculi exemplariam quorundam *Aquilegiae oxense* hic 16-18-mm. sed in mandsharicis sunt 20 mm. longi; et carpella matura *A. pubiflorae* et *A. Moorcroftianae*, illa 13-21 mm., haec 10-22 mm. longa auctoritate firmiter.

Atque folliculi *Aquilegiae pubiflorae* saepissime sunt a medio versus recurvati uti in *A. olympica*; sed exemplaria etiam indica spectant,

quorum folliculi recti et paralleli sunt, ut in *A. oxysiphala* et *A. caucasica*.

Quid igitur est? Nonne videmus omnia sigita, quae ii, qui rerum rariorum europaeorum periti sunt, ad discrimen specierum generis *Aquilegiae* adhibuerint, in stirpibus hircanicis usque sine fluxu a esse atque omnino cadere? Nonne videmus *Aquilegiam* fragrantem, uti gradatim in *Aquilegiam* Moerocroftianam et *Aquilegiam* Kunaorensem suaveolentem transit, ita cum *Aquilegia* pubiflora artissimis affinitatibus vinculis coniuncto? Nonne vide videtur forma rara et speciosa in iugis provinciae Garliwal ortari, quae ab *Aquilegia* alpina morphologica certe non Beiungenda est, nihil aliud esse nisi varietatem *Aquilegiae* kunaorensis? Nonne videmus, quae ipsa, et recte quidem, a Bakero varietas *Aquilegiae* Moerocroftianae existimatur, non Solibus *Aquilegiam* pyrenaicam omnibus rebus imitari, sed etiam *Aquilegiae* iucundae quae proinde improprie inquirere? Nonne verisimile est stirpes illas quae in valle Nilivana cum *Aquilegiae* pubiflorae stirpibus crescunt, sed propter figuram calcarium indumentum caulis atque foliorum ad varietatem Karolinianae *Aquilegiae* vulgaris referendae sunt, nihil aliud esse nisi formas *Aquilegiae* pubiflorae, quae, quasi atavis, licet ita dicam, ad parentem *Aquilegiam* vulgarem spectent? Si vero fructus, reliquae denique partes stirpium hircanicarum atque sinensium ita variabilia evadant, ut eandem varietatem fiovibus nunc *Aquilegiae* pyrenaicae, nunc *Aquilegiae* iucundae, nunc *Aquilegiae* alpinae ornatas inveniamus, nonne necesse est, quibus *A. liinstleana*, Bertolonii, nitens, discolor, 3-lobata, atrata, alia quoque intereuntur, nimis viles ad species discernendas videantur? Cogitatio igitur Varietatum *Aquilegiarum* indicarum ac sinensium nos in eandem sententiam adducit, ad quam abhinc multos annos* Hooker filius et Thomson scrutatione specierum europaeorum aliamque perducti fuerunt: *Aquilegiam* vulgarem, alpinam, glandulosam, viscosam, pyrenaicam, Moerocroftianam, pubifloram, alias quo complures speciem unam dicere, insigniter quidem variabilem et propter formas plures in propinquas sensim sensimque transeuntes aegre in subspecies ac varietates distribuendam. Sed quoniam multas species ad unum redigendas esse demonstravimus, formas cunctas quas ab *Aquilegia* vulgaris non seiungendas esse putamus enumerare oportet. Sunt autem haec—

A. alpestris L.

A. Amaliae Hddr.

A. atrata Koch.

A. kunaorensis Oamb.

A. latiflora Kar. et Kir.

A. leptocera Pisch. et Mey.

* Flora Lutuea, p. M, 15, (1855).

A. aurea Janka,
 A. Baulii; i Schott.
 A. Bernardi Gran.
 A. Bertolonii Schott.
 A. caucasica Hwpr.
 A. dinarica Beck.
 A. discolor Lev. et Ler.
 A. Ebneri Zimtr.
 A. Einaeleana Schott.
 A. fragrans Benth.*
 A. Frossii Zimtr.
 A. Gebleri Besser.
 A. glandulosa FUCHER.
 A. glauca Lindl.
 A. grisea Maly.
 A. iucunda Fischer.
 A. Kitaibelii Schott.

Haec formae ita in subspecies varietalesque disponendae videntur—

- I. A. oxysepala Train >
 a. mandshurica P. U." VTII.
 β. kansuensis P. J?." A. nivalis Falconer.
 u. A. L. vulgaris' typica Lin. a. paradoxa P. B."
 a. caucasica Ledehour." fβ. saccornivora P. B."
 β. olympica" Boiss., IX. A. glandulosa' Mack.
 γ. Bernardi" Gren., a. iucunda" Fisch.
 S. Iougisepala" Zimtr. ft. geuina.
 ε. atra W Koch. y. sulphurea" Zimtr.
 ζ. Karelini Baher." 8. transsilvanica" Schur.
 V- varia Ilahj." Gebleri" Besser.
 θ. recticornis P. B." X. A. Moorcroftiana' Wall.
 i. Ebneri" Zimtr. a. fragrans" Benth.
 K. dinarica" Beck. /S. Wint. arbutiflora P. B"
 A. eynensis P. B." y. suaveolens (*amb."
 μ. paraplesia" Sckur. & glauca" Lindl.
 ν. nigricans" Baumgt. t. kunaoreasis" Camb.
 III. A. alpina' Lin. I Wallichiana* Herb. Oe
 a. typica. A. afghanica P. B."
 j& himalaica P. B." 6. eubaphylla P. B"
 IV. A. Bertolonii Schott. XI. A. leptoceras' Fisch. et Mey.
 V. A. viscosa' Gouan. XII. A. Iactiflora' Ear. Kir.
 a. Einaeleana" Schulz. XIII. A. pubiflora' F.?
 ^3. thalictroidifolia" Schott. a. Cunninghamsii P. B."
 (3. Massuriensis Boyle."

A. Iougisepala Zimtr.
 A. Moorcroftiana Wall.
 A. nevadensis Boiss.
 A. nigricans Baumglt.
 A. nivalis Falco.
 A. olympica Boiss.
 A. Ottonis Orph.
 A. oxysepala Trautv.
 A. paraplesia Schur.
 A. pubiflora Wall.
 A. pyrenaica L.
 A. Reuteri Boiss.
 A. Sterii bergii Rehb.
 A. subalpina Hor.
 A. sulphurea Zimtr.
 A. transsilvanica Schur.
 A. viscosa Gouan.

Q. *Aquilegia vulgaris* Linn.
subspecies *typica*

(*Aquilegia vulgaris* subsp. I, II. f. et T. in F. B. I.; *Aquilegia vulgaris* Zimmeter No. 1, Baker No. 18; *Aquilegia Ebnari* Zimmeter; *A. nigricans* Baumgt., *A. Sternbergii* Rehb., *A. Haenkeana* Koch; *A. atrata* Koch; *A. caucasica* Rupr.; *A. olympica* Boiss.; *A. paraplosia* Schur; *A. longisepala* Zimmeter; *A. dinarica* Beck; *A. subalpina* Boreau; *A. Bernardi* Gren.; *A. glaucophylla* Steud.),

foliis basilaribus biternatis, rarissime ternatis foliolis terminalibus cuneato-obovatis v. reniformibus rarius rhombis, foliis caulinis sparsis magnitudine varia, inflorescentia 1-5-15 flora, sepalis stellatim patentibus ovatis v. ovato-lanceolatis 18-38 mm. longis, calcaribus minima rotundato-truncata rarius obtusa, pedicello longioribus rarius subduplo brevioribus, staminibus petala 1-3 rarius 3-8 mm. superantibus, carpellis hirtis, folliculis e basi ovoidea apicem versus attenuatis stylo stylis 18-24 mm. longis. Area geographica—Siberia, Altai, Thian-Shan, Ferghana, Himalaya occidentalis, Caucasus, Armenia, Europa fere tota, MoUS Atlas.

Varietates.

var. a. *caucasica* Ledbour',

caulis caucasica Rupr.), caule 50-90 cm. altitudmo, ramo BO glanduloso-pubescenti, foliis basilaribu. bit^rnatis' folio longinseculo petiolato basi cuneato ad medium tero medio sessilibus v. breviter petiolulatis rillobo,! profundc bilobis, lob, crenatis, foliis caulis inferioribus basilaribus IS subconformil brevius petiolatis, Lji^s : superioribna trifoliol I acuminatis, integris, ramis linearibus, floribus fere magnitudine var. typicae, sepalis cyaneis ovato-oblongis in apice 3ni acutuii) acuminatis, petalorum lamina alba apice truncata, calcaribus e basi late conoidea subulatis, hamatis staminibus stylisque limbum attingentibus, folliculis parallelis, e basi ovoidea attenuatis, sine stylo circiter 2 cm. longis, seminibus nitidis DI eroscopice punctulatis.—Cau.^asas.

var. j5, *olympica* Boiss.,

Iti var. a, Sed iolliculi usque a medio aiv(rgentim reciuvi ci semina opaca jrantilata.—Armenia, Persia bor.

var. y, *Bernardi* Grenier,

caule 50-70 cm. altitudino Euperne ramoso 3-7 floro, foliis basilaribus magnis varietatis typicae (variae), sepalis late ovatis, petalorum lamina apice rotunda fco-truncata, calcaribus lamina subduplo brevioribus gracilibus hamatis, stamiubua lamina multo brevioribus.-!-!orsica.

var. 8. longisepala" Zimmeter,

(A. Ion) isepala, Zimmeter No. 4), caule folioso 40-70 cm. altitudi-
dine superne glanduloso-pubescenti, foliis biternatis glabris viridi-
bus, foliolis magnis (ad 50 mm. longis) cuneatis divergentibus
ad quartam tertiamve partem trilobis, floribus saturate caeruleis,
sepalis lanceolatis fci-o 38 mm. longis, petalorum lamina apice
truncato-rotundata fere 1 cm. longa calcaribus lamina duplo longi-
oribus uncinatim incurvis, ... fere 5 millimetris
superantibus ... a, Croatia.

var. t. atrata" Koch,

(A. atrata Koch, A. nigricans Rehb. et Zimmeter nec Baumgt.),
caule superne ramoso folioso 35-80 cm. altitudine, foliis biternatis
foliolis fol. bas. subsessilibus v. saepius manifesto petiolulatis
glabris v. saepiTM infra pube, nly y " nse pubescentibus inter-
medio ad quartam ... intermedio
brevit ... intermedio
rarius caeruleis, sepalis 18-32 ... amina apice
taaatfc rare rotm data 11-14 mm. longa, V U ... amina apice
2-5 mm. longi, oribus, staminibus in columnam subcylindricam
Petala (3-) 5-10, nullius vis superantem associatis, stylo ap
rect. v. recurvo ad thera saepe haud attingente, pollicula, ar.
typicae.—Alpes, Jura, Silva bavariae. • Tri asilvania; Thiaa Suan in
montibus Alexandrinis ?

var. E. Karelini W (A. Sternbergii ? Kar. Kir),

... ine folioso plurifloro, uti petioli petiolu-
... nse glanduloso-hirto, foliis basilaribus aut
... lisque ad medium v. magis profunde tripartitis aut
... foliolis tenuiter membranaceis puberulis, ovata-
obtusis, foliis cuneatis inferioribus basilaribus subconformi-
bus floralibus superioribus trifoliatis v. trisectis segmentis lanceo-
lato-oblo., gis et lanceolatis, floribus puberulis, sepalis 20-24 mm.
longis (in sibiricis longioribus) ovate ... olatis versus apicem
ob, usum aeunuaa, is, calcare uncinatim incur ... ae 11-13 mm.
lor • gaoapicow catae subaequilongo, antheris limbut. vlx : atting-
entibus, parastemonibus late linearibus apice obtusiusculo apiculato
minute, Urtjdb, pbffl, ... uina haud superantibus dense
glanduloso-kir is, stylo ^ Z, iore
indica refert). Floret Iunio, Mio. (... exempl, ma

Area geographica—Altai iustralis, Al, ^
ghana, Ya-rkand (?), Himalaya oc ... n, Fer-
valle Nila provinciae Garhwal alt, 8-90. Specimina vidi in
u w a Uutbieo leista.

SSI

taris

var. *ft- v a n a Maly*" (*Aquilegia vulgaris* typica et *Aquilegia rabalpina* Boreau, *Zimmerer* No. 1),

caule 35-120 cm. altitudine basim versus srlabro v. vix mberulo manifesto folioso, foliis canuinis inferioribus basilaribus Bubeonformibus, foliolis fol. bas. inf*^a subglabris v. di nsiuscale pubescentibus, folio¹o medio saepe pet Lolulato ad turtiam |arter:t v. f-are ad vmedium trilobo rarius tripartito 25-50 mm. longo lobo medio cneato--obovato v. transverse oblongo latera Libus saepius oblique o<⁰n vati>, s floribuleis intortuna] [g, sepalis. 22-31 mm. longia apice acutiusculo late acuminatis, petalorum lamina rotundato--francata v. rettisa, stamixribns petala subaequantibus v. 1-3 millimetLis superantibus, calcaribus $\frac{1}{3}$ - $\frac{1}{2}$ laminas longitudim, style apice recto v. leviter recurvo.

A?ea geographica—Yat-kand (?), Sibiria, Europa, mons Atlas.

var. *\$. recticornu P. B'*,

caule elato folioso plurifloro, foliis can¹nis fere omnibus bii er-natis vel ternatis, foliolo fol. bas. medio lato trifido v. tripartito partitionibus divergentibus lineari-oblongis louge cuneatia inciso-crenatis crenis obtusis, sepalis oblongis subobtusis circiter 2 cm. loii-gis, petalorum lamir 1)-13 mm. longis apice rofcundato-trxui-ca¹ L& staminibus limMm attrngentibus v. 3 mm. sup.jrantibus, calcaribus subulatis ra *is v. v?c incurvis larninam Bubaeqaantibus. Vidi exemplaria in 1 hebatio ivurzii e Bavaria missa; calcaria in formis norwegianis el¹u¹iter' iHcurvata inveni.

var. (. Ebneri" *Zimtr*, (*Aquilegia Ebneri*, *Zimmerer* No. 2),

caule basim versus glabrescente 25^40 cm. nit if inline, foliis bas. bite matis, foliis eaulinis inferioribus trifoliolatis v. trisectis, foliolis sessilibus v. bitaviter pcfciolulatU infra dense pubea centibus medio 19-22 mm. longo fere ad terl¹iam partem trilobo lobo medio cunt-ato-obovato, fionbus 2 ^ 4 rubescenti-caeruleis, sepalis 9 ovato-obloBgis circiter 18 mm. longis, petalorum laiina re>tundato-truncata circiter 9 mm. longa, calcaribus hunina '••citer g mm. iongioribus hamatis, stamimbua petala paullo superantibus, stylo apice uaci-nato.—Styria.

var'. *K. dinarica*" *Beck* (*A. dinarica Beck in Ann. ITofmus.*),

caule 1-2-floro, ad 20 cm. altitudine, usque a basi nti petioli pilis patentibus glanduliferis obsito, foliis pubescentibus basilaribus fcer-natia foliolis conspicuo petiolnlatis subcordatis tripartitis rarius tris octis partionibus inciso-crenatis, lloribus pilosis, sepalis ox ato-oblongis 2-3 cm. longis, alb is v. caerulescentibus patentibus, petalorum lamina caemlescenti rotundato-truncata 11-20 mm. Jonga

calcaribus graciliter conicis lamato incurvis laminae subaequilongis, staminibus fere laminae longitudine, stylis quam ovaria paullo brevioribus.—Bosnia.

var. *Neynensis* P. B.",

caule fere ad apicem usque simplici 2-3 floro 25-35 cm. altitudine it petioli basim versus parce hirsuto sub floribus glanduloso-pubescente; foliis bas. biternatis, petiolis 5-10 cm. longis, petiolulis primariis 15-30 mm. longis foliolis breviter petiolulatis v. sessilibus aut subglabris at; utriusque dense pubescentibus basi obtusis, medio subrotundo v. fere reniformi 15-18 mm. longo fere ad medium trilobo lateralibus oblique reniformibus profunde bilobis, lobis crenatis aut bi v. trilobulatis, crenis integerrimis v. paucicrenulatis obtusis v. « undato-truncatis; folio caulino infimo a basi remoto ternato, foliolis tripartitis partitionibus crenato-incisis; foliis superioribus 2 v. 3, trifolatis, foliolis oblongo-lanceolatis pedunculari lineari, sepalis 23-26 mm. Igr.; is late ovatis acutis unguicalatis, petalorum lamina truncata y. retusa 10-13 mm. longa, calcaribus uncinatis incurvis quam lamina 1-4 millimetris longioribus, staminibus limbum attingentibus, linearilanceolatis ovarii paullo longioribus, stylis apice recurvis antheras vix attingentibus.

Vidi exemplaria in Pyrenaeis lecta. Flos omnino A. vulgaris typicae, sed differ! caule subaimplid haud conspicue tonoso foliis foliolisque minoribus; ab A. Bertoloni folio caulino infimo basilari. — ins Bubconfonti (et in remotis). lamina petalorum plane truncata v. retusa discernenda. Au A. pyrenaica var. β . decipiens Grenier et Godron, cuius calcaria multum curvata et lamina retusa; an A. vulgaris var. hirsutissima quam Lapeyres in Flora Pyrenaica nasci scribit ad 'Font de Comps'?

var. *A. paraplesia* Schur (A. paraplesia Zimmeter No. c)[^]

caule 20-30 cm. altitudine basim versus glabrescente subnudo 2-3 floro, foliis basilaribus biternatis, foliolis sessilibus glabris medio basim truncato ad tertiam partem trilobo, floribus rubescenti-caeruleis (atroviolaceis), sepalis ovato-lanceolatis acutis circiter 32 mm. longis petalorum limbum rotundato-truncatum fere 18 mm. superantibus, staminibus calcaribusque lamina longioribus stylisque limbum attingentibus.—Transsylvania.

var. *nigricans* Baumgarten (A. nigricans Bmgt. = A. Sternbergii Zimmeter No. 7, = A. Haenkeana Koch)

caule 25-40 cm. altitudino 1-5 Soro I. V. ~ basim versus glabrescente, foliis biternatis, foliolis bas. saepissime subsessilibus sessilibusve glabris v. vix puberalibus, medio ad quartam tertiamve partem trilobo

basi late cuneato, lobo medio breviter oblongo v. cuneato-obovato, folio caulino infimo basilaribus saepius subconformi. superioribus subsessilibus trifoliolatis trisectisve saepe profunde incisus, floribus azureis v. dilute caeruleis v. lilacino-purpureis, sepalis 27-34 $>$ mm. longis, petalorum lamina apice rotundato-truncata v. obtusa 13-15 mm. longa, calcaribus hamato-incurvis quam lamina 3-10 ^{min-}metris longioribus, staminibus laminam 1-3 mm. superantibus, stylis apice recurvis v. rectis.—Alpes, Transsilvania.

Sunt in herbariis indicis exemplaria in Gilgit et Kunáwar lecta quae sunt valde similia *A. nigricanti*; sed calcaria sunt paullo ^{sup}ra¹ incurva et laminam ⁿ 3 millimetris tantum superant; revera fomes *A. Hoccroftianae* Will

Descriptio subspeciei.

Rhizoma descendens fusiforme irregulariter cylindricum interdum pluriceps, cortice nigra v. brunnea, collo petalorum relicto ^{uiis} veatij ^{im} et 5-2 $\frac{1}{2}$ mm. crassitudine, caules 1-3 edens. Caulis erectus superne ramosus raro simplex teres v. obscure angulatus laevis v. leviter sulcatus florifer 25-120 ^{cu} altitudine, sparsis foliis interdum subnudus, aut totus pilis crispulis v. patentissimis plus minus glandulosis obsitus aut basin versus glabrescens, nunc sine viscositate nunc insigniter viscosus. Folia basilaria conferta longissime petiolata caule florifero manifesto breviora (8-) 20-35 cm. longa; petiolula basi in vaginam lanceolatum membranaceam 7-30 mm. longam et pro insertione petioli brevem convergentem plurinerviis dilatatus supra canaliculatus 5-30 mm. longus, 1-3 mm. crassitudine, glaber v. puberulus v. glanduloso-hirtus; lamina biternata, rarius ternata atque foliolis trisectis v. tripartitis; petioli primarii tenuiter sulcati v. sulci, canaliculati, terminalis (1-) 4-9 cm. longus, 0.8-1.5 mm crassitudine, laterales $\frac{1}{2}$ - $\frac{1}{2}$ terminalis longitudine; foliola membranacea interdum textura tenuiore viridia infra pallidiora v. glauca tenuiter nervosa supra glabra v. puberula infra glabra v. puberula v. dense pubescentia; terminale longiuscule petiolulatum rarius sessile circumscriptione breviter cuneato-obovatum v. subrhombicum v. reniforme basi obtusa v. rarius acuta lato v. subanguste cuneatum v. subrotundatum, (16-) 15-50 mm. longum latitudinis $\frac{1}{2}$ - $\frac{1}{2}$ longitudinis, ad quartam v. tertiam partem palmatim trilobum v. ad medium v. ad tres partes tripartitum raro (in ternatis) trisectum, lobo medio cuneato lateque obovato v. rotundo v. breviter lineari-oblongo apice grosse crenato, crenis tribus, rarius trifido, laciniis crenisve apice obtusis v. retusis integerrimis v. paucicrenulatis; lobis lateralibus breviter oblongis v. oblique ovatis obovatisve inaequaliter bifidis v. bilobulatis v. grosse crenatis; foliola lateralia oblique obovata v. rotundato-trapezoides breviter petiolulata v. sessilia inaequaliter biloba v. bipartita, lobo interno bi v. trilobulato v. fisso, externo semel crenato-inciso crenatove lobis crenisve crenulatis v. integerrimis.

Folia caulina inferiora, si adsunt, pauca basilaribus subconformia sed brevina petiolata, superiorum petioli brevissimi saepe ad vaginam brevem reducti, folia summa saepe trifoliolata v. trisecta foliolis mediocribus v. parvis saepe ovato-oblongis v. lanceolatis integerrimis v. parce incisus; folia peduncularia, si adsunt, bracteiformia parva lanceolata. Inflorescentia rarius uniflora saepissime racemosa

v. paniculato-corymbosa et 2-15 flora, ramis patentibus v. erecto-patulis; pedunculis 3-9 cm. longi puberuli v. pilis brevibus patentissimis densissime pubescentes haud raro visciduli. Flores saepius masculi, caerulei v. caeruleo-violacei v. purpurei, rarius albi v. atro-purpurei. Sepala ovata v. ovato-lanceolata basi saepe abrupte in unguem constricta apicem versus cuneato-acutata v. breviter acuminata, apice acuto, nervis ramosis 3 percursa, 22-35, rarius 18 v. fere 40 mm. longa latitudine i-i longitudinis, petala 12-22 millimetris excedentia dorso pilosula v. glabra oblonga apice rotundato-truncato obtusa v. retusa raro plano rotundata 9-15 mm. longa; calcar conicum sed apicem versus sensim subcylindricam et uncinatim incurvum rarissima subrectum apice nectarifero capitatum, distantia a puncto insertionis ad partem inferiorem calcaris 10-19 mm. quam lamina saepissime 1-5 (-8) mm. longior raro abbrevior v. subduplo brevior. Stamina numerosa inaequilonga petala 1-3 rarius 3-10 mm. superantia v. his vix breviora; filamenta e basi dilatata gradatim angustata; antherae oblongae mucosae 1-2 mm. longae. Folliculi saepius lanceolati v. lanceolato-lineares apice acuti apiculati ovaria 1-3 mm. superantes margine plus minus undulati, interdum antheris parvis instructi. Pistilla 5-7, erecta, 12-18 mm. longa, stamina rix superantia v. his rarius paululo breviora; ovaria cylindrica 3-6 mm. IOK in stylum sensim v. subabrupte attenuata dense hirta; stylus filiformis apice rectus v. plus minus recurvus, ovarium saepissime 2-5 mm. longior raro his fere aequalis. Folliculi saepissime 5, chartacei, erecti, paralleli rarius a medio divergentim recurvi, e basi ovoides recurvo-attenuati, stylo filiformi 7-10 mm. longi rostrati, nervia obliquis creberrimis plus minus astomosantibus 8-25 mm. longi. Semina numerosa oblongo-obovoides, sectione transversa subtriangularia, dorso modice curvata, ventre carinata, nigra v. raro atro-brunnea, nitida v. rarius subopaca et granulata, 2-2.5 mm. longa. »* " mntnutlBSttienu pfliictulu.

Tabella ad varietates Aquilegiae vulgaris typicae de terminandas. i.

- I. Caulis saepius conspicue foliosus! ramosus altitudine 35-120 cm., folia caulina inferiora basilaribus subconformia saepe fere eadem magnitudine sed breviter brevissimeve (rarius longiuscule) petiolata, flores 3 v. saepius plures.
- A. Flores discolors sepalis cyaneis v. lilacinis (25-35 mm. longis ovato-acuminatis), petalorum lamina alba, calcaria non capitata.
1. Folliculi paralleli subrecti, semina nitida subtilissime punctulata.
- »* Folliculi usque a medio divergentim recurvi, semina opaca granulata.
- A. *olympica* "Boiss.
- B. Flores concolors, calcaria plus minus distincte capitata.
2. Stamina petalorum lamina multo breviora, calcar lamina subduplo brevior.
- A. *Bernard!* "Grenier.
13. Stamina pet. limbum fere attingentia v. eo r. conspicue longiora.
- a. Sepala pet. lamina fere triplo longiora ovato-lanceolata latitudine vix 1/2 longiora (circiter 5 mm. longo 12 mm. lato violaceo-caeruleo, atamhitt limbum 5 mui. superantia).

A. *longisepa* U "Zimtr.

- b. Sepala pet. lamina subduplo longiora latitudine $\frac{2}{3}$ longitudinis.
 a. Stamina petalorum limbum 3-10 mm. superantia in columnam subcylindricam associata et si 3 mm. tantum longiora flores atro-purpurei (purpureo-violascentes), caeteroqui flores saepius atro-purpurei rarius caerulei.

A. atrata" Koch.

- b. Stamina petalorum limbum fere attingentia v. eum 3 mm. superantia, flores colore vario.
 a. Caulis usque a basi, uti petioli petiolulique, dense glandulose hirtus. Flores purpurei v. cinnamoneo-rubescentes.

A. KaroHnt Baker".

15. Caulis basin versus glaber v. vix puberulus, flores caerulei.

«o. Calcar uncinatum incurvum.

A. varia Maly".

&& Ca) ar subrectum v. leviter incurvum.

A. jnticornu P. B."

- II. Caulis 20-35 raro 40 cm. altitudinis, aspectum subnuilum (praebeus propter folia caulina basilaribus saepissime manifesto in initio, in imo saepe a basi remoto. Flores 1-2 rarius 3 rarissime 4.

- A. Sepala circiter 18 mm. longa, folia infra non pubescentia.

A. Ebneri" Zmtz.

- B. Sepala plus 20 mm. longa.

- a. Caulis a basi, uti petioli petiolulique, glanduliferis obsitus, sepala alba v. caerulescentia, folia plerumque ternata.

A. dinarica" Beck.

- B. Caulis basin versus parce hirtus v. glaber, flores violacei v. caerulei v. rubescenti-cyanei.

- a. Caulis basin versus parce hirtus, foliola subtus subglabra v. utrinque dense pubescentia, sepala 23-27 mm. longa.

A. eynensis P. B."

- b. Caulis basin versus glaber v. puberulus, foliola glabra v. infra vix pubescentia, sepala (27-) 30-35 mm. longa.

- a. Flores cyaneo-rubescentes, sepala petalorum limbum circiter 18 mm. superantia, stamina limbum vix attingentia.

A. paraplesia" Schur.

- b. Flores caerulei rarius purpureo-lilacini, sepala petalorum limbum 10-15 mm. superantia, stamina limbum 1-3 mm. superantia.

A. nigricans" Bngt.

- III. *Aquilegia alpina*' Lin. (*Aquilegia vulgaris* subsp. *alpina* H. f. et T. in F. B. I. ex parte. *Aquilegia alpina* Lin.; Allioni, Flor. Ped. tab. LXVI; Reichb. Flor. Germ. tab. CXIX.),

foliis basilaribus omnibus bipinnatis, foliolis margine serratis plus minus obtusis terminali reniformi v. suborbiculari fere ad medium profunde bipartito, laciniis crenato-incisis, folio caulino infimo petiolato foliolis saepius in lacinias magis

tincte lineares incisiss, floribus subconcoloribus caeruleis 32-45 mm. longia I; te ovatis, calcare crassiuscule conico subrecto v. manifesto incurvo quam lamina truncato-rotundata paullo brevior v. longiore staminibus lamina 2-6 mm. brevioribus, carpellis 5, folliculis 25-30 ITIH. longis.

Area geographica—Alpes, Apennini boreales, (Pyrenaei montes?), Himalaya occidentalis.

var. α . typic[^], pistillis antheras vix v. haud attingentibus.

var. β . himalaica P. B., pistillis antheras 2-3 mm. superantibus.

Formae affinis A. Moorcroftianae Wall. var. suaveolenti et A. nivali Falc.

var. saccocentrae. Garhwal (K!).

Formae etiam occurrunt in Himalaya occidentali et in Gilgit, quae mediae sunt inter A. alpina Lin. et A. Moorcroftiana Wall.

Descriptio Subspeciei.

"Rhtzora fusiforme v. eul cylindricum, descendens, vaginis foliorum fasciarum plus minus tectum, collo 2-6 mm. crassitudine, caulem solitarium edens.

Caulis teres erectus rectus v. \forall flexuosus simplex v. rarius superne parce ramosus manifesto sulcatus v. esuleus, florifer 2-3 em. altitudine, prope basin 1.5-4 mm. crassitudine, plus minus foliosum, **i ifemegh** brescens v. hirtulus, sub flore dense minuteque glanduloso **so-liirtuB**.

Folia basilaria longissimo petiolate, caule manifesto breviora (5-) 10-25 cm. longa; petiolus basi in vaginam membranaceam late v. anguste lanceolatam convergentium nervosam 1-1.5 cm. longam et vix raris, petioli perbreve dilatatus, lamina aequilongior v. quadruplo longior, supra sulcatus subterea, supra vaginam 1-3 mm. crassitudine, puberulus; lamina biternata, v. folii infimi ternata sed foliolis fere ad basin tripartitis; petioluli primarii tenues v. suberassi supra tenuiter canaliculati 0.5-1 (-2) mm. crassitudine, terminalis 10-30 (-40) mm. longus, laterales $\frac{1}{2}$ - $\frac{1}{3}$ terminalis longitudine; foliola membranacea viridia, infra pallidiora, glabra v. vix hirtula marginibus plus minus esse obtegentia, terminale breviter petiololatum v. sessile circumscriptione subreniforme v. suborbiculare, aut versus basin obtusam subcuneatum aut basi subtruncatum, 12-40 mm. longum, latitudine $\frac{1}{2}$ - $\frac{1}{3}$ longitudinis, saepius fere ad medium trifidum v. ad tres partes tripartitum, lacinia media obovato-oblonga basin versus cuneata latitudine $\frac{1}{2}$ - $\frac{1}{3}$ longitudinis, apice crenato-incisa, crenis saepe parce crenulatis, lacinis lateralibus late **.bliquip**que obovatis v. breviter longiuscule linearibus inaequaliter crenato-incisis raro **integris**, lacinula externa breviter oblonga apice subrotundata saepe crenula instructa, lacinula interna saepe crenis tribus instructa; foliola lateralia rarius fere **Bymniotrica** atqn. terminali conformia, saepius **sy** symmetrica reniformia late obovata profunde bipartita, partitione externa late et oblique obovato-cuneata bifida aut bipartita, interna inaequaliter biloba lobulo interno saepius crenis 2 externo crenis tribus incisiss, crenis omnibus apice obtusis v. subacutis rarius rotundatis; folium primarium interdum foliis basilaribus Aquilegiae pyrenaeicae omnino conforme.

Folium caulinum infimum longiuscule petiolatum conspicue vaginatum, petiolo laminae saepe subaequilongio, lamina biternata v. subbiternata interdum laciniis fol. basi conformi saepius laciniis pro ratione longitudinis angustioribus ideoque magis

distincte linearibus; folia media 1-3, aut nulla, brevissime petiolata, petiolo ad vaginae reducto, lamina aut biternata et laminae folii infimi subconformi aut ternata et foliolis tripartitis v. trisectis, partitionibus aut integerrimis lanceolatis aut incisae laciniis lanceolato-linearibus subacutis; folia summa 1-2 bracteiformia linearia acuta 1-2 cm. longa, interdum nulla.

Floras magis, suberecti v. nutantes. Sepala 32-45 mm. longa (rarissime breviora), petalorum limbum 10-22 mm. superantia, late ovata, basi in unguem brevem constricta, apice acuta v. obtusa canescente-acutata aut breviter acuminata, latitudine fere $\frac{2}{3}$ longitudinis, caerulea rarius albida, v. rubescentia apice saepissime virescentia. Petala campanulata efficientia, lamina late obovata apice truncato-rotundata 13-20 mm. longa, sepalis magis dilute caerulea; calcar crassiuscule conicum versus apicem subcapitatum sensim attenuatum 10-25 mm. longum suberectum v. saepius incurvum rarissime fere uncinatum interdum lamina paullo brevius saepius ea 1-6 mm. longius sub apice saepe 1-2 mm. crassitudine. Stamina numerosa (40-50) inaequilonga, longiora lamina petalorum 2-6 mm. breviora, glabra; filamenta a basi plus minus dilatata gradatim attenuata, longiora (3-) 8-12 mm. longa; antherae oblongae muticae fere 2 mm. longae fusco-virentes. Parastomones lanceolati undulati apice acuti 7-10 mm. longi, ovaria superantia, interdum pistilla subaequantia, Pistilla 5 erecta 10-13 mm. longa, stamina superantia v. aequantia interdum his breviora; ovaria subcylindrica 6-7 mm. longa dense jivita; styli sibilati infra hirti, ovario paullo v. 3 mm. breviores, apice recti v. leviter recurvi.

Folliculi 5, subparalleli, e basi ovoidea apicem versus attenuati, 25-30 mm. longi, hirti v. pubescentes, stylis, 5-8 mm. longis *voav*-ati.

Semina nigra, nitida, obovoidea.

IV. **Aquilegia Bertolonii**, *Sekntt* (Aquilegia pyrenaica Bertoloni, et Reichb., Ic. Fl. Geim 4732; A. Bertolonii Schott; A. Renteri Boiss.),

foliis basilaribus saepissime biternatis, foliolis margine ses3 obtegentibus, terminali late obtusifolia trilobo 12-20 mm. longo, lobis crenatis crenis mediis rotundatis v. retusis, folio caulino infimo (fere semper) basilaribus multo minore trifoliolato foliolis lanceolatis integris v. fissis, inflorescentia 1-4-flora, floribus concoloribus, sepalis ovatis 24-30 mm. longis, petalis rotundatis v. subtruncatis, calcaribus conico-subulatis hamato-incurvis, laminae subaequantibus v. ea paullo longioribus, folliculis 12-15 mm. longis.

Descriptio subspeciei.

Rhizoma fusiforme collo, reliquiis foliorum plus minus tectum. Caulis erectus simplex v. superne modice ramosus vix sulcatus 15-50 cm. altitudine subnudus, apud basin versus glabrescens a it botaa tenuiter patentimque glanduloso-pubescentia.

Folia basilaria longissima petiolata; petiolas basi in vaginae lato lanceolatam brevem dilatatus, 4-20 cm. longus, glaber v. villosopubescentia; lamina biternata, rarius ternata, foliolis reniformibus profunde trilobis v. trisectis: petioluli primarii saepe villosi, intermedio 8-30 mm. longo, lateralibus fere $\frac{2}{3}$ terminalis longitudine; foliola sessilia v. breviter petiolata, textura subfirma, supra viridia et glabra, infra pallidiora et glabra v. puberula, margine sese obtegentia, ad marginem interdum

elliptica; terminale foliorum biternatum late triangulare basi saepe obtusa lato cuneatum 12-20 mm. l. ... latitudinis, ad tertiam partem v. » d medium regulariter v. irregulariter trilobum, lobo medio breviter oblongo saepissi- mo crenis tribus integerrimis v. vix crenulatis inciso, lobis lateralibus breviter ob- longis v. subobovatis crenis binis inaequalibus praeditis; foliola lateralia asymmetrico lateque obovata v. subreniformia terminali angustiora v. latiora basi late cuneata v. obscure cordata, ad tertiam partem v. fere ad basim inaequaliter biloba, lobo interno tri- externo bicrenato, crenis foliolorum omnium intermediis apice apiculato v. mucico rotundato-truncatis v. retusis, lateralibus obtusis.

Folia caulina saepissime basilaribus dissimilia; infimum, si est foliis bas. simile, paul. him a basi caulis remotum; folium infimum saepissime basilaribus multo minus, trifoliolatum, foliolis lanceolatis, intermedio integro v. trifido, lateralibus interdum bifidis; superiora simplicia lineari-lanceolata, pedunculata 8-1:3 mm. longa. Flos lilacinus v. caeruleus, solitarius v. inflorescentia 2-4 flora corymboso-racemosa. Pedu- neuli graciles, laterales interdum 15 cm. longi, visciduli.

Sepala ovata v. ovato-oblonga, apice acuta v. brevissime acuminata, basi in unguem conspicuum constricta, 24-30 mm. longa, latitudine circiter 1/2 longitudinis, dorso puberula, petalor. im liin bum 6-10 mm. superantia. Petalorum lamina apice rotundata v. subtruncat. (U-2) mm. longa; calcar e basi conica subulatum hamu- tun rarius eviuu ha curvum), laminae aequilongum v. ea paullo longius. Stamina petalorum limbum aequantia v. saephto cu 1-7 mm. breviora; filamenta angusta, longiora circa 1 cm. longa; antherae oblongae, 1.5-2 mm. longae, mucicae. Para- stemonones lanceolati, apice apiculato obtusi II. acuti, vix v. manifesto undulati, 7-8 mm. longi, ovarii subaequilongis. Piatilla 5; ovaria obato-oblonga, 7-8 mm. longa, hirta, in ^ylum subulatum levitor recurvum ovarii fere dimidio breviorum gradatim attenuata. Folliculi 5, 12-13 mm. longi, hirti.

Area geographic ft—Appennin Alpes pedemontani et maritimi, (Pyrenaei montes?).

haec subspecies congeries esse videtur formuruii mediar am; nam noi solum folia similia aunt foliis A. pyrenaicae, sed transitus etiam mil nadverti pcissunt partim in stirpes appenninas A. alpinae floribus quam in formis ty picia minoribus atque caluiribus multura c urvatis, foliis tamen caulinis A. alpinae genuinae, partim in A. Einseleanam, is calcaria haud raro fere hamata sunt A. A!initatibus minus artis riam cum A. nigricanti et A. cynensi connexa. Stirpes in Afghanistan orientali crescentes et varietatem subspeciei Meorcroftianae efficiunt; and ra-ro A. Ber tolonii valde similes, sed calcaria recta vel vix uU% va la.

V. **iquilegia** Trtscosa- Gouan, (Aqui, egia glandulosa, G ouan Illustrationes botan. 19 fig. 1, Flor. Mon, p. 267, -A O M legia Einseleana Schott = A. 1) yrmal: Koch = A. Kitai- beHi Nyman ex = A. pyrenaica var. r. y3 decipiens f' / « « ; „ A. glandulosa W. et Kit. A. pyrenaica Visiani; A. tliatfolia Scfto; (t),

foliis bx.Uu-ibus aapissime bitornat^, foUolis subdist^ntibus

brevissime petiolatis v. sessilibus, terminali triangulariter enneato-
obovato latitudine $\frac{1}{2}$ - $\frac{2}{3}$ - $\frac{1}{3}$ longitadinis, folio caulino infimo (v.
altero) ternato foliolis segimentisve lanceolatis v. oblanceolatis,
summis lanceolato-linearibus, floribus parvis v. medioeribus cae-
ruleis v. lilaceis, sepalis oblongis v. oblongo-lanceolatis 14-27 mm.
longis, petalorum lamina rotundata 9-16 mm, longa, calcaribus
retincur vis neque uncinatis, staminibus pet. lamina 2-6 mm.
brevioribus, folliculis 5-6 cylindricis patulis 8-15 mm longis.

Atea greographica—Mantes Europae & centralis. In Hinninon
invenitur; sed varietas A. Moutanensis a nobis Winterbot-
tomiae alicubi quoad folia valde similes. Haec A. thalictrifoliae, et varietati
altera, subaphylla, caule foliisque glanduloso-hirtis inscripta, A.
viscosam typicam in mentem revocat.

var. a. *Einseleana* Schulz,

foliolis foliorum basilarem internodiorum infra glabris v. par-
tibus subdense glanduloso-juberculatis ad quartam vel tertiam
partem raris ad medium usque trilobis lobis saepissime rotundatis
v. rotundato-subquadratis v. cuneato-obovato-oblongis, foliis caulinis
aut minimis aut conspicuis foliis basilariibus subminoribus sed
segmentis majoribus linearibus, superioribus saepius trisectis v. simp-
licibus segmentis oblanceolatis. Linearibus, calcaribus laminae sub-
aequilongis raris fere eius longitudine, folliculis subpaucis gla-
nduloso-hirtis.—Alpes, Gallia austr.

var. p. *thalictrifolia* Schott,

folia glanduloso-hirta et ciliatis, foliolis mediis fol. has. ad
medium v. tertiam partem trifida longe et saepe subangustis cun-
ceatis laciniis linearibus oblongis inciso-serratis, foliis caulinis inferiori-
bus nonnullis foliis basilariibus subconformibus sed tacinis ma-
ioribus linearibus, superioribus bifoliatis v. trisectis segmen-
tis lanceolatis, calcaribus laminae aequilongis v. paulo brevioribus, folliculis vis-
coso-hirtis.—Alpes.

var. y. *Kitaibellii* Schott,

foliolis foliorum basilarem villosopulverulentis, foliis caulinis
nullis vel 1-2 linearibus v. infimis ciliatis, calcaribus laminae fere
duplo brevioribus, folliculis duobus hirtis.—Croatia.

Descriptio subspeciei.

Rhizoma directione varia, Bubumfojme, a tiobrunneum, foliorum reliquiis plus
minusve vestitum, caules 1-2 dens. Caulis simplicis v. superne ramosus teres
laevis v. vix sulcatus, flarifer altitudinis 12-50 cm. prope basim 1-2 mm. crassitudi-
ne subnudus supra basim aut glabrescens aut villosopubescentis atque pilis minus

glandulosus aut parce v. densiuscule glanduloso-hirtus; rami, ubi adsunt, graciles piluli.

Folia basilaria longissime petiolata 3-20 cm. longa; petioli basi in vaginam lanceolatam membranaceam 3-7 mm. longam et pro ratione petioli brevissimam convergentim nervosam dilatati, basi breviter canaliculati subteretes, 2-14 cm. longi, 0.5-1.5 mm. crassitudine, subglabri v. pilulosi v. parce glanduloso-hirti; lamina ternata v. biternata, foliis biternatorum subdistantibus; petioli primarii tenues leviter sulcati, terminalis 2-45, saepius 5-15 mm. longus, laminae aequilongus v. manifesto longior, laterales terminali aut aequilongi aut subduplo breviores; foliola textura firmiora, aut parte utraque glabra aut supra glabra infra puberula v. plus minus glandulosa aut utrinque glandulosa-pubescentia infra pallidiora; foliolum terminale foliorum biternatorum brevissime petiolulatum v. sessile, triangulare cuneato-obovatum, (5-) 9-20 (-25) mm. longum, versus basim acutam v. obtusiusculam insigniter cuneatum, latitudine $\frac{1}{2}$ - $\frac{1}{3}$ - $\frac{1}{4}$ longitudinis, apice vix ad tertiam partem v. paullo ultra medium trilobum v. trifidum, lobo medio subquadrato v. lineari-oblongo apice crenis tribus obtusis v. rotundatis inciso, lateralibus breviter semi-obovatis v. lineari-oblongis integerrimis v. crenis binis inaequaliter incis; foliola lateralia subsessilia v. plane sessilia asymmetricè obovata rarius subtrapezoiden inaequaliter biloba v. rarius bisecta, lobo interno subobovato trifido v. saepissime crenis ternis subinaequalibus inciso, lobo externo bifido v. saepissime integerrimo biterenato; foliola foliorum basilarium ternatorum subreniformia v. semiobicularia, basi truncata v. subcordata, ad duas partes v. fere ad basim palmatim tripartita partitione media cuneato-obovata lateralibus oblique obovatis, omnibus crenatis v. crenato-lobatis.

Folium caulinum infimum interdum folia basilnribns i conforme v. saepius ternatum foliis segmentisve lanceolatis v. oblanceolatis interdum longissime cuneatis, aut integerrimis apice obtusis, aut incis; folia intermedia subsessilia, petiolo ad vaginam reducta, trifoliolata, foliis breviter petiolulatis, aut integerrimis atque oblanceolatis apice rotundatis obtusis acutisve, aut rarius basilariibus conformibus sed minoribus, aut parce incis; folia summa bracteiformia saepissime integra lanceolato-linearia 3-14 mm. longa.

Flora parvuli solitarii v. 2-5-10 in racemum paniculamve subcorymbosam laxissimam dispositi, nutantes v. suberecti, caerulei v. violacei; ramis laterales inflorescentiae gracilibus infimo interdum 20 cm. longo. Pedunculi apice dense viscoso-hirti. Sepala olliptico-oblonga v. oblongo-lanceolata, apice acuto breviter acuminata, basi in unguem brevem constricta, 1-27 mm. longa, latitudine $\frac{1}{2}$ - $\frac{1}{3}$ longitudinis, glabra v. dorso vix puberula, petala 3-14 mm. superantia. Petalorum lamina obovato, apice saepissime rotundata rarissime rotundato-subtruncata; calcar subulatum apice nectarifero capitatum, rectum v. manifesto incurvum neque tamen uncinatum quam lamina 2 mm. longius vel 1-16 mm. brevius, $\frac{1}{2}$ - $\frac{1}{3}$ laminae longitudine. Stamina numerosa inaequalia, limbo petalorum 2-6 mm. breviora, glabra; filamenta a basi medice dilatata in apicem filiformem angustata; antherae oblongo-ellipsoiden circa 1.5 mm. longae muticae v. distincte apiculatae flavae. Parastemonen lanceolati 6-7 mm. longi apice acuti, plus minus undulati, ovaria superantes. Pistilla 5-6 erecta, 7-10 mm. longa; ovaria cylindrica dense hirta; styli filiformes, apice recti v. ad ultimum recurvi, infra hirti, ovario subaequilongi.

Folliculi 5-6, cylindrici, patuli, apice rotundato obliquo, stylo persistenti filiformi 4-6 mm. longo rostrati, nervoso-reticulati, 12-15 mm. longi, pilulosi v. glanduloso-hirti.

VI. **Aquilegia grata'** 37^{ly}, (*Aquilegia grata Maly* in Zimmeter, *Mon-Aq. No. 13*).

C. mc 12-25 cm. altitud^lae, uti petioli petioluli foliola, usque a basi glanduloso-hirto, foliis basilaribus biteruatis, foliolis magnis rotundato-deltaideis margine sese plus minus obtegentibus, f. His cau Linia inf. basilaribus subconformibus, floribus 3-5 pallide caeruleis, sepalis circiter 2 cm. longis ovatis, fere 1.5 cm. petala superantibus, pet. lamina circiter 6 mm. longa, calcare recto I v. p;iu]lm^a incurvo quam lamina subduplo longiore, staminiibus limbum superantibus, folliculis brevibus.—Croatia, Serbia.

VII, **Aquilegia pyrenaica'** £0. (*Aquilegia pyrenaica DC.* nec *Koci* neque *Bertoloni* nec *Visiani*).

caule 10-10 era. i ltitudine simplici v. subsimplici subbaudo v. vix folioso, foliis basilaribus ternatis v. saepius biternatis foiiulis approximatis v. margine sese obtegentibus glaberrimis v. infri vix puberulis, terminali late rhombico v. subreniformi basi late CUMato v. subcordato 3-18 mm. long», iuflorescentia uni v. paucifloia, floribus concoloribus caeruleis rarius iisculuril-us, sepalis ovatis [a 1(j-^6 mm. longis, pctalumM lamitii apice truncato-rotundata v. plane rotundata, calcare recto v. leviter hicurvo. staminibus lamina brevioribus, oai'pullis Tere 5 hirtis, folliculis subparallelis 12. 1.5 mm. longis.

var. a. vera, floribus coucoloribus, sepalia sa<pius plus 2 cm, (aed etiam 16 mm.) longis.

var. j8. discolor" *Leviar et Ler.* floribus discoloribus, sepalis vix 2 cm. longis.

Vidiniu=? esemplajia rara subsp. >ivalis, e Kaslimiria allata, a var. a. j i minus subspeciei nullo modo distinguenda.

Descriptio subspeciei.

Rhizoma horizontale v. descendens, simplex, fusiforme v. cylindricum, atro- >rtiineuin, crassitudine 2-5 mm., coLo foliorum reliquiis vestitum, caulem solitarium odens.

Caulis erectus simplex v. apice vix ramosus subteres sulcatus plus minus fistulosus, florifer 10-25 (30) cm. altitudine, prope basim 1-2 mm •crassitudine basi foliosus, iinfra inflorescentiam i iudaa v. foliis iino allerovo instructus, subglaber v. puberulus.

Folia basilaria longissime petiolata sed caule saepissime manifesto breviora raro eum aequantia 3-15 cm. longa; petiolulus basi it. vaginam membranaceam lanceolatam 6-15 mm. longam et pro ratione petioli brevem convergentim plurinerviam dilatatus, 2-12 cm longus, 0.7-1.5 mm. crassitudine, supra leviter canaliculatus, puberulus glaber; lamina aut ternata atque foliolis trisectis v. tripartitis, aut saepinabiteruata; petioluli primarii v. ter sulcati glabri v. subglabri, terminalis 7-15 mm. longus, lateales 2-3 terminalily longitudiuo; foliola momb^lanacea, valde approximata et

gese milrgine obtegentia supri viridia, ^{infra} pallMiora v. glanoa, fjiaberrfma v. infr.
 yix pu¹berala, lobis vix distantil>ua v. sese ; ; ttinge ntbos v. paullam so obtegentibus ;
 termiu ale late ribe imbeam v. sabrenifonae, basi late cuneatum v. subcordatam v. rotun-
 dato-truncatum, 3-18 mm. longam, latitndixu }-} longitudinis saepissime latiore
 juamlo ngiore, ad tertiam p ortem v. ad medium trilobum v. ultra mediuja triparti-
 tim v. raro ad basin: usque trisectu tn, lobo medio ob>ovato a pice aabtrncato crenis
 tribus ihstrueto, lotus lateralibun brevitor obloiiis v. obliquo obovatis saepissime
 JMi-iso-lobulatis lobulia parce crenatis v. rarius integerrimia, petiolulo subnullo v.
 1-5 mm. longo, uci laterales, glabro v. pilosulo; foliola lateralia brevius petiolulata
 v. sessilin rcniformia v. late tropezoidea v. asymmetricice truncato-obovata profunb;
 Enaeqaaliterqae bipartita, partitio intima obliquo triiin^ulari v. aabrenifonni
 Baei>e bifidft v. lobulis tribas crenato-incisa, partitione externa obovato-oblonga v.
 seinio^ata saepissime lobulis bunis incisa, lobulia erettis* o hanc! raro parce et sub-
 ob>ure crenulatis apice late obtusis v. rotundatis v. Bubretu sis.

Folia caulina inferiora uno alterove longe v. breviter petiolata, foliis radicali but
 ant oonfirmia aut simpliciora aut plane nulla; superiora (floralia) breviter brevis-
 gJnie v. petiolata, petiolo saepius ad vaginam brevem reduct. .^{littl} : ma aut trifoliolata
 am trisecta, foliolis v. segmentis trisectis divisionibus lineari-lanceolatis apice acutis
 v. Buliobtuais, en nma v. omnia saepe integra lanceolato-linear ia 7-12 mm. loi
 Infl orescentia uni v. pan ciffora, floribus medioeribus nntanl ibus v. Baborectia, i
 Pcoloribus caeruleis v. petalis discoloribus. Pedunculi glanduloso-pubescentes.
 Se pala hii e ovata v. ovato oblonga, basi in unguem brevem contracta, apice subacuto
 brevit. racun;inata, nervis tribus rimosiasimi s percursa, 16-26 mm. longa latitudine
 }-} (-1)' longitudhtis, petula 5-11 mm. saperantia. Petalornm Lamina: obovato-
 oblo oga v. plane oblonga apice troncato-rotundata v. plane rotundata, 10-16 mm.
 l jnga; calcar o basi H bangi ista conieo-anbulatam, a]pice nectarifero vix ca]litatuin
 rectom v. leviter innrvum, 15-20 mm. longam, }-} laminae lougitu* line, sub apice
 0.5-0.8 mm. oragsitadine. Stamina numeroaa ral de inaequalia, longiora pet Jorum
 lamini i 2-4 mm. breviora, flamer; a e bu^i modice dilatata in apicem subfiliformem
 gradatim attenu kta, longiora 7-11 mm. longa; anthe me etliptico-(>'longae 1.5-2 mm.
 longae apice rotundato muticae. Parastemones ovato-lanceolati v. lineares acuti
 un lulati 7-9 mm. longi, i varia superantes. Ptofcifla 5 ereota 8*5-10 mm. longa,
 stamin, il)as U'quilonga v. ea pauUo superantia; ovaria 1r-5 mm. Ioiiga aagosfce
 ovoideo-oblonga glanduloso-hirta; styli filiformes subrecti infra hirta ovario sul-
 leqoilongi v. subduplo longiore.

Folliculi 4r-5, subparalleli, aubcylindrici, apieem versos modice atte uati, sub-
 obliqoi, nervo8o-j eticulati, glanduloso pubesoentes, 12-15 mm. longi.

VIII. *Aquilegia nivalis*' *Falconer* (A. mvalis *Jalc. in* i herbaric
 Kewensi de sente »tia Bakeri),

caule 3-30 cm. altitudine 1-v. rarius 2-floro, foliis basilaribua
 plerisq^{ue} biternatis, folioliia margine eese obtegentibus 1-16 mm.
 louffiS) medio deltoideo v. reniformi basi obtuso v. subcordafco fere
 ad medium trilobo, lobis lobulatis v. crenatis, crenis ovatis et rotun-
 dato-sul>iuadrati8, foliia eauliuis paucis v. nullis vagina oonspicua,
 sepalia sLetlatim patenfeibna 12-24-40 mm. luugis 'late ovatis v.
 oblongia api«e obtusis v. subacutis, petalia apice ti-uncatis sinnatis
 retusia cinargmaliri, calcare uuciuato v. recto coiiieo v. oyludrico

v. saecato, staminibus saepioribus, una l. carpollis hirbis,
 i'otii culis circiter 5 i'oro 1*6 cm. longis.

var. *α*. **paradoxa** P. #.,

saecato spe caospitoaa, caale fiorifero 4-16 (-24?) cm. fclfcifcudine, sepalie
 (12-) 20-25 mm, lonL'ia, calcai'e aut uncinato "'it "'coin aul incurvo
 et ten in v. crassiuscule cylindricoo, Himalaya occidentalis, Gilgie.
 Leeta in **Gilgit** (*Giles sub nominibus A. glauca var. nivalis et A.*
vulgaris var. pubiflorae): Kiislunii¹ {liorb. i'ale! H. Sah! Winter-
 bottom. ')}; **Tibetia occidentalia** (Zf. S. / 0. JWO. 58!); Kuiuiv^{rar}
 (Sex!).

var. *β*. **saccocentra** P. 7³.,

caule fiorifero 20-30 cm. altitudine, sepalis 35-40 mm. longis,
 calcare saecato medio 3-4 mm. crassitudine. la vaile fluiuinis
 Ohonab alt. 11000 pod. {B. I)

Descriptio subspeciei.

Hiizonm fusiforme v. irregulariter cylindricum, descendens v. horizontale, sub-
 gracile v. percrassum, atro-brunneum, saepe pluriceps, collo vagina foliorum delap-
 sorum dense vestitum, caules 1-3 edentia.

Caulis erectus v. ascendens, simplex v. Hub.-implex saepissimo uniflorus interdum
 biflorus, nudus v. folium unum alterumve edens, 3-30 cm. altitudine, prope basim
 1-2 mm. crassitudine infra aut dense glanduloso-hirtus aut pubescens aut glaberr-
 mus, sub flore semper dense glanduloso-hirtus.

Folia basilaria longissime v. parti)u longo petiolata; petiolas basi in vag iimni
 membranaceam brunneam 1-2 cm. longam convergentim plurinerviam dilatatas supra
 basim leviter canaliculatas striatas (1-) 2-8 cm. longas, 0.5-1.3 mm. crassitudine,
 glaber v. hirsutus: lamina biternata v. folii unius alteriusve ternata; petioluli
 primarii striati glabri v. plus minus pilosi, terminalis 2-20 mm. longus; foliola
 marginibus sese obliquentia tenuia 3-16 mm. longa supra viridia infra pallidiora
 glabra v. vix pilosula, mediam reniforme v. deltoideum v. semiorbiculare basi lata
 obtusam v. subcordatum rarius manifesto cuneatum circiter ad medium regulariter
 v. subirregulariter trilobum latitudine $\frac{1}{2}$ - $\frac{2}{3}$ longitudinis, lobo medio obovato plus
 minus cuneato raro subintegerrimo (in foliis paucis tantum) saepissimo trilobu-
 lato, lobis lateralibus oblique obovatis v. late irregulariterque obtriangularibus saepius
 bilobulatis, lobulis integerrimis v. plus minus crenatis; foliola lateralia oblique
 reniformia latitudine $\frac{1}{2}$ - $\frac{2}{3}$ longitudinis, basi subcuneata v. obscure cordata, plus
 minus profunde (interdum ad basim usque) irregulariter biloba, lobo interno
 subregulariter trilobulato v. tricrenato, externo bilobulato, lobulis crenatis v. sub-
 integerrimis, creulis foliolorum omnium breviter ovatis v. mediis rotundato-sub-
 quadratis plus minus obtusis v. rotundatis.

Folium caulium im inii mum, aut unicum, (ubi adest,) longe v. longissime petiola-
 tum minusculum v. parvum, foliis basilaribus interdum omnino conforme, saepius
 flori approximatum, petiolo baai a vaginam conspicuam lanceolatam dilatato L-2J³
 cm. longo, lamina saepissimo ternata, foliolis nunc tripartis sectisve et foliolis folus
 bas. subsimilibus, nunc bi- v. trifidis laciniis lanceolatis nunc lanceolatis integerrimis;
 folium caulium summum (v. unicum) saepe lineari-lanceolatum 8-12 mm. longum
 petiolo ad vaginam coispitium i edacto.

Flos maniacal., s magnusve v. mediocris plus minus nutans.

Sepala stellatim patentia, late ovata v. ovato-oblonga, basi in unguem brevem constricta, apice obtusa v. acutiuscula interdum brevissime acuminata. (15-) 20-40 mm. longa, latitudine ($\frac{1}{2}$ -) $\frac{1}{3}$ - $\frac{1}{2}$ longitudinis, petala 6-12-22 mm. superantia, caerulea, dorso puberula v. glabra. Petalorum lamina obovato-cuneata apice truncata plus-minusve sinuata v. retusa v. emarginata 7-12 mm. longa purpurea v. violacea; calcaria aut e basi brevi ample conica in apicem tenuem uncinatim incurvum $\frac{1}{4}$ - $\frac{1}{3}$ la' minae longitudine attenuata, aut a basi conoidea tenuiter cylindrica incurva v. subrecta aut saepius crassiuscula conica leviterque incurva laminae subaequilonga, aut tenuiter conica v. fere cylindrica lamina paullo longiora, aut saccata laminae subaequilonga v. paullo breviora, apice aut conspicue capitata aut obtusissima. Stamina longitudine inaequalia, petalorum lamina paullo breviora raro eorum limbum 1 mm. superantia; filamenta e basi paulum dilatata sensim in apicem attenuata, longiora 6-8 mm. longa; antherae elliptico-oblongae, exteriores saepius naaiores, apice muticae, fere 1 mm. longae, flavae v. fusco-virescentes. Parastemonones lineares v. lanceolati plus minus undulati apice acuto apiculati 5-7 mm. longi, filamentis longioribus breviores, ovaria superantes, unus alterve saepe anthera parva instructus. Pistilla 5, staminibus breviora v. ea 5 mm. superantia, 9-14 mm. longa; ovaria subcylindrica 4-5 mm. longa dense glanduloso-hirta, in stylum subulatum ad altitudinem variam hirtam ovarii $\frac{1}{4}$ - $\frac{1}{2}$ longitudine apice ad ultimum plus minus uncinti: im recurvum subabrupte attenuata.

Folliculi 5 (v. plures?) suberecti, e basi ovoidea in apicem oblique truncatum p'ullum attenuati, conspicue transversim reticulato-nervosi, sine stylo circiter 1.5 x. longi, hirti, stylo filiformi (fere 5 mm. longo) rostrati.

Semina obovoidea, laevis, nigra, (subopaca), circiter 1.5 mm. longa.

IX. *Aquilegia glandulosa* Fisch. (*Aquilegia glandulosa* Fischer, Zimmeter No. 10; *A. jucunda* Fischer; *A. Gebleri* Besser; *A. transjilvai* Schur, Zimmeter No. 5; *A. Fussii* Zimmeter; *A. sulphurea* Zimmeter No. 9, *A. aurea* Janka. Icones: Delessert Icones vol. I tab. 48?; Sweet, Br. Fl. Gard. vol. I tab. 55; Edwards' bot. reg. vol. X, tab. L9; i'ore des Serres, vol. V, 535),

caule 12-40 cm. altitudine 1-5-floro, foliis basilaribus biternati3, foliolis margine sese obtegentibus rarius subdistantibus, medio tats trian.rulari v. reniformi rarius rhombico v. obovato-cuneato trilobo latitudine saepissime $\frac{1}{3}$ - $\frac{1}{2}$ longitudinis, crenis mediis rotundatogu; quadratis v. brevifec oblongis, folio caulino infimo saepissime brevissime petiolato subtrifoliolato, floribus magnis v. mediocribus, sei palis stellatim patentibus late ovatis v. ellipticis 16-45 mm. longis, petalornm lamina apice rotundata raro obtusa, calcare uncinato $\frac{1}{4}$ - $\frac{1}{3}$ laminae longitudine, staminibus lamina 2-II mm. brevioribus, carpel!is (5-) 6-12 glanduloso-hirtis, folliculis 2-3 cm. longis-

v<r. a. iUClinda" / *Aquilegia glandulosa* var. *discolor* DO.),
caulfi pl'is minus glanduloso-pube centi, foliolis saepissime margine sese obtegentibus terniinali roniformi basi saepissimo 3ub-

cordato v. subtruncato, plus minus glandulosis, floribus discoloribus lamina alba v. ochroleuca calcare $\frac{1}{2}$ – $\frac{1}{3}$ laminae longitudine. Sibiria.

var. **A vera**", (A. glandulosa Fisch., Zimmeter. No. 10),
caule foliis JUG uti in a, foliis concoloribus azureis v. caeruleis,
calcare $\frac{1}{4}$ – $\frac{1}{2}$ laminae longitudine. Variat floribus magnis v. medio-
cribilibus.

subvar. aa. lamina petalorum elliptico-oblonga apice obtusa,
(= A. glandulosa typica Fischeri).—Sibiria.

subvar. *ft. ft.* lamina petalorum oblongo-obovata apice rotunda
v. rotundato-truncata (= A. iucunda Fischer ex parte).—
Sibiria, Transsilvania.

var. **y. sulphurea**" Zimmeter, (A. aurea Janka, Zimmeter 19.),
foliis sessilibus paucis obtusis inciso-crenatis, terminalibus
oblongo-ovatis versus basim cuneato saepius plus longiore quam latiore,
floribus magnis concoloribus sulphureis v. aureis, pedunculis glabris,
calcare fere $\frac{1}{2}$ laminae longitudine.—3 Macedonia.

var. **o transsylvanica**" Schur, (A. transsylvanica Schur, Zimmeter
No. 5; A. Fussii Zimmeter),

foliolis sessilibus paucis v. vix distinctis, terminalibus late
rhombicis v. eubreniformibus, pedunculis puberulis v. glabris, floribus
multis concoloribus violaceo-caeruleis, calcare $\frac{1}{2}$ – $\frac{1}{3}$ laminae longi-
tudine.—Transsilvania.

var. **e. Gebleri**" Besser (P),

foliis sessilibus paucis v. vix distinctis, terminalibus late
rhombicis v. eubreniformibus, pedunculis puberulis v. glabris, floribus
multis glanduloso-pubescentibus, floribus concoloribus caeruleis,—
Sibiria (Gebler!).

Descriptio subspeciei.

Rhizoma fasciforme* degenclens collo foliorum reliquis obtectum.

Caulis erectus simplex v. superne modico ramosus strictus v. vix flexuosus
subteres leviter sulcatus, florifer 15–40 cm. altitudine, prope basim 1–4 mm. crassi-
tudine. Anthera totus glaber aut saepius parte inferiore glabrescente sub flore
pubescens v. glanduloso-hirtus aut basim versus hirtulus apiceque glanduloso-
subtomentosus, subnudus v. parce foliosus.

Folia basilaria longissime petiolata, caule manifesto breviora, 10–30 cm. longa;
petiolus basi in vaginam membranaceam lanceolatum v. ovatum 1–2 cm. longam
convergentim inter nerviam branneam dilatatus, subteres, supra canaliculatus, 7–20
cm. longus 1–3 mm. crassitudine, glaber v. puberulus v. glanduloso-hirtulus; lamina
bitermata; petioluli primarii supra canaliculati, puberuli v. anthera glabri, terminalis
1–4 cm. longus, laterales $\frac{1}{2}$ – $\frac{1}{3}$ terminalis longitudine; foliola membranacea tenuiter
palmata margine saepe obtusis v. rarius subdistans, supra viridia infra

pallidiora, aut utrinque glabra aut supra glabra et infra ad nervos praecipue et prope basim pilosula; terminalis sessilis v. breviter petiolulatum, rarius subrhombum v. obovato-cuneatum saepissime late btriangulare v. reniforme, aut basi obtusa lato cuneatum aut obscure cordatum, vix ad tertiam partem v. ad medium usque regulariter v. irregulariter trilobum, 1-3 (-4) cm longam latitudine $\frac{1}{2}$ raro $\frac{3}{4}$ longitudinis, lobo medio obovato-cuneato v. breviter lineari-oblongo latitudine $\frac{1}{2}$ longitudinis apice crenis tribus regulariter v. saepius irregulariter inciso, lobis lateralibus semiovatis v. saepius transverse oblongis obovatisve bilobulatis lobulis inciso-crenatis; foliola lateralia sessilia v. subsessilia asymmetrico reniformia ad medium v. fere ad basim bi- v. triloba, basi latissimo cuneata v. subsemicordata, lobis medio-crenatis, ovatis v. subobovatis, nodis rotundato-subquadratis v. transverse longitudinaliterve lineari-oblongis lateralibus breviter oblongo-ovatis, apice obtusis v. rotundatis saepe leviter rotatis; petioluli secundarii, ubi adsunt, haud raro magis pilosi quam primarii, terminalis subcaillus v. 8 ium. longus, laterales saepe nulli semper terminali breviores.

Folium caulium infimum interdum longe petiolatum basilaribus subconferme, saepius fere a caulium inferiora, ubi adsunt, brevissimo petiolata petiolo ad vaginam reducto, lamina subtrifoliolata, foliolis aut trisectis aut integris segmentis foliolisve lineari-lanceolatis; folia summa bracteiformia sessilia trisecta v. saepe lanceolato-linearis raro ovato-lanceolata 3-5 mm. longa, in pedunculis lateralibus praesertim haud raro duo plus minus approximata v. fere opposita.

Flores solitarii v. 2-3 (-5) in racemum subcorymbosum dispositi, nutantes v. erecti, mediocres v. magni. Sepala stellatim patentia, nervis tribus valde ramosis percurta lato ovata v. elliptica, basi in unguem perbrevev constricta, apice acuta v. subobtusata saepe brevissime acuminata, 16-20-45 mm. longa latitudine $\frac{1}{2}$ longitudinis, azurea v. dilute caerulea raro aurea v. sulphurea v. albida, dorso glabra v. puberula, apiculo plerumque albicante v. viridi, petala 6-22 mm superantia. Petala aut concoloria caerulea purpurea albida aurea sulphurea aut discoloria calcareo azureo v. dilute caerulea ne laminae alba v. ochroleuca, dorso glabra v. puberula; lamina aut obovato-oblonga apice rotundata raro rotundato-truncata aut elliptico-oblonga in apicem obtusum attenuata, 10-27) mm. longa; calcar late conoidum apice capitato uncinatum incurvum, laminae rarius subaequilongum saepius $\frac{1}{2}$ rarius $\frac{1}{3}$ laminae longitudine. Stamina numerosa longitudine inaequalia lamina 2-6 raro 11 millimetris breviora glabra; filamenta longiora 8-11 mm. longa, a basi vix dilatata gradatim attenuata; antherae oblongae 2-5-3-5 mm. longae muticae flavae. Parastemones lineari-lanceolati v. lineares, apice acuto apiculati, undulati 7-9 mm. longi, filamenta longiora aequantes v. iis manifesto breviores, ovaria distincte superantes interdum apicem styli attingentes, apice haud raro antheris parvis globosis instructi. Filicilla 6-12, erecta, Blipi a stamina vix v. 1-3 mm. prominentia raro iis breviora, 8-11 mm. longa; ovaria subcylindrica, dense glanduloso-hirta; stylus filiformis apice erectus v. circinnatim recurvus, ovario saepissime paulo brevior.

811 Filicilla 6-12 ovuli, a basi ovoidea sensim attenuati, apice obliquo in st_vlln n persistentem attenuati, sine stylo 2-3 cm. longi, hirti saepe glandulosi.

per 11ner 08a. cuneato-obovata, ventre carinata, saepe 3- v. 5-costata, nigra,

X *Aquilegia Moorcroftiana* Wau. (*Aquilegia Moorcroftiana* Wall. Cat. 4713, Royle 111. 55; *Aquilegia glauca* Link. { : 840); *A. Camb.* (18-ij i A, *fragrans* Bth., *Lak* ex parte; *Atuil*, *igia*

vulgaris subsp. 4. A i pin a, subsp. 5. nyreiaaica, *Hoolc.f. et T. in F. B> 1-1*
Aquilegia vulgaris, var. *pyrenaica* et *gi an di flora II. f. et T. in F. I-*
Icones: Jacq. Voy. Bot. tab. V; Bot. Hag. tab. 4493; Lindl. Bot. Reg
XXVI tab. 46; Mtrawl's Bot, IY. tab. 151.),

caule 10-80 cm. altitudine coiiBpicue foKoso raro subnndo ramoso
 rarius snnplici, foliis basilaribua biternatis v. tritoriiatis, folio^{lis}
 parvulis v. magnis sese obtegenfcibus v. aub distantibus, terminah
 obovato subrotundo reniformi trilobo v. trise(to, fo!iis cauliis info-
 rioribus ternatis v. biternatis, floribus 3-9 mro solitariis m^{edi-}
 ocribug v. magnis concoloriijus v. discoloribus colors varto, sop;^{1^}
 ovatis v. oblongis 14-45 mm. longis, petalorum lamina saepissimo
 truncata, calcare saepissime sulcato recto v. modice incurvo rarius
 uncinato longitudine compamta vario, staminibus limbuin a^{ltin-}
 gentibus v. superantibus, carpellis 5-9 glanduloso-hirtis, folliouliis
 18-25 mm. longis. Floret ab Iunio ad Septembrem.

Area geographica—Paropamisus, Himalaya alpina et subalpina
 occidentalis, Afghanistan orientalis, Belutchia.

var. o, fragTans" *Bth.* i *Baker* ex parte),

rhizomate crasso, caule 60-90 cm. altitudine, valde folioso, foliis
 basilaribus bitornatis v. saepius plus minus triternatis, petio^{luli}s
 gracillimis, foliolis ternatis infra plus minus glaucis, terminali fol.
 bas. subreniformi pi* fande tripartito partitionibus 2-3-fidis laciniis
 lineari-oblongis alua minus inciso-crenatis crenis obtusis v. rotun-
 datis, iloribus 2-5 albidie v. pallide purpureis, aepalis ovatis Y.
 ovato-lanceolatis apice obtusiusculis 19-25 mm. longis, calcaribus
 lamina Bubduplo hrevioribus v. eun Bubaequatibua apicem *arsus
 gracilHmis, aut uncinatim incur vis aut rarius subrectis, folliculis
 5-7, 1G-1S mm. kangis.

Loca in Kashmir (H. Fate!); Gilgific ad Kjtfa Pani 10-1100'

var. p. Winterbottomiana P. I?.,

caule 25-4J cm. altitudine, foliis basilaribus caulisque iuferi-
 oribu9 aut feriternatis aut bite rnatis atque foliolis trisectis, laciniis
 foiiioruni intermeUorum oblongo-lanccolatis, p[^]tiolalis plus minus
 glanduloso-pubescentibus, aegmentis folionim flor. inferiomm
 lineari-lanceolati a latitiuline $\frac{1}{3}$ -I Loogitadinis, sopalis fere 2'5 cm.
 loagis, petalorum lamina 10-12 mm. longa apice truncata, calcai^e
 subbamoto civciter 15 mm. longo, carpellis 5-6-

In iugo inter Kashmiri; et Drifdwar (*Winterlottom*-')•

var. suaveolens (= *A. kunoorensis* var. β *suaveolens* *Camb.*; =
A. fragrans) (Uafer ox par to,

caulo 30-70 cm. altitudiuc folioso, foliia cauliais saepissimⁱ con-

gpicus, baailaribus biternatis rarius subtriteratis, foliolis mein-
Kranaceis infra saepissime ne plus minus crlaucis **terminal**] Col. baa.
 rtmiformi v. semi orbicu **lari** v. subrotundo fere ad ba^im. usque
trip artito v. ad tertiam. pavti m trilobo segmentis 2 v. 3 lobis v.
 cre] natis lobis crenisq. obtusis breviter \\\nearrow-oblongis, fo His
 caulini.s **superiorib** us valde variis, floribus saepissime 5-12, sepalis
 alb **idis** v. stramineis, petalis saepe violaceis v. P^1W ureis sed eti am
 alb idis 25-50 mm. I-ongis icutis v, ficumirml i^3, calcaribus lamin .am
1_10 mm. **BUpi** rantibus rectis 9 v.] eviter iicui vis, carpellis 6-9,
 folliculis sine stylo 20-2.5 mm longis. Vidi allatam e Gilgit
 trj*!B iddulph !), Kash, miria(5 edgewick ! W. S. A. ! Loringo !), D "an-
 kar 17-: 9000' (Sec. I), Labu' {H. Oalc. ! J! H !), Pangi (Sec. I),
 Tallo fl. Che nab si periore (B. P. ')•

var- 8 glauca" Lindl.,

foliis basilaribus biternatis glaucis, laciniis fol. **intermedioTi** n
 obovato-cunucalis Y. 1reviter-oblongis, segment 19 fol_ aor, inf
 obovato-**cuneatis v. late** lanceolatis, sepalis 2 5-30 mm. longis strami-
 neia v. albo-paraureis, petalorum stramineo rum , calcaribus rectis
 conicis apice capitatis lamina truncata 2-4 mm. brevioribus, car-
 wi lis 6 (v. pluribus?), **foli-** culis circiter 2cm longis.

Kashmiria (Forma rara , at vix a varietate e distinguenda).
 var. c. kunaorensis" C amb. (A. kunaorensis Camb. var. r. a = A Moor-
 oroftiana Wall Cat. No. 4713 a Royleo in 111. m ale descripta),

foliis plus minus glaucis, biternatis, aut triteratis, aut biternatis
 r t foliolis fere ad basim usque **trif** itis, petiolis petiolulisque glabris
 ^ lace hirtulis, foliis flor. **trif** oliolatis v. trisectis foliolis sub-
 ^ ombiis v. late lanceolatis. sepalis 14-23 (saepissime 17-21) mm.

lonsia stramineis Y. sacpius vi-
 ,lns mini's ochrole ucorum lamina 9-17 mm. longa, calcar. » T.
 [eVtt er incurv « H-21 saepissime 14-1? mm. bngo lamina s; » T.
 3-!0 m'a. longiore rarissime vis brevior, carpellis 5 rarinsG,
 foll iculis 15-20mm. Longia. Gilgit(Gilcs sub nomine A. fragrantis !

et A. Moorcroftia nae Wall? ! et A. virid, flora e!); Ba i, pro]
 Kapala (Evnt er-We ston!)s Ladaldi (ill if* 7), in Kurang propo
 « un,boff (Sec. I) i Kimawar (sec. Jac gem.); Afghanistan, in valle
 Kurrat Moorecroftiana W Kair-

was 12000 ped **vulgaris, var.** all.¹ Aitch.), ad in
 rupestribus moi atium Safed Koh 10-12000 ped. tc%.)y
 var, **humilior?** Aitch. et JS&nisl, A. puhjlora Bo ^1. Or.
 Suppl. nec Vail).

var. off llicbiafia" (A. Wallicbiftna m /c/&. Calc.), uti var. e, sed
 * li^lfs viritUbus nee glaucis. Kumaon (! !).

var. 7. *ifibr** *P. B.*,

caule 10-10 cm. altitudine 1-4 (-6)-floro usque a basi villosa pubescenti plus minus glabro, petiolo petiolulisque plus minus villosis, foliis basi laribus bifcarnatis, foliolalis textura firmiore saepissime manifeste petiolulatis glabris v. puberulis nee glaucis immedito plus minus profunde trilobo lobis parce creafis orerria rotandatis rarius breviter oblongis, foliis caulibus variis interdum subconspicuis, sepalis 18-28 mm. longis, lamina petalorum truncata, calcar lamina longiore subulato recto v. subincurvo, saminibus petala 1-4 mm. superantibus, calpellis 5. Floret ab Innio ad Aug.

Afghanistan orientalis; in valle Kurrura—in monte Sikardam 10-1000 ped. (*Aquilegia nov. sp. Aitch.*). Calceas exectis, valde similia *Aquilegia Bertolonii*.

var. 8, *subaphylla P. B.*,

caule 25-35 cm. altitudine simplici v. superno parce ramoso a basi usque, uti petioli petioli pedunculati, glanduloso-hirtus, foliorum basilicis biternatis ternatis longis, foliolis parvis breviter petiolulatis textura subterrosa glabra v. puberulis terminali reniformi trilobo 12-18 mm. lato, lobis parce crenatis, foliis caulibus inferioribus 1 v. 2 ternatis v. subbiternatis, sepalis circiter 2 cm. longis, petalorum lamina rotunda-truncata, calcar subulato recto lamina longiore, staminibus limbum pel. 5 mm. superantibus.

In valle Spiti, versus iugum Hingn 13-1000 ped. (*Scz. l.*), prope Tjissigaong 15-16000 ped. (*Scz. f.*).

Descriptio subspeciei.

Rhizoma descendens LS v. horizontale crasse fusiforme v. cylindricum, interdum pluriceps, nigricans, collo vaginis foliorum fuseo vestitum, caules 1-3 ad ins.

Canaliculus erectus v. ascendens rarissime simplex saepissime bipennis plus minus ramosus, teres, sulcatus, altitudine LG 10-80 cm., basi 1-5-4 mm. crassitudine, conspicuus foliosus raro subnudus, puberulus v. glabrus aut uti busi villosus-pubescentis v. glanduloso-hirtus.

Folia basilicis longissimae petiolata canaliculis breviora 6-12-15 cm. longa; petioli basi in vaginam lanceolatum membranaceam longam convergentem nervosam dilatatus, canaliculatus 3-20 cm. longus crassitudine 1-2 mm., hirtus v. puberulus; lamina biternata raro ternata, interdum triternata; petioli primarii tenues puberuli v. pubescentes v. glandulosi, terminalis 2-3 cm. longus 0.8-1.5 mm. crassitudine, laterales $\frac{1}{2}$ - $\frac{1}{3}$ terminalis longitudine; foliola marginibus approximata v. sese obteguntia, membranacea raro subserosa, supra glauca v. viridia infra pallidiora saepius glauca, glabra v. puberula v. densiuscule pubescentia, tenuiter nervosa; terminale circumscriptione late obovato-obovatum v. suborbiculare v. semiorbiculare v. reniforme, longe v. breviter petiolulatum, basi late cuneata obtusum v. truncatum v. subcordatum, 1-3 mm. longum latitudine $\frac{1}{2}$ - $\frac{1}{3}$ longitudinis, fere ad medium trilobum v. ad basin usque trilobum v. trilobum

folioli •aim segmentis vix v. laud margine imbricatis, segmento lobovo medio cuneato-obovato apice crenis grossis v. lobulis tribus inciso, segmentis lateralibus aut late oblongis aut ob **dique ci** cuneato-obovatis inaequaliter bilobulatis lobulis plus minus grosse crenatis v. integerrimis; foliola lateralia aut trapezoidea aut terminali subconformia, crenis brevissime lineari-oblongis v. oblongo-ovatis apice obtusis v. rotundatis; petioluli ultimi glabri v. villosopubescentes, terminalis 2-35 mm. longus, laterales multo breviores v. nu **Hi**.

Folia caulina intermedia, uno alterovo saepe longe petiolato excepto, breviter brevissimeve petiolata, inferiora saepe biternata superiora haud raro ternata, foliolis lateralibus fol. bitern. sessilibus v. vix petiolulatis folia summa subsessilia reliquis multo minora trifoliolata v. trisecta ad ultimum saepe integra bracteiformia anguste lanceolata, segmentis integerrimis v. incisissimis saepissime lanceolatis, interdum ovatis acutis v. acuminatis, 1-3 v. a. long **Is**.

Inflorescentia rarissime subuniflora, saepissime **Q** 3-9 flora corymboso-paniculata, ramis valde elongatis. Pedunculi graciles teretes dense pubescentes saepe viscosi. Flores mediocres **i v. ma**gni subnutantes, concolores v. discolors. Sepala ovata v. ovato-oblonga, nervis tribus ramosissimis percursa, apice acuta v. obtusa, cuneato-attenuata v. acuminata, basi saepe abrupto constricta, 11-45 mm. longa, latitudine circiter $\frac{1}{2}$ longitudinis dorso puberula violacea v. purpurea v. straminea v. albida, petala 4-15 mm. superantia. Petala glabra v. calcaria puberula, v. purpurea v. violacea v. straminea v. ochroleuca v. albida; lamina obovata, apice truncata rarius truncato-rotunda, **La**, 11-15 ntr. **i** longa; calcar e **bas**i conoidea sensim in partem apicalem tenuiter cylindricum v. **Bu**bulatum attenuatum, raro uncinatum incurvum saepius rectum aut a basi aut apicem versus **U**rcurvum, laminae subaequale v. ea sesquialongum **un raro duplo** longius v. duplo brevius, apice manifesto v. vix capitatum.

Stamina longitudine inaequalia, **n** •iineros;-, longiora petalorum limbum subaequantia v. paullo superantia, glabra, filamenta angusta e basi paulum dilatata sensim attenuata; antherae oblongae v. ellipticae mucosae circiter 2 mm. longae. Parastemonas ovato-lanceolati vix v. distincte undulati acuti ovaria asporantia.

Pistilla 5-9, staminum vix v. manifesto superantia, 9-14 mm. longa; ovaria cylindrica dense hirta plus minus glanduloso-pilosa, in stylum subulatum parte inferiore hirtum apice rectum v. recurvum aequilongum v. sesquialongum attenuata.

Folliculi 5-9 pariter subcylindrici, e basi ovoidea sensim attenuanti apice oblique rotundati **ili** subcoriacei nervis obliquis crebris prominentibus plus minus stomosantibus rot **US In** 1-24 mm. longi, plus minus **US In** **anll**ormibus 6-10 unculati, **Bine** stylo **U**rcinnatim recurvis rostrati.

Semina numerosa cuneato-obovoidea ventre carinata, interdum subcostata, nigra, nitida v. subopaca, vix **lata**, 2-2.5 mm. longa.

pauctu
Tabella ad varietates Aquilegiae Moorcroftianae'
determinandas.

- L.** **pAnlia pl**'is Hiiimsvo co¹aspicue foliosus et saepissime (30-) 40-90 cm. altitudine, basim **versos** •labrescens v. parco hirtulus.
A. Calcar petalorum lamina brevius v. cam vix aequana.
Q. Sepala 19-25 mm. longa; calcaria uncinata v. plus minus manifesto incurvaj •lia basilaria **po** fcritoa **nata**.]

13. Sepala 25-30 mm. longa; calcaria recta v. vix incurva; folia basil
biternata. (Flores albidæ v. stramineæ.)

A. glauca".

B. Calcar lamina paullo v. multo longius.

Si. LEVIAE foliorum cauliorum medio, oblongo-lanceolata; segmenta
foliorum floralium inferiorum lanceolata, latitudine $\frac{1}{2}$ longitudinis;
calcar gracillimum lamina vix longius subhamatum; (sepala fere
2.5 cm. longa; stirps aspectum A. thalictrifoliae præbet.³)

A. Winterbottonnai".

13. Laciniæ foliorum mediorum lineari-oblongæ v. obtuse ovatae v. rotun-
dato-subquadratae. Calcar rectum v. leviter incurvum, gracile v.
crassiusculum.

a. Sepala 25-50 mm. longa. Carpella G-0.

A. suaveolens".

b. Sepala 14-23 mm. longa. Carpella B 5-0.

a. Foliola infra plus minus glauca.

A. kunaorensis".

b. Foliola utrinque viridia, infra pallidiora.

A. Walliehiana".

II. Caulis (saepissime) subnudus v. foliis uno alterove vix conspicuo instructus,
10-40 cm. altitudine, a basi usque villosopubescenti, uti petioli petiolalique,
glanduloso-hirtus.

A. Caulis usque a basi, uti petioli petiolalique, villosopubescenti, 10-30 cm.
altitudine.

A. afglianica".

B. Caulis usque a basi, uti petioli petiolalique, glanduloso-hirtus, 30-40 cm.
altitudine.

A. subaphylla".

XI. *Aquilegia leptoceras* Fisch. et Meyer (1857?). (*Aquilegia*
leptoceras Fisch. et Mey. *Linnaea* XII, Litt. 153; Bot. Reg. X, 64;
Flore des Serres III, 296),

caulo humili (circiter 20 cm. alt.), foliis aut biternatis, aut ter-
natis atque foliolis tripartitis, glabris, terminali. obovato cuius
apice ad tertiam quartamve partem fere lobato latitudine circiter $\frac{2}{3}$
longitudinis, foliis compluribus, discoloribus, sepali-
stomatibus patentibus ovato-oblongis 18-22 mm. longis, perianthiorum lamina apice
rotundato-truncata v. retusa, calcare conico recto v. subincurvo,
staminibus pot. lincibus 3 superantibus, carpellis 5.

Descriptio subspeciei.

Caulis humilis (circiter 20 cm.) teres pluriflorus aut basim versus glaber aut,
uti petioli petiolalique, totus pubescens. Folia longiuscule petiolata, partim biter-
nata, partim ternata atque foliolis profunde tripartitis; petioli foliorum maiorum
4-8 cm. longi basi vaginantes; petioluli primarii teretes terminalis 1-2 cm. longas
laterales $\frac{1}{3}$ - $\frac{2}{3}$ terminalis longitudine; foliola membranacea, viridia infra pallidiora,
glabra, foliorum biternato nm staminibus; terminale obovatum basi cuneatum apice ad

quartam v. **rtiamps** artem trilobum ignin-20 mm. lo. I. titudine circiter $\frac{1}{2}$ longi-
atliTiis; LLti alia ob. lique <• triangularia plus minus profumle biloba; lobis foliolorum
^,1 am par<e inciso-f renatis, crenis obtasis. Folia caJi na jT1, eriora 1-3 brevius
petiolata, subbiteruata; intermedi aBsasii ia trifo Uolatav. tr isocta plus mimi; fissa;
p jfciolaria lam eolata bracteiformia.

Jlores ro- dioeres. Sepala stellatim patentia, ovato-oblonga, basi breviter con-
stricta, apice obscure producto subobtusa, 18-22 mm. longa, latitudine circiter $\frac{1}{2}$
longitudinis, lacte lilacino-caerulea, **apioem versaa** alboescentia, vero apice virides-
centia. Petalorum lamina obovato-cuneata, apice rotundato-truncata v. retusa, 1.
mm. j ngsa, albida a] ico ochroleuca; calcar graciliter conicum, rectum v. modico
incurv **urn, api** ce subcapitatum, fere $\frac{1}{2}$ laminae longitudine, lacte caeruleum. Stami-
na pet **al&2-5 mm. f-** operantia; antherae elliptico-oblongae muticae flavae. Pistilla
5, stamina j »aaUo 8 operantia; ovaria pubeBcentia. fan unquam glabra?); styli
brecti.

Follicali recti v. apice divergentes. sine stylo 20-22 mm, longi, (glabrescentes?).
1

Dauria, Sibiria transbaicaleiiBig.

Yalde affinis A. Mo-rerofitariiae' var. kunaoi ensi.

XII. Aquilegia lactiflora' Kar. J Etr. (Aquilegia lactiflora,
JToretfn et Kirilow in Mosc. Ball. 1841, vol. XIV, p. 374),

cmile sttbprocero folioso parce ramoso, foMis biternatis, foliolis
se8j ilibus v. breviter potiolulatis maiusculis viridibns ad medium
fere **tripartitis** segmentis inciso-crenatis crenis rotundatia v. ob-
longis, inflorescentia fere triflora, sepalis oblongo-lanceolatis 15-20
win. longis lactois petalorum limbo fere duplo longioribus, calcari-
bus **gracilibua rectis** v. leviter incurvis laminae **aeqailougis** v. ea
manifesto longioribus apice **nectarifer.** vix capitatis, staminibus
petalorum **laminam** rotandatam **subaequantibus, carpollis** 5 villosis.

Area geographica—^lontes Tarbagatai Aaiae rosaic; 10.

XIII. Aquilegia pubiflora' Wall (Aquilegia pubiflora Wall
Cat., 4714; Boyle 111. pag. 55),

caule (15-) 40-70 cm. altitudine saepissime superne ramoso et
folioso, **foliifl** basilaribus saei>iu3 **biternatis**, foliolis mediis snb-
rhombis v. subreniformibus saepius ad mediam **trifidis latitudii**
 $\frac{1}{2}$ - $\frac{1}{3}$ longitudinis, fo i iis caulinis saepissime conspicuis, inflorescei tia
(1-) 2-5 (-10)-flora, floribus mediocribus, sepalis OYuto-lanceolata
(12-) 20-28 mm. longis latitudiue saepius £ longitndinis, petal-
or nm lamina apice rotundata i*aro rotundato-truncata, calcare
un pinato rarius modice incurvo saepissime quam lamina brevior,
stami nib us **laminam** Bubaequantibus, carpellis 5-6 glanduloso-liirtis,
follicu.Us fere 2 cm. longis.

Flore t a Maio ad Iuliura.

Area 2eoff raphica—Himalaya occidental temperata (frequens) et
balpina (rara), Atgnnns Oclmharis.

var. a. Gunninghami P. B.,

caule 25-40¹ cm. albituoin 71111113 folioso paucinoꝛo, sepal iⁿ
acatis petala paullo superantibus, calcaribus incurvis neque un<in Mis.
Himalaya pentapotamica (<Gunningham !).

var. ft. Massuriensis Boyle,

caale 40-60, raro 12-30 cm. altitud ine plus minus ramoso (2-)
3-8 floro conspicue folioso, sepal is longe aciiminatis petala multo
superanfcibus, calcaribus brevibus.

subc"-. *aa* caulo 40-80 cm. alfc. calcare subcii*cinnatjm in-
cur vo. Aftdituua, in valle Kanram (*Aitch !*), in monfce Shend
to, (*Aitch. !*); Kashmiria (*H. Sah. !, Sedgewicks !*); Dalhon sie
{*herb. Dr. !*}; Sirraoj, in monte Cl iur 9-10,000' (*herb. Dr. !*);
Simla (*T. T. !*), in silva Mashobra (*G. !*); Jaunsar Itabar, iu
montibus Droban (*B !*), ad Pakri- (*B !*); Baira (*B !*), mon<-<<
Trusa (*B !*); Tihri-Garhwal: supra Bhowáni 13-14000' (*D !*),
in vallo Gangis 6-7000' (*D !*), ad Nag Tibba 8-9000' (*Gollan !*),
Hassuri (*Royle ! K !*) i Kumaon; pro>e Naiui Tal (*.! ! Dd !*),
in va [leNila 8-9000' [*J !*]).

subvar. j3^3. caule 12-30 cm, altitudiue, caicare liamato rariua
levins incurvo,—In montibus pro¹!. Simla (*herb. Dr. !*).

var. s subnuda v. B.,

caule gracili 15-35 (-40) cm. altitudine Bimplici v. api ce 2-3-
fluro vi\ folioso, Bepalis longe acumin atis p etala ran uifesto supe-
rantibus, ca lcRribus 1revibus subcircuunatim incur iris. N. \. Him.
(*Wall. Cat. 4714 !*); ad Soraban (*Scz !*), Unlliousie 7U00⁷ | (*Clarke !*)

Simla (*Scz !*), Garhwal {*herb. FaloJ KQ.*}

Descriptio subspeciei.

Rhizoma horizontale v. verticale, subcylindricum v. subfusiforme, cortice nigro,
sollo foliorum reliquis vestitum et 3-15 mm. crassitudine, caules 1-3 edens.

Caulis erectus, superne ramosus raro simplex, teres, leviter sulcatus, fistulosus,
florifer saepissime 40-70 cm. rarius 15 cm. altitudine, basi 15-3 mm. c-
assitudine, foliosus raro subnudus, subglaber v. plus minus hirtellus.

Folia basilaria longissima petiolata caule florifero saltem plo breviora
5-10 cm. longa; petiolus basi in vaginam lanoeolatam membranaceam 10-30 mm.
longam convergentim nervosam dilatatus, subtiles tenuiter sulcatus, basi supra
leviter canaliculatus, 2 5-20 cm. longus, 1-2 mm. crassitudine; lamina biternata rarius
tritemata, raro folio uno alterove ternato atque foliolla trisectis; petioluli primarii
graciles subglabri v. prope insertionem petiolorum secundariorum praesertim villosopubescentes,
terminalis 12-50 mi. longus 0.4-08 crassitudine, laterales [-] terminalia
longitudine; foliola tenuiter membranacea, viridia infra pallidiora, terminale longi-
scu, v. breviter petiolulatum v. Bubsessile circumscriptione subrhombicum sub-
isodiametricum 1-45 cm. longum latumque et basi lato cuneatum, vel semiorbi-

culare v. subreniforme basi quae subtruncatum, saepissime fere ad medium palmatum trilobum rarius ad duas partes v. fere ad basim usque tripartitum, lobo medio cuneato-obovato v. breviter oblongo, latitudine $\frac{3}{4}$ — $\frac{1}{2}$ longitudinalis, symmetrico v. asymmetrico lobato-crenato crenis lateralibus duabus saepius integerrimis terminali brevioribus, lobis lateralibus breviter lineari-oblongis parce crenatis v. irregulariter inciso-crenatis crenis paucicrenulatis v. integerrimis; petiolulus secundarius medius cm. longus v. subnullus, laterales terminali manifeste breviora v. sessiles; lamina lateralibus trapezoidica asymmetrico lateque cuneata, ad medium v. fere ad basim inaequaliter bipartita v. tripartita lobatave partitione externa inaequaliter crenato bilobata media triloba v. tricrenata, lobis crenisve integerrimis v. paucicrenulatis, crenis apice obtusis v. rotundatis, ovatis v. breviter oblongis.

Folia caulina intermedia sparsa sursum gradatim minora et brevius petiolata, basilaribus subconformia sed foliola haud raro subsessilia et lobi saepe manifestius lineari-oblongi; folia floralia inferiora brevissime petiolata, petiolo ad vaginam linearem 3-7 (-10) mm. longam redacto, ternata v. subbitermata foliolis longe petiolulatis trisectis v. tripartitis, segmentis incisissimis laciniis sublinearibus crenato-serratis rarius lanceolatis; folia floralia superiora subsessilia trisecta, segmentis lateralibus integris lanceolatis, rarius trifidis, integerrimis v. parce serratis, terminali integro v. trifido, summa saepe bracteiformia lanceolata.

Inflorescentia raro uniflora saepissime 2-5 (-8)-flora, laxissima. Pedunculi graciles 2-10 cm. longi leviter sulcati v. teretes, apicem versus pilis patentissimis dense pubescentes interdum viscosi. Flores mediocres erecti v. nutantes purpureo v. lurida concolorae. Sepala membranacea ovato-lanceolata longe acuminata rarissime cuneato-acutata, basi saepe constricta, apice semper obtusiusculo herbacea, 20-28 rarius 17-18 mm. longa, latitudine saepissime circiter $\frac{1}{2}$, rarius $\frac{1}{3}$ v. $\frac{1}{4}$ longitudinalis, nervis 9 ramosis apicem versus convergentibus percurta, petala 6-14 mm. excedentia rarissime petala paullulo tantum superantia, dorso plus minus pubescentia. Petala dorso puberula; lamina oblongo-obovata apiceque rotundata rarius oblonga truncata 11-18 mm. longa; calcar e basi ample conoidea subabrupte v. sensim in partem apicalem subcylindricam v. leniter conicam attenuatum, apice circumnatum v. uncinatum incurvam $\frac{1}{4}$ — $\frac{1}{2}$ laminae longitudine rarius leviter incurvum, apice vix caudatum. Stamina 30-40, laminam petalorum vix superantia; filamenta inaequalia, longiora 7-9 mm. breviora 5-6 mm. longa, e basi modice dilatata in partem superiorem angustissime linearem angustata; antherae conformes, oblongae, 2-2.5 mm. longae. Parastomones oblongi, apice acuto apiculati, subundulati, 5-6 mm. longi, subsistentes. Pistilla 5-6, erecta v. subpatula, 10-13 mm. longa; ovaria cylindrica patentim pubescentia, in stylum gradatim v. subabrupte attenuata; styli subulati ovario vix v. multum longiores, apice ad ultimum recurvi.

Folliculi 5-6 chartacei, subcylindrici et apicem versus paullum attenuati, in stylum filiformem 5-6 mm. longum oblique attenuati, tenaciter sed conspicue crebreque reticulato-nervosi, subglabri, sine stylo circiter 3 cm. longi, aut paralleli aut saepissime a medio recurvi et apice late divergentes.

Semina numerosa, oblonga, sectione transversa subtriangularia dorso leviter curvata ventre carinata, testa nigra v. subbrunnea nitida laevi.

Folia et foliola A. vulgari plerumque subsimilia, sed inter se in omnino sunt Aquilegiae pyrenaicae.

XIV. *Aquilegia Ottonis* Orph. (*Aquilegia Ottonis*) *Orphanides*
in Boiss. Diag.¹³ ser. II. No. 1 pag. 1* ct 15; *Aquilegia Amaliac* Hold-

reich in Boiss. Diagn. ser. II. No. I pag. 11; A. nevrenica = A. Bertolonii = A. Magellensis *Porta et Rigo exsicc.*; A. nevadeusis *Boiss. l'*),

cri-nie, ivi petioli petiolulique, triandnoso-pubescenti, 35-70 cm. altitudme 1-6 florJ folioso; foliis basilaribus biternatis; **foliolis** sessilims v. saepius **petiolulatia** supra **vitidibus infraglaucis basi** longo cim^atis, terminal! ad medium usque v. ultra medium tn-partito, partio:le media erenia tribup, lateralibus crenis binis in» cisis, crenis integra v. cronulatis; **Folia** caulinis inferioribua duobus v. tribus foliis basilaribus sabootiformibua v. brevius **petiolatis**, superioribus trifoliolatis v. trisectia sog^mentis liueari-lanceolat-is, summis lanceolatis **integris**, floribua paallo minorili; **is qu** tam in *Aquilegia* vulgari typica (**var**, varia *Maly*), sepalia oblongis acutis pal'ide violace3 v. jucte caeroleis, **rumlo** lamina albida a pic@ rot;ndata v. rotundato-truncata, caicaribtta apice subiucurvis laminae subaf-quihuici's, staminibus limbum superantibus, carpellis parallelis v. apice divergentibus, 12-15 mm. longis seminibus granulatis.—Graccia, Italia meridionali3, (Sierra Nevada P).

var a typica,

foliolis in segmenta oblonga ultra me iinm incisiss, sepalis **calcaribus**que lacte caeruleis obtusiusculis, petalis apice rotundato-truu-catis, (carpellis apice divergentibus).

var. β. Amaliae" Helder.,

foliolis ad medium us que bi- v. trilobis, **sep** alis **calcaribus**que paliide **violaceo-caeroieia** i*utis, petalis a Dice rotundatts, (carpellis parallelis).

Tabella analytica ad subspecies *Aquilegiae vulgaris* *Lin.* detenni&andas.

I. **Ala** bastri sub **oylindri** el. Sepala in flore aperto erecto-patuli (oblongo-laTiccol ata. Flores bicolores. Calcaria saepissi:ao uiu.¹inata).

A. oxysepala' Trautu.

II. **Alabastri**, neglectis calcaribus, p ovoidei v. ellipsoides. Sepala in flore patentia v. patentissima. **Lua** miima

A. Calcaria in flore aperto uncinatim incur

A. I Calcaria laminae subaequilonga v. ca-va. manifeste longiora.

Stamina longiora lamina 1 mm. breviora.

a. a. Folliculi 18-25 mm. longi, e basi **ru r. 1-10 mm.** loi. Fo. ulina infima haud raro foliis basilaribus subconformia, (foliol lift. **CM** bas. 10-50 mm. longa).

el. **Orena** e fol. bas, breviter lineari-oblongae, **mediis** rotundate)mll- q<adratis. (Foliola tenuia, plus minus glauca; **tlcaria** ffra< il- 'i"*11 gi adatim hamitta; **flore** albidi v, strau unei v. pallido purpurei).

A. Moorcroftiaua' Wiuterbottomiana'

- §. Crenac fol. has. saeplssiine Iotundatae v obtai^{ia}e. (Foliola viri dia; calcaria crassiuscula saepe subabrupte uncinata; flores purpureo-caerulei v. violacei v. caeruleo-lilacini v. rufescenti-cinnamomei.)

A. vulgaris Lin.

- b. Folliculi 12-15 mm. longi. Folium caulinum **infimum**; saepissime foliis basilaribus dissimile. Foliola media fol. bas. 12-20 mm, longa.

A. Bertolonii Schott.

- b. Stamina^{quam} Femina 2-11 mm. breviora.

- Q. Crenae mediae fol. bas. rotundatae v. rotundato-subquadratae. Folia caulina* saepius basilaribus dissimilia. Lamina petalorum saepius apice rotundata.

- o. Pistilla 5. Folliculi 12-15 mm. longi, cylindri. (Sepala 24-30 mm. longa, apice acuta v. acuminata. Flores caerulei.)

A. bertolonii Schott.

- o. Pistilla (5-J S-12. Folliculi 20-30 nun. longi, e basi ovoidea plus minus attenuati. (Sepala 10-12 mm. longa. Flores saepe diacolora.)

A. glandulosa Fischer.

- fa Crenae mediae fol. bas. breviter linear-oblongi. Folia caulina inferiora basilaribus subconformibus, laciniis vero saepissime magis linearibus. (Sepala saepissime 32-45 raro 27 mm. longa. Flores subconcolores. Folliculi 24-30 mm. longi.)

A. alpina Lin.

IS. Calcaria 1/2-1/3 laminae longitudine.

- a. Stamina petalorum limbo 2-11mm. breviora.

- a. Calcaria e basi late conoidea in apicem uncinatum attenuata. Caulis 12-40 cm. altitudine. Petala viridilairina rotundata v. oblonga et apice obtusa. Flores caerulei v. diacolora. Sepala saepe plus 30 (10-12) mm. longa.

A. glandulosa Fischer.

- b. Calcaria graciliora. Caulis 50-70 cm. altitudine. Lamina rotundato-truncata. Flores violacei. Sepala minus 10 mm. longa.

A. vulgaris Lin. Bernard Gren.

- b. Stamina limbum fere attingentia v. superantia.

- a. Petalorum lamina apice rotundato-truncata v. plane truncata.

- o. Caulis 3-25 cm. altitudine, 1- (rarissime 2-) florus, saepissime uniflorus. Flores caerulei v. petala purpurea. Sepala ovata apice obtusa.

A. nivalis Falco.

- p. Caulis 40-70 cm. altitudine, foliosus, 2- v. pluriflorus. Flores albi v. straminei v. pallide purpurei. Sepala ovato-lanceolata v. elliptico-oblonga breviter uncinata.

A. Mooreroftiana fragrans".

- γ. Caulis 12-80 cm. altitudine, saepius pluriflorus et foliosus. Sepala saepissime anguste ovato-lanceolata longe acuminata. Flores purpurei v. viridi.

A. pubtflora Wall.

b. Petala imm lamina afflexa lamdata.

*

A. pubiflora' Wall

B. Catcaria recta vel leviter incurva neque eminata.

L Petalorum lamina fere 6 mm. longa. Calcar lamina plus duplo longius.
(Scirps glanduloso-pubescentis pluriflora foliosa.)

A. serrata' Maly.

93. Lamina (MS mm. longa. Catear laminae subaequilongum v. sesquialongum, in variis lamina fere duplo brevius, rarissimo duplo longius.

a. Botano limbo 2-6 mm. breviora. Flores caerulei.

a. Petala apice saepe ovata. Sepala 11-27 mm. longa. Folliculi subcylindrici; 8-16 mm. longi.

a. Foliolum medium foliorum basilicium internodiarum triangulariter cuneato-obovatum v. cuneato-deltoidaeum, lat. 1-1.5 longitudo. Foliola distantia v. apiculata. Caulis petioli petioli saepius hinc pubescentes.

A. viscosa, Gknum.

0. Foliolum medio fol. basi reniforme v. orbiculatum, lat. 1-1.5 longitudo. Foliola sese attingentia v. saepius sese obtegenti.

A. pyrenaica DC.

fa. Petala apice rotundato-truncata. Sepala 12-15 mm. longa. Folliculi basi obovata attenuati 2-3 mm longi.

A. alpina L.

b. Stamina petalorum limbum fere attingentia v. superantia. Flores haud raro discolores, sepal. saepe albida v. straminea v. violacea.

a. Petalorum lamina apice rotundata.

a. Flores concolores. (Semina minutissimae punctulata, fere laevia).

aa. Sepala oblongo-lanceolata (13-20 mm. longa) petalorum colore lacteo.

A. lactiflora' Kar. Kir.

93. Sepala ovato-lanceolata rarissime ovata (12-28 mm. longa).

Flora purpurea v. lurida.

A. pubiflora' Wall.

13. Flores discolores, Sepalis ac calcaribus violaceo-caeruleis, petalis albidis. Semina granulata.

A. Ottonis Amaliae Hemm.

fc. Petalorum lamina rotundato-truncata.

c. Semina granulata. (Caulis 35-70 cm. alt., folia basi breviter truncata, sepalia calcaribusque lacte caeruleis, laminae pet. albida.)

A. Ottonis typica Oen.

0. Semina microscopice punctulata, fere laevia

aa. Latitudo folioli terminalis fol. basi longitudo basilicaria vix nunquam simpliciter truncata.

aa. Flores saepius 3-9. Sepala apice cuneato-acutata v. angustata. Calcar sabulata. Pet. lamina apice truncata.

aa. Flores caeruleo-violaceae, concolores.

A. vulgaris Lin. recticornu P.

93. Flores concolores albi v. straminei, v. discolores sepalibus dilute violaceis petalis ochroleucis v. caeruleis v. purpureis.

A. Moorcroftiana' Wall.

hi, Floras* aolitarii v. ran. 3. Sepala apice obtusa. Calcararia crassiuscula conoidea v. subcylindrica v. assecata. Pet. lamina apice truncata et sinuata, v. reclusa, v. emarginata.

A. nivalis' t'ale.

bb. Latitude folioli medii fol. bas. fere 3/4 longitudinis. Folia saepe simpliciter teraa- (Sepala caerulea, pet. lamina ochroleuca.)

A. leptoceras' Fisch. et Mey.

K

Aquilegia autem inter Ranunculacearum genera recentior videtur esse. Quae sententia non solum in insigni illa mutabilitate formae atque in constantia notarum quibus rerum herbariarum periti ad species discernendas uti consueverunt, sed etiam subspecierum per regionum orbis terrarum distributione comprobatur. Nam

varietas generis v. typicae excepta, nulla subspecies Asiae communis est cum regioni

•tate varia Aquile vulgaris I vel varietas montana transilvanicis nascibus Em.

occidentalis, • una tantum in insularibus Karolini Aquilegiae vulgaris adnominibus Sibiriae sed etiam in montibus I -itnr.

quae in atrata in saltibus thibetianis est stirps pyrenaica' et A. alpin modo differunt.

o. Neque di B ilJae himalja a' nullo

runt. atque i sint Aquilegia Moore: 'ie', nee proximo connexae cum formibus et monte pyreneatis.

Atque prope am omnium Aquilegiarum cognationem difficile esse dixeris historiam generis vestigare quidem

est nectaria Eormae illius p; iia omneB species A ortae sunt, • fuisse, cum non solum flores mon ia A.

vulgaris eorum mus, sed etiam, quod maxime in Argunien cia una rite ecalcarata a Polauino ex Kansu allata sit, Sed inter; generi Aquilegiae propinquae nullae sunt quae t

isignem -iae ecalcaratae vel Aquil lilitudine Aquilegiae eca. alia qual i formantur

Isopyri micri b* & gi: ri simillima, sed duplo vel triplo maiori; hacc interdum a vera basi aperta, obovato-oblonga, doctus vix minus gibba quam petala A. ecalcaratae, apice

retusav. er ^ nervis interdum ramosa. Et quamquam nee raria Aquilegiae istylae, quo si 'oliorumque iugum

biteruato quad proximo accedit, en oorum laminae muc

Carphophylli Isopyri grandiflori acinonoidis apice sunt emarginatae. binis integumentis abrevistylae ut interdum glabris Isopyri et nuc

Quarum rerum considerationem sequentibus nobis licet cou-
cessumque sit speciem illam antiquam, cui Ujuilegiani cascam nomen
dicere liceat, quasi coustruere atque aedificare. Stirps erat altitudi-
ne mediocri, foliis biternatis, floribus parvulis, sepalis quinque, nectariis
rariis concavis (marginatis, filis staminibus intermixtis) lan-
ceolatis antheris parvis terminatis, carpellis quinque gibberis, semi-
nibus laevibus. Hanc speciem terra quae Asia et America
olim iuncta erat. Ex ea natae sunt species illae priscae asiaticae
atque americanae; primum Aquilegia calcarata, tam, gibbere hic culcar
producto, Aquilegia parviflora et Aquilegia brevistyla. Cum autem
in fine huius aevi planities Sibiriae et Europae septentrionalis e mari
glaciale emerissent et caelum mitius fieret, species illae priscae primum
varietates tres ediderunt: in primis carpellis glabris (A. sibiricam), alteram
(A. viridifloram), Aquilegiae parviflorae proximam, sepalis vix praeter
nectaria eminentibus sed carpellis liberis, sepalis petalisque
valde variabilibus, carpellis ovatis Emper hirtis. Tertia haec species
parens fuit duarum gregum, quarum una, sepalis lanceolatis in recto-
patulis alabastris subcylindricis, regionum illarum incolae fiebat quae a
nari gobietai ad gressum solem spectabant; altera autem non solum
per regiones Asiae borealis ac centralis, sed etiam per Europam totam
usque ad montem Atlantem late diffundebatur. Mirifica vero
facultas ad varias conditiones caeli loci in se accommodandi.
Nam flores medioceps atque in locis blivis demissioribus ortum
in noucibus altioribus saepe maxime atque speciosissimi evadunt, ut
facilius apes papilionumve procul ad se alliciant. Tu locis timidioribus
autem caulis petioli folioaque saepe magis villosa vel hirta, atque in
etlicidiis rupestribus conspicuae glanduloso-pilosa.

Ab Aquilegia autem vulgari mutabilitate nunquam puperata est
grex illa quae, orta, ut videtur, in Asia orientali, per Alashkam et
Montes sirosos diffusa usque ad mare atlanticum et in Americanam cen-
tralem pervenit.

Vix dubitandum esse opinamur quin Aquilegia canadensis originem
trahat a parente varietatis illius Aquilegiae foetidae cuius in agnem
Planchon*) in tabula nomine Aquilegiae arcticae depinxit; verisimile
autem est Aquilegiae arcticam, quae vix a varietate kamtschatica a
Fischeri descripta calcaribus brevioribus videtur differere, profectum esse
a forma illa prisca Asiae orientalis, quae, immigrans in regiones maud-
shuricae et sineas in Aquilegia oxysepalam commutata est. Quia
in sciris illa, cui Aquilegia hybridam Simonsi dixit aotneu, bibida
fuerit autem species vera nescio; atirpes rero, quae Loddeus scribit e semi-

* Flore des Serres fig. 795.

nibus davuricis in horto dorpatensi nata* esse, vix dixeris hybridas fuisse Aquilegiae vulgaviset Aquilegiae canadensis. Folia autem et alabastrifigura et sepalorum directio et color Boris, uti depicta sunt in ta^{l m ! a} Simsii, omnino sicut Aquilegiae oxysepalae, neque similitudo Aquilegiae hybridae cum Aquilegia arctica et A. canadensi minus insignis.

At vero quanta nectariorum est mirabilitas in Aquilegia roitaosa! K'am variefcas avctica, in tabula picta a Planchon liniis descripta et a Bongard in insula Sitcha Icta, non solum BC: sim sensimque in Aquilegiam truncatam, vavietafceia eximiam, transit, sed calcaria stirpium in horto kewensi cul tar gracillime evit debani atque calcaribus Aquilegiae caer nlcae simillima. At Ledebonr iti an notatione ad Aquilegiam PomOSi m discrimen huius specie: ot Aquilegiae canadensis partim in long•Itmtir. e calcaris cum lamina comparata ponit; dicit enim de A. formosa:—'cal caribus rectis lamina trnncata quadrupl longioribus genitali subaequantibus, sepalis i ova to-la nceolatis pateni issimis genitalia calcaria- que superant ibns/et do A. canadensis:—'c alcaribus rec tis lamina t ran- cfta dnplo longioribus, genitalia subaequ tntibus, sepalia ovatis calc ari bus genitalibusque brevioribus, stylis demum exsertis.' Yi dimus tame n specimina A. canadensis var. typicae calcaribus lamina C. nmtuplo longi- oribus 'et sepal is Borum apertorum androecio sublor igioribus.

Atque fort: illae cultas, quae cum Btirj Eiacia quoa d calcaris longitudinem cm n lam iinao mensura comparatam congruer. videntur, ab Aquilegia chrysan ilia non distincti ae nisi notis i, ut videtur, vilibus. De slamini bus Aquilegia! caernlefi e ante dixi inns. Mens tir autcm calcaris cum limbo nectariorum compare ta vehementer variat; lamina enira nunc TIX vicesima p trs calcaria nuuc calcare ferme sesqu longior. Forma quoq no limbi peta Iorum vix ad spe uies diacernenda s apta; nain in exempli ribus in horto kewen^ cultis lamina a medi o tersns apicem abtenua ta est,* q nod vidimus etiam in Aquilegia truncata; in varietate arctica ante Planchonii et in varietate typ ica Fischeri neciai'iorum lamina escf apice iruncata. Aquilegiae igitnr ataericana^o idem spectaculum praebent atquo Aqii ilegiae asiatica^o et i uropaeae: onlne8 enim psrtes, quae quidem ad praegnationom ope insectorum factam apiae sint, eximie mutabiles esse, praesertim cam pollen etiam sine adiumen-tis externi3 et ;<venticiliis in stigma i. eiusdem fiVris per- venire poiest At v<ro cum memilinus Aquilegiim arcicam, formo- Bari, Fischeri, t rancatp ad eandem spec iom portinero atq no st>-ps illi in tabula 6552 Bot. Mag. depicta, non possumus nou concludero Aqi- legiam caernleam et cbrysantham quoque ad eandetu gregem esse redi- gendas.

* Yi<lo etiam Bot. Mag. tab. 6552.

f Lyclebour, Flora tot sica vL X.

Discrimen autem Aquilegiae Skinneri et *A. canadensis* in magnitudine florem positum est. Sepala vero *A. canadensis* typicae nunc vix 12 mm, nunc fere 24 mm longa, ac magnitudinem florum notam demonstravimus esse maxime dubiam in Aquilegiis himalaicis. Quapropter credimus fore ut formas medias inter *A. canadensem* et *A. Skinneri* in Mexico boreali inveniuntur.

Idcirco unum et solum quod, praeter indumentum carpelorum, magis constare reperimus in cognatione Aquilegiae vulgaris est directio sepalorum; nam cum in plerisque subspeciebus sepala patentia vel patentissima sint, in Aquilegia oxysepala sepala saepissime erectopatula reperiuntur, vix usquam subpatentia. Non est hoc tamen semper signum certum speciei bonae; nam sepala *A. canadensis* typicae interdum magis patent quam solent in stirpibus plurimis, neque sunt, ut videtur, semper patentissima in Aquilegia chrysantha. Quod si hanc notam ad species internoscendas non satis habere facultatis, ac si reliquorum inconstantium signorum in mente agitemus, harum rerum cogitatione coactis nobis, quamvis invitis, concedendum esse videtur, formas omnes americanas ad duo species referendas esse: unam, Aquilegiam brevistylam, quae vinculis propinquitatis maxime cum Aquilegiae sibirica coniuncta est, alteram quae, magis cognata Aquilegiae oxysepalae, Aquilegiam formosam, truncatam, caeruleam, chrysantham, flavescens, canadensem, Skinneri amplectitur. Hac sententia perducti Aquilegias americanas hoc modo disponere visse existimamus.

(1). *A. brevistyla* Booh.

(2). *A. canadensis* Lin.

subsp. I. *A. formosa* Fischer.

subsp. II. *A. caerulea* James.

subsp. III. *A. flavescens* Wats.

subsp. IV. *A. canadensis*? *typica* Lin.

subsp. V. *A. Skinneri* Hook.

Si vero directioni sepalorum maiorem ad species discernendas vim tribuamus, formas americanas hoc modo disponere liceret:

(1). *A. brevistyla* Hook.

var. a. vera, carpellis pubescentibus.

var. b. leiocarpa F. B., carpellis glaberrimis. *Mexico* B. sasosi

(2). *A. formosa* Fischer.

Subsp. I. vera.

var. a. arctica Blanch., nectariorum lamina truncata, calcaribus subinfundibuliformibus lamina sesquialtera v. subduplo longioribus.

me manifesto \m_2] oribus, alabastris (calcaribus neglectis) gvoideis v. ellipsoideis, nectariorum lamina apice non concava calcaribus rectis v. *nm* inatis forma varia, carpellis hirtis.

VII. *Aquilegia oxysepala* *Trautv.*,

sepalis erecto-patulis, nectariorum calcaribus hamatis (vix unquam rediis) subulatis lamina sepalis manifesto brevioribus sublongioribus, carpellis hirtis.

VIII. *Aquilegia canadensis* *Lin.*,

sepalis erectis v. erecto-patulis 9–25 mm. longis, nectariorum calcaribus lamina duplo v. quintuplo longioribus, lamina longioribus infundibuliformibus, carpellis hirtis.

Imliforinilms v

IX. *Aquilegia flavescens* *WQ*

nectariorum lamina paullo longioribus, calcaribus lamina vix longioribus elongato-subinfundibuliformibus incurvis, (floribus flavis), carpellis hirtis.

X. *Aquilegia formosa*

sepalis patentissimis v. subreflexis rarius patentibus nectariorum lamina manifesto longioribus, calcaribus aut crassiuscule conicis lamina longioribus, aut elongato-subinfundibuliformibus lamina sesqui v. subduplo longioribus aut gracillime subulatis rectis v. modice incurvis, carpellis hirtis.

Aquilegia vero *volubilis* *Maack* mihi plane ignota.

Cognatione autem specierum generis *Aquilegiae* in tabula prima monstrare conatus sum; in tabula secunda affinitates gregis *Aquilegiae* vulgaris exhibitae; in tertia denique propinquitates formarum americanarum indicavimus.

Atque ut in rerum, de quibus quaesierimus, repetitione per capitulum dicemus, haec nos existimamus demonstravisse:—

(1) indumentum caulium et foliorum ad species generis *Aquilegiae* discernendas non

valent, quod quidem saepe accidit in generibus, quae constant

ex stirpibus, quarum folia ea

(3) paries eas stillet, quae in praegnatione operum facta anxilio

lie sumptu, nimirum [orque florum, nectariorum forma, men-

Burae comparatae nectariorum ac staminum atque carpellorum, directio

pariterque, haud raro **dubiae sint minima** que certae;

(4) ornes **Aquilegiae** artificissima naturae colligatione consociatas

esse, quod efficiat ut formae illius quam facillime ex formis diversis

procreentur, quae res notissima est hortulanis;

(5) stirpes omnino similes non solum ex eadem forma sed etiam filari ex diversis in locis longinquis abrae disiunctis nasci posse, sicuti: *A. glandulosa* ex varietate quadam *Aquilegiae vulgaris* in Sibiria et in Mongolia; aut *A. pyrenaica* ex *Bertolonii* in monte Pyrenaeo et ex *A. nivali* in terra gilgitensi; vel *A. in*, ut videtur, ex *A. vulgari* in Sibiria et ex *A. nivali* in *K...* Sibiria *A. alpina* ex *A. Bertolonii* vel ex varietate nigricantibus Alpibus et montibus appenninis, et ex *A. Himalaya centrali*;

(6) varietatem eandem, cum in locis diversis in uno loco saepius stabiliorem esse quam in reliquis, sicuti *A. pyrenaica* satis constat in Pyrenaeis, sed maxime fluxa est in montosis Himalayae occidentalis;

(7) verisimile esse eandem formam interius in Iceis diversissimis inveniri quod varietas recentior in figuram speciei parentis translata sit (atavismus), sicuti stirpes indicae *Aquilegiae vulgaris* verae ex *Aquilegia pubiflora* natae videntur esse.

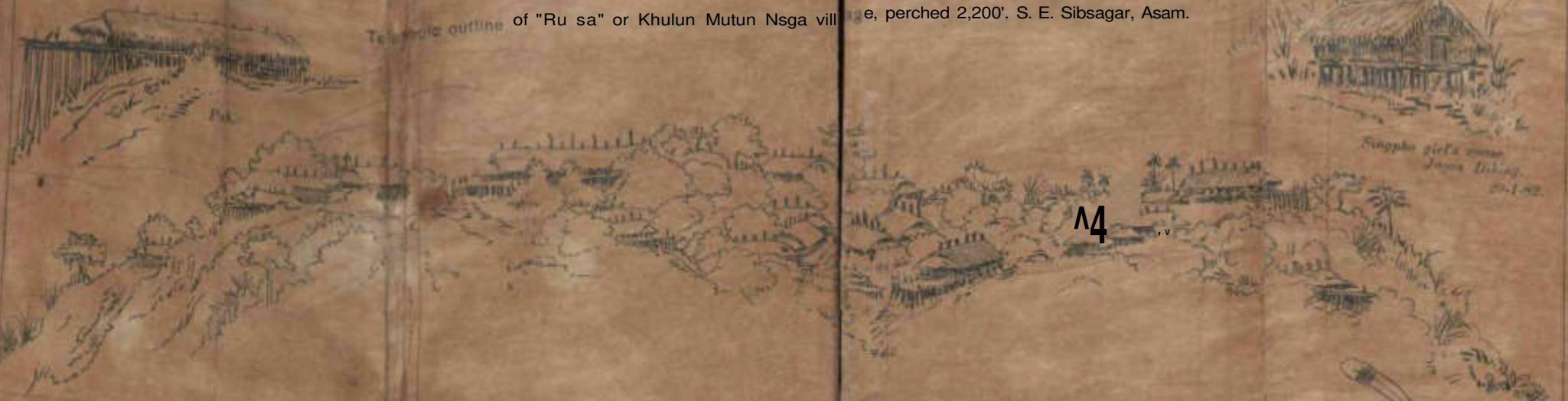
EXPLICATIO FIGURARUM TABULAE SEXTAE.

- 1-3. *Isopyrum grandiflorum*, $\frac{2}{3}$, *Afghanistan*.
 - 4-8. *Isopyrum micranthum*, $\frac{2}{3}$, *Himalaya bor. occ.*
 9. Idem, $\frac{1}{3}$.
 10. *Aquilegia parviflora*, *Sibiria*.
 11. *Isopyrum grandiflorum*, $\frac{1}{3}$, *Vallis Kurram*.
 12. *A. ecalcarata*, $\frac{1}{3}$, *Kansu*.
- Figurae 13-74 magnitudine propria descriptae sunt.
- 13-18, 20, 21, 21* *A. nivalis 'paradoxa'*, *Gilgit, Kashmir, Tibetia occ.*
 - ... *nivalis 'saccocentra'*.
 - 22-26. *A. Moorcroftiana 'fragrans'*, *Kashmir, Gilgit*.
 27. *A. alpina*, *Mont Cenis*.
 28. eadem, *Helvetia*.
 29. eadem, *Mons appenninus*. Folia caulina *A. alpinae* typicae.
 30. eadem, *himalaica*, *Garhwal*.
 31. *A. glandulosa* 'typica Fischeri, *Sibiria*.
 32. *A. glandulosa*, *Sibiria*.
 33. *A. Moorcroftiana 'suaveolens'* *Lahore*.
 34. eadem, *Vallis fluv. Chenab Kashmir*.
 - eadem, ...
 - 47, a 3. eadem, *Kashmir*.
 39. *A. viscosa* 'Einsoleana', *Venetia*.
 - 40-42. eadem, *Val Serrina*.
 - 40-43. *A. viridiflora*, *Thian Shan*.
 44. eadem, *Mongolia*.
 - 45-50. *A. pubiflora*.

45. *SHVA M'inhohra %i pe Simla, 46. M'issuri, 47. Garhwal, 48. Simla, 49. Simla, 50. H^u. penta^otaudca. Sepala florum 48 et 49 lanceolata acuminata.*
51. ^A vulgaris' eynensis", *VdUT d' Ei/^a.*
52. ^V vulgaris' Karolim", *Vallis Nila.*
53. [^] vulgaris' recticomu", *Bavaria.*
54. ^V nyrenaica', *Kontt^f* -py- occ*
55. ^{A.} Uorcrotuana' snaveolenB , [^] 'il^h.
- 56-58. ^A Hoorcroftlana' knmwrensia , - :/*'
- 59-61. eadem, Larfach, eadem nc 35.
62. ^{A.} pubiflora', *Sii^a Mashohra, cadem ac 45.*
63. eadem, *FaMw Kwrw*.*
- "64. eadem, *Si'^^a*
65. eadem, *Kim. o^.*
66. eadem, *K f ^ - y t - ^ ^ - , - ^ - - 1*
- 67, 68. eadem > £' *mla* • *r~*,
69. ^{Carpella} *A. pubifloi: •• ^*
70. ^{CarpeUa} *A. kunaor' <- •*
71. ^{Carpella} *A. nivalis'.*
72. ^{pLstembnes} *A. pub^orao .*
73. ^{udom} aucti. *U a W > allGtⁱ.*
74. ^{Parastemones} *A. M^*
75. *U a W > allGtⁱ.*
76. *U a W > allGtⁱ.*
77. *U a W > allGtⁱ.*

Telegraphic outline

of "Ru sa" or Khulun Mutun Nsga village, perched 2,200'. S. E. Sibsagar, Assam.



Λ4



"Ru sa" was founded some 200 years ago, by the Hoi, 71 (rrmp-hairedj K^./ron) |» of "Chftuf/ *->"
A population of 45 or 50 villages, indirectly offshoot
central parts of the land project thro' the ridge and are lincered as they cross the
jangle, and if attached here, * (AIM
were said some 12 years ago
cat'.

Series of Cassidates.

S. K. Paul.

COMMUNAL BARRACKS OF PR

PRIMITIVE RACES



Singpho giel'a name
Jassa Liding
29-1-82



Tattoo the "Lotic" taken
Lose pattern. Siba

S. K. Paul.

•&SA

Pile dwellings. Indo-Mongols.



Formosa. PkilUpirut /in * murid ^ t, " r Africa, Marquesas, &c., married women, V6

Canoe Drum.

Hide "Cuirasses."



Nias, Senatra.

Noga "Kyp."



Double Cylinder bellows.

to the Anong or Lutse. Sumatra, Java, Phillipinez, Madagascar.



Disc wood "posts of been out ruts & rut?*"

K)

A



Tree stem as ladder.

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orneo & Asam.

Formo /rti r*1 ft of neo, Pupua. Solomon Is. ami A Il. Marquesas, ptn, of Africa *y Australia, ca a canoe an, posts.

to 1/2 size.

^S* twin

harp Naga New Britain, PkUtipincSf fa.



J&aga Tung Kung.

Cane, pnnii, nan he heard at 8 # 10 miles. Taw'-i of :ew Hebrides. Lab' of Fiji..

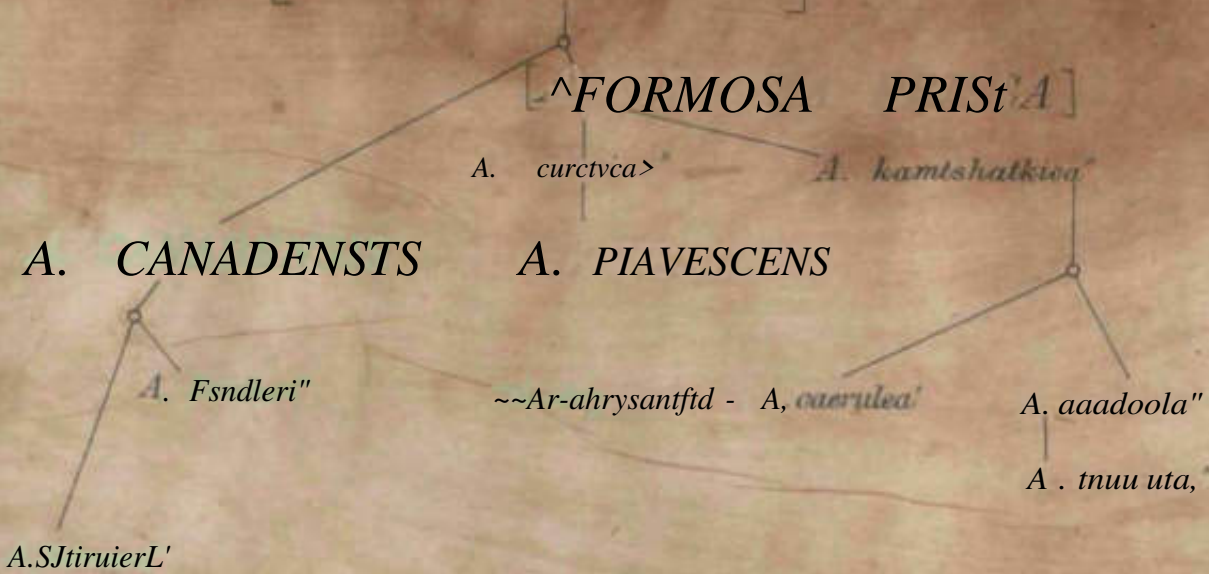
Pk.iform Hurial. Naga "Rub tua."

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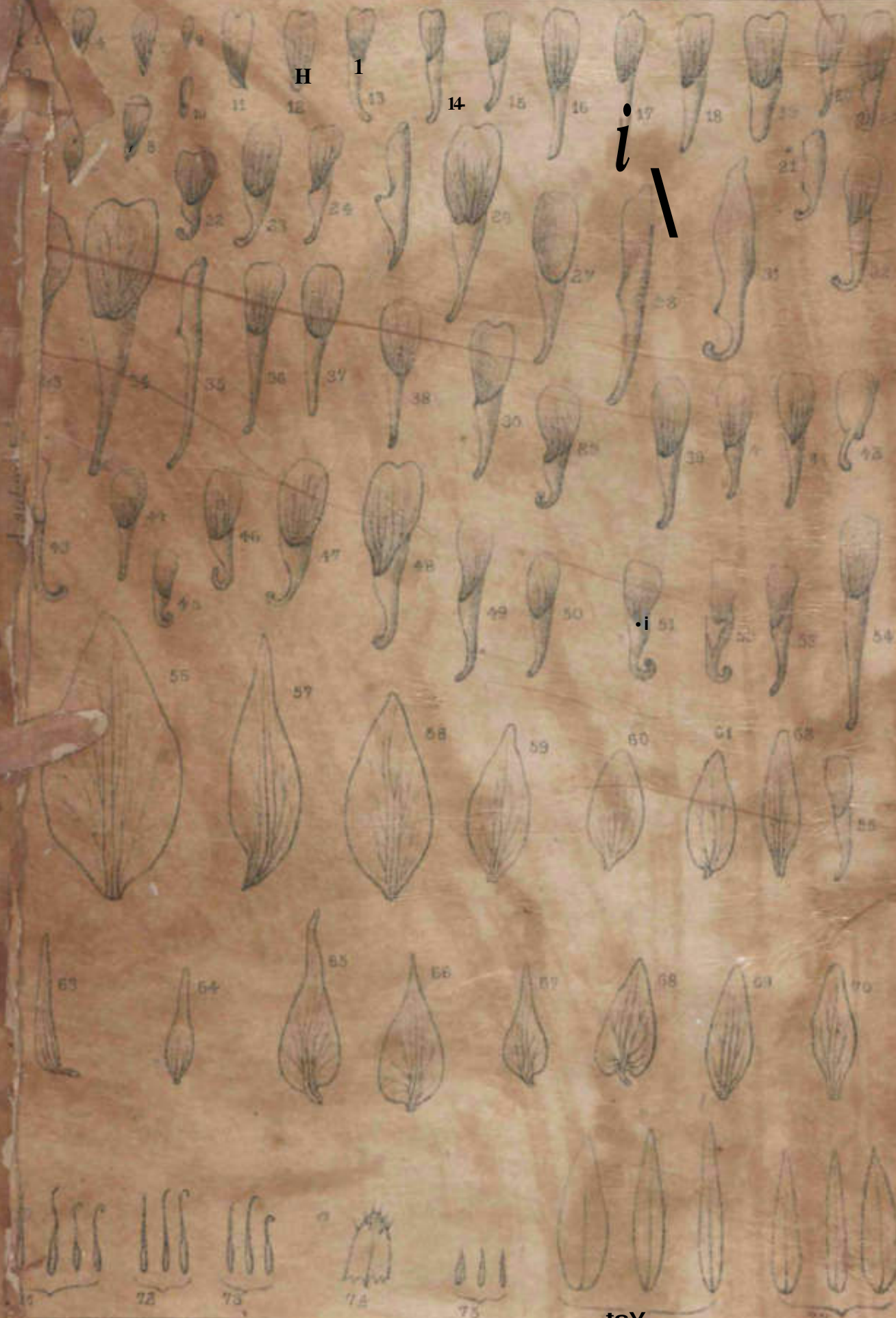
A. HYBRIDA PRISCA



A. BREVIETYLA



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Acas lre is

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AQUILEGIA

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