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ARACEAE MALESICAE

II.—Notes on some Indo-Malaysian Homalomena Species

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		Page
I.	Introduction and General Conclusions ..	183
II.	Sections of the Genus	184
III.	Key to the Sections	186
IV.	Systematic Notes on Species:	
	A. Section CHAMAECLADON	186
	B. Section EU-HOMALOMENA	213
	C. Section CYRTOCLADON	221
V.	Summary of the Systematic Notes	229
VI.	Index to the Numbers Cited	230
VII.	Index to the Botanical Names	234

I. Introduction and General Conclusions

HOMALOMENA plants in general, but more especially those native of Malaya (Malay Peninsula) and the Sunda Islands (Sumatra, Java, Borneo and small islands within the area), vary a great deal in all their vegetative characters, and to a certain extent in their reproductive characters also, the variations depending not only on the age of the plant but also on such environmental conditions as soil, exposure, flooding and humidity. The greatest variability is noticed in species which grow on stream sides and on rocks near waterfalls and in streams, where they are subject to a graded intensity and frequency of flood, spray and to a certain extent, of insolation.

This ecologic diversity within the plants of the same species or variety makes an analysis of the genus into its constituent species and varieties an extremely difficult problem. A key that would cover all these variations would become too bulky to be of any practical use. The task of analysing the genus into its species would be much simplified if specimens of as many *Homalomena* species as possible

were collected again to show the range of variation, and if their spathes with flowers and fruits were preserved in spirit.

While naming and arranging Malayan species of this genus, I noticed that some systematists have not taken due cognizance of their range of variability, so that, in some cases, either one and the same name has been used for different species because their specimens agree in colour (*e.g. H. purpurascens*) or many names have been bestowed on the same species because the specimens studied showed marked differences among themselves concerning colour, size and shape of leaves (*e.g. H. obliqua, H. Griffithii, H. Kingii,* etc.). Evidence is not lacking to show that some species are purely "geographical", that is, one and the same species is made to pass under different names according to the country of origin of the specimens to be named, (*H. paludosa* and *H. propinqua; H. coerulescens, H. rubra,* etc.).

In order to clear the nomenclatural tangles of the Malayan species, therefore, I was obliged to study many non-Malayan species, but not so many as to consider this study of mine as a monographic revision of the Indo-Malaysian *Homalomena.*

I am much indebted to the Directors of the Herbaria at Kew, Leiden, and Buitenzorg for their co-operation either by sending on loan some of the authentic specimens in their herbaria, or by supplying either information concerning the types or copies of such original descriptions as were not available in Singapore.

In citing the exsiccatæ, I have omitted all reference to the herbarium when the specimens cited are conserved in the Singapore herbarium, but have inserted appropriate abbreviations to indicate the other herbaria, the initials "HB" having been adopted for the Buitenzorg Herbarium (Herbarium Bogoriense).

For the nomenclature adopted in this paper for types, see *Gard. Bull. Straits Settlements* IX *part* 3, 1937 *pp.* 285–309.

II. Sections of the Genus

So far only six species of *Homalomena* are known from America, all belonging to the section CURMERIA (LIND. et ANDRE) ENGL., the remaining being confined to Indomalaysia. The latter are at present divided into two sections: CHAMÆCLADON and EU-HOMALOMENA; but in order to bring out the affinities existing between the different groups of species, it seems desirable to divide them into three sections, namely, CHAMÆCLADON, EU-HOMALOMENA *sensu stricto,* and CRYTOCLADON, as defined below. The new section is the most distinct of the three, having the spathes

always contracted above the female inflorescence, often without staminodes among the female flowers, and a space or zone (either vacant or sparsely or thickly covered with neutral flowers) frequently intervening between the male and the female inflorescence.

A. Sectio **Chamæcladon** (MIQ.) ENGL. in Pflanzenreich IV. 23 D. a [55] (1912) p. 31.

Chamaecladon MIQ. in Bot. Zeit. (1856) 564 et Fl. Ind. Bat. III (1856?) 212; SCHOTT, Gen. Ar. (1858) t. 60 et Prodr. (1860) 312; ENGL. in DC., Mon. Phan. II (1879) 343, et in ENGL. et Prantl, Nat. Pflanzenf. II, 3 (1887) 130: sub titulo generis.

Spathae ellipsoideæ in medio non constrictæ, 0.5–3 cm. longæ, rarissime longiores. *Staminodia* pistillis duplo breviora. *Caudiculus* erectiusculus vel reptans, epigeus. *Folia* rarissime sagittata vel profundo cordata, plerumque minus quam 15 cm. lata.

HABITAT: Malesia usque Novam Guineam. In India Birmaniaque non legitur. Formæ numerosissimæ in Malaya, Sumatra et alteris insulis Sundaicis reperiuntur; ad orientem versus species hujus sectionis perpaucæ.

B. Sectio **Eu-Homalomena** ENGL. in DC, Mon. Phan. II (1879) 333 et in Pflanzenreich *tom. cit* p. 51. p. parte.

Homalomena SCHOTT pro parte typica.

Spathae oblongæ, supra inflorescentiam femineam haud contractæ. *Staminodia* pistillum æquantia, raro deficientia (?). *Caudex* epigeus. *Folia* profundo cordata, sæpe saggitata vel fere, plerumque quam 15 cm. mults latiora.

HABITAT: In India, Malesia usque Novam Guineam. Formæ numerosissimæ in Malaya, Sumatra et alteris insulis Sundaicis leguntur.

C. Sectio **Cyrtocladon** FURTADO **sect. nov.**

? Cyrtocladon GRIFF., Notul. III (1851) 147 sub titulo generis.

Spathae supra inflorescentiam femineam contractæ, rostratæ. *Staminodia* pistillis æquilonga, interdum deficientia. *Spadix* inter inflorescentiam femineam et masculam zona floribus neutris perpaucis vel numerosis obsessis interdum posita. *Caudex* epigeus. *Folia* lanceolata, vel ovato lanceolata, basi cuneata, vel profundo cordata, sagittata vel non.

This section may be identical with the genus *Cyrtocladon* GRIFF. whose spathes, however, are described as shedding the apical portions in the manner of the species of *Piptospatha* and *Schismatoglottis*. I have not seen the type; but from the general description the specimen described under *Cyrtocladon* appears to be identical with *Homalomena rostrata* GRIFF., a species also simultaneously described.

HABITAT: In Insulis Sundaicis usque ad Peninsulam Malaianam sed formæ numerosissimæ in Borneo reperiuntur. In alteris regionibus Indomalesianis aut ad orientem aut ad septemtrionem vergentibus species hujus sectionis non repertæ sunt.

III. Key to the Sections

1.a. Spatha 4 cm. vel magis longa, plus quam 1.5 cm. crassa, in medio constricta vel non. Staminodia pistillis æquilonga vel nulla.....(2).

1.b. Spatha ad 4 cm. usque longa, plerumque minor, rarissime longior, ad 1.5 cm. crassa, haud medio constricta. Staminodia pistillis breviora.....*Chamaecladon* (MIQ.) ENGL.

2.a. Spatha oblonga, haud in medio contracta.
Eu-Homalomena ENGL. *emend* FURTADO.

2.b. Spatha supra inflorescentiam femineam contracta, rostrata.
Cyrtocladon FURTADO *sect. nov.*

IV. Systematic Notes on Species

A. SECTION: CHAMÆCLADON

1. **Homalomena argentea** RIDL. in Journ. Bot. XL (1902) 35, Mat. Fl. Mal. Pen. III (1907) 27; ENGL. in Pflanzenreich IV. 23 Da [55] (1912) 31; RIDL., Fl. Mal. Pen. V (1925) 107.

Chamaecladon Griffithii var. *argenteum* RIDL. in Trans. Linn. Soc., London, III (1893) 394 pro parte. *Syn. nov.*

H. Griffithii (SCHOTT) HOOK. f. *sensu* RIDL., Fl. *cit.* (1925) 106 p. p.

The species was described from living specimens grown in the Botanic Gardens, Singapore, where they were sent by DERRY from Malacca. There is no specimen in the Singapore herbarium (the plant in the Gardens being no longer extant) which agrees in all respects with the description given by RIDLEY; nor is there any specimen which has been definitely labelled by RIDLEY as *H. argentea.*

Subsequent to the publication of the species, ENGLER visited Singapore and in his monograph (*l.c.*) stated that he had seen the plant cultivated in the Singapore Gardens. But the plants then growing in Singapore must have been poor and too few to enable ENGLER to make herbarium specimens of the species, or to add substantially to the brief description given by RIDLEY. It is true that ENGLER placed the species in the *Clavis Specierum* among those species that produce a few primary nerves to the leaves; but in the text of the description itself, RIDLEY'S indefinite phrase "nervis pluribus" has been paraphrased by ENGLER as "nervis lateralibus pluribus, angulo acuto adscedentibus".

ENGLER'S description may, therefore, be said to be substantially the same as that given by RIDLEY, there being only a slight disagreement in the dimensions of the leaves.

There is, however, in the Singapore herbarium a specimen which is recorded to have been collected at Bukit Sadanen in Malacca by DERRY in September 1890. The sheet on which it is mounted is numbered "10" by RIDLEY himself and the field notes, also in RIDLEY'S hand, run thus:

> "Almost stemless. Sheath of leaves very broadly spread. Petiole grooved, strongly ribbed. Leaf silvery above."

The specimen was first named as *Chamaecladon Griffithii* var. *argentea*, but later the specific epithet was cancelled by RIDLEY so that the name reads thus: "*Chamaecladon* var. *argentea*".

Now since in the original description RIDLEY stated that *H. argentea* was a species closely allied to *Homalomena* (sect. *Chamaecladon*) *Griffithii*, and that "it was first collected alive by Mr. DERRY" in Malacca, and since number "10" corresponds to the number of *H. argentea* in RIDLEY'S *Materials* (III, 1907)—RIDLEY having frequently used such notations to indicate the species described in the *Materials*—it seems reasonable to conclude that this specimen of DERRY'S represents a plant from the type-collection that supplied the material that was grown in Singapore and later described by RIDLEY.

The specimen itself consists of one leaf and of some spadices enclosed in their spathes. Two of the spathes are cut open and expose in each a sessile spadix having its male inflorescence about three times as long as the female, characters that agree entirely with those given by RIDLEY. But though the peduncles are 12–15 mm. long and the spathes 14–16 mm., the spathes are cuspidate, while both RIDLEY and ENGER describe them as being non-cuspidate. Further the following discrepancies in the descriptions and the specimen are noticed:

		RIDLEY'S description	ENGLER'S description	DERRY'S specimen
Lamina	length:	3 poll.	1.1–1.3 dm.	1.3 dm. (= 5 ins.)
	width:	1¼ poll.	3–4 cm.	4.5 cm. (nearly 2 ins.)
Petiole	length:	2 poll.	3–5 cm.	7 cm. (nearly 3 ins.) (without the sheathed portion 4 cm.=1½ ins.)

Since ENGLER, who had in 1905 examined the type plants in the Singapore Botanic Gardens, gave a little greater dimensions of the leaves than the ones given by RIDLEY, one is justified in concluding that, when RIDLEY drew his specific description, the plant was still not fully developed, or was making poor growth, a surmise which would also explain why the spathes are described as not being cuspidate and why ENGLER himself was not able to gather even a sterile specimen of the plant for the Berlin Herbarium.

In the absence of any specimen from the type plant, I go by DERRY'S specimen, which as pointed out above, came probably from the same collection as supplied the type plant to the Botanic Gardens, Singapore. It could be called Neotype or Neotopotype. Since RIDLEY did not cite the locality "Bukit Sadanen" and did not give higher dimensions that would include this neotype, it appears that RIDLEY had not examined this specimen at the time of preparing the description.

This specimen of DERRY'S agrees very well with HOLTTUM 9736 from Negri Sembilan cited by RIDLEY (1925) as *H. Griffithii.* Unfortunately all the duplicates of the latter collection have been distributed, so that one is now not able to study the different variations represented. But FURTADO 33127, also from Negri Sembilan, represents the same species. Some specimens in the last mentioned collection have a petiole up to 10 cm. long and a lamina up to 16 cm. long and 6.5 cm. wide. The peduncles are very short, so that they are hardly visible, the inflorescences remaining in consequence inconspicuous among the petioles and sheaths.

MALAYA: *Malacca:* Bukit Sadanen (DERRY, Sept. 1890: *Neotype*). *Negri Sembilan:* Selaru (HOLTTUM, 9736); Bukit Tumian (ALVINS, 1849) Gunong Angsi (RIDLEY, II–1904; FURTADO, 33127 and 33127b).

2. **Homalomena argentea** var. **purpurascens** FURTADO **var. nov.**

A forma typica differt lamina foliorum minus coriacea, subtus rubra, supra rubicundo-viridis.

This may be identical with *H. obscurifolia* V. ALD. V. ROS.

MALAYA: *Negri Sembilan:* Gunong Angsi, alt. circa. 700 ft. FURTADO, 33129). Among rocks in a small stream called Sungei Bendol. Rare.

3. **Homalomena batœensis** ENGL. in Pflanzenreich iv. 23. Da [55] (1912) 47 fig. 26 K.

H. multivenosa RIDL. in Kew Bull. (1926) 92. *Syn. nov.*

H. pygmaea sensu ENGL. op. cit. p. 34 p. p.

I have compared the haptoholotypes of *H. multivenosa* with the holotype of *H. batoeensis* and find no significant difference to warrant their separation into two species. *H. batoeensis* is very closely allied to *H. lancifolia* of the Malayan Peninsula and may prove to be a variety of this. *H. oblanceolata,* which also appears to be very near to *H. batoeensis,* is distinguished (judging from a few specimens examined) by being prostrate, and repent, and not erect as the other species.

SUMATRA: *Batu Island* (RAAP: 186, Holotype, HB; 266, HB). *Sibolangit* (LÖRZING, 5361 & 5728, HB); *Brani* (BÜNNEMEIJER, 3104, HB). *Mentawi Islands* (BODEN-KLOSS, 11441, Haptoholotype of *H. multivenosa;* IBOET, 30, HB.).

4. **Homalomena Carrii** FURTADO **spec. nov.**

H. tenuispadice affinis, sed minor, lamina foliorum oblongo-elliptica, basi obtusa vel subtruncata (haud sagittata).

Caudex erectus, 1.5 cm. usque crassus. *Petiolus* circa 15 cm. longus ad tertiam partem usque vaginatus. *Lamina* foliorum oblongo-elliptica, maxima latitudine in medio sita, inæquilateralis, utrinque attenuata, apice acuminata, basi obtusa vel subtruncata, 15–20 cm. longa, 6.5–7.5 cm. lata, nervis lateralibus primariis utrinsecus 7–9, prominentibus, secundariis quam eis vix gracilioribus, tertiariis gracillimis. *Pedunculus* ad 7 cm. longus, gracilis. *Spatha* 2.5–3 cm. longa, sæpe in cuspidem ad 1 cm. usque longam exeuns. *Spadix* spatham æquans; pars feminea masculæ æquilonga, vel etiam paullo brevior quam ea.

PAPUA: Koitaki, alt. 1500 ped. (CARR, 12053). Plants about 15 inches tall. Spathes green.

5. **Homalomena confusa** FURTADO **spec. nov.**

Chamaecladon angustifolium (JACK) SCHOTT in Bonpl. VI (1858) 369, Prodr. (1860) 313; ENGL. in DC., Mon. Phan. II (1879) 344, in Arac. Exsicc. et Illustr. no. 103: omnino excl. basinymo.

H. angustifolia (JACK) HOOK. f., Fl. Brit. Ind. VI (1893) 533; RIDL., Mat. Fl. Mal. Pen. II. (1907) 28; ENGL. in Pflanzenreich IV. 23. Da. [55] (1912) 31 fig. 12; RIDL., Fl. Mal. Pen. V (1925) 108: omnino pro parte haud typica.

H. angustifolia var. *parvula* RIDL., Fl. Malay Pen. V (1925) 109. *Syn. nov.*

H. trapezifolia sensu RIDL. in Journ. Roy. Asiat. Soc. Str. Br. LVII (1910) 112 p. p.

Ab *H. Stollei* ENGL. et KRAUSE, cui affinissima, differt foliorum lamina magis coriacea, sæpe etiam latiore, apice longe acuminata, raro falcata, petiolo fragiliore, spatha magis coriacea.

Herba parva ad 25–30 cm. longa caudice prostrato, saxicolo. *Petiolus* lamina longior vel paulo brevior, vel laminæ æquilongus, ad 20 cm. longus, longe vaginatus. *Lamina* foliorum elongato vel lineari lanceolata, sæpe trapezoidea, utrinque sæpe plus basin quam apicem versus oblique attenuata; 7–15 cm. longa, 12–30 mm. lata, latitudine sua 4–6–plo longior; nervis lateralibus primariis utrinsecus 2–4, adscendentibus; secundariis valde gracilioribus, fere inconspicuis, subparallelis. *Pedunculus* 2.5–5 cm. longus. *Spatha* oblonga, haud in medio constricta, apice subito acuminata, 1.5–2 cm. longa, coriacea, costulata. *Spadices:* inflorescentia mascula 2½–3–plo longior quam feminea.

According to Mr. CORNER this plant with its long creeping rhizomes forms a dense mat on rocks, often covering them completely.

The field notes on CORNER 33692 (Pahang) state that the petioles, peduncles and spathes in some plants are pinkish and that the species is found growing on rocks in streams at the altitudes of 3,000–6,500 ft.

The species was confused with *Calla angustifolia* JACK =*Homalomena humilis* var. *pumila* (see my remarks on that variety).

In the general aspect of the plants, *H. confusa* may be easily confused with *H. Stollei,* but it differs in the texture and shape of the leaves and in the shape of the spathes, and resembles some forms of *H. humilis* and *H. paucinervia.*

MALAYA: *Kedah,* Gunong Jerai (RIDLEY, 5123, *Holotype*). *Kemaman:* Sungei Nipah (CORNER, 24–vi–1932). *Pahang:* Teku River on Gunong Tahan (RIDLEY, 15491: type of *H. angustifolia* var. *parvula*); Gunong Tahan alt. 5800–7000 ft. (HANIFF and NUR, 7969 RIDLEY, 16188; CORNER, 33692); Tahan River (RIDLEY, 2391). *Penang:* loc. incert. (WALLICH no. 8959 partim, vidi tantum Iconem SCHOTTII ab ENGLERIO reproductam); Government Hill (RIDLEY, in 1899); Telok Bahang (BURKILL, 4552; CURTIS, 2886). *Perak:* Tea Gardens (RIDLEY, in 1891); Bujong Malacca (RIDLEY, 9793); Ulu Temango (RIDLEY, 14305). *Selangor:* Pahang track (RIDLEY, 8488).

6. **Homalomena consobrina** (SCHOTT) ENGL. in Pflanzenreich IV. 23. *Da* [55] (1912) 46.

Chamaecladon consobrinum SCHOTT in MIQ., Ann. Mus. Lugd. Bat. I (1863) 126; ENGL. in DC., Mon. Phan. II (1879) 344 et Illustr. Arac. n. 98.

The type of this species has very thin, papyraceous leaves and spathes. Otherwise it could be easily mistaken for some forms of *H. batoeensis* and *H. paucinervia* to which it has great affinities.

SUMATRA: *Loc. incert.* (KORTHALS in Herb. Leiden, Holotype).

RIAU ARCHIPELAGO: Pulau Tujoh on Gunong Ranai (BÜNNEMEIJER, 5811, HB).

ANAMBAS ARCHIPELAGO: Bunguran Island on Gunong Ranai (VAN STEENIS, 1191, HB).

7. **Homalomena Corneri** FURTADO **spec. nov.**

Inter species sectionis *Chamaecladonis* magnas spadicibus longissimis (*e.g. H. bellula, H. deltoidea* et *H. tenuispadix*) hæc species collocanda, sed foliorum lamina haud deltoidea vel sagittata aut basi cordato-lobata, nervis lateralibus primariis pluribus facile distingui potest. Spathæ spadicisque habitu magis speciebus sectionis *Eu-Homalomenae* similis, attamen propter staminodia parvissima sectioni *Chaemaecladoni* attribuenda.

Herba reptans, suffruticosa, majuscula, caudiculo sicco 7–12 mm. in diametro. *Petiolus* ad 35 cm. usque longus, supra vaginam 3–4 mm. amplus, basi ad 7 cm. usque vaginatus. *Lamina* foliorum elliptico-ovata, maxima latitudine infra medium sita, apicem versus sensim attenuata, summo in acumen 2–2.5 cm. longo contracta, basi subtruncata, obtusa, interdum oblique rotundata, cum acumine 25–30 cm. longa, 9.5–12.5 cm. lata, nervis primariis lateralibus utrinsecus 7–8 (primariis subprimariisque cunctis 10–12), secundariis tertiariisque pluribus, subparallelis. *Pedunculi* pauci, 6-9 cm. longi. *Spatha* oblonga, medio non constricta, coriacea, apice breviter cuspidato-acuminata, 4–4.5 cm. longa, 1.5 cm. ampla. *Spadix* cylindricus, circa. 3.8 cm. longus, basi stipite 2–4 mm. longo suffultus, parte basali feminea laxiflora fere duplo breviore quam mascula apicali. *Staminodia* brevissima, ad pistillorum basin sita. *Pistilla* ovoidea, summo in stigma orbiculare contracta.

MALAYA: *Johore*, Sungei Pelapa Kiri, on rocks and banks above the flood level, not in the stream bed (CORNER, 33581).

8. **Homalomena Curtisii** RIDL. in Journ. Bot. XL (1902) 34; RIDL., Mat. Fl. Mal. Pen. III (1907) 28; ENGL. in Pflanzenreich IV. 23. Da. [55] (1912) 34; RIDL., Fl. Malay Pen. V (1925) 108.

From the description it is evident that the plant was described from a living specimen; but the only specimen preserved by RIDLEY to represent the holotype consists of a leaf and a few spathes of a plant that was being cultivated in the Botanic Gardens, Singapore, in January 1899. The plant was introduced from the Botanic Gardens, Penang, where CURTIS had brought it from Perak, the locality "Bujong Malacca" being preceded with a query mark to show that the exact locality of its collection in the wild state was uncertain. This query mark has been omitted in the published descriptions.

From the meagre material available it is very difficult to identify the species. Hence in interpreting it, another specimen made by CURTIS on 21st October 1897 from a plant growing in the Penang Gardens may be used. This

specimen was taken from a batch of plants obtained from Perak (exact locality is not given) and is moreover named *H. Curtisii* in RIDLEY'S hand. This specimen appears to be con-specific with the holotype of the species, but unfortunately it is sterile.

The plant may be identical with *H. humilis* var. *ophirensis,* which has also short spathes, long petioles and often narrow, oblique acuminate leaves.

MALAYA :*Perak:* Bujong Malacca? (cult. in Hort. Bot. Singap. leg. RIDLEY in January 1899, Holotype; cult. in Hort. Bot. Penang, leg. CURTIS, 21–X–1897, Haptoholotype).

9. **Homalomena deltoidea** HOOK. f., Fl. Brit. Ind. VI (1893) 536; RIDL., Mat. Fl. Mal. Pen. III (1907) 25; ENGL. in Pflanzenreich IV. 23. Da [55] (1912) 45; RIDL., Fl. Mal. Pen. V. (1925) 105.

This species bears perhaps the largest spathes in the section *Chamaecladon.* Both in the dimensions of the spathes and in the shape of the leaves, the species can easily pass as a member of the section *Eu-Homalomena.* The spathes end in a long wiry cusp and are much longer than the spadix within, two characters that make the species a close relative of *H. Hendersonii.*

MALAYA: *Kemaman,* Ulu Kajang (CORNER, 30436). *Kelantan,* Sungei Keteh (NUR with FOXWORTHY, 7–II–1924). *Perak,* Taiping Hills (RIDLEY, Dec. 1902; HENDERSON, 10185). *Negri Sembilan,* Gunong Angsi (NUR, 11595). *Johore,* Gunong Pulai (RIDLEY, Jan. 1904; MAT, in 1892); Gunong Panti (CORNER, Jan. 1930).

10. **Homalomena elliptica** HOOK. f., Fl. Brit. Ind. VI (1893) 536; RIDL., Mat. Fl. Mal. Pen. III (1907) 28; ENGL. in Pflanzenreich IV. 23. Da [55] (1912) 37 fig. 17; RIDL., Fl. Mal. Pen. V (1925) 108.

H. Griffithii var. *falcata* RIDL. in Journ. Roy. Asiat. Soc. Straits Br. XLIX (1905) 50. *Syn nov.*

H. trapezifolia HOOK. f. l. cit.; RIDL., Mat. cit. (1907) 28; ENGL. in op. cit. p. 49; RIDL. Flor. cit. (1925) 107 partim. *Syn. nov.*

There are various grades of transitions between the *H. elliptica* and the *H. trapezifolia* forms rendering difficult their segregation into well defined varieties. In the typical *elliptica* form the leaf blade is broadest in the middle, while in the *trapezifolia* form the leaf blade is broadest at the base which in consequence becomes rounded.

ENGLER depicts *H. elliptica* as a species with ovules fixed at the base of placenta; but in a spadix from the collection FURTADO 33082, they were fixed all along the middle partition of the ovary.

From the constant deviations in the disposition of the ovules on the placenta, it appears to me that, in certain groups of species, this character is very variable and hence inadmissible as a basis of specific discrimination.

This species could be well reduced as a variety of *H. Griffithii*. If I have retained its specific rank, it is because the transitions between this and *H. Griffithii* have not yet been noticed.

Perhaps *H. hayupensis* ENGL. and *H. habokoana* V. ALD. V. ROS. are varieties of this species.

MALAYA: *Perak:* loc. incert. (SCORTECHINI: 256 & 256a, Haptoholotypes of *H. elliptica;* 606a, Haptosyntype of *H. trapezifolia*); Temango (RIDLEY, 14306); Kulim hot springs in Grik (HENDERSON, 23872); Waterfall (WRAY, 1976); Sungei Tampah at the foot of Gunong Chantek in Gopeng (FURTADO, 33082); Sungei Gepai in Bidor (CORNER, 31687); Sungei Bil (CORNER, 33687) Batu Tegoh at Taiping (HENDERSON, 10318, HB). *Malacca,* Sabatu (BURKILL, 2820).

BORNEO: *Sarawak,* Kuching (RIDLEY, 12417).

11. Homalomena elliptica HOOK. f. **var paucinervia** FURTADO **var. nov.**

H. multinervia RIDL. in Journ. Bot. XL (1902) 36 et Mat. Fl. Mal. Pen. III (1907) 29; ENGL. op. cit. (1912) 49; RIDL., Fl. Malay Pen. V (1925) 109. *Syn. nov.*

Differt a forma typica foliorum lamina angustiore, apicem versus magis attenuata, nervis primariis paucioribus.

Herba 20–30 cm. alta. *Petiolus* usque 15 cm. longus. *Lamina* 8–12 cm. longa, 3–5.5 cm. lata, maxima latitudine infra medium vel ad basin sita, basi cuneata vel truncata, apicem versus attenuata, falcata, longissime acuminata, summo cuspidata, nervis parimariis 4–5, interdum vix validioribis quam secundariis gracilibus.

The Perak collection is represented by two plants mounted on the same sheet, both of which show many gradations of leaf variations which link *H. multinervia* with *H. elliptica.* In one plant some leaves approach very near those of the form described as *H. multinervia;* while others look like those described as *H. Pierreana* ENGL. or *H. sulcata* ENGL. or midway between these two. Otherwise the plant is hardly distinct from *H. elliptica.*

MALAYA: *Perak,* Gunong Hijau (RIDLEY, in 1892, Holotype). *Malacca,* Mount Ophir (RIDLEY, 6–VI–1892, Holotype of *H. multinervia*).

12. Homalomena ellipticifolia FURTADO **spec. nov.**

H. pygmaea (HASSK.) ENGL. forma *longipes* V. ALD. V. ROS in Bull. Jard. Bot. Buitenz. IV (1922) 333.

Ab *H. humili,* cui affinis, differt: petiolis gracilibus multo longioribus; foliorum lamina magis coriacea, elliptica, utrinque æqualiter attenuata. Facie *H. ellipticae* simillima sed recedit: petiolo angustiore, pedunculis spathisque brevioribus.

Herba erecta. *Petiolus* gracilis, ad 17 cm. longus, subduplo usque triplo longior quam lamina, vagina "rubescente" breviter instructus. *Lamina* foliorum 5–10 cm. longa, 2.5–5 cm. lata, 2–3–plo longior quam latitudine, elliptica, coriacea, utrinque attenuata, supra viridis, subtus pallidior, nervis primariis subparimariisque utrinsecus 6–10, fere parallelis, subtus valde prominentibus, alteris inconspicuis. *Pedunculi* breves, solitarii vel perpauci, gracillimi, ad 1.5 cm. longi. *Spatha* "rubescens", circa 1 cm. longa, papyracea. *Spadix* spathæ fere æquilongus, sessilis(?), in tertia parte basilari femineus, floribus femineis masculisque putrefactis.

SUMATRA: *Simalur Island,* Tapah (ACHMAD, 1723, Holotype in HB. and Meroholotype in Herb. Singap. The duplicates are said to have been distributed to Kew, Leiden and Manila).

13. **Homalomena Griffithii** (SCHOTT) HOOK. f., Fl. Brit. Ind. VI (1893) 534; RIDL., Mat. Fl. Mal. Pen. III (1907) 26; ENGL. in Pflanzenreich IV 23. Da [55] (1912) 43 fig. 23; RIDL., Fl. Malay Pen. V (1925) 106.

Chamaecladon Griffithii SCHOTT in Bonpl. VI (1858) 369, Prodr. (1860) 315; ENGL. in DC., Mon. Phan. II (1879) 346 et Arac. Exsicc. et Illustr. n. 113. *Basinym.*

C. metallicum N. E. BR. in Illustr. Hort. XXXI (1884) 173 t. 539. *Syn. nov.*

C. obliquatum SCHOTT in Bonpl. VI (1858) 369, Prodr. (1860) 315; ENGL., Mon. cit. (1879) 347. *Syn. nov.*

C. ovatum SCHOTT in Bonpl. VII (1859) 301, Prodr. (1860) 315; ENGL., Mon. cit. (1879) 348. *Syn. nov.*

H. falcata RIDL. in Journ. Bot. XL. (1902) 35 et Mat. Fl. Mal. Pen. III (1907) 27; ENGL. Pflanzenr. cit. (1912) 34. *Syn. nov.*

H. Griffithii var. *ovata* (SCHOTT) ENGL. in Pflanz. tom. cit. (1912) 44; RIDL., Fl. Mal. Pen. V. (1925) 106. *Syn nov.*

H. Kingii HOOK. f., op. cit. (1893) 535; ENGL. in. op. cit. (1912) 41 fig. 21.

H. metallica (N. E. BR.) ENGL. in op. cit. (1912) 51. *Syn. nov.*

H. obliquata (SCHOTT) HOOK. f. op. cit. (1893) 534; ENGL. op. cit. p. 39 pro parte; RIDL., Fl. Mal. Pen. V (1925) 107. *Syn. nov.*

H. ovata (SCHOTT) HOOK. f. op. cit. (1893) 536 (non *H. ovata* ENGL.). *Syn. nov.*

With the exception of the type of *H. falcata,* I have not seen the type of any of these species. ENGLER'S Illustr. No. 113, which I have seen, purports to be of the holotype of *H. Griffithii;* if so GRIFFITH 5963 labelled at Kew as the type of *H. Griffithii* is not the holotype, though it may belong to the holotype collection. My interpretation of these species is therefore based entirely on the descriptions, illustrations and citations given by HOOKER, ENGLER, and RIDLEY.

The species is very variable in size, shape and texture. The spadices are usually distinctly stipitate, but sometimes shortly stipitate spadices are also found, perhaps a reason why HOOKER described *H. Kingii* and *H. obliquata* as species with sessile spadices. In his *Clavis Specierum,* ENGLER (Pflanzenr. cit. 1912 p. 27) has put both *H. Kingii* and *H. obliquata* among species having sessile spadices, but the figures and descriptions given by him in the text are not in harmony with this statement in the *Clavis.* (*H. elliptica* is also placed in the *Clavis* among species having sessile spadices, though HOOKER, its author, stated it to be distinctly stipitate and ENGLER'S figure of it also shows a stipitate spadix). All this shows that this character is very unstable and is not a good guide for distinguishing between various forms in this and allied species.

In the cases examined I found the ovules were fixed on the placenta above its base.

In the type of *H. falcata* the leaves are like those of *H. Pierreana* figured by ENGLER (op. cit. 1912); but transitions between that form and the *H. obliquata* form also occur, even in the same collection. Judging from the great range of variability manifested by plants in each collection, it appears that one and the same plant passes into different forms under different conditions of age and environment. Hence without being able to distinguish between the forms that are stable and those that are not, I am loth to arrange the various forms into varieties. But for the guidance of field workers, I have arranged the different variations into formæ: *viz.:*—

(a) forma **eu-Griffithii** (= *H. ovata* and *H. Griffithii*).

Planta plus quam 12 poll. alta. *Petiolus* quam lamina plerumque longior. *Lamina* oblonga, ovata, vel ovoideo-falcatoidea, basi obtriangularis, vel rotundata vel cordulata, apicem versus sensim vel vix attenuata, usque 20 cm. longa, 5–10 cm. lata.

Forms growing in swamps and in places at some distance from streams often produce papyraceous leaves which dry brown. Similar leaves are also found in other forms.

MALAYA: *Kemaman,* Sungei Nipah (CORNER, on 24–vi–32). *Kelantan,* Kuala Pertang (HANIFF & NUR, 10362); Sungei Galas at Gua Musang (HENDERSON, 22600). *Pahang,* Sungei Sat at Ulu Tembeling (HENDERSON, 22000); Sungei Chelia at Chegar Perak (HENDERSON, 19372). *Malacca,* Pangkalan Miniak (ALVINS, vern. nom. Kumayan Jantan); Merlimau (ALVINS, vern. nom. Kumayang); Bukit Kayu Arang (ALVINS, vern. nom. Kulumayang Padi); Ayer Panas (GRIFFITH, 5963, Herb. Kew); Jasin (GOODENOUGH, 1661). *Selangor,* Ginting Simpah (HUME, 9457). *Johore,* Kluang (HOLTTUM, 9420); Tebrau River (RIDLEY, 13239) *Singapore,* Bukit Timah (BURKILL, 4080).

(b) forma **Kingii** FURTADO (= *H. Kingii* HOOK. f.).

Probably this represents a form growing in swamps or in places at some distance from streams. The leaves in this dry brown, and are less coriaceous. Leaves having this colour and texture also occur in formæ *obliquata* and *eu-Griffithii.* The plant is usually about 30 cm. long and petioles are shorter than, or equal to, lamina.

MALAYA: *Province Wellesley,* Bukit Mertajam (BURKILL & HOLTTUM, 9016) *Malacca,* Loc. incert. (ALVINS). *Johore,* Sungei Kayu (KIAH, 32056); Batu Pahat (RIDLEY in Nov. 1900). *Singapore,* Bukit Timah (RIDLEY in 1898); Chua Chu Kang (GOODENOUGH: 10–II–1890; 21–XII–1889; Forest Guard under RIDLEY, in May 1889); Tanjong Gol (RIDLEY, in 1892).

(c) forma **sigmoidea** FURTADO **f. nov.**

H. Scortechinii HOOK. f. sensu RIDL., Fl. Malay Pen. V (1925) 109 quoad specimen selangorense.

Herba repens, saxicola. *Lamina* sigmoideo-falcata, circa 12 cm. longa, 4–6 cm. lata. Differt a formis prioribus et sequentibus lamina sigmoideo-falcata, magis coriacea.

Apparently this form is restricted to such substrata as rocks or sand which are constantly wetted by sprays, and only occasionally are subject to floods.

MALAYA: *Pahang,* Sungei Tras near Raub (BURKILL & HANIFF, 16937, Holotype). *Selangor,* Ulu Gombak (BURKILL, 9965). *Negri Sembilan,* Bukit Tumiang (ALVINS, 2239, vern. nom. Assam Tikus).

(d) forma **obliquata** FURTADO **f. nov.** (= *H. obliquata;* and *H. Griffithii* var. *obliquata* RIDL. in Journ. Roy. Asiat. Soc. Straits Br. XLIV, 1905 p. 177).

Foliorum *petiolus* plerumque brevior quam lamina: *Lamina* oblongo-lanceolata, basi paulum obliqua vel non, acuta vel subrotundata, apicem versus falcatoidea, acuminata, usque 15 cm. longa, 3–5.5 cm. lata. *Spadix* stipitatus, ovula placentis centralibus tota longitudine affixa.

In all cases examined by me the spadix was stipitate and the ovules were fixed above the base of the placenta.

ENGLER (l.c.) states that the spadix is sessile, but the figure (18, p. 38) depicts a stipitate spadix with ovules fixed at the base of the placenta.

There is a great deal of variation in this form both regarding the size, colouration and shape, some plants from the same collection approaching very near the *eu-Griffithii* form. CORNER 33578 and 33578a-e, are all from the same collection, but I gave them different letters in order to indicate the differences in colouration noted by me in the living state, *viz.*:—

33578: Petioles, peduncles and young leaves reddish. Spathes and older leaves green.

33578*a*: Petioles reddish. Peduncles, spathes and leaf-blade green.

33578*b*: Petioles, peduncles, leaf-blades and spathes green. No young terminal leaf.

33578*c*: Like 33578*b*, but the terminal leaf is young and reddish.

33578*d*: Like 33578*b*, but the spathes are reddish.

33578*e*: Peduncles, petioles and occasionally spathes darkish.

Forms very similar to these also occur in *Eu-Griffithii*, which suggests that these forms are at present of no value except to warn botanists of the existence of great deal of variability in the species. The collector notes that all plants numbered 33578 were growing on rocks.

MALAYA: *Pahang*, Kuala Teku (SEIMUND, 601); Tahan River (RIDLEY on 21–VII–1891). *Johore*, Batu Pahat (RIDLEY in Nov. 1900); Pengaram near Batu Pahat (RIDLEY, 10223); Sungei Pelapah Kiri (CORNER, 33578). *Singapore*, Sungei Bajau (BURKILL, 724); Bukit Mandai (RIDLEY in 1894).

(e) forma **falcatoidea** FURTADO **f. nov.** (= *H. falcata* RIDL.).

Differt a forma *obliquata* lamina lanceolata, parte basali rotundata 4–6–plo breviore quam terminali, apicem versus sensim attenuata, falcata, inæquilatera, acuminata.

This form is hardly distinct from the *obliquata* forms and represents only a transient stage.

MALAYA: *Kedah*, Yan (RIDLEY, in June 1893). *Province Wellesley*, Tasek Glugor (BURKILL, 6602).

(f) forma **acuminata** (RIDLEY) FURTADO **stat. nov.**

H. Griffithii var. *acuminata* RIDL. in Journ. Roy. Asiat. Soc. Straits Br. XLIV (1905) 177; ENGL. op. cit. (1912) 44.

Herba usque 25 cm. alta. *Petiolus* 12 cm. longus, laminæ equilongus, vel paulo longior. *Lamina* ovata basi rotundata vel rotundato-acuta, apicem versus sensim attenuata, falcata vel non, acuminata, nervis vix conspicuis, 9–12 cm. longa, 4–5 cm. lata.

This form, which like *Kingii* dries brown, might also be a result of a swampy substratum. In shape it approaches very near the *falcatoidea* form, but the leaves here are comparatively smaller and the nerves almost inconspicuous; in texture of the leaves, it is like the *Kingii* form.

BORNEO: Bau (RIDLEY, 11713, Holotype); Mardan (HEWITT on 27–XII–1905).

14. Homalomena Griffithii (SCHOTT) HOOK. f. var. **sumatrana** FURTADO **var. nov.**

Differt ab omnibus hujus speciei formis lamina foliorum multo breviore, ambitu oblique ovato, longitudine quam latitudo paulo longiore vel non, basin versus rotundata, ima acuta vel cordulata, apice acuminata. Foliorum ambitu hæc varietas *H. ellipticae* simillima, sed eorum textura nervisque dissimillima.

Petiolus 8–12 cm. longus, ad tertiam partem vaginatus. *Lamina* foliorum ovato-elliptica, 9–11 cm. longa, 6.5–9 cm. lata, nervis primariis utrinsecus 4–6.

SUMATRA: Soengei Koermian (BÜNNEMEIJER, 3254, Holotype, HB). Ramboetan (BÜNNEMEIJER, 3239, HB); Batoe Island (RAAP, 117, HB).

15. Homalomena Hendersonii FURTADO **spec. nov.**

Ab omnibus *Homalomenae* Sect. *Chamaecladonis* speciebus hæc species spathis papyraceis utrinque longe attenuatis, apicem versus sensim acuminatissimis duplo longioribus quam spadix; inflorescentia mascula femineæ æquilonga, conspicue obovata, facile distingui potest.

Herba erecta, in sicco ad 40 cm. longa. *Petiolus* flaccidus virescens, ad medium vel ad quartem partem usque vagina virescente præditus, quam lamina sesque longior, 9–18 cm. longus. *Lamina* foliorum papyracea, ellipticolanceolata, utrinque attenuata, interdum inæquilatera, apice sensim vel abrupte acuminata, interdum falcatula, maxima latitudine ad medium vel infra sita, 10–15 cm. longa, 3.5–6 cm. lata, supra atroviridis, subtus pallidior; nervis lateralibus primariis utrinsecus 4–5, secundariis gracillimis, pluribus, parallelis. *Pedunculi* plures, graciles, 4–6 cm. longi. *Spatha* papyracea, 2.5–3.5 cm. longa, 6–8 mm. ampla, utrinque attenuata, maxima amplitudine in medium sita, apice sensim longe cuspidato-acuminata, quam spadix duplo longior. *Spadix* basi in spatham decurrens, subsessilis, fertilis circa 1.5 cm. longus, parte mascula obovata, quam feminea crassiore, femineæ æquilonga. *Pistilla* ovata, apice in stigma orbiculare subito contracta, 2–4 locularia, ovulis paucis ad loculi basin insertis.

In the shape of the spathe and in the ratio of its length to that of the spadix, the species could be said to be a very near ally of *H. deltoidea.*

In the nervation of the leaves and in the size and the shape of the spadix which is very enlarged and rounded in the apical portion and very short in comparison to the enclosing spathe, this species reminds one of the genus *Piptospatha,* but the apical portion of the spathes is not deciduous as in that genus.

The leaves and the petioles are very soft to the touch and their surfaces are very dull.

MALAYA: *Kelantan,* Sungai Nenggiri, on the track to Kuala Betis (HENDERSON, 29663).

16. Homalomena humilis (JACK) HOOK. f. *sensu latissimo.*

This species is extremely variable, most of the variations being due to both age and environment. Forms differing in colour, shape and size and even in leaf venation may be found among the plants collected from one and the same patch of ground and even in the same plant. The extreme forms appear to be very distinct, but the transitions are so very gradual that it is impossible in many cases to arrange the variations into clearly delimited varieties.

In adopting the names for the varieties and forms described below I have followed the principle I expounded previously in this *Bulletin* (IX, 1937, p. 342) that any varietal name given to the type form of a species and retained as a variety of the same species is wrong in principle and therefore has no claim to be included in priority considerations.

(a) Eu-humilis.

H. humilis (JACK) HOOK. f., Fl. Brit. Ind. VI (1893) 533 quoad basinym tantum; RIDL., Mat. Fl. Mal. Pen. III (1907) 25; ENGL. in Pflanzenreich iv. 23. Da [55] (1912) 49; RIDL., Fl. Mal. Pen. V (1925) 105: omnino pro parte typica.

H. humilis var. *velutina* (HOOK. f.) RIDL., Mat. cit. (1907) 25; ENGL. in op. cit. p. 49 fig. 28; RIDL., Flor. cit. (1925) 105. *Syn. nov.*

H. pygmaea sensu ENGL. op. cit. p. 35 pro parte.

H. velutina SCORT. ex. HOOK. f., op. cit. (1893) 534. *Syn. nov.*

Calla humilis JACK. in Malay Misc. I (1820) 22: *Basinym.*

Chamaecladon humile (JACK) MIQ., Fl. Ind. Bat. III (1856) 213: SCHOTT, Prodr. (1860) 315; ENGL. in DC., Mon. Phan. II (1879) 345 p.p., et Illustr. Exsic. No. 104: *Isonym.*

JACK described his species thus: "A small stemless plant ..... *5 or 6 inches in height* .... *Leaves* elliptic, *ovate*, rather *obtuse* with a subulate acumen, *slightly cordate* at the base ..... crisped margin, smooth and green above, *somewhat hoary beneath, with villous papillae.* Petioles shorter than the leaves ..... Spathes of an obscure red colour."

In this extract I have italicized those parts in JACK'S original description which clinch the identity of *Calla humilis* with the plant that passes as *H. velutina.* The plant that commonly passes as *H. humilis* are either some forms of *H. velutina* or of *H. pumila* (= *H. humilis* var. *pumila*) which have long petioles. The *eu-humilis* forms are variable as to the dimensions of the leaves. See also my remarks under *H. humilis* var. *pumila.*

MALAYA: *Penang,* Government Hill = Penang Hill (RIDLEY, 7033; CURTIS, II–1892; X–1889; XI–1898); Western Hill (HENDERSON, 21354). *Perak,* Lumut (RIDLEY, 10327; in III–1896); Gunong Batu Puteh (WRAY, 1034); Tapah (RIDLEY, 14031); Taiping Hills near Waterfall (RIDLEY, 2952; in 1902; CURTIS in IX–1889 and X–1892); Gunong Keledang (RIDLEY in 1898); loc. incert. (SCORTECHINI, 276b) *Selangor,* Bukit Kutu (RIDLEY, 7665); Kuala Lumpur (RIDLEY, 13399); Rantau Panjang (HUME, 7598); Pahang Track (RIDLEY in 1897); Ginting Bidai (RIDLEY in May 1896); Petaling (RIDLEY, 10177); Ginting Simpak (HUME, 9549); Klang Gates (HUME, 7099; RIDLEY, 13398); Batu Caves (RIDLEY, 23–VI–1899); Bukit Kuda (RIDLEY, 23–VI–1889). *Pahang,* Fraser Hill (NUR, 11037).

SUMATRA: *Batu Island* (RAAP, 412, HB).

ANAMBA ISLANDS: Siantan (VAN STEENIS, 1445, HB).

17. **Homalomena humilis** (JACK) HOOK. f. var. **major** (HASSK.) FURTADO **comb. nov.**

Aglaonema ? *pygmaeum* sensu HASSK. Cat. Hort. Bogor II (1844) 57 et Pl. Jav. Rar. (1847) 154 p.p.; ZOLL., Syst. Verz. (1854) 76.

A. ?*pygmaeum* var. *majus* HASSK. in HOEV. et DE VRIESE, Tijdschr. IX (1842) 161: *Basinym.*

Chamaecladon lanceolatum MIQ., in Bot. Zeit. (1856) 564 et Fl. Ind. Batav. (1856?) 212 t. 40; SCHOTT, Gen. Aroid. (1858) t. 60 fig. 1–26, Prodr. (1860) 313.

C. pygmaeum (HASSK.) ENGL. in DC., Mon. Phan. II (1879) 345 et Arac. Exsicc. et Illustr. n. 96 p.p.

H. pygmaea sensu ENGL. in Pflanzenreich IV. 23. Da [55] (1912) 24 p.p.

As defined here, this variety and the following subvariety become confined to Java only, the records for outside Java being due to the misinterpretation of *A. pygmaeum* and of its var. *majus.*

It is impossible to distinguish this and the following subvariety on the red colour alone, because one individual form may vary in the presence and intensity of the colouration in its different parts.

This variety is distinguished from the Malayan varieties of *H. humilis* in its leaves being much narrower and comparatively longer (3–4 times as long as broad), widest in the middle or in the upper half, with the principal veins running at about 30°, as well as in the leaves being more distantly placed on a scandent or almost erect stem. On the habit of the stem, and on the arrangement of the leaves on it, the herbarium specimens of this Javanese variety look very much like those of the Malayan varieties *ophirensis* and *undulata*.

The petioles are subequal or longer than the lamina. The ovules are situated a little higher than the base of the placenta in the examined specimens as described by SCHOTT.

For the original description of this variety, see *H. humilis* var *major* subvar. *coccinea* (v. ALD. v. ROS.) FURTADO.

JAVA: common up to alt. 1000 m. (BACKER; 710; 1633; 4608; 23365; BAKHUIZEN v/D BRINK: 789; 3100; 3615; 3616; 3995; 5029; 11; BEUMÉE, A–337; REINWARDT, 19–a; DE VRIES, 43; KOORDERS: 39695B; 41322B; VAN SLOOTEN, 597; VAN STEENIS, 2439: All in herb. Buitenzorg).

18. **Homalomena humilis** (JACK) HOOK. f. var **major** (HASSK.) FURTADO subvar. **coccinea** (v. ALD. v. ROS.) FURTADO **subvar. nov.**

Aglaonema ? pygmaeum HASSK., Diag. nov. (1842) 39, in HOEV. et DE VRIESE, Tijdschr. IX (1842) 161, et Cat. Hort. Bogor. II (1844) 57, et Pl. Jav. Rar. (1847) 154 p.p. *Syn. nov.*

A. pygmaeum var. *purpurascens* ZOLL., Syst. Verz. (1854) 76 *nom. nud.*

Chamaecladon lanceolatum var. *purpurascens* (ZOLL) MIQ., Fl. Ind. Bat. III (1856?) 213 *nom. nudum.*

Ch. purpurascens SCHOTT. in Bonpl. (1858) 369, Prodr. (1860) 313. *Syn. nov.*

Ch. pygmaeum (HASSK.) ENGL. in DC, Mon. Phan. II (1879) 345 et Arac. Exsicc. Illustr. No. 96. *Syn. nov.*

Ch. pygmaeum var. *purpurascens* (SCHOTT) ENGL. in DC., Mon. Phan. II (1879) 345. *Syn. nov.*

Ch. rubescens SCHOTT, Gen. Aroid. (1858) t. 60 fig. 27–37 (prob. lapsus calami pro *Ch. purpurascente*). *Syn. nov.*

H. coccinea v. ALD. v. ROS. in Bull. Jard. Bot. Buitenz. IV (1922) 180. *Basinym.*

H. pumila HOOK. f. var. *purpurascens* (SCHOTT) RIDL. in Journ. Bot. XL (1902) 35 et Mat. Fl. Mal. Pen. III (1907) 26 p.p. *Syn. nov.*

H. purpurascens (SCHOTT) HOOK. f., Fl. Brit. Ind. VI (1893) 535 observ. sub. *H. pumila* p.p.,; RIDL., Fl. Mal. Pen. V (1925) 105 p.p. *Syn. nov.*

H. pygmaea (HASSK.) ENGL. in Bot. Jarhb. XXV (1898) 18 *nom. nudum.*, quod basinym non citatum est; Index Kewensis Suppl. (1904) 92; ENGL. in Pflanzenreich 23. Da [55] (1912) 34 p.p. typica *Syn. nov.*

H. pygmaea var. *purpurascens* (SCHOTT) ENGL. in Bot. Jahrb. XXV (1898) 18 *nom. nudum,* quia basinym non citatum est; ENGL. in Pflanzenreich tom. cit. p, 34 p.p. *Syn. nov.*

H. rubrovaginata v. ALD. v. ROS, in op. cit. (1922) 331. *Syn. nov.*

H. rubrovaginata var. *subpurpurea* v. ALD. v. ROS. in op. cit. IV (1922) 332. *Syn. nov.*

From HASSKARL'S original description the subvariety *coccinea* appears to be the type form of *A. pygmaeum.* I transcribe here the description of *A. pygmaeum* and of its var. *majus* as published in HOEV. et DE VRIESE, Tijdschrift IX (1842) 161.

AGLAONEMA ? PYGMÆUM: "Caulescens, caulis erectus, ½–¾ ped. altus, foliorum emarcidorum rudimentis tectus. *Folia oblongo-lanceolata* utrinque acuta apice mucronata, nervosa, nervis subtus prominentibus, *2–3 poll. longa, ¾–1 poll. lata;* petiolus 1–1½ poll. long. teres supra planiusculus, basi vaginans, *vagina marginis rosei,* pedunculi axillares vix pollicares, spatha viridi-alba, ¾ pollices spadicem, superans.

"*β* MAJUS (flores non vidi) differt *foliis majoribus, 4–5 poll. long. 1¼ poll. lata,* petiolis 3½ poll. long. supra *atroviridibus lutescentibus.*—Magnopere forma et habitu representat folia Atacciæ integrifoliæ, sed multo (plus duplo) minora."

In this description the italicised portions give the important clues in fixing the identity of the two forms described by HASSKARL.

It is evident from the description that the var. *majus* is the form that passes as *H. pygmaea* and *Ch. lanceolatum;* and it appears that HASSKARL had only very small plants of the *coccinea* form which he referred to the typical *A. pygmaeum.* The *coccinea* form differs from the var. *major* described above in the leaf lamina being shorter, ovate or oblong (not frequently obovate-elliptic), twice as long as broad, the petiole usually longer than the lamina (plants with shorter petioles are also found, especially in the

younger plants), and in possessing more often than the var. *major* red pigments in one part or other of the plant. The angles that the principal leaf veins form with the midrib are also larger and so this form approaches very near the var. *pumila* of the Malay Peninsula. From the last however it is distinguished by comparatively shorter lamina and longer petiole, and also by its long or trailing or almost erect stem. From var. *ophirensis* it differs by its more slender petioles, more numerous leaf-veins, and longer stems and more distant leaves on the stems.

As to the presence of red pigments, this form varies a great deal and a series of deviations from a plant with red in all its parts to one red only in the leaf-sheaths might be found. Red coloured plants are also found in the forms *pumila, eu-humilis,* etc., a reason why the term *purpurascens* has been used so very indiscriminately as to render the use of the epithet at present ambiguous.

JAVA: Alt. 100–600 m: *Batavia* resid. (BAKHUIZEN V/D BRINK: 5028; 5030, paratype of *H. rubrovaginata;* 6390; 7065; 7185; BACKER: 5907; 10271; 31130). *Preanger* (BAKHUIZEN V/D BRINK: 3222 = 172, Holotype of *H. coccinea*). *Bodjonmanik* (KOORDERS, 41580B.). *Bantam* (VAN DER PIJL, 70; BACKER, 7114); Mount Tjikorai, cult. in Hort. Bot. Bogor. sub. no. XI. B.X. 3, meroholotype of *H. rubrovaginata* var *subpurpurea* in Herb. Singapore).

With the exception of the last mentioned all the specimens cited are from the Herb. Bogor. BACKER, 10271 is entirely green.

19. Homalomena humilis (JACK) HOOK. f. var. **ophirensis** (RIDL.) FURTADO **comb. nov.**

H. angustifolia var. *ophirensis* RIDL., Mat. Fl. Mal. Pen. III (1907) 29; ENGL. in Pflanzenreich tom. cit. (1912) 31; RIDL., Fl. Malay Pen. V (1925) 109. *Basinym.*

This differs from var. *pumila* in its long trailing stems and unusually long petioles. The leaves are very variable.

According to a note on the sheet of the Ophir plants by RIDLEY the petioles are red and the long rhizomes grow in the crevices in rocks.

H. Curtisii may be identical with this variety.

MALAYA: *Kedah,* Gunong Jerai (RIDLEY in June 1893). *Pahang,* Fraser Hill. alt. 4000–5000 ft. (BURKILL & HOLTTUM, CF. 7879). *Malacca,* Mount Ophir, streams on Padang Batu (RIDLEY in June 1892 and in Dec. 1898: syntypes of the variety). *Johore,* Gunong Pulai (BEST, 7723).

20. Homalomena humilis (JACK) HOOK. f. var. **pumila** (HOOK. f.) FURTADO **comb. nov.**

Calla angustifolia JACK in Malay Misc. I (1820) 124. *Syn. nov.*

Chamaecladon angustifolium (JACK) SCHOTT in Bonpl. VI (1858) 369, Prodr. (1860) 313; ENGL. in DC, Mon. Phan. II (1879) 344 et Arac. Exsicc. et Illustr. n. 105 (omnino quoad partem typicam). *Syn. nov.*

?Ch. pygmaeum var. *latifolium* ENGL. in Malesia I (1882) 283.

H. angustifolia (JACK) HK. f., F.B.I. VI (1893) 533 p.p.

H. johorensis ENGL. in Pflanzenreich IV. 23. Da [55] (1912) 37; RIDL., Fl. Mal. Pen. V (1925) 106. *Syn. nov.*

H. propinqua RIDL. spec. nov. in Journ. Bot. XL (1902) 35 et Mat. Fl. Mal. Pen. III (1907) 26 (non *H. propinqua* SCHOTT). *Syn. nov.*

H. pumila HOOK. f., Fl. Brit. Ind. VI (1893) 535; RIDL. in Journ. Bot. XL (1902) 35 et Mat. tom. cit. (1907) 26: *Basinym.*

H. pumila HOOK. f. var. *purpurascens* (SCHOTT) RIDL. in Journ. Bot. XL. (1902) 35 et Mat. cit. (1907) 26: quoad specimina malayana.

H. purpurascens (SCHOTT) HOOK. f. op. cit. (1893) 535 observ. sub. *H. pumila, pro. parte.*

H. purpurascens var. *pumila* (HOOK. f.) RIDL., Fl. Mal. Pen. V (1925) 105. *Syn. nov.*

H. pygmaea sensu ENGL. in Pflanzenreich IV. 23. Da [55] (1912) pro parte non typica.

?H. pygmaea var. *latifolia* (ENGL.) ENGL. op. cit. (1912) 36.

H. pygmaea var. *pumila* (HOOK. f.) ENGL. l. cit. Isonym.

H. pygmaea var. *purpurascens* (SCHOTT) ENGL. op. cit. (1912) 36 pro parte non typica.

The binomial *H. purpurascens* was validly published by HOOKER in Fl. Brit. Ind. (1893) though it has been overlooked by most authors and not listed in Index Kewensis.

I have included ENGLER'S variety *latifolia* with some doubt. The bare description given by ENGLER both under *Chamaecladon* and later under *Homalomena* neither distinguishes nor excludes the type form described by ENGLER. From the Malayan specimens cited by ENGLER, I surmise that "2–4 cm." in the description may be a mistake, intended to mean that the petioles are 2–4 times as long as the lamina.

JACK in publishing the name *Calla angustifolia,* gave a very brief description of the species; but since he compared the species with his better described *C. humilis,* the clues for the identification of the former should be found in the description of the latter.

The following pairs of characters furnish important clues in identifying the species:

Calla humilis	*C. angustifolia*
1. "A small stemless plant ...5 or 6 inches in height. Root a leaf-bearing tuber, which sends out numerous long villous fibres. Stem none, except the above-mentioned tuber, which is everywhere invested by sheaths of the petioles."	**1.** "A small plant of the same size and nearly related to the preceding" *i.e. C. humilis.* In the diagnosis in Latin the plant is described as being "acaulis."
2. "Leaves erect .. elliptic, ovate, rather obtuse, with a subulate acumen, slightly cordate at the base ...."	**2.** "leaves radical..... lanceolate, acute at both ends."
3. "Foliis ellipticis, supra glabris."	**3.** "Foliis lanceolatis utrinque acutis glabris."
4. Peduncle 4–5 axillary, 1-flowered, shorter than the petioles.	**4.** Peduncle 4–5 axillary, 1-flowered, shorter than the petioles.
5. "Spathes of an obscure red colour...."	**5.** "Flowers, etc. exactly in the preceding."
6. "Petioles shorter than the leaves...."	**6.** "These two [species] are so closely allied that it is doubtful whether they might not be considered varieties."

From this comparison I conclude that JACK'S *C. angustifolia* is a plant very near in general appearance to his *C. humilis* [see my remarks under *H. humilis* (eu-Humilis)], being stemless, about 5–6 inches in height, having a reduced leaf-bearing tuber or root, and obscurely red spathes; but differing from *C. humilis* in having leaves which are lanceolate in shape, acute at both ends and glabrous on both sides (*C. humilis* being described as ovate, slightly cordate at base, crisped in the margins, hoary beneath with villous papillæ).

Surely this description cannot be applied to *H. angustifolia* as currently interpreted, which has a long prostrate, trailing stem, petiole as long as, or even longer than, the lamina, leaves very narrow, almost linear (not lanceolate in the older sense), though attenuate at both ends, rarely reddish spathes, and with a height varying from 8 to 18

inches. Perhaps when *C. humilis* was identified with longer-petioled and taller forms of the species and the smaller forms were described as new, one was justified in giving *C. angustifolia* the current interpretation. But when it is shown that *C. humilis* is really identical with *H. velutina,* it ought to be clear that *C. angustifolia* is the Malayan form that passes under the different names of *H. pygmaea, H. purpurascens* or *H. pumila.*

All the characters given by JACK best fit with the smaller forms of this plant (*H. pumila*) which is also one that can be said to approach very near to *C. humilis* as interpreted here. MIQUEL (Fl. Ind. Bat. III, 1856 ?, p. 213) appears to have suspected the correct affinity of the species.

There is a good deal of variation within this variety; some plants have long petioles (2–4 times as long as the lamina) and a very broad lamina (these forms may be identical with *H. pygmaea* var. *latifolia* ENGL), some are quite small, even smaller than those described by JACK; some are red all over, others are red in some parts only, different plants having different degrees of redness distributed in different parts. There is no evidence to consider the various forms from the Malay Peninsula agreeing with ENGLER'S varieties *purpurascens, pumila* and *latifolia* to be other than ecologic forms within the same variety.

H. johorensis ENGL. (=*H. propinqua* RIDL., non SCHOTT) is also a larger form of this variety, and transitions from the typical *pumila* to the *johorensis* forms occur.

MALAYA: *Kedah,* Gunong Jerai (Kedah Peak), alt. 3000–4000 ft. (ROBINSON & KLOSS, 6123). *Perak,* Bukit Kapayang (RIDLEY in 1904); Tambun (BURKILL, 6304); Ipoh (BURKILL, 2559; CURTIS, XII–1895; RIDLEY, 11932); Taiping Hill (RIDLEY, 11421); loc. incert. (SCORTECHINI, 276b, HB; sn.). *Pahang,* Sungei Sat at Ulu Tembeling (HENDERSON s.n. 20–VII–1929); Robinson Falls on Cameron Highlands, alt. 4800 ft. (HENDERSON, 17758); Telom (RIDLEY in Nov. 1908). *Negri Sembilan,* Gunong Angsi, 700–2000 ft. (NUR, 11605). *Johore,* Mount Austin (RIDLEY, 11990); Batu Pahat (RIDLEY, 11193); Pulau Tinggi (BURKILL, 918); Gunong Panti (CORNER, 30691): Gunong Lambak (HOLTTUM, 9391); Pulau Aor (HENDERSON, 18374); Gunong Pulai (RIDLEY; 12144 & in Dec. 1904; MAT, 3722, Holotype of *H. johorensis*). *Malacca,* Ayer Panas (HERVEY in 1891); loc. incert (RIDLEY). *Singapore,* Bukit Timah (RIDLEY in 1889; Sept. 1890; and in 1894; NUR in Sept. 1932); Seletar (RIDLEY in 1889); Reservoir Woods (RIDLEY in 1893).

SUMATRA: *Lingga Island* at Sungei Ṭanda (TEYSMANN, HB); Gunong Paliwang in Pelamban (VAN STEENIS, 3794, HB); Asan Pulau (LATIF, 8, HB).

BORNEO: Bidi (ANDERSON, 85; BROOKS, A–4); Matang (RIDLEY in 1904); Tadjoek (JAHERI, 215, HB); Kinabalu Mountain Range, alt. 2500–4000 ft. (CLEMENS: 26199; 27230; 29139; 32508, HB); Koetai (ENDERT, 2360, HB).

21. **Homalomena humilis** (JACK) HOOK. f. var. **undulata** RIDL., Fl. Malay Pen. V (1925) 105.

H. pumila HOOK. f. sensu RIDL. in Journ. F. M. S. Mus. IV (1909) 90.

H. pygmaea sensu ENGL. in Pflanzenreich IV. 23. Da. [55] (1912) 34 pp.

?H. repens RIDL., Fl. Malay Pen. V (1925) 106.

H. undulatifolia RIDL. (errore typ. *undalatifolia*) in Journ. Roy. Asiat. Soc. Straits Br. LVII (1907) 111 et Fl. Mal. Pen. V (1925) 106. *Syn. nov.*

This form is very rare and approaches var. *major* of Java. *H. undulatifolia* is only a small plant flowering but not yet fully developed. I have not seen the holotype of *H. repens,* but from the description it appears to be this, unless it is a form of var. *ophirensis,* which is also very close to this variety.

MALAYA: *Perak,* Sungei Kertai at Temango (RIDLEY, 14304: Holotype of *H. undulatifolia*). *Pahang,* Telom (RIDLEY: XI–1908; 13842 & 13842a, Syntypes); First Padang Stream (RIDLEY in 1911): Gunong Tahan (RIDLEY, VI–1911, Syntypes). *Johore,* Sednah (RIDLEY, 13469); Sungei Tebrau (RIDLEY, III–1908).

The following specimens, some of which are cited by ENGLER (1912) under *H. pygmaea,* either belong here or are forms of *H. humilis* var. *pumila:*

BORNEO: Sibaloum (TEYSMANN, 10826, HB).

SUMATRA: Talaman (BÜNNEMEIJER, 584, HB); Gajoe (DAALEN 30, HB).

CELEBES: Minahasa (KOORDERS 16180β, HB); Kendari (KJELLBERG, 612, HB); Pangkadjene (TEYSMANN, 12421, HB).

22. **Homalomena Kiahii** FURTADO **spec. nov.**

Herba majuscula, erecta (sine caudiculo infrafoliari ad 10 cm. usque longo, radices plures geopetentes gerente), a basi ad foliorum summum usque 15–20 cm. longa. *Petiolus* 5–9 cm. longus, quam lamina brevior, ad mediam partem usque vagina rubescente conspicua præditus. *Lamina* foliorum papyracea, ovato- ad oblonga-lanceolata, inæquilatera, apicem versus quam basin magis attenuata, 10–15 cm. longa, 3–4 cm. lata, maxima latitudine prope mediam vel infra sita; basi rotundata vel subtruncata, imo obtusa vel in uno latere acutiuscula; apice acuminata interdum falcatula, summo mucronulata; supra viridis, subtus pallidior; nervis lateralibus primariis utrinsecus 5–7, primariis subprimariis-que cunctis 6–9, alteris pluribus, subparallelis, gracillimis. *Pedunculi* plures, tenues, reflexi vel erecti, 2–3 cm. longi. *Spatha* 15–25 mm. longa, convoluta, subcylindrica, in medio haud constricta, chartacea, apice breviter vel obscure cuspidata. *Spadix* stipitatus, spathæ tubo fere æquilongus, masculus 2–2½–plo longior quam femineus. *Pistilla* subglobosa apice in stigma orbiculare concavusculum contracta; ovulis paucis, ad ovariæ basin insertis.

This species is very near *H. argentea* RIDL., from which it is easily distinguished in papyraceous (not coriaceous) leaves and spathes, ovate or oblong-lanceolate (not obovate or obovato-lanceolate) leaf-lamina, more numerous, and longer peduncles, longer spathes, and longer portion of the spadix occupied by female flowers.

MALAYA: *Johore*, Sungei Kayu, on a hill (KIAH, 32358).

22. **(b) forma maculata** FURTADO **f. nov.**

Differt a forma typica lamina in utroque latere inter costam marginemque tæniis argyræis nota.

In Aroids red and white markings are often a transient, non-hereditary response to environment. KIAH'S collection 32146 cited below shows that some specimens of the same collection do not have the markings. Hence this form with maculate leaves cannot be regarded as a stable form or a variety.

MALAYA: *Johore*, Sungei Kayu in swamps (KIAH, 32146, Holotype); Sungei Pelepah Kiri, on a hillside, not in stream-beds (CORNER, 33579).

23. **Homalomena Korthalsii** FURTADO **nom. nov.**

H. subcordata (SCHOTT) ENGL. in Pflanzenreich IV. 23. Da. [55] (1912) 51 (non *H. subcordata* ENGL., 1882). *Isonym.*

Chamaecladon subcordatum SCHOTT in MIQ., Ann. Mus. Lugd. Bat. I (1863–1864) 348. *Basinym.*

The new combination *H. subcordata* (SCHOTT) ENGL. (1912) was made on the mistaken supposition that *H. subcordata* ENGL. (in Bot. Jarhb. I, 1882, p. 183 and in Malesia I, 1882, p. 281) was invalid or illegitimate and that the new combination could be legitimized. The new Rules of Botanical Nomenclature render the new combination illegitimate because of the earlier binomial *H. subcordata* ENGL.

BORNEO: (KORTHALS, Herb. Leiden: non vidi).

24. **Homalomena lancifolia** HOOK. f., Fl. Brit. Ind. VI (1893) 533; RIDL., Mat. Fl. Mal. Pen. III (1907) 29; ENGL. in Pflanzenreich IV. 23. Da. [55] (1912) 47 fig. 26 A-J; RIDL., Fl. Malay. Pen. V (1925) 109.

H. Griffithii sensu BURKILL et HANIFF in Gard. Bull. Straits Settl. VI (1930) 266.

I have not seen the type of this species and so have followed the interpretations of the species as indicated by the determinations of PRAIN, RIDLEY and ENGLER, in the Herbarium of Singapore.

H. batoeensis ENGL. may prove to be a form or variety of this.

MALAYA: *Kelantan*, base of Bukit Papan (HENDERSON, 29564). *Pahang*, Batu Talam in Raub (BURKILL & HANIFF, 16974, as Rumput Gatal), Bentong on Raub boundary (FURTADO, 33106); Kota Glanggi

(RIDLEY, VIII–1891); Tahan River (RIDLEY, VIII–1891). *Perak*, Gunong Batu Puteh, alt. 6700 ft. (WRAY, 385). *Selangor*, Ginting Simpah (HUME, 8975); Pahang track (RIDLEY, 8462).

25. **Homalomena mentawiensis** FURTADO **spec. nov.**

"*H. lanceolata* MIQ." ex RIDL in Kew Bull. (1926) 92 nomen tantum.

H. humili var. *pumilae* valde affinis, sed foliorum lamina lanceolata, subtus nervis validioribus, spathis pedunculisque minoribus facile recognoscenda. Ab *H. humile* var. *majore* recedit herba erectiuscula minore, foliis in turione aggregatis, haud distantibus, petiolo quam lamina subduplo breviore, lamina semper oblanceolata, subtus nervis validioribus, spathis pedunculisque minoribus. Ab *H. paucinervia*, cui facie simillima, differt herba minore, pedunculis spathisque multo brevioribus.

Herba ad 12 cm. longa, foliis in turione aggregatis. *Petiolus* 1.5–2.5 cm. longus, ad tertiam partem usque vagina inconspicua, probabiliter rubescente, præditus. *Lamina* foliorum oblanceolata, coriacea, 3–5 cm. longa, 1–1.5 cm. lata, supra atroviridis, subtus pallidior, nervis supra inconspicuis, subtus prominentibus, primariis subprimariisque cunctis utrinsecus 5–7. *Pedunculus* gracilis, inconspicuus, vix 1 cm. longus. *Spatha* perbrevis, 4–6 mm. longa, ovata, apice acuminata vel acuta. *Spadix* spathæ subæquilongus, tertia parte femineus.

Apparently RIDLEY intended the name *H. lanceolatum* to be an isonym of *Chamaecladon lanceolatum* MIQ., but since no basinym was indicated the name cannot be taken as validly published.

MENTAWI ARCHIPELAGO: Sipora (BODEN KLOSS, 14777, Holotype in Herb. Singap. duplicate in HB; IBOET 512, Paratype).

26. **Homalomena mixta** RIDL. in Journ. Bot. XL (1902) 36; RIDL., Mat. Fl. Mal. Pen. III (1907) 30; ENGL. in Pflanzenreich IV. 23. Da. [55] (1912) 80; RIDL., Fl. Malay Pen. V (1925) 110 p.p.

This differs from all other species in the genus in having pistillodes in the male portion of the spadix. The specimen itself may be abnormal, but in vegetative characters the specimen does not match any other species of the genus. The nearest allies in leaf characters appear to be *H. oblanceolata* and *H. rupicola*, both described from Sumatra.

The following will complete the description given of the species:

Pistilla ovoidea, in stigma discoideum abrupte contracta. *Pistillodia* linearia, masculis floribus (inter quos sita) duplo longiora.

MALAYA: *Pahang*, Tahan woods (RIDLEY in 1891, Holotype).

27. **Homalomena montana** FURTADO **spec. nov.**

Herba reptans ut videtur, caudiculo foliifero brevi. *Petiolus* laminæ æquilongus vel quam lamina sesqui-longior ad tertiam vel quartam partem vagina rubescente præditus, 16–25 cm. longus. *Lamina* foliorum nitida, coriacea, elliptico-lanceolata, interdum inæquilatera, maxima latitudine in medium sita, utrinque sensim attenuata, basi acuta vel rotundato-obtusa, apice longe acuminata, 14-20 cm. longa, 4–6 cm. lata; nervis lateralibus primariis utrinsecus 5–7 (nervis primariis subprimariisque cunctis 9–13), angulo 60°–40° arcuatim adscendentibus; secundariis pluribus, subparallelis; omnibus conspicuis. *Pedunculi* plures, graciles, 4–8 cm. longi. *Spatha* cum acumine 2–5 mm. longo 1.8–2.5 cm. longa, coriacea vel semi-coriacea, in latere dorsali decurrens. *Spadix* spathæ tubo fere æquilongus, basi breviter stipitatus, fertilis ad 1.8 cm. longus, parte mascula quam feminea triplo longiore. *Pistilla* ovoidea, apice stigmate discoideo coronata, 3–4 locularia, ovulis perpaucis ad basin loculi insertis.

In the general texture and size of the leaves this species might be confused with some forms of *H. Griffithii*, but the spadix of *H. montana* is shorter and has its male portion three times as long as the female; the leaves, which are more coriaceous, are neither falcate nor ovate. From *H. Hendersonii* it differs both in the leaves which are nitid and more coriaceous and have the veins very prominent underneath, and in the spadix which is nearly as long as the spathe tube, with the male inflorescence cylindric and three times as long as the female.

MALAYA: *Trengganu*, Gunong Padang. alt. circa 4000 ft. (MOYSEY & KIAH, 31839).

Probably here also belongs NUR 11091 collected at Fraser Hill along Sungei Yet in Pahang, and cited in RIDLEY'S Flora under *H. mixta*. This collection has been attributed by RIDLEY to BURKILL under whose direction NUR then worked as plant-collector.

28. **Homalomena nigrescens** (SCHOTT) ENGL. in Pflanzenreich IV. 23. Da [55] (1912) 81 inter species dubias vel imperfecte cognitas collocata.

Chamaecladon ? nigrescens SCHOTT in MIQ., Ann. Mus. Lugd. Batav. I (1863) 126; ENGL. in DC, Mon. Phan. II (1879) 349. *Basinym.*

KORTHAL'S n. 221 preserved in the Leiden herbarium is purported to be from the holotype collection of this species. From the fact that SCHOTT did not describe the inflorescence of this species and used moreover a query mark after *Chamaecladon*, I conclude that SCHOTT had only seen sterile duplicate material from this collection.

In the Leiden material the spathes (1 cm. long with a short slender peduncle, both as in *H. humilis*) are represented; they show that the species belongs unmistakably to the section *Chamaecladon*.

In size and general appearance of the leaves the species might be easily confused with *H. Corneri;* however it differs from *H. Corneri* in its much smaller spathes and peduncles and its very much shorter leaves which are less rounded but slightly cuneate at base, less coriaceous and less acuminate at apex, with fewer primary nerves and with more numerous secondary nerves between any two primary ones.

SUMATRA: (KORTHALS, 221, herb. Leid., Haptoholotype).

29. **Homalomena novo-guineensis** ENGL. in Pflanzenreich IV. 23. Da [55] (1912) 47.

ROMER 451 in the Buitenzorg herbarium has been labelled by ENGLER as having been included in the Pflanzenreich, but is not cited there. LAM 722 was referred by VAN ALDERWERELT VAN ROSENBURGH doubtfully to *H. pygmaea* (HASSK.) ENGL. (in Bull. Jard. Bot. Buitenz. IV. 1922 p. 332); from this *H. novo-guineensis* is easily distinguished by more coriaceous, often oblanceolate leaves with the base somewhat longer on one side than on the other, and by longer peduncles. In LAM 722 the leaves are narrower in the lamina and shorter in the petiole than the ones in the type collection; but this appears to be only a transient stage of the same species.

NEW GUINEA: *Southern districts* [? South of Wilhelmina Peak] (ROMER, 451, flowers, 7–X–1909, Haptoholotype, HB); *Northern Districts:* Pionier Bivak, alt. 10 m. (LAM, 722, flowers, 29–VII–1920, HB).

30. **Homalomena nutans** HOOK. f., Fl. Brit. Ind. VI (1893) 535; RIDL., Mat. Fl. Mal. Pen. III (1907) 27; ENGL. in Pflanzenreich IV. 23. Da. [55] (1912) 37; RIDL., Fl. Malay Pen. V (1925) 108.

H. purpurascens sensu BURKILL et HANIFF in Gard. Bull. Straits Settl. VI (1930) 266.

H. Scortechinii HOOK. f. sensu RIDL. in Journ. Roy. Asiat. Soc. Str. Br. LVII (1910) 112; RIDL., Fl. cit. (1925) 105. p.p.

This species was so far known only from the holotype collection, of which I have not seen any representatives. My identification of the species is based entirely on the description. This species is the only one in the genus that produces spathes cernuous as in *Piptospatha*.

BURKILL and HANIFF record that the Sakais drink a preparation of this plant as a cure for loss of voice.

MALAYA: *Kelantan,* Sungei Ketil at Gua Musang (HENDERSON, 22659). *Pahang,* Batu Talam in Raub (BURKILL & HANIFF, 16951, Sakai name, Gli). *Perak,* Temango (RIDLEY, 14367).

31. **Homalomena oblanceolata** V. ALD. V. ROS. in Bull. Jard. Bot. Buitenz. IV (1922) 170.

The variations within this species have to be studied in order to see whether it is really distinct from *H. rupicola* V. ALD. V. ROS. (op. cit. p. 179).

SUMATRA: Deli (cult. in Hort. Bot. Bogor. sub. n. XI. B.X. 47, HB, Holotype); Sibolangit (NUR, 7367).

Here may also belong the following Sumatran collections: LÖRZING & JOCHEMS, 7380, HB; GALOENGI, 172, HB).

32. **Homalomena paucinervia** RIDL. in Journ. Roy. Asiat. Soc. Straits Br. XLIV (1905) 175; ENGL. in Pflanzenreich IV. 23. Da. [55] (1912) 34; MERR., Enum. Bornean Pl. (1921) 95.

H. angustifolia sensu RIDL., Mat. Fl. Mal. Pen. III (1907) 28; ENGL. op. cit. (1912) 46; RIDL., Fl. Mal. Pen. V (1925) 108; omnino pro parte.

H. lucidula V. ALD. V. ROS. in Bull. Jard. Bot. Buitenz. IV (1922) 171. *Syn. nov.*

Piptospatha Ridleyi var. *lanceolata* RIDL., Fl. Mal. Pen. V (1925) 114 p.p. *Syn. nov.*

This species very much resembles *H. confusa* which however is distinguished by its longer spathes, frequently longer petioles, and shorter lamina, and prostrate stems.

The species was based on a Bornean plant having leaves thin almost chartaceous, but transitions from this to thickly coriaceous, as represented by some Anambas specimens, are seen.

H. consobrina is very near this and further investigations are necessary to see whether it is identical with *H. paucinervia.*

RIDLEY'S *Piptospatha Ridleyi* var. *lanceolata* was based on a mixture consisting of typical *P. Ridleyi* and of *H. paucinervia* collected by HOLTTUM at Ulu Kahang sub no. 10863).

MALAYA: *Johore,* Gunong Panti (RIDLEY, XI–1892; CORNER, 5–XII–1936); Gunong Muntahak (HOLTTUM, 19933); Ulu Kahang (HOLTTUM, 10863 partim).

SUMATRA: Deli (cult. in Hort. Bot. Bogor. sub. n. XI. B.X. 13; Holotype of *H. lucidula,* HB); Lampongs (VOOGD, 321, HB).

ANAMBAS ISLANDS: Jemaja (HENDERSON, 20389); Siantan (HENDERSON, 20105; VAN STEENIS, 687).

BORNEO: *Sarawak,* Matang (RIDLEY, Holotype).

33. **Homalomena Pulleana** ENGL. et. Krause in Engl., Bot. Jahrb. LIV (1916) 84; KRAUSE et V. ALD. V. ROS. in Nova Guinea XIV (1927) 217.

From the description and the plate of *H. Lauterbachii* in ENGL., Pflanzenreich IV. 23. Da. (1912), *H. Pulleana* appears to be only a smaller spathed form or variety of the former.

NOVA GUINEA: Mount Perameles, alt. 1100 m. (PULLE: 398, HB, Type of *H. Pulleana;* 410, HB).

34. **Homalomena refulgens** V. ALD. V. ROS. in Bull. Jard. Bot. Buitenz. IV (1922) 174.

H. Burkilliana RIDL. in Journ. Roy. Asiat. Soc. Malay Branch I (1923) 104. *Syn. nov.*

SUMATRA: Sibolangit (DOCTERS VAN LEEUWEN, cult. in Hort. Bot. Bogor. sub XI. B.X. 50: Meroholotype in Herb. Singap.; NUR, 7412: Isoholotype of *H. Burkilliana*).

35. **Homalomena Scortechinii** HOOK. f., Fl. Brit. Ind. VI (1893) 534; RIDL., Mat. Fl. Mal. Pen. III (1907) 29; ENGL. in Pflanzenreich IV. 23. Da. [55] (1912) 31 fig. 14; RIDL., Fl. Malay Pen. V (1925) 109. p.p.

H. crassa RIDL. in Journ. Bot. XL (1902) 36; RIDL., Mat. Fl. Mal. Pen. III (1907) 29; ENGL. op. cit. (1912) 37; RIDL., Fl. Mal. Pen. V (1925) 109. *Syn. nov.*

This species varies a great deal in the length of the petioles and in the size of the leaves. *H. crassa* represents a form with very short petioles. The typical *H. Scortechinii* has petioles nearly equal to, or slightly longer or shorter than, the lamina.

MALAYA: *Perak*, Ulu Bubong (KUNSTLER = KING'S collector, 10603, Haptoholotype). *Selangore*, Kajang (RIDLEY, V–1896); Ginting Peras (RIDLEY, V–1896) (both these Selangor specimens are syntypes of *H. crassa*). *Negri Sembilan*, Bukit Plangi in Tampin (BURKILL, 2544). *Johore*, Tebrau River (RIDLEY, 13237); Castlewood (RIDLEY, in 1906).

Probably CORNER 33685 from Johore belongs here.

B. SECTION: EU-HOMALOMENA

36. **Homalomena alba*** Hassk., Decades (1842) 59 et in HOEV. et DE VRIESE, Tijdschrift IX (1842) 162, et in Cat. Hort. Bogor. II (1844) 57; SCHOTT, Synops. Aroid. (1856) 118; MIQ., Fl. Ind. Bat. III (1856?) 211; SCHOTT, Prodr. (1860) 312; ENGL. in DC., Mon. Phan. II (1879) 339 et in Pflanzenreich IV. 23. Da. [55] (1912) 63; V. ALD. V. ROS. in Bull. Jard. Bot. Buitenz.

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* Since writing the above I have had the opportunity of consulting HOUTTUYN'S description and plate of *Dracontium cordatum* HOUTT., Handleit. XI (1779) 200 t. 71 fig. 2 (non AUBL., 1775) as reproduced in the German edition of the work by CHRISTMANN and PANZER (Pflanzensyst. X, 1783, p. 151 t. 71 fig. 2), a work then not available for reference in Singapore; and, as a result of this, I conclude that *D. cordatum* HOUTT. is identical with *Homalomena alba* HASSK. as interpreted here. Not only is the type of HOUTTUYN'S species from Java, but the figure given agrees very well with the specimens described as *H. javanica*. In view of this the correct name for the species is *H. cordata* (HOUTT.) SCHOTT, Melet. I (1832) 20; Kunth, Enum. III (1841) 57; MIQ., Fl. Ind. Bat. III (1856?) 211; Engl. in Pflanzenr. IV. 23. Da. [55] (1912) 57 p.p. The correct name for the Moluccan species referred by ENGLER (*l.c.*) and others to *H. cordata*, should be *H. Gaudichaudii* SCHOTT in MIQ., Ann. Lugd. Bat. I (1863) 280.

IV (1922) 187: omnino quoad partem typicam javanicam (excl. planta amboinica).

H. cordata SCHOTT sensu ZOLL. Syst. Verzeich. (1854) 75, MIQ., Fl. Ind. Bat. III (1856?) 211.

H. discolor v. ALD. v. ROS. op. cit. (1922) 185. *Syn. nov.*

H. javanica v. ALD. v. ROS. op. cit. (1922) 183. *Syn. nov.*

H. javanica var. *kangeanensis* v. ALD. v. ROS. op. cit. (1922) 185. *Syn. nov.*

H. palliformis v. ALD. v. ROS. op. cit. (1922) 182. *Syn. nov.*

H. Zollingeri SCHOTT in Bonpl. (1859) 30 et Prodr. (1860) 309.

Evidently as a consequence of HASSKARL'S having given a very brief description of the species and not having preserved the types, *H. alba* has had a very chequered career. The species was first published in 1842 in the Tijdschrift (of which separates with independent paging appears to have been issued in advance as Decades or Diagnoses) and later in Cat. Hort. Bogor. From the references made in the descriptions published in the Tijdschrift, it appears that this Catalogue was ready in manuscript form when the Decades were being published. The description given in 1842 runs thus:—

"HOMALONEMA [= Homalomena] ALBUM mihi.

"cf. ibidem [= Cat. Hort. Bogor.] 305: 1 (5) et RUMPH. H. Amb. V. 322 t. 111. 2 ubi descriptio bona. Petioli 3–3½ ped. longi, basi diametro 1–1½ poll. folioli lamina juxta nervum medium pedali lobi 5–6 poll. long. latitudo pedalis, spatha 3 poll. long. Sapdix inodorus."

In Catalogus (1844) p. 57 under the specific no. 1 of the genus numbered 305 we find the following:

"*H. album* HASSKL. (3) (Dracunculus amboinicus RUMPH. Amb. V. t. 111. 2) *Tjarieang boddas* (album)."

The number (3) immediately after the name of the author of the species refers to the following description given as a footnote:

"Caulescens foliis cordato-ovatis mucronatis atroviridibus, lobis baseos parallelis, petiolis viridibus, spatha spadice vix breviore mucronata viridi alba, margine alba."

Since both these descriptions are very brief and there are no type specimens, it is worth while considering the description given by RUMPHIUS, which was considered by HASSKARL as being "descriptio bona" of his species. RUMPHIUS described three forms under *Dracunculus amboinicus,* namely: (1) *Anappur nigra,* seu *mas,* (2)

Anappur alba seu *femina*, and (3) *Anappur rubra*. The description of *Anappur nigra* may be re-stated thus to conform with current terminology:

> *Folia* rotundato-cordiformia, basi profunde cordata, viridia, glabra, splendentia, 9–10 poll. longa, latitudine quam longitudo sua vix breviora; in apicem brevem terminata, ad insertionem petioli nervis 7–9 gerentia, quorum maximus (costa media) recte excurrit ad finem et ad latera alios emittit; alii vero laterales nervi incurvis decurrent finibus ad oras; supra nervis depressis subtus prominentibus. *Petioli* 2–2½ ped. longi, pallidi-virentes. *Cataphylla* semi-pedem longa, ac pollicem lata, bicarinata (?), in quorum axilla 4–5 *pedunculos* albicantes gerentia. *Spatha* vix minimum digitum longa et crassa, corniculata, oblonga viridis. *Spadix* masculus digiti articulum longus, flavo cinereus; femineus primum viridis sensim igneus tandem croceus.

The description of *D. amboinicus* (albus) reads thus:

> "Secundo *Anappur alba*, seu femina fere nil differt a præcedenti [=*Anappur nigra* seu *mas*] sua forma, ... hac in re autem optime distingui possunt, quod *feminae* folia pallidiora sint, atque in medio lineam habeat flavam, seu albicantem, juxta nervum medium decurrentem".

Further RUMPHIUS has the following additional remarks on these two forms:

> "Alii autem has species ita dividunt. *Anappur mas* longiora, et acutiora gerit folia instar Ari; ..... *Femina* semper rotundiora gerit folia, ac bicolor est, una perfecte viridis gramini coloris .... altera folia gerit pallidiora, et in medio lineam luteam ...."

Now these descriptions of *Dracunculus amboinicus* (*albus*) were based on Moluccan plants; but HASSKARL had found them to be applicable also to the Javanese plants referred by him to *H. alba*. The only species that answers to these descriptions given by RUMPHIUS is *H. alba* as interpreted here. It also produces occasionally white-nerved leaves as may be seen from the following field-notes left by HALLIER on the specimen no. 648:

> "Ziemlich dick, krautig, oberseits glänzend, lebhaft grün, mit helleren gelbgrünen Mittel-und Fieder-nerven und zahlreichen parallelen feinen dunkelgrünen Fieder-nerven; unterseits swach glänzend hellgrün, Nervatur wie auf der oberseite."

Younger forms produce leaves having numerous fine nerves, and it is possible that this was the form that MIQUEL had identified as *H. rubescens* KUNTH (in MIQ., Fl. Ind. Bat.

III) ; for he not only described it as having "venulis tenuissimis densissimis" but distinguished from it *H. caerulescens* as having "venulis quam in *H. rubescente* minus densis."

The dimensions of the spathe given by HASSKARL are 3 poll. for *H. alba* and 2–2½ poll. for *H. rubra*. Now though the spathes in *H. alba* vary but very little, in *H. rubra* they exhibit a great deal of variation regarding the size, some being twice the length given by HASSKARL. These measurements may be one of the reasons why HASSKARL'S two species have not been correctly identified.

JAVA: Gunong Tijbodas (SAPII, 117, Syntype of *H. javanica;* 2000; VAN SLOOTEN, 245, Holotype of *H. discolor;* HALLIER, 648; LÖRZING, 1716, Syntype of *H. javanica*) ; Semarang (BEUMÉE, 5045 & 816: Syntypes of *H. palliformis;* 3897) ; Rembang (BEUMÉE, 5560) ; Preanger (KRAMER, 118) ; Pasir Selama (BACKER, 18750) ; Banean (KARTA, 92) ; Kediri (BACKER, 11275).

KANGEAN ARCHIPELAGO: (BACKER, 27477: Holotype of *H. javanica* var. *kangeanensis;* 29723, 27017).

37. **Homalomena Lindenii** (ROD.) RIDL. in Journ. Roy. Asiat. Soc. Straits Br. XLIX (1908) 49.

Alocasia ?Lindenii ROD. in Illustr. Hort. (1886) 111 t. 652. *Basinym.*

H. singaporensis REGEL sensu ENGL. in Pflanzenreich IV. 23. Da. [55] (1912) 52 excl. parte typica; RIDL., Fl. Malay Pen. V (1925) 110 p.p.

REGEL'S description of *H. singaporensis* was published in "Supplementum ad indicem seminum anni 1868 quæ hortus botanicus imperialis Petropolitanus pro mutua commutatione offert" (1869, p. 18) and reads thus:

"Petiolis præcipue basin versus rubescentibus, apicem versus olivaceis; folii lamina olivaceo viridi; spadice quam spatha breviore. Cetera ut *H. rubescentis* KUNTH.

"Caulis abbreviatus. Petiolus basi vaginatus, apice teres, circiter ¼ ped. longus. Folii lamina cordato-hastata, plus minus acuminata, circiter 8 poll. longa et 6 poll. lata. Spatha extus virescens intus albida. Spadix inclusus. Staminodia clavat.

"Homalomena spec. e Singapore h. Berol. (RGL.)".

I do not know whether any of the specimens named in the Berlin Herbarium represent the original types studied by REGEL or their duplicates. But from the specimens so named in the Berlin herbarium (examined by me in 1933) and from the provenance and description given by REGEL, I conclude that the name *H. singaporensis* REGEL was based on not fully developed specimens of *H. rubra* (as here interpreted) which have small somewhat deltoid leaves. This may have misled ENGLER to identify *H. singaporensis* with *H. Lindenii*, which, when cultivated in pots, frequently

produces similar leaves, but is known neither to produce reddish petioles nor to grow wild in Singapore, its petioles being yellowish or cream white.

I have not been able to find a record to show that *H. Lindenii* was being cultivated in Singapore previous to 1907, in which year RIDLEY introduced the species from Rangoon, Burma (RIDL., in Journ. Roy. Asiat. Soc., Straits Br. XLIX, 1908, p. 49).

The plant referred to *H. singaporensis* in RIDLEY'S Flora (V, 1925, p. 110) is neither *H. Lindenii*, nor *H. rubra*, but *H. rubescens* (ROXB.) KUNTH. RIDLEY'S assertion that it is a native of Papua is based obviously on ENGLER'S opinion that *H. singaporensis* is identical with *H. Lindenii*. In the Materials (III, 1907 p. 30) RIDLEY recorded the following information concerning the plant cultivated in the Singapore Botanic Gardens under the name *H. singaporensis*:—

> "The plant thus labelled at Kew is a species which has long been cultivated in Gardens at Singapore, the history of which is not known. It is not however a native of the peninsula as far as is known, but is traditionally stated to have originally been obtained from Calcutta. It differs however from REGEL'S description in having the petioles and spathes completely red."

Previously RIDLEY wrote of the same plant thus:—

> "Plants cultivated at Kew under this name [*H. singaporensis* REGEL] which seem to agree with a type in the Kew Herbarium are identical with a plant which has been cultivated in Singapore for very many years, but has never been obtained wild by any collector. It is said to have come from India." (Journ. Bot. XL. 1902, p. 34).

Plants of *H. Lindenii*, *H. rubescens* and *H. rubra*, when grown in pots, very rarely produce large leaves, and herbarium specimens from such plants are not easily distinguished unless their inflorescences are carefully examined. This may explain why *H. singaporensis* has been identified at one time with *H. rubescens* (cf. SCHOTT, Prodr., 1860 p. 310; ENGL. in DC., Mon. Phan. II, 1879 p. 336; RIDLEY, Mat. l.c.) and another time with *H. Lindenii*. (ENGLER, Pflanzenr. cit. p. 52). It may be noted here that the Singapore specimens which were named by RIDLEY as *H. singaporensis* were previously cultivated as *H. rubescens* (see my remarks on *H. rubra*).

NOVA GUINEA: Kataki (CARR, 12603);

38. **Homalomena rubra** HASSK., Decad. (1842) 60, in HOEV. et DE VRIESE, Tijdschrift IX (1842) 162, et Cat. Hort. Bogor. II (1844) 57; SCHOTT in Bonpl. X (1862)

148; ENGL. in DC., Mon. Phan. II (1879) 338 et in Pflanzenreich IV. 23. Da. [55] (1912) 63; v. ALD. v. ROS. in Bull. Jard. Bot. Buit. IV (1922) 187.

H. alba HASSK. sensu v. ALD. v. ROS. *l.c.*

H. aromatica var. *cordata* (SCHOTT) ENGL. in Becc., Malesia I (1877) 282 pro parte non typica; RIDL. in Journ. Roy. Asiat. Soc. Straits Br. XLIV (1905) 173 p.p.

H. bancana v. ALD. v. ROS. op. cit. (1922) 186. *Syn. nov.*

H. coerulescens JUNGH. ex SCHOTT. Synops. (1856) 119 nomen? (non vidi); MIQ., Fl. Ind. Bat. III (1856?) 212; SCHOTT, Prodr. (1860) 310; ENGL. in DC., Mon. Phan. II (1879) 338 et Arac. Exsicc et Illustr. 63; HOOK. f., Fl. Brit. Ind. VI (1893) 533; RIDL., Mat. Fl. Mal. Pen. III (1907) 24; ENGL. in Pflanzenr. tom. cit. (1912) 64; RIDL., Fl. Malay Pen. V (1925) 104. *Syn. nov.*

H. coerulescens var. *pontederiifolia* (HOOK. f.) RIDL., Fl. Malay Pen. V (1925) 104. *Syn. nov.*

H. cordata sensu RIDL. in Kew Bull. (1926) 92.

H. curvata ENGL. in Pflanzenr. tom. cit. (1912) 53 fig. 29. *Syn. nov.*

H. gigantea ENGL. op. cit. (1912) 49 figs. 37 and 38. *Syn. nov.*

H. latifrons ENGL. op. cit. (1912) 54 fig. 30; v. ALD. v. ROS. op. cit. (1922) 182 p.p. *Syn. nov.*

H. major GRIFF., Notul. III (1851) 153; SCHOTT, Synops. (1856) 119, Prodr. (1860) 312. *Syn. nov.*

H. minor GRIFF. op. cit. (1851) 52; SCHOTT, Synops. (1856) 119, Prodr. (1860) 311. *Syn. nov.*

H. pontederiifolia GRIFF. ex HOOK. f., op. cit. (1893) 533; ENGL. in Pflanzenreich tom. cit. (1912) 55 fig. 31. *Syn. nov.*

H. Raapii ENGL. sensu RIDL. in Journ. Roy. Asiat. Soc. Mal. Branch I (1922) 104.

H. rosea v. ALD. v. ROS. in Bull. Jard. Bot. Buit. IV (1922) 334. *Syn. nov.*

H. singaporensis REGEL, Ind. Sem. Hort. Petrop. (1869) 19; Gartenfl. (1870) 53; HOOK. f., op. cit. (1893) 537; RIDL. in Journ. Bot. XL (1902) 34 pro. parte typica; RIDL., Mat. Fl. Mal. Pen. III (1907) 30 p.p.; ENGL. in Pflanzenreich tom. cit. (1912) 52 p.p.; RIDL., Flora cit. (1925) 110 p.p. *Syn. nov.*

H. Wallichii SCHOTT in Bonpl. VII (1859) 30, Prodr. (1860) 311. *Syn. nov.*

The original description of *H. rubra* as published in the Tijdschrift IX (1842) is as follows:

"cf. Cat. Horti Bogoriensis 305.3. RUMPH. amb. V. 223.—Petioli 1–1½ pedalis, supra medium cernui, folia 8–9 poll. juxta nervum medium longa, lobi 4 poll., latitudo 7–8 poll. Pedunculi primum erecti dein apice penduli, spatha extus rubra, intus viridis, 2–2½ poll."

In Cat. Hort. Bogor. II (1844) 57, the following information is recorded about this species under no. 305. 2:

"*H. Rubrum* HASSKL. (Dracunculus amboinicus ruber RMPH. amb. V. 323) *Tjarieang burrum* (rubrum)

"Caulescens humilius, foliis cordato-ovatis breviter acuminatis lobis baseos divaricatis subtus et petiolis, pedunculis, spatha ovariisque rubris, spatha spadice vix breviore mucronata."

HASSKARL listed another variety called *H. rubrum* var. *majus* (*Tjarieang burrum gedeh*), but did not describe it.

This species is very variable in the shape, size and colour of all its parts. Some plants are typical *rubra*, but others show all shades of absence of this colour so that purely green forms pass now as *H. alba* when they are from Java, or as *H. coerulescens*, when they are from the Malay Peninsula. Sometimes the spadices emerge from the spathes, and sometimes they are almost equal to, or shorter than, the spathes.

H. coerulescens was based originally on a plant collected by JUNGHUHN in Java*, but according to newer interpretations the name is restricted to specimens from the Malay Peninsula, though the peninsular form has older names given to it by GRIFFITH.

H. singaporensis is also a form of the same species. There is no reason why this should be identified with *H. Lindenii*, a plant introduced to Singapore many years after the description of REGEL. Young specimens of *H. rubra*, *H. rubescens*, *H. Lindenii* and allied species frequently produce small deltoid leaves when grown in pots, and probably this is a reason why the specimens of these species are frequently confused in herbaria. (cf. my remarks under *H. Lindenii*).

H. gigantea and *H. rosea* are larger forms of the same species. *H. bancana* and *H. pontederiifolia* are narrower leaved forms of this species, but transitions between these extremes and the typical *H. rubra* also occur. At most they could be separated as a variety of *H. rubra*. Others are merely various stages in the development of the plant.

SUMATRA: Mentawi Island (BODEN-KLOSS, 12297); Pulau Bangka (BÜNNEMEIJER, 1439, Holotype of *H. bancana*, HB; 2337 & 2422: Paratypes of *H. bancana*, HB); Brastagi (E. M. BURKILL, 110);

* Cf. Footnote under *H. sagittifolia* p. 227.

Tanjong Gedang (JACOBSON, 75, HB); Gunong Malintang (BÜNNEMEIJER, 3630, HB); Fort de Kock (JACOBSON, 2084, HB); Rambutan (BÜNNEMEIJER, 3390, HB); Gunong Koemitji (BÜNNEMEIJER, 8490 & 8660, HB); Sibolangit (NUR, 7410; LÖRZING, 5324, HB); Ophir Distr. (BÜNNEMEIJER, 604, HB); Gunong Sago (BÜNNEMEIJER, 4018, HB); Asahan (YATES, 1657, HB); Gajoe (DAALEN, 350, HB).

MALAYA: *Penang*, Government Hill (RIDLEY, VI–1898); Waterfall (CURTIS, 1857; RIDLEY, 9400); Moniots Road (BURKILL, 3304). *Kelantan:* Gua Musang (HENDERSON, 22706); Bukit Batu Papan (HENDERSON, 29518). *Pahang:* Sungei Tahan (RIDLEY, in 1891); Gunong Sennyum (HENDERSON, 22216); Fraser Hill, alt. 3900 ft. (NUR, 11380); Chegar Perah (HENDERSON, 19369). *Perak:* Grik (HENDERSON, 23871; BURKILL, 13835); Jor (HENDERSON, 10862); Tapah Road (BURKILL, 13435); Gopeng on Gunong Chantek (FURTADO, 33088); Kroh (FURTADO, 33036); Taiping Hill (HENDERSON, 10467); Maxwell Hill (BURKILL & HANIFF, 12792); Tanjong Malim (RIDLEY, II–1904); Pulau Lalang (SEIMUND); Gunong Tungal (RIDLEY, 7251). *Selangor:* Semangkok (RIDLEY, VIII–1904); Kampong Kerling (GOODENOUGH, 10–X–1899); Port Swettenham (BURKILL, 4097); Klang (BURKILL, 6839); Dusun Tua (RIDLEY, V–1896); Pahang Track (RIDLEY, 8489); Sungei Buloh (NUR, 11861). *Negri Sembilan:* Tampin Hill (BURKILL: 1344; 2520; 2527; 2546); Bukit Tangga (NUR, 11779); Gunong Beremban (ALVINS, 1683, vern. nom Keladi Moiang). *Malacca*, Bukit Sedanan (BURKILL, 1341); Nyalas (BURKILL, 539). *Johore*, Kluang (HOLTTUM, 9482). *Singapore:* Chan Chu Kang (RIDLEY, X–1889); Chua Chu Kang (RIDLEY, 29–VIII–1899); Pulau Buru (RIDLEY, V–1890); Seletar (RIDLEY, 6240); Bukit Mandai (RIDLEY, 6537); Kranji (GOODENOUGH, 14–VIII–1890); Bukit Timah (GOODENOUGH, 12–VIII–1889); Changi (RIDLEY, VII–1890).

RIAU ARCHIPELAGO: Pulau Papan (BÜNNEMEIJER, 7814, HB).

BORNEO: Loc. incert. (HALLIER: 68 & 1357, Syntypes of *H. latifrons*, HB); Tenompoh, on Mount Kinabalu, alt. 4500 ft. (leg. FURTADO, comm. CLEMENS, subn. 29 151).

JAVA: Preanger (WINCKEL, 854*B*, HB); Buitenzorg (HALLIER, 556*C*, HB; VAN STEENIS, 411, HB); Meester Cornelis (BACKER, II–1905, HB); Batavia (BACKER, 7142, HB).

CULT. IN HORT. BOT. BOGOR.: XI. B.X. 103 in HB: Syntype of *H. gigantea;* XI. B.X. 73: Holotype of *H. rosea*, HB; XI. B.X. 105, HB; XI. B.X. 98, Spermosyntype of *H latifrons*, HB).

39. **Homalomena Versteegii** ENGL. in Nova Guinea VIII (1911) 250 et in Pflanzenreich IV. 23. Da. [55] (1912) 52; KRAUSE et v. ALD. v. ROS. in Nova Guinea XIV (1927) 217.

H. Peekelii ENGL. var. *mamberamica* KRAUSE in Nova Guinea XIV (1927) 217 *Syn. nov.*

The specimens cited below are specifically identical, but KRAUSE and v. ALD. v. ROS. cited them under two different species. I have not seen the types of *H. Versteegii* and *H. Peekelii*, and so my identification of the specimens is based entirely on the descriptions.

NEW GUINEA: Prauwen Bivak, alt. 50–100 M. (LAM, 789, HB; 866, HB; 1223, HB—The last two are the syntypes of *H. Peekelii* var. *mamberamica*).

C. Section: CYRTOCLADON Furtado

40. **Homalomena Beccariana** Engl. in Bull. Soc. Tosc. Ort. (1879) 286, in Malesia I (1882) 281 et in Pflanzenreich IV. 23. Da [55] (1912) 66.

Borneo: Sarawak (non vidi).

41. **Homalomena borneensis** Ridl. in Journ. Roy. Asiat. Soc. Str. Br. XLIV (1905) 173; Engl. in Pflanzenreich IV. 23. Da. [55] (1912) 71.

Borneo: *Sarawak*, Kuching (Ridley, VII–1903, Holotype).

42. **Homalomena Gillii** Furtado **spec. nov.**

H. insigni affinis, sed differt lamina foliorum magis coriacea, spathis angustioribus; inflorescentia: mascula pro rata longiore; feminea minore.

Herba erectiuscula vel scandens. *Petiolus* longitudine multo variabilis, nunc quam lamina brevior, nunc longior, 5–15 cm. longus, ad medium vaginatus. *Lamina* foliorum plerumque coriacea, ambitu variabilis, oblonga, ovato- vel obovato-lanceolata, vel elliptica, interdum falcatoidea, basin versus acuta vel obtusa, 9-20 cm. longa, 2.5–6 cm. lata, nervis lateralibus primariis subprimariisque utrinsecus 6–9, alteris gracillimis. *Pedunculi* 4–8 cm. longi, graciles, petiolo breviores, raro eo æquilongi. *Spatha* ovata, apicem versus abrupte et valde attenuata, cuspidata, parte basilare 1–1.5 cm. longa, 8–12 mm. crassa, apicali circ. 3 cm. longa, 3–5 mm. crassa. *Spadix* spathæ subæquilongus, subsessilis; femineus 8–12 mm. longus, triplo brevior et duplo crassior apicali 3 cm. longo 3–4 mm. crasso, floribus oblonga stigmate orbiculari coronata. *Staminodia* et flores masculos non vidi.

Named after Walter Gill who collected extensively in the company of his uncle and aunt Mr. and Mrs. Joseph Clemens, and who showed very keen eyes in detecting small obscure plants in the jungle.

Borneo: *Mount Kinabalu:* Dallas, circa 3500 ft. alt. (Clemens, 29138, Holotype; 26226; 26730 and 29140); Tenompok, circa 4500 ft. (leg. Furtado & Kiah, comm. Clemens sub no. 29142; Clemens, 29145); Penibukan circa 5000 ft. (Clemens 31023). *Sandakan* at Bettotan (Boden Kloss, 19167).

The last mentioned (Boden Kloss 19167) has much shorter petioles, comparatively broader and longer sheaths than in the type, and the leaf base is obtuse. Otherwise it is indistinguishable from the other specimens.

43. **Homalomena Havilandii** RIDL. in Journ. Roy. Asiat. Soc. Straits Br. XLIV (1905) 173; ENGL. in Pflanzenreich IV. 23. Da. [55] (1912) 71.

The species is very near *H. Treubii* where the spathes are longer and the leaf-lamina larger and more rounded at base.

BORNEO: *Sarawak*, Bongritu (HAVILAND, 102, Holotype).

44. **Homalomena insignis** N. E. BR. in Illustr. Hort. XXXII (1885) 93 t. 560; ENGL. in Pflanzenreich IV. 23. Da. [55] (1912) 68.

H. intermedia RIDL. in Journ. Roy. Asiat. Soc. Straits Br. XLIV (1905) 175; ENGL. op. cit. (1912) 68; MERR., Enum. Bornean Pl. (1921) 94. *Syn. nov.*

H. sarawakensis RIDL. op. cit. (1905) 172; ENGL. op. cit. (1912) 68; MERR., op. cit. (1921) 96. *Syn. nov.*

Originally described from plants introduced to European gardens from Borneo by the Campagnie Continentale d'Horticulture, *H. insignis* has not been associated with any subsequent collections from Borneo. I have not seen the type specimen, my identification of the species being based entirely on the original plate and description. The plants may either be green or produce various stages of redness in petiole, leaf and peduncle. This species is closely related to *H. schismatoglottoides* and *H. Nieuwenhuisii*, both of which however produce ovate, often cordulate leaves.

BORNEO: *Sarawak:* Matang (RIDLEY, 11714, Holotype of *H. sarawakensis;* RIDLEY, VII–1903, Holotype of *H. intermedia;* RIDLEY, IX–1904); Bau (ANDERSON, 54).

45. **Homalomena kinabaluensis** Furtado **spec. nov.**

H. rostratae affinis, sed differt: herba minore; lamina foliorum breviore, chartacea, oblonga; petiolo breviore, multo graciliore; spatha chartacea. Facie foliorum *H. Gillii* simillima, sed spatha longiore, parte mascula paulo attenuata; spadice quam spatha multo breviore; inflorescentia feminea fere æquali dimensionibus masculæ facile diagnosci potest.

Herba erectiuscula vel scandens, circ. 30–40 cm. alta. *Lamina* foliorum oblonga, chartacea, interdum inæquilatera, basi acuta vel rotundato-acuta, apice acuta, mucronulata, 12–17 cm. longa, 5–7 cm. lata, nervis primariis utrinsecus 5–6 (primariis subprimariisque cunctis 7–9), alteris gracillimis, omnibus supra inconspicuis, subtus prominentibus. *Petiolus* 11–18 cm. longus, ad tertiam partem usque vaginatus. *Pedunculi* 7–14 cm. longi. Spatha 6–8 cm. longa, 5–10 mm. ampla, apicem versus sensim attenuata.

Spadix breviter stipitatus, brevior quam spatha, 3–6.5 cm. longus, 5–7 mm. crassus, inter masculam et femineam inflorescentiam zona florum asexualium præditus.

BORNEO: *Mount Kinabalu,* Tenompok, circ. 4500 ft. (leg. FURTADO comm. CLEMENS sub. no. 29137). Very common, but rarely in flower. The stem, petiole, peduncle, and spathe dark purple. Leaf lamina dark green above, paler beneath.

Here may also belong: CLEMENS 51019 collected at Gurulau Spur on Mount Kinabalu, but the specimen is poor.

46. **Homalomena lancea** Ridl. in Journ. Roy. Asiat. Soc. Straits Br. XLIV (1905) 176; ENGL. in Pflanzenreich IV. 23. Da. [55] (1912) 66.

BORNEO: *Sarawak,* Matang (RIDLEY, VII–1903, Holotype).

47. **Homalomena lunduensis** Furtado in Gard. Bull. Straits Settl. VIII (1935) 148.

H. multinervia RIDL. in Journ. Roy. Asiat. Soc. Straits Br. XLIX (1907) 49, non RIDL. (1902). *Basinym.*

BORNEO: *Sarawak,* Lundu (RIDLEY, Sept. 1905, Holotype). *Dutch West Borneo* (ENDERT, 3738, HB).

Here also appears to belong JAHERI 1142 (NIEUWENHUIS Exp.) from Sungei Parey in Borneo cited by ENGLER l.c. under *H. hostifolia* (= *H. ovata*).

48. **Homalomena Nieuwenhuisii** v. Ald. v. Ros. in Bull. Jard. Bot. Buitenz. IV (1922) 189.

This species is very near to *H. schismatoglottoidis;* but the spathes in *H. Nieuwenhuisii* are coriaceous and long-mucronate (circa 1 cm. mucro), and the neutral flowers are crowded, forming a uniform band between the male and female portions of the spadix. (In *H. schismatoglottoidis* the spathes are papery and not mucronate, and the neutral flowers are few and far apart). In leaf characters and habit the two species are hardly distinguishable, and judging from the herbarium specimens both appear to produce reddish colour in leaves, petioles and peduncles.

BORNEO: loc. incert. (leg. NIEUWENHUIS in 1882, floresc. in Hort. Bot. Bogor., Holotype, HB).

49. **Homalomena ovata** ENGL. in Bull. Soc. Tosc. Ort. (1879) 296 et in Malesia I (1883) 281.

H. hostifolia ENGL. in Pflanzenreich IV. 23. Da. [55] (1912) 70 fig. 45, pro parte typica. *Syn. nov.*

I have not seen the type of this species. JAHERI 1142 (NIEUWENHUIS Exp.) quoted by ENGLER under this may not belong here. Its spathes are much shorter than the ones described for *H. ovata.* In its mucronate spathes the proportions between the male and the female parts of the

spadix and in the size and shape of both the spathes and the leaves, JAHERI 1142 appears to be *H. lunduensis;* but the specimen is too poor to permit certainty in the determination

H. ovata is closely allied to *H. paludosa* but the leaves are shorter, more veined and vary in shape from elliptic to truncate ovate. On leaf characters alone the specimens of *H. ovata* are distinguished with difficulty from *H. lunduensis.*

H. ovata ENGL. (1879) has priority over *H. ovata* (SCHOTT) HOOK. f. (1893), and so *H. hostifolia* ENGL. (1912) is superfluous.

BORNEO: Mount Kinabalu at Dallas (leg. FURTADO, comm. CLEMENS sub no. 29134).

50. **Homalomena propinqua** SCHOTT in MIQ., Ann. Mus. Lugd. Bat. I (1863) 280; ENGL. in DC., Mon. Phan. II (1879) 334; RIDL. in Journ. Roy. Asiat. Soc. Straits Br. XLIV (1905) 172; ENGL. in Pflanzenreich IV. 23. Da. [55] (1912) 72 p.p.; v. ALD. v. ROS. in Bull. Jard. Bot. Buitenz. IV (1922) 191 p.p.

H. Raapii ENGL. in Pflanzenreich tom. cit. (1912) 73 t. 49; v. ALD. v. ROS. in Bull. Jard. Bot. Buitenz. IV (1922) 191. *Syn. nov.*

H. sagittifolia JUNGH. ex SCHOTT sensu HOOK. f., Fl. Brit. Ind. VI (1893) 531; RIDL., Mat. Fl. Mal. Pen. III (1907) 23; ENGL. op. cit. (1912) 73; RIDL., Fl. Mal. Pen. V (1925) 103; omnino pro parte.

H. sagittifolia var. *sumatrana* v. ALD. v. ROS. op. cit. (1922) 192. *Syn. nov.*

As interpreted by the various authors mentioned above, *H. sagittifolia* agrees neither with the original description nor with any of the specimens from Java, whence SCHOTT appears to have received living specimens from JUNGHUHN: it (*H. sagittifolia* Auctt.) is conspecific with *H. propinqua.* The species is very variable as regards the shape of the leaves, some variations depending on the age of the plant. (see my remarks on *H. sagittifolia*).

It is possible that some of these variations deserve a varietal rank, but with the material at my disposal I am unable to distinguish the forms that are merely transient or ecologic from those that are really hereditary.

H. propinqua, though closely allied to *H. sagittifolia,* has not yet been recorded from Java.

MALAYA: *Perak:* loc. incert. (SCORTECHINI; WRAY, 1749); Larut Hills (CURTIS, 25–XII–1901); Tea Gardens (RIDLEY, in 1891); Maxwell Hill (WRAY); Taiping Hill (HENDERSON, 10256; BURKILL & HANIFF, 12805; RIDLEY, II–1904; in 1902); Tapah (FURTADO, 33098). *Pahang:* Pulau Tioman (NUR, 18573); Raub Track (MACHADO,

15–V–1903); Bentong by Sungei Kesar (FURTADO, 33116). *Negri Sembilan*, Bukit Tumiang (ALVINS, 1963). *Selangor*, Semangkok Pass (RIDLEY, in 1897); Semenyih (HUME, 7931); Ginting Bidai (RIDLEY, 7774). *Johore*, Pulau Tinggi (BURKILL, 908 & 931). *Singapore*, Bukit Timah (RIDLEY, in 1892; in 1906, HB).

SUMATRA: *Batoe Island* (RAAP, 235, Syntype of *H. Raapii*, HB); *Ophir:* Taloe (BÜNNEMEIJER, 129 & 159, HB); *Loeboeg Sikaping*, Bukit Kaboeng (BÜNNEMEIJER, 1220, HB).

ANAMBA ISLANDS: Siantan (VAN STEENIS, 707 & 917, HB; HENDERSON, 20262).

BORNEO: *Dutch Borneo*, loc. incert (AMDJAH, 261, HB; JAHERI, 1485, HB); Landak (TEYSMANN, 11542, HB) Gintang (KORTHALS, in Herb. Leiden: Syntype). *Sarawak*, Matang (RIDLEY, in VII–1903); Satubong (HEWITT, 17); Kapit (CLEMENS, 21926, HB); Bangey Island (CASTRO & MELEGRETO, 1410, HB). *Mount Kinabalu:* Penibukan alt. 5500 ft. (CLEMENS, 50279); Dallas alt. 2000–3000 ft. (leg. FURTADO comm. CLEMENS sub no. 29152; CLEMENS, 26732 & 26086).

51. **Homalomena punctulata** ENGL. in Bull. Soc. Tosc. Ort. (1879) 296 et in Malesia I (1883) 282; ENGL. in Pflanzenreich IV. 23. Da. [55] (1912) 66.

H. crassinervia RIDL. in Journ. Roy. Asiat. Soc. Str. Br. XLIV (1905) 176.

BORNEO: *Sarawak* Matang (RIDLEY, VII–1903, Holotype of *H. crassinervia*); Mount Tiang Layu (HEWITT, 34).

52. **Homalomena rostrata** GRIFF., Notul. III (1851) 154 (errore typ. *H. roshalum*); SCHOTT, Synops. Aroid. (1856) 119, Prodr. (1860) 312; ENGL. in DC., Mon. Phan. II (1879) 343; ENGL. in Malesia I (1883) 281. sub *H. Bercarianae* observ. (ut *H. prostrata*); N. E. BR. in Illustr. XXXII (1885) 94 sub *H. insignis* observ. (ut *H. rostrata*); HOOK. f., Fl. Brit. Ind. VI (1893) 532; RIDL., Mat. Fl. Mal. Pen. III (1907) 24; ENGL. in Pflanzenreich IV. 23. Da. [55] (1912) 66; RIDL., Fl. Mal. Pen. V (1925) 103.

H. ensiformis V. ALD. V. ROS. in Bull. Jard. Bot. Buitenz. IV (1922) 335. *Syn. nov.*

H. Miqueliana SCHOTT in MIQ., Ann. Mus. Lugd. Bat. I (1863) 120; ENGL. in DC., Mon. Phan. II (1879) 333 et in Pflanzenreich tom. cit. (1912) 69 fig. 44; V. ALD. V. ROS. in Bull. Jard. Bot. Buitenz. IV (1922) 190 et 335. *Syn. nov.*

H. Miqueliana var. *truella* V. ALD. V. ROS. in op. cit. (1922) 336. *Syn. nov.*

H. Teysmannii ENGL. op. cit. p. 68.

? *Cyrtocladon sanguinolentum* GRIFF., Notul. (1851) 147.

? *Chamaecladon sanguinolentum* (GRIFF.) SCHOTT Prodr. (1860) 316; ENGL. in DC., Mon. Phan. II (1879) 349.

This species is very variable in the shape of the leaves, the variations depending mostly on age and to a certain extent also on environment. Some leaves are very narrow with cuneate base (*H. Teysmannii* form), others are much broader with the broadest portion above the middle, and still others have the broadest portion below the middle and near the base. The last mentioned form tends to produce leaves with rounded base (*H. Miqueliana* form).

I have not seen any authentic specimens of *H. Beccariana* and from the key given by ENGLER in Pflanzenreich (p. 29) it appears that this species differs very much from *H. rostrata;* but in *Malesia I* (p. 281), ENGLER recorded that *H. Beccariana* is very near to *H. rostrata* and that it may be identical with it.

I have not seen the type of *Cyrtocladon sanguinolentum;* but from the general description it appears that HOOKER was right in reducing it here. But GRIFFITH described the spathes as shedding their apical portions, a character noticed in *Schismatoglottis* and *Piptospatha.* The type must be examined in order to verify whether it is really a *Homalomena* species. In the type specimens the spathes might have been injured.

MALAYA: *Pahang:* Kuala Maliang (RIDLEY, 26–VI–1891); Semantan in swampy forest (BURN-MURDOCH, 155); Kota Glanggi (HENDERSON, 22504); Temerloh (HENDERSON, 10527). *Selangor,* Kuala Langat (BURKILL, 4101); Bukit Changgang near Kuala Langat (NUR, 33992); Kuala Lumpur (RIDLEY, 27–VII–1889); Telok Reserve in Klang (BURKILL, 6521); Batang Berjuntai (RIDLEY, 7662). *Negri Sembilan,* Tampin (NUR, 1317). *Malacca,* Batang Malacca (BURKILL, 3192; 3193; 3194; & 3195); Bukit Bruang (CURTIS, V–1901; RIDLEY, 3529); Brisu (HOLMBERG, 743). *Johore,* Sungei Sedili Ketchil (CORNER, 28612).

RIAU ARCHIPELAGO: Pulau Bintan (BÜNNEMEIJER, 6200, HB; Holotype of *H. miqueliana* var. *truella*).

BORNEO: Pontiak (MONDI, 14, HB); Lundu (FOXWORTHY, 58); loc. incert. (HALLIER, 1465, HB, Holotype of *H. ensiformis*).

SUMATRA: Banka Island at Plangas (TEYSMANN, 3227, HB, Holotype of *H. Teysmannii*).

53. **Homalomena sagittifolia** Jungh. ex Schott, Synops. Aroid. I (1856) 119, et MIQ., Fl. Bat. Ind. III (1856?) 212 nomen nudum; SCHOTT in Prodr. (1860) 311; ENGL. in DC., Mon. Phan. II (1879) 334; HOOK. f., Fl. Brit. Ind. VI (1893) 531 p.p.; RIDL., Mat. Fl. Mal. Pen. III (1907) 23 p.p.; ENGL. in Pflanzenreich IV. 23. Da. [55] (1912) 73 p.p.; RIDL., Fl. Malay Pen. V (1925) 103 p.p.

H. paludosa HOOK. f., op. cit. (1893) 531; RIDL., Mat. cit. (1907) 24; ENGL. in Pflanzenr. tom. cit. (1912) 73; RIDL., Fl. cit. (1925) 104. *Syn. nov.*

H. propinqua SCHOTT sensu ENGL. in Pflanzenr. tom. cit. (1912) 72; v. ALD. v. ROS. in Bull. Jard. Buitenz. IV (1922) 191 p.p.

H. Ridleyana ENGL. in Bot. Jahrb. XXXVII (1905) 123. *Syn. nov.*

When the name *H. sagittifolia* first appeared in print*, it was a nomen nudum, and was accompanied by the following information:

"*H. sagittifolia* JUNGHUHN (in schedula)—(Stirps viva nondum satis evoluta notas differentiales non offert)—Java."

This information was reprinted verbatim by MIQUEL. Four years later (in 1860), when the name was duly validated, SCHOTT, the author of the description, cited a Bornean specimen collected by MOTLEY (preserved in HOOKER'S herbarium) and added that he had seen the plant also alive.

From this I conclude: (1) that JUNGHUHN, who had botanised in Java, supplied to SCHOTT a living specimen under the above-mentioned binomial for the purpose of cultivating it in Schœnbrunn garden where SCHOTT, its director, was studying the Aroids; and (2) that the Javanese plant must be included as a syntype, if not as a holotype.

It is not improbable that MOTLEY'S specimen was the same as the one which SCHOTT later cited under *H. propinqua*. ENGLER (op. cit. 1879 and 1912), who had

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* From an unpublished Catalogue of the plants growing in the Buitenzorg Gardens (which was printed in Java in 1855), it appears that both *Homalomena coerulescens* and *H. sagittifolia* were so named originally by TEYSMANN and BINNENDIJK, the then curators of the Gardens and the joint authors of the unpublished Catalogue. JUNGHUHN must have obtained tubers of these species from Buitenzorg Gardens and sent them to SCHOTT under the above mentioned botanical names but without any indication as to their real authorship—an obvious reason why SCHOTT attributed the paternity of the names to JUNGHUHN. The following entries in the Catalogue support this conclusion of mine:

p. 50: "*Homalomena coerulescens* T. et B. (20)....Tjariang boelauw."

"*Homalomena sagittifolium* T. et B. (21)....Tjariang heedjoh."

The numbers in brackets refer to the original descriptions given on page 240 of the Catalogue, which run thus:

(20) "*Homalomena coerulescens*":

"Hom. caulescens; foliis cordato-ovatis, breviter acuminatis, lobis baseos rotundatis supra coerulescentibus subtus pedunculis spathisque atroviridis, spatha spadice vix breviore."

"Habit. In humidis montosis provinciæ Buitenzorg."

(21) *Homalomena sagittifolium:*

"Hom. subcaulescens; foliis oblongo-cordato-ovatis breviter acuminatis, lobis baseos divaricatis subsinuatis, petiolis atroviride—striatis; pedunculis brevibus, spatha alba mucronata."

"Habit. In humidis montosis provinciæ Buitenzorg."

examined HOOKER'S herbarium at Kew, cited MOTLEY'S specimen under *H. propinqua* and not under *H. sagittifolia*. HOOKER (1893), who had not seen KORTHAL'S specimen cited under *H. propinqua*, doubtfully reduced this last binomial as a synonym of *H. sagittifolia*. RIDLEY (Journ. Roy. Asiat. Soc. Str. Br. XLIV, 1905 p. 172) also speaks as if there was only one specimen of MOTLEY'S; he quotes it under *H. sagittifolia* together with KORTHAL'S, but remarks that ENGLER had quoted them under *H. propinqua*.

In interpreting *H. sagittifolia*, however, ENGLER (1879) did not consider MOTLEY'S specimen, but cited a Javanese specimen from Leiden Herbarium which, I am informed, was so determined by SCHOTT himself.

From the comparisons with this material made at my request by Dr. S. J. VAN OOSTSTROOM of Leiden, I conclude that this species (*H. sagittifolia*) is the one that passes as *H. propinqua* if it is from Java and Borneo, and as *H. paludosa* if it is from the Malay Peninsula. This interpretation also accords with the original description of *H. sagittifolia* which was said to have "elongato-hastata" leaves, whereas *H. sagittifolia* as currently intepreted not only does not agree with SCHOTT'S original description of the species, but also has not been recorded from Java.

H. propinqua as interpreted by ENGLER (*e.g.* HALLIER 1356) is a much smaller form. *H. Ridleyana* has leaves that are more elongate, less triangular in shape, and less cordate at base. KUNSTLER 3082 from the Singapore herbarium (a haptosyntype of *H. paludosa*) differs but very little from HALLIER 1356, but most of the specimens from the Malay Peninsula are larger like the Javanese. The species is very near *H. rostrata*.

The specimens vary a great deal in the shape and size of the leaves.

JAVA: Hort. Bot. Bogor. cult. (XI. B.X. 167, HB); Buitenzorg (KOORDERS, 30812*B* partim, HB; BAKHUIZEN V/D BRINK: 7063, HB; 5016, HB).

MALAYA: *Perak*, Larut (KUNSTLER, 3082, Haptosyntype of *H. paludosa*). *Province Wellesley*, Tasek Glugor (BURKILL, 6400 bis). *Singapore*, Seletar (RIDLEY, 23–IV–1889); Changi (RIDLEY, 4607); Ang Mo Kio (RIDLEY, in 1894); Bukit Panjang (RIDLEY, in 1905); Bukit Timah (RIDLEY, 6318 & 6538); Bukit Mandai (RIDLEY, in 1894 & 1899). *Johore*, Pulau Kukub (RIDLEY, in 1909); Tanjong Kopang (RIDLEY, 6310).

BORNEO: loc. incert. (HALLIER: 1356, HB; 1391, HB); W. Koetai (ENDERT, 1922, HB); Kalaka (HAVILAND, 11–IV–1893); Kuching (HAVILAND, 3134; 19–V–1893, Holotype of *H. Ridleyana*); Lundu (FOXWORTHY, 41).

54. **Homalomena sagittifolia** var. **angustifolia** FURTADO **var. nov.**

A forma typica differt lamina foliorum angustiore et longiore.

Many of the specimens cited here were quoted by RIDLEY (1907 & 1925) and ENGLER (1912) under *H. paludosa*. ENGLER'S fig. 50 represents this form. This variety makes one suspect that *H. sagittifolia* may be a variety of *H. rostrata*. The two species require a further study in their range of variations.

MALAYA: *Singapore:* Sungei Jurong (RIDLEY, in 1897); Krangi (RIDLEY, in 1889); Toas (RIDLEY, in 1894). *Johore:* Castlewood (RIDLEY, in 1905); Tanjong Kopang (RIDLEY, in 1892); Sungei Berassau (CORNER, 29360); Mount Austen (RIDLEY, 12018).

SUMATRA: Langat (BEUMÉE, A–486, HB).

55. **Homalomena schismatoglottoides** ENGL. in Pflanzenreich IV. 23. Da [55] (1912) 71.

BORNEO: Soengei Maruee (AMDJAH, 226, HB, Holotype).

56. **Homalomena subcordata** ENGL. in Bot. Jahrb. I (1882) 183, in Malesia I (1883) 281 [non *H. subcordata* (SCHOTT) ENGL. (1912) = *H. Korthalsii*].

H. subcordifolia ENGL. in Pflanzenreich IV. 23. Da [55] (1912) 71. *Syn. nov.*

H. subcordata ENGL. (1882) has priority over *H. subcordata* (SCHOTT) ENGL. (1912), and hence *H. subcordifolia* is superfluous.

BORNEO: *Sarawak* (non vidi).

57. **Homalomena subemarginata** v. Ald. v. Ros. in Bull. Jard. Bot. Buitenz. IV (1922) 190.

This species is known entirely from specimens cultivated in the Botanical Gardens, Buitenzorg. On a specimen from group XI. B. X. 66 the nativity of this species is indicated to be Java; but this must be an error, for the species is very closely allied to *H. borneensis,* if not identical with it, and has no allies in Java. Probably it was introduced from Borneo.

HORT. BOT. BOGOR. CULT.: XI. B.X. 46, Holotype in HB; XI. B.X. 66.

58. **Homalomena Treubii** ENGL. in Pflanzenreich IV. 23. Da. [55] (1912) 70; v. ALD. v. ROS. in Bull. Jard. Bot. Buitenz. IV (1922) 188.

This species is very like *H. Havilandii* from which it differs by larger leaves and spathes and more rounded base of the leaves.

BORNEO: (HALLIER, 2622, Holotype, HB).

V. Summary of the Systematic Notes

In order to facilitate the classification of the Indo-Malaysian species I have created a new section CYRTOCLADON to include all those *Homalomena* species which have their

spathes constricted above the female inflorescence. This section appears to be much more natural and distinct than the section *Chamaecladon.*

Apart from the many forms or varieties described as new or reduced as synonyms, the following is a summary of the systematic notes on the species:

A. NEW SPECIES: (*a*) Malaya (*i.e.* Malay Peninsula): *H. confusa, H. Corneri, H. Hendersonii, H. Kiahii* and *H. montana;*
(*b*) Sumatra: *H. ellipticifolia* and *H. mentawiensis;*
(*c*) Borneo: *H. Gillii* and *H. kinabaluensis;* and
(*d*) New Guinea: *H. Carrii.*

B. NEW COMBINATIONS: *H. Korthalsii.*

C. NEW INTERPRETATIONS: *H. alba, H. angustifolia, H. cordata, H. humilis, H. propinqua, H. purpurascens, H. pygmaea, H. rubra, H. sagittifolia* and *H. singaporensis.*

D. NEW REDUCTIONS: *Chamaecladon rubescens, H. alba* (see footnote p. 213), *H. bancana, H. Burkilliana H. coerulescens, H. coccinea, H. crassa, H. discolor, H. ensiformis, H. falcata, H. gigantea, H. hostiifolia, H. intermedia, H. javanica, H. johorensis, H. latifrons, H. lucidula, H. metallica, H. Miquelliana, H. multinervia, H. multivenosa, H. obliquata, H. ovata* (SCHOTT) HOOK. f., *H. palliformis, H. paludosa, H. pumila, H. pygmaea, H. Raapii, H. repens, H. rosea, H. rubrovaginata, H. sarawakensis, H. singaporensis, H. subcordata* (SCHOTT) ENGL., *H. subcordifolia* and *H. velutina.*

E. OLD NAMES RESTORED: *H. Gaudichaudii, H. Lindenii, H. ovata* ENGL., and *H. subcordata* ENGL.

VI. Index to the Numbers Cited

ACHMAD:
1723(*12*).
ALVINS:
1683 (*38*); 1849(*1*); 1963(*50*); 2239(*13-c*).
AMDJAH:
226(*55*); 261(*50*).
ANDERSON:
54(*44*); 85(*20*).
BACKER:
710(*17*); 1633(*17*); 4608(*17*); 5907(*18*); 7114(*18*); 7142(*38*); 10271(*18*); 11275(*36*); 18750(*36*); 23365(*17*); 27017(*36*); 27477(*36*); 29723(*36*); 31130(*18*).

BAKHUIZEN v/D BRINK:
11(*17*); 172= 3222(*18*); 789(*17*); 3100(*17*); 3222= 172(*18*); 3615(*17*); 3616(*17*); 3995(*17*); 5016(*53*); 5028(*18*); 5029(*17*); 5030(*18*); 6390(*18*); 7063(*53*); 7065(*18*); 7185(*18*).
BEST:
7723(*19*).
BEUMÉE:
A-337(*17*); A-486(*54*); 816(*36*); 3897(*36*); 5045(*36*); 5560(*36*).
BODEN KLOSS:
11441(*3*); 12297(*38*); 14777(*25*); 19167(*42*).
BROOKS:
A-4(*20*).
BÜNNEMEIJER:
129(*50*); 159(*50*); 584(*21*); 604(*38*); 1220(*50*); 1439(*38*); 2387(*38*); 2422(*38*); 3104(*3*); 3239(*14*); 3254(*14*); 3390(*38*); 3630(*38*); 4018(*38*); 5811(*6*); 6200(*52*); 7814(*38*); 8490(*38*); 8660(*38*).
BURKILL (E.M.):
110(*38*).
BURKILL:
539(*38*); 711(*13-b*); 724(*13-d*); 908(*50*); 918(*20*); 931(*50*); 1341(*38*); 1344(*38*); 2520(*38*); 2527(*38*); 2544(*35*); 2546(*38*); 2559(*20*); 2820(*10*); 3192(*52*); 3193(*52*); 3194(*52*); 3195(*52*); 3304(*38*); 4080(*13-a*); 4097(*38*); 4101(*52*); 4552(*5*); 6304(*20*); 6400 bis(*53*); 6521(*52*); 6602(*13-e*); 6839(*38*); 9965(*13-c*); 13435(*38*); 13835(*38*).
BURKILL & HANIFF:
12792(*38*); 12805(*50*); 16937(*13-c*); 16951(*30*); 16974(*24*).
BURKILL & HOLTTUM:
7879(*19*); 9016(*13-b*).
BURN-MURDOCH:
155(*52*).
CARR:
12053(*4*); 12603(*37*).
CASTRO & MELEGRITO:
1410(*50*).
CLEMENS:
21926(*50*); 26086(*50*); 26199(*20*); 26226(*42*); 26730(*42*); 26732(*50*); 27230(*20*); 29134(*49*); 29137(45); 29138(*42*); 29139(*20*); 29140(*42*); 29142(*42*); 29145(*42*); 29151(*38*); 29152(*50*); 31023(*42*); 32508(*20*); 50279(*50*); 51019(*45*).

CORNER:
28612(*52*); 29360(*54*); 30436(*9*); 30691(*20*); 31687(*10*); 33578(*13-d*); 33579(*22-b*); 33581(*7*); 33685(*35*); 33687(*10*); 33692(*5*).

CURTIS:
1857(*38*); 2886(*5*).

DAALEN:
30(*21*); 350(*38*).

DE VRIES:
43(*17*).

DOCTERS VAN LEEUWEN:
Hort. Bot. Bogor. cult. XI. B.X. 50(*31*).

ENDERT:
1922(*53*); 2630(*20*); 3738(*47*).

FOXWORTHY:
41(*53*); 58(*52*).

FURTADO:
33036(*38*); 33082(*10*); 33088(*38*); 33098(*50*); 33106(*24*); 33116(*50*); 33127(*1*); 33129(*2*).

GALOENGI:
172(*31*).

GOODENOUGH:
1661(*13-a*).

HALLIER:
68(*38*); 556c(*38*); 648(*36*); 1356(*53*); 1357(*38*); 1391(*53*); 1465(*52*); 2622(*58*).

HANIFF & NUR:
7969(*5*); 10362(*13-a*).

HAVILAND:
102(*43*); 3134(*53*).

HENDERSON:
10185(*9*); 10256(*50*); 10318(*10*); 10467(*38*); 10527(*52*); 10862(*38*); 17758(*20*); 18374(*20*); 19369(*38*); 19372(*13-a*); 20105(*32*); 20262(*50*); 20389(*32*); 21354(*16-a*); 22000(*13-a*); 22216(*38*); 22504(*52*); 22600(*13-a*); 22659(*29*); 22706(*38*); 23871(*38*); 23872(*10*); 29518(*38*); 29564(*24*); 29663(*15*).

HEWITT:
17(*50*); 34(*51*).

HOLMBERG:
173(*52*).

HOLTUM:
9391(*20*); 9420(*13-a*); 9482(*38*); 9736(*1*); 10863 partim (*32*); 19933(*32*).

HUME:
7099(*16-a*); 7598(*16-a*); 7931(*50*); 8975(*24*); 9457(*13-a*); 9549(*16-a*).
IBOET:
30(*3*); 512(*25*).
JACOBSON:
75(*38*); 2084(*38*).
JAHERI:
215(*20*); 1142(*47*); 1485(*50*).
KARTA:
92(*36*).
KIAH:
32056(*13-b*); 32146(*22-b*); 32358(*22*).
KING'S Collector in Malay Peninsula *vide* KUNSTLER
KJELLBERG:
612(*21*).
KOORDERS:
16180β(*21*); 30182β(*53*); 39695β(*17*); 41322β(*17*); 41580β(*18*).
KORTHALS:
221(*28*).
KRAMER:
118(*36*).
KUNSTLER:
3082(*53*); 10603(*35*).
LAM:
722(*29*); 789(*39*); 866 & 1223(*39*).
LATIF:
8(*20*).
LÖRZING:
1716(*36*); 5324(*38*); 5361(*3*); 5728(*3*).
LÖRZING & JOCHEMS:
7380(*31*).
MAT:
3722(*20*).
MONDI:
14(*52*).
MOYSEY & KIAH:
31839(*27*).
NUR:
1317(*52*); 7367(*31*); 7410(*38*); 7412(*34*); 11037(*16-a*); 11380(*38*); 11595(*9*); 11605(*20*); 11779(*38*); 11861(*38*); 18573(*50*); 33992(*52*).
PULLE:
398 & 410(*33*).

RAAP:
186(*3*); 235(*50*); 266(*3*); 412(*16-a*).
REINWARDT:
19-a(17).
RIDLEY:
2391(*5*); 2952(*16-a*); 3529(*52*); 4607(*53*); 5123(*5*); 6240(*38*); 6310(*53*); 6318(*53*); 6537(*38*); 6538(*53*); 7033(*16-a*); 7251(*38*); 7662(*52*); 7665(*16-a*); 7774(*50*); 8462(*24*); 8488(*5*); 8489(*38*); 9400 (*38*); 9793(*5*); 10177(*16-a*); 10223(*13-d*); 10327(*16-a*); 11193(*20*); 11421 (*20*); 11713(*13-f*); 11714(*44*); 11932(*20*); 11990(*20*); 12018(*54*); 12144(*20*), 12417(*10*); 13237(*35*); 13239(*13-a*); 13398(*16-a*); 13399 (*16-a*); 13469(*21*); 13842 & 13842a (*21*); 14031(*16-a*); 14304(*21*); 14305(*5*); 14306(*10*); 14367(*30*); 15491(*5*); 16188(*5*).
ROBINSON & KLOSS:
6123(*20*).
ROMER:
451(*29*).
SAPII:
117(*36*); 2000(*36*).
SCORTECHINI:
256 & 256a(*10*); 276b in Herb. Singapore (*16-a*); 276b in Herb. Bogor. (*20*); 606a(*10*).
SEIMUND:
60(*13-d*).
SLOOTEN:
245(*36*); 597(*17*).
STEENIS:
411(*38*); 687(*32*); 707(*50*); 917(*50*); 1191(*6*); 1445(*16-a*); 2439(*17*); 3794(*20*).
TEYSMANN:
3227(*52*); 10826(*21*); 11542(*50*); 12421(*21*).
VAN DER PIJL:
70(*18*).
VAN SLOOTEN vide SLOOTEN.
VAN STEENIS vide STEENIS.
VOOGD:
321(*32*).
WINCKEL:
854B(*38*).
WRAY:
385(*24*); 1034(*16-a*); 1749(*50*); 1976(*10*).
YATES:
1657(*38*).

VII. Index to the Botanical Names

New botanical names in **clarendon** type
Synonyms in *italics*

Aglaonema:
pygmaeum (18 & 18 observ.) 201 & 202
pygmaeum var. *majus* (17 & 18 observ.) 200, 202
var. *purpurascens* (18) 201
Alocasia Lindenii (37) 216
Anappur:
alba (36) 215
nigra (36) 214 & 215
rubra (36) 215
Calla:
angustifolia (20) 203 & 205
humilis (16-a & 20) 199 & 205
Chamæcladon:
angustifolium (5 & 20) 189 & 204
consobrinum (6) 190
Griffithii (13) 194
Griffithii var. *argenteum* (1) 186
humile (16-a) 199
lanceolatum (17) 200
lanceolatum var. *purpurascens* (18) 201
metallicum (13) 194
nigrescens (28) 210
obliquatum (13) 194
ovatum (13) 194
purpurascens (18) 201
pygmaeum (17 & 18) 200 & 201
pygmaeum var. *latifolium* (20) 204
rubescens (18) 201
sanguinolentum (52) 225
subcordatum (23) 208
Cyrtocladon sanguinolentum (52) 225
Dracunculus:
amboinicus (36) 214
amboinicus ruber (38) 219
cordatum (36 footnote) 213
Homalomena:
alba (36 and footnote) 213
angustifolia (5 & 20) 189 & 204
angustifolia var. *ophirensis* (19) 203
angustifolia var. *parvula* (5) 189
argentea (1) 186
argentea var. **purpurascens** (2) 188
aromatica var. *cordata* (38) 218
bancana (38) 218

batoensis (3 & 24) 188 & 208
Beccariana (40) 221
borneensis (41) 221
Burkilliana (34) 213
Carrii (4) 189
coccinea (18) 201
coerulescens (38) 218 & 227 footnote
coerulescens var. *pontederiifolia* (38) 218
confusa (5) 189
consobrina (6) 190
cordata (36 footnote) 213
Corneri (7) 191
crassa (35) 213
crassinervia (51) 225
Curtisii (8 & 19) 191, 203
curvata (38) 218
deltoidea (9) 192
discolor (36) 214
elliptica (10) 192
elliptica var. **paucinervia** (11) 193
ellipticifolia (12) 193
ensiformis (52) 225
falcata (13 & 13-e) 194 & 197
Gaudichaudii (36 footnote) 213
gigantea (38) 218
Gillii (42) 221
Griffithii (13-a) 195
„ forma **acuminata** (13-f) 197
„ var. falcata (10) 192
„ forma **falcatoidea** (13-e) 197
„ „ **Kingii** (13-b) 196
„ „ **obliquata** (13-d) 196
„ var. *obliquata* (13-d) 196
„ „ *ovata* (13) 195
„ forma **sigmoidea** (13-c) 196
„ „ var. **sumatrana** (14) 198
Havilandii (43) 222
Hendersonii (15) 198
hostiifolia (49) 223
humilis (16 & 16-a) 199
„ var. **major** (17) 200
„ var. **major** subvar. **coccinea** (18) 201
„ var. **ophirensis** (8 & 19) 192 & 203
„ var. **pumila** (20) 203
„ var. undulata (21) 207
„ var. velutina (16-a) 199
insignis (44) 222
intermedia (44) 222
javanica (36) 214

javanica var. *kangeanensis* (36) 214
johorensis (20) 204
Kiahii (22) 207
„ forma **maculata** (22-b) 208
kinabaluensis (45) 222
Kingii (13 & 13-b) 194 & 196
Korthalsii (23) 208
lancea (46) 223
lancifolia (24) 208
latifrons (38) 218
Lindenii (37) 216
lucidula (32) 212
lunduensis (47) 223
major (38) 218
mentawiensis (25) 209
metallica (13) 194
minor (38) 218
Miqueliana (52) 225
mixta (26) 209
montana (27) 210
multinervia (11 & 47) 193 & 223
multivenosa (3) 188
Nieuwenhuisii (48) 223
nigrescens (28) 210
novo-guineensis (29) 211
nutans (30) 211
oblanceolata (31) 212
obliquata (13 & 13-d) 194 & 196
obscurifolia (2) 188
ovata (13) 195
ovata (49) 223
palliformis (36) 214
paludosa (53) 226
paucinervia (32) 212
Peekelii var. *mamberamica* (39) 220
pontederiifolia (38) 218
propinqua (50) 224
Pulleana (33) 212
pumila (20) 204
pumila var. *purpurascens* (18) 202
punctulata (51) 225
purpurascens (18 & 20) 202 & 204
purpurascens var. *pumila* (20) 204
pygmaea (16-a, 17 & 18) 199, 200 & 202
„ var. *latifolia* (20) 204
„ forma *longipes* (12) 193
„ var. *pumila* (20) 204
„ „ *purpurascens* (18) 202

Raapii (50) 224
refulgens (34) 213
repens (21) 207
Ridleyana (53) 227
rostrata (52) 225
rubra (38) 217
rubrovaginata (18) 202
„ var. *subpurpurea* (18) 202
sagittifolia (50) 224
sagittifolia (53) 226
„ var. **angustifolia** (54) 228
„ var. *sumatrana* (50) 224
sarawakensis (44) 222
schismatoglottoides (55) 229
Scortechinii (35) 213
singaporensis (38) 218
subcordata (56) 229
subcordata (23) 208
subcordifolia (56) 229
subemarginata (57) 229
Teysmannii (52) 225
trapezifolia (10) 192
Treubii (58) 229
undulatifolia (21) 207
velutina (16-a) 199
Versteegii (39) 220
Wallichii (38) 218
Zollingeri (36) 214
Piptospatha Ridleyi var. *lanceolata* (32) 212.
