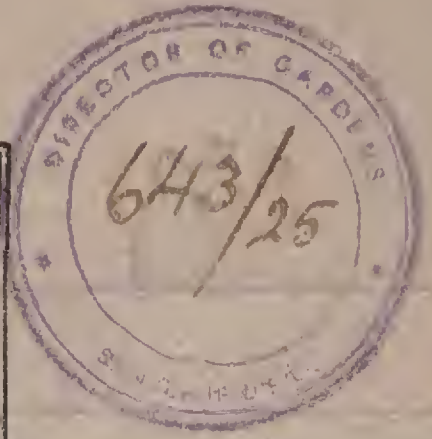


MACARANGA

~~ARTOCARPUS~~

L. J. H. Corner

P.C. 40



From Whom

Place

Date

SUBJECT.

Request that arrangements be made to examine Mr. Mohamed Haniff, medically a senior member of the Gardens Staff as required by the Pensions Ordinance.

Connected Papers.

MINUTES.

① Letter from Ag 8 of G no 643 d/d 27. 10. 25

D of G.

If you desire him to appear before a medical Board you should apply to C.S.

Sd J Gray
Ag 4. 40.
30/20. 15

P. C. 40.

notes, I will write to the C.S.

Sd R. S. Holtum
2/11/25

No Minutes should be written on this page. A separate half-sheet to be used if required.

scaly in wet specimens).

Female panicles inflorescences 2.5 - 12 cm. long, the peduncle 1.5 - 2 cm. long unbranched or with a single pair of branches, the flowers (and fruits) increase at the end of the stem at the end of the main stalk with branches.

Fruits ^{clustered in a rounded head (as the flowers)} set with 4-6 horns, generally 5, 4-9 mm. long, thickly covered with yellowish glandular glands.

Fruit ^{clustered} set in a ~~head~~ peduncled head or in a head at the end of each branch of the simple panicle (as the flowers), set with 4-6; generally 5, horns 4 mm. long, thickly covered with yellowish glandular glands.

M. triloba (Bl.) Müll. Arg.

Leaf blade always 3 (vein) ^{generally with more prominent veins.} with abundant yellow glandular dots on the underside.

Male panicle 8-22 cm. long ^{generally with more prominent veins.} with a short peduncle .5-7 cm. long, or branched from the base - without a peduncle; bractlets (subtending the flower-clusters) in the fresh state as green, white-farose, humid half-ovate 1.5-2 mm. long, very much broader than long, half-enclosing the ~~very~~ ^{axillary} panicle inflorescence-branch, with a point & with a very minute one, entire. (In the dry state, much altered, contracted, & very broadly ovate with a minute point & ~~point~~ brown ~~point~~ 1.5-2.5 mm. long).

Female panicles 7-12 cm. long ^{with} much branched as the male, the peduncle much shorter up to 1.5 cm. long or none at all. The female flowers sessile in small clusters at the ends of the ~~main~~ ^{sub} branches & scattered in pairs or singly on the sides of the ultimate ~~branched~~ ^{terminal} branches.

Fruit 8-9 mm. wide, depressed globose, smooth, without horns or (apparently without ~~glands~~ glandular tubercles).

If these ~~two~~ ^{specimens} ~~are~~ compared with Müller's description, they will be found that they agree in all ^{respects} ~~particulars~~. Thus Müller when that the leaves of M. triloba are "obovate ^{with} glandular ^{on} the underside" - ~~the~~ ^{only} ~~one~~ ^{kind} ~~of~~ ^{of} M. triloba from the description of M. triloba; ^{it} ~~is~~ ^{not} ~~found~~ ^{to} ~~be~~ ^{found} ⁱⁿ ^{any} ^{specimens} ^{of} M. triloba I have seen.

Sir,

Signed by
Fair Copy

DRAFT

In making the ~~revision~~ ^{reduction} of *M. cornuta* to *M. triloba*, Smith gave as his reason that the fruit of *M. triloba* described by Miller might have been in young ~~or that Miller~~ ^{wherefore with horns,} ~~copied from Sax~~ a figure of Baillon's also depicting a young fruit. Against these arguments reasons let us put the facts that ~~M. triloba~~ ^{in Palapa there are} ~~a female tree as~~ trees of a species agreeing exactly with *M. triloba* have ^{rather} ~~some~~ fruit without horns in mature form ^{rather} ~~than~~ those of *M. cornuta*.

2. ~~Blume's~~ ^{Blume's} ~~expanded~~ ^{expanded} description of *Psychotria triloba* (Bidr. For. Nat. Sul. II p. 626) the fruit is described - there is no ~~reference to~~ ^{mention of any} horns. 3. Miller Arg. saw Blume's specimen ^{of} Reinwardt's ~~specimen~~ ^{specimen} and must have made his judgement ~~as to whether~~ ^{as to whether} 4. The young fruit of *M. cornuta* ~~resembles~~ ^{has resemblance to} ~~as seen~~ ^{as seen} ~~it~~ ^{it} has split the calyx.

Furthermore Smith ~~was~~ ^{did not} recognize the ~~difference~~ ^{difference} in the ~~male~~ ^{male} inflorescence, ~~he found~~ ^{he found} ~~inflorescence~~ ^{inflorescence}, the ~~male~~ ^{male} ~~in~~ ⁱⁿ the gland ~~at~~ ^{at} on the underside of the leaf such Miller Arg. noted. ~~It is clear from~~

Smith's words ^{of} the female panicle of *M. triloba* "simpliciter vel plerumque simpliciter paniculatae", "pedunculo . . . 1.5-6 cm. longo . . . floribus pluribus ad apicem valde congestis" "Capsula . . . cornuta 4-6 nerviculis, erectis, divergentibus", it is clear that he ~~was~~ ^{was} ~~was~~ ^{was} describing *M. cornuta*.

~~But~~ ^{But} from his ~~words~~ ^{words} ~~does~~ ^{does} ~~remain~~ ^{remain} on the male panicle, it is not clear if ~~he~~ ^{he} ~~is~~ ^{is} referring ~~to~~ ^{to} ~~both~~ ^{both} ~~species~~ ^{species}. One must regard Smith's description as referring to both species.

The description given by Sax or K. Hoffman is also mixed in of their ~~Part~~ ^{Part} ~~K. Hoffman's~~ ^{K. Hoffman's} figures 63, B is the male inflorescence of *M. triloba* & C shows a male branch of that of *M. cornuta*. Sax ~~is not~~ ^{is not} certain ~~to~~ ^{to} ~~what~~ ^{what} ~~species~~ ^{species} of what Ridley's description applies (F. B. Nat. Pan. III p. 298) as it evades the critical points.

Hooker (F. B. I. V. p. 453) appears to have had very scant material of *M. triloba* & his description of the female panicle certainly refers to *M. cornuta*. I would refer Wright's ~~base~~ ^{base} ~~of~~ ^{of} ~~the~~ ^{the} ~~species~~ ^{species} ~~to~~ ^{to} *M. cornuta* ~~as~~ ^{as} ~~well~~ ^{as} ~~as~~ ^{as} *M. triloba* as Miller Arg. & subsequent authors have done.

I fear that one must regard ^{as} ~~all~~ ^{all} descriptions of *M. triloba* subsequent to Miller's.

M. Halletrii King ex Hook. F. B. l. v. p. 452.

This is nearly the form state of M. cornuta with undivided blade. I have not seen the one specimen cited by Hooker namely, "Perak, King's Collector", but there are many sheets of ~~M. Halletrii~~ ^{from} M. Halletrii in the Singapore Herbarium which agree exactly with Hooker's description some of them from Perak, & there are sheets showing the transition from the simple to the 3-lobed leaf on the same sheet. I therefore reduce M. Halletrii to M. cornuta.

M. quadricornis Ridley, Rev. Bull. 1923 p. 307

I have no hesitation in reducing this species to M. cornuta. Of the two ~~specimens~~ ^{collections} (syntypes) cited by Ridley I have seen ^{only} Burkill 6557 which is typical M. cornuta & a 3-lobed fruit. There is no difference between the fruit & those of M. cornuta & they have 5 horns in flower, though one or two may be abortive.

M. divergens Muell. Arg. DC. Prodr. xv. 2.

This species was described ~~as~~ M. cornuta. From Mueller's description & that of Pax & Hoffmann (Pflanzg. iv. 147, vii. p. 382) I conclude that it is based on ~~a~~ ^{an} ~~fruit~~ ^{specimen} of M. cornuta with ~~more~~ ^{rather more} ~~heavy~~ ^{heavy} leaves than usual & with ~~more~~ ^{more} ~~fruit~~ ^{fruit} & I reduce it accordingly to M. cornuta.

Concerning M. tenuifolia M. Arg. & M. bancana I refer to ~~the~~ ^{as there is no information available} ~~same~~ ^{same} ~~of~~ ^{of} ~~fruits~~ ^{fruits} or female specimens & fruits.

M. Bartlettii Torr. Pap. Michx. Acad. Sci. Art. & Lett. xix. 1934 p. 161. Tab. xxiii
Sir,

The description & plate ~~are~~ ^{is} in ~~an~~ ^{an} ~~index~~ ^{index} ~~of~~ ^{of} ~~the~~ ^{the} ~~company~~ ^{company} from ~~of~~ ^{of} ~~the~~ ^{the} ~~company~~ ^{company} M. Halletrii with ~~simple~~ ^{simple} leaves. M. Bartlettii ^{To} therefore seems a synonym of M. cornuta.

19 } Signed by Fair Copy

DRAFT

conclusions are as follows:-

Macaranga cornuta Muell. Arg. DC. Prodr. xv. 2, p. 987⁸.

= M. triloba ~~non~~ sensu auct. pro parte

= M. hullettii King ex Hooker F.B.I. v p. 452

= M. quadricornis Ridley Kew Bull. 123 p. 367

= M. Bartlettii Merrill Pap. Phil. Acad. Sci. Arch. & Hist. XIX (1434) p. 161.

= M. emergens Muell. Arg. DC. Prodr. xv. 2, p. 987
n. var. xxiii

Macaranga triloba (Bl.) Muell. Arg. DC. Prodr. xv. 2, p. 987.

= M. cornuta ~~sensu~~ sensu auct. non Muell. Arg.

Macaranga

? for Kew

♀
M. pruniosa

♂ think this is the same as M. rosei. It
is the earlier name.

♂

~~Macaranga~~ ~~parabensis~~ ? aff. *parabensis*

12.8.37

Fruits green with streaks yellow granular
2-lobed each lobed with a shallow
sulcus base

Seeds black, surrounded in ~~orange~~ pulp then
orange pulp.

Leaves glaucous beneath, light green, with a
rather dense
hair of oval dull yellowish to brown at a point
on upper side of leaf at insertion of petiole
Petiole commonly pubescent, stipules pale green
Ternstroemia

FS/6

M. Mur. 32736 Cam. Highland, Boka Plant. 24.4.37, 3700'
 " 32838 " " " " " " 2.4.37
 Corner s.n. Fraser's Hill, 12.8.37
 M. Mur. s.n. Cam. Highland. April 1937

Yacouanga ? parvencis

Twig finely adpressedly hairy when young, soon glabrous, old, not
glabrous

Stipules .8 - 1.6 cm long, semi-amplexical, stipule oblong, pointed, thin,
soon reflexed subpersistent rather conspicuous, fine finely adpressed
hairy along midline on both surfaces, otherwise glabrous.



lamina 12 - ~~30~~ x 7 - 26 cm. broadly oval, base rounded, margin entire or
very slightly toothed, base rounded, not cordate margin entire or
paracordate to 1.5 cm. with a pair of elliptic, eye-like glands one on
each side of insertion of petiole on upper side of the blade: with
numerous yellow gland dots on the underside.
vein 8 - 12 p. lateral : 8 - 11 basal. (incl. midrib)

Petiole 5 - ~~14~~ ²² cm. pubescent at first, soon ± glabrous
inserted 1.5 - 4.5 cm. from edge.

Young leaves. densely hairy

Branch - on the branches twigs behind the leaves the hairs conspicuous
wholly finely adpressedly pubescent, with rather zig-zag joints

length 4 - ~~10~~ ¹² cm. long

ped. 1 - 3 ⁵/₈ cm. glabrous

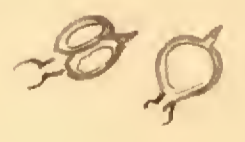
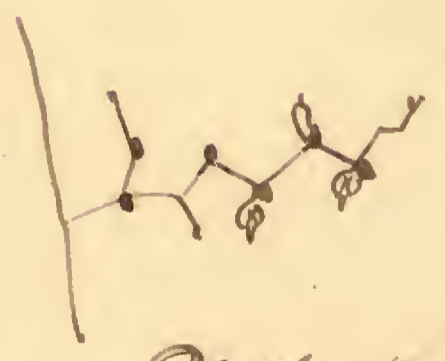
bractes - 5 cm. long, specially arranged, with very zig-zag joints

bractes 3 - 8 mm. spalculated at base, microscopically entire with 2
shortly stalk with a slight anucle in each side of base of stalk
large marginate glands side by side on upper side, or one big
gland only. the underside adpressed. pubescent

bract 6 - ~~10~~ ⁹ mm long, like rudimentary leaves with evenly
dentate edges & 2 large glands at base on a bract side, the glands
smaller than those of the bractes

fls. 15 - 30 in a cluster, distinctly stalked, glabrous, with
3 separate oval-lanceolate perianth segments & 5 - 8 stamens
one on them 3 decided.

stalls 1 - 1.5 mm. long



18010, Henderson Cam. Highl. 5000', 28: 11-25 (det. M. punctulata
 m. auriculata)
 Burkill & Holttum 8658, Sch. 1922, Fraser's Hill, det. M. punctulata.
 8522

Md. War 1161, 29.8.23. Fraser's Hill, det. M. punctulata.

Macaranga sp. mountain 31246 Cam. Highlands
 aff. punctulata R.K.H. 14.5.36, 47th mile Telom P.

+ 4800

in infloresc.: ^{single in axils of older leaves & on twigs behind the leaves} persist. covered with ^{glistening white glandular hairs (fresh)} densely brown ^{furfuraceous-yellow when dry.}

length 6 - 18 cm.

peduncle 5 - 20 mm. long, short & inconspicuous

branches - 6 cm. long in lower part of panicle, not branched
 or with short ~~primary~~ ^{secondary} branches. The
 primary branches numerous & rather closely ^{arranged} ~~spaced~~
 along main axis to form a panicle

bractlets 2 - 4 mm. long ovate, generally acute & often
 the point patent, the upper dorsal bractlets often
 blunt: entire

bracts: as bractlets but rather ~~more~~ lanceolate.

♂ fls. villous, subsessile, ¹⁰⁻²⁰ many in a glomerulum: calyx 3-lobed with 2 (-3) stamens
 glaucous internally.

Lamina ~~very~~ glaucous beneath ✓
 rather small.

blade 8 - 17 x 5 - 11 cm. ^{obovate} obovate, acute, obovate obovate
 distinctly longer than broad, base rounded or short subgibbous, dentate, not

lobed, subcordate. sparsely hairy on the veins underneath, otherwise glaucous:
^{densely yellow gland dotted underneath, the glands imperforate}

veins 7-9 for 1 primary: 7 basals (incl. midrib)
 veins brown beneath, reticulate in detail

stipules 3-7 mm. long, conico-lanceolate, glaucous, & early deciduous

young leaf hairy

petioles 4 - 4 cm. long, glaucous. From the first: glaucous

twigs solid, glaucous: glaucous: not cut inhabited: solid

All parts glaucous (from the first) except the young lamina &
 the inflorescence. Lamina densely woolly at first but soon
glaucous except for the sparse hairs along the veins on the
 underside of the blade.



in Saplings
 up to 35 x 20 cm!

But Stricknell
 1432 14632
 Jap. Pahang,
 1.3.28
 det. M. punctulata
 has the twigs,
 bractlets & underside
 of vein
 softly hairy:

+ infl. as male, 4-20 cm. long; ^{usually yellow-scurfy} fls. solitary, 4 mm. wide; ^{spread along the pedicel} petals 3-8 mm long
 calyx with 2-3 lobes, shallowly cupular; styles ^{2-4, mostly 3} 3, short, ^{short, even or curved} curved
 ovary 3-4, mostly 3-celled; no ~~is~~ pronounced peduncle
^{yellow glandular otherwise smooth}
^{dotted}
 fruit: 12-15 mm. wide, subglob. or subconical, with 3 (occ. 2 or 4)
 carpit. green, green, ^{wholly} covered with yellow sticky glandular powder.

M. puncticulata Gage

- 1. is very similar but differs in ~~...~~
- 2. a tree of lowland swampy forest
- 3. always with fistular, ^{not glaucous} ~~...~~ uninhabited by ants
- 4. the yellow glands on underside of blade are sunken in epidermis which evidently has quite a different structure
- 5. inflor. has bract 6-9 mm. long, often with 1-3 teeth
- 6. ♀ inflorescence has the flowers clustered ^{in a head at} ~~at the top of~~ the top of a long peduncle. & than the fruit are in a head
- 7. the calyx of ♀ fls. is ^{rarely} 4-5 lobed

I am sure they are 2 different but very closely allied

species

Compare M. caladiifolia Becc ^{Males. II} Males. II 1884. 46, p. 3. } it is
M. tenuirama Parac et Hoff. } ^{neither} of these
 may well be this

Macaranga ? tenuifolia

Macaranga - small one from Hawaii leaves have fleck beneath

Twigs glabrous, w/d occasionally the twigs are pilose ^{with rather long hairs when young}

Stipules 6 - ~~12~~ 1.4 cm. ^{1.4 cm.}
 broadly ovate crispate- acuminate, decurrent
 glabrous or slightly hairy on the back when young: perisperm, thin, plant
 with a fine minute gland-dot at base on outside (i.e. where food-trails would be)

laminae - ^{divided $\frac{1}{3}$ to $\frac{2}{3}$ of length}
 along-vein ^{with a fine minute gland-dot at base on outside}
 16-20 ~~20~~ ⁴⁰ x ~~15~~ ¹³ ~~25~~ ³⁰

or 5-lobed
 in saplings
 sapling leaves
 even longer

with stip 1-3 cm. long. glandular
 pubescent all round edge.
 rather strongly toothed
 pubescent on main veins on underside
 or whitish pubescent bands

Petiole 12 - 30 cm. finely pubescent. → glabrous, but pubescently
 12 - 25 cm. finely pubescent. - gland-dotted at the apex.
 marked 2.5 - 5 cm. from edge of blade

Basal. vein 7-9-10
 lat. vein 12-17

Young leaves densely hairy - villous, ± glabrescent.

inflow. axillary - glabrous except for glandular ^{craterles} ^{branch & flowers.} ^{what a piece of ramuli}
 length ~~10-15 cm~~ ^{8-24 cm.} shorter than the petioles
 peduncle 1.5 - 10 cm. flattened
 branches 5-5 ²⁻⁴ branches from ^{the first} basal node, ^{main, but & main (lower) branches.}
 wide-spread, lax, paniculate, a Q. cuneata, almost as long as main axis
 bract 5 - 8 mm. long, ovate-concave, entire, sparsely appressed. ^{axial}
 bractlets 3-5 ~~6~~ mm. long, oval with a filiform caudex, identical ^{along the caudex}
 with a few teeth at base of caudex; minutely brown glandular - ^{1-7 teeth along each side of caudex}
 or 2 entire in other collection ^{frumose.}



Calyx shortly 3-lobed. with 1 stamen, anther 3-celled

♀ inflor. glabrous, axillary, much shorter than ♂
 length: $\approx 4-8$ cm.



Macaranga inflor. ♀

ped. ~~2-5~~ 1-5 cm
 branches $\cdot 5-2.5$
 $1-2$ cm long, only 2 branches (occupy the lowest part of flower-clusters)

branch as ♂
 calyx: $\approx 3-4 \times 2.5-3$ mm, sessile (no pedicel) partly pubescent

cupules with slightly sinuous margins, becoming irregularly 4-5
 lobed on the fruit develops
 very glabrous, smooth 4-5, rarely 3, styles erect
 2 mm long slender

2-12 ♀ fls. in a cluster

Fruit, ca. $\frac{1}{2}$ " wide smooth save for the yellow-grooved
 sticky ~~pubescent~~ ^{and round} ~~round~~ ^{round} the base of the horns
 4-5 styles persistent

- ? *Macaranga tanacetifolia*
- ? *M. Mollisoniana* — ant. unhooked, cupules not horned
- ? *M. depressa* — (hairy, ? cupules not horned)

- M. cornuta* differs in
1. \rightarrow branch & ♀ calyxes glabrous or thicker gland-dotted only
 2. leaves never purple beneath
 3. stipules purple
 4. hollow ant. unhooked horns
 3. unbranched ♀ inflorescences: or the lowest part of flower-clusters with very short stalks.

Key to Macaranga, Mallotus, & Endospermum

Ar. unlobed: twigs hollow. (leaves peltate)

- leaves ^{always} 3-lobed - M. Kingii - leaves 3-5 lobed, fruit with horns
- leaves peltate, distinctly - Mac. hypoleuca
- leaves glaucous beneath - Mac. Griffithiana
- leaves lobed nearly to the base, a mark white beneath - Mac. triloba
- leaves lobed about 1/3 their length or less. - Mac. Hosi
- leaves not glaucous beneath - Mac. Hosi
- leaves not peltate or scarcely - Mac. Hosi
- leaves not lobed, or rarely so. - Mac. Hosi
- leaves up to 6" wide, oblong, thin: fruit with horns - Mac. Hottelii
- leaves 5-15" wide, broad, rather leathery: fruit without horns. - Mac. punctulata

Ar. lobed: twigs solid

- leaves ^{always} distinctly peltate
- Blade ^{3-lobed} ~~very large~~ ^{blade large} : twigs very rusty: stipules 1-2" long - Mac. grandea
- Blade ^{medium} ~~very large~~ ^{blade medium} : purple beneath: stipules not 1" long - Mac. ?
- Blade ^{white or} brownish white beneath: twigs rusty brown scurfy or woolly. - M. Mangayi
- Twigs woolly: leaf with 3-point ^{or lobes}: fruit woolly, in strings - Mall. var. varus
- Twigs scurfy: leaf not lobed: inflorescences on the branches - Mac. denticulata
- Blade glaucous beneath: not brown scurfy
- Twigs underside of blade hairy - Mac. tanara
- glabrous - Mac. ? herbacea
- Blade ^{not toothed} 3-6" wide: fruit with 3 or 4 bristles - Mall. floribundus
- Blade ^{toothed} 5-15" wide: fruit with 3 or 4 bristles: Mac. recurvata
- Blade 3-7" wide, thin, ^{stipules finely toothed}: fruit with 3 or 4 bristles: Mac. ? of mountain
- Blade not so - Mac. diepenhorstii

leaves not ~~scarcely~~ peltate

- leaves brownish white ^{scurfy} beneath: inflorescences from the ends of the twigs (Balek Angai) - Mall. tiliaefolius
- leaves opposite, in unequal pairs: East Coast - Mall. tiliaefolius
- leaves generally spirally arranged
- Blade up to 5" wide: fruit with short bristles - Mall. paniculatus
- Blade up to 11" wide: fruit very woolly - Mall. macroschelus
- leaves glaucous beneath (darker white)
- Young shoots rusty scurfy: ~~inflorescences on branches~~ ^{leaves slightly peltate: inflorescences on branches} - Mac. tobiginosus
- Not so: inflorescences in leaf-axils - Mac. populifolia
- leaves not so: inflorescences 20' - Mac. trochocarpa
- leaves rough hairy on both sides - Mac. trochocarpa
- Not so: ~~leaves up to 25" wide~~ - Mall. porterianus
- ~~Big tree with terminal branching~~ - Endospermum
- leaves heart-shaped or narrowly peltate - Mac. alt. peltate
- Mall. barbanus

M. triloba

Common Pahang — "Pahang"

A small tree to 20' with uneven, open, shaggy crown: ~~leaves~~ ~~not~~ ~~inhabited~~: glabrous
in ~~the~~ ~~underside~~ of the leaves finely hairy: stipules 3-2" long purple or bronze, ~~the~~ with downturned
points pressed against the wings: young leaves often reddish purple beneath for a long time.

Blade 4-12" wide, ~~flat~~ divided ~~at~~ about $\frac{1}{2}$ its length or less into 3 pointed lobes,
finely veined thin, ~~green beneath with yellowish (scarcely pink) veins~~: stalks 2-9" long, ~~green~~

Flowers ~~5-9" long~~ 5-9" long, dilatation, much branched, axillary or on the underside of
the leaves, ~~the~~ ~~stalks~~ $\frac{1}{2}$ -3" long ^{short} flat: wax green, powdered white, minute, blunt.

Female panicle 3-5" long wide, much branched, ~~from the base~~ ~~with or without~~ ~~short stalks~~

Fruits 4-5" wide 4-5 shouldered, rather rose-red, with yellow sticky powder on
each shoulder palpy with a red juice: unripe fruit with patches of pale green powder on each inflected shoulder.

seeds black, round, one to a shoulder, thinly covered with reddish purple hairs or pubescence hairs

W. Malaysia: very common throughout Malaya.

Compare the following species which may also have 3-lobed leaves. FS/11

M. gigantea

not unbranched

Giant Pahang Elephant Ear
"Telingga gajah"
Aluobok

A bushy tree to 60' high with very coarse, ^{massive} branches.
Large-leaved rounded crown: large leaf stalks & underside of leaves hairy with
of tea sticky-hairy. Stipules very large & conspicuous 1-2 1/2" long, flat, not curled back.
Leaf blade 10-30" wide, ~~can~~ ^{is} about as long, peltate, with 3-5
lobes or points, ^{topped} ~~pointed~~, not glaucous: stalks 6-20" long.
Male panicles 8-15" long, much branched; female 5-8" long, on the leafy twigs.
Fruit 3" wide, 2-shouldered, in bunches.

Malay Peninsula, Sumatra, Java: common in Malaya, ~~is~~ ^{scarce in Singapore.}

The leaves of this tree have ^{thrust} ~~longer~~ ^{longer} blades than those of any other
in Malaya. ~~They are~~ ^{They are} a yard wide.

M. triloba

Common Pahang, "Pahang"

A small tree to 40' with uneven, shabby crown: the rings are unbranched.
Glabrous, the underside of the leaves often very finely hairy: stipules 3-2" long,
purple, with the points downturned, ^{pressed against the twig} ~~family persistent on the twigs~~.
Leaf blade 4-12" wide, peltate, divided up about 1/3 its length or less into
3 pointed lobes, finely toothed, thin, not glaucous: stalks 2-4" long ^{green}.
Male panicles 5-9" long, much branched, on the twigs just below the leaves.
Female panicles 3-5" long, much branched.
Fruit 1/2" wide, ^{4-shouldered} ~~2-shouldered~~, in bunches.
W. Malaya: very common throughout Malaya.

Compare the following species, ~~the leaves of which may have 3-lobed leaves, also~~

M. Hillebrandii = M. cornuta

Branches & calyx glabrous

Horned Pahang

v. like the preceding ^{perhaps only a form of it} ~~with~~: -
leaf blade typically ^{light or shining green, the leaves ever adding purple length} ~~undivided~~ ^{undivided - generally 3-lobed} ~~3-lobed~~ ^{3-lobed} ~~up to 12 x 6"~~ ^{in some cases}
male panicles with the stalk 3-8" long, mostly in the leaf axils, ^{with pointed bracts} ~~with pointed bracts~~
female panicles with the stalk 2-4" long, ^{in some cases} ~~in some cases~~
head at the end of the inflorescence stalk, ^{the fruit with 4-5 conspicuous horns} ~~with 4-5~~
Malaya, ~~from Java to Perak~~

Malaya - Sumatra: Male frequent from Malacca to Perak

The form of with 3-lobed leaves is very early mentioned for M. triloba in the sense of flowers or
old or young plants may have either shape of leaf, the 3-lobed leaf not necessarily being a sapling ^{traces} ~~traces~~ ^{of a more} ~~of a more~~ ^{of a more}

M. griffithiana

Griffith's Pahang

very like M. triloba ~~with~~: -
leaf blade ^{young leaves not purple} ~~leathery~~ ^{leathery} ~~very~~ ^{very} ~~glaucous beneath~~ ^{glaucous beneath}: of the main vein leaf stalks ^{pointed} ~~pointed~~
inflorescence stalks white-purplish ^{with 4-5 or 6} ~~with 4-5~~ ^{with 4-5} ~~with 4-5~~ ^{with 4-5}
fruit 2-5" wide ^{with 4-5} ~~with 4-5~~ ^{with 4-5} ~~with 4-5~~ ^{with 4-5}
Malaya, Sumatra: very common in swampy ground in Malaya

M. hypoleuca White Mahang, Pahang patch
 A small tree ~~up to~~ to 60' high: large leaf-stalks & under-
 leaves ~~are~~ white from a waxy bloom: stipules ~~small, pointed, narrow, not~~ ^{small, pointed, narrow, not} ~~curved~~
 leaf-blade 6-12" wide, ~~deeply~~ petulate, ~~deeply~~ deeply divided in 3 lobes, ^{containing}
 rarely 5, rounded, the lobes ~~a~~ drooping: scales ~~are~~ ³⁻⁹ 3-9" long.
 Pale flowers 8-15' long female 3-6' long, ~~with~~ on the leaf buds.
 Fruits ^{light glaucous green with a black shell & yellow sticky masses} ^{3-shouldered} ^{small}, in dense spikes, clusters 2-6' long
^{3 seeds black with dulled, then pulp}
 Malay Peninsula, Sumatra, Borneo: common in Malaya.

Unmistakable through the ~~dark~~ leafy 3-lobed petulate leaves ~~above~~ beneath.
M. Rosei ~~(see above)~~

M. punctulata ~~stipules 1/2" long, pointed with incurved sides~~ ^{Swamp Mahang, Kuala Kubing}
 - stipules 1/4" long ^{from falling off}
 A common tree of swampy forest, up to 70' high, with large leafed
 crown, ~~more~~ ~~long~~ ~~ant~~ ~~incurved~~ ~~(antennae)~~ ~~stipules 1/2" long~~
 leaf-blade 5-15" wide, petulate, ~~vale~~ ~~with~~ ~~3-lobed~~ finely rosetted on
~~margin~~ ~~in~~ ~~margin~~, ~~stake~~ 4-10" long.

~~inflorance~~ ~~inflorance~~ ~~in~~ ~~the~~ ~~leaf~~ ~~axils~~; female ~~from~~ 2-4" long, male longer
 Fruit 1/2" wide ~~with~~ ~~3~~ ~~grooves~~ ~~in~~ ~~each~~ ~~side~~, ~~low~~ ~~down~~ (young, like the female).
 Malaya: ~~forest~~ ~~in~~ ~~the~~ ~~lowland~~ ~~or~~ ~~in~~ ~~the~~ ~~hills~~

This & the following two species, are common trees, at a
 swampy forest at they are little known & rather easy to confuse,
 from a distance they are indistinguishable.

M. recurvata - glabrous: stipules 1/4-1" long, pointed, green, upright with incurved sides & persistent).
^{young leaflets purple} ^{inconspicuous} ^{branches, erect, with} ^{no} Marsh Mahang
 very like ~~the~~ M. punctulata but ^{more} ^{erect}
 buds etc glaucous: leaf-blade ~~glaucous~~ ^{glaucous beneath}, ~~not~~ ~~ant~~
~~incurved~~, ~~the~~ ~~veins~~ ~~obvious~~ ~~with~~ ~~at~~ ~~an~~ ~~angle~~ ~~in~~ ~~the~~ ~~veins~~ ~~at~~ ~~the~~ ~~tip~~!
 Malaya: ~~around~~ ~~in~~ ~~swampy~~ ~~forest~~.
 Compare Mallos flavitubus with small leaves not lobed.

M. dieffenhorrii ^{recurvata} ^{fruit stalk with} ^{not} ^{curved} ^{at} ^{tip} ^{is} ^{not} ^{curved} ^{at} ^{tip}
 - 50' very like ~~M. punctulata~~ ~~but~~: ^{stipules green, erect, leafy} Dieffenhorst's Mahang, "Setapa"
 glabrous except the ~~to~~ finely hairy leaf-stalk (sometimes hairy only at the top):
 leaf-blade thin ^{not glaucous beneath} ^{glabrous}, inflorescences ~~from~~ ~~the~~ ~~veins~~ ~~behind~~ ~~the~~ ~~leaves~~, the female 3-5"
 long: fruits 3' wide small 2-shouldered, ^{mostly on long, curved leaves} ~~not~~ ~~ant~~ ~~in~~ ~~habit~~
 Malaya, Sumatra: common ~~in~~ ~~the~~ ~~low~~ ~~land~~ ~~or~~ ~~in~~ ~~the~~ ~~hills~~ by streams & rivers in the ~~vicinity~~ of the
 Pahang, Kelantan: up to 2000' at G. Simpoh
 Perak, ~~from~~ ~~the~~ ~~low~~ ~~land~~ ~~to~~ ~~the~~ ~~high~~ ~~lands~~ & in the neighbouring part of Kelantan is
~~not~~ ~~common~~ ~~else~~ ~~where~~ ~~in~~ ~~Malaya~~.

Compare Mallos flavitubus which may have the same many names.
 M. Hartleyi & M. curvata in Sumatra & Java in fact it has different species.

Fring petals & underside of
leaves glaucous orange blue white

M. Rosei

Rose's

Manang.

like the white Manang, but:-

leaf blade deeply 3 lobed, not or scarcely peltate, base deeply
nearly crumpled at the base, lobed, finely hairy beneath (rather thick)
stipules 1-2", semi-orbicular, broad, blunt, down-turned, thin, green
fruits 1/2" wide, 2-shouldered, 2-seeded

S Malaya Peninsula, Sumatra: rather common in lowly places through out Malaya
locally a weed in the meadows of the country.

This may be mistaken for M. hypoleuca which has rather thick leaves & light green stipules will distinguish it from a distance.

M. Maningay

Very like M. Rosei but the leaf peltate lobed only to the
middle or less, the stipules generally rather upright and
without lobes into the wings (wings solid).

Malaya: frequent in swampy forest in the middle southern half of
Malaya.

M. Kingii

Devil's Mahang

A sparsely branched shrub or small tree up to 20 ft. tall with stout, unbranched
waxy-glaucous stems, ~~leaves with~~ ^{glaucous} ~~leaves with~~ ^{3-lobed} ~~leaves with~~ ^{leaves with} ~~leaves with~~ ^{leaves with} ~~leaves with~~ ^{leaves with} ~~leaves with~~ ^{leaves with} ~~leaves with~~ ^{leaves with}
leaves 10-24" wide, enamelled, with 3-5 large lobes and
(altogether) 7-8 ~~points~~ ^{Sit.} peltate, yellowish green above, more or less intensely
purple underneath with yellow green veins; stalks 8-15" long; stipules
3/4-1 1/2" long, purple brown, hard, pointed with recurved sides, pointing
perpendicularly down the stem like pair of horns, with white food-lodes
on the underside.

In flower a stalked head; fruits 1/2" wide, slightly 2-shouldered, a stalked head.

Signed by
Fair Copy

DRAFT

This is one of the most remarkable Malayan plants we cannot withhold it from our work. It may be commoner than this is supposed.

M. d. canariensis

1.
- 1/4" wide in sapling?
not lobed

stems & veins of sapling leaves
often red

lanceolate, upright
± persistent at least
no near base of the
twigs.

A small to medium sized tree 20-70' high
Verrucate & glaucous
not ant. unshaded
- lanceolate
puberules

leaf-stalks & underside of leaves
stipules 1/2 - 1" long, pointed
leaf-blade 3-9" wide, petiole, usually wide about as long as broad,
more or less
sometimes with 3 points
stipules 2-8" long.

Inflorescence
4-8" long
male 4-8" long
female 4-8" long
from the leaf axils; the
bract lobed.

Fruit 1/2" wide, 2-3 chambered, set with long soft bristles 1/2" long,
covered with yellow dust (of abraded granules)

S. China & Malay Peninsula common in Malaya especially in low places or
near the sea, hill-sides, & in the north: common on Penang Hill.

~~This is the most wide spread species of the genus. This is a ? maritime plant~~
like most maritime plants, this species has a very wide distribution, the underside of the leaves
The soft green light green hairy foliage will distinguish it.

M. denticulata

Mexico, Borneo, Angora

A tree 15-70' high: not ant. unshaded: young leaves & twigs rusty
rusty, becoming greyish or whitish hoary.
stipules small & inconspicuous
(larger in saplings)

leaf-blade 3-9" wide, petiole, ~~about as~~ nearly as broad as long, slightly bilobed,
the upper side
dull green & greyish hoary, the underside distinctly (but not strongly)
glaucous

Inflorescence short, rusty squamulose
mostly from the branches behind the leaves: male panicle 3-7" long
female panicle 2-4" long: few styles red.

Fruit 1/2" wide, 2-chambered, small, green with sticky
yellow dust
India & S. China to Java: common in Malaya especially in the middle &
north of the country.

The petiole, not lobed, leaves with dull hoary green upper side
with
very behind
all other Macaranga.
The inflorescence from the branches

distinct from species from
Borneo, Angora

c.f. *M. populifolia* var. *puberula*
M. populifolia var. *puberula*
E. D. S. ...

Macaranga aff. populifolia

This differs from M. populifolia in the following points:-

leaf-blade ovate-cordate, or occasionally ^{narrowly} orbate, the base with ~~5~~ shallowly or deeply cordate, with 5-7 basal veins, ^{apex} acuminate, ~~thinly~~ ^{distinctly} coriaceous, ~~dull green~~ ^{the edge faintly} to distinctly glandular-denticulate, dull green on the upper side ~~glistening~~; rather yellowish beneath (not glaucous)

Male inflorescences larger 5-12 ^(in M. populifolia 2.5-4 cm. long, in a few cases up to 8 cm long through lengthening of peduncles) cm. long. bracts oblong lanceolate, 7-12 mm. long & blunt or subacute, entire (in M. populifolia broadly ovate, broader than long, 4-6 mm. long, often crenate serrate). bractlets 4-7 mm. long, broader than much larger than broad, ovate-lanceolate, ~~to~~ with a long blunt point, not or scarcely serrate at the ~~to~~ base (in M. populifolia 2.5 ~~4~~ mm. long, broader than long, ovate, deeply serrate at the base). male flowers with 2 stamens, occasionally 1 or 3, distinctly stalked (male flowers with 1, occasionally 2, stamens in M. populifolia, sessile or subsessile)

Female inflorescences 4-9 cm. long, larger, ^{unbranched.} unbranched.

Fruit

Fruit 9-13 mm. wide, larger; with short broad, finely pruinose styles 1.5 mm. long, 1 mm. broad (7-8 mm. wide in M. populifolia, with slender, ~~short~~ lyrate, glabrous styles, 1.5 x 1.3 mm) & the fruit distinctly verrucose as well as granular pruinose).

Habitat: swampy forest, often with stick-rocks.

this is Lindospermum perakensis
check the type (Kunthler-hornel)
at Kew: it is what
Singapore

Macaranga aff. populifolia

Syn. Lindospermum perakensis King apud Hook. fil. F.B.I. ~~1887~~, 1887 p. 458.
(half Macaranga perakensis Hook. fil. loc. cit. p. 449)

A tree up to 25 m. high, with sympodial branches,
often developing ^{after climbing, vertical} stilt-roots ^{up to 2 m. long} at the base: bark light

pur brownish grey, ~~is~~ entire, faintly tuberculate with brownish lenticels 2-3 mm. wide, the leaf-
scars permanent: inner bark light brown but fuscous-purple immediately below the ^{surface} ~~it~~ .5 cm. thick,
easily stripping;

~~twigs~~, twigs glabrous, solid,
leaf-blade 8-~~17~~²⁰ x 5-~~12~~¹⁵ cm, shallowly or deeply
ovate-cordate, the apex acuminate, & occasionally

petiolate (with the stem inserted .5-1.5 cm. from the edge),
the edge finely faintly to distinctly glandular denticulate,

the underside closely glandular dotted with discoid
glands in the areolae, distinctly coriaceous, finely

adpressedly tuberculate when young soon becoming ~~more~~
glabrous or sparsely hairy on the underside, dull green

on the upper side drying ^{light} grey-green, yellowish green on
the underside drying light khaki; primary lateral veins

6-8(-9) pairs: basal veins 5-7: petiole 2.5-14
cm. long, glabrous: stipules 1.8-1.6 cm. long,

con-lanceolate glabrous soon falling off: glands on the upper side
of the blade absent or as 1-5 ~~as~~ small dot-like points at distances of 5-25 mm. from the
midrib or the ~~veins~~ ^{veins}.
Male inflorescences in the axils of the old leaves or on

the veins behind the leaves, 5-10 cm. long, with a few lax

branches 1-2.5 cm. long, glabrous, lax: peduncle 1.5-2.5 cm.

long: bracts 7-12 mm. long, ^{much} oblong, ~~the~~ longer than broad,

blunt or subacute, ~~then~~ entire, thin, glabrous: bract^eles

4-7 mm. long, ovate-lanceolate, ~~not~~ longer than broad, bluntly

acuminate and with 1-5 blunt teeth on each edge, thin,

glabrous or sparsely glandular perforate at the base, scarcely

saccate, forming a cone-like extremity (1-1.5 x 1.4-0.5 cm.) at the ends of the branches
 3-lobed calyx, ~~glabrous~~ male flower with a distinctly 5-lobed
 3-lobed calyx, glabrous calyx enclosing 2, rarely 1 or 3, shortly
 stalked anthers each with 4 (3-5) cells,

Female inflorescence as in the male but rather shorter,
unbranched, the peduncle .5-1.5 cm long. ~~bracts and~~
female flowers solitary or 2-3 together, subsessile, with
a glabrous cupular entire calyx, 1.5 mm high x 2 mm wide,
 and a 2-lobed, granular glandular ovary into 2
 short ^{thick, fleshy pedicels} ~~glabrous styles~~ (rarely tridynous)

Fruit 9-13 mm wide, 6-8 mm high, didymous, on
 a short ^{thick} stalk 2-3 mm long, and with the slightly enlarged
 3-5 lobed calyx persistent at the base, covered with greenish
yellow granular resinous glands. ~~with~~

Distr. S.E. Borneo, Malaya (from ~~Sumatra~~ to Johore)
 Sumatra, Bangka.

Collections:

- Malaya - Wray 2379 (Perak, det. Endospermum ~~parakense~~)
- Scottishini s.n. (Perak, det. Endospermum ~~parakense~~)
- Corner 32974, s.n. 28.3.37, s.n. 13.5.34 (Johore)
- Corner s.n. 1.5.37 (Trengganu)

Borneo - Boschproefstation 9941, 17.6.26, Kuala Kapuas.
 (det. M. populifolia)

- Sumatra - Boschproefstation 153E-IP-845 (female) (Palembang)
- " " 153E-IP-1021 (male) (Palembang)
- (det. M. populifolia)

Bangka - J.D. Kolbus s.n. (Herb. Hort. Bog.), Teysmann s.n.
 (Herb. Hort. Bog.) (det. M. populifolia)

M. F. Stapleton

G 80

MEMORANDUM

To

veins lat. 7-8
br. 3-veined

~~edge entire~~

→ inflor. 2.5 - 4 cm. - no
ovary 6-10 cm. long

low base ^{v. elongate}
up to 8 cm. long but - not
ovary

Stamen
small or
sunken
inflor

bractlets ^{broader than long}
2.5-4 mm. long, ^{saccate} deeply
incisodentate, ^{plum} fimb. glandular, ^{v. anthers}
especially at base.
bract: broadly oval, broader than long, 4-6 mm.
long

♀ inflor - 5 cm. long
with a few short .5-1.5 cm. long branches

fruit 7-8 cm. wide
fimb. glandular - granular with
few barbae

Style slender, bicarinate, recumbent, glabrous

3762

Tegmann, 3644, Tubuan pr. Ogan
Ulu, Palembang

39

examined from Herb. Hort. Bot. Bog

30.5.38.

From

Type

M. javanica var. ~~is~~ montana Muell. Arg.

D.C. Prodr. xv, # 2, 1865, p. 1005

Syn. *M. robiginosa* Ridley New Bull. ^{Dec.} 1923, p. 367.
M. Heynei I.M. Johnston Contr. Gray Herb. 68, Aug. 1923,
p. 90 (fide Merrill, Contr. Ann. Arb. VIII, 1934, p. 88)
After studying the common wild ~~tree~~ ^{trees} called *M. robiginosa*, in Malaya, and examining the ~~other~~ dried specimens of *M. javanica* from the Buitenzorg-herbarium, I conclude that *M. robiginosa* is only a variety of *M. javanica*. The difference between them lies in the ~~leaves~~ bracts. In general construction, foliage, venation, flower and fruit they are identical: but in the bracts several variations can be distinguished. These variations are caused by the size of the bract, the ~~width~~ ^{degree} of "webbing" of the ~~leaves~~ marginal-teeth, the number of the marginal teeth and the presence or absence of glands. One can distinguish several "varietal states" but how constant they are can be discovered only after extensive study of the species from ~~more~~ ^{more} abundant material. more abundant material and from many more ~~numerous~~ localities. The variety ~~is~~ with broadly webbed, 1-2 glandular, waxy bracts which is so common in Malaya and Sumatra, was distinguished by Muell. Arg. under the ~~unfortunate~~ most inappropriate name "~~montana~~" "montana". The distinctions between

♀ typical M. javanica and var. montana is
~~shown~~ described below and shown in Text-Fig.

M. javanica typical

Bracts 6-20 mm. long, ^{1-4.5 mm. wide,} $\frac{1}{2}$ linear, lanceolate or
 ovate lanceolate, entire ~~or~~ ^{sinate} or with 1-6 $\frac{1}{2}$ short
 teeth on each edge, spreading, ^{often with a stalk 1-3 mm. long,} ~~with~~ generally with
 a ~~subterminal~~ subapical gland and 1-20 superficial
 glands on the upper side, ~~with more or less distinct stalks 1-3 mm. long~~

~~Sumatra, Bangla, Java.~~

~~var. montana~~

~~Bracts~~

Male flowers generally with 3 stamens, occasionally 2.

Sumatra, Bangla, Java.

var. montana

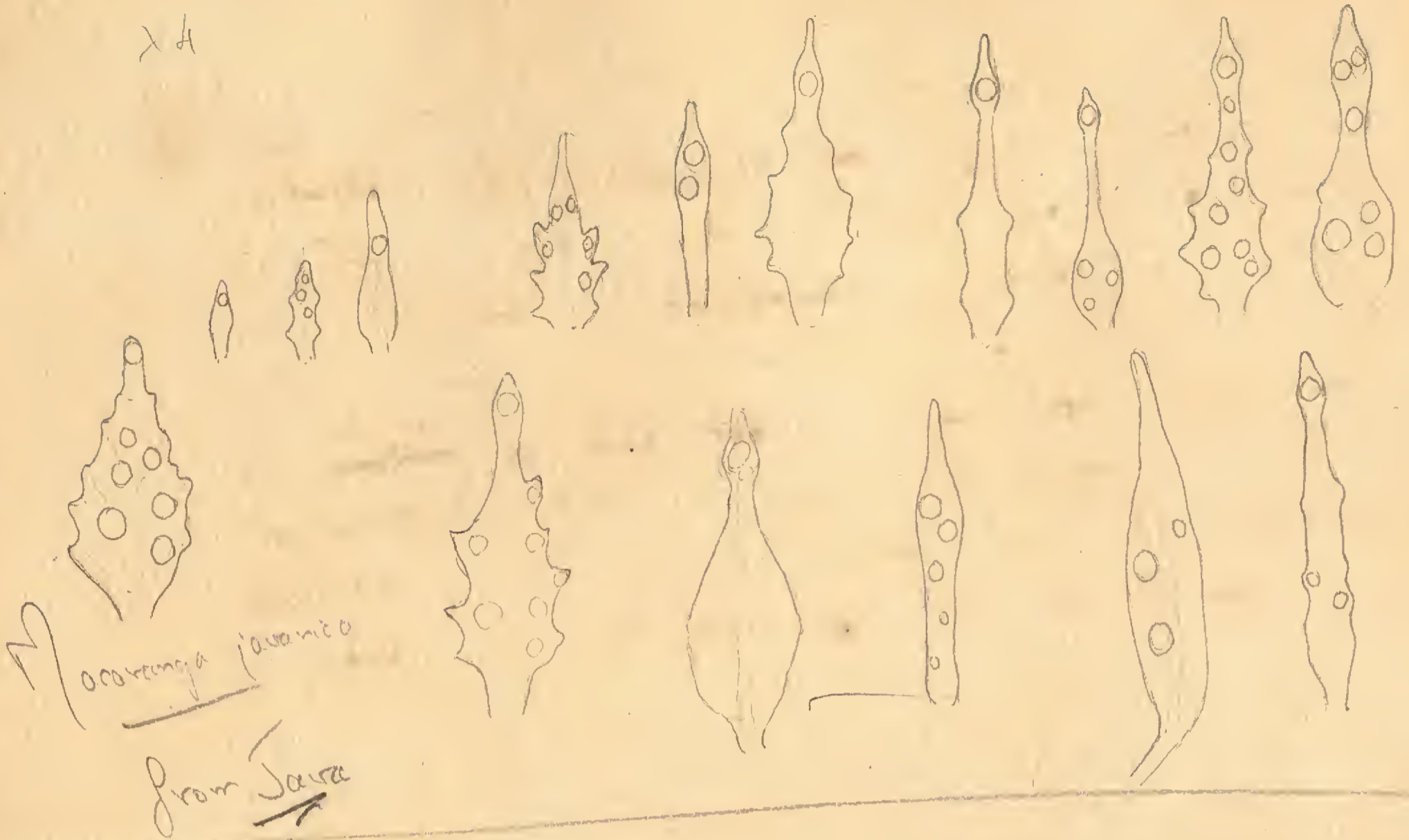
Bracts 4-13 x 3.5-10 mm., ovate, sessile or
 subsessile, often cordate, the edge more or less deeply
 dentate with ~~2-8~~ 2-8 teeth on each side, bluntly acuminate,
 generally with ^{only a} ~~subterminal~~ subapical gland, or in some cases with
 1-3 small superficial glands.

Male flower generally with 2 stamens, occasionally 3.
 Siam, Malaya, Sumatra, Java, Bangla.

~~But~~ There is a ~~form~~ form in Malaya, which is

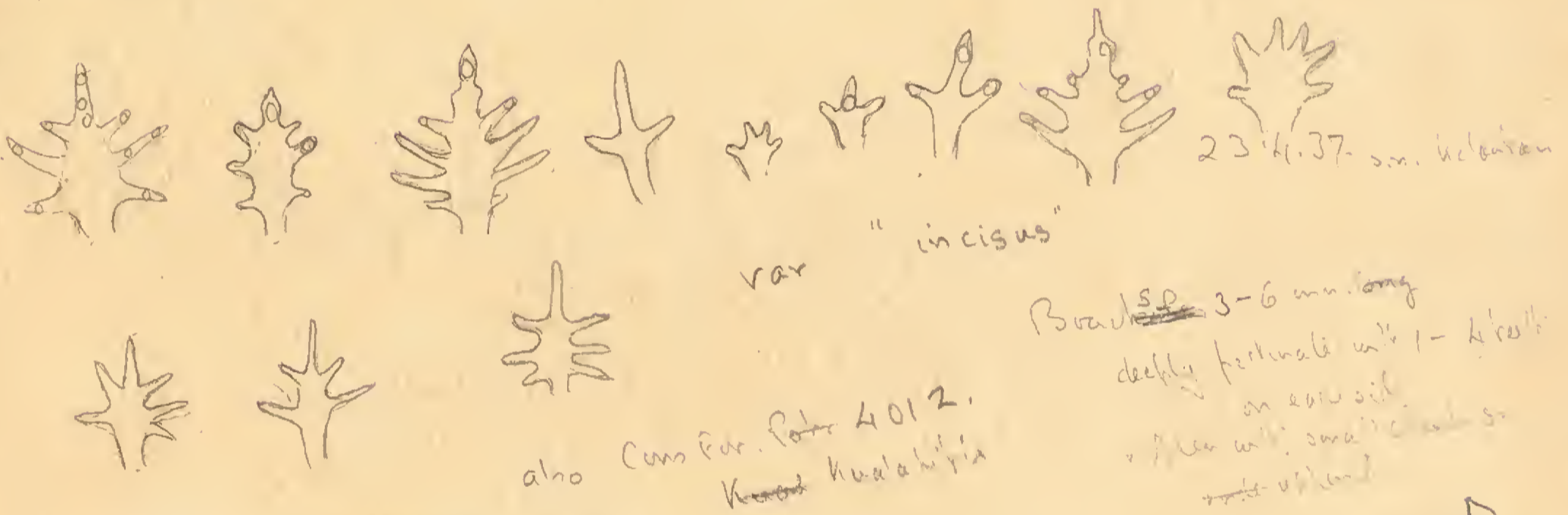
restricted apparently to ~~the~~ Pahang, Trengganu and
 Kelantan, which has linear pectinate, trifid
 or simple bracts ~~as shown in Text Fig.~~ only
 3-6 mm. long, as shown in Text-Fig. It
 has ^{shorter} ~~smaller~~ ~~or~~ more toothed and less glandular
 bracts than of typical M. javanica but and
 shorter and much less "webbed" bracts than var. montana.
 It also has 2 stamens in the male flower.

X4



Oocystis javanica
from Java

X4



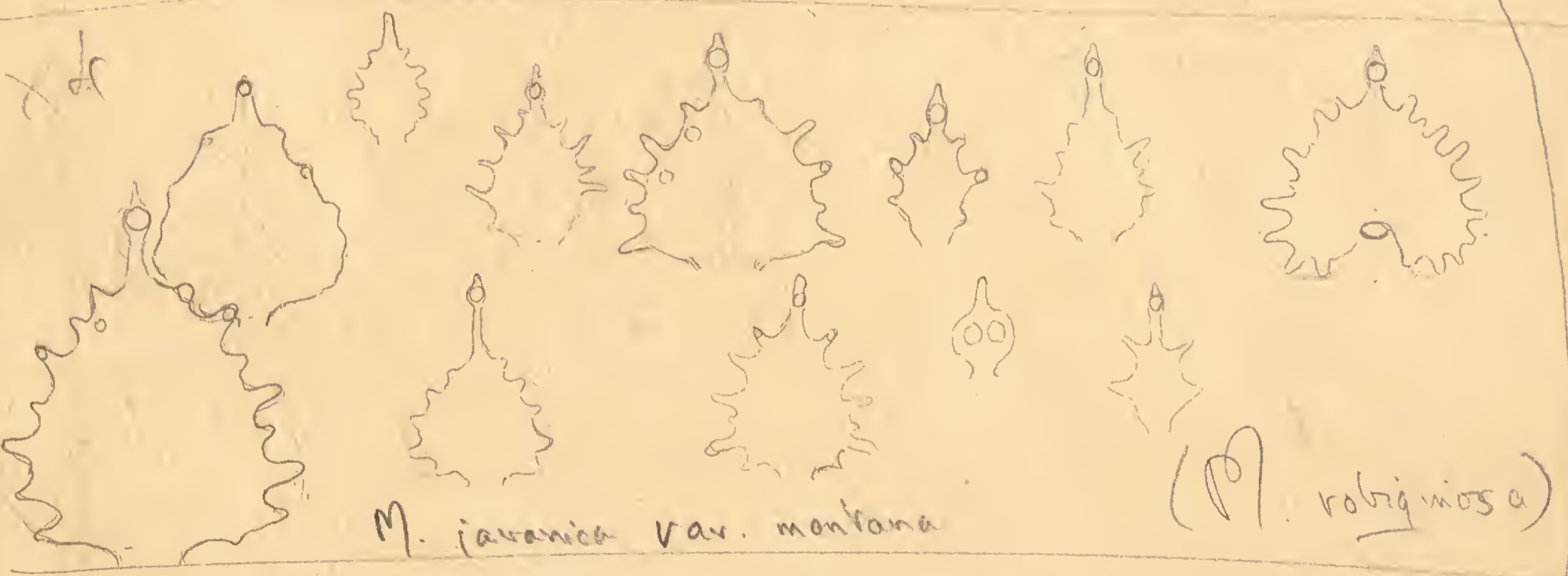
var "incisus"

23.4.37. sm. Kelantan

Brood ~~SD~~ 3-6 mm long
deeply forked with 1-4 cells
on each side
often with small dark spots
on the surface

also Com. For. Plate 4012.
Kuantan Kuala Lumpur

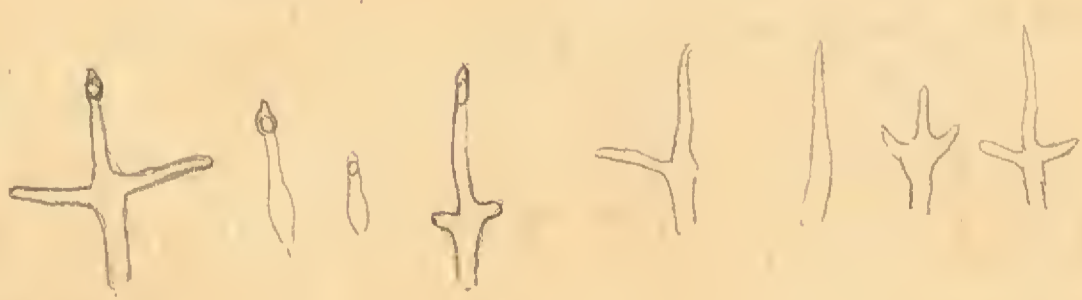
X4



M. javanica var. *montana*

(*M. rodriguesi*)

X4



Symington 28913, Kuantan
~~Kelantan~~

occasionally \rightarrow v of fls
on same influence!

acarugo japonica

Bl.

entire

alt. vein } 9-13
var. vein } 3
pro
petiole

stipule - 12 mm, ^{5 mm wide} ovate-lanceolate, caducous,

Twig

\rightarrow inflores. - 29 ~~19~~ cm.
branches 12 to cm. sparse
peduncle 3-1.5 cm.

bract 6-15 mm. x 1-3 mm, sometimes with a stalk 1-3 mm long

bracteoles like the bract ^{with smaller v} or with transverse bracteoles round the flower cluster

calyx

stamen

\uparrow inflores. - 21 ~~19~~ cm.
branches 1-⁵ cm. long sparse, alt.

peduncle 0-1.5 cm.

bract 3-¹² mm. x ^{1-3 mm} ~~2 mm~~, alt. occas. apt.

bracteole

pedicel 2- flowers sessile

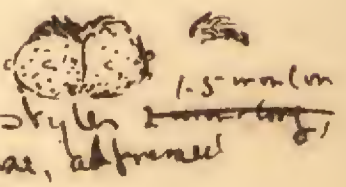
calyx ~~2-4~~

~~fls. alt.~~

occas. apt.

\uparrow fls. solitary

or 2-4 together



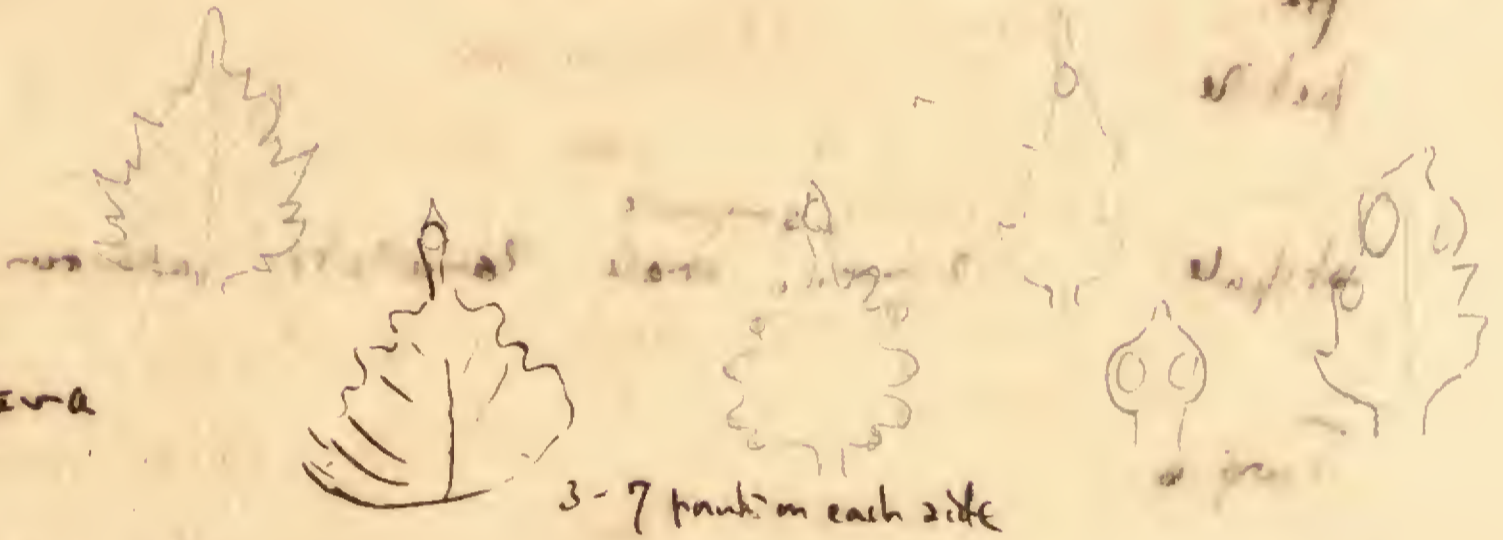
Fruit 3-5 mm. wide, sparsely verrucose, wholly granular glandular, styles ^{1.5 mm long} ~~2 mm long~~, striate, adpressed
calyx ~~2-4~~ lobed, integument scarty
pedicel 2-6 mm.

Java (Mangrove)

Baker 10619 (♀) has toothed brach 2-4.5 mm wide

ident 119 (Lalembang) has ~~toothed~~ linear brach 2-2.5 mm wide

var. montana



brach 4 - $\frac{13 \times 2}{7 \text{ mm}}$ 3.5-10

ovate

bractles

[Faint handwritten notes at the bottom of the page, including a small sketch of a leaf and some illegible text.]

Macaranga

M. Dielpenhorstii (Miq.) Mull. Quell. Arg.

This species, hitherto known only from Sumatra, is common in the S states of Pahang, Perak and Kelantan from the lowlands up to an altitude of ~~20~~ 600 m. It is ~~remarkably~~ from a distance it is remarkably like *M. recurvata*, for which it may easily be mistaken in the field, but ~~the~~ leaves of *M. Dielpenhorstii* are not glaucous beneath. I have ~~the~~ checked the Malayan specimens of with those ~~specimens~~ at the Buitenzorg-herbarium which include a collection of Teysmann's from Pocoman ^(Sumatra) - the type-locality. Among these specimens is one with a male inflorescence ~~at the~~ an examination of which ~~showed~~ ^{has shown} that the species has been wrongly placed in the ~~subgenus~~ ^{section} *Adenoceras* because the bracts have no glands. The ~~specimen~~ *M. Dielpenhorstii* belongs rather to the section *Sampsoniana* ~~is~~ and is allied with *M. Curtisii* from which it differs in being glabrous ^{and in} having dentate like bracts ~~is~~ and ~~is~~ unisexual male flowers. But the sections of *Macaranga* are artificial.

The following are the diagnostic characters of *M. Dielpenhorstii* :-

glabrous except the apex of the petiole which is

characteristically puberulous: wings solid, marise:
 stipules rather large, more or less persistent, green,
 ovate-lanceolate 1-2.5 cm. long: lamina ^{petiole} entire or nearly
 so, not glaucous beneath, without glands on the upper side
 but densely dotted with minute yellow glands on the
underside: inflorescences mostly on the wings behind the
 leaves, ~~up to 26~~ 10-20 cm. long, with dense, alternate
 branches: bracts of the male inflorescence 2.5-4 mm. long
^{sessile,} obovate, crenate-dentate with 4-8 ^{short,} blunt teeth, glabrous,
 without glands: bract of the female inflorescence up to
 7 mm. long, like those of the male but often acuminate:
male flower with 1 stamen, 4-locular anther, 3-lobed
and shortly stalked perianth, glabrous: female flower ~~is~~
 with short, glabrous, cupular perianth, and ~~2-lobed~~ 2-locular
 ovary = ~~is~~ covered with minute granular glands:
fruit 0.5-9 mm. wide, didymous, ⁱⁿ covered with sticky
~~sticky~~ granular glands, set on pedicels
 3-8 mm. long

M. Diepanhorstii Schubert

BR - 16 x 12"

vein broadness 8-10

pet. - apex characteristically pubescent

shape

♂ inflor - 26 cm long, long glabrous

peduncle
bract 2.5 - 4 mm, long, dorsally, with 4-8 glabrous, short
bractlets no glands look more like

fl. capex - 2-3 lobes, and
petals distinct
stam. 1, 4-celled anther

♀ inflor - 22 cm, glabrous

peduncle - 6 cm, alternate

pet. ~~3-8~~ 1-5 cm.

bractlets as ♂ ones

petal 3-8 mm

fruit 6.5-9 mm, with
wholly granular glabrous

645/36.

11th May,

7

Dear Professor Lam,

Your letter concerning *Macaranga* has been passed on to me by Mr. Holtum. It is most kind of you to have investigated this matter and to give me so much information. Your conclusion is exceedingly interesting, for it seems that *Macaranga triloba sensu latissimo* is a species that is evolving. Indeed, I am a little perplexed at what should be done because I wish to include *M. triloba* in an account of our common trees.

I have just returned from a collecting trip to Kelantan, Pahang and Trengganu, where I had the opportunity of studying many specimens of what we call *M. triloba* and *M. Hullettii*, and never did I have any difficulty in distinguishing them even when sterile because leaf-shape and colour is different. I feel that I am right in saying that these two "species" are perfectly distinct in Malaya. But when collections are examined from other countries, as you have so kindly done, then the intermediates appear. I have noticed this in other families, and that plants from Borneo especially often unite what appear to be distinct species in Malaya. We should then, I suppose, have one polymorphous species and so many varieties as are needed. In the present case, I am inclined to keep *M. triloba* and *M. cornuta* (= *M. Hullettii*) distinct as species in

Professor H.J. Lam,
Rijksherbarium,
Nonnensteeg 1,
Leiden,
H O L L A N D .

FS/27

Malaya but I want, if you have no objection, to quote your opinion and evidence so that I may draw the attention of botanists in neighbouring countries to this "polymorphous discovery". I see, for instance, that Merrill has re-described our M. Hullettii as M. Bartlettii from Sumatra (Pap. Michig. Ac. Sci. Arts & Lett. 1933, XIX, p. 161).

Thanking you again for the trouble which you have taken on my behalf.

Yours sincerely,

E. J. L.

Assistant Director of Gardens, S.S.

P.S. The polymorphy of M. koto seems to show how necessary it is to survey collections from the whole Malaysian region before a proper distinction of species can be made. If I have time later on, I will ask for the Buitenzorg material and will then write to you further on the problem.

Verzoeken bij beantwoording het nummer van dezen brief aan te halen.
Adres: AAN DEN DIRECTEUR VAN HET RIJKSHERBARIUM, LEIDEN (zonder vermelding van persoonsnamen).

LEIDEN, April 6, 1937.

Please, refer to number of this letter.
Address: THE DIRECTOR, RIJKSHERBARIUM, LEIDEN, HOLLAND (without mention of personal names).

AAN

Dr. R. E. HOLTUM
Director of the Botanic Gardens
SINGAPORE.

No. 356.

BIJGEVOEGD (apart):
ANNEX (separate cover):

ONDERWERP:
CONCERNS:

ANTWOORD OP:
REFERENCE:

My dear Dr. Holtum,

I have yet to answer the letters by Dr. CORNER of December 19th and March 3rd, No. 645/36, concerning Macaranga, and by Dr. HENDERSON of January 22nd, No. 40/37 concerning Eugenia, respectively. Will you please transmit the information given below to the gentlemen mentioned?

Dr. CORNER. In my opinion M. Hullettii, M. cornuta and M. triloba have to be combined altogether. Our material of cornuta and triloba being pretty rich, I was able to find that there is no feature constant in either of these species. In the 6 or 7 specimens which may be considered as more or less authentic (Reinwardt, Blume, Korthals, Junghuhn, Zollinger), the following features are very variable (no actual type specimen can be indicated and the one that is most likely Reinwardt's type, is sterile):

leaves - shape greatly diverse, ^{fern} in various specimens without any correlation with other features; hairiness underneath occasionally occurs, apparently especially in Borneo (M. divergens is probably only a hairy form of M. triloba).

male inflorescence - the peduncle long or short; ramifications lax or dense (age!).

bracts of male inflorescences - most variable (rounded serrate-truncate, irregularly dentate, etc. without correlation to other features).

female inflorescence - ramification lax or dense.

fruit - with or without horns (only one specimen); horns ^{of} variable length, shape and glandiness.

Having examined authentic material of cornuta, triloba and divergens, I cannot help concluding that there is only one polymorphous species: M. triloba (Rw.) Muell.-Arg.

*any comments? I will reply
By 6.5.37*

VERVOLGVEL 1.

The specimens from British Malaya are, in my opinion, merely more or less extreme in their horned fruits and clustered infrutescences. The female specimens of "triloba" seem to be also exceptional, as I did not see anything of the sort in the rich Leiden material. Yet I am inclined to attribute the peculiar branchedness, at least partly, to the apparent youth of the specimen. The hornless fruits of 14574 occasionally also occur in other specimens, although not as much extreme as this.

I do not think it is necessary to send you our material, but of course I will be glad to do so, if you would like to examine it yourself.

645/36.

3rd March,

Your letter No.115: 4.2.37.

Dear Professor Lam,

It seems that the covering letter to the 10 specimens of Macaranga has gone astray. I am therefore sending you a copy of the original letter, which was sent on 20th December 1936. Unfortunately there was a delay in the sending of the specimens until three weeks later.

I think my intention was that all 10 specimens should be returned. If you will kindly do this I will send you duplicates of recent and better collections that I have been making of the two species.

I shall be most grateful if you will enquire into this point of systematy.

Yours sincerely,

L. J. M. C.

Assistant Director of Gardens, S.S.

Professor H. J. Lam,

Director,

Rijksherbarium, Nonnensteeg, Leiden, Holland

FS/31

Verzoeken bij beantwoording het nummer in dezen brief aan te halen.
Adres: **AN DEN DIRECTEUR VAN HET RIKSHERBARIUM, LEIDEN**
(zonder vermelding van persoonsnamen).

Please, refer to number of this letter.
Address: **THE DIRECTOR, RIJKSHERBARIUM, LEIDEN, HOLLAND**
(without mention of personal names).

No. 115.

BIJGEVOEGD (apart):
ANNEX (separate cover):

ONDERWERP:
CONCERNS:

ANTWOORD OP:
REFERENCE:

LEIDEN, February 4, 1937.

AAN

The Director
Botanic Gardens
S I N G A P O R E.


Dear Dr. Holttum,

Some days ago we received 10 specimens of Macaranga without further indication, what has to be done with them. I cannot find any letter I should have written you or you to me concerning them. Some of the specimens are "stamped" to be returned to the Botanic Gardens, Singapore, but others are not stamped that way. Will you please inform me whether this shipment is meant as a continuation to exchange, or what is your intention with it.

With kind regards,

Yours sincerely,

HJL/LB


(H. J. Lam).
Director, Rijksherbarium.

645/36.

19th December,

6

Dear Professor Lam,

I wonder if you would be so kind as to compare some specimens (10 sheets) of *Macaranga*, that I am sending you, with some specimens of Blume's which I imagine must be in the Leiden herbarium.

I discover that J.J. Smith and Pax are mistaken in reducing *Macaranga cornuta* Muell. ^{Ang.} to *M. triloba* (R^einw.) Muell. ^{Ang.} It seems that Smith referred the female plants of *M. cornuta* to *M. triloba* and hence the muddle. In Malaya we have two common species, one called *M. Hullettii*, which I take to be *M. cornuta*, and one called *M. triloba*.

M. Hullettii has fruits with 4-5 horns, occasionally only 2-3, and the fruits are in peduncled heads. It has long peduncled male inflorescences with ovate-acuminate, often dentate, bracts. It agrees exactly with *M. cornuta*. It is very variable in the leaf, however, which may be simple or 3-lobed (sapling or lower branches).

M. triloba according to Mueller ^{Ang.} has fruits without horns. Such is the case with our malayan specimens of *M. triloba* in which, moreover, the female inflorescences are much more branched than in *M. cornuta*. The male inflorescences of *M. triloba* have short peduncles and small, cucullate bracts.

Professor H.J. Lam,
Rijks Herbarium,
Nonnensteeg,
Leiden, HOLLAND.

F5/33

Blume in his original description of Pachystemon trilobum (Bijdr. Flor. Ned. Ind. II p. 326) does not mention horns on the fruit. Mueller (DC Prodr. XV, 2: p. 989) said that there were none and that he had seen Blume's specimen at Leiden. Smith (Bijdr. No. 12 Boomsorten of Java 1910) said that the fruits on Blume's specimen must have been young and therefore without horns. Could you find Blume's specimen and see how it agrees with the malayan ones that I shall send? Even if the fruits on Blume's specimen are young it should be possible to distinguish the two species by means of the female inflorescence.

There should also be a bornean specimen of M. divergens Muell. Arg. at Leiden, which is the type of the species. ^{is} Is it the same as M. cornuta (i.e. M. Hullettii)?

I apologise for giving you so much trouble, but I will greatly appreciate your assistance. If I am correct in my interpretation of Mueller's two species, then M. Hullettii and several other species become synonyms of M. cornuta and we shall have made another step forward in the taxonomy of eastern plants.

Yours sincerely,

E. J. H. C.

Assistant Director of Gardens, S.S.