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A REVISION OF THE MALAYSIAN NELSONIEAE
(SCROPHULARIACEAE)

C. E. B. BREMEKAMP *

SUMMARY

This revision of the Malaysian genera of Nelsonieae, of which an emended description is given, covers three genera, *Staurogyne* Wall. (52 species), *Nelsonia* R. Br. (1), and *Elytraria* Vahl (2). A new subdivision of *Staurogyne* is proposed. Among the new taxa described are 24 species (including 1 variety raised to specific rank) and 18 varieties. Moreover, 4 new combinations and 1 new name are proposed.

Elsewhere, in a paper dealing with the delimitation of the Acanthaceae [in Proc. Kon. Ned. Akad. Wetensch. 56 (Ser. C): 533-546. 1953], I discussed the taxonomic position of the Nelsonieae. On account of the structure of the fruit this group was hitherto included, either as a tribe or as a subfamily, in the Acanthaceae, but I pointed out that the latter can not be regarded as a natural unity, and that the reason for which the Nelsonieae were referred to it, is fallacious, as the fruit of these plants shows a closer resemblance to the capsule of the Rhinanthaeae, a group now usually included with the rank of a tribe in the Scrophulariaceae, than to that of the group of plants for which the name Acanthaceae is reserved by me, i.e. Acanthaceae subfam. Acanthoideae Lindau, and differs widely from the beaked capsule of the Thunbergiaceae *sensu meo* (Acanthaceae subfam. Thunbergioideae Lindau) and from the drupe of the Mendonciaceae (Acanthaceae subfam. Mendoncioideae Lindau). The Nelsonieae, moreover, differ from all of them, and also from their allies, the Bignoniaceae and Pedaliaceae, by the presence of a well-developed endosperm, a character that indicates a position either in the Scrophulariaceae or in one of the families that are to be regarded as the latter's nearest allies. The insertion of the ovules near the line along which the dissepiment finally splits, points in the direction of the Rhinanthaeae, in which the same

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arrangement of the ovules is found and which differ in this respect rather widely from the rest of the Scrophulariaceae, where the ovules are inserted on a swollen, more or less distinctly peltate placenta, and where the dissepiment, as a rule, remains intact.¹ The aestivation of the corolla lobes, however, is in the Nelsonieae descending and in the Rhinanthaeae ascending. In this respect the latter agree with the Digitaleae and Gerardiaceae, and for this reason these three tribes have been brought together in a subfamily Rhinanthoideae. However, because of the totally different type of placentation found in the Rhinanthaeae, this classification can not be regarded as satisfactory. It might even be better to restore this tribe to its original rank, viz. that of an independent family. In that case the Nelsonieae might be included in this family with the rank of a subfamily, for which the name Nelsonioideae would be indicated. For the moment, it is perhaps better to avoid this rather drastic change and to leave the Rhinanthaeae in the Scrophulariaceae with the Nelsonieae in their immediate vicinity. To make this possible the present subfamily Rhinanthoideae is, of course, to be suppressed.

The definition of the Nelsonieae given by me in the paper quoted above, is in one point incorrect. The inflorescences were described as sometimes racemose and sometimes cymose, but in reality they are always racemose. The inflorescences that were originally regarded by me as cymose, are found in *Staurogyne* subgen. *Eu-staurogyne* section *Maschalanthus*. In two species that on account of the position of their inflorescences were provisionally referred to this section *Maschalanthus*, viz. in *St. macrantha* C. B. Clarke and in *St. serrulata* C. B. Clarke, there is good reason to assume that the inflorescences indeed are of the cymose kind, but it is extremely doubtful whether these two species, which are known to me only from the description and from photographs, really belong to *Staurogyne* and even to the Nelsonieae, and for the present they are therefore better left out of consideration. In the species whose position need not be doubted, the inflorescences are either short and then often branched at the base, in which case they look like dichasia, or long and provided with an axis that usually, as in many monochasia, is bent in a zigzag fashion. However, a careful study of the position occupied by the bracts has shown that no terminal flowers are present, and that these

¹I agree with those botanists who are of opinion that the inclusion of the group of plants whose ovary cells contain but a single pendulous ovule (*Selago* L. and its nearest allies) in the Scrophulariaceae is a mistake, and who regard this group as a distinct and by no means nearly related family Selaginaceae.

inflorescences therefore, notwithstanding their somewhat unusual aspect, are of the racemose kind.

In the emended form the definition reads as follows:

Nelsoniaceae Scrophulariacearum tribus Rhinantheis affinis sed corollae lobis aestivatione descendente, labio superiore nunquam galeato, capsula pariete firmiore instructa ab eis distinguenda. Syn.: Acanthaceae subfam. Nelsonioideae Lindau.

Herbae caule inarticulato instructae. Folia inferiora plerumque opposita sed numquam crista transversa connecta; superiora opposita vel alternantia. Flores in inflorescentias racemosas dispositi; inflorescentiae caulem vel caulem ramosque terminantes, aliquae interdum insuper axillares, interdum omnes pseudo-axillares, i.e. a branchyblastis brevissimis elatae, casu quo semper oppositae, plerumque racemi- vel spiciformes, raro paniculas laxas formantes vel ad capitula contractae. Bracteae semper evolutae, inferiores interdum oppositae, superiores semper alternantes. Bracteolae plerumque evolutae. Flores 5-meri, hermaphroditi. Calyx nunc 5- nunc 4-partitus; lobeus anticus calycis 4-partiti minime apice incisus. Corolla hypocrateriformis, fauce inflato, limbo subregulari vel distincte bilabiato, lobis anticis alabastro a lobis posticis obiectis. Stamina nunc 4, casu quo didynamia et haud raro staminodio impari comitata, nunc 2, casu quo staminodia 2 vel 0. Granula pollinis parva, globosa vel ellipsoidea, 3-colpa. Discus parvus. Ovarium 2-loculare, ovulis utroque loculo pluribus, in series 2 vel rarius 4 dispositis et funiculis brevibus ad septum adjunctis. Stigmata 2 inaequalia; posticum saepe in lobulos vel dentes 2 productum. Fructus capsula conica vel elongata, pariete firmiore instructa, loculicida; dissepimentum uno tempore longitudinaliter findens; retinacula nulla. Semina globosa, hilo parvo instructa, albuminosa, albumine interdum ruminato; embryo cotyledonibus planis instructus.

Generibus paucis in regionibus calidioribus Americae, Africae et Asiae distributae.

The pentamerous, hermaphrodite flowers, the sympetalous corolla, zygomorphous androecium and bilocular ovary with axile placentation are more or less general characters of the Tubiflorae; the absence of terminal flowers and the albuminous seeds point in the direction of the Scrophulariaceae, and the insertion of the ovules, without the intermediary of a fleshy placenta, along the axis of the dissepiment together with the loculicidal dehiscence of the capsule, which is carried out in such a way that each of the valves retains its own half of the dissepiment, indicate a position in the vicinity of the Rhinanthaeae. They differ from the latter by the descending aestivation of the corolla lobes, the more or less flat instead of galeate upper lip, and the firmer structure of the pericarp and of the dissepiment.

The Nelsonieae comprise at present five genera, viz. *Staurogyne* Wall., *Ophiorrhizophyllum* Kurz, *Gynocraterium* Brem., *Nelsonia* R. Br. and *Elytraria* Vahl. Originally (cf. Nees in Wall., Pl. as. rar. 3: 76. 1832 et in DC., Prodr. 11: 62. 1847) it contained four genera, viz. *Ebermaiera* Nees, which soon afterwards proved to be identical with *Staurogyne* Wall., *Nelsonia* R. Br., *Elytraria* Vahl and a genus for which Nees used the name *Adenosma* R. Br. but which does not contain the type of Brown's genus and is, in fact, based on a species (*Ruellia uliginosa* L.) of which Brown had said that it belonged to another, although related genus. The species which Nees referred to *Adenosma* belong in reality to *Cardanthera* Ham. ex Voigt (*Synnema* Benth.), a genus of the Ruellieae Hygrophyllinae, and are therefore true Acanthaceae. In Lindley's "Introduction to botany" (2nd ed., 285. 1835), Nees referred to this group a new genus *Gymnacanthus*, but afterwards (in DC., Prodr. 11: 219. 1847) he came to the conclusion that the latter, for which he introduced a new and according to our present standpoint illegitimate name *Sclerocalyx*, is an ally of *Trichanthera* H.B.K. Its position is apparently not fully ascertained, but as the capsule is according to Lindau provided with acute retinacula, it can certainly not belong to the Nelsonieae. At a much later date S. Moore described a genus *Hiernia*, which he, and Lindau too, referred to this group, but which on account of the long and thin funicles is to be removed to a tribe of its own. The latter, however, will have to find a place in the vicinity of the Nelsonieae.

Staurogyne, the largest genus of this group, will be discussed below.

Ophiorrhizophyllum is doubtless a very near ally of *Staurogyne*. It was originally separated from the latter on account of three points, the exertion of the longer stamens, the sterility of the shorter ones and the dehiscence of the thecae by very short slits, but when Benoist is right in referring to this genus a species provided with four fertile stamens and with thecae dehiscing by slits extending from top to base,² the difference is reduced to a single point, viz. the exertion of the stamens, and this can hardly be regarded as sufficient to justify the maintenance of the genus.

The small American genus *Gynocraterium* too comes very near to *Staurogyne*, differing from the latter mainly in the small number of ovules and in the crateriform stigma.

² See, however, my remarks on the position of this species in my discussion of the subsection *Microchlamydeae* of the section *Staurogyneum* of *Staurogyne* subgen. *Eu-staurogyne*.

The two remaining genera, *Nelsonia* and *Elytraria*, differ from the preceding ones by the structure of the calyx, the two anticous lobes being united at least at their base, by the structure of the anther, the thecae being more or less contiguous instead of separated by a laterally distended connective, and by their granulate or costulate instead of foveolate seeds. In *Nelsonia* the stem is decumbent and provided throughout with ordinary leaves, whereas the *Elytraria* species possess a sessile or stipitate rosette of ordinary leaves and inflorescences that are borne by a rigid stipe densely covered by leaves that are reduced to appressed scales. In *Nelsonia*, moreover, bracteoles are lacking, in *Elytraria* well-developed, and although the flowers are in both genera provided with two fertile stamens, the latter are in *Nelsonia* included and not accompanied by staminodes, in *Elytraria* exerted and accompanied by two staminodes; the latter, however, are very small and easily overlooked. In *Nelsonia* the thecae are subglobose and the part with which they are attached to the connective is but small, whereas in *Elytraria* they are elongate and attached along their whole length. The testa of *Nelsonia* is costellate, that of *Elytraria* granulate.

Staurogyne is a pantropical genus. In the Malay Peninsula and in the Malay Archipelago, especially in the latter's western part, it is abundantly represented, and here we find apparently its main area of distribution. *Gynocraterium* is American and probably confined to a small area. *Ophiorrhizophyllum* is restricted to Indo-China, north of the Isthmus of Kra. *Nelsonia* was originally a palaeotropic genus, but has spread in post-Columbian times to some parts of the New World. In the area covered by this revision it has been found only in the north-western part. The pantropic genus *Elytraria* is represented in our area by two species, both introduced as weeds.

The three genera that so far are known from the Malesian area, may be identified by means of the following key.

KEY TO THE GENERA OF THE NELSONIACEAE OCCURRING IN THE MALESIAN AREA

1. Calyx 5-partite. Androecium consisting of 4 fertile stamens. Anthers with a short but wide connective. Seeds foveolate. *Staurogyne* Wall. (p. 163)
- 1: Calyx 4-partite, but the lower lobe more or less deeply incised. Androecium consisting of 2 fertile stamens, sometimes accompanied by 2 staminodes. Anthers with a long or short but always narrow connective. Seeds not foveolate.
2. Shoots with distinct internodes of more or less equal length; leaves all of the same kind. Bracts soft and covered with glandular hairs. Bracteoles absent. Corolla with five subequal rounded lobes. Stamens included; thecae subglobose. Staminodes absent. Seeds covered with an irregular network of small ribs. *Nelsonia* R. Br. (p. 247)

- 2: Shoots with a rosette or normal leaves and inflorescences borne by stalks that are covered with appressed squamiform leaves. Bracts rigid, never covered with glandular hairs. Bracteoles present and nearly as long as the calyx lobes. Corolla bilabiate; the lobes of the lower lip bifid. Stamens more or less distinctly exserted; thecae oblong. Staminodes present but small. Seeds granulate.

Elytraria Vahl (p. 249)

THE GENUS STAUROGYNE WALL.

The genus *Staurogyne* was created by Wallich for an Indian plant that was described and figured by him in volume 2 of his "Plantae asiaticae rariores." At the end of the description of the type, *St. argentea*, a short reference is found to a second species, *St. angustifolia*. A year later Nees described in his valuable monograph of the Indian Acanthaceae, which appeared in volume 3 of the same work, a genus *Ebermaiera* that afterwards proved to be identical with *Staurogyne*. Endlicher as well as Meisner mention both genera and place them in different groups, but they knew them from the descriptions only, and it was left to Nees to recognize their identity. The latter apparently discussed the choice of a name for the combination of the two genera with Wallich, for in his monograph of the family in De Candolle's "Prodromus" he informs us that his choice of the name *Ebermaiera* had received Wallich's approval; as in the majority of the species that were to be included in the combined genus the stigma lobes are not cruciate, the name *Staurogyne*, which refers to the cruciate stigma lobes of the type species, could no longer be regarded as appropriate. However, as this decision is an infringement of the priority rule, it had afterwards to be rescinded. This was done by Kuntze, who in his "Revisio Generum Plantarum" reinstated the name *Staurogyne*.

Staurogyne was at first known from tropical Asia only, but in 1847 Nees described in Martius' "Flora brasiliensis" and in De Candolle's "Prodromus" a number of species from tropical America, and since Engler's genus *Zenkerina* was recognized by Hallier (*in* Bull. Herb. Boiss. II 3: 201. 1903) as identical with *Staurogyne*, it is known from tropical Africa too. The Asiatic species, however, are far more numerous than the other ones, and, as stated above, in Asia itself the greatest density of species is found in the Malay Peninsula, Sumatra and Borneo.

The description of the genus given below is mainly based on my knowledge of the Asiatic species, and my references to the literature confine themselves mostly to works of a general nature and to publications dealing with the flora of the Malay Archipelago and the surrounding countries.

STAUROGYNE Wall.³

Staurogyne Wall., Pl. as. rar. 2: 80 t. 186. 1831; Endl., Gen. Pl. 1: 70. 1839; Meisn., Pl. vasc. Gen. 294 (203). 1840; O. Ktze, Rev. Gen. Pl. 1: 497. 1891; Lindau in Engl. & Prantl, Nat. Pflanzenfam. IV 3 b: 288. 1895; Dalla Torre & Harms, Gen. Siph. 479. 1905; Clarke in J. As. Soc. Beng. 74: 634. 1908; Ridl., Fl. Mal. Pen. 2: 558. 1923; R. Benoist in Fl. gén. Indo-Chine 4: 622. 1935, Lemée, Dict. 6: 262. 1953; — *Ebermaiera* Nees in Wall., Pl. as. rar. 3: 75, 79. 1832; Endl., Gen. Pl. 1: 69. 1839; Meisn., Pl. vasc. Gen. 293 (202). 1840; Nees in DC., Prodr. 11: 70. 1847; Miq., Fl. Ind. bat. 2: 772. 1858; T. And. in J. Linn. Soc. (Bot.) 9: 450. 1866; Hook. f. in Benth. & Hook. f., Gen. Pl. 2: 1074, 1876; Clarke in Hook. f., Fl. Brit. Ind. 4: 395. 1884; Baill., Hist. Pl. 10: 426. 1891; Boerl., Handl. Fl. Ned. Ind. 2: 622. 1899; — *Erythracanthus* Nees in Wall., Pl. as. rar. 3: 75, 80. 1832; Endl., Gen. Pl. 1: 698. 1839; Meisn., Pl. vasc. Gen. 293 (202). 1840; Nees in DC., Prodr. 11: 78. 1847. — *Zenkerina* Engl. in Bot. Jb. 23: 498. 1897.

Inter genera Nelsoniearum calyce 5-partito instructa a *Gynocraterio* Brem. stigmatate non crateriformi et numero majore ovulorum, ab *Ophiorrhiziphylo* Kurz staminibus inclusis distinguendum.

Herbae plerumque silvestres, rarius (subgen. *Tetrastichum*) oryzetorum incolae, plerumque unicaulae. Caulis plerumque e basi decumbente vel rarius repente ascendens, interdum suberectus vel erectus, post anthesin haud raro recumbens et ex axillis innovationes emittens, teres vel rarius quadricostulatus, glaber vel indumento vario vestitus, basin versus interdum lignescens, nunc monopodialis, nunc sympodialis casu quo interdum semel vel bis bifurcatus, nunc simplex, nunc ex axillis superioribus vel omnibus ramificatus; rami cauli similiores vel ad brachyblastos redacti; nunc caulis ramique omnes in inflorescentias exeuntes, nunc brachyblasti soli inflorescentias producentes. Folia nunc omnia opposita, nunc superiora alternantia, plerumque petiolata, margine plerumque integra, vulgo tenuia et utraque facie opaca, penninervia. Inflorescentiae racemi- vel spiciformes, basi interdum uno vel duobus ramulis instructae vel ramulis pluribus e rachide orientibus plus minusve paniculiformes, rarius subcapituliformes, nunc caulem ramosque ordinarios terminantes casu quo interdum ab inflorescentiis axillaribus comitatae, nunc solum brachyblastos oppositos terminantes. Pedunculus plerumque internodiis rachidis subaequilongus vel eis longior, basi plerumque pari foliorum magnitudine redactorum instructus, rarius subnullus, casu quo foliis magnitudine normali suffultus. Bracteae infimae plerumque oppositae, forma interdum foliis similiores, aliae semper alternantes, plerumque 3-nerviae, rarius 1- vel 5-nerviae. Bracteolae semper evolutae, plerumque bracteis similiores vel eis angustiores, plerumque tamen 1-nerviae. Calyx fere ad basin partitus et lobi

³ Here and elsewhere clauses dealing with synonyms. I.e. with names based on the same type (the "nomenclatural" synonyms of the "Code") are separated from each other by a semicolon (;); those dealing with taxonomically identical units (the "taxonomic" synonyms of the "Code") are separated from the others by a dash (—); wrong names are cited with the name of the original author followed by the expression "in errore apud", a mode of citing that seems preferable to that of Recommendation 60 F of the "Code" ("auct. non . . ."), which may create the impression that the name has been proposed as a new one.

nunc subaequales nunc inaequales, casu quo lobus posticus aliis semper major et praesertim latior, haud raro forma et magnitudine bractee major et lobi laterales aliis plerumque breviores et semper angustiores. Corolla tubo brevi, faucibus anguste campanulatis tubo multo longioribus, limbo in speciebus asiaticis semper subregulari, in speciebus americanis interdum bilabiato, casu quo labium superius 2-lobum labio inferiore 3-lobum semper longius, plerumque alba vel luteola sed limbo interdum roseo, rubro vel purpureo vel ad basin rubro-punctato, rarius tota rubra vel purpurea. Stamina 4, didynamia, inclusa; filamenta pilis capitatis vel ecapitatis tota vel minime apicem versus hirtella, rarissime tota glabra; antherae e thecis globosis vel subglobosis, basi interdum appendiculatis et e connectivo brevi sed valde dilatato, dorso plerumque hirtello compositae. Granula pollinis parva, 3-colpa, plerumque globosa, in speciebus aliquibus americanis ellipsoidea. Staminodium impar plerumque filiforme, nunc capitatum, nunc ecapitatum, interdum vix distinguendum vel nullum. Discus parvus. Ovarium cylindricum, utroque loculo ovulis 12—60 in series 2 vel rarius 4 dispositis munito. Stylus glaber. Stigma bilobatum; lobi subaequales vel inaequales, casu quo lobus anticus semper brevior; lobus posticus, rarius lobi ambo in lobulos vel dentes 2 exeuntes. Capsula elongata, apice acuta vel subobtusa; valvuli applanati seminibus 12—60 muniti. Semina globosa; testa alveolata et interdum intrusiones in albumen emittens; parietes testae cellularum trabeculis firmatae.

Speciebus circ. 80 in regionibus calidioribus Americae, Africae et Asiae distributum.

TYPUS: *St. argentea* Wall., Pl. as. rar. 2: 80 t. 86. 1831.

The American and African species are as yet insufficiently known, and it is therefore for the moment impossible to determine the position they occupy with regard to the Asiatic ones. That the American species with distinctly bilabiate corolla could find a place in either of the two subgenera created by me for the reception of the Asiatic species, looks unlikely, and although the African plant on which the genus *Zenkerina* Engl. was founded, agrees with the species of the subgenus *Tetrastichum* in the arrangement of the ovules in four rows, it can certainly not be referred to that group, as its inflorescence is of a different type.

For the classification of the Asiatic species I have made use of the structure of the inflorescence and of the number of ovules per ovary cell and their disposition in two or four rows. In the subgenus *Tetrastichum* the inflorescence is ill-defined, as the lower flowers are subtended by ordinary leaves, whereas in *Eu-staurogyne*⁴ it is always well-defined, all

⁴ In accordance with Recommendation XI of the 1935 edition of the "International Rules of Botanical Nomenclature" I use the prefix "Eu-" to designate the subgenus that contains the type species of the genus, and the ending "ium" (the Greek diminutive "ion") for the corresponding section. This is contrary to Art. 32 of the present "International Code," according to which these groups should be indicated by the name of the genus unaltered, but as it seems illogic to me to use the same term in different meanings, I prefer to stick to "established custom."

the flowers being subtended by 1-, 3- or 5-nerved bracts that are easily distinguishable from the penninerved leaves by which the inflorescence is preceded, and whereas the ovules of *Tetrastichum* are very numerous and arranged in four rows, they are always less numerous in *Eu-staurogyne* and arranged in two rows only. There is, moreover, a difference in ecological behaviour, for the species belonging to the subgenus *Tetrastichum* appear as weeds on rice fields after the removal of the crop, whereas the representatives of the subgenus *Eu-staurogyne* are found in the undergrowth of the forest.

The subgenus *Tetrastichum* comprises but a comparatively small number of species, and as the latter, moreover, are all rather similar, a further subdivision of this group seems superfluous.

The subgenus *Eu-staurogyne*, on the other hand, contains a large number of species, and the latter prove to differ widely. In the first place there is a notable difference in the position of the inflorescences. In the great majority of the species at least the larger inflorescences are found at the top of the stem and of ordinary branches, although a few shorter ones may eventually spring from the axils of the higher leaves. These species are brought together in the section *Staurogynium*. In the remaining species the inflorescences are never found at the end of ordinary shoots but always on opposite brachyblasts that are easily overlooked because they are extremely short and because their only pair of leaves are, like the leaves at the base of the peduncle in the section *Staurogynium*, very strongly reduced in size; it is therefore not surprising that these inflorescences have so far been described as axillary. The seeds of the plants belonging to this section, for which I propose the name *Maschalanthus*, show a peculiarity that I have not seen in species belonging to *Staurogynium*, viz. a ruminant endosperm. However, as I have not been able to investigate seeds of every *Maschalanthus* species, and as in the section *Staurogynium* too seeds were not always available, I am as yet not fully certain that this may be regarded as a general difference. If it should prove to be so, it would perhaps be advisable to raise *Maschalanthus* to the rank of a subgenus.

In the section *Staurogynium* I distinguish three subsections. In the *Macrosepala*, the subsection to which the type of the genus belongs, the calyx lobes are in comparison with the connate part of the corolla rather large, the posticous one reaching at least to half its height. In two other subsections they are much shorter. The small subsection *Macrochlamydeae* is characterized by bracts that are several times as long as the calyx. In the subsection *Microchlamydeae* they are of nearly the same length as the

latter, and in this respect the representatives of this subsection agree with those of the *Macrosepalae*, but the absolute size of bracts and calyx lobes is considerably smaller. To this subsection belongs *Erythracanthus racemosus* (Roxb.) Nees, the type of the genus *Erythracanthus* Nees, and for this reason it might seem that the name *Erythracanthus* ought to have been adopted for this subsection. However, as the genus was afterwards extended by Nees himself to include *Adenosma elongatum* Bl., which is the present *Staurogyne elongata* (Bl.) O. Ktze, and another species belonging to my subsection *Macrosepalae*, and as it was accepted in this entirely unsatisfactory delimitation by Lindau as a section of *Staurogyne*, it was to be feared that adoption of this name would lead to confusion, and as I was fully entitled by the current rules to introduce a new name, the rank of my group being different from that of Nees as well as from that of Lindau, I preferred to do this.

The section *Maschalanthus* comprises but a small number of species, and a subdivision of this section therefore seemed superfluous.

For the sake of convenience the differences between the subgenera, sections and subsections are summarized below in the form of a key.

KEY TO THE ASIATIC SUBGENERA, SECTIONS, AND SUBSECTIONS OF STAUROGYNE

1. Each ovary cell with circ. 60 ovules arranged in four rows. The lower flowers on the main shoot always subtended by ordinary, i.e. penninerved, leaves.
 - Subgenus 1. *Tetrastichum*
- 1: Each ovary cell with 12—40 ovules arranged in two rows. All flowers subtended by bracts; the lower bracts sometimes more or less leaflike, but never penninerved.
 - Subgenus 2. *Eu-staurogyne*
2. At least some of the inflorescences at the end of ordinary shoots.
 - Section 1. *Staurogynium*
 3. Posticous calyx lobe always more than half as long as the connate part of the corolla. Subsection 1. *Macrosepalae*
 - 3: Calyx lobes always less than half as long as the connate part of the corolla
 4. Bract several times as long as the calyx. Subsection 2. *Macrochlamydeae*
 - 4: Bract as long as or shorter than the calyx. Subsection 3. *Microchlamydeae*
 - 2: Inflorescences all borne by axillary brachyblasts. Section 2. *Maschalanthus*

Subgenus 1. *Tetrastichum* Brem. nov. subgen.

A subgenere *Eu-staurogyne* minime floribus infimis, rarius floribus omnibus a foliis penninerviis suffultis, ovulis utroque loculo circ. 60 in serie 4 dispositis distinguendum.

Caulis monopodialis. Folia superiora haud raro subopposita vel alternantia. Inflorescentiae caulem et interdum ramos terminantes et haud raro inflorescentiis aliquibus axillaribus comitatae; flores inferiores, rarius flores omnes inflorescentiae principalis foliis penninerviis, magnitudine

tamen redactis suffulti. Bracteolae angustae, calyce breviores. Calycis lobi inaequales. Corolla ad insertionem staminum barbata, limbo subregulari instructa. Filamenta pilis ecapitatis vix conspicue hirtella. Granula pollinis globosa. Ovula utroque loculo circ. 60 in series 4 disposita.

Speciebus adhuc notis 12 a Ceylania et India usque ad Indo-Chinam et Malesiam distributum sed ex insulis Moluccanis et e Nova Guinea adhuc ignotum.

TYPUS subgeneris: *St. spatulata* (Bl.) Kds.

The most important characters of the subgenus *Tetrastichum* are, as stated above, the arrangement of the numerous ovules in four longitudinal rows and the ill-defined inflorescence, the lower flowers being subtended by ordinary leaves. We may also mention the preference shown by its representatives for sunny habitats. The species of the subgenus *Eustaurogyne* are sciadophilous.

The twelve species that so far could be referred to the subgenus *Tetrastichum* are (in alphabetical order):

1. *St. candelabrum* Brem. nov. spec. (v. infra)
2. *St. glauca* (Nees) O. Ktze
3. *St. glutinosa* (C. B. Clarke) O. Ktze
4. *St. humilis* (Nees) O. Ktze
5. *St. neesii* (Vidal) C. B. Clarke ex Merr.
6. *St. polybotrya* (Nees) O. Ktze
7. *St. rivularis* Merr.
8. *St. siamensis* C. B. Clarke
9. *St. spatulata* (Bl.) Kds.
10. *St. thyrsoides* (Nees) O. Ktze
11. *St. viscida* (Ridl.) Brem. nov. comb. (v. infra)
12. *St. zeylanica* (Nees) O. Ktze.

Five of these twelve species, viz. *St. candelabrum*, *St. neesii*, *St. rivularis*, *St. spatulata* and *St. viscida*, are endemic in the area covered by this revision. Six of the others occur in Ceylon, India and Burma, and one is confined to Siam. Indo-China will doubtless prove to possess a larger number of species, for the plants referred by Benoist in the "Flore générale de l'Indo-Chine" to *St. glauca* are said to have "apiculate" anthers, and can therefore not belong to that species. It is noteworthy that the six species dealt with by Clarke in the "Flora of British India" follow each other in an unbroken sequence, which means that Clarke must have recognized their affinity. This is the more remarkable as he was unaware of the presence of four rows of ovules in each of the ovary cells and did not pay special attention to the fact that part of the flowers are subtended by ordinary leaves.

The occurrence of *St. glauca* (Nees) O. Ktze in Australia (cf. Bentham, Fl. austr. 4: 544. 1869 and Bailey, Queensl. Fl. 4: 1143. 1901) is unlikely. The only specimen was collected by von Mueller, but as, according to Clarke in the "Flora of British India" its ovary and capsule are hairy, which they never are in this species nor, we may add, in any of the species of this subgenus that so far are known, and as it differs according to Clarke also in "many other minute points," it deserves a careful study. Clarke's assertion that the anther cells of *St. glauca*, which in his delimitation includes *St. spatulata* (Bl.) Kds as a variety, may be appendiculate, may be due either to a too implicit faith in the correctness of Wight's figure of *St. glauca* (Ic. t. 1488) or else to confusion with the Philippine *St. neesii* (Vidal) C. B. Clarke ex Merrill, the latter being based on a specimen that Nees had referred to *St. spatulata*.

The five species occurring in our area, may be identified by means of the following key.

KEY TO THE MALESIAN SPECIES OF THE SUBGENUS TETRASTICHUM

1. Stem erect, usually with flowering branches from the axils of all the leaves. Anther cells inappendiculate.
 2. All leaves opposite and sessile; the blade but slightly discoloured and provided with 4—6 nerves on either side of the midrib. Stem and branches slightly ribbed.
 3. Branches patent; the lowest pair nearly as long as the stem. Leaves lanceolate. Inflorescences terminal and axillary. Bracts 3-nerved and like the bracteoles subobtusate. Corolla 6 mm and capsule 4 mm long. 1. *St. viscida* (Ridl.) Brem.
 - 3: Branches ascending, more or less fastigate, slightly shorter than the stem. Leaves spatulate. Inflorescences nearly all terminal. Flowers all subtended by small penninerved leaves; the latter like the bracteoles acute. Corolla 9 mm and capsule 6 mm long. 2. *St. candelabrum* Brem.
 - 2: Higher leaves alternate; all leaves provided with a 3—10 mm long petiole; blade on either side of the midrib with 9—11 nerves, on the lower side grey. Stem and branches without ribs. 3. *St. spatulata* (Bl.) Kds
 - a. Bracts and bracteoles circ. 6 mm, the posticous calyx lobe 7 mm long,

var. *spatulata*
 - a: Bracts circ. 15 mm, bracteoles circ. 9 mm, posticous calyx lobe 11 mm long,

var. *grandis* Brem.
- 1: Stem suberect or ascending from a decumbent base, not rarely with sterile short-shoots in the axils of the leaves, but without flowering branches or with a very few only. Anther cells appendiculate.
 4. Stem covered with capitate hairs. Upper leaves alternate; leaf blade ovate, ovate-oblong or oblong, on either side of the midrib with 5—7 nerves. Flowers sessile and the subtending leaves obtuse. Bracteoles linear. Posticous calyx lobe 1-nerved; lateral and anticous ones of equal length. Corolla 10 mm long.
 4. *St. neesii* (Vidal) C. B. Clarke ex Merr.

- 4: Stem covered with ecapitate hairs. All the leaves, except those that subtend flowers, opposite; leaf-blade lanceolate, on either side of the midrib with 8 or 9 nerves. Flowers with a 0.5 mm long pedicel; the subtending leaves acute. Bracteoles subspatulate. Posticous calyx lobe 3-nerved; the anticous lobes longer than the lateral ones. Corolla 8 mm long. 5. *St. rivularis* Merr.

1. *Staurogyne viscida* (Ridl.) Brem. nov. comb.

Limnophila viscida Ridl. in J. As. Soc. Str. Br. 59: 142. 1911; Fl. Mal. Pen. 2: 478. 1923; *Ebermaiera viscida* (Ridl.) Ridl. in J. Fed. Mal. States Mus. 10: 105. 1921.

Inter species ex axillis fere omnibus ramos floriferos emittentes et thecis basi inappendiculatis instructas inflorescentiis spiciformibus, foliis et subsessilibus et omnibus oppositis *St. polybotryae* (Nees) O. Ktze et *St. candelabro* Brem. similis, a priore foliis angustioribus, quam bracteis multo brevioribus, calycis lobo postico acuto, ab ulteriore ramis patentibus, foliis lanceolatis et arcuatis, bracteis 3-nerviis subobtusis, bracteolis subobtusis, corolla et capsula minoribus distinguenda.

Herba erecta, circ. 15 cm alta, ex axillis omnibus ramos in inflorescentias exeuntes emittens; rami patentes, infimi cauli subaequilongi; habitus inde depresso pyramidalis. Caulis ramique 4-costulati, primum pilis capitatis et ecapitatis mixtis hirtelli, deinde plus minusve glabrescentes; caulis ad apicem 1,4 mm diam., basin versus usque ad 2,5 mm incrassatus; internodia 1—3 cm longa. Folia omnia opposita, subsessilia, i.e. basi in petiolum pilis capitatis dense hirtellum, maxime 1 mm longum sed a laminae basi vix differentem contracta; lamina lanceolata, fide Ridley l.c. 5 cm longa et 1,2 cm lata sed in ramis a me visis 2—2,5 cm longa et 0,7—1,0 cm lata, arcuata, apice subobtusata, basin versus sensim contracta, paulum discolor, sicc. supra saturate brunnea, subtus brunnea, primum utraque facie puberulo-pubescent, deinde plus minusve glabrescens, nervis utroque latere costae 4—6. Inflorescentiae terminales et axillares, spiciformes, totae pilis capitatis hirtellae. Folia flores inferiores suffulcientia obovata, circ. 5 mm longa et 1,5—1 mm lata, penninervia; bracteae florum aliorum anguste obovatae longitudine usque ad 3,5 mm decrescentes, subobtusae, 3-nerviae. Bracteolae lineares, 3,5 mm longae et 0,7 mm latae, subacutae. Calycis lobus posticus 7 mm longus et 1,2 mm latus, acutus, 3-nervius; lobi antici 6 mm longi et 0,6 mm lati, subacuti; lobi laterales 5,5 mm longi et 0,5 mm lati, omnes ut bractea bracteolaeque pilis capitatis hirtelli. Corolla 6 mm longa, extus glabra. Stamina thecis inappendiculatis instructa. Staminiodium ecapitatum, 0,5 mm longum. Ovarium glabrum. Capsula glabra 4 mm longa, acuta.

Habitat Peninsulam Malayanam.

MALAY PENINSULA. Perlis: Kangar, "in rice fields," Ridley 15150 (SING, K, typi).

2. *Staurogyne candelabrum* Brem. nov. spec.

Species subgeneris *Tetrastichi* et inter species huius subgeneris quae ex axillis fere omnibus ramos floriferos emittunt et thecis basi inappendi-

culatis instructae sunt inflorescentiis spiciformibus, foliis et subsessilibus et omnibus oppositis *St. polybotryae* (Nees) O. Ktze et *St. viscidae* (Ridl.) Brem. similis, a priore foliis angustioribus, calycis lobo postico acuto, ab ulteriore ramis fastigiatis, caule paulo brevioribus, foliis spatulatis, floribus omnibus foliis penninerviis magnitudine redactis suffultis, bracteolis acutis, corolla et capsula majoribus distinguenda.

Herba erecta, 10—22 cm alta, interdum ex axillis fere omnibus ramos in inflorescentias exeuntes emittens; rami ascendentes, fastigiati, caule paulo humiliores. Caulis ramique 4-costulati, primum pilis capitatis et ecapitatis mixtis dense hirtelli; indumentum diu persistens; caulis ad apicem 0,8—1,2 mm diam., basin versus usque ad 2,2 mm incrassatus; internodia 0,6—4 cm longa. Folia omnia opposita, basin versus valde contracta sed haud distincte petiolata, spatulata, 2,5—4,5 cm longa et 0,6—1,4 cm lata, plana, apice subobtusata, infra medium in partem cuneatam contracta, paulum discoloria, sicc. supra olivacea, subtus dilute olivacea, primum utraque facie puberulo-pubescentia, deinde facie inferiore costa excepta glabrescentia, nervis utroque latere costae 4—6. Inflorescentiae fere omnes terminales, spiciformes, totae pilis capitatis hirtellae. Flores omnes foliis magnitudine gradatim redactis suffulti; folia flores inferiores suffulcientia spatulata, folia flores superiores suffulcientia obovata, acuta, ultimo usque ad 6 mm longa et 1,5 mm lata. Bracteolae lineares, 4 mm longae et 0,5 mm latae, acutae. Calycis lobus posticus 7 mm longus et 1,3 mm latus, acutus, 3-nerviis; lobi antichi 6,5 mm longi et 0,5 mm lati, acuti; lobi laterales 5,7 mm longi et 0,4 mm lati, acutissimi; omnes ut folia flores suffulcientia bracteolaeque pilis capitatis hirtelli. Corolla lilacina, 9 mm longa, extus glabra. Stamina thecis inappendiculatis instructa. Staminodium ecapitatum, vix 0,4 mm longum. Ovarum glabrum, Capsula glabra 6 mm longa, acuta.

Habitat Sumatrae partem septentrionalem.

SUMATRA. Atjeh: s.l., alt. 1000—1400 m, "in open *Pinus merkusii* forest," van Steenis 6279 (BO, SING, L, typi).

The habitat looks somewhat unusual for a species belonging to this subgenus. It is possible that the plant was collected in a clearing, but even if it grew in the *Pinus merkusii* forest itself, which is a kind of tree savannah, it was exposed to a far more intense illumination than the *Eustauogyne* species receive in the undergrowth of the rain forest.

3. STAUROGYNE SPATULATA (Bl.) Kds

Stauogyne spatulata (Bl.) Kds, Exkursionsfl. Java 3: 211. 1912; *Adenonema spatulatum* Bl., Bijdr. Fl. Ned. Ind. 757. 1826; *Ebermaiera spatulata* (Bl.) Hassk., Cat. Hort. bogor. alt. 147. 1844²; Nees in DC., Prodr. 11: 74, 1847, speciminibus in India et in Philippinis lectis exclusis; eodem modo Miq., Fl. Ind. bat. 2: 772. 1858; *E. glauca* Nees var. *spatulata* (Bl.) C. B. Clarke in Hook. f., Fl. Brit. Ind. 4: 396. 1884 quoad

² Fide Nees in DC., Prodr. 11: 74 et Miq., Fl. Ind. bat. 2: 772; in the copy of Hasskarl's work in the library of the Botanical Museum, Utrecht, the name is omitted; the list of species begins here with "2. *E. elongata*."

typum; Boerl., Handl. Fl. Ned. Ind. 2: 656. 1899; *Stauropogon glauca* (Nees) O. Ktze var. *spatulata* C. B. Clarke in Bull. Herb. Boiss. II 5: 716. 1905.

Inter species ex axillis fere omnibus ramos floriferos emittentes et thecis basi inappendiculatis instructas, foliis petiolatis, inferioribus solis oppositis *St. glaucae* (Nees) O. Ktze, *St. glutinosae* (C. B. Clarke) O. Ktze, *St. zeylanicae* (Nees) O. Ktze, *St. thyrsoideae* (Nees) O. Ktze similis, a *St. glauca* numero minore florum qui foliis suffulti sunt, bracteolis acutis, calycis lobo postico et angustiore et acuto, a *St. glutinosa* caule erecto, inflorescentiis elongatis, a *St. zeylanica* et *St. thyrsoidea* inflorescentiis pilis capitatis hirtellis, a *St. zeylanica* insuper bracteis brevioribus, a *St. thyrsoidea* bracteis obovatis distinguenda.

Herba erecta, 10—60 cm alta, haud raro ex axillis fere omnibus ramos in inflorescentias exeuntes emittens, casu quo plus minusve pyramidalis. Caulis ramique ecostulati, primum pilis capitatis dense hirtelli, basin versus glabrescentes; caulis ad apicem 1—1,4 mm diam., basin versus usque ad 3,5 mm incrassatus; internodia 1,0—2,2 cm longa. Folia inferiora sola opposita, alia subopposita vel alternantia, omnia in petiolum pilis capitatis dense hirtellum, 0,3—1,0 cm longum contracta; lamina foliorum ad medium caulem insertorum spatulata, plerumque 3,5—5 cm longa et 1,3—1,8 cm lata, foliorum superiorum gradatim magnitudine et praesertim latitudine decrescens et in bracteam vergens, foliorum omnium apice subacuta vel subacuminata, basi cuneata vel sensim contracta, discolor, sicc. supra olivacea vel saturate brunnea, subtus griseo-viridis, primum utraque facie satis dense pilosa, mox costae facie inferiore excepta glabrescens, nervis utroque latere costae 9—11. Inflorescentiae terminales et axillares, spiciformes, pilis capitatis hirtellae; inflorescentia terminalis usque ad 18 cm longa. Flores inferiores inflorescentiae terminalis semper foliis magnitudine reductis suffulti; flores inferiores inflorescentiarum axillarum plerumque ut flores alii bracteis obovatis, in var. *spatulata* 6 mm longis et 2,2 mm latis, in var. *grandi* 15 mm longis et 5 mm latis, cuspidatis et 3-nerviis suffulti. Bracteolae lineares, supra medium tamen paulum dilatatae, apice acutissimae, in var. *spatulata* 6 mm longae et 1,1 mm latae, in var. *grandi* 9 mm longae. Calycis lobus posticus bracteolis similior, 3-nerviis, in var. *spatulata* 7 mm longus et 1,1 mm latus, in var. *grandi* 11 mm longus; lobi antici in var. *spatulata* 6 mm longi et 0,4 mm lati, in var. *grandi* 8,5 mm longi; lobi laterales supra medium sensim attenuati, in var. *spatulata* 5,5 mm longi et 0,4 mm lati, in var. *grandi* 7,8 mm longi; omnes ut bracteeae bracteolaeque pilis capitatis hirtelli. Corolla alba vel rosea, 9 mm longa, extus glabra. Stamina thecis inappendiculatis instructa. Staminodium ecapitatum, parvum. Ovarium glabrum. Capsula glabra, 6 mm longa et 1,2 mm diam.

Habitat Javam et Sumatram.

Var. SPATULATA.

Bracteis 6 mm longis et 2,2 mm latis, bracteolis 6 mm longis et 1,1 mm latis, calycis lobo postico 7 mm, lobis anticis 6 mm, lobis lateralibus 5,5 mm longis cognoscenda.

Habitat Javam, ubi ab altitudine maris usque ad 150 m supra mare reperta est.

JAVA. Djakarta (Batavia): Djakarta (Batavia), *Blume s.n.* (L, typus). — Cheribon: between Haurgeulis and Tjipunegara, alt. 25 m, *Backer 16858* (BO, L); Indramaju, alt. 25 m, *van Steenis 8629* (BO); Djatiwangi, alt. 5 m, *Altmann 539* (BO, NY). — Djapara-Rembang: Kudus, alt. 15 m, *Houwing 537, 843, 879* (L); between Blora and Randublatung, alt. 30 m, *Blokhuis s.n.* (BO). — Bodjonegoro: between Bodjonegoro and Baureno, alt. 40 m, *Leenart 106* (BO). — Madiun: Ngawi alt. 50 m, *coll. Landbouwk. Inst. 5* (BO); Pilangredjo, alt. 120 m, *Wiase 90* (BO). — Kediri: Wengkal, alt. 150 m, *Grutterink 3237* (BO). — Surabaya: Muntang, alt. 65 m, *Bremekamp s.n.* (L). — Pasuruan: Kepuh, alt. 75 m, *Backer 38123* (BO); Kedjajan, alt. 25 m, *Kooper 537* (BO).

Var. *grandis* Brem. *nov. var.*

Spicis longioribus et bracteis 15 mm longis et 5 mm latis, bracteolis 9 mm, calycis lobo postico 11 mm, lobis anticis 8,5 mm, lobis lateralibus 7,8 mm longis a typo recedens.

Habitat Sumatram.

SUMATRA. Tapanuli: Hutarimbaru (Div. Padangsidempuan, Subdiv. Padanglawas), *Rahmat 4785* (NY, US, UC, var. typi).

The reduction of *Ebermaiera spatulata* (Bl.) Hassk. to a variety of *E. glauca* Nees by Clarke in the "Flora of British India" was nomenclaturally as well as taxonomically a mistake. As stated above *Staurogyne spatulata* differs from *St. glauca* by the smaller number of flowers that are subtended by leaves instead of bracts, by the acute instead of obtuse bracteoles, and by the narrower and acute posticous calyx lobe, and these differences are of sufficient importance to justify our view that the plants are specifically distinct. It should further be noted that the specimens from India and Burma cited by Clarke do not belong to *St. spatulata*. The variety *grandis* differs rather conspicuously from the variety *spatulata*, but so long as but one collection is known, it seems better to regard it as a variety.

4. STAUROGYNE NEESII (Vidal) C. B. Clarke.

Staurogyne neesii (Vidal) C. B. Clarke ex Merr., Enum. Philipp. flow. Pl. 3: 468, 1923 quoad typum, haud quoad specimen ab Edaño in provincia Zambales lectum, cf. *St. subcapitata* Brem.; *Ebermaiera neesii* Vidal, Phan. Cuming. Philipp. 34. 1885; *Staurogyne glauca* (Nees) O. Ktze var. *neesii* (Vidal) R. Benoist in Bull. Soc. bot. France 1913: 266, id. in Fl. gén. Indo-Chine 4: 625. 1935 quoad typum; *E. spatulata* (Bl.) Hassk. in errore apud Nees in DC., Prodr. 11: 74. 1847 quoad specimen filippinum, eodem modo F. Vill., Novis. App. 152. 1880, Vidal, Phan. Cuming. Philipp. 132. 1885 et Rev. Pl. vasc. filip. 203. 1886, non Hassk., Cat. Hort. bogor. alt. 147. 1844 quae est *Staurogyne spatulata* (Bl.) Kds.

Inter species caule suberecto vel e basi decumbente ascendente instructas, ex axillis haud raro brachyblastos steriles sed numquam ex axillis fere omnibus ramos floriferos emittentes, thecis basi appendiculatis munitas cum *St. rivulari* Merr. sola comparanda, indumento caulis juvenilis e pilis capitatis consistente, foliis inferioribus solis oppositis, foliis omnibus latioribus, obtusis et numero minore nervorum instructis, floribus sessilibus, bracteolis linearibus 1-nerviis, calycis lobo postico 1-nervio et lobis anticis et lateralibus inaequilongis, corolla longiore ab ea recedens.

Herba suberecta, 12—20 cm alta, simplex vel parce ramosa, haud raro ex axillis brachyblastos steriles, foliis minimis instructos producens. Caulis primum pilis capitatis dense hirtellus, basin versus plus minusve glabrescens, ubique circ. 1 mm diam., internodiis 0.5—3 cm longis. Folia inferiora sola opposita, alia alternantia, omnia in petiolum sparse pubescentem 1—5 mm longum contracta; lamina ovata, ovato-oblonga vel oblonga, foliorum ad medium caulem insertorum 3—4 cm longa et 1.4—1.6 cm lata, apice obtusa, basi cuneata vel contracta, discolor, sicc. supra olivacea, subtus griseo-viridis, primum supra dense pubescens, subtus costa et margine densius, alibi sparse pubescens, deinde facie inferiore costae excepta glabrescens, nervis utroque latere costae 5—7. Inflorescentia caulem terminans interdum inflorescentiis aliquibus ramos longiores terminantibus comitata, spiciformis. Folia flores inferiores suffulcencia gradatim magnitudine decrescentia, apice obtusissima; bracteae florum aliorum obovatae, 9 mm longae et 3.5 mm latae, apice acutae, margine et facie inferiore pilis capitatis hirtellae, 1-nerviae. Bracteolae lineares, 7.5 mm longae et 1 mm latae, acutae, pilis capitatis densius hirtellae, 1-nerviae. Calycis lobus posticus linearis 7 mm longus et 1 mm latus, acutus, 1-nervius; lobi anticis lineares 6 mm longi et 0.3 mm lati; lobi laterales anguste triangulares 4.8 mm longi et prope basin 0.2 mm lati; omnes pilis capitatis dense hirtelli. Corolla 10 mm longa, extus glabra. Stamina thecis basi appendiculatis instructa. Staminodium ecapitatum 2 mm longum. Ovarium glabrum. Capsula glabra 6 mm longa.

Habitat insulam filippinam Luzon dictam.

PHILIPPINES. Luzon: Prov. Albay, *Cuming 1083* (K, G, L, FI, exempla typi).

In the literature the specimen is said to have been collected in the province Zambales, but the label of the specimen preserved in the Kew Herbarium states that it was found in the province Albay. The species has apparently but once been collected. The second specimen quoted by Merrill (*l.c.*) belongs to *Staurogyne subcapitata* Brem. *vide infra*, and the specimens collected in Indo-China and referred here by Benoist are also specifically distinct.

5. STAUROGYNE RIVULARIS Merr.

Staurogyne rivularis Merr. in Philipp. J. Sci. 7: 247, 1912; Fl. Manila 441, 1912; id., Enum. Philipp. flow. Pl. 3: 468, 1923.

Inter species caule suberecto vel e basi decumbente, haud raro brachyblastos steriles producente sed numquam ex axillis fere omnibus ramos floriferos emittente necnon thecis basi appendiculatis *St. neesii* (Vidal) C. B. Clarke ex Merr. similior sed indumento caulis juvenilis e pilis ecapitatis consistente, foliis omnibus in paria dispositis et insuper angustioribus, acutis vel subacutis et numero majore nervorum instructis, floribus pedicello 0,5 mm longo munitis, bracteolis subspatulatis 3-nerviis, calycis lobo postico 3-nervio, lobis lateralibus anticis aequilongis, corolla brevior ab ea recedens.

Herba suberecta vel e basi decumbente ascendens, haud raro pluricaula, ex axillis haud raro brachyblastos steriles foliis minimis instructos producens. Caulis pilis ecapitatis primum dense, deinde sparse hirtellus, ad apicem 0,4—0,8 mm diam., basin versus usque ad 1,5 mm incrassatus, internodiis 2—7 cm longis. Folia sterilia omnia opposita, in petiolum pubescentem 1—4 mm longum contracta; lamina lanceolata, 2—4 cm longa et 6,5—11 mm lata, apice acuta vel subacuta, discolor, sicc. supra olivacea, subtus griseo-viridis, supra primum pilis brevissimis cum pilis aliquibus robustioribus mixtis densius pubescens, subtus minute papillosa, deinde facie inferiore costae excepta utrimque glabrescens, nervis utroque latere costae 8 vel 9. Inflorescentiae caulem ramosque principales terminantes. Flores inferiores vel omnes foliis alternantibus, magnitudine gradatim decrescentibus, apice acutis suffulti; internodia inferiora rachidis satis longa; flores superiores interdum bracteis obovatis acutis, pilis capitatis hirtellis, 3-nerviis suffulti. Pedicelli circ. 0,5 mm longi. Bracteolae subspatulatae, 5,2—5,8 mm longae et 1,2 mm latae, subacutae 3-nerviae, pilis capitatis dense hirtellae. Calycis lobus posticus linearis, 7 mm longus et 1,0 mm latus, acutus, 3-nervius; lobi antici et laterales aequales, anguste triangulares, 5,2 mm longi, basi 0,4 mm lati, 1-nervii; omnes pilis capitatis hirtelli. Corolla 8 mm longa, extus glabra. Stamina thecis basi appendiculatis instructa. Staminodium ecapitatum, 0,5 mm longum. Ovarium glabrum. Capsula glabra, 5 mm longa.

Habitat insulam filippinam Luzon dictam.

PHILIPPINÆ. Luzon: Manila, *Merrill 7396* (K, L, exempla typi); Rizal, Masabong, *Merrill 755* (US, G, FI, U); Isabela, San Mariano, *Ramos & Eduño B.Sc.46871* (SING, K, US).

The last-quoted specimen has larger leaves (up to 7 cm long and 1,3 cm wide) and a laxer inflorescence than the other ones, but this may be due to a more shaded or more humid habitat; there is also a slight difference in length between the lateral and anticous calyx lobes, but this is very slight indeed.

Subgenus 2. *Eu-staurogyne* Brem. nov. subgen.

A subgenere *Tetrasticho* floribus omnibus a bracteis suffultis et ovulis utroque loculo 12—40 in series 2 dispositis distinguendum.

Caulis monopodialis vel sympodialis. Folia sterilia omnia opposita. Inflorescentiae plerumque caulem et ramos foliatis terminantes, interdum

tamen a brachyblastis axillaribus productae, spiciformes, racemiformes vel paniculiformes, rarius subcapituliformes; inflorescentia terminalis interdum post anthesin in positionem lateralem coacta. Flores omnes bracteis suffulti; bractee 5-, 3- vel 1-nerviae, rarissime (*St. subcapitata* Brem. v. infra) florum inferiorum penninerviae, casu quo nervi omnes tamen in nervos duos marginales collecti. Calycis lobi inaequales vel aequales. Corolla intus ad insertionem staminum plerumque barbata, limbo subregulari. Filamenta pilis capitatis interdum cum pilis ecapitatis mixtis hirtella; thecae inappendiculatae. Granula pollinis globosa. Ovula utroque loculo maxime 40, in series 2 disposita.

Speciebus numerosis in Asia tropicali distributum.

TYPUS subgeneris: *St. argentea* Wall.

The subgenus *Eu-staurogyne* is easily distinguishable from the subgenus *Tetrastichum* by the arrangement of the ovules in two instead of in four rows; its representatives, moreover, are found in the shade of the forest, whereas the species belonging to *Tetrastichum* prefer more sunny habitats.

Eu-staurogyne comprises two easily distinguishable sections, viz. *Staurogynium* Brem. with inflorescences that are formed at the end of ordinary stems and branches, and *Maschalanthus* Brem. with inflorescences borne by opposite brachyblasts that are so short that it looks as if the inflorescences are axillary. It is not impossible that further study will lead to the conclusion that these sections are better regarded as subgenera, but in view of the fact that I had to refer to the section *Maschalanthus* two species that are insufficiently known and whose characters may disagree in some respects from those of the other ones, it was as yet impossible to define this group in a more precise way, and in order to avoid the danger of overestimating the value of the difference between the two groups, I have given them the rank of section.

Sectio I. *Staurogynium* Brem. nov. sect.

A sectione *Maschalantho* inflorescentiis minime nonnullis caulem ramosque normaliter foliatos terminantibus distinguenda.

Caulis monopodialis vel sympodialis. Inflorescentiae nonnullae caulem et ramos normaliter foliatos terminantes, interdum inflorescentiis aliquibus axillaribus comitatae, spiciformes, racemiformes vel paniculiformes, rarius capituliformes, post anthesin interdum in positionem lateralem coactae. Bractee et calycis lobi forma et magnitudine variabiles.

Speciebus numerosis in Asia tropicali distributa.

TYPUS sectionis: *St. argentea* Wall.

The section *Staurogynium* comprises three subsections, viz. the *Macrosepala* with rather large calyx lobes, the posticous one being at least

half as long as the connate part of the corolla, the *Macrochlamydeae* with short calyx lobes and with bracts that are several times as long as the latter, and the *Microchlamydeae* where the bracts as well as the calyx lobes are short; in the two latter subsections the calyx lobes are always less than half as long as the connate part of the corolla.

Subsectio 1. **Macrosepalae** Brem. nov. subsect.

A subsectionibus *Macrochlamydearum* et *Microchlamydearum* longitudine calycis lobi postici qui partem connatam corollae minime usque ad medium tegit distinguenda.

Caulis monopodialis vel sympodialis. Inflorescentiae variae. Pedunculus plerumque internodio brevi pari foliorum magnitudine redactorum instructo praecessus. Bracteae angustae. Calycis lobi inaequales vel aequales; lobus posticus partem connatam corollae minime usque ad medium tegens.

Speciebus numerosis in Asia tropicali distributa.

TYPUS subsectionionis: *St. argentea* Wall.

The subsection *Macrosepalae* comprises several well-marked groups, which have here been united into two series, the *Heterosepalae* with unequal calyx lobes, the lateral lobes being narrower and usually also distinctly shorter than the other ones, and the posticus lobe being wider and not rarely somewhat longer than the anticous ones, and the *Isosepalae* with equal calyx lobes. The *Heterosepalae* occur in Indo-China and in the western part of the Malay Archipelago; the only species occurring well outside this area being *St. dasystachya* Brem., which was collected in New Guinea. As neither the corolla nor the ovary and fruit are known, it is impossible to indicate its affinities, but as it differs from all its allies by the lax, distinctly pedunculate inflorescence with sessile flowers, by bracts that are distinctly shorter than the calyx lobes, and bracteoles that are slightly longer than the latter, we may safely assume that it occupies a rather isolated position in this series. The remaining species are more closely related. For their subdivision use has been made of the presence or absence of septate hairs on the upper side of the leaf. These hairs are rather long in *St. griffithiana* (Nees) O. Ktze, *St. arcuata* C. B. Clarke, *St. ranaensis* Brem., *St. havilandii* C. B. Clarke ex Brem. and *St. sundana* Brem., and very short, although consisting of a considerable number of cells, in *St. setigera* (Nees) O. Ktze, *St. subcapitata* Brem. and *St. incana* (Bl.) O. Ktze, three species that in their mode of growth too show considerable similarity, the stems being creeping and monopodial, the leaves small and the flowers subcapitate. Among the species whose leaves are on the upper side either glabrous, puberulous or scabridulous there is also a group with

sessile or subsessile flowers; it consists of *St. malaccensis* C. B. Clarke, *St. condensata* (Ridl.) Brem. and *St. lanceolata* (Bl.) O. Ktze. Among the species with pedicellate flowers *St. kingiana* C. B. Clarke occupies a somewhat isolated position on account of its long filiform bracts and calyx lobes, while *St. lasiobotrys* (Nees) O. Ktze differs from the other species by the shortness of the bracts and bracteoles and by its paniculiform inflorescence. Of the four remaining species *St. cremostachya* Brem. (*St. comosa* O. Ktze nom. illeg.) is easily distinguishable by its reflexed inflorescences, and *St. longifolia* (Nees) O. Ktze by its inside completely glabrous corolla and by the insertion of the bracteoles at the top of the pedicel instead of somewhat lower as in the other species with pedicellate flowers. The two remaining species, *St. subglabra* C. B. Clarke and *St. elongata* (Bl.) O. Ktze, are evidently nearly related. The series *Isosepalae* is almost entirely confined to Borneo and the eastern part of the Archipelago and New Guinea; it comprises but one species occurring outside this area, viz. the Sumatran *St. anomala* Brem., and the latter occupies on account of the small number of ovules an aberrant position in this series, without showing definite relations with the groups that are brought together in the series *Heterosepalae*. The Bornean species differ from those occurring in the eastern part of the area in a larger number of ovules and in the insertion of the bracteoles at the top of the pedicel instead of a little way below the latter.

KEY TO THE MALESIAN SPECIES OF THE SUBSECTION MACROSEPALAE

1. Lateral calyx lobes always much narrower and usually shorter than the other ones.
 - Series 1. *Heterosepalae*
 2. Upper side of the leaf strewn with septate hairs.
 3. Septate hairs on the upper side of the leaf rather long. Leaves at the base of the peduncle always much reduced in size. Inflorescence elongate. Flowers distinctly pedicellate.
 4. Bracts linear-lanceolate or lanceolate, 5-nerved. Corolla white.
 5. Most of the leaves with rounded base; the septate hairs on the upper side rather densely set. Lateral calyx lobes more than half as long as the other ones. 6. *St. griffithiana* (Nees) O. Ktze
 - 5: Leaves with subobtusate base; the septate hairs on the upper side far apart. Lateral calyx lobes less than half as long as the other ones.
 7. *St. sundana* Brem.
 - 4: Bracts linear, 3-nerved. Corolla red or purple.
 6. Stem pubescent. Most of the leaves with rounded base; the under side without septate hairs.
 7. Inflorescence nodding and densely pubescent. Pedicels circ. 5 mm long. Calyx lobes of equal length. 8. *St. arcuata* C. B. Clarke

- 7: Inflorescence suberect and subglabrous. Pedicels 1.5—2 mm long. Calyx lobes of unequal length. 9. *St. ranaensis* Brem.
- 6: Stem villous. Leaf base always acute; underside of the leaf covered with septate hairs. 10. *St. kavilandii* C. B. Clarke ex Brem.
- 3: Septate hairs on the upper side of the leaf very short. Leaves at the base of the sessile or subsessile inflorescence usually of normal size. Inflorescence contracted. Flowers sessile or subsessile.
8. Stem and petioles strigose. The lowest pair of bracts not markedly different from the other ones; all 11—13 mm long and densely ciliate. Posticous calyx lobe 12.5 mm long and at least 2.5 mm wide. 11. *St. setigera* (Nees) O. Ktze
- α. Height not exceeding 20 cm. Leaves mostly 3—5 cm long and 1.2—2.4 cm wide, rarely up to 9 cm long and 3.8 cm wide. Inflorescence after anthesis not markedly elongated, var. *setigera*
- α: Height up to 30 cm. Leaves up to 11 cm long and 4.2 cm wide. Inflorescence after anthesis elongated, var. *grandis* Brem.
- 8: Stem and petioles pubescent. The lowest pair of bracts more or less foliaceous and larger than the other ones; the latter 3.5—8 mm long and either subglabrous, puberulo-pubescent or sparsely ciliate. Posticous calyx lobe 8—10 mm long and at the most 2 mm wide.
9. Bracts and bracteoles puberulo-pubescent, along the margin with a few long ciliae; the lowest bracts obovate or elliptic, 12 mm long and 7 mm wide. Corolla 10 mm long. 12. *St. subcapitata* Brem.
- 9: Bracts subglabrous, the lowest ones lanceolate, 8 mm long and 2.5 mm wide; bracteoles towards the top sparsely ciliate. Corolla 16—18 mm long. 13. *St. incana* (Bl.) O. Ktze
- 2: Upper side of the leaf either glabrous, sparsely puberulous or scabridulous.
10. Flowers distinctly pedicellate.
11. Bracts and calyx lobes filiform. 14. *St. kingiana* C. B. Clarke
- α. Petioles 1.5—4 cm long. Leafblade rarely more than 20 cm long; on each side of the midrib with 13 or 14 nerves.
- β. Leafblade lanceolate-oblong, oblong or elliptic, 2.8—8 cm wide.
- γ. Calyx lobes very slightly ciliate, nearly glabrous at the back, var. *kingiana*
- γ: Calyx lobes distinctly ciliate, densely pubescent at the back, var. *pubicalyx* Brem.
- β: Leafblade linear, 11—18 cm long and 2—3.2 cm wide, var. *angustifolia* Brem.
- α: Petioles 5—8 cm long. Leafblade 25—30 cm long and 7.5—9 cm wide, on each side of the midrib with 23—25 nerves, var. *magnifolia* Brem.
- 11: Bracts, and the three larger calyx lobes too, linear, linear-lanceolate or lanceolate.
12. Bracts and bracteoles about half as long as the calyx. Inflorescence paniculiform. 15. *St. lasiobotrys* (Nees) O. Ktze
- 12: Bracts and bracteoles about as long as the calyx. Inflorescence racemiform or branched at the base only.
13. Inflorescence erect or nodding.
14. Corolla at the insertion of the stamens bearded. Bracteoles inserted somewhat below the top of the pedicel.

15. Stem densely pubescent. Leaves at first sparsely puberulous. Pedicels suberect. Calyx lobes hirtellous.
 a. Inflorescence glandular-hirtellous, . . . var. *elongata*
 a: Inflorescence hirtellous, . . . var. *sumatrana* Brem.
- 15: Stem at first sparsely pubescent but soon entirely glabrous. Upper side of the leaf glabrous. Pedicels patent. Calyx lobes completely glabrous.
 17. *St. subglabra* C. B. Clarke
 a. Leaves oblong, ovate-oblong or elliptic-oblong; top acute, var. *subglabra*
 a: Leaves linear-lanceolate; top acuminate, var. *prianganensis* Brem.
- 14: Corolla inside entirely glabrous. Bracteoles inserted at the top of the pedicel. . . . 18. *St. longifolia* (Nees) O. Ktze
- 13: Inflorescence reflexed, 19. *St. cremostachya* Brem.
- 10: Flowers sessile or subsessile.
16. Bracts nearly as long as the bracteoles and calyx lobes.
 17. Bracts and bracteoles contracted in a 1—1.5 mm long subulate point.
 20. *St. malaccensis* C. B. Clarke
 a. Leaves lanceolate, 4.7—14 cm long and 1.7—3.3 cm wide, acute or subacute, var. *malaccensis*
 a: Leaves for the greater part linear-oblong, 2—12 cm long and 0.7—1.7 cm wide, subacute or obtuse, . . . var. *stenophylla* Brem.
- 17: Bracts and bracteoles acute.
 18. Lateral calyx lobes half as long as the other ones. Spikes short and condensed into a subglobose mass.
 21. *St. condensata* (Ridl.) Brem.
- 18: Lateral calyx lobes but slightly shorter than the other ones. Spikes elongated and usually solitary.
 22. *St. lanceolata* (Bl.) O. Ktze
 a. Upper side of the leaf sparsely puberulous, . . . var. *lanceolata*
 a: Upper side of the leaf scabridulous, . . . var. *scabridula* Brem.
- 16: Bracts distinctly shorter than the bracteoles and calyx lobes; bracteoles slightly longer than the latter. . . . 23. *St. dasystachya* Brem.
 Series 2. *Isosepalae*
19. Inflorescences in triads that already at anthesis are shifted to a lateral position. Ovary cells with 12 ovules. 24. *St. anomala* Brem.
- 19: Inflorescences usually solitary and at anthesis always terminal. Ovary cells with at least 25 ovules.
20. Bracteoles inserted at the top of the pedicel. Ovary cells with 36—40 ovules. Bornean species.
21. Stem and petioles tomentellous. Inflorescence papillose. Calyx lobes ciliate. 25. *St. jakerii* Brem.
 a. Leaves oblong or elliptic, 3—7.5 cm long and 0.9—9 cm wide, var. *jakerii*
 a: Leaves linear, 2.4—5.0 cm long and 0.5—1.1 cm wide, var. *angustifolia* Brem.
- 21: Stem and petioles glabrous. Inflorescence glabrous. Calyx lobes ciliate.
 26. *St. kinabaluensis* Brem.

- α. Leaves oblong or narrowly elliptic, 4—9.5 cm long and 2.8—3.7 cm wide, var. *kinabaluensis*
 α: Leaves lanceolate, 4—8 cm long and 1.5—2.3 cm wide, var. *angustifolia* Brem.
- 20: Bracteoles inserted at some distance below the top of the pedicel. Ovary cells with 28—32 ovules. Species from the eastern part of the Archipelago and New Guinea.
22. Calyx lobes usually not more than 8 mm, rarely up to 10 mm long.
- 23: Upper side of the leaf at first densely strewn with long septate hairs.
24. Leaves with a cuneate or contracted base, on each side of the midrib with 4—6 nerves. Peduncle, rachis and pedicels with capitate hairs. 27. *St. samarensis* Brem.
- 24: Leaves with a rounded base but near the petiole more or less contracted, on each side of the midrib with 6—8 nerves. Peduncle, rachis and pedicels with ecapitate hairs. 28. *St. panayensis* Brem.
- 23: Upper side of the leaf either glabrous, scabridulous or strigulose.
25. Pedicels 2.5—3 mm long. Calyx lobes eciliate or sparsely ciliate. 29. *St. debilis* (T. And.) C. B. Clarke ex Merr.
- α. Height 6—20 cm. Stem and petioles tomentose. Midrib and nerves on the underside pubescent.
- β. Calyx lobes 6—8 mm long. Leaves on the upper side glabrous or strigulose.
- γ. Leafblade 1.7—8 cm long, on the upper side glabrous. Calyx lobes sparsely ciliate, var. *pubifolia* Brem.
- γ: Leafblade 1.2—4 cm long, on the upper side strigulose. Calyx lobes sparsely ciliate. Var. *pubifolia* Brem.
- β: Calyx lobes 8—10 mm long. Leaves on the upper side scabridulous, var. *tomentosa* Brem.
- α: Height 18—25 cm. Stem and petioles tomentellous. Midrib and nerves on the underside strigose. Calyx lobes 8—10 mm long.
- δ. Leaves 4—12 cm long and 1.4—2.7 cm wide, var. *longifolia* Brem.
- δ: Leaves 2—4 cm long and 0.4—0.8 cm wide, var. *angustifolia* Brem.
- 25: Pedicels at least 3.5 mm long. Calyx lobes conspicuously ciliate.
26. Stem and petioles appressed pubescent. Leaves elliptic. Peduncle and rachis hirtellous. Internodes of the rachis 6—8 mm long. 30. *St. ophiorrhizoides* Elm.
- 26: Stem and petioles densely tomentose. Leaves linear or linear-oblong. Peduncle and rachis covered with capitate hairs. Internodes of the rachis 4—6 mm long. 31. *St. ciliata* Elm.
- 22: Calyx lobes at least 12 mm long.
27. Leaves with 5—7 nerves on each side of the midrib. Bracteoles 7—9 mm long. Calyx lobes subglabrous. Capsule 5 mm long. 32. *St. amboinica* Brem.
- 27: Leaves with 7—12 nerves on each side of the midrib. Bracteoles 5—7 mm long. Calyx lobes conspicuously hirtellous. Capsule 8 mm long. 33. *St. papuana* Laut.
- α. Upper side of the leaf at first strigulose. Peduncle, rachis and pedicels hirtellous, var. *papuana*
 α: Upper side of the leaf from the beginning glabrous. Peduncle, rachis and pedicels papillose, var. *glabrifolia* Brem.

Series 1. *Heterosepalae* Brem. nov. ser. (Species 6—23)

Calycis lobi laterales alii semper angustiores et plerumque breviores; lobus posticus anticis plerumque longior et praesertim latior.

6. *STAUROGYNE GRIFFITHIANA* (Nees) O. Ktze

Staurogyne griffithiana (Nees) O. Ktze, Rev. Gen. Pl. 1: 497. 1891; C. B. Clarke in J. As. Soc. Beng. 74: 640. 1908; Ridl., Fl. Mal. Pen. 2: 561. 1923; *Erythraeanthus griffithianus* Nees in DC., Prodr. 11: 78. 1847; *Ebermaiera griffithiana* (Nees) T. And. in J. Linn. Soc. (Bot.) 9: 452. 1867; C. B. Clarke in Hook. f., Fl. Brit. Ind. 4: 800. 1884; Ridl. in Trans. Linn. Soc. II 3: 332. 1893; Boerl., Handl. Fl. Ned. Ind. 2: 656. 1899; Ridl. in J. As. Soc. Str. Br. 121. 1900; — *Erythraeanthus obtusus* Nees in errore apud Wight, Ic. t. 1491. 1849.

Inter species *Heterosepalarium* foliis supra pilis valvulatis longis pubescentibus, inflorescentiis elongatis necnon floribus pedicellatis instructas bracteis latioribus 5-nerviis, corolla alba cum *St. sundana* Brem. v. infra quadrans, caule monopodiali, foliis pluribus basi rotundatis, supra densius pubescentibus, calycis lobis lateralibus aliis paulo solum brevioribus ab ea recedens.

Herba unicaula 10—20 cm alta. Caulis e basi decumbente ascendens, monopodialis, ad apicem densius pubescens, basin versus glabrescens, 1,5—2,5 mm diam., internodiis 0,5—3,5 cm longis. Folia petiolo 1,5—3 cm longo, sparse pubescente instructa; lamina oblonga 4,5—12 cm longa et 2,2—6,5 cm lata, apice obtusa, basi rotundata vel in foliis aliquibus subacuta, ad petiolum tamen semper contracta, sicc. supra olivacea, subtus dilute brunnea vel dilute olivaceo-brunnea, supra pilis valvulatis densius pubescens, subtus costa nervis venulis pubescentibus exceptis subglabra, nervis utroque latere costae 5—10. Inflorescentia terminalis, elongata, simplex vel interdum ad basin ramificata. Pedunculus internodiis rachidis subaequilongus et ut rachis glaber vel sparse pubescens. Flores pedicellati. Bractee infimae haud raro steriles, aliae in pedicellum paulo egredientes, lanceolatae vel lineari-lanceolatae, 7—11 mm longae et 3—5 mm latae, acutae, costa et margine hirtellae, dorso extra costam sparse pubescentes. Bracteolae lineares, 10 mm longae et 2 mm latae, 3-nerviae, ceterum ut bractee. Calycis lobus posticus 10,5 mm longus et 1,2 mm latus; lobi antici 9,8 mm longi et 1,0 mm lati; lobi laterales 7 mm longi et 0,5 mm lati; lobi omnes 3-nervi et dorso sparse pubescentes. Corolla alba, extus glabra, intus ad insertionem staminum parce barbata, 17 mm longa. Staminiodium spatulatum, 0,7 mm longum. Ovarium grabrum, utroque loculo ovulis circ. 28. Capsula glabra 5,5 mm longa.

Habitat Peninsulam Malayanam, Sumatram et insulas ad occasum Sumatrae.

SIAM, Lower Siam: Tazan, Kloss 6911 (SING, K; in herbario sub nomine *Ebermaiera viscida* Ridl.). The leaves of these specimens are less distinctly rounded at the base and the calyx lobes are shorter than in the type. Inlay identified them

as *St. incana* (Bl.) O. Ktze, but this too can not be right, as the flowers are distinctly pedicellate and as the indumentum on the upper side of the leaf consists of longer and more numerous hairs.

MALAY PENINSULA. Perak: Tapah, *Haniff S.F.14159* (SING, BO, UC); Temango, *Ridley 14433* (SING); s.l., *Scortechini 40* (SING). — Kelantan: Kuala Pertang, *Haniff & Nur S.F.10373* (SING); Chaning, Feb. 2, 1917, *Ridley s.n.* (SING); Kuala Aring, *Yapp 162* (K). — Trengganu: Ulu Brang, alt. 100 m, *Moysey & Kiah S.F.33728* (SING, K); near Mt. Pahang, *Moysey & Kiah S.F.33001* (SING, K); Ulu Bendong, Bt. Kajang, *Corner s.n.* (SING). — Pahang: P. Tioman, Ayer Besar, *Nur S.F.18563* (SING, BO, UC), Sedagong, *Nur s.n.* (SING), s.l., *Burkill s.n.* (SING, K); Tahan, *Ridley 2175* (SING). — Selangor: Ginting Bidai, Sept. 23, 1914, *Kloss s.n.* (K, BM); Semenyik, *Hume 8155, 7791* (SING); Sg. Lalang Kajang, *Synington F.D.22944* (SING). — Negri Sembilan: Bt. Sutu, *Alvins 1913* (SING); Bt. Putar, *Nur s.n.* (SING); Mt. Angsi, alt. 600 m, *Nur S.F.11607* (SING, BO); Mt. Tampin, alt. 800 m, *Burkill 2189, 3180* (SING). — Malacca: Bt. Sadanan Reserve, *Ridley 346* (SING), *Goodenough 1509* (SING); s.l., *Griffith H.E.J.5078* (K, typus; id in herb. Wight, "*Erythracanthus obtusus*"). — Johore: Ulu Segun, Mt. Panti, *Corner s.n.* (SING), *Ridley s.n.* (SING); Bt. Tinjan Laut, *Ngadiman S.F.36945* (SING, BRI). — Singapore: Bt. Timah, *Nur S.F.24638* (SING, BO, NY), *Ridley s.n.* (SING), *Sinclair S.F.38811* (SING), *Burkill 3124* (SING), *Hullet 613* (SING, K), *Holtum s.n.* (SING); Kranji, *coll. ign. s.n.* (SING, BO).

SUMATRA. Tapanuli: Padanglawas (Padangsidimpuan), *Rahmat 4637, 4801, 5257* (NY). — East Coast: Asahan, Lumban Ria, *Rahmat 8132, 7342* (US). — West Coast: Padang, Airmantjur, alt. 360 m, *Beccari 7157* (FI). — Bencoolen: Mt. Kaba, alt. 1200 m, *de Voogd 1368* (BO), Kepahiang, alt. 700 m, *de Voogd 1301* (BO, L). The two last-named specimens with very small leaves showing in the herbarium a yellowish-brown discoloration. — MENTAWAI IS.: P. Siberut, s.l., *Boden Kloss S.F.13099* (SING, BO, K). — BATU IS.: P. Batu, Tg. Bata, *Raap 703* (BO).

Staurogyne griffithiana (Nees) O. Ktze is a rather variable species, especially the specimens collected in the northern part of the area (Lower Siam) and in the extreme south (Sumatra, Bencoolen) deviating rather conspicuously from the type. More material will have to be studied before a final decision with regard to the taxonomic importance of these differences can be taken. In the nature of the indumentum *St. griffithiana* shows an approach to the four following species, viz. *St. sundana* Brem., *St. arcuata* C. B. Clarke, *St. ranaiensis* Brem. and *St. havilandii* C. B. Clarke ex Brem., although the hairs are somewhat shorter and far more numerous. From *St. arcuata*, *St. ranaiensis* and *St. havilandii* it differs moreover in the greater width of the bracts and in the white instead of red or purple corolla; from *St. sundana* in the greater length of the lateral calyx lobes and in the monopodial stem.

Wight's misidentification of this easily recognizable species is difficult to understand. *Staurogyne obtusa* (Nees) O. Ktze (*Erythracanthus obtusus* Nees) shows a much greater resemblance to *St. merguensis* (T.

And.) O. Ktze, a species belonging to the subsection *Microchlamydeae*, than to this species [see also my remarks on *St. obtusa* under *St. lasiobotrys* (Nees) O. Ktze].

7. *Staurogyne sundana* Brem. nov. spec.

Inter species *Heterosepalarum* foliis supra pilis valvulatis longis pubescentibus, inflorescentia elongata necnon floribus pedicellatis instructas bracteis latioribus 5-nerviis et corolla alba cum *St. griffithiana* (Nees) O. Ktze quadrans, caule sympodiali, foliis omnibus basi subobtusis, supra sparse pubescentibus, calycis lobis lateralibus aliis plus quam dimidio brevioribus ab ea recedens.

Herba unicaula, 12—30 cm alta. Caulis e basi decumbente ascendens, sympodialis et interdum bifurcatus, ad apicem pilis longioribus densius pubescens, basin versus plus minusve glabrescens, ad apicem 1,2 mm diam., basin versus usque ad 2 mm accrescens, internodiis 0,7—3 cm longis. Folia petiolo primum densius pubescente, 1,5—4,5 cm longo instructa; lamina ovata vel elliptica, 4—9,5 cm longa et 2,4—5,2 cm lata, apice subacuta, basi subobtusa sed ad petiolum semper contracta, sicc. supra olivacea, subtus dilute viridis, supra pilis valvulatis longis sparsa, subtus costa nervis venulis longius pubescentibus exceptis subglabra, nervis utroque latere costae 9—10. Inflorescentia primum terminalis, post anthesin in positionem lateralem coacta, suberecta. Pedunculus internodiis rachidis subaequilongus vel eis paulo longior, densius hirtello-pubescentibus, post anthesin plus minusve glabrescens. Flores pedicellati. Bractee in pedicellum paulo egredientes; infimae interdum ellipticae, aliae semper lanceolatae, 8—10 mm longae et 3—4,5 mm latae, acutae, 5-nerviae, margine et nervis sparse hirtellae et inter nervos pilis capitatis brevissimis punctatae, deciduae. Pedicelli 2—3 mm longi, hirtelli. Bracteolae ad apicem pedicelli insertae, 8 mm longae et 3 mm latae, 3- vel indistincte 5-nerviae, ceterum ut bractee. Calycis lobus posticus 11 mm longus et 1,7 mm latus; lobi antici 9 mm longi et 0,8 mm lati; lobi laterales 4 mm longi et 0,4 mm lati; lobi posticus et antici 3-nervii, lobi laterales 1-nervii; omnes dorso sparse hirtelli. Corolla alba, extus glabra, intus ad insertionem staminum parce barbata, 13—16 mm longa. Staminodium spatulatum, 0,6 mm longum. Ovarium glabrum, utroque loculo ovulis 30. Capsula glabra, 6 mm longa.

Habitat Javam Occidentalem.

JAVA. Banten: Mt. Halimun, alt. 1350 m, *Backer 11184* (BO). — Jakarta (Batavia): Tjirarah, alt. 900 m, *de Voogd s.n.* (BO). — Bogor (Buitenzorg): Mt. Bunder (NW of Mt. Salak), alt. 1000 m, *van Steenis 3993* (BO); Tjampaka near Tjidadap, alt. 1000—1300 m, *Buwaldt 3615* (BO, typus); Tjibangala, alt. 1000 m, *Winkel 65β* (BO, L); Mt. Beser (S of Tjibeber), alt. 1350 m, *Backer 22608* (BO); s.l., *Zollinger 3507* (G).

As stated above, *Staurogyne sundana* Brem. agrees with *St. griffithiana* (Nees) O. Ktze in the lanceolate, five-nerved bracts and in the

white corolla; it differs from that species in the sympodial, occasionally forked stem, in the somewhat longer and far less numerous septate hairs on the upper side of the leaves and in the subobtuse base of the latter, in the greater width of the bracteoles and in the much shorter lateral calyx lobes. In the nature of the indumentum covering the upper side of the leaves it agrees with *St. arcuata* C. B. Clarke, *St. ranaiensis* Brem. and *St. havilandii* C. B. Clarke ex Brem., from which it differs in the wider, five- instead of three-nerved bracts.

8. STAUROGYNE ARCUATA C. B. Clarke

Staurogyne arcuata C. B. Clarke in J. As. Soc. Beng. 74: 640. 1908; Ridl., Fl. Mal. Pen. 2: 561. 1923.

Inter species *Heterosepalarum* foliis supra pilis valvulatis longis pubescentibus, inflorescentiis elongatis necnon floribus pedicellatis instructos bracteis 3-nerviis et corolla colorata cum *St. ranaiensi* Brem. et *St. havilandii* C. B. Clarke ex Brem. quadrans, caule non villosa, foliis plurimis basi rotundatis, pilis valvulatis in facie inferiore foliorum nullis a *St. havilandii*, inflorescentia et nutante et dense pubescente, floribus longius pedicellatis, calycis lobis omnibus subaequilongis ab ambabus distinguenda.

Herba unicaula, 5—20 cm alta. Caulis e basi decumbente ascendens, simplex vel rarius sparse ramosus, parte superiore sympodialis, primum densissime ferrugineo-pubescentibus, basin versus plus minusve glabrescens, ad apicem circ. 2,5 mm diam., basin versus usque ad 3 mm incrassatus, internodiis 0,7—6 cm longis. Folia petiolo 0,5—4 cm longo, dense ferrugineo-pubescente instructa; lamina oblonga, 7—12,5 cm longa et 3,5—6 cm lata, apice obtusa, basi rotundata vel in foliis aliquibus subacuta, sicc. supra saturate brunnea vel subnigra, subtus dilute brunnea, supra pilis valvulatis longis sparsa, subtus costa nervisque dense, venulis sparsius pubescentibus exceptis subglabra, nervis utroque latere costae 9—12. Inflorescentia terminalis, post anthesin in positionem lateralem coacta, curvata. Pedunculus internodiis rachidis aequilongus et ut rachis densius pubescens. Flores pedicellati. Bracteae in pedicellum 1—1,5 mm egredientes, 8—11 mm longae et 2,5—3,5 mm latae, acutae, costa et margine solum hirtellae, 3-nerviae. Pedicelli circ. 5 mm longi, dense pubescentes. Bracteolae ad apicem pedicelli insertae, 7,5 mm longae et 2 mm latae, ceterum ut bracteae sed plerumque ad anthesin deciduae. Calycis lobi omnes 10 mm longi, lobi posticus et antici lineares, 1,5 mm lati, lobi laterales anguste triangulares, ad medium 0,8 mm lati, omnes 3-nervi et margine costaque hirtelli, nervis post anthesin indurescentibus et albicantibus. Corolla rubra, extus glabra, intus ad insertionem staminum barbata, 19,5 mm longa. Staminiodium oblongum, 0,5 mm longum. Ovarium pilis capitatis vix notabile comosum, utroque loculo ovulis circ. 28. Capsula glabra, 7,5 mm longa.

Habitat Peninsulam Malayanam.

MALAY PENINSULA. Perak: Maxwell's Hill, *Wray 684* (K, SING, typi), *Ridley 2892* (K, co-typus); Mt. Hijan, *Ridley s.n.* (SING); Tea Gardens, *Curtis 2000* (SING); Temango, *Ridley 14432* (SING; this sheet contains two specimens and in one of them the characteristic indumentum on the upper side of the leaf proves to be almost entirely wanting); s.l., *Scortechinii 456a* (SING, K). — Pahang: Telom, Nov. 1908, *Ridley s.n.* (SING).

Staurogyne arcuata C. B. Clarke is doubtless a near ally of *St. ranaiensis* Brem. and *St. havilandii* C. B. Clarke ex Brem., with which it agrees in the nature of the indumentum on the upper side of the leaf and in the linear three-nerved bracts, but from which it is readily distinguishable by the nodding, densely pubescent inflorescence, the longer pedicels and the long lateral calyx lobes, which do not differ in length from the posticus and anticous ones. In the nature of its inflorescence *St. arcuata* shows a rather striking resemblance with *St. cremostachya* Brem. v. *infra*. However, in the latter it is not merely nodding, but distinctly pendulous, the peduncle showing a sharp bent. It is noteworthy that the staminode of this species agrees in size and shape almost exactly with that of *St. arcuata*. The flowers of *St. cremostachya*, on the other hand, are white, the leaves are cuneate at the base and lack the characteristic indumentum of *St. arcuata* and the latter's nearest allies, so that a really near affinity seems to be excluded.

9. *Staurogyne ranaiensis* Brem. *nov. spec.*

Inter species *Heterosepalarum* foliis supra pilis valvulatis longis pubescentibus, inflorescentiis elongatis necnon floribus pedicellatis instructas bracteis 3-nerviis et corolla colorata cum *St. arcuata* C. B. Clarke et *St. havilandii* C. B. Clarke ex Brem. quadrans, inflorescentia suberecta et subglabra, floribus brevius pedicellatis, calycis lobis lateralibus quam aliis brevioribus a priore, caule non villosa, foliis plurimis basi rotundatis, facie inferiore folii pilis valvulatis carente a posteriore recedens.

Herba probabiliter uniucaula, 20 cm alta. Caulis e basi decumbente ascendens, simplex, ad apicem pilis longioribus densius pubescens, basin versus plus minusve glabrescens, ad apicem 1,8 mm diam., basin versus usque ad 2,8 mm incrassatus, internodiis 0,6—1,5 cm longis. Folia petiolo densius pubescente 1,2—1,6 cm longo instructa; lamina oblonga, 7,5—10 cm longa et 2,2—3,5 cm lata, apice subacuta, basi rotundata vel in foliis aliquibus subacuta, sicc. supra olivacea, subtus dilute viridis, supra pilis valvulatis longis sparsa, subtus costa nervisque densius, inter nervos sparse pubescens, nervis utroque latere costae 9—10. Inflorescentia terminalis, suberecta. Pedunculus internodiis rachidis subaequilongus et ut rachis subglaber. Flores pedicellati. Bracteae in pedicellum paulo egredientes, 5—6 mm longae et 1,2—1,8 mm latae, subacutae, margine et costa hirtellae, 3-nerviae. Pedicelli pilis longis sparse pubescentes, 1,5—2 mm

longi. Bracteolae ad apicem pedicelli insertae, 7 mm longae et 1,5 mm latae, ceterum ut bracteae. Calycis lobus posticus 7,5 mm longus et 0,9 mm latus; lobi antici 6 mm longi et 0,6 mm lati; lobi laterales 5,5 mm longi et 0,5 mm lati, ceterum ut bracteae bracteolaeque. Corolla matura nondum visa, purpurea dicta. Ovarium glabrum, utroque loculo ovulis 28. Capsula nondum visa.

Habitat Archipelagum Natunensem.

BUNGARAN (NATUNA) IS.: P. Bunguran (Great Natuna), Mt. Ranai, alt. 1000 m, *Bünnemeyer 5895* (BO, typus).

The material is rather scanty, and for this reason I am unable to make out whether the stem would have died off after the only inflorescence that is present had ripened its fruits or whether it would, as in *St. arcuata* C. B. Clarke and in *St. havilandii* C. B. Clarke ex Brem., have continued its growth and become sympodial.

Staurogyne ranaiensis Brem. comes very near to *St. havilandii*, from which it differs mainly in the indumentum of the stem and in the shape of the leaf.

10. *Staurogyne havilandii* C. B. Clarke ex Brem. nov. spec.

Inter species *Heterosepalarum* foliis supra pilis valvulatis longis pubescentibus, inflorescentiis elongatis necnon floribus pedicellatis instructas bracteis 3-nerviis et corolla colorata cum *St. arcuata* C. B. Clarke et *St. ranaiensi* Brem. quadrans, inflorescentia suberecta et subglabra, floribus brevius pedicellatis, calycis lobis lateralibus quam aliis brevioribus a priore, caule villosa, foliis basi acutis, facie inferiore pilis valvulatis pubescente a posteriore distinguenda.

Herba unicaula, 8—23 cm alta. Caulis e basi decumbente ascendens, simplex, sympodialis, primum dense villosus, basin versus glabrescens, ad apicem 1,5 mm diam., basin versus usque ad 3 mm incrassatus, internodiis 1—2 cm longis. Folia petiolo primum densius, deinde sparsius piloso, 0,8—3,5 cm longo instructa; lamina lanceolata, oblanceolata vel elliptico-lanceolata, 6—12 cm longa et 2—4,2 cm lata, apice subobtusa, basi acuta, discolor, sicc. supra olivacea, subtus griseo-viridis vel griseo-brunnea, utrimque pilis longis valvulatis sparsa, subtus insuper costa nervisque densius pubescens, nervis utroque latere costae 8—12. Inflorescentia terminalis, post anthesin in positionem lateralem coacta. Pedunculus satis longus et ut rachis glaber vel subglaber; rachis usque ad 4,5 cm longa; internodia rachidis 5,5—2,0 mm longa. Flores pedicellati. Bracteae usque ad medium pedicellum egredientes, 6 mm longae et 1,2 mm latae, margine sparse ciliatae, 3-nerviae. Pedicelli 1,5—2 mm longi, glabri. Bracteolae 4,7 mm longae et 0,4 mm latae, densius ciliatae, indistincte 3-nerviae. Calycis lobus posticus 7 mm longus et 0,7 mm latus; lobi antici ei aequilongi sed 0,6 mm lati; lobi laterales 6 mm longi et 0,4 mm lati; lobi omnes ciliati et 3-nervi. Corolla purpurea, extus pubescens, 15 mm longa, intus

ad insertionem staminum barbata. Staminodium 1,2 mm longum. Ovarium glabrum, utroque loculo ovulis circ. 20. Capsula glabra, 6 mm longa.

Habitat Archipelagum Natunensem et terrae Borneensis partem occidentalem.

BUNGURAN (NATUNA) IS.: P. Bunguran (Great Natuna), Mt. Ranai, alt. 600 m, *Haviland & Hose 3583* (K, typus), *3599* (K).

BORNEO. Sarawak: Upper Baram, Salungu, *Moulton 81* (SING). — Western Div.: Sg. Bluu, *Jaheri 379* (BO); P. Bau, *Jaheri 288* (BO); Lelebulan Teputsey, *Jaheri 358* (BO); Bt. Batuajo, *Jaheri 1638* (BO, L).

The Bornean specimens possess slightly longer calyx lobes and a subglabrous instead of completely glabrous peduncle and rachis, and their bracts are inserted below instead of just above the middle of the pedicel, but they are in other respects so similar to the specimens from Natuna that I regard them as conspecific.

As stated under *St. ranaiensis* Brem. *St. havilandii* C. B. Clarke ex Brem. and that species are very near allies, differing mainly in the indumentum and in the shape of the leaves. Other characters in which *St. havilandii* differs from *St. ranaiensis* are the longer peduncle, the shorter bracteoles and the smaller number of ovules.

11. STAUROGYNE SETIGERA (Nees) O. Ktze

Staurogyne setigera (Nees) O. Ktze, Rev. Gen. Pl. 1: 497. 1891; C. B. Clarke in J. As. Soc. Beng. 74: 635. 1908; Ridl., Fl. Mal. Pen. 2: 559. 1923; R. Benoist in Fl. gén. Indo-Chine 4: 626. 1935; *Ebermaiera setigera* Nees in DC., Prodr. 11: 76. 1847; Miq., Fl. Ind. bat. 2: 774. 1858; T. And. in J. Linn. Soc. (Bot.) 9: 451. 1867; C. B. Clarke in Hook. f., Fl. Brit. Ind. 4: 398. 1884; Ridl. in Trans. Linn. Soc. (Bot.) II 3: 322. 1893; Boerl., Handl. Fl. Ned. Ind. 2: 656. 1899; Ridl. in J. As. Soc. Str. Br. 121. 1920; — *E. trichocephala* Miq., Fl. Ind. bat. 2: 774. 1858; id., op. cit. Suppl. 240. 1860; — *E. subcapitata* C. B. Clarke in Bot. Tidsskr. 24: 348. 1902; — *Adenosma uliginosa* Nees var. β *erecta* Nees in DC., Prodr. 11: 70. 1847; Miq., Fl. Ind. bat. 2: 771. 1858; — *St. balabacensis* Quis. in Philipp. J. Sci. 41: 358 fig. 23. 1930, cf. var. *grandis*.

Inter species *Heterosepalarum* foliis supra pilis valvulatis brevibus sparsis, inflorescentiis congestis necnon floribus subsessilibus instructas cum *St. subcapitata* Brem. et *St. incana* (Bl.) O. Ktze quadrans, ab ambabus caule petiolisque strigosis, bracteis infimis ab aliis non conspicue differentibus, calycis lobis longioribus distinguenda.

Herba uni- vel pluricaula, in var. *setigera* 10—20 cm alta, in var. *grandis* usque ad 30 cm alta. Caulis e basi repente ascendens, simplex vel parce ramosus, monopodialis, primum plerumque dense, deinde sparse et breviter strigosus, sicc. longitudinaliter sulcatus, 1,2—1,8 mm diam., internodiis 1—8 cm longis. Folia petiolo dense strigoso, 5—14 mm longo instructa; lamina ovata vel lanceolata, in var. *setigera* plerumque 3—5 cm

longa et 1,3—2,4 cm lata, rarius usque ad 9 cm longa et 3,8 cm lata vel usque ad 6 cm longa et 4,5 cm lata, in var. *grandi* usque ad 11 cm longa et 4,2 cm lata, in varietatibus ambabus apice acuta, basi acuta vel subrotundata casu quo prope petiolum tamen subito contracta, interdum asymmetrica, sicc. supra olivaceo-brunnea vel griseo-brunnea, subtus dilute brunnea, supra primum semper pilis aliquibus valvulatis brevibus sed crassis sparsa, deinde plus minusve glabrescens, subtus costa nervisque strigosa, venulis strigulosa, nervis venulisque deinde interdum glabrescentibus, nervis utroque latere costae 5—8. Inflorescentia terminalis, sessilis, primum semper subcapituliformis, in var. *grandi* tamen post anthesin elongata, basi interdum inflorescentiis ex axillis foliorum basi insertorum vel ex axillis foliorum eis precedentium orientibus comitata, in var. *setigera* e floribus 4—8, in var. *grandi* e numero majore florum composita. Bracteae 11—13 mm longae et 0,8—1,1 mm latae, pilis longis basi bulbosis cum pilis brevibus mixtis hirtellae. Pedicelli nulli. Bracteolae bracteis similiores et eis aequilongae vel paulo longiores, interdum tamen distinctius angustiores. Calycis lobus posticus 12,5 mm longus et 2,5—3 mm latus, 3-nerviis; lobi antici 11 mm longi et 0,9—1,0 mm lati; lobi laterales 8—9 mm longi et 0,5—0,6 mm lati; lobi omnes costa et margine ut bracteolae pilis basi bulbosis hirtelli. Corolla alba, palato macula rosea notato, 17 mm longa, extus glabra, intus ad insertionem staminum parse barbata. Staminodium 1,5 mm longum. Ovarium glabrum, utroque loculo ovulis circ. 26. Capsula glabra, 5,5 mm longa, rubro-brunneo punctata.

Habitat Siamiam, Peninsulam Malayanam, Sumatram, Bancam, terram Borneensem.

Var. SETIGERA.

Caule 10—20 cm alto, foliis plerumque 3—5 cm longis et 1,3—2,4 cm latis, inflorescentiis e floribus 4—8 compositis, post anthesin haud conspicue elongatis noscenda.

Habitat Siamiam, Peninsulam Malayanam, Sumatram, Bancam, terram Borneensem.

MALAY PENINSULA. Perak: Larut, alt. 150—200 m, *King's coll. 2192* (K), *Wray 1878* (SING, K); Temango, July 1907, *Ridley s.n.* (SING), *Ridley 14430* (SING); Waterfall Taiping, *Ridley 14431* (SING, BO); Sg. Krian Estate, *Spre S.F.32295* (SING, BO, K); Pondok Tandjong For. Res., alt. 25 m, *Spre S.F.36218* (SING). — Kelantan: Kuala Kerai, *Haniff & Nur S.F.10086* (SING, BO; mixed with *Hedyotis monocephala* Miq.); Chaning, *Ridley s.n.* (SING). — Trengganu: Bundi, *Rostado 50* (SING); Kekaman, *Corner S.F.30551* (SING, BO, K, L); Sg. Pinang Hills, Nov. 30, 1935, *Corner s.n.* (SING). — Pahang: Telom, Nov. 1904, *Ridley s.n.* (SING); Sg. Yu, *Nur & Foxworthy S.F.11921* (SING, BO); Kuala Tahan, alt. 80 m, *Seimund 73* (SING, K); Kota Glanggi, *Ridley 2178* (SING). — Selangor: Klang, Watercatchment forest, *Burkill S.F.5632* (SING, K); Kuala Lumpur, *Curtis 2363* (SING); Kehding Seti, Bt. Cheraka, *Strugnell 13014* (SING); Rawang, May 1896, *Ridley s.n.* (SING); Batang Berjuntai, *Hume 7457* (SING); Dindings, Mt. Tangal, *coll. ign. 30* (SING). — Negri Sembilan: Bd. Kaiso Arang, Jan. 30, 1881, *Alvius s.n.* (SING). — Malacca: Ayer Panas, *coll. ign. 224* (SING); Joo, *Goodenough 1461*

(SING); Selandar, *Alvina* 230 (SING); s.l., *Cuming* 2355 (K, FI, typi). — Johore: Tebrau R., Aug. 1908, *Ridley s.n.* (SING); Kota Tinggi, *Ridley* 15430 (SING, K, BM); Ulu Segun, mixed with Rubiaceae prob. *Ophiorrhiza* spec., *Cornier s.n.* (SING, BO). — Singapore: Bt. Timah, *Ridley s.n.* (SING); Sg. Jurong, *Ridley* 10777 (SING); Selitan, *Ridley* 2699 (SING, BM).

SUMATRA. East Coast: Bila, Aekburo, alt. 80 m, *Lörzing* 9617 (BO); Sibolangit, alt. 350 m, *Lörzing* 8492 (BO); Rantauparapat, Bila, *Rahmat* 1687 (NY, UC), 2323, 2585 (NY), 2713 (NY, NA, UC), 4248 (NY); Si Hare-hare, *Rahmat* 4384 (NY); P. Liman, *Rahmat* 5256 (NY, G); Manaun, *Rahmat* 4602 (NY); Aekkanan, *Rahmat* 4798, 4800 (NY); Haboko, alt. 150 m, *Docters van Leeuwen-Reynvoan* 3249 (BO). — West Coast: Siotakdaras, alt. 900 m, *Robinson & Kloss s.n.* (K); Lubukalung, vern. name: loangan babi, *Teijsmann, H.B.1190* (U, BO, types of *Ebermaiera trichocephala* Miq.); Lubuksikaping, Bt. Kabung, *Bünnemeyer* 1207 (BO). — Djam-bi: Sg. Mengopeh, alt. 40 m, *Rutten-Kooistra* 22 (U); Bangko, alt. 60 m, *Posthumus* 477 (BO). — Bencoolen: Kepahiang, *de Voogd* 1247 (BO, L). — BANKA: Mt. Pading, Koba, alt. 200 m, *Bünnemeyer* 1247 (BO). — MENTAWAI IS.: P. Siberut, s.l., *Boden Kloss S.F.13100* (SING, BO, K); P. Sipora, s.l., *Boden Kloss S.F.14778* (SING, BO, K).

BORNEO, Sarawak: Baram Distr., Entoyut R., *Hose* 423 (K, BM); Kalong, *Haviland* 1823 (K); Miri, *Haviland & Hose* 3514, 3587 (K). — Western Div.: Pontianak, *Teijsmann H.B.11500* (BO); P. Karimata, *Teijsmann H.B.11501* (BO, L, K); Sg. Magne, *Jaheri* 636 (BO); Sg. Doko, *Jaheri* 1594 (BO). — Southern and Eastern Div.: Sampit, alt. 5 m, *Buwalda* 7952 (BO, L); Bandjarmasin, *Motley* 368, 642 (K); Haiup (Sg. Tabelong), *Winkler* 2632 (BO); West Kutai, Longpetak, alt. 450 m, *Endert* 3263 (BO).

Var. grandis Brem. nov. var.

Staurogyne balabaccensis Quis. in *Philipp. J. Sci.* 41: 358 fig. 23. 1930.

Habitu robustiore, caule usque ad 30 cm alto, foliis majoribus, usque ad 11 cm longis et 4.2 cm latis, inflorescentiis e numero majore florum compositis, post anthesin spiciformibus a typo recedens.

Habitat Peninsulam Malayanam, terrae Borneensis partem septentrionalem, insulam Balabac dictam.

MALAY PENINSULA. Pahang: P. Tioman, *Burkill* 1145 (SING, K, L). — Johore: Mt. Pulai, *Ridley s.n.* (SING); Mt. Pantl, *Ridley s.n.* (SING); Sg. Jurong, *Ridley s.n.* (SING).

SUMATRA. East Coast: Aekkanan, *Rahmat* 4800 (NY, UC); Aekropsak near Hutaimbaru, *Rahmat* 4755 (NY, UC); Kualu, *Rahmat* 1404 (NY).

BORNEO. Colony of North Borneo: Koung, alt. 600 m, *J. & M.S. Clemens* 27656 (BO, BM); Mt. Kalawat, *M. S. Clemens* 11182 (BO, K); Sandakan, *Ramos* 1219 (BO, K, US); Bettotan near Sandakan, *Kloss* 19094 (SING, K).

PHILIPPINES. Balabac I.: s.l., *Ramos & Edaño B.Sc.49718* (K, typus varietatis).

At first sight one would be inclined to regard the variety *grandis* as a distinct species, but as the points of difference from *Staurogyne setigera*

(Nees) O. Ktze may be considered of secondary importance, as they are confined to a more robust habit and longer inflorescences, it seemed better to regard it as a variety of *St. setigera*.

Staurogyne setigera (Nees) O. Ktze, *St. subcapitata* Brem. and *St. incana* (Bl.) O. Ktze are three nearly related species well characterized by the weak monopodial shoots with their creeping base, the presence of very short but thick septate hairs on the upper side of the leaves, and the sessile, subcapitate inflorescences, which are usually not preceded by a pair of leaves of reduced size. The short and therefore easily overlooked septate hairs on the upper side of the leaf seem to indicate affinity with the species of the preceding group.

Staurogyne setigera differs from the two other species in the strigose stem and petioles, in the densely ciliate bracts, which are all more or less of the same kind, and in the longer calyx lobes.

12. *Staurogyne subcapitata* Brem. nov. spec.

Inter species *Heterosepalarum* foliis supra pilis valvulatis brevibus sparsis, inflorescentiis congestis necnon floribus subsessilibus instructas cum *St. setigera* (Nees) O. Ktze et *St. incana* (Bl.) O. Ktze quadrans, caule petiolisque pubescentibus, bracteis infimis quam aliis majoribus et subfoliaceis, bracteis ceteris sparse ciliatis, calycis lobis brevioribus a priore recedens et ad *St. incanam* accedens, bracteis bracteolisque puberulo-pubescentibus, sparse sed longe ciliatis, bracteis infimis obovatis vel ellipticis, corolla minore ab ea distinguenda.

Herba unicaula, 12—24 cm alta. Caulis e basi decumbente vel repente ascendens, simplex vel parce ramosus casu quo rami inferiores interdum stolonum instar vagantes, monopodialis, pilis griseis primum dense, deinde minus dense pubescens, ad apicem 0,5—0,7 mm diam., basin versus usque ad 1,2 mm accrescens, internodiis 1—7 cm longis. Folia in petiolum 0,4—2 cm longum, densius pubescentem contracta; lamina ovata vel ovato-oblonga, 1,4—6 cm longa et 0,9—3 cm lata, apice acuta vel subobtusata, basi contracta, sicc. supra olivacea, subtus grisea, supra primum pilis aliquibus valvulatis brevibus sed crassioribus sparsa, subtus costa nervisque primum densius, deinde sparse pubescens, nervis utroque latere costae 5—7. Inflorescentia terminalis, subsessilis, ovoidea, basi foliis magnitudine non redactis suffulta, floribus subsessilibus. Bracteae infimae obovatae vel ellipticae, aliis multo majores, 12 mm longae et 7 mm latae, subfoliaceae et penninerviae sed nervis in nervum marginalem exeuntibus et inde etiam plus minusve 3-nerviae; bracteae aliae gradatim minores et distincte 3-nerviae, 7—8 mm longae et 2,2—3 mm latae, subacutae, margine pilis aliquibus longissimis ciliatae, dorso puberulo-pubescentes. Bracteolae 7 mm longae et 0,8 mm latae, acutae, ceterum ut bracteae. Calycis lobus posticus 7,5 mm longus et 1,5 mm latus, 3-nervius; lobi antici 6,5 mm longi et 0,6 mm lati, 3-nervii; lobi laterales 5,5 mm longi et 0,4 mm lati,

1-nervii, dimidio superiore sensim attenuati; lobi omnes acuti et pilis longissimis ciliati. Corolla 10 mm longa, extus primum puberula sed mox glabrescens, intus ad insertionem staminum barbata. Staminodium 1,0 mm longum. Ovarium glabrum, utroque loculo ovulis 20. Capsula nondum visa.

Habitat insulam Philippinam Luzon dictam.

PHILIPPINES. Luzon: Rizal Prov., s.l., *Ramos*, & *Edaño B.Sc.46478* (K, US, NY, typi); Zambales Prov., Mt. Calangaan, *Edaño B.Sc.26848* (K, US). The last-named specimen was quoted by Merrill in his Enum. Philipp. flow Pl. 3: 468, 1923 under *St. neesii* (Vidal) C. B. Clarke ex Merr.

Staurogyne subcapitata Brem. differs from *St. setigera* (Nees) O. Ktze in the pubescent stem and petioles and in the foliaceous lower bracts; the other bracts, moreover, are sparsely ciliate and the calyx lobes are much shorter. From *St. incana* (Bl.) O. Ktze it differs in the lanceolate, not obovate or elliptic lower bracts and in the presence of long ciliae along the margin of the other bracts; the corolla, moreover, is much smaller and the number of ovules is larger. In the number of ovules *St. subcapitata* is intermediate between *St. setigera* and *St. incana*.

The epithet *subcapitata* has already been used by Clarke in the genus *Ebermaiera*, but as there seems to be little chance that his species will be revived, it seemed allowed to use the epithet in the genus *Staurogyne* for another species.

13. STAUROGYNE INCANA (Bl.) O. Ktze

Staurogyne incana (Bl.) O. Ktze, Rev. Gen. Pl. 1: 497, 1891; Hochr. in Candollea 5: 223, 1934; *Ruellia incana* Bl., Cat. Hort. bog. 85, 1821; *Adenosma incanum* (Bl.) Bl., Bijdr. Fl. Ned. Ind. 756, 1826; *Ebermaiera incana* (Bl.) Hassk., Cat. Hort. Bog. alt. 147, 1844; Nees in DC., Prodr. 11: 76, 1847; Boerl., Handl. Fl. Ned. Ind. 2: 656, 1899 (syn. *E. velutina* Nees excl.); *Lepidagathis incana* (Bl.) Nees in DC., Prodr. 11: 259, 1847; Miq., Fl. Ind. bat. 2: 816, 1858; Boerl., Handl. Fl. Ned. Ind. 2: 660, 1899; Lindau in Engl. & Prantl, Nat. Pflanzenfam. IV 3 b: 313, 1895; Koorders, Exkursionsfl. Java 3: 221, 1912; — *Staurogyne malaccensis* C. B. Clarke in J. As. Soc. Beng. 74: 636, 1908 et Ridl., Fl. Mal. Pen. 2: 559, 1923 quoad specimina javanica.

Inter species *Heterosepalarum* foliis supra pilis valvulatis brevibus sparsis, inflorescentiis congestis necnon floribus subsessilibus instructas cum *St. setigera* (Nees) O. Ktze et *St. subcapitata* Brem. quadrans, caule petiolisque pubescentibus, bracteis infimis quam aliis majoribus et subfoliaceis, bracteis omnibus subglabris, calycis lobis brevioribus, numero minore ovulorum a priore, bracteis subglabris, infimis lanceolatis, corolla longiore a posteriore distincta.

Herba unicaula, 10—20 cm alta. Caulis e basi repente ascendens, simplex vel sparse ramosus, monopodialis, pilis ferrugineis primum dense, deinde sparse pubescens, ad apicem 0,7—0,9 mm diam., basin versus usque ad 1,8 mm accrescens, internodiis 1,5—8 cm longis. Folia in petiolum 0,3—1,5 cm longum, densius puberulo-pubescentem contracta; lamina

plerumque ovata vel ovato-oblonga, rarius lanceolata, plerumque 2,8—8,5 cm longa et 1,1—3,5 cm lata, apice obtusa vel subobtusa, basi contracta, sicc. supra olivacea, subtus griseo-brunnea vel griseo-viridis, supra primum pilis aliquibus valvulatis brevibus sed crassioribus sparsa, subtus costa nervisque dense puberulo-pubescentibus exceptis glabra, nervis utroque latere costae 5—8. Inflorescentia terminalis, plerumque singula, interdum tamen ab inflorescentiis ramulos breves ex axillis foliorum superiorum orientes terminantibus comitata, subsessilis, ovoidea, basi numquam foliis magnitudine redactis suffulta, pauciflora, floribus subsessilibus. Bracteae infimae lanceolatae, aliis multo majores, plus minusve foliaceae, semper tamen 3-nerviae, 8 mm longae et 2,5 mm latae; bracteae aliae 5,5—6 mm longae et 1,4 mm latae, acutae, 3-nerviae, subglabrae. Bracteolae 7 mm longae et 1,2 mm latae, acutissimae, 3-nerviae, apicem versus sparse ciliatae. Calycis lobus posticus 9—11 mm longus et 1,8—2,0 mm latus, acutus, 3-nervius, dimidio superiore sparse ciliatus; lobi antici postico subaequilongi sed 0,7 mm lati, acutissimi, 3-nervii, margine tota ciliati; lobi laterales 7,5—9,5 mm longi et 0,5 mm lati, 1-nervii, ciliati. Corolla alba, 16—18 mm longa, extus primum puberula sed mox glabrescens, intus ad insertionem staminum barbata. Staminodium 1,1 mm longum. Ovarium glabrum, utroque loculo ovulis 14—16. Capsula glabra, 7 mm longa.

Habitat Javam et insulam Bali dictam.

JAVA. Banten: Lebakkidul, Mt. Kantjana, *Koorders 41184* (BO); Passuran, alt. 300 m, *Backer 7236* (BO). — Djakarta (Batavia): Wanajasa, alt. 550 m, *Backer 14407* (BO). — Bogor (Buitenzorg): Djasinga, alt. 175 m, Jan. 3, 1940, *de Voogd s.n.* (BO), *van Steenis 11201* (BO); Djasinga, Mt. Panis, alt. 400 m, *Backer 10217* (BO), alt. 350 m, *Backer 10437* (BO, U); Leuwiliang, Pasirhondjé, alt. 350 m, *Bakhuizen van den Brink Jr. 3173* (BO, U), *Bakhuizen van den Brink Sr. 6385* (BO); Land Bolang, alt. 250 m, *Beumée A281* (BO); Bogor (Buitenzorg), *Burck s.n.* (BO), *Backer 21065* (BO); Nanggung, alt. 600 m, *van Steenis 17397* (BO); Nanggung, *Blume s.n.* (L, typus); Depok, *Koorders 43994* (BO), *van Steenis 2831* (BO); Tjampes, *Burck & de Monchy s.n.* (BO); G. Seribu, *Blume s.n.* (BO); Kelapanunggal, *Backer 23159* (BO); Mt. Salak, alt. 1000 m, *Bakhuizen van den Brink Jr. 322* (BO); Ujung Genteng, alt. 3 m, *van Steenis 11339* (BO); Sukabumi, Mt. Kantjana, alt. 1200 m, *Backer 23252* (BO); Tjibadak, Panjindangan, alt. 600 m, *Bakhuizen van den Brink Sr. 2* (BO), *3490* (BO); Tjibadak, Tjikidang, alt. 600 m, *Bakhuizen van den Brink Sr. 3300* (BO); Tjidadap, Tjadasmalang, alt. 950 m, *Backer 22741* (BO). — Priangan: Tasikmalaja, Tjikantjung, *coll. ign. s.n.* (BO), Pendjalu, alt. 720 m, *Koorders 47981/2* (BO), *Polak s.n.* (BO); Mt. Burangrang, northern slope, alt. 1000 m, *Backer 14185* (BO), Bandjar, Bantasdjawa, alt. 50 m, *Backer 34886* (BO, SING, U). — Pekalongan: Lebakbarang, alt. 400 m, *Backer 23294* (BO). — Banjumas: Madjenang, alt. 200 m, *Backer 18673, 18784* (BO); Nusa Kambangan, *Valeton 101* (BO), *Amdjah 212* (BO, L). — Kediri: Prigi, alt. 10 m, *Backer 11845* (BO). — Malang: Turen, Tangkil, alt. 450 m, *Koorders 23933* (BO). — Besuki: Glenmore, *Rant 977* (BO).

LESSER SUNDA IS. Bali: s.l., alt. 400 m, *de Voogd 2361* (BO, L).

Staurogyne incana (Bl.) O. Ktze differs from the two preceding species in the subglabrous bracts and in the small number of ovules. It

recedes farthest from *St. setigera* (Nees) O. Ktze, from which it differs also in the patently pubescent stem and petioles and in the smaller size of the bracts, bracteoles and calyx lobes. As further points of difference between *St. incana* and *St. subcapitata* Brem. may be mentioned the narrower lower bracts, the presence of cilia in the upper part of the bracteoles and the longer corolla.

14. STAUROGYNE KINGIANA C. B. Clarke

Staurogyne kingiana C. B. Clarke in J. As. Soc. Beng. 74: 637. 1908; Ridl., Fl. Mal. Pen. 2: 560. 1923; — *St. seticepala* C. B. Clarke ex S. Moore in J. Bot., Lond. 63 (Suppl.): 77. 1925.

Inter species *Heterosepalarum* foliis supra glabris et floribus distincte pedicellatis instructas bracteis et calycis lobis omnibus filiformibus facilliter noscenda.

Herba unicaula, 20—70 cm alta. Caulis e basi decumbente ascendens vel suberectus, plerumque simplex, sympodialis, dense puberulo-pubescentem sed basin versus glabrescens, ad apicem circ. 2 mm diam., basin versus usque ad 5,5 mm incrassatus et lignescens, internodiis plerumque 3—5 cm longis. Folia in petiolum densius puberulo-pubescentem, plerumque 1,5—4 cm, in var. *magnifolia* tamen usque ad 8 cm longum contracta; lamina lanceolato-oblonga, oblonga vel elliptica, plerumque 9—20 cm longa et 2,8—8 cm lata, in var. *angustifolia* linearis, 10—18 cm longa et 2,0—3,2 cm lata, in var. *magnifolia* 25—30 cm longa et 7,5—10 cm lata, in varietatibus omnibus apice acuta vel acuminata, basi contracta, sicc. supra olivacea, subtus dilute brunnea, supra glabra, subtus costa nervisque strigulosa, nervis utroque latere costae plerumque 13 vel 14, in var. *magnifolia* 23—25. Inflorescentia primum terminalis, post anthesin in positionem lateralem coacta, erecta et usque ad 25 cm longa. Pedunculus internodiis rachidis paulo longior et ut rachis puberulo-pubescentem; internodia rachidis 3—4,5 mm longa. Flores pedicellati. Bractee filiformes, paulo in pedicellum egredientes, 18 mm longae et 0,5 mm latae, conduplicatae, basin versus parce et vix conspicue ciliolatae, apicem versus scabridulae, 1-nerviae. Pedicelli 2—3 mm longi, vix conspicue hirtelli. Bracteolae ad apicem pedicelli insertae, 15—16 mm longae et 0,3 mm latae, planae, ceterum ut bractee. Calycis lobus posticus 18 mm longus et ad basin 0,9 mm latus, 3-nervius; lobi antici 17 mm longi et ad basin 0,8 mm lati, 3-nervii; lobi laterales 11,5 mm longi et ad basin 0,6 mm lati, supra basin plus quam alii contracti, 1-nervii; lobi omnes plerumque basin versus parce et vix conspicue ciliolati, apicem versus scabriduli, in var. *pubicalyce* margine distinctius ciliati, dorso dense pubescentes. Corolla alba vel luteola, lobis tribus inferioribus tamen rubro-suffusis, extus glabra, intus ad insertionem staminum barbata, 23 mm longa. Staminodium 1 mm longum. Ovarium glabrum, utroque loculo ovulis circ. 20. Capsula glabra, 6 mm longa.

Habitat Peninsulam Malayanam, Archipelagum Linggensem, Sumatram.

Var. KINGIANA.

Petiolo 1,5—4 cm longo, lamina plerumque 9—20 cm longa et 2,8—8 cm lata, utroque latere costae nervis 13 vel 14 instructa, calycis lobis vix conspicue ciliolatis noscenda.

Habitat Peninsulam Malayanam, Archipelagum Linggensum, Sumatram.

MALAY PENINSULA. Perak: Mt. Pantl, *King's coll. 208* (K, co-typus); Ulu Temango, July 1909, *Ridley s.n.* (SING). — Trengganu: Mt. Padang, alt. 1000 m, *Moysey & Kiah S.F.31847* (SING); Bundi, *Rostado s.n.* (SING); Ulu Brang, alt. 100 m, *Moysey & Kiah S.F.33847* (SING), *S.F.33702* (SING, BO, K); Ulu Bendong, Kajang, alt. 200 m, *Corner S.F.30053* (SING, BO, K, L). — Kelantan: Kuala Badong, *Haniff & Nur S.F.10397* (SING); Kuala Aring, *Yapp 38* (K). — Kedah: Bt. Wang, *Haniff 647* (SING). — Pahang: Sg. Lembing, Kuantan, *Symington S.F.28757* (SING, BO, K); Sg. Tahan, *Kiah S.F.31722* (SING, K), *Ridley 2176* (SING, K), *Haniff & Nur S.F.30065* (SING, BO, K); Kuala Teku, alt. 150 m, *Ridley s.n.* (SING, K), *Seimund 449* (SING). — Selangor: Pahang Boundary, Ginting Sempah, Mar. 1917, *Ridley, Robinson & Kloss s.n.* (K); Klang Gates, Jan. 1, 1921, *Ridley s.n.* (SING, K), *Hume 7239* (SING); Ulu Gembuk, Mar. 1915, *Ridley s.n.* (SING, K), Dec. 26, 1920, *Ridley s.n.* (SING, K); Ulu Gembuk, *Hume 3464* (SING); Kuala Lumpur, on limestone hills, alt. 150—250 m, *King's coll. 10704* (K, typus). — Johore: Road to Pulai, *Ridley 12186* (SING, K); Kluang, *Holtum 9355* (SING, UC); Ulu Kohang, alt. 100 m, *Holtum S.F.10883* (SING, BO, K, UC); Mt. Tanong, *Lake & Kelsall s.n.* (SING); Bt. Kuing, *Corner S.F.28652* (SING). — Singapore: Selatas Forest, *Sinclair S.F.38869* (SING).

SUMATRA. Djambi: Sg. Lesing, alt. 30 m, *Posthumus 1007* (BO, SING, L). — Palembang: Sg. Rawas, Musramengkulan, alt. 450 m, *Forbes 3054a* (BM, K, L, types of *St. seticepala* C. B. Clarke ex S. Moore). — Bencoolen: Rimbopengadang, alt. 1000 m, *Ajoeb 103* (BO). — LINGGA ARCH.: P. Lingga, Resum, alt. 90 m, *Bänнемeyer 6784* (BO, SING, L), Batugadjah, *Hullett s.n.* (SING).

Var. pubicalyx Brem. nov. var.

Calycis lobis distincte ciliatis, dorso dense pubescentibus a typo recedens.

Habitat Peninsulam Malayanam.

MALAY PENINSULA. Johore: Sg. Sedili, *Corner s.n.* (SING, typus varietatis).

Var. angustifolia Brem. nov. var.

Foliis linearibus, 10—18 cm longis et 2—3,2 cm latis a typo recedens. Habitat Peninsulam Malayanam.

MALAY PENINSULA. Johore: Mt. Pantl, alt. 250 m, *Corner S.F.32542* (SING, BO, K, A, BRI, typi varietatis).

Var. *magnifolia* Brem. *nov. var.*

Petiolis usque ad 8 cm longis, laminis 25—30 cm longis et 7.5—9 cm latis, utroque latere costae nervis 23—25 instructis a typo recedens.

Habitat Peninsulam Malayanam.

MALAY PENINSULA. Kelantan: Sg. Ketch, Nur & Foxworthy S.F.12034 (SING, UC, typi varietatis).

The slender racemes and the long filiform bracts, bracteoles and calyx lobes make *St. kingiana* C. B. Clarke an easily recognizable species. Its nearest allies are probably *St. elongata* (Bl.) O. Ktze and *St. subglabra* C. B. Clarke, *St. longifolia* (Nees) O. Ktze and *St. cremostachya* Brem., but these species differ from *St. kingiana* not only in the greater width of the bracts, bracteoles and calyx lobes but also in the smaller size of the leaves and the less numerous lateral nerves.

15. STAUROGYNE LASIOBOTRYS (Nees) O. Ktze

Staurogyne lasiobotrys (Nees) O. Ktze, Rev. Gen. Pl. 1: 497. 1891; C. B. Clarke in J. As. Soc. Beng. 74: 639. 1908; Ridl., Fl. Mal. Pen. 2: 561. 1923; *Ebermaiera lasiobotrys* Nees in DC., Prodr. 11: 721. 1847; T. And. in J. Linn. Soc. (Bot.) 9: 452. 1867; C. B. Clarke in Hook. f., Fl. Brit. Ind. 4: 400. 1884.

Inter species *Heterosepalarum* foliis supra glabris et floribus distincte pedicellatis instructas inflorescentia paniculiformi pilis capitatis hirtella et bracteis bracteolisque calyce circiter dimidio brevioribus noscenda.

Herba unicaula, 30—60 cm alta. Caulis erectus vel suberectus, plerumque simplex, monopodialis, ad apicem dense pubescens, basin versus glabrescens, ad apicem 1.5—2 mm diam., basin versus usque ad 4.5 mm accrescens et distincte lignescens, internodiis 1—6 cm longis. Folia in petiolum 1—6 cm longum, pilis appressis dense pubescentem contracta; lamina lanceolato-oblonga vel lanceolato-elliptica, plerumque 7—14 cm longa et 2.2—5 cm lata, apice acuta, basi contracta, supra interdum nitidula, sicc. supra saturatius, subtus dilute olivacea, facie inferiore costae nervorumque breviter strigosa excepta glabra, nervis utroque latere costae 7—10. Inflorescentia terminalis, e racemis pluribus usque ad 20 cm longis in paniculam amplam dispositis constituta, tota pilis capitatis hirtella. Bracteae in pedicellum paulo egredientes lineares, 3.5 mm longae et ut pedicelli, bracteolae et calycis lobi pilis capitatis dense hirtellae. Pedicelli inferiores usque ad 4 mm longi, superiores usque ad 1 mm decrescentes. Bracteolae ab apice pedicelli paulo remotae filiformes, 3 mm longae. Calycis lobus posticus 7.5 mm longus et ad basin 0.8 mm latus; lobi antici 6.5 mm longi et 0.5 mm lati; lobi laterales 4.5 mm longi et 0.3 mm lati. Corolla tubo et faucibus alba, limbo purpurea, extus glabra, intus ad insertionem staminum vix notabile pilosa, 14 mm longa. Staminodium filiforme, 0.7 mm longum. Ovarium apicem versus pilis capitatis puberulum, utroque loculo ovulis circ. 24. Capsula vix notabile puberula, 5.7 mm longa.

Habitat Birmaniae et Siamiae partes australes, Peninsulam Malayam.

BURMA. Tenasserim: Choppedang Hills, *Wallich Cat. 9084* (K, typus).

SIAM. Lower Siam: Tongkah, Mt. Toxai, Feb. 1893, *Curtis s.n.* (SING); Tapli, *Kloss 6802* (K); Tazan, *Kloss 6959, 6967* (K).

MALAY PENINSULA. Kedah: Langkawi Is., Mt. Raya, *Haniff & Nw S.F. 7184* (SING, BO), Sg. Batu Asah, *Haniff S.F. 15512* (SING, K), s.l., *Ridley 8328* (SING); Kulim, Sg. Ular Estate, *Rajaratnam 1* (SING); Sg. Lugong, *Kish S.F. 35093* (SING, BO, G, A); Mt. Bintang, *Haniff S.F. 21025* (SING). — Penang: P. Butong, *Curtis s.n.* (SING). — Perak: Mt. Hijau, alt. 1350 m, *Ridley s.n.* (SING); Hermitage Hill, *Ridley s.n.* (SING); Waterloo, *Curtis 1350* (SING, K); Larut, *King's coll. 2292* (K); Ulu Temango, *Ridley s.n.* (SING). — Kelantan: Kuala Labir, *Ridley s.n.* (SING). — Pahang: Ulu Lipis, *Strugnell F.D. 20397* (SING); Sg. Yu, *Nur S.F. 11914* (SING, BO, UC); P. Tioman, alt. 300 m, *Burkill 1144* (SING, K). — Selangor: Ginting Bidai, *Ridley 7528* (SING, K). — Negri Sembilan: Bt. Tanga, *Napier s.n.* (SING).

Staurogyne lasiobotrys (Nees) O. Ktze belongs to a group of species found in the western part of Indo-China, and differing from the other *Heterosepalae* by their paniculiform inflorescences and small bracts and bracteoles. It is the only representative of this group whose area extends into the Malay Peninsula. *Staurogyne simonsii* (T. And.) O. Ktze and *St. paniculata* (T. And.) O. Ktze seem to be its nearest allies. It differs from both in the glandular-hirtellous inflorescence, from *St. simonsii* moreover in the larger size of the panicle and from *St. paniculata* in the density of the indumentum by which all parts of the inflorescence are covered. *Staurogyne obtusa* (Nees) O. Ktze and *St. maclellandii* (T. And.) O. Ktze may also belong to this group, but this requires further study.

The affinity between *St. lasiobotrys* and the other species of the *Heterosepalae* is apparently but remote. In the narrowness of the bracts, bracteoles and calyx lobes it shows a slight resemblance to *St. kingiana* C. B. Clarke, but this can hardly be interpreted as indicating real affinity.

16. STAUROGYNE ELONGATA (Bl.) O. Ktze

Staurogyne elongata (Bl.) O. Ktze, *Rev. Gen. Pl.* 1: 497. 1891; *Adenosma elongatum* Bl., *Bijdr. Fl. Ned. Ind.*: 757. 1826; *Ebermaiera elongata* (Bl.) Hassk., *Cat. Hort. bog. alt.* 147. 1844; Nees in DC., *Prodr.* 11: 721. 1847; T. And. in J. Linn. Soc. (Bot.) 9: 452. 1867 quoad typum, eodem modo C. B. Clarke in Hook. f., *Fl. Brit. Ind.* 4: 400. 1884 (specimen Wallichianum in insula Penang lectum et ab Anderson sub nomine hoc citatum, a Clarke non visum erat et a me non repertum est); *Erythracanthus elongatus* (Bl.) Nees in DC., *Prodr.* 11: 78. 1847; — *Ebermaiera subpaniculata* Hassk., *Retzia* 77. 1855.

Inter species *Heterosepalarum* foliis supra glabris vel subglabris et floribus pedicellatis instructas bracteis et calycis lobis majoribus sub-

aequilongis et linearibus, lineari-lanceolatis vel lanceolatis cum *St. subglabra* C. B. Clarke, *St. longifolia* (Nees) O. Ktze et *St. cremostachya* Brem. quadrans, inflorescentia erecta a *St. cremostachya*, corolla ad insertionem staminum barbata et bracteolis ab apice pedicelli paulo remotis a *St. longifolia*, caule dense pubescente, pedicellis suberectis, calycis lobis hirtellis a *St. subglabra* distinguenda.

Herba unicaula, 20—45 cm alta. Caulis e basi decumbente ascendens, monopodialis, simplex vel parte superiore ramosus, ad apicem dense pubescens, basin versus glabrescens, ad apicem 1,0—1,8 mm diam., basin versus usque ad 3 mm accrescens et lignescens, internodiis 1—3,5 cm longis. Folia in petiolo breviter pubescentem, 1—5 cm longum contracta; lamina oblonga vel elliptica, 7—15 cm longa et 2,2—4,4 cm lata vel 8—13 cm longa et 3,5—6 cm lata, apice basique acuta, basi haud raro paulum inaequalis, sicc. supra olivacea, subtus dilute brunnea, supra primum pilis brevibus non valvulatis sparsa, deinde plus minusve glabrescens, subtus costa nervisque densius et inter nervos sparse pubescens, nervis utroque latere costae 7—11. Inflorescentia terminalis, erecta, ad basin interdum ramificata, interdum insuper inflorescentiis ex axillis foliorum superiorum orientibus comitata, casu quo inflorescentiae plus minusve fasciculatae. Pedunculus internodiis rachidis multo longior et ut rachis in var. *elongata* pilis capitatis, in var. *sumatrana* pilis ecapitatis hirtellis. Rachis 11—14 cm longa et ex internodiis 3—6 mm longis composita. Bractee in pedicellum paulo egredientes, lineares, 6—8 mm longae et 0,9 mm latae, dimidio superiore contractae, in var. *elongata* pilis capitatis, in var. *sumatrana* pilis ecapitatis hirtellae, 3-nerviae. Pedicelli suberecti, 3—4 mm longi, in var. *elongata* pilis capitatis, in var. *sumatrana* pilis ecapitatis hirtelli. Bracteolae ab apice pedicelli paulo remotae, filiformes, 6 mm longae, in var. *elongata* pilis capitatis, in var. *sumatrana* pilis ecapitatis hirtellae. Calycis lobus posticus et lobi antici 10 mm longi, posticus 1,2 mm latus, antici 0,8 mm lati; lobi laterales 7,5—8 mm longi et 0,7 mm lati; omnes 3-nervii, in var. *elongata* pilis capitatis, in var. *sumatrana* pilis ecapitatis hirtelli. Corolla alba, lobis tribus inferioribus roseis, extus puberula, intus ad insertionem staminum barbata, 21 mm longa. Staminodium 1 mm longum. Ovarium glabrum, utroque loculo ovulis circ. 24. Capsula glabra, 6 mm longa.

Habitat Sumatram Australem et Javam Occidentalem et Centralem.

Var. ELONGATA.

Inflorescentia pilis capitatis hirtella noscenda.

Habitat Javam Occidentalem et Centralem.

JAVA. Banten: Bodjongmanik, *Koorders 40809* (BO); Lebakkidul, Mt. Kantjana, *Koorders 41280* (BO). — Djakarta (Batavia): Wanajasa, S of Purwakarta, alt. 650 m, *Bakhuizen van den Brink Sr. 4738* (BO). Bogor (Buitenzorg): Djasinga, Pasirmadang, alt. 400 m, *Baker 10365* (BO), Mt. Panis, alt. 300 m, *Baker 23486* (BO); Mt. Gede, Mar. 25, 1941, *de Voogd s.n.* (BO); Dungastwul, alt. 175 m, *van Steenis 11218* (BO); Leuwiliang, Pasirhondjé, alt. 250 m, *Bakhuizen van den Brink Sr. 1410* (BO); Tjampea, alt. 250 m, *Bakhuizen van den Brink Sr. 600* (BO);

Mt. Salak, Warungloa, alt. 650 m, *van Steenis 10459* (BO), Tjiapus, alt. 800 m, *Bakhuizen van den Brink Sr. 4046* (BO), Sukamantri, alt. 600 m, *Bakhuizen van den Brink Sr. 5633, 7384* (BO), above Pasirpogor, alt. 950 m, *Backer 2363* (BO), s.l., *Hasskarl 368* (K, type of *Ebermaiera subpaniculata* Hassk., a slightly monstrous specimen); Gadog, Mt. Pasirangin, alt. 500 m, *Schiffner 2580* (L); Kelapanunggal, alt. 200 m, *Backer 23380* (BO); Bogor (Buitenzorg), Pasiripis, *Scheffer H.B.18942* (BO); Bolang, alt. 600 m, *Docters van Leeuwen-Reynvaan 7909* (BO); Tjiomas, *Bakhuizen van den Brink Jr. 206* (BO, U); Mt. Megamendung, Tjiaseh, alt. 1000 m, *van Steenis 2242* (BO); Mt. Beser, alt. 1000—1500 m, *van Steenis 12203* (BO); Tjandjur, Takokak, *Koorders 15130* (BO); Tjihadak, alt. 600 m, *Bakhuizen van den Brink Sr. 5* (BO), alt. 1100 m, *Winckel 18* (BO), alt. 1000 m, *Winckel 1189* (BO), alt. 1100 m, *Backer 23053* (BO). — Priangan: Mt. Burangrang, alt. 1000 m, *Backer 14118* (BO); Tasikmalaja, alt. 730 m, *Koorders 47976* (BO). — Banjumas: Mt. Slamet, Baturaden, alt. 700—1200 m, *Jeswiet 184, 251, 351, 411* (BO); Pringombo, alt. 800 m, *Koorders 27120, 34018* (BO). — Kedu: Karangbolang, *Koorders 29748* (BO); Kutoarjo, *Vorderman s.n.* (BO). — Djapara-Rembang: Mt. Murio, alt. 500 m, *Docters van Leeuwen-Reynvaan 698* (BO). — S.l., *Spanoghe s.n.* (L, typus).

Vernacular name (Sundanese): reundeu.

Var. *sumatrana* Brem. *nov. var.*

Indumento pedunculi, rachidis, pedicellorum, calycis loborum e pilis ecapitatis composito a typo recedens.

Habitat Sumatrae partem australem.

SUMATRA. Lampung: Kota-agung, *Cramer 50* (BO), *de Voogd 312* (BO, typus varietatis).

Staurogyne elongata (Bl.) Nees is a very near ally of *St. subglabra* C. B. Clarke from which it differs in the densely pubescent stem, the at first puberulous upper side of the leaves, the hirtellous inflorescence and the suberect pedicels; ecologically it is noteworthy that it descends to much lower altitudes. Both species differ from *St. longifolia* (Nees) O. Ktze in the insertion of the bracteoles a little way below the top of the pedicel, and in the presence of hairs at the insertion of the stamens, and from *St. cremostachya* Brem. in the erect or nodding but not reflexed inflorescence and in the greater length of the pedicels.

Staurogyne elongata is one of the few species of which a reliable vernacular name is known. The Sundanese people, who use it as a vegetable (lalab), call it "reundeu." Most of the vernacular names that are reported for other species are either unreliable or they belong to the kind that are applied to quite a number of unrelated plants. To the latter category belongs the Malay name "ekor kutjing," which is applied to several species with more or less dense and hairy racemes or spikes. The scarcity of generally used vernacular names apparently is due to the circumstance

that but few species are of economic importance; to the latter are to be reckoned those of which decoctions are used for medicinal purposes, i.e. against cough, etc.

17. STAUROGYNE SUBGLABRA C. B. Clarke

Staurogyne subglabra C. B. Clarke in J. As. Soc. Beng. 74: 643. 1908; Ridl., Fl. Mal. Pen. 2: 562. 1923; — *St. prianganensis* Brem. in Verh. Kon. Ned. Akad. Wet., Afd. Natuurk., 2e Sect., 45 (2): 9. 1948, cf. var. *prianganensis*.

Inter species *Heterosepalarum* foliis supra glabris vel subglabris, floribus distincte pedicellatis instructas bracteis et calycis lobis majoribus subaequilongis et linearibus, lineari-lanceolatis vel lanceolatis cum *St. elongata* (Bl.) O. Ktze, *St. longifolia* (Nees) O. Ktze et *St. cremostachya* Brem. quadrans, inflorescentia haud reflexa a *St. cremostachya*, corolla ad insertionem staminum barbata, pedicellis longioribus et bracteolis infra apicem pedicelli insertis a *St. longifolia*, caule mox glabrescente, foliis supra glabris, pedicellis patentibus, inflorescentia tota glabra vel subglabra a *St. elongata* distinguenda.

Herba unicaula, 25—60 cm alta. Caulis suberectus vel e basi decumbente ascendens, mono- vel sympodialis et plerumque simplex, ad apicem sparse pubescens, basin versus mox glabrescens, ad apicem 1,0—1,5 mm diam., ad basin usque ad 3 mm accrescens et lignescens, internodiis 1—3,5 cm longis. Folia in petiolum glabrum vel sparsissime pubescentem, 1—3 cm longum contracta; lamina in var. *subglabra* oblonga, ovato-oblonga vel elliptico-oblonga, 6,5—15 cm longa et 2,4—5,7 cm lata, apice acuta, in var. *prianganensi* lineari-lanceolata, 5—11 cm longa et 1,0—1,8 cm lata, apice acuminata, in varietatibus ambabus basi plerumque contracta, supra interdum nitidula, sicc. supra olivacea vel saturate brunnea, subtus dilute olivacea vel dilute brunnea, supra glabra, subtus costa nervis venulis principalibus strigulosus exceptis etiam glabra, nervis utroque latere costae 10—12. Inflorescentia terminalis, post anthesin interdum in positionem lateralem coacta, paulum incurvata. Pedunculus internodiis rachidis pluries longior et ut rachis glaber vel vix notabile puberulus; internodia rachidis plerumque 4—5 mm longa. Flores pedicellati. Bractee in var. *subglabra* lineares, ad medium racemum 7—10 mm longae et 0,8—2,0 mm latae, inferiores longiores et praesertim latiores, superiores minores, in var. *prianganensi* anguste lineares, circ. 5 mm longae, in varietatibus ambabus paulo in pedicellum egredientes, glabrae et 3-nerviae. Pedicelli patentis, 3—5 mm longi, glabri. Bracteolae paulo infra apicem pedicelli insertae, 5—6 mm longae et 0,8—1,0 mm latae, glabrae. Calycis lobus posticus 9—10 mm longus et 0,8—0,9 mm latus; lobi antici lobo postico aequales; lobi laterales 7—9 mm longi et 0,4—0,6 mm lati; omnes 3-nervii et glabri. Corolla alba, extus glabra, intus ad insertionem staminum barbata, 15 mm longa. Staminodium 0,7 mm longum. Ovarium glabrum, utroque loculo ovulis 18—20. Capsula glabra, 7 mm longa.

Habitat Peninsulam Malayanam et Javam Occidentalem.

Var. SUBGLABRA.

Foliis oblongis, ovato-oblongis vel elliptico-oblongis, 6,5—16 cm longis et 2,4—5,7 cm latis, acutis, bracteis linearibus noscenda.

Habitat Peninsulam Malayanam.

MALAY PENINSULA. Perak: Taiping Hills, alt. 1000 m, *King's coll. 8427* (K, typus), *Haniff & Nur 2340* (SING, K); Taiping, the Cottage, *Hervey s.n.* (SING); Mt. Hijau, alt. 1200 m, *Burkill & Haniff S.F.12872* (SING), *Ridley s.n.* (SING); Larut Hills, Christmas 1901, *Curtis s.n.* (SING); s.l., *Scortechini s.n.* (K), 406a (SING). — Kedah: Kedah Peak, *Ridley s.n.* (SING). — Pahang: Telom, *Ridley 13675* (K), 13676 (SING), 13576 (BM); Sg. Lemoin, *Jaamat F.D.28143* (SING); Cameron's Highlands, alt. 1400 m, *Symington 25972* (SING), *Henderson S.F.11981* (SING), *S.F.11669* (BO), *Batten Pool 2* (SING); Tanah Rata, alt. 1400 m, *Henderson S.F.17810* (SING); Fraser Hill (Selangor Border), alt. 1250 m, *Burkill & Holttum 7781* (SING). — Selangor: Mt. Menkuang, alt. 1500 m, Feb. 3, 1913, *Robinson s.n.* (K).

Var. prianganensis Brem. nov. var.

Staurogyne prianganensis Brem. in Verh. Kon. Ned. Akad. Wet., Afd. Natuurk., 2e Sect., 45 (2): 9. 1948.

Foliis lineari-lanceolatis, 5—11 cm longis et 1,0—1,8 cm latis, acuminatis, bracteis anguste linearibus a typo recedens.

Habitat Javam Occidentalem.

JAVA. Priangan: Tjibeber, Mt. Geulis, alt. 1000 m, *Bakhuizen van den Brink Jr. 3026* (U, typus varietatis), *Bakhuizen van den Brink Sr. 5983* (BO; as this specimen was collected at the same day and in the same place as the type of the variety, it may be regarded as a duplicate of the latter).

The great difference in geographical distribution suggests a corresponding difference in taxonomic rank, but as the morphological differences seem to be confined to the shape of the leaf and to the slightly smaller size of the bracts and calyx lobes, it did not seem justified to retain it as a distinct species.

Staurogyne subglabra C. B. Clarke is doubtless a very near ally of *St. elongata* (Bl.) O. Ktze. The differences between these two species and the way in which they differ from *St. longifolia* (Nees) O. Ktze and from *St. cremostachya* Brem., have been given under *St. elongata*.

18. STAUROGYNE LONGIFOLIA (Nees) O. Ktze

Staurogyne longifolia (Nees) O. Ktze, Rev. Gen. Pl. 1: 497. 1891; C. B. Clarke in J. As. Soc. Beng. 74: 637. 1908; Ridl., Fl. Mal. Pen. 2: 560. 1923, var. *condensata* Ridl. excluda (cf. *St. condensata*); *Ebermaiera longifolia* Nees in DC., Prodr. 11: 76, 1847; Miq., Fl. Ind. bat. 2: 774. 1858; T. And. in J. Linn. Soc. (Bot.) 9: 451. 1867; C. B. Clarke in Hook. f., Fl. Brit. Ind. 4: 399. 1884; Ridl. in Trans. Linn. Soc. (Bot.) 11 3: 332. 1893; Boerl., Handl. Fl. Ned. Ind. 2: 656. 1899; — *E. lanceolata*

(Bl.) Hassk. in errore apud C. B. Clarke in Hook f., Fl. Brit. Ind. 4: 397, 1884, specimen a Griffith in Malacca lecto excluso (cf. *St. malaccensis*); *Staurogyne lanceolata* (Bl.) O. Ktze in errore apud C. B. Clarke in J. As. Soc. Beng. 74: 636, 1908 et apud Ridl., Fl. Mal. Pen. 2: 559, 1923; — *St. angustifolia* Wall. in errore apud C. B. Clarke in J. As. Soc. Beng. 74: 636, 1908 et apud Ridl., Fl. Mal. Pen. 2: 560, 1923.

Inter species *Heterosepalarum* foliis supra glabris vel subglabris, floribus distincte pedicellatis instructas bracteis et calycis lobis majoribus subaequilongis et linearibus cum *St. elongata* (Bl.) O. Ktze, *St. subglabra* C. B. Clarke et *St. cremostachya* Brem. quadrans, bracteis bracteolis calycis lobis omnibus in processum subulatum contractis et corolla intus glabra ab eis distinguenda, bracteolis apice pedicelli insertis insuper a *St. elongata* et *St. subglabra* recedens, inflorescentia erecta a *St. cremostachya* diversa, a *St. kingiana* C. B. Clarke cum qua caule sympodiali quadrat bracteis bracteolis calycis lobis latioribus distinguenda.

Herba unicaula, 15—50 cm alta. Caulis erectus vel suberectus, sympodialis, interdum bifurcatus, primum dense, deinde sparse ferrugineo-tomentellus, 2—2,5 mm diam., internodiis 2,5—4 cm longis. Folia in petiolum 2—3 cm longum, primum dense, deinde sparse ferrugineo-tomentellum contracta; lamina anguste lanceolata, 7—15 cm longa et 1—5 cm lata, apice acuta, basi contracta, firmior, sicc. supra saturate brunnea, rarius olivacea, subtus dilute brunnea, rarius dilute viridi-brunnea, costa utraque facie et nervis subtus strigulosis exceptis utrimque glabra, nervis utroque latere costae 8—14. Inflorescentia primum terminalis, deinde in positionem lateralem coacta; pedunculus strigulosus, plerumque circ. 1 cm longus; rachis 4—12 cm longa. Flores pedicellati. Bracteae plerumque in pedicellum egredientes, 10 mm longae et 1,2 mm latae, ut bracteolae et calycis lobi omnes apicem versus in processum subulatum contractae, margine et costa pilis longis basi vix incrassatis cum pilis brevibus mixtis hirtellae, 3-nerviae. Pedicelli florum inferiorum 2—3 mm longi, florum superiorum sensim breviores. Bracteolae apice pedicelli insertae, 12 mm longae et 1,0 mm latae, paulum asymmetricae, ceterum ut bracteae. Calycis lobus posticus 12 mm longus et 1,5 mm latus, 3-nervius; lobi antici eo aequilongi sed 0,7 mm lati; lobi laterales 9,5 mm longi et 0,5 mm lati. Corolla alba, ad orem castanea, limbo interdum roseo, 15—20 mm longa, extus intusque glabra. Staminodium capitatum, 1,1 mm longum. Ovarium glabrum, utroque loculo ovulis 16—18. Capsula glabra, 6 mm longa.

Habitat Peninsulam Malayanam, fide Ridley l.c. usque ad 1200 m alt., sed altitudo suprema in schedulis nota circ. 300 m.

MALAY PENINSULA. Perak: Trolak, vern. name: ekor kucing, Webber F.D.11534 (K); Ipoh, Dec. 1895, Curtis s.n. (SING); Bujong Malacca, Ridley 9766 (SING); Tapah, Burkill S.F.13505 (SING), Ridley 14052 (SING, BM); s.l., Scortechini 155b (SING, K). — Pahang: Kuala Lipis, Burkill & Haniff S.F.15711 (SING, UC); Kuala Teku, alt. 150 m, Seimund 598, 606 (SING); Tahan R., Ridley 2177 (SING); Ulu Tambeling, Henderson s.n. (SING). — Selangor: Ampang Reserve, Strugnell F.D.14614 (SING); Ulu Gombok, Hume 9711 & 9989 (SING); Sempang, Ridley 12089

(SING); Semangko, *Ridley 12089* (K); Bt. Kuta, *Ridley 7590* (SING); Kwang, *Ridley s.n.* (SING); Rantau Panjang, *Kloss 41* (K); Kuala Lumpur, *Curtis 2368* (SING), *Ridley s.n.* (K), *Napier s.n.* (SING), *Goodenough 35* (SING); Kanching, *Ridley s.n.* (K), *Synington F.D.21100* (SING), *Nur S.F.34326* (SING, K). — Negri Sembilan: Perhentian Tinggi, *Ridley 10098* (SING); Senawang For. Res., *Holtum 9949* (SING); Tumiang, *Alvins 1654* (SING). — Malacca: Ayer Panas, *Hullett 408* (SING), *Goodenough 1689* (SING), *Henny 23* (SING), *Griffith H.I.C.6079* (K); s.l., *Cuming 2350* (K, typus), *Alvins s.n.* (SING). — Johore: Mt. Muntahar, *Kloss s.n.* (SING, G, BR); Rotan Susor, alt. 100 m, *Nur S.F.19994* (SING, BO, UC); Mt. Pantl, alt. 360 m, *Corner s.n.* (SING).

Staurogyne longifolia (Nees) O. Ktze is easily distinguishable from the other Malesian species by the shape of the bracts, bracteoles and calyx lobes, which are contracted in a subulate point. In this respect it approaches *St. malaccensis* C. B. Clarke, where these parts are more or less distinctly aristate; it differs very markedly from that species in the pedicellate flowers and in the much greater length of the staminode, in the sympodial stem and in the larger number of nerves in the leaf. It comes probably nearer to *St. elongata* (Bl.) O. Ktze and to *St. subglabra* C. B. Clarke, from which it differs in the shorter length of the pedicels, in the insertion of the bracteoles at the top of the latter and in the inside glabrous corolla.

19. *Staurogyne cremostachya* Brem. nov. nom.

Ebermaiera axillaris Nees in Wall., Pl. as. rar. 3: 80. 1832; id. in DC., Prodr. 11: 75. 1847; T. And. in J. Linn. Soc. (Bot.) 9: 452. 1867; C. B. Clarke in Hook. f., Fl. Brit. Ind. 4: 399. 1884; non *Staurogyne axillaris* S. Moore in J. Linn. Soc. (Bot.) 42: 128. 1914 (cf. sectio *Maschalanthus*); *Staurogyne comosa* (Wall.) O. Ktze, Rev. Gen. Pl. 1: 497. 1891, comb. illeg. derivata de *Ruellia comosa* Wall., nomen nudum et insuper praecoccupatum; ut nomen novum *St. comosa* O. Ktze est illegitimum nam in 1891 epitheto *axillari* adhuc utendum erat; C. B. Clarke in J. As. Soc. Beng. 74: 638. 1908; Ridl., Fl. Mal. Pen. 2: 560. 1923.

Inter species *Heterosepalarum* omnes ob inflorescentiam pendulam faciliter noscenda, foliis supra glabris, floribus pedicellatis ad *St. elongatam* (Bl.) O. Ktze, *St. subglabram* C. B. Clarke et *St. longifoliam* (Nees) O. Ktze accedens, brevitate pedicellorum tamen ab eis recedens et ad *St. malaccensem* C. B. Clarke, *St. condensatam* (Ridl.) Brem. et *St. lanceolatam* (Bl.) O. Ktze vergens.

Herba unicaula, 15—40 cm alta. Caulis e basi decumbente ascendens, sympodialis et parte superiore interdum bifurcatus, apice sparse pubescens, basin versus glabrescens, ad apicem circ. 1,5 mm diam., basin versus usque ad 3 mm incrassatus, internodiis 3—8 cm longis. Folia in petiolum 1,5—5 cm longum, sparse pubescentem contracta; lamina lanceolata vel anguste elliptica, 8—18 cm longa et 2,7—6,5 cm lata, apice acuta, basi cuneata, sicc. supra saturate brunnea, subtus olivacea, supra glabra, subtus

costa nervisque sparse puberula, nervis utroque latere costae 7—12. Inflorescentia primum terminalis, deinde in positionem lateralem coacta, pendula. Pedunculus reflexus 5—7 mm longus, densissime pubescens. Rachis 3—12 cm longa. Flores breviter pedicellati. Bracteae usque ad apicem pedicelli egredientes, 13 mm longae et 2.4 mm latae, utroque extremo attenuatae, 3-nerviae. Pedicelli circ. 1 mm longi. Bracteolae 10—11 mm longae et 1.0 mm latae, 1-nerviae. Calycis lobus posticus 12 mm longus et 1.8 mm latus, indistincte 3-nervius; lobi antichi ei aequilongi sed 1.0 mm lati; lobi laterales 8 mm longi et 0.7 mm lati; omnes ut bractea bracteolaeque margine et costa pilis basi incrassatis ciliati et ut eae rosei dicti. Corolla alba, extus pubescens, intus ad insertionem staminum dense barbata, 18.5 mm longa. Staminodium quadratum, 0.5 mm longum. Ovarium glabrum, utroque loculo ovulis circ. 26. Capsula glabra, 6 mm longa.

Habitat Peninsulam Malayanam.

MALAY PENINSULA. Perak: Sg. Sipuk, *Haniff & Nur 6975* (SING, BO); Bt. Kapayang, *Ridley 11896* (SING, K); Hermitage Hill, *Ridley 2893* (SING); Larut, alt. 30 m, *King's coll. 1834* (K); Relau Tujur, *Wray 2192* (K); s.l., *Scortechini s.n.* (K). — Wellesley: Bt. Panchur, *Spare S.F.36237* (SING, K), *For. Guard 12575* (SING). — Penang: *Wallich 2414* (K, typus). — Trengganu: Bt. Kajang, alt. 200 m, *Corner S.F.30203* (SING, BO, K, L, BRI). — Pahang: Rasib-Bentong Road, *Best S.F.14109* (SING, BO). — Selangor: Kuala Lumpur, *King's coll. 10795* (K); Rawang, *Ridley 7589* (SING); Pahang track, *Ridley 8543* (SING).

The name *St. comosa* (Wall.) O. Ktze is illegitimate, because the name on which it was based, viz. *Ruellia comosa* Wall., was published without description. The epithet *comosa*, moreover, had already been used for another *Ruellia* species. Kuntze ought to have used the epithet *axillaris*, as the species had been described by Nees under the name *Ebermaiera axillaris*, and as this was its only legitimate name. The epithet *axillaris* remained available until 1914, when it was used by S. Moore for another *Staurogyne* species, and after that date therefore another epithet had to be found for the plant described by Nees. Ridley used in 1923 the epithet *comosa*, but he did not publish the combination *St. comosa* under his own name but under that of Kuntze, and as stated above, there can be no doubt that it was in that form illegitimate. If he had published the combination under his own name, it might perhaps have been acceptable, for in that form it would have been comparable to the name *Gossypium sturtii* Hutchinson, Silow & Stephens (1947), whose status is discussed under Art. 81 of the "International code of botanical nomenclature" (1952). According to the botanists who framed this article the name *Gossypium sturtii* would not be illegitimate although the same combination had already been used for this species by F. Mueller in 1862 and although it was at that time, at least when judged by our present standard, indubitably illegitimate.

Mueller merely transferred R. Brown's *Sturtia gossypioides* (1853) to another genus, and he ought, therefore, to have retained the epithet *gossypioides*. As this epithet is since 1923 no longer available, as it was used in that year by Standley for another *Gossypium* species, the epithet *sturtii* was now according to these botanists available for the plant originally described by Brown. If this is right, I might have used the combination *Staurogyne comosa* under my own name for the plant described by Nees under the name *Ebermaiera axillaris* and up to now known as *Staurogyne comosa* (Wall.) O. Ktze. It can not be denied that this could not have caused confusion, and that the main reason for introducing a new epithet therefore is absent. However, a more stringent interpretation of Art. 81 of the "Code" seems appropriate. The article prescribes that when no legitimate name or epithet exists, "a new name or epithet must be chosen." This is, in my opinion, explicit: the present epithet *comosa* is illegitimate, and a new epithet, therefore, should be chosen. It is true that the article proceeds, "When a new epithet is required, an author may, if he wishes, adopt an epithet previously given to the taxon in an illegitimate combination, if there is no obstacle to its employment in the new position or sense; the epithet in the resultant combination is treated as new," but this is obviously an inconsistency, as such an epithet surely is not a really new one. For this reason I preferred to introduce an entirely new epithet, viz. *cremostachya*.

In the comparatively large number of ovules *St. cremostachya* Brem. resembles *St. elongata* (Bl.) O. Ktze and also some of the species whose leaves are on the upper side sprinkled with long septate hairs, and in the shape and size of the staminodium it reminds us of one of the latter, viz. *St. arcuata* C. B. Clarke, but it is at the moment impossible to make out whether this is indicative of a nearer affinity. On account of the pendulous inflorescences with their pink bracts, bracteoles and calyx lobes *St. cremostachya* doubtless occupies a rather isolated position in the *Heterosepalae*.

20. STAUROGYNE MALACCENSIS C. B. Clarke

Staurogyne malaccensis C. B. Clarke in J. As. Soc. Beng. 74: 636. 1908, specimenibus javanicis exclusis; eodem modo Ridl., Fl. Mal. Pen. 2: 559. 1923; non R. Benoist in Fl. gén. Indo-Chine 4: 626. 1935; — *Ebermaiera argentea* (Wall.) Nees in DC., Prodr. 11: 75. 1847, quoad specimen a Griffith in Malacca lectum; — *E. lanceolata* (Bl.) Hassk. in errore apud C. B. Clarke in Hook. f., Fl. Brit. Ind. 4: 397. 1884, quoad specimen a Griffith in Malacca lectum.

Inter species *Heterosepalarum* foliis supra glabris vel subglabris, floribus sessilibus vel subsessilibus instructas bracteis bracteolis et calycis lobis subaequilongis cum *St. condensata* (Ridl.) Brem. et *St. lanceolata*

(Bl.) O. Ktze quadrans, ab ambabus bracteis bracteolisque in processum subulatum contractis distinguenda.

Herba unicaula, 10—20 cm alta. Caulis e basi decumbente ascendens, simplex vel parce ramosus, monopodialis, apice dense, basin versus sparse ferrugineo-pubescentis, 1,2—2,8 mm diam., internodiis 0,6—5 cm longis. Folia in petiolum 0,5—3,0 cm longum, densius ferrugineo-pubescentem contracta; lamina in var. *malaccensi* lanceolata, 4,7—14 cm longa et 1,7—3,3 cm lata, apice acuta vel subacuta, in var. *stenophylla* lineari-oblonga vel in foliis aliquibus lanceolata et plerumque 2—12 cm longa et 0,7—1,7 cm lata, apice subacuta vel obtusa, in varietatibus ambabus basi contracta, sicc. supra saturate brunnea, olivaceo-brunnea vel olivacea, subtus dilute brunnea vel dilute olivacea, costa supra pilis perpaucis sparsa et subtus ut nervis puberula excepta utraque facie glabra vel in var. *stenophylla* vix notabile scabridula, nervis utroque latere costae in var. *malaccensi* 7—9, in var. *stenophylla* 5—9. Inflorescentiae terminales et axillares. Pedunculus internodio precedente brevior, ferrugineo-pubescentis. Flores sessiles. Bractee 6—13 mm longae et 1,5—2 mm latae, in subulam 0,5—1,5 mm longam exeuntes, costa et margine pilis longis cum pilis brevibus mixtis hirtellae, dorso puberulae, 3-nerviae. Bracteolae bracteis subaequilongae sed 0,5—0,8 mm latae, ceterum ut bractee. Calycis lobus posticus bractea similior sed 8—8,5 mm longus; lobi antici 7 mm longi et 0,7—0,8 mm lati; lobi laterales 4—4,5 mm longi et 0,4 mm lati; omnes margine eodem modo ut bractea bracteolaeque hirtelli. Corolla alba, extus glabra, intus ad insertionem staminum subglabra, circ. 12 mm longa. Stammodium vix conspicuum, 0,2 mm longum. Ovarium glabrum vel pilis capitatis vix notabile hirtellum; ovula utroque loculo 12—16. Capsula glabra, 5 mm longa.

Habitat Peninsulam Malayanam, Siamiam Inferiorem, insulam Billiton dictam.

Var. *MALACCENSIS*.

Foliis omnibus lanceolatis, 4,7—14 cm longis et 1,7—3,3 cm latis, apice acutis vel subacutis, supra laevibus noscenda.

Habitat Malaccam et insulam Billiton dictam.

MALAY PENINSULA. Malacca: Sg. Hudang, *Ridley 1636* (SING); s.l., *Griffith 189* (K, BR, exempla typi).

SUMATRA. BILLITON: s.l., anno 1876, *Riedel* (FI).

Var. *stenophylla* Brem. *nov. var.*

Foliis plurimis lineari-oblongis et 2—12 cm longis, 0,7—1,7 cm latis, aliquibus interdum lanceolatis et usque ad 13 cm longis et 3,5 cm latis, omnibus subacutis vel obtusis et supra vix notabile scabridulis a typo recedens.

Habitat Siamiam Inferiorem et Peninsulam Malayanam.

SIAM. Lower Siam: Panga, *Haniff & Nur S.F.3890* (SING); Kasoom, *Curtis s.n.* (SING); Bandon R., Surat, *Seidenfaden 2244* (SING).

MALAY PENINSULA. Kedah: Langkawi Is., Burau, Robinson 6258 (K), Ridley 15076 (SING, K), Sg. Raya, Corner s.n. (SING), s.l., Curtis s.n. (SING). — Penang: P. Butong, Curtis 1931 (SING). — Wellesley: Tasek Glugor, Ridley 6998 (SING). — Kelantan: Sg. Keteh, Gua Ninih, Henderson S.F. 19618 (SING).

The variety *malaccensis* has apparently a very small area of distribution, for it is known only from the province Malacca and from the island Billiton. It is also a rare plant, for it is represented in the herbaria by three collections only. The variety *stenophylla*, on the other hand, has been collected in several places in the northern part of the Malay Peninsula and in the adjoining part of Siam. The plants recorded by Benoist in the "Flore générale de l'Indo-Chine" under the name *Staurogyne malaccensis* C. B. Clarke come according to the description very near to the variety *stenophylla*, but do not fully agree with the latter. I suppose that they represent an undescribed species.

Staurogyne malaccensis C. B. Clarke, *St. condensata* (Ridl.) Brem. and *St. lanceolata* (Bl.) O. Ktze are nearly related species resembling each other in the absence of septate hairs on the upper side of the leaf and in the spicate inflorescences with their hairy and rather long bracts. *Staurogyne malaccensis* differs from the two other species in the shape of these bracts, which are contracted into a subulate point. In this respect it shows some resemblance to *St. longifolia* (Nees) O. Ktze whose inflorescences, however, are much longer and whose flowers are distinctly pedicellate.

21. *Staurogyne condensata* (Ridl.) Brem. nov. spec.

Staurogyne longifolia (Nees) O. Ktze var. *condensata* Ridl., Fl. Mal. Pen. 2: 560, 1923.

Inter species *Heterosepalarum* foliis supra glabris vel subglabris, floribus sessilibus vel subsessilibus instructas bracteis bracteolis et calycis lobis postico et anticis subaequilongis cum *St. malaccensi* C. B. Clarke et *St. lanceolata* (Bl.) O. Ktze quadrans, ab ambabus spicis paucifloris in inflorescentiam subglobosam congestis, a priore insuper bracteis, bracteolis et calycis lobis acutis, haud in processum subulatum contractis, a posteriore calycis lobis lateralibus aliis dimidio brevioribus distinguenda.

Herba unicaula, probabiliter humilis sed pars superior caulis sola nota. Caulis apicem versus ramosior, ferrugineo-tomentellus, circ. 3 mm diam., internodiis 0,5—1 cm longis. Folia in petiolum 0,2—1,3 cm longum, dimidio superiore alatum, subtus praesertim basin versus tomentellum contracta; lamina lanceolata, 3,5—6,5 cm longa et 0,8—1,4 cm lata, foliorum superiorum tamen multo minor, apice subacuta, basi contracta, sicc. supra saturate, subtus dilute brunnea, supra costa primum densius pilosa, ultimo plus minusve glabrescens, subtus costa nervis venulisque densius puberulo-pubescentibus, ceterum utrimque glabra, nervis utroque latere costae 6—10. Inflorescentia subglobosa e spicis brevibus et paucifloris composita, circ.

4 cm alta et 3,5 cm diam., spicis caulem et ramulos breves ex axillis foliorum superiorum orientes terminantibus. Spicae subsessiles; rachides tomentellae. Bracteeae 7—8,5 mm longae et 0,8—1,0 mm latae, acutae, margine pilis longis cum pilis brevibus mixtis ciliatae, dorso minute papillosoe, 3-nerviae. Bracteolae 7 mm longae et 0,4 mm latae, bracteis similiores sed longius ciliatae. Calycis lobus posticus 8 mm longus et 1,8 mm latus, ceterum ut bracteolae; lobi antici 7 mm longi et 0,4 mm lati, a bracteolis vix distinguendi; lobi laterales 3,5 mm longi et 0,3 mm lati. Corolla alba, extus intusque glabra, 12 mm longa. Staminiodium 0,3 mm longum. Ovarium glabrum; ovula utroque loculo circ. 16. Capsula glabra, 6 mm longa.

Habitat Peninsulam Malayanam.

MALAY PENINSULA. Kelantan: Kuala Lebir, Gimlette s.n. (SING, typus).

The short spikes that are condensed into a subglobose mass distinguish this species at first view from its allies. It resembles *St. malaccensis* C. B. Clarke in the shortness of the lateral calyx lobes, but differs from that species in the shape of the bracts, bracteoles and calyx lobes, which are acute, not contracted into a subulate point. In this respect it resembles *St. lanceolata* (Bl.) O. Ktze, with which it also agrees in the nature of the petioles, which are winged in the upper part. It differs from that species in the short lateral calyx lobes. The affinity with *St. longifolia* (Nees) O. Ktze, from which it differs in the short inflorescences, the sessile flowers, the short lateral calyx lobes and the small size of the staminode, is apparently more remote.

22. *STAUROGYNE LANCEOLATA* (Bl.) O. Ktze

Staurogyne lanceolata (Bl.) O. Ktze, Rev. Gen. Pl. 1: 497. 1891; non C. B. Clarke in J. As. Soc. Beng. 74: 636. 1908 nec Ridl., Fl. Mal. Pen. 2: 559. 1923, nam specimina ab eis citata ad *St. longifoliam* (Nees) O. Ktze pertinent, nec Koorders, Exkursionsfl. Java 3: 212, 1912, nam specimen citatum a Zollinger lectum ad speciem aliam, non certe determinandum pertinet; *Adenosma lanceolatum* Bl., Bijdr. Fl. Ned. Ind. 757. 1826; *Ebermaiera lanceolata* (Bl.) Hassk., Cat. Hort. bog. alt. 147. 1844 minime quoad typum nam Zollinger 593 est fide Nees in DC., Prodr. 11: 76. 1847 species "*Ebermaiera staurogyne* Nees" affinis et Zollinger 596 etiam ab eo citatum est typus *Rungia sarmentosa* (Nees) Val.; Nees in DC., Prodr. 11: 76. 1847; Miq., Fl. Ind. bat. 2: 774. 1858; Boerl., Handl. Fl. Ned. Ind. 2: 656. 1899; non C. B. Clarke in Hook. f., Fl. Brit. Ind. 4: 397. 1884, nam specimina citata ad *St. longifolium* (Nees) O. Ktze et *St. malaccensem* C. B. Clarke pertinent.

Inter species *Heterosepalarum* foliis supra glabris vel subglabris, floribus sessilibus vel subsessilibus instructas bracteis bracteolisque calycis lobis postico et anticis subaequilongis cum *St. malaccensi* C. B. Clarke et *St. condensata* (Ridl.) Brem. quadrans, ab ambabus calycis lobis lateralibus quam aliis paulo brevioribus, a priore bracteis bracteolis et calycis

MALAY PENINSULA. Kedah: Langkawi Is., Bureau, Robinson 6258 (K), Ridley 15670 (SING, K), Sg. Raya, Corner s.n. (SING), s.l., Curtis s.n. (SING). — Penang: P. Butong, Curtis 1931 (SING). — Wellesley: Tasek Glugor, Ridley 6998 (SING). — Kelantan: Sg. Ketch, Gun Ninih, Henderson S.F.19618 (SING).

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Inter species *Heterosepalarum* foliis supra glabris vel subglabris, floribus sessilibus vel subsessilibus instructas bracteis bracteolis et calycis lobis postico et anticis subaequilongis cum *St. malaccensi* C. B. Clarke et *St. lanceolata* (Bl.) O. Ktze quadrans, ab ambabus spicis paucifloris in inflorescentiam subglobosam congestis, a priore insuper bracteis, bracteolis et calycis lobis acutis, haud in processum subulatum contractis, a posteriore calycis lobis lateralibus aliis dimidio brevioribus distinguenda.

Herba unicaula, probabiliter humilis sed pars superior caulis sola nota. Caulis apicem versus ramosior, ferrugineo-tomentellus, circ. 3 mm diam., internodiis 0,5—1 cm longis. Folia in petiolum 0,2—1,3 cm longum, dimidio superiore alatum, subtus praesertim basin versus tomentellum contracta; lamina lanceolata, 3,5—6,5 cm longa et 0,8—1,4 cm lata, foliorum superiorum tamen multo minor, apice subacuta, basi contracta, sicc. supra saturate, subtus dilute brunnea, supra costa primum densius pilosa, ultimo plus minusve glabrescens, subtus costa nervis venulisque densius puberulo-pubescentibus, ceterum utrimque glabra, nervis utroque latere costae 6—10. Inflorescentia subglobosa e spicis brevibus et paucifloris composita, circ.

4 cm alta et 3,5 cm diam., spicis caulem et ramulos breves ex axillis foliorum superiorum orientes terminantibus. Spicae subsessiles; rachides tomentellae. Bracteae 7—8,5 mm longae et 0,8—1,0 mm latae, acutae, margine pilis longis cum pilis brevibus mixtis ciliatae, dorso minute papillosae, 3-nerviae. Bracteolae 7 mm longae et 0,4 mm latae, bracteis similiore sed longius ciliatae. Calycis lobus posticus 8 mm longus et 1,8 mm latus, ceterum ut bracteolae; lobi antici 7 mm longi et 0,4 mm lati, a bracteis vix distinguendi; lobi laterales 3,5 mm longi et 0,3 mm lati. Corolla alba, extus intusque glabra, 12 mm longa. Staminodium 0,3 mm longum. Ovarium glabrum; ovula utroque loculo circ. 16. Capsula glabra, 6 mm longa.

Habitat Peninsulam Malayanam.

MALAY PENINSULA. Kelantan: Kuala Lebir, *Gimlette s.n.* (SING, typus).

The short spikes that are condensed into a subglobose mass distinguish this species at first view from its allies. It resembles *St. malaccensis* C. B. Clarke in the shortness of the lateral calyx lobes, but differs from that species in the shape of the bracts, bracteoles and calyx lobes, which are acute, not contracted into a subulate point. In this respect it resembles *St. lanceolata* (Bl.) O. Ktze, with which it also agrees in the nature of the petioles, which are winged in the upper part. It differs from that species in the short lateral calyx lobes. The affinity with *St. longifolia* (Nees) O. Ktze, from which it differs in the short inflorescences, the sessile flowers, the short lateral calyx lobes and the small size of the staminode, is apparently more remote.

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Inter species *Heteroseptarum* foliis supra glabris vel subglabris, floribus sessilibus vel subsessilibus instructas bracteis bracteolisque calycis lobis postico et anticis subaequilongis cum *St. malaccensi* C. B. Clarke et *St. condensata* (Ridl.) Brem. quadrans, ab ambabus calycis lobis lateralibus quam aliis paulo brevioribus, a priore bracteis bracteolis et calycis

lobis acutis, apice haud distincte contractis, a posteriore spicis longioribus, haud in inflorescentiam subglobosam congestis distinguenda.

Herba plerumque unicaula, 15—30 cm alta. Caulis e basi decumbente ascendens, simplex vel parce ramosus, monopodialis, dense ferrugineo-pubescentem, 1,5—2,5 mm diam., internodiis 0,7—8 cm longis. Folia in petiolum 1—5 cm longum, dimidio superiore alatum, sparse pubescentem contracta; lamina lanceolato-oblonga, 3—8 cm longa et 0,9—2,5 cm lata, apice obtusa, basi contracta, sicc. supra saturate, subtus dilute brunnea vel olivacea, costa supra densius pilosa, costa nervisque subtus densius pubescens, ceterum in var. *lanceolata* utrimque sparse puberula, in var. *scabridula* supra scabridula, nervis utroque latere costae 4—9. Inflorescentiae terminales et interdum axillares; inflorescentiae axillares terminal semper multo breviores. Pedunculus subnullus; rachis pilis capitatis hirtella. Flores sessiles. Bracteae 10 mm longae et 1,8 mm latae, apice acutae, margine at costa pilis longis ecapitatis et pilis aliquibus capitatis multo brevioribus ciliatae, 3-nerviae. Bracteolae 7 mm longae et 0,5 mm latae, ceterum ut bracteae. Calycis lobus posticus 8 mm longus et 1 mm latus, ceterum ut bractea sed pili capitati numerosiores; lobi antici 7,5 mm longi et 0,4 mm lati; lobi laterales 7 mm longi et 0,3 mm lati; lobi omnes apice acuti, margine et costa ciliati. Corolla alba, extus glabra, intus ad insertionem staminum subglabra, 10—11 mm longa. Staminodium filiforme, 0,7 mm longum. Ovarium glabrum; ovula utroque loculo circ. 18. Capsula glabra, 5 mm longa.

Habitat Javam et Peninsulam Malayanam.

Var. LANCEOLATA.

Foliis supra extra costam sparse puberulis noscenda.

Habitat Javam Occidentalem.

JAVA. Djakarta (Batavia): Tjikao, *Blume 1208* (L, typus); Purwakarta, alt. 300 m, *Bakhuizen van den Brink Sr. 4982* (L). — Bogor (Buitenzorg): Tjisarua (above Bogor), *Raap 889* (L); Tjiandjur, *Backer 23677* (BO). — Priangan: Tjibeet, alt. 175 m, *van Steenis 5448* (BO). — Djapara-Rembang: Mt. Murio, alt. 400 m, *Docters van Lecuwen-Reynaan 762* (BO).

Var. *scabridula* Brem. nov. var.

Foliis supra extra costam scabridulis a typo recedens.

Habitat Peninsulam Malayanam.

MALAY PENINSULA. Perlis: Ginting Kabok, *Ridley 14966* (SING, K; varietatis typi). — Kedah: Langkawi Is., Burau, *Robinson s.n.* (K); Ganong, *Ridley s.n.* (SING).

The enormous distance by which the area occupied by the variety *scabridula* is separated from that of the variety *lanceolata* suggests the possibility that the difference between these two forms might be of more than varietal importance. However, as I have not been able to find any other difference between them besides the one given above, viz. a slightly

different kind of indumentum, this idea had to be abandoned. A similar anomalous distribution is shown by *Staurogyne subglabra* C. B. Clarke, where the variety *subglabra* is confined to the Malay Peninsula, whereas the variety *prianganensis* is found in West Java.

The affinity of *St. lanceolata* (Bl.) O. Ktze with *St. malaccensis* C. B. Clarke and *St. condensata* (Ridl.) Brem. and the points in which it differs from these species have already been discussed at some length. The affinity with *St. longifolia* (Nees) O. Ktze, with which it has often been confused, is more remote. *Staurogyne lanceolata* differs from the latter in the monopodial stem, the sessile flowers, the acute, not acuminate bracts, bracteoles and calyx lobes and the smaller size of the flowers.

23. *Staurogyne dasystachya* Brem. *nov. spec.*

Inter species *Heterosepalarum* foliis supra glabris et floribus sessilibus instructas brevitate bractearum noscenda.

Herba unicaula, circ. 25 cm alta. Caulis suberectus vel e basi decumbente ascendens, sympodialis et interdum bifurcatus, interdum ex axillis superioribus ramificatus, ad apicem dense ferrugineo-pubescentis vel subtomentosus, basin versus sparse puberulus, 1,8—3,0 mm diam., internodiis 2—6 cm longis. Folia petiolo dense ferrugineo-pubescente vel subtomentoso, 0,5—2,4 cm longo instructa; lamina anguste lanceolata, plerumque 5—11 cm longa et 1,5—3 cm lata, in foliis aliquibus tamen elliptico-lanceolata, 6—9 cm longa et 2,7—3,8 cm lata, apice semper subacuta, basi haud raro paulum asymmetrica, acuta, sicc. supra saturate olivacea, subtus griseo-viridis, supra glabra, subtus costa nervisque dense puberulo-pubescentis, venulis sparse puberulo-pubescentis, nervis utroque latere costae 6—10. Inflorescentia primum terminalis, deinde in positionem lateralem coacta. Pedunculus circ. 2 cm longus et ut rachis puberulo-pubescentis; internodia rachidis 2,5—3 mm longa. Flores sessiles. Bracteae 6,5 mm longae et 0,8 mm latae, 3-nerviae, vix conspicue ciliolatae. Bracteolae 10 mm longae et 0,6 mm latae, 3-nerviae, margine et costa ciliolatae. Calycis lobus posticus 9,5 mm longus et 0,9 mm latus; lobi antici 8,5 mm longi et 0,5 mm lati; lobi laterales 7,5 mm longi et 0,4 mm lati, conduplicati; lobi omnes 3-nervii et margine costaque ciliolati. Corolla et capsula nondum visa.

Habitat Novae Guineae partem occidentalem.

NEW GUINEA. Western Part: Patema, 40 km inland from Nabire, alt. 300 m, *Kanchira & Hatusima 12449* (BO ex Herb. For. Inst., Kyusya Imp. Univ., Fukuoka; typus).

Staurogyne dasystachya Brem. is the most eastern representative of the series *Heterosepala*. It differs from all its allies by the small size of the bracts, which are distinctly shorter than the bracteoles and calyx lobes. In *St. lasiobotrys* (Nees) O. Ktze bracts as well as bracteoles are

shorter than the calyx lobes, and in the other species occurring in the Malaysian area bracts and bracteoles are about as long as the latter or distinctly longer. It is unfortunate that the corolla and the capsula are unknown, for now we know nothing with regard to the shape and size of the staminode and we have no information with regard to the number of ovules, and without these data it is not well possible to determine its affinities.

Series 2. *Isosepalae* Brem. *nov. ser.* (Species 24—33)

Flores semper pedicellati. Bracteeae bracteolaeque anguste lineares vel filiformes, calycis lobis semper breviores. Calycis lobi aequales.

24. *Staurogyne anomala* Brem. *nov. spec.*

Inter species *Isosepalarum* foliis subtus inter nervos pilis capitatis brevissimis punctatis, inflorescentiis in triades dispositis et iam ad anthesin in positionem lateralem coactis, numero parvo ovulorum distinguenda.

Herba unicaula, 20—30 cm alta. Caulis e basi decumbente ascendens, simplex, sympodialis, ad apicem tomentellus, basin versus satis dense puberulo-pubescentis, ad apicem 0,8 mm diam., basin versus usque ad 2 mm incrassatus, internodiis 2,5—8 cm longis, ad nodos fere omnes triade inflorescentiarum instructus. Folia in petiolum primum tomentellum, deinde sparse puberulo-pubescentem, 0,5—1,0 cm longum contracta; lamina lanceolata, 5,5—8 cm longa et 1,5—2,2 cm lata, apicem versus contracta, basin versus plerumque cuneiformis, sicc. supra olivacea, subtus griseo-viridis, supra glabra, subtus costa nervisque puberulo-pubescentis, inter nervos pilis capitatis brevissimis vix notabile punctata, nervis utroque latere costae 9—10. Inflorescentiae interdum usque ad 4 cm longae, plerumque tamen multo breviores, in triades primum terminales dispositae, inflorescentiis lateralibus ex axillis foliorum magnitudine redactorum orientibus; triades inflorescentiarum iam ad anthesin in positionem lateralem coactae. Pedunculus internodiis rachidis subaequilongus et ut rachis papillosus; internodia rachidis usque ad 4 mm longa. Bracteeae anguste lineares, 1,5—3 mm longae, glabrae, basi pedicelli insertae. Pedicelli 2—3 mm longi, subglabri. Bracteolae ad apicem pedicelli insertae, 2—3 mm longae, glabrae. Calycis lobi ad anthesin 6 mm longi et 0,7 mm lati, post anthesin usque ad 6,5 mm accrescentes, glabri, 3-nervi. Corolla alba, extus glabra, intus ad insertionem staminum barbata, 11 mm longa. Staminodium 1 mm longum. Ovarium glabrum, utroque loculo ovulis 12. Capsula glabra, 8 mm longa, dimidio superiore conica.

Habitat Sumatrae partem septemtrionalem.

SUMATRA. Atjeh: Gajo Lands, Sanger Valley, above Blangkodjeren, alt. 1100 m, van Steenis 9855 (BO, L, typ). — East Coast: Karo Lands, Delengharus, alt. 1500—1900 m, Bartlett 8518 (NY, US).

Staurogyne anomala Brem. occupies in the series *Isosepalae* an anomalous position, in the first place by the very small number of ovules and by the unusual shape of the capsule, and then by the curious arrangement of the inflorescences and by the presence of numerous very short capitate hairs between the nerves on the underside of the leaf. The numerous very short inflorescences remind one of the section *Maschalanthus*, but in that section the inflorescences are borne by axillary short-shoots arising from the axil of opposite leaves, whereas in *St. anomala* they, i.e. the triads, are of terminal origin and therefore always solitary at the nodes.

25. *Staurogyne jaherii* Brem. *nov. spec.*

Inter species *Isosepalarum* bracteolis apice pedicelli insertis et ovulis numerosis instructas cum *St. kinabaluensi* Brem. quadrans sed caule petiolisque tomentellis, calycis lobis ciliatis ab ea distinguenda.

Herba unicaula, 12—20 cm alta. Caulis e basi decumbente ascendens, saepius ramosus, sympodialis, ad apicem tomentellus, basin versus glabrescens, circ. 1 mm diam., basin versus usque ad 3,5 mm accrescens, internodiis 1—4 cm longis. Folia in petiolum primum tomentellum, deinde glabrescentem, 0,5—2 cm longum contracta; lamina in var. *jaherii* oblonga vel elliptica, 3—7,5 cm longa et 0,9—3 cm lata, in var. *angustifolia* linearis, 2,4—5 cm longa et 0,5—1,1 cm lata, in varietatibus ambabus apice acuta vel subobtusata, basi acuta vel contracta, sicc. supra olivaceo-brunnea, subtus dilute brunnea, supra papillosa, subtus costa nervisque puberula, nervis utroque latere costae 5—7. Inflorescentiae terminales et axillares; inflorescentiae axillares re vera brachyblastos terminantes et inde basi pari foliorum parvorum instructae. Pedunculus internodiis rachidis paulo longior et ut rachis papillosus; internodia rachidis 5—6 mm longa. Bracteae lineares, 3 mm longae et 0,6 mm latae, vix conspicue ciliolatae. Pedicelli puberuli, 3 mm longi. Bracteolae apice pedicelli insertae, 3 mm longae, vix conspicue ciliolatae. Calycis lobi 11 mm longi, ciliolati. Corolla luteola, lineis aliquibus brunneis notata, extus glabra, intus ad insertionem staminum parce barbata, 16,5 mm longa. Staminodium filiforme, 1,6 mm longum, ecapitatum. Ovarium glabrum, utroque loculo ovulis 40. Capsula glabra, 7—8 mm longa.

Habitat terram Borneensem.

Var. *JAHERI*.

Foliis oblongis vel ellipticis, 3—7,5 cm longis et 0,9—3 cm latis no-scenda.

Habitat terram Borneensem.

BORNEO. Western Div.: Sg. Pare, *Jaheri 600* (BO, typus). — Sarawak: Puak, *Ridley s.n.* (SING); Tebong Balik, *Anderson s.n.* (SING); Kebong, *Haviland 1826* (K).

Var. *angustifolia* Brem. *nov. var.*

Foliis linearibus, 2,4—5 cm longis et 0,5—1,1 cm latis a typo recedens. Habitat terram Borneensem.

BORNEO. Western Div.: Bl. Batuajo, *Jaheri 1644* (BO, *typus varietatis*); Tadjuk, *Jaheri 202* (BO).

Staurogyne jaherii Brem. and *St. kinabaluensis* Brem. are two nearly related Bornean species, of which so far no very near allies are known. However, Hallier 3221 (BO), collected at Amaiambit in Central Borneo, doubtless represents a species belonging to this group. It comes nearest to *St. jaherii*, but differs from that species in the acute leaves provided with thin, on the underside distinctly protruding, nerves. The specimens unfortunately are so poor that it does not seem justified to use them as the type of a new species.

Staurogyne jaherii differs from *St. kinabaluensis* in the nature of the indumentum and in the smaller size of the leaves and of the bracts and bracteoles.

26. *Staurogyne kinabaluensis* Brem. *nov. spec.*

Inter species *Isosepalorum* bracteolis apice pedicelli insertis et ovulis numerosis instructas cum *St. jaherii* Brem. quadrans sed caule petiolisque glabris, calycis lobis eciliatis ab ea distinguenda.

Herba unicaula, 10—25 cm alta. Caulis e basi decumbente ascendens, simplex vel parce ramosus, sympodialis, glaber, ad apicem 1,0 mm diam., basin versus usque ad 3 mm accrescens, internodiis 1—4 cm longis. Folia in petiolum glabrum, 0,4—1,0 cm longum contracta; lamina in var. *kinabaluensi* oblonga vel anguste elliptica, 4—9,5 cm longa et 1,8—3,7 cm lata, apice acuta vel subobtusata, utroque latere costae nervis 8—10 instructa, in var. *angustifolia* lanceolata, 4—8 cm longa et 1,5—2,3 cm lata, apice acuta, utroque latere costae nervis 5—9 instructa, in varietatibus ambabus basi contracta, sicc. supra olivaceo-brunnea, subtus dilute brunnea, utrimque glabra. Inflorescentiae primum terminales, post anthesin in positionem lateralem coactae, nutantes, totae glabrae. Pedunculus internodiis rachidis longior; internodia rachidis 12—5 mm longa. Bracteae filiformes, 4—5 mm longae, glabrae. Pedicelli 2—4 mm longi, glabri. Bracteolae apice pedicelli insertae, 4—5 mm longae, glabrae. Calycis lobi 11 mm longi et 0,8 mm lati, glabri. Corolla alba, extus glabra, intus ad insertionem staminum barbata, 17 mm longa. Staminodium 0,5 mm longum, capitatum. Ovarium glabrum, utroque loculo ovulis circ. 36. Capsula glabra, 8 mm longa.

Habitat terrae Borneensis partem septentrionalem.

Var. KINABALUENSIS.

Foliis oblongis vel anguste ellipticis, 4—9,5 cm longis et 1,8—3,7 cm latis, nervis utroque latere costae 8—10 instructis noscenda.

Habitat terrae Borneensis partem septentrionalem.

BORNEO. Colony of North Borneo: Mt. Kinabalu, Mahandai R., alt. 1200 m, *Corr S.F. 26322* (SING, typus); Mt. Kinabalu, Penibukan Ridge, alt. 1200 m, *J. & M. S. Clemens s.n.* (BM).

Var. *angustifolia* Brem. *nov. var.*

Foliis lanceolatis, 4—8 cm longis et 1,5—2,3 cm latis, utroque latere costae nervis 5—9 instructis a typo recedens.

Habitat terrae Borneensis partem septemtrionalem.

BORNEO. Colony of North Borneo: Mt. Kinabalu, bank of Kinataki, alt. 1500 m, *J. & M. S. Clemens 32371* (BM, typus varietatis, SING, L, G), *32805* (BO).

Staurogyne kinabaluensis Brem. is a very near ally of *St. jaherii* Brem. The most conspicuous differences are found in the complete glabrousness of all its parts and in the slightly larger size of its leaves, bracts and bracteoles. Not so directly observable are the capitate instead of ecapitate staminode and the slightly smaller number of ovules. In the comparatively large number of ovules these two species find a counterpart in two of the Bornean species of the section *Maschalanthus*, viz. *St. sandakanica* Brem. and *St. maschalostachys* Brem. It is noteworthy that notwithstanding the totally different position of the inflorescences there is a good deal of similarity between these species, especially between *St. jaherii* and *St. maschalostachys*.

27. *Staurogyne samarensis* Brem. *nov. spec.*

Inter species *Isosepalarum* bracteolis paulo infra apicem pedicelli insertis et ovulis utroque loculo 28—32 instructas calycis lobis longitudine 10 mm non excedentibus cum *St. panayensi* Brem., *St. debili* (T. And.) C. B. Clarke ex Merr., *St. ophiorrhizoide* Elm. et *St. ciliata* Elm. quadrans, foliis supra pilis valvulatis longis sparsis cum *St. panayensi* solum comparanda, ab ea foliis basi cuneatis vel contractis, numero minore nervorum instructis, inflorescentia pilis capitatis hirtella distinguenda.

Herba unicaula, 6—15 cm alta. Caulis e basi repente plus minusve ascendens, simplex vel ex axillis foliorum superiorum ramosus, interdum sympodialis vel bifurcatus, dense tomentosus, 1,5—2,0 mm diam., internodiis 0,6—2,5 cm longis. Folia petiolo dense tomentoso, 0,2—1,5 cm longo instructa; lamina oblanceolata vel oblonga, 1,5—4,5 cm longa et 0,6—1,6 cm lata, apice subobtusata, basi cuneata vel contracta, sicc. supra olivacea, subtus grisea, supra primum pilis valvulatis longis densius vestita, subtus costa nervisque densius, inter nervos sparse pilis valvulatis tenuioribus vestita, nervis utroque latere costae 4—6. Inflorescentia primum terminalis, deinde in positionem lateralem coacta. Pedunculus internodiis rachidis paulo longior et ut rachis pilis capitatis hirtellus; internodia rachidis 3,5—5 mm longa. Bracteae basi pedicelli insertae, filiformes, 2—3 mm longae, pilis ecapitatis hirtellae. Pedicelli 2,5—3,5 mm longi,

pilis capitatis hirtelli. Bracteolae 0,5 mm infra apicem pedicelli insertae, 2 mm longae, ceterum ut bracteae. Calycis lobi angustissime lineares, 6 mm longi et 0,6 mm lati, costa et margine pilis ecapitatis hirtelli, 3-nervii. Corolla alba, extus glabra, intus ad insertionem staminum parce barbata, 11 mm longa. Staminodium filiforme 1,1 mm longum, capitatum. Ovarium glabrum, utroque loculo ovulis circ. 30. Capsula glabra, 4 mm longa.

Habitat insulam Filipinam Samar dictam.

PHILIPPINES. Samar: Mt. Sarawag, alt. 200 m, *Edaño 3130* = PNH 15264 (PNH, U), 3127 = PNH 15315 (PNH, U); Mt. Capotoan, alt. 180 m, *Edaño 3809* = PNH 15578 (PNH), 3628 = PNH 15635 (PNH, U); s.l., *Ramos B.Sc.17534* (L, BO, US, NY, typi).

Staurogyne samarensis Brem. agrees with *St. panayensis* Brem., *St. debilis* (T. And.) C. B. Clarke ex Merr., *St. ophiorrhizoides* Elm. and *St. ciliata* Elm. in the comparatively short calyx lobes; from the three last-named species it differs in the presence of long septate hairs on the upper side of the leaf. In the last-named point it agrees with *St. panayensis*, from which it is easily distinguishable by the shape of the leaf-base, which is cuneate or contracted, not rounded, the smaller number of lateral nerves, and the presence of capitate hairs on peduncle, rachis and pedicels.

28. *Staurogyne panayensis* Brem. nov. spec.

Inter species *Isosepalarum* bracteolis paulo ab apice pedicelli remotis et ovulis utroque loculo 28—32 instructas calycis lobis longitudine 10 mm non excedentibus cum *St. samarensis* Brem., *St. debili* (T. And.) C. B. Clarke ex Merr., *St. ophiorrhizoide* Elm. et *St. ciliata* Elm. quadrans, foliis supra pilis valvulatis longis sparsis cum *St. samarensi* solum comparanda, foliis basi rotundatis, numero majore nervorum instructis, pedunculo, rachide, pedicellis pilis ecapitatis hirtellis ab ea distinguenda.

Herba unicaula, 15—20 cm alta. Caulis e basi decumbente ascendens, ex axillis foliorum superiorum ramosus, interdum sympodialis vel bifurcatus, dense tomentosus, 1,6—3,0 mm diam., internodiis 2,5—7 cm longis. Folia petiole dense tomentoso, 0,3—1,2 cm longo instructa; lamina ovato-oblonga, 3—6 cm longa et 1,5—3 cm lata, apice subacuta, basi rotundata sed prope petiolum plus minusve contracta, sicc. supra olivacea, subtus grisea, supra pilis valvulatis longis sparsa, subtus costa nervis venulis pilis valvulatis sparsis exceptis glabra, nervis utroque latere costae 6—8. Inflorescentia primum terminalis, post anthesin plerumque in positionem lateralem coacta. Pedunculus internodiis rachidis longior et ut rachis pilis ecapitatis densius pubescens; internodia rachidis circ. 6 mm longa. Bracteae filiformes, 3—5 mm longae, in pedicellum paulo egredientes, costa et margine pilis ecapitatis sparse hirtellae. Pedicelli 2—3,5 mm longi, densius pubescentes. Bracteolae ab apice pedicelli circ. 0,7 mm remotae, 3—4 mm longae, ceterum ut bracteae. Calycis lobi angustissime lineares, 8 mm longi et 0,4 mm lati, hirsuti, 3-nervii. Corolla alba, extus glabra,

intus ad insertionem staminum barbata, 13 mm longa. Staminodium filiforme, 0,7 mm longum. Ovarium glabrum, utroque loculo ovulis 30. Capsula nondum visa.

Habitat insulam Philippinam Panay dictam.

PHILIPPINES. Panay: Capiz Prov., Jamindan, Ramos & Edaña B.Sc.30918 (K, typus). On the same sheet a specimen of *St. debilis* (T. And.) C. B. Clarke ex Merr. var. *tomentosa* Brem., collected at the same place but labeled B.Sc.30922.

Staurogyne panayensis Brem. is a very close ally of *St. samarensis* Brem. It is a much more robust plant with longer internodes, larger leaves and larger flowers. The leaves, moreover, are rounded at the base, and the septate hairs on the upper side are less numerous; the hairs on peduncle, rachis and pedicels are ecapitate.

29. STAUROGYNE DEBILIS (T. And.) C. B. Clarke ex Merr.

Staurogyne debilis (T. And.) C. B. Clarke ex Merr. in Philipp. J. Sci. (Bot.) 2: 302. 1907; C. B. Robinson in Philipp. J. Sci. (Bot.) 6: 222. 1911; Merr., Enum. Philipp. flow. Pl. 3: 467. 1923; non R. Benoist in Fl. gén. Indo-Chine 4: 635. 1935, quas est species *Heterose palorum*; *Ebermaiera debilis* T. And. in J. Linn. Soc. (Bot.) 9: 452. 1867; Vidal, Phan. Cuming. Philipp. 132. 1885; — *Erythracanthus elongatus* (Bl.) Nees var. *foliis angustioribus* Nees in DC., Prodr. 11: 79. 1847; *Ebermaiera elongata* (Bl.) Hassk. in errore apud F. Vill., Noviss. App. 152. 1880; — anne *Didisandra clarkei* Kds, Flora N. O. Celebes 551. 1898; id. Suppl. 2: t. 122; id. Suppl. 3: 58. 1922, incertum sed non improbabile.

Inter species *Isosepalarum* bracteolis ab apice pedicelli paulo remotis et ovulis utroque loculo 28—32 instructas calycis lobis longitudine 10 mm non excedentibus cum speciebus duabus precedentibus et speciebus duabus sequentibus quadrans, a speciebus duabus precedentibus foliis supra pilis valvulatis longis carentibus, a speciebus duabus sequentibus pedicellis paulo brevioribus et calycis lobis eciliatis vel sparse ciliatis distinguenda.

Herba unicaula, plerumque 6—20 cm alta, in var. *longifolia* et in var. *angustifolia* tamen 18—25 cm alta. Caulis e basi decumbente ascendens, simplex vel ex axillis foliorum superiorum ramosus, sympodialis, plerumque dense tomentosus, in var. *longifolia* et in var. *angustifolia* tamen tomentellus, 1—2 mm diam., internodiis 0,3—4 cm longis. Folia in petiolum tomentosum, 0,3—2 cm longum contracta; lamina plerumque ovata vel oblonga, 1,7—8 cm longa et 0,8—3,6 cm lata, in var. *longifolia* tamen ovato-lanceolata vel anguste oblonga, 4—12 cm longa et 1,3—2,7 cm lata, in var. *pubifolia* forma similior sed 1,2—4 cm longa et 0,4—1,3 cm lata et in var. *angustifolia* linearis, 2—4 cm longa et 0,4—0,8 cm lata, in varietatibus omnibus apice obtusa vel subobtusa, basin versus contracta, margine interdum subrepanda, sicc. supra olivacea, subtus griseo-viridis vel griseo-brunnea, supra plerumque glabra, in var. *tomentosa* tamen scabridulo-papillosa et in var. *pubifolia* strigulosa, costa nervisque subtus plerumque pubescentibus, in var. *longifolia* tamen strigosis, nervis utroque

latere costae 4—9. Inflorescentia terminalis, post anthesin in positionem lateralem coacta. Pedunculus internodiis rachidis paulo longior et ut rachis subglaber vel vix notabiliter papillosus; internodia rachidis 4—5 mm longa. Bracteae interdum paulo in pedicellum egredientes, filiformes, 2—2.5 mm longae, glabrae. Pedicelli 2.5—3.0 mm longi, glabri. Bracteolae paulo ab apice pedicelli remotae, 2 mm longae, glabrae. Calycis lobi plerumque circ. 7 mm longi, in var. *tomentosa*, in var. *longifolia* et in var. *angustifolia*, 8—10 mm longi, plerumque glabri, in var. *pubifolia* pilis paucis ciliati. Corolla alba, extus glabra, intus ad insertionem staminum parce barbata, 12—14 mm longa. Staminodium 0.5 mm longum, capitatum. Ovarium glabrum, utroque loculo ovulis circ. 30. Capsula glabra, 4—5 mm longa.

Habitat insulas Philippinas, insulam Talaud dictam, insulas Solomonenses et forsitan partem septemtrionalem insulae Celebes dictae.

Var. *DEBILIS*.

Caule 6—20 cm alto, lamina ovata vel oblonga, 1.7—8 cm longa et 0.8—3.6 cm lata, supra glabra, subtus costa nervisque pubescente, calycis lobis circ. 7 mm longis, glabris noscenda.

Habitat insulas Philippinas et forsitan partem septemtrionalem insulae Celebes dictae.

PHILIPPINES. Luzon: Cagayan Prov., Tamdagan R., *Edaño B.Sc.79516* (BO); Bulacan Prov., Norzagaray, *Forworthy B.Sc.12278* (L); Angat, *Ramos & Edaño B.Sc.34155* (SING, L); s.l., *Ramos Phil.Pl.2007* (SING, BO, L, G. BRI); Rizal Prov., Manila, *Vidal 3381* (K, sub nomine *St. concinna* Hance); Angilog, *Loker 6621* (K); Montalban, *Merrill 5063* (K); Mt. Susong-Dalaga, *Ramos & Edaño B.Sc.29340* (BO); Tayabas Prov., Mt. Binaang, *Ramos & Edaño B.Sc.28535* (BO, SING, US); Camarines Sur, Kamugong R., *Edaño B.Sc.75854* (BO, NY, mixed with *Scleromitrium verticillatum*); Albay Prov., s.l., *Cuming 1373* (K, typus; on the same sheet *Loker 4302: Hemigraphis primatifolia*). — Polillo: s.l., *Robinson B.Sc.9003* (L). — Catanduanes: s.l., *Ramos B.Sc.30252* (BO, SING, US). — Leyte: Ormoc, Mt. Janagdan, alt. 1190 m, *Edaño PNH 12044* (PNH, U). — Negros: Negros Occ., Cadiz, *Celestino B.Sc.7318* (NY); Negros Or., Dumaguete, *Elmer 10347* (G). — Mindanao: Zamboanga Distr., Malangas, *Ramos & Edaño B.Sc.37396* (NY), s.l., *Brown B.Sc.38358* (K); Taumu, *Warburg 14228* (NY).

CELEBES. Minahasa: Pinamorongon, alt. 500 m, *Koorders 19727* (BO, type of *Didissandra clarkei* Kds). The identification of this *Staurogyne*, which was referred by Koorders to *Didissandra* on Clarke's advice, with *St. debilis* (T. And.) C. B. Clarke ex Merr. is not fully certain as complete flowers and fruits were no longer available.

Var. *pubifolia* Brem. nov. var.

Lamina angustiore, 1.2—4 cm longa et 0.4—1.3 cm lata, supra strigulosa, calycis lobis sparse ciliatis a typo recedens.

Habitat insulas Philippinas.

PHILIPPINES. Luzon: Apayao Subprov., s.l., *Fenic B.Sc.28063* (BO, K, NY, US); Benguet Prov., Baguio, *Elmer 8708* (BO, L, K, G, NY, NS, varietatis typi);

Tayabas Prov., Casiguran, Ramos & Edaña *B.Sc.45315* (BO, SING, NY); Camarines Norte, Paracale, Ramos & Edaña *B.Sc.33819* (SING, BRI), Bicol, National Park, alt. 160 m, *Canicosa* PNH 9801 (PNH); Sorsogon Prov., Irosin, Mt. Bulusan, Elmer 14738 (BO, L. K, NY), 15354 (BO, L, U, K, G; mixed with *Argostemma* spec.). — Leyte: s.l., Wenzel 187 (G, NY). — Surigao: s.l., Wenzel 3213 (BO, K, BR, G, NY).

Var. tomentosa Brem. *nov. var.*

Caule petiolisque tomento longiore vestitis, foliis supra scabridulo-papillosis, calycis lobis 8—10 mm longis a typo recedens.

Habitat insulam Panay dictam.

PHILIPPINES. Panay: Capiz Prov., Jamindan, Ramos & Edaña *B.Sc.30922* (K, US), *B.Sc.30896* (SING); Libacao, Martellino & Edaña *B.Sc.35351* (K); s.l., Edaña *B.Sc.46018* (BO, varietatis typi; SING, K, NY), *B.Sc.46028* (NY).

Var. longifolia Brem. *nov. var.*

Statura majore, caule 18—25 cm alto, caule petiolisque tomentellis, foliis plerumque longioribus et semper angustioribus, 4—12 cm longis et 1.4—2.7 cm latis, subtus costa nervisque strigosis, calycis lobis 10 mm longis a typo recedens.

Habitat insulam Filipinam Mindoro dictam, insulam Talaud dictam et insulas Solomonenses.

PHILIPPINES. Mindoro: Mt. Halcon, alt. 350 m, Edaña PNH 3371 (PNH, U, varietatis typi); Badok, Nanja, alt. 150 m, Celestino & Castro PNH 7947 (PNH).

MOLUCCAS. Talaud Is.: P. Karakelong, Mt. Durta, alt. 60 m, Lam 2688 (BO, L).

SOLOMON IS. Bougainville: Koniguru, Buin, alt. 900 m, Kajewski 2084 (BO). — Ysabel: Toratona, Brass 3234 (BO, SING). — Guadalcanal: Vulolo, Tutune Mt., alt. 1200 m, Kajewski 2658 (BO).

Var. angustifolia Brem. *nov. var.*

A *var. longifolia* Brem. foliis linearibus, 2—4 cm longis et 0.4—0.8 cm latis recedens.

Habitat insulas Philippinas Negros et Basilan dictas.

PHILIPPINES. Negros: Negros Occ., Gimagaan R., alt. 150 m, Whitford 1592 (K). — Basilan: s.l., Reillo *B.Sc.16127* (L, typus varietatis).

Staurogyne debilis (T. And.) C. B. Clarke ex Merr. is a near ally of *St. samarensis* Brem. and *St. panayensis* Brem., from which it differs in the absence of long septate hairs on the upper side of the leaves, and of *St. ophiorrhizoides* Elm. and *St. ciliata* Elm., two species whose flowers are provided with longer pedicels and with conspicuously ciliated calyx lobes. The differences between the varieties of *St. debilis* are but slightly less important than those between the latter and the four species mentioned in the preceding sentence, and it might therefore be asked whether

some of these varieties would not deserve specific rank. Geographic arguments too might be adduced for a solution of the problem in this sense. The variety *tomentosa* has been found only in the island Panay, where it is apparently not rare, and where none of the other varieties were observed. The area of the variety *longifolia* too does not coincide with that of the other varieties. The value of this argument, however, should not be overrated. It is quite well possible that the varieties may in the end prove to be more widely distributed, and in view of the fact that the points of difference between them, although rather numerous, do not seem to be of great taxonomic importance, a conservative estimation of their value seems for the moment desirable.

The occurrence of the variety *longifolia* in the Solomon Islands, i.e. far outside the main area of the species, is rather unexpected. One might be inclined to regard it as a recent introduction, but the fact that it has been found in three of the islands makes this supposition improbable. In its rather long calyx lobes the variety *longifolia* shows an approach to *St. amboinica* Brem. and to *St. papuana* Laut., and this might be a valuable argument to raise it to specific rank. In that case the new species would occupy with these two species a more or less continuous area.

30. STAUROGYNE OPHIORRHIZOIDES Elm.

Staurogyne ophiorrhizoides Elm. in Leaflet Philipp. Bot. 4: 1488. 1912; Merr., Enum. Philipp. flow. Pl. 3: 468. 1923.

Inter species *Isosepalorum* bracteolis ab apice pedicelli paulo remotis et ovulis utroque loculo 28—32 instructas calycis lobis longitudine 10 mm non excedentibus, foliis supra glabris, pedicellis minime 3,5 mm longis et calycis lobis conspicue ciliatis cum *St. ciliata* Elm. solum comparanda, caule petiolisque appresse pubescentibus, foliis majoribus et praesertim latioribus, pedunculo/rachideque pilis ecapitatis hirtellis, inflorescentia laxiore ab ea distinguenda.

Herba unicaula, circ. 25 cm alta. Caulis e basi decumbente ascendens, sympodialis, simplex vel sparse ramosus, dense strigosus, 1,2—2,2 mm diam., internodiis 1—6 cm longis. Folia in petiolum dense strigosum, 0,6—3 cm longum contracta; lamina elliptica, 7—10 cm longa et 3,5—4,5 cm lata, apice subacuta, basi sensim in petiolum contracta, sicc. supra olivacea, subtus griseo-viridis, supra glabra, subtus costa nervisque strigulosa, nervis utroque latere costae 6—8. Inflorescentia terminalis, post anthesin in positionem lateralem coacta. Pedunculus internodiis rachidis paulo longior et ut rachis puberulo-hirtellus; internodia rachidis 6—8 mm longa. Bractee basi pedicelli insertae, filiformes, 2—3 mm longae, hirtellae. Pedicelli 3,5—5 mm longi, puberulo-hirtelli. Bracteolae 0,4—0,8 mm infra apicem pedicelli insertae, 4—4,5 mm longae, hirtellae. Calycis lobi 8 mm longi et 0,4 mm lati, margine et costa hirtello-ciliati. Corolla alba, extus

glabra, intus ad insertionem staminum barbata, 12 mm longa. Staminodium filiforme, 0,5 mm longum. Ovarium glabrum, utroque loculo ovulis 28—30. Capsula glabra, 5 mm longa.

Habitat insulam Filipinam Sibuyan dictam.

PHILIPPINES. Sibuyan: Prov. of Capiz, Magallanes, Mt. Giting-giting, alt. 500 m, *Elmer 12364* (BO, L, K, G, FI, NY; *exempla typi*).

Staurogyne ophiorrhizoides Elm. is a very near ally of *St. ciliata* Elm., from which it differs by its larger size, wider leaves and longer and laxer inflorescences; stem and petioles, moreover, are strigose instead of tomentose and the indumentum of the inflorescence consists of ecapitate instead of capitate hairs. Both species are near allies of *St. debilis* (T. And.) C. B. Clarke ex Merr., *St. panayensis* Brem. and *St. samarensis* Brem., from which they differ in the somewhat greater length of the pedicels. From *St. debilis* they differ, moreover, in the distinctly ciliated calyx lobes, and from the two other species in the glabrous upper side of the leaf.

31. STAUROGYNE CILIATA Elm.

Staurogyne ciliata Elm. in *Leaflet Philipp. Bot.* 7: 2548, 1915; Merr., *Enum. Philipp. flow. Pl.* 3: 467, 1923, *quoad typum, non quoad specimina in Samar et Panay lecta* (cf. *St. samarensis* Brem. et *St. panayensis* Brem.).

Inter species *Isosepalarum* bracteolis ab apice pedicelli paulo remotis et ovulis utroque loculo 28—32 instructas calycis lobis longitudine 10 mm non excedentibus, foliis supra glabris, pedicellis minime 3,5 mm longis et calycis lobis conspicue ciliatis cum *St. ophiorrhizoide* Elm. solum comparanda, caule petiolisque dense tomentosis, foliis minoribus et praesertim angustioribus, pedunculo rachideque pilis capitatis hirtellis, inflorescentia brevioribus minus laxa ab ea distinguenda.

Herba unicaula, 7—12 cm alta. Caulis e basi repente ascendens, plerumque monopodialis, simplex vel ex axillis superioribus ramosus, dense tomentosus, 1,2—2,0 mm diam., internodiis 0,6—2,5 cm longis. Folia in petiolum dense tomentosum, 0,5—2,0 cm longum contracta; lamina linearis vel lineari-oblonga, 3—8 cm longa et 0,5—2,0 cm lata, apice obtusa, basi cuneata, margine subrepanda, sicca supra olivacea, subtus griseo-viridis vel grisea, supra glabra, subtus costa nervisque pubescens, venulis interdum puberula, nervis utroque latere costae 5—12. Inflorescentia terminalis, plerumque singula. Pedunculus internodiis rachidis longior et ut rachis pilis partim capitatis hirtellis; internodia rachidis 4—6 mm longa. Bracteae basi pedicelli insertae, filiformes, 2—3 mm longae, pilis ecapitatis hirtellae. Pedicelli 4—6 mm longi, pilis partim capitatis hirtelli. Bracteolae 0,8—1,0 mm infra apicem pedicelli insertae, 3—4 mm longae, ceterum ut bracteae. Calycis lobi 7—8 mm longi et 0,4 mm lati, costa et margine pilis ecapitatis longe ciliati, 3-nervi. Corolla alba, extus glabra, intus ad in-

sertionem staminum barbata, 11 mm longa. Staminodium filiforme, 0,9 mm longum. Ovarium glabrum, utroque loculo ovulis circ. 30. Capsula glabra, 5 mm longa.

Habitat insulam Philippinam Mindanao dictam.

PHILIPPINES. Mindanao: Prov. of Agusan, Cabadbaran, Mt. Urdaneta, alt. 1350 m, *Elmer 13843* (typus; lost); Davao Prov., Mt. Mayo, alt. 1700 m, *Edaño PNH 11357* (PNH, L, U, lecto-typi), Mati, *Ramos & Edaño B.Sc.49108* (SING, BR, NY); Todaya, Mt. Apo, *Elmer 11302* (L, G, NY); Mt. Bilbagan, alt. 150 m, *Edaño PNH 11374* (PNH); Mt. Hamiguitan, alt. 600 m, *Edaño PNH 11153* (PNH).

The differences between *St. ciliata* Elm. and *St. ophiorrhizoides* Elm. have already been discussed under the latter, where these two species were compared also with the other Philippine species belonging to this series.

32. *Staurogyne amboinica* Brem. nov. spec.

Inter species *Isosepalarum* bracteolis ab apice pedicelli paulo remotis et ovulis utroque loculo 28—32 instructas calycis lobis minime 12 mm longis cum *St. papuana* Laut. solum comparanda, bracteolis longioribus, capsula minore, calycis lobis subglabris ab ea distinguenda.

Herba uniucaula, 10—20 cm lata. Caulis e basi decumbente ascendens, sympodialis et interdum semel vel bis bifurcatus, interdum insuper ex axillis superioribus ramificatus, ad apicem dense puberulus, basin versus plus minusve glabrescens, 0,8—1,3 mm diam., internodiis 0,7—4,5 cm longis. Folia in petiolum primum dense, deinde vix conspicue puberulo-pubescentem, 0,4—2,2 cm longum contracta; lamina oblanceolata vel oblonga, 5—9,5 cm longa et 2,2—3,2 cm lata, apice subobtusata, basi acuta vel cuneata, sicc. supra olivaceo-brunnea, subtus dilute brunnea, supra strigulosa, subtus costa nervisque puberulo-pubescentem, nervis utroque latere costae 5—7. Inflorescentia primum terminalis, post anthesin in positionem lateralem coacta. Pedunculus internodiis rachidis nunc paulo nunc conspicue longior et ut rachis plus minusve papillosus; internodia rachidis 5—10 mm longa. Bractee basi pedicelli insertae, filiformes, 5—7 mm longae, subglabrae. Pedicelli 5 mm longi, glabri. Bracteolae circ. 1 mm infra apicem pedicelli insertae, 8 mm longae, subglabrae. Calycis lobi 13—17 mm longi et 0,5 mm lati, parce et vix notabile ciliolati, 3-nervi. Corolla calyce paulo brevior, 12—15 mm longa, extus glabra, intus ad insertionem staminum barbata. Staminodium filiforme, 1 mm longum. Ovarium glabrum, utroque loculo ovulis 28. Capsula glabra, 5 mm longa.

Habitat insulam Ambon dictam.

MOLUCCAS. Ambon: Hutumuri, *Teijsmann s.n.* (BO, L, typi); Hila, *Teijsmann s.n.* (BO, L); Juny, *Teijsmann s.n.* (BO).

Staurogyne amboinica Brem. and *St. papuana* Laut. are easily distinguishable from the Philippine species belonging to this series by the greater length of the calyx lobes. Even in *St. debilis* (T. And.) C. B. Clarke ex Merr. var. *longifolia* Brem. the latter are still distinctly shorter

than in these two species. *St. amboinica* differs from *St. papuana* in the smaller number of nerves in the leaf, the greater length of the bracteoles, the nearly glabrous calyx lobes, which are slightly longer than the corolla, and the smaller size of the capsule.

It does not seem possible to identify *St. amboinica* with any of the plants mentioned by Rumphius.

33. STAUROGYNE PAPUANA Laut.

Staurogyne papuana Laut. in *Nova Guinea* 8: 333. 1910.

Inter species *Isosepalarum* bracteolis ab apice pedicelli paulo remotis, ovulis utroque loculo 28—32 instructas calycis lobis minime 12 mm longis cum *St. amboinica* Brem. solum comparanda, foliis numero majore nervorum instructis, bracteolis minoribus, calycis lobis conspicue hirtellis, capsula majore ab ea recedens.

Herba unicaula, 10—30 cm alta. Caulis suberectus vel e basi decumbente ascendens, sympodialis et interdum semel vel bis bifurcatus, interdum etiam ex axillis superioribus ramificatus, ad apicem dense strigosus, basin versus plus minusve glabrescens, 1,2—2,8 mm diam., internodiis 0,7—5 cm longis. Folia petiolo primum dense, deinde sparsius strigoso, 0,5—2,0 cm longo instructa; lamina lanceolata, 5—10,5 cm longa et 1,2—3,0 cm lata, apice subobtusa, basi acuta vel cuneata, sicc. supra olivacea, subtus griseo-viridis, supra in var. *papuana* primum strigulosa, deinde plus minusve glabrescens, in var. *glabrifolia* ab initio glabra, subtus costa nervisque strigosa, nervis utroque latere costae 7—12. Inflorescentia primum terminalis, post anthesin in positionem lateralem coacta. Pedunculus internodiis rachidis multo longior, in var. *papuana* ut rachis breviter hirtellus, in var. *glabrifolia* papillosus; internodia rachidis 6—12 mm longa. Bracteae filiformes, ad basin pedicelli insertae, 4—15 mm longae, hirtellae et puberulae. Pedicelli 4—6 mm longi, in var. *papuana* hirtelli, in var. *glabrifolia* papilloso. Bracteolae usque ad 1 mm infra apicem pedicelli insertae, 5—7 mm longae, hirtellae et puberulae. Calycis lobi 12—17 mm longi et 0,6 mm lati, conspicue hirtelli, 3-nervi. Corolla alba, extus vix notabile puberula, 15—18 mm longa, intus ad insertionem staminum barbata. Staminodium filiforme, 0,8 mm longum, capitatum. Ovarium glabrum, utroque loculo ovulis 26—28. Capsula glabra, 8 mm longa.

Habitat insulas Moluccanas et Novae Guineaae partem occidentalem.

Var. PAPUANA.

Foliis supra primum strigulosis, pedunculo rachide pedicellis hirtellis noscenda.

Habitat insulas Moluccanas et Novae Guineaae partem occidentalem.

MOLUCCAS. Ceram: Western part, Manusa-Rembatu-Honiteta, *Eyma* 2660 (BO, L).

NEW GUINEA. Western Part: Noord Rivier, hill near Geitenkamp, *Versteeg* 1404 (BO, L, U, typ).

Var. *glabrifolia* Brem. *nov. var.*

Foliis supra ab initio glabris, pedunculo rachide pedicellis papillois a typo recedens.

Habitat insulas Moluccanas et Novae Guineae partem occidentalem.

MOLUCCAS. Ceram: Kaniki, alt. 600 m, *Korassi 533* (BO); Martipan, alt. 1000—1300 m, *Korassi s.n.* (BO).

NEW GUINEA. Western Part: s.l., von Römer 502 (BO), 607 (BO, typus varietatis), 898, 929 (BO).

Staurogyne papuana Laut. is a near ally of *St. amboinica* Brem., from which it differs in the more numerous nerves, the shorter bracteoles, the hirtellous calyx lobes, which are slightly shorter instead of longer than the corolla, and the somewhat larger capsule. It is with *St. dasystachya* Brem. the only representative of the genus that so far has been found in New Guinea. The most eastern representative of the genus is, so far as we know at present, *St. debilis* (T. And.) var. *longifolia* Brem., which has been found in three of the islands belonging to the Solomon Archipelago.

Subsectio 2. *Macrochlamydeae* Brem. *nov. subsect.*

A subsectione *Macrosepararum* calycis lobis parte connata corollae plus quam dimidio brevioribus, a subsectione *Microchlamydearum* bracteis magnis, quam calycis lobis pluries longioribus distinguenda.

Caulis sympodialis. Inflorescentia elongata. Pedunculus plerumque internodio brevi pari foliorum magnitudine redactorum instructo praecessus. Bracteae magnae, ovatae vel obovatae, obtusae. Calycis lobi inaequales, corollae parte connata plus quam dimidio breviores.

Speciebus paucis in Indo-China et parte occidentali regionis Malesianae distributa.

TYPUS subsectionis: *St. longispica* (Ridl.) Ridl.

The subsection *Macrochlamydeae* is represented in the Malesian region by one species only, viz. *St. longispica* (Ridl.) Ridl. In Siam a very near ally occurs, viz. *St. cuneata* Imlay, and *St. peteloti* R. Ben. from Tonkin may also belong to this group, but so far I know no other species that might be referred to it.

34. *STAUROGYNE LONGISPICA* (Ridl.) Ridl.

Staurogyne longispica (Ridl.) Ridl., Fl. Mal. Pen. 2: 563. 1923; *Ebermaiera longispica* Ridl. in J. As. Soc. Str. Br. 86: 303. 1922.

Herba suberecta, 30—60 cm alta. Caulis simplex vel apicem versus ramificatus, sympodialis et interdum bifurcatus, glaber, sicc. nigrescens, ad apicem 1,5—2 mm diam., basin versus usque ad 4,5 mm accrescens

et lignescens, internodiis 1,5—4 cm longis. Folia in petiolum gracilem, 1,5—5 cm longum, glabrum contracta; lamina lanceolata, 8—13,5 cm longa et 2—5 cm lata, acuta vel subacuminata, basi contracta, tenuis, opaca, sicc. supra nigra vel saturate brunnea, subtus brunnea, utrimque glabra, costa subtus prominula, nervis utroque latere costae 11—16. Inflorescentia primum terminalis, post anthesin in positionem lateralem coacta, erecta, usque ad 25 cm longa, basi interdum ramificata. Pedunculus basi plerumque pari foliorum magnitudine redactorum instructus, internodiis rachidis paulo longior et ut rachis glaber; internodia rachidis circ. 4 mm longa. Flores breviter pedicellati. Bracteae ovatae, 9—14 mm longae et 4,5—7,5 mm latae, obtusae et mucronulatae, glabrae, 3-nerviae. Pedicelli 1—2 mm longi. Bracteolae lanceolatae, 6 mm longae et 1—2 mm latae, acutae, glabrae, indistincte 3-nerviae. Calycis lobi anguste triangulares; lobus posticus et lobi antici aequales, 2,5—3 mm longi et basi 0,7 mm lati; lobi laterales 2 mm longi et basi 0,5 mm lati; lobi omnes glabri. Corolla rubra, extus glabra, intus ad insertionem staminum barbata, 22 mm longa, lobis margine breviter fimbriatis. Staminodium 0,8 mm longum, subcapitatum. Ovarium glabrum, utroque loculo ovulis 18—20. Capsula glabra, 6 mm longa, acuta.

Habitat Peninsulam Malayanam, Archipelagum Linggensem, Sumatram.

MALAY PENINSULA. Selangor: Ulu Gombak, Dec. 28, 1890, *Ridley s.n.* (K, SING, typi); Ginting Simpak, *Hume 9593* (A, SING). — Negri Sembilan: Bt. Tanga, July 22, 1920, *Ridley s.n.* (K, SING, co-typi).

SUMATRA. West Coast: Ophir Distr., Tanangtalu, alt. 1100 m, *Bünnemeyer 1052* (BO); Limakota, Sg. Kuriman, alt. 950 m, *Bünnemeyer 3473* (BO); Ht. Ambatjang, east of Kajutanam, alt. 800 m, April 11, 1936, *Latif s.n.* (BO); Agam, Bt. Batubanting, alt. 1200 m, July 23, 1918, *Jacobson s.n.* (BO). — Bencoolen: Kepahiang, alt. 700 m, *de Voogd 1294* (BO, L). — Palembang: Muaradua, Tenang, alt. 800 m, *de Voogd 558* (BO); South Semendo, alt. 1200 m, *de Voogd 1504* (BO, L). — LINGGA ARCH.: P. Lingga, Batugadjah, July 19, 1893, *Hullott s.n.* (SING).

Stauogyne cuneata Imlay (in *Kew Bull.* 1939: 110) differs from *St. longispica* (Ridl.) Ridl. in the pubescence with which the young shoots, the petioles and the underside of the nerves in the leaf are covered, by the slightly smaller bracteoles and by the shorter corolla. It was collected in Siam at Surat and Rachaburi at altitudes of 700 and 800 m. The affinity with *St. peteloti* R. Ben. (in *Fl. gén. Indo-Chine* 4: 629. 1935) is more remote; bracteoles and calyx lobes are in this species obtuse, and bracts and bracteoles are ciliate.

Subsectio 3. *Microchlamydeae* Brem. nov. subsect.

A subsectione *Macrosepalarum* calycis lobis parte connata corollae plus quam dimidio brevioribus, a subsectione *Macrochlamydearum* bracteis parvis, calycis lobis aequilongis vel eis brevioribus distinguenda.

Caulis mono- vel sympodialis. Inflorescentiae plerumque subspiciformes, basi haud raro uno vel duobus ramulis instructae, vel paniculiformes, casu quo ramulis spiciformibus, rarius distincte racemiformes. Pedunculus basi pari foliorum magnitudine redactorum instructus. Bracteae bracteolaeque parvae et plerumque angustae, maxime 3 mm longae. Calycis lobi maxime 4 mm longi, inaequales vel subaequales. Corolla intus ad insertionem staminum barbata.

Speciebus pluribus in Indo-Chinae et Malesiae partibus occidentalibus distributa.

TYPUS subsectionis: *St. merguensis* (T. And.) O. Ktze.

The subsection *Microchlamydeae* comprises plants of rather different aspect. In the area covered by this revision we have in the first place a group of rosulate or subrosulate species. They produce but a single inflorescence, which is borne by a fairly long peduncle, and which is usually provided with one or two branchlets, but the number of branchlets may be larger, and then the inflorescence becomes more or less distinctly paniculiform. This is the series *Rosulares*. Then there is a plant collected by Hallier in Borneo with almost totally prostrate stem and shortly pedunculate, long but few-flowered, racemiform inflorescences that after the flowering period are shifted into a lateral position. This species is referred here to a series *Humifusae*, of which no other representatives are known to me. A third group consists of herbs with suberect, rather tall sympodial stems and shortly-pedunculate, many-flowered, subspiciform inflorescences. This is the series *Elatae*. Outside our area the subsection is represented, moreover, by species for which there seems to be no place in the three series referred to above. The species I have in mind are mentioned by Clarke in the "Flora of British India" (4: 402. 1884) under the names *Ebermaiera coriacea* T. And., *E. parviflora* T. And. and *E. beddomei* C. B. Clarke; they differ from the Malesian representatives of the subsection and, in fact, from all other species of the genus in the shortly exsert or subexsert anthers. In this respect there is a rather striking resemblance between them and *Ophiorrhizophyllum hypoleucum* (R. Ben.) R. Ben., which was originally referred to *Staurogyne*, where it was probably better assorted than it is in its new position. It differs from the two other *Ophiorrhizophyllum* species not only by the presence of four fertile stamens but also in the structure of the anthers, and in these characters it shows an approach to *Staurogyne*. However, as I had as yet no opportunity to study specimens, I am unable to express a definite opinion with regard to the status of this species and of the three species mentioned by Clarke.

KEY TO THE MALAYSIAN SPECIES OF THE SUBSECTION *Microchlamydeae*

1. Either low, rosulate or subrosulate herbs with monopodial stem and an inflorescence with a fairly long peduncle, or else an almost totally prostrate herb with sympodial stem and shortly pedunculate inflorescence.
2. Low, rosulate or subrosulate herbs with monopodial stem and an inflorescence provided with a peduncle that is much longer than the internodes of the rachis. Stem tomentellous, tomentose or villous. Series 1. *Rosulares*
3. Stem consisting of short but distinct internodes, and either tomentellous or tomentose.
4. Stem tomentose. Leaf-base always cordate; leaf-blade with 5—8 nerves on each side of the midrib.
5. Inflorescence either unbranched or, more rarely, with one or two branchlets at the base. Peduncle and rachis puberulous. Corolla 16—20 mm long.
35. *St. merguensis* (T. And.) O. Ktze
- 5: Inflorescence paniculiform with subspiciform branchlets. Peduncle, rachis and branchlets covered with capitate hairs. Corolla 11—13 mm long.
36. *St. tenuispica* Brem.
- 4: Stem tomentellous. Leaf-base acute; leaf-blade with 13—16 nerves on each side of the midrib. 37. *St. burbridgei* C. B. Clarke ex Brem.
- 3: Stem consisting of hardly distinguishable internodes, villous.
6. Leaves elliptic or elliptic-oblong, flat, on both sides sprinkled with long septate hairs, and with 8—10 nerves on each side of the midrib. Bracts and bracteoles half as long as the calyx lobes . . . 38. *St. dasyphylla* Brem.
- 6: Leaves oblong, bullate, except on the midrib on both sides and on the nerves on the underside, on both sides glabrous; 11—14 nerves on each side of midrib. Bracts and bracteoles nearly as long as the calyx lobes.
39. *St. bullata* Brem.
- 2: Almost totally prostrate herb with densely strigose sympodial stem. Inflorescence provided with a peduncle that is but slightly longer than the lower internodes of the rachis. Series 2. *Humifusae*
Only species. 40. *St. humifusa* Brem.
- 1: Suberect, usually rather tall herbs with sympodial stem and an inflorescence whose peduncle is usually shorter than or, at the most, as long as the internodes of the rachis. Pedicels never more than 2 mm long Series 3. *Elatae*
7. Flowers shortly but distinctly pedicellate. Bracts lanceolate to filiform. Ovules 12—16 in each ovary cell. Capsule at the most 5 mm long.
8. Leaves on the upper side sprinkled with short hairs, on the underside on the nerves strigose and between the nerves sparsely and hardly noticeably puberulous. 41. *St. racemosa* (Roxb.) O. Ktze
- 8: Leaves on the underside of the nerves strigose but otherwise entirely glabrous.
9. Inflorescence covered with capitate hairs. Corolla 10 mm long.
42. *St. batucensis* Brem.
- 9: Inflorescence covered with ecapitate hairs. Corolla 15 mm long.
43. *St. citrina* Ridl.
- 7: Flowers sessile. Bracts ovate. Ovules 22—24 in each ovary cell. Capsule at least 8 mm long. 44. *St. spiciflora* (Miq.) Brem.
- α. Posticous and anticous calyx lobes at least 1.5 mm wide.

β. Stem at first puberulo-pubescent or tomentellous. Leaves lanceolate-elliptic or elliptic, var. *spiciflora*

β: Stem entirely glabrous. Leaves lanceolate or oblanceolate, var. *glabricaule* Brem.

α: Posticous and anticous calyx lobes less than 1.5 mm wide. Stem at first puberulo-pubescent or tomentellous. Leaves lanceolate or oblanceolate, var. *stenophylla* Brem.

Series 1. *Rosulares* Brem. *nov. ser.* (Species 35—39)

Herbae humiles, rosulares vel subrosulares. Caulis monopodialis, tomentellus, tomentosus vel villosus. Inflorescentia longius pedunculata, plerumque racemiformis, basi tamen interdum uno vel duobus ramulis instructa, rarius paniculiformis, casu quo a ramulis racemiformibus composita.

35. *STAUROGYNE MERGUENSIS* (T. And.) O. Ktze

Staurogyne merguensis (T. And.) O. Ktze, *Rev. Gen. Pl.* 1: 497. 1891; C. B. Clarke in *J. As. Soc. Beng.* 74: 641. 1908; Ridl., *Fl. Mal. Pen.* 2: 562. 1923; — *Ebermaiera merguensis* T. And. in *J. Linn. Soc. (Bot.)* 9: 452. 1867; C. B. Clarke in *Hook. f., Fl. Brit. Ind.* 4: 402. 1884.

Inter species *Rosularium* caule ex internodiis brevibus sed distinctis composito, tomentello vel tomentoso munitis caule tomentoso, foliis basi cordatis, nervis utroque latere costae 5—8 instructis cum *St. tenuispica* Brem. quadrans sed inflorescentia plerumque simplici, rarius uno vel duobus ramulis munita, pedunculo rachideque parce puberulis, corolla 16—20 mm longa ab ea distinguenda.

Herba subrosularis, 10—25 cm alta. Caulis e basi decumbente ascendens, simplex vel parce ramosus, monopodialis, ad apicem 1,5—2 mm diam., basin versus usque ad 3,5 mm accrescens, tomentosus, internodiis plerumque 0,3—1,0 cm longis, in parte decumbente tamen interdum usque ad 5 cm longis. Folia petiolo tomentoso, 0,4—4,5 cm longo instructa; lamina plerumque oblonga, 4—12 cm longa et 2,6—7 cm lata, apice obtusa vel rotundata, basi cordata et haud raro asymmetrica, sicc. supra olivaceo-brunnea vel brunnea, rarius griseo-olivacea, subtus plerumque dilute brunnea, raro griseo-viridis, supra primum sparse puberula, deinde glabra et laevis vel scabridula, subtus puberulo-pubescent, costa nervisque tamen subtomentosa, nervis utroque latere costae 5—8. Inflorescentia terminalis, interdum ab inflorescentiis axillaribus comitata, plerumque simplex, rarius basi uno vel duobus ramulis instructa, erecta, 9—20 cm longa. Pedunculus internodiis rachidis multo longior, basi pari foliorum magnitudine redactorum et plerumque orbicularium instructus, interdum bracteis aliquibus sterilibus munitus et ut rachis parce puberulus; internodia rachidis plerumque circ. 5 mm longa. Flores breviter pedicellati. Bractee filiformes, 2—3 mm longae, puberulo-hirtellae. Pedicelli 1—3 mm longi, puberulo-hirtelli. Bracteolae anguste triangulares, 1,5 mm longae, puberulo-hirtellae. Calycis lobi paulum inaequales, ovato-acuminati; lobi posticus et antici 3,5 mm longi et 0,8 mm lati; lobi laterales 2,5 mm longi

et 0,6 mm lati; lobi omnes margine albo-ciliati, 5-nervii, post anthesin accrescentes. Corolla alba, limbo purpurea, extus puberula, 16—20 mm longa, intus ad insertionem staminum barbata. Staminodium filiforme, 1 mm longum, ecapitatum. Ovarium glabrum, ovulis utroque loculo circ. 18. Capsula glabra, 4,5 mm longa.

Habitat Birmaniam Inferiorem, Siamiam Peninsularem, Peninsulam Malayanam.

BIRMA. Tenasserim: Mergui, *Herfner Kew Distr.* 6081 (typus).

SIAM. Lower Siam: Kopah, *Haniff & Nur S.F.2068* (SING); Trang, March 1895, *Goskam s.n.*, (SING); Punga, *Haniff & Nur S.F.3881* (SING).

MALAY PENINSULA. Kedah: Langkawi Is., Burau, *Robinson 6276* (K), Dayang Bunting, *Robinson s.n.* (K); Mt. Chinchang, Sept. 1890, *Curtis s.n.* (SING); Junun, *Archad F.D.11145* (SING); Mt. Jerai Res., Malay name: lemba batu, "used by Chinese as specific for cough", *Archad F.D.11271* (SING); Serdang Estate, June 28, 1941, *Nasen s.n.* (SING); Somme Estate, alt. 50 m, *Spare 3818* (SING); Perak Boundary, Mt. Bintang, June 1917, *coll. ign. s.n.* (K). — Perak: Ulu Selama, alt. 150 m, *Wray 4158* (SING); Taiping, Malay name: lemba batu, *Abdul Aziz F.D.10842*; Temango, *Ridley 14525* (SING, K); Changkal, "the dried leaves are chewed with sirih, to which it gives a sweet flavour; they are sold on the weekly fair," *coll. ign. s.n.* (SING); s.l., *Scortechini 285a* (K). — Kelantan: Mt. Stong, alt. 150 m, *Symington F.D.37610* (SING); Gua Musang-Kuala Betis track, *Henderson S.F.29655* (SING, BO, K). — Pahang: between Telom and Kuala Medang, *Kloss s.n.* (SING).

Staurogyne merguensis (T. And.) O. Ktze and the next species, *St. tenuispica* Brem., are doubtless near allies. The inflorescence of *St. merguensis* is less strongly ramified, its peduncle and rachis are less slender and they are puberulous instead of glandular-hirtellous; the flowers, on the other hand, are larger.

A few inflorescences with more than two branchlets were noted, but in these inflorescences the rachis proved to be damaged, and they are therefore to be regarded as anomalous.

Staurogyne merguensis is one of the few *Staurogyne* species for which a vernacular name is recorded, viz. "lemba batu." Arshad reports that it is used in Kedah "by Chinese as a specific for cough," and an unknown collector tells us that the dried leaves are chewed with sirih.

36. *Staurogyne tenuispica* Brem. *nov. spec.*

Inter species *Rosularium* quae caule tomentoso, ex internodiis brevibus sed distinctis composito instructae sunt foliis basi cordatis, utroque latere costae nervis 5—8 munitis cum *St. merguensi* (T. And.) O. Ktze quadrans, internodiis superioribus longioribus, inflorescentia paniculiformi, pedunculo glabro, rachide ramulisque praesertim apicem versus pilis capitatis hirtellis, floribus minoribus ab ea distinguenda.

Herba subrosularis, 20—25 cm alta. Caulis e basi decumbente ascendens, simplex, monopodialis, ad apicem 1,5 mm diam., basin versus usque

dens, simplex, monopodialis, ad apicem 1,5 mm diam., basin versus usque ad 3,5 cm longis, apicem versus usque ad 1,5 cm decreescentibus. Folia petiolo tomentoso, 1—3,5 cm longo instructa; lamina oblonga, 5—8,5 cm longa et 2,5—3,5 cm lata, apice obtusa vel rotundata, basi cordata, sicc. supra griseo-olivacea, subtus dilute brunnea, supra ad marginem scabridula, subtus puberulo-pubescent sed costa nervisque tomentella, nervis utroque latere costae 6—8. Inflorescentia terminalis, paniculiformis, ramulis simplicibus. Pedunculus internodiis rachidis pluries longior, glaber; rachis et ramuli graciles, praesertim apicem versus pilis capitatis hirtelli. Flores breviter pedicellati. Bracteae 1,5—2,5 mm longae, hirtellae. Pedicelli 1—1,5 mm longi, pilis capitatis hirtelli. Bracteolae 1,2 mm longae, hirtellae. Calycis lobi paulum inaequales, ovato-acuminati; lobi posticus et antici 2,5 mm longi; lobi laterales 2,0 mm longi; lobi omnes margine ciliati, 5-nervi. Corolla rosea, limbo purpureo suffusa, extus puberulo-pubescent, intus ad insertionem staminum barbata, 12—16 mm longa. Staminodium filiforme, 1,0 mm longum, ecapitatum. Ovarium glabrum, ovulis utroque loculo 18—20. Capsula glabra, 4,5 mm longa, acuta.

Habitat Siamiam Peninsularem.

SIAM. Lower Siam: Tassan, *Kloss 6974* (K, typus).

Staurogyne tenuispica Brem. is doubtless a very near ally of *St. merguensis* (T. And.) O. Ktze, but the differences between the latter and the plant described above seem to be of sufficient importance to justify the distinction of two species.

The paniculiform, glandular-hirtellous inflorescence of *St. tenuispica* resembles that of *St. obtusa* (Nees) O. Ktze, but the leaf base of the latter is not emarginate, and its bracts and calyx lobes are distinctly longer.

37. *Staurogyne burbridgei* C. B. Clarke ex Brem. *nov. spec.*

Inter species *Rosularium* caule ex internodiis brevibus sed distinctis composito, indumento caulis brevioris et foliis utroque extremo acutis a speciebus precedentibus distincta.

Herba subrosularis, 15—25 cm alta. Caulis e basi decumbente ascendens, simplex vel parce ramosus, ad apicem circ. 1,5 mm diam., basin versus usque ad 3 mm accrescens, ad apicem tomentellus, basin versus plus minusve glabrescens, internodiis partis decumbentis usque ad 2 cm longis, apicem versus usque ad 0,5 cm decreescentibus. Folia in petiolum densius hirtellum, 1—2 cm longum contracta; lamina lanceolato-oblonga vel oblonga, plerumque 12—14 cm longa et 4—6 cm lata, utroque extremo acuta, sicc. supra olivacea vel saturate brunnea, subtus brunnea, supra dense puberula, subtus puberulo-pubescent, costa nervisque tomentellis, nervis utroque latere costae 13—16. Inflorescentia terminalis, basi interdum ramulis duobus vel tribus instructa, 10—20 cm longa. Pedunculus internodiis rachidis pluries longior, gracilis, ut rachis puberulus; internodia rachidis 4—8 mm longa. Flores pedicellati. Bracteae setaceae, 1—2 mm longae, puberulae. Pedicelli 2—3 mm longi, puberuli. Bracteolae

0,8 mm infra apicem pedicelli insertae, setaceae, vix 1 mm longae. Calycis lobi subaequales, e basi ovata anguste triangulares, 3 mm longi et basi 0,5 mm lati, subglabri, 3-nervii. Corolla colore ignoto, extus glabra, intus ad insertionem staminum barbata, 13 mm longa. Staminodium 1,2 mm longum, capitatum. Ovarium glabrum, utroque loculo ovulis 18—20. Capsula glabra, 4 mm longa.

Habitat partem septemtrionalem terrae Borneensis.

BORNEO. Colony of North Borneo: Tawar R., *Burbidge s.n.* (K, BM, typi).

Staurogyne burbidgei C. B. Clarke ex Brem. differs from the two preceding species in the tomentellous, towards the base glabrescent stem and in the leaves, which are larger, at both ends acute, and traversed by a much larger number of nerves.

In a note attached to the sheet in the Kew Herbarium Clarke states that his new species comes next to *St. gracilis* (T. And.) O. Ktze, but its affinity with the latter is, in my opinion, but remote. The leaves of *St. gracilis* are obtuse and almost entirely glabrous, and its corolla and capsule are much larger.

38. *Staurogyne dasyphylla* Brem. nov. spec.

Inter species *Rosularium* caule villosa ex internodiis brevissimis composito cum *St. bullata* Brem. solum comparanda, follis latioribus planis utrimque pilis valvulatis longis sparsis, bracteis bracteolisque calyce dimidio brevioribus ab ea facilliter distinguenda.

Herba rosularis, 25—30 cm alta. Caulis subnullus, dense villosus. Folia petiolo villosa, 1—4,5 cm longo instructa; lamina elliptica vel elliptico-oblonga, 5,7—12,0 cm longa et 3,0—7,2 cm lata, apice rotundata, basi truncata vel subobtusata, rarius subcordata sed prope petiolum semper plus minusve contracta, sicc. supra olivaceo-brunnea, subtus griseo-viridis, utrimque pilis valvulatis longis sparsa, costa nervisque subtus tamen densius villosis, nervis utroque latere costae 8—10. Inflorescentia terminalis, basi duobus vel tribus ramulis instructa, erecta. Pedunculus internodiis rachidis pluries longior et ut rachis puberulo-hirtellus. Internodia rachidis plerumque 4—5 mm longa; inferiora tamen usque ad 10 mm longa. Flores longius pedicellati. Bractee setaceae, 1 mm longae. Pedicelli 3—4 mm longi. Bracteolae paulo infra apicem pedicelli insertae, 0,8 mm longae. Calycis lobi subaequales, 2 mm longi, subglabri, 3-nervii. Corolla alba, extus glabra, intus ad insertionem staminum barbata, 14 mm longa. Staminodium 1 mm longum, ecapitatum. Ovarium glabrum, utroque loculo ovulis 28—30. Capsula glabra, 6 mm longa, acuta.

Habitat partem occidentalem terrae Borneensis.

BORNEO. Sarawak: Nanga Pelagos, *Daud & Tachon 3563* (SING, typus).

The differences between *St. dasyphylla* Brem. and *St. bullata* Brem. seem to exclude a very near affinity. *Staurogyne dasyphylla* has a much

shorter stem, an inflorescence with but two or three branchlets, and a much larger number of ovules. In the last-named character and in the size of the capsula it differs from all the other species of the *Rosulares* that were investigated by me.

39. *Staurogyne bullata* Brem. nov. nom.

Didissandra parviflora Ridl. in Arch. Hydrobiol., Suppl. Band 11: 327 fig. 7. 1932; — non *Staurogyne parviflora* (T. And.) O. Ktze, Rev. Gen. Pl. 1: 497. 1891.

Inter species *Rosularium* foliis bullatis et bracteis bracteolisque calyci fere aequilongis noscenda.

Herba subrosularis, 6—18 cm alta. Caulis e basi decumbente ascendens, simplex, circ. 2,5 mm diam., dense villosus, internodiis partis decumbentis usque ad 2,5 cm longis, apicem versus usque ad 0,4 mm decrescentibus. Folia petiolo dense pubescente, 0,6—4,0 cm longo instructa; lamina oblonga, 5,5—8,0 cm longa et 1,7—3,0 cm lata, apice subacuta, basi subacuta vel rotundata, haud raro asymmetrica, sicc. supra olivacea, subtus olivaceo-brunnea, supra costa pilis longis sparsa excepta glabra, subtus costa nervisque dense pubescens, inter nervos bullata, nervis utroque latere costae 11—14. Inflorescentia terminalis, paniculiformis, ramulis simplicibus, in speciminibus depauperatis tamen interdum simplex, tota glabra. Pedunculus internodiis rachidis pluries longior; internodia rachidis inferiora usque ad 1,5 cm longa, alia gradatim breviora. Flores longius pedicellati. Bractee ramulorum 3,5 mm longae et 1,2 mm latae; bractee florales 2,5—3,0 mm longae et 0,7 mm latae. Pedicelli 2,0—3,5 mm longi. Bracteolae 0,5 mm infra apicem pedicelli insertae, 2,5—3,0 mm longae et 0,3 mm latae, subobtusae. Calycis lobi subaequales, lineares, 4 mm longi et 0,4 mm lati, subobtusi, 3-nervii. Corolla alba, extus glabra, intus ad insertionem staminum parce et brevissime pilosa, 8 mm longa. Staminodium 0,4 mm longum, ecapitatum. Ovarium glabrum, utroque loculo ovulis 20. Capsula nudum visa.

Habitat Sumatrae partem occidentalem.

SUMATRA. West Coast: Bukittinggih (Fort de Kock), Harau Canyon, *Ruttner* 68 (BO, typus), *Frey-Wyssling* 156 (BO); Bukittinggih (Fort de Kock), *Yates* 2494 (BO, UC); Sarasahbunto, alt. 500 m, *Kleinhoonte* 462 (BO).

The figure which accompanies Ridley's description shows an abnormal, 6-merous flower provided with two staminodes. In some other respects it is inaccurate, for the filaments of the longer stamens are figured as pilose towards the base, whereas they are in reality entirely glabrous, and the ridge by which they are connected with the shorter ones has been omitted; the number of nerves in the leaves is too large.

Staurogyne bullata Brem. differs from all other Asiatic *Staurogyne* species that are known to me in the absence of the short hairs on the upper part of the filaments and on the connective, and also in the small

size of the latter. In other respects, however, it agrees quite well with the other *Rosulares*. It is easily recognizable by the bullate leaves and by the small size of the flower.

Series 2. *Humifusae* Brem. *nov. ser.* (Species 40)

Herba fere tota prostrata. Caulis sympodialis, strigosus. Inflorescentia breviter pedunculata, racemiformis, basi interdum uno vel duobus ramulis instructa. Flores longius pedicellati.

40. *Staurogyne humifusa* Brem. *nov. spec.*

Herba decumbens. Caulis apice solum ascendens, sympodialis, dense strigosus, ad apicem 1 mm diam., basin versus usque ad 1,8 mm accrescens, internodiis 1,0—3,5 cm longis, superioribus haud distincte brevioribus. Folia in petiolum 0,5—1,2 mm longum, dense strigosum contracta; lamina lanceolata, 4—8 cm longa et 1,4—2,2 cm lata, apice obtusa vel subobtusa, basi acuta vel contracta, sicc. supra olivaceo-brunnea, subtus dilute brunnea, supra primum puberula, deinde glabrescens, subtus costa nervisque puberula, nervis utroque latere costae 7 vel 8. Inflorescentia primum terminalis, post anthesin in positionem lateralem coacta, 6—12 cm longa, basi interdum uno vel duobus ramulis instructa, puberula. Pedunculus internodiis inferioribus rachidis paulo longior, gracilis; internodia inferiora rachidis circ. 14 mm longa, alia gradatim ad 7 mm decrescunt. Flores longius pedicellati. Bracteae setaceae, 1,5 mm longae, puberulae. Pedicelli 4—5 mm longi, puberuli. Bracteolae fere ad apicem pedicelli insertae, setaceae, 1,0 mm longae. Calycis lobi subaequales, anguste triangulares, 2 mm longi, puberuli. Corolla colore ignoto, 13 mm longa. Ovarium glabrum, utroque loculo ovulis 22. Capsula glabra, 5 mm longa.

Habitat terram Borneensem.

BORNEO. Western Div.: Lianggagang, *Hallier 2645* (BO, *typus*).

The type consists of two sheets, one with three plants and the other with two, but only one of the plants was provided with a flower, and there was but a single capsule. The flower was not dissected by me.

Staurogyne humifusa Brem. is a rather isolated species. It differs from the *Rosulares* in the sympodial stem, whose upper internodes, moreover, are not distinctly shorter than the lower ones, and in the shortness of the peduncle, which is but slightly longer than the lower internodes of the rachis; the latter, on the other hand, are unusually long. From the species belonging to the series *Elatae* it differs in its prostrate growth, in the rather lax inflorescence, and in the comparatively long pedicels.

Series 3. *Elatae* Brem. *nov. ser.* (Species 41—44)

Herbae suberectae. Caulis sympodialis, altior. Inflorescentia breviter pedunculata, spiciformis vel subspiciformis, basi interdum uno vel duobus ramulis instructa, longissima et multiflora.

41. STAUROGYNE RACEMOSA (Roxb.) O. Ktze

Staurogyne racemosa (Roxb.) O. Ktze, Rev. Gen. Pl. 1: 497. 1891; C. B. Clarke in J. As. Soc. Beng. 74: 641. 1908, quoad specimina in insula Penang lecta, non quoad specimen sumatranum cf. *St. spiciflora* (Miq.) Brem. var. *stenosepala* Brem.; Ridl., Fl. Mal. Pen. 2: 562. 1923; non *St. racemosa* var. *pierrei* R. Ben. in Fl. gén. Indo-Chine 4: 633. 1935, quae est species distincta; *Ruellia racemosa* Roxb., Fl. ind. 3: 42. 1832; *Erythraeanthus racemosus* (Roxb.) Nees in Wall., Pl. as. rar. 3: 80. 1832; id. in DC., Prodr. 11: 78. 1847; *Ebermaiera racemosa* (Roxb.) Miq., Fl. Ind. bat. 2: 776. 1858; T. And. in J. Linn. Soc. (Bot.) 9: 452. 1867; C. B. Clarke in Hook. f., Fl. Brit. Ind. 4: 401. 1884, loco "Java" excl.; eodem modo Boerl., Handl. Fl. Ned. Ind. 2: 656. 1899.

Inter species *Elatarum* bracteis angustis, floribus breviter sed distincte pedicellatis, ovulis paucioribus, capsula brevi cum *St. batuensi* Brem. et *St. citrina* Ridl. quadrans, sed caule primum dense chryseo-strigoso, foliis supra pilis brevibus sparsis ab eis distinguenda, a *St. batuensi* insuper inflorescentia pilis ecapitatis hirtella diversa.

Herba suberecta, 15—45 cm alta. Caulis simplex vel apicem versus parce ramificatus, sympodialis et interdum bifurcatus, primum dense, deinde sparsius chryseo-strigosus, ad apicem 1,2—1,7 mm diam., basin versus usque ad 2,8 mm accrescens, internodiis 1—4,5 cm longis. Folia in petiolum dense strigosum, 1—4 cm longum contracta; lamina lanceolata, 5—12 cm longa et 1,5—3,4 cm lata, apice acuta, basi contracta, sicc. supra saturate, subtus dilute brunnea, supra pilis brevibus sparsa, subtus costa nervisque strigosa, inter nervos sparse et vix notabile pubescens, nervis utroque latere costae 9—11. Inflorescentia primum terminalis, post anthesin in positionem lateralem coacta, basi interdum uno vel duobus ramulis instructa. Pedunculus internodiis rachidis plerumque distincte longior et ut rachis hirtellus; internodia rachidis 2—4 mm longa. Flores breviter pedicellati. Bractee filiformes, 2—2,5 mm longae, hirtellae. Pedicelli 1,5—2 mm longi, hirtelli. Bracteolae subulatae, 1,5 mm longae, hirtellae. Calycis lobi paulum inaequales, omnes tamen e basi ovata anguste triangulares; lobi posticus et antici 3 mm longi et 1,0—1,4 mm lati; lobi laterales 2,8 mm longi et 0,7 mm lati; omnes dorso hirtelli et margine ciliati, 3-nervi. Corolla alba, lobis tribus inferioribus tamen roseis vel rubris, extus glabra, intus ad insertionem staminum barbata, 14—15 mm longa. Staminodium capitatum 0,8 mm longum. Ovarium glabrum, ovulis utroque loculo 16. Capsula glabra, 5,5 mm longa.

Habitat insulam Penang dictam, ubi ad altitudines inter 600 m et 750 m reperitur.

MALAY PENINSULA. Penang: Government Hill, *Burkill S.F.2572* (SING), *S.F.8994* (SING), *Ridley 406* (SING), June 1901, *Curtis s.n.* (K), *Maingay 1173* (K), *2257* (K), *2258A* (K), Penang Hill, *Sinclair S.F.39076* (SING, K), *Hullett 367* (SING), Sept. 3, 1941, *Nansen s.n.* (SING); Western Hill, *Henderson S.F.21353* (SING, K), *Fox 38* (SING); s.l., *Wallich 2336, 2336B* (K, typi), *King's coll. 1355* (K), *Walter 197* (K), *Lobb 428* (K, BM, G, FI; this number was according to the label collected in Java, but this is doubtless a mistake: the species does not occur in Java and has never been cultivated there).

Staurogyne racemosa (Roxb.) O. Ktze, *St. batuensis* Brem. and *St. citrina* Ridl. are nearly related species. It are plants of similar habit; their leaves are of similar shape and size and provided with the same number of nerves; their inflorescences resemble each other in their length and number of flowers; the flowers of all three are shortly pedicellate, and the fruits are of similar shape and size and contain a similar number of seeds. The differences are confined to the nature of the indumentum, the colour the leaves assume in drying, and the size of bracts, bracteoles and flower parts; they are, in fact, but slightly more pronounced than those between the three varieties of *St. spiciflora* (Miq.) Brem., another near ally, but whereas the three varieties of *St. spiciflora* occur in the same area, *St. racemosa*, *St. batuensis* and *St. citrina* occupy areas that are geographically distinct. The small area in which *St. racemosa* is found, viz. the island Penang, is, moreover, widely separated from the Batu and Mentawai Islands, which are the home of the two other species.

The occurrence of *St. racemosa* in Java must be regarded as highly improbable. The belief in its presence in that part of our area rests on the specimen collected by Lobb, but there can hardly be a doubt that this specimen was wrongly labelled. The species is apparently confined to the island Penang, where it occurs at altitudes between 600 and 750 m. The narrow range within which it is found is an indication that its demands on the environment are of a very special character, and that a species with such special demands would occur in localities so far away from each other as Penang and Java, seems excluded.

The plant collected in Cambodja which Benoist described under the name "varietas *pierrei*" has larger bracts and bracteoles and a far greater number of ovules, and represents a distinct species.

42. *Staurogyne batuensis* Brem. nov. spec.

Inter species *Elatarum* bracteis angustis, floribus breviter sed distincte pedicellatis, ovulis paucioribus, capsula brevi cum *St. racemosa* (Roxb.) O. Ktze et *St. citrina* Ridl. quadrans, sed ab ambabus inflorescentia pilis capitatis hirtella, a *St. racemosa* insuper foliis supra glabris, a *St. citrina* foliis sicc. brunnescentibus distinguenda.

Herba suberecta, usque ad 50 cm alta. Caulis simplex vel apicem versus parce ramificatus, sympodialis, ad apicem vix conspicue strigosus, basin versus mox glabrescens, ad apicem circ. 1.0 mm diam., basin versus usque ad 5,5 mm incrassatus, internodiis 1—4 cm longis. Folia in petiolum gracilem, 1,2—3,0 cm longum, mox glabrescentem contracta; lamina lanceolata vel lanceolato-oblonga, 6—14 cm longa et 1,5—3 cm, rarius usque ad 5 cm lata, apice basique contracta, sicc. supra saturate, subtus dilute brunnea, supra glabra, subtus costa nervisque vix notabile strigulosa,

nervis utroque latere costae 7—11. Inflorescentia primum terminalis, post anthesin in positionem lateralem coacta, basi interdum uno vel duobus ramulis instructa, 15—20 cm longa. Pedunculus internodiis rachidis paulo longior et ut rachis pilis capitatis hirtellus; internodia rachidis usque ad 5 mm longa. Flores breviter pedicellati. Bracteae lineares, 2 mm longae, pilis capitatis hirtellae. Pedicelli vix 1 mm longi, pilis capitatis hirtelli. Bracteolae filiformes, 1—1,4 mm longae, pilis capitatis hirtellae. Calycis lobi paulum inaequales, omnes tamen anguste triangulares; lobi posticus et antici 2,5 mm longi et 0,5 mm lati; lobi laterales 2,3 mm longi et 0,3 mm lati; omnes pilis capitatis hirtelli, 3-nervii. Corolla colore ignoto, extus glabra, intus ad insertionem staminum barbata, circ. 10 mm longa. Staminodium 0,5 mm longum, vix notabile capitatum. Ovarium glabrum, utroque loculo ovulis 14—16. Capsula glabra, 5 mm longa.

Habitat insulas Batu dictas.

SUMATRA. BATU IS.: P. Pini, *Raap 503* (BO, L), 559 (BO, L, typi); P. Batu, *Raap 681* (BO).

Staurogyne batuensis Brem. is, as stated in my remarks on *St. racemosa* (Roxb.) O. Ktze, a very near ally of the latter and of *St. citrina* Ridl. It differs from both species in the glandular-hirtellous inflorescence and in the smaller size of the flowers, from *St. racemosa* moreover in the nearly glabrous stem and in the complete absence of hairs on the upper side of the leaves, and from *St. citrina* in the brown colour the leaves assume in drying.

43. STAUROGYNE CITRINA Ridl.

Staurogyne citrina Ridl. in Kew Bull. 1926: 76.

Inter species *Elatarum* bracteis angustis, floribus breviter sed distincte pedicellatis, ovulis paucioribus, capsula brevi cum *St. racemosa* (Roxb.) O. Ktze et *St. batuensis* Brem. quadrans, sed ab ambabus foliis sicc. vix conspicue discoloratis, a *St. racemosa* insuper foliis supra glabris, a *St. batuensis* inflorescentia pilis capitatis carente distinguenda.

Herba suberecta, 20—35 cm alta. Caulis simplex vel apicem versus parce ramificatus, sympodialis, ad apicem dense strigulosus, basin versus glabrescens, ad apicem 0,8—1,2 mm diam., basin versus usque ad 4 mm accrescens, internodiis 1—4 cm longis. Folia in petiolum gracilem, 1—2,5 cm longum, primum strigulosum contracta; lamina anguste lanceolata, 6—10 cm longa et 1,5—2,5 cm lata, apice basique contracta, tenuis, sicc. supra olivacea, subtus griseo-viridis, supra glabra, subtus costa nervisque strigulosa, nervis utroque latere costae 9 vel 10. Inflorescentia primum terminalis, post anthesin in positionem lateralem coacta, basi interdum uno vel duobus ramulis instructa, 7—13 cm longa. Pedunculus internodiis rachidis vix longior et ut rachis puberulo-hirtellus; internodia rachidis usque ad 5 mm longa. Flores breviter pedicellati. Bracteae lanceolatae vel lineari-lanceolatae, 1,5—3,0 mm longae et 0,8 mm latae, subglabrae. Pedicelli 1—2 mm longi, subglabri. Bracteolae anguste lineares, 1,5—2,0 mm

longae, subglabrae. Calycis lobi subaequales, anguste lineares, 3,5 mm longi et 0,4 mm lati, subglabri, 3-nervi. Corolla citrina, extus glabra, intus ad insertionem staminum barbata, 15 mm longa. Staminodium 1,2 mm longum, ecapitatum. Ovarium glabrum, utroque loculo ovulis 12—14. Capsula glabra, 4,5—5,0 mm longa, acuta.

Habitat insulas Mentawai dictas.

SUMATRA. MENTAWAI IS.: P. Siberut, s.n., *Boden Kloss S.F. 14098* (K, BO, SING, typi); P. Siberut, near Kp. Siberut, *Iboet 6* (BO).

Staurogyne citrina Ridl. is in the herbarium easily distinguishable from *St. racemosa* (Roxb.) O. Ktze and *St. batuensis* Brem. by the absence of the brown discoloration; from *St. racemosa* it differs moreover in the completely glabrous upper side of the leaf, and from *St. batuensis* in the absence of capitate hairs in the indumentum of the inflorescence.

44. *Staurogyne spiciflora* (Miq.) Brem. *nov. comb.*

Ebermaiera? spiciflora Miq., Fl. Ind. bat. Suppl. 566, 1862; — *Staurogyne spicata* Ridl. in sched.

Inter species *Elatarum* bracteis latioribus, floribus sessilibus vel subsessilibus, ovulis numerosioribus, capsula longiore a speciebus aliis malesianis facilliter distinguenda.

Herba suberecta, 80—100 cm alta. Caulis apicem versus ramificatus, interdum sympodialis vel apicem versus bifurcatus, ad apicem strigosus vel tomentellus, basin versus glabrescens, in var. *glabricaula* tamen ab initio glaber, ad apicem 1,8—2,5 mm diam., basin versus usque ad 6 mm accrescens, lignescens, internodiis 1,5—7 cm longis. Folia in petiolum strigosum vel tomentellum, 0,8—6 cm longum contracta; lamina in var. *stenosepala* et in var. *glabricaula* plerumque lanceolata vel oblanceolata, 9—17 cm longa et 2—7 cm lata, in var. *spiciflora* plerumque lanceolato-elliptica vel elliptica et 8—22 cm longa, 3,5—9 cm lata, in varietatibus omnibus apice acuta vel subacuminata, basi contracta, sicc. supra olivacea, subtus griseo-brunnea, supra glabra, subtus costa nervisque puberulo-pubescent, nervis utroque latere costae 8—13. Inflorescentiae terminales, haud raro plures ad apicem caulis et ramorum principalium congestae, erectae, 12—30 cm longae. Pedunculus rachidis internodiis subaequilongus et ut rachis puberulo-pubescent vel subglaber; internodia rachidis 3—6 mm longa. Flores sessiles vel subsessiles. Bractee ovatae, circ. 3 mm longae et 2 mm latae, margine ciliolatae. Bracteolae ovato-lanceolatae, 2,5 mm longae et 1,2 mm latae, in var. *stenosepala* tamen angustiores, margine ciliolatae. Calycis lobi paulum inaequales; in var. *spiciflora* et in var. *glabricaula* lobus posticus ovatus, 4 mm longus et 2 mm latus, lobi antici oblongi, 4 mm longi et 1,5 mm lati, lobi laterales oblongo-lanceolati, 3,2 mm longi et 0,9 mm lati; in var. *stenosepala* lobi omnes angustiores, posticus et antici circ. 1,2 mm lati; in varietatibus omnibus lobi margine ciliolati et 3-nervi. Corolla lutea et ad faucem rubro-brunnea, extus glabra,

intus ad insertionem staminum barbata, circ. 18 mm longa. Staminodium 1,5 mm longum, vix conspicue capitatum. Ovarium glabrum, utroque loculo ovulis 22—24. Capsula glabra, 8,5 mm longa, subobtusata.

Habitat Archipelagum Linggensem et Sumatram.

Var. SPICIFLORA.

Caule ad apicem striguloso vel tomentello, foliis pluribus lanceolato-ellipticis vel ellipticis, bracteolis ovato-lanceolatis, calycis lobo postico ovato et lobis anticis oblongis noscenda.

Habitat Sumatram.

SUMATRA. Atjeh: Wassenar, July 5—7, 1939, *Batten Pooli s.n.* (SING). — Tapanuli: P. Musala, alt. 150 m, Oct. 15, 1939, *Batten Pooli s.n.* (SING); Batak Lands, Tobing, *Junghuhn s.n.* (U, typus). — East Coast: Kabanjabe, Kuala, alt. 600 m, *Galoengi 347* (BO); Kp. Sulu, alt. 400 m, *Galoengi 526* (BO); Nagasariba, *Hagen s.n.* (BO); Mt. Sibajak, *Nier S.F.7302* (SING, K), alt. 900 m, *Lörzing 4364* (BO), alt. 1150 m, *Lörzing 4705* (BO); Sibolangit, alt. 500 m, *Lörzing 5512* (BO, L); Langkat, Pahangarangan, alt. 100 m, *Beumée A 488* (BO); Asahan, Simpangtoba, *Yates 800* (BO, BM), Bandarpulan, *Yates 1140* (BO, K, BM), above Bandarpulan, *Bartlett 6628* (NY, US), Pargambiran, alt. 270—360 m, *Bartlett 8170* (NY, US), Lumbanria, *Rahmat 7786* (SING), Hutabagaran, *Rahmat 7132* (SING). — West Coast: Kerintji, Muarasako, alt. 250 m, *Jacobson 2593* (BO).

Var. *glabricaula* Brem. *nov. var.*

Caule ab initio glabro et foliis pluribus lanceolatis vel oblanceolatis a typo recedens.

Habitat Sumatram.

SUMATRA. Tapanuli: Toban, Tutupan, *Yates 2321* (NY, BO, CU). — East Coast: Asahan, Toba trail, *Bartlett 7375* (NY, US, typi varietatis), Lumban Ria, *Rahmat 7638* (SING).

Var. *stenosepala* Brem. *nov. var.*

Foliis pluribus lanceolatis vel oblanceolatis, bracteolis linearibus, calycis lobis postico et anticis oblongo-lanceolatis a typo recedens.

Habitat Archipelagum Linggensem et Sumatram.

SUMATRA. Atjeh: above Takingeun (Takengon), *van Steenis 5937* (BO); Bur ni Bias, *van Steenis 6232* (BO); Blangkedjeren, *van Steenis 8800* (BO, L); Goh Lembu, *van Steenis 9259* (BO, L); between Paloh and Kongke, alt. 1200 m, *van Steenis 9465* (BO); Airpanas, *van Steenis 10077* (BO). — West Coast: Mt. Talakmau (Ophir), Tanangtalu, alt. 1100 m, *Bänнемeyer 1162* (BO); Bt. Kabung, *Bänнемeyer 1196* (BO); Agambrani, alt. 900 m, *Bänнемeyer 3105* (BO); Limakota, alt. 825 m, *Bänнемeyer 3193* (BO), alt. 900 m, *Bänнемeyer 3283* (BO); Mt. Malintang, alt. 1150 m, *Bänнемeyer 3532* (BO). — Inderagiri: s.n., *Curtis s.n.* (SING; quoted by Clarke under *St. racemosa*). — Djambi: Selemuku, alt. 180 m, *Posthumus 738* (BO). — Bencoolen: Rimbopengadang, alt. 1000 m, *Ajoeb 147* (BO, typus varietatis), 229 (BO). — LANGGA ARCH.: P. Singkep, s.l., *Bänнемeyer 7251* (BO).

Staurogyne spiciflora (Miq.) Brem. is easily distinguishable from the three preceding species by its more robust habit, its long inflorescences, its sessile or subsessile flowers and its ovate bracts.

The variety *glabricaula* comes very near to the type, and seems to be confined to part of the latter's area. The variety *stenosepala* differs more strongly, and shows also a somewhat different distribution; in this respect it is noteworthy that none of the collectors to whom we owe our material of the variety *spiciflora* and of the variety *glabricaula* ever gathered a single specimen of the variety *stenosepala*!

Sectio 2. *Maschalanthus* Brem. *nov. sect.*

A sectione *Staurogynio* inflorescentiis omnibus brachyblastos terminantibus distinguenda.

Caulis semper monopodialis. Inflorescentiae omnes a brachyblastis ex axillis foliorum oppositorum orientibus elatae, ob brevitatem brachyblastorum et ob exiguitatem foliorum eorum quasi axillares. Bracteae bracteolaeque angustae. Calycis lobi subaequales, angusti.

Speciebus adhuc certe notis partibus septemtrionali et occidentali terrae Borneensis et Archipelago Palawanensi distributa, forsitan speciebus aliis in Indo-China et in Peninsula Malayana reperta.

Typus sectionis: *St. axillaris* S. Moore.

Whether the section *Maschalanthus* is represented in the northern part of the Malay Peninsula by two species, viz. *St. macrantha* C. B. Clarke and *St. serrulata* C. B. Clarke, is as yet uncertain. These two species differ conspicuously from those found in Borneo and in the Palawan Archipelago in the nature of the inflorescence, which is provided with a long peduncle, and in the comparatively large size of the ovary. Their characters are so far but imperfectly known, and it is not impossible that they belong elsewhere, viz. to the genus *Didissandra* C. B. Clarke (*v. infra*). The only species with opposite, pseudo-axillary inflorescences described from Indo-China (Annam) is *St. scandens* R. Ben. It is in many respects not unlike some of the species known from Borneo and the Palawan Archipelago, but seems to differ very profoundly from the latter in habit, for according to the description it is a climbing plant reaching a height of 3 to 5 m. However, as we know no other species in this genus that show such a habit, there is some reason to doubt the correctness of this statement; it might be based on a note pertaining to a specimen belonging to another genus. In most of its characters it resembles *St. axillaris* S. Moore and *St. athroantha* Brem., but it differs from them in the larger size of the bract-like leaves at the base of the peduncle and in the much shorter calyx lobes.

In the Bornean and Palawan species the number of ovules is rather large, viz. 26—40 per ovary cell, and where seeds were available, the endosperm proved to be ruminant. In the two dubious species found in the Malay Peninsula the number of ovules and the nature of the endosperm are unknown.

KEY TO THE MALAYSIAN SPECIES OF THE SECTION MASCHALANTHUS

1. Peduncle much shorter than the leaf subtending the brachyblast. Calyx lobes at least 7 mm long, usually much longer.
 2. Inflorescence subsessile and contracted, shorter than the petiole of the leaf subtending the brachyblast.
 3. Stem and petioles strigose. Leaves in the herbarium not markedly discoloured, with 7—9 nerves on each side of the midrib. Pedicels 3—4 mm long. Calyx lobes 8—12 mm long. 45. *St. athroantha* Brem.
 - 3: Stem and petioles tomentose. Leaves in the herbarium on the upper side dark brown, on the underside light brown, with 10—12 nerves on each side of the midrib. Pedicels 2 mm long. Calyx lobes 12—17 mm long.
 46. *St. axillaris* S. Moore
 - 2: Inflorescence distinctly pedunculate and elongate, at least as long as the petiole of the leaf subtending the brachyblast.
 4. Inflorescence with more than 4 flowers. Peduncle at the most 1.5 cm long. Leaves lanceolate, oblanceolate or lanceolate-oblong.
 5. Stem densely pilose. Leaves at least on the underside pilose. Inflorescence hirtellous.
 6. Stem densely ferrugineous-tomentose. Leaves with midrib and nerves on the underside tomentose, in the herbarium dark brown above and light brown below. Peduncle and rachis partly glandular-hirtellous. Calyx lobes 13—14 mm long. 47. *St. sandakanica* Brem.
 - 6: Stem densely grey-pubescent. Leaves on both sides pubescent, in the herbarium but slightly discoloured. Peduncle and rachis hirtellous but without capitate hairs. Calyx lobes 8—9 mm long
 48. *St. merrillii* Brem.
 - 5: Stem, leaves and inflorescences glabrous. 49. *St. maschalostachys* Brem.
 - 4: Inflorescence with 2—4 flowers. Peduncle 2—3 cm long. Leaves linear.
 50. *St. capillipes* Brem.
1. Peduncle as long as the leaf subtending the brachyblast. Calyx lobes less than 5 mm long.
 7. Part of the leaves elliptic; margin entire. Lower bracts circ. 5 mm and calyx lobes 4.0 mm long. Corolla 2.5 mm long. 51. *St. macrantha* C. B. Clarke
 - 7: Leaves all lanceolate or lanceolate-oblong; margin serrulate. Lower bracts and calyx lobes 2.5 mm long. Corolla 1.8 cm long. 52. *St. serrulata* C. B. Clarke

45. *Staurogyne athroantha* Brem. *nov. spec.*

Inter species sectionis *Maschalanthi* inflorescentibus subsessilibus et contractis, petiolo folii brachyblastum suffulcientis brevioribus cum *St. axillari* S. Moore quadrans, sed caule petiolisque strigosis, foliis sicc. non

conspicue discoloratis et nervis paucioribus instructis, floribus longius pedicellatis, calycis lobis brevioribus ab ea distinguenda.

Herba unicaula, 15—35 cm alta. Caulis e basi decumbente ascendens, dense pubescens, 1,0—1,8 mm diam., internodiis 1—2 cm longis. Folia in petiolum gracilem, 1—3,5 cm longum, dense pubescentem contracta; lamina lanceolata, 4—9 cm longa et 1,2—2,8 cm lata, apice subacuta, basi cuneata, sicc. haud conspicue discolorata, discolor, utraque facie costa nervisque sparse pubescens, inter nervos sparsissime puberula, nervis utroque latere costae plerumque 7—9. Inflorescentiae petiolo folii brachyblastum suffulcientis breviores, pedunculo circ. 2 mm longo instructae, e floribus 1—7 compositae. Bracteae bracteolaeque filiformes, 2—3,5 mm longae; bracteae usque ad 1 mm in pedicellum egredientes; bracteolae usque ad 1 mm ab apice pedicelli remotae. Pedicelli 3—4 mm longi, hirtelli. Calycis lobi circ. 10 mm longi et ad basin 0,6 mm lati, pilis ecapitatis sparse sed longius hirtelli. Corolla colore ignoto 13—14 mm longa, extus glabra, intus ad insertionem staminum breviter barbata. Staminodium tenuissimum, 0,6 mm longum. Ovarium glabrum, utroque loculo ovulis circ. 26. Capsula glabra, 6 mm longa. Semina endospermo ruminato instructa.

Habitat Archipelagum Palawanensem.

PHILIPPINES. Balabac: s.l., Ramos & Edaño B.Sc.49746 (NY, BRI), B.Sc. 49897 (NY). — Palawan: Taytay, Merrill 1215 (BO, SING, L, G, NY, BRI, typi); Mt. Mantalingajan, Edaño B.Sc.77537 (SING); Tigaplan R., Edaño B.Sc.77673 (SING, A). — Busuanga: s.l., Ramos B.Sc.41189 (SING).

Staurogyne athroantha Brem. and *St. axillaris* S. Moore are doubtless near allies, resembling each other in the sessile and strongly contracted inflorescences. The latter are in *St. athroantha* sometimes branched at the base, and in that case they may easily be mistaken for cymes; the position of the bracts, however, shows that they are of the racemose type.

Staurogyne athroantha differs from *St. axillaris* in the strigose instead of tomentose stem and petioles, in the absence of the brown discoloration the leaves of the latter assume in the herbarium, in the smaller number of lateral nerves, in the somewhat greater length of the pedicels and in the distinctly shorter calyx lobes.

46. STAUROGYNE AXILLARIS S. MOORE

Staurogyne axillaris S. Moore in J. Linn. Soc. (Bot.) 42: 118. 1914.

Inter species sectionis *Maschalanthi* inflorescentiis sessilibus et contractis, petiolo folii brachyblastum suffulcientis brevioribus cum *St. athroantha* Brem. quadrans, sed caule petiolisque tomentosus, foliis sicc. brunnescentibus et nervis pluribus instructis, floribus brevius pedicellatis, calycis lobis longioribus ab ea recedens.

Herba unicaula, 30—65 cm alta. Caulis e basi decumbente ascendens, simplex vel parce ramosus, tomentosus, 1,2—3,0 mm diam., internodiis

1,5—6,5 cm longis. Folia in petiolum gracilem, 1,5—4 cm longum, tomentosum contracta; lamina lanceolata, 3,5—9,5 cm longa et 1,2—3,0 cm lata, apice subacuta, basi cuneata, sicc. supra saturate, subtus dilute brunnea, utraque facie costa nervisque densius, inter nervos sparse pubescens, nervis utroque latere costae 10—12. Inflorescentiae sessiles vel pedunculo usque ad 3 mm longo instructae, petiolo folii brachyblastum suffulcientis breviores, e floribus 2—5 compositae. Bracteae bracteolaeque filiformes, 3—5 mm longae; bracteae usque ad 1 mm in pedicellum egredientes; bracteolae ab apice pedicelli paulo remotae. Pedicelli circ. 2 mm longi, pilis partim capitatis dense pubescentes. Calycis lobi 12—16 mm longi; posticus et antici basi 0,8 mm, laterales basi 0,6 mm lati, omnes dorso pilis partim capitatis dense pubescentes. Corolla alba vel citrina, 13—14 mm longa, extus glabra, intus ad insertionem staminum sericeo-barbata, palato vix conspicue punctato. Staminodium 1,5 mm longum, apice dilatatum. Ovarium glabrum, utroque loculo ovulis circ. 26. Capsula glabra, 7 mm longa. Semina endospermo ruminato instructa.

Habitat partem septemtrionalem terrae Borneensis.

BORNEO. Colony of North Borneo: Mt. Kinabalu, Gurulau, alt. 1050 m, *Gibbs 3991* (typus, n.v.), alt. 1350 m, *Carr S.F. 27067* (SING); Dallas, alt. 1200 m, *J. & M. S. Clemens 26733* (BM), *27544* (BM), alt. 900 m, *J. & M. S. Clemens 30235* (BO), *30236* (G).

The differences between *St. axillaris* S. Moore and *St. athroantha* Brem. have been enumerated under the latter. Habitually there is also a strong resemblance between *St. axillaris* and *St. sandakanica* Brem., but these two species are at once distinguishable by the nature of the inflorescence, which in *St. axillaris* is subsessile and strongly contracted and in *St. sandakanica* distinctly pedunculate and elongate. There is also a difference in the number of ovules; in *St. axillaris* there are, as in *St. athroantha*, about 26 ovules in each ovary cell, whereas in *St. sandakanica* there are, as in *St. maschalostachys* Brem., about 36 of them.

47. *Staurogyne sandakanica* Brem. nov. spec.

Inter species sectionis *Maschalanthi* inflorescentiis distincte pedunculatis et elongatis, petiolo folii brachyblastum suffulcientis minime aequilongis cum *St. merrillii* Brem., *St. maschalostachydi* Brem. et *St. capillipedi* Brem. congruens, sed pedunculo brevior et floribus numerosioribus a *St. capillipedi*, caule, foliis, inflorescentiis pilosis a *St. maschalostachydi*, foliis sicc. brunnescentibus, inflorescentia pilis capitatis hirtella, calycis lobis longioribus a *St. merrillii* distinguenda.

Herba unicaula, 15—30 cm alta. Caulis e basi decumbente ascendens, simplex, dense ferrugineo-tomentosus, 1,2—2,5 mm diam., internodiis 1—5,5 cm longis. Folia in petiolum gracilem, dense ferrugineo-tomentosum, 1,5—4,5 cm longum contracta, lamina lanceolato-oblonga, 4—13 cm longa

et 1,7—4,5 cm lata, apice subacuta, basi acuta et interdum paulum asymmetrica, supra nitidula, sicc. supra saturate, subtus dilute brunnea, supra costa densius, alibi sparse pilosa, subtus costa nervisque tomentosa, inter nervos sparse pilosa, nervis utroque latere costae 7—11. Inflorescentiae petiolo folii brachyblastum suffulcientis aequilongae vel eo paulo longiores. Pedunculus pilis partim capitatis hirtellus, 5—15 mm longus; rachis pilis partim capitatis hirtella, 0,5—3,5 cm longa; flores 4—6, secundi. Bracteae bracteolaeque filiformes, 4 mm longae, hirtellae. Pedicelli 2,5—3,5 mm longi, hirtelli. Calycis lobi 13—14 mm longi; posticus et antici basi 0,8 mm, laterales basi 0,5 mm lati, omnes dorso pilis ecapitatis cum pilis paucis capitatis mixtis hirtelli. Corolla colore ignoto, 19—20 mm longa, extus glabra, intus ad insertionem staminum parce barbata. Staminodium non visum. Ovarium glabrum, utroque loculo ovulis circ. 36. Capsula glabra, 6,5 mm longa. Semina endospermo ruminato instructa.

Habitat partem septentrionalem terrae Borneensis.

BORNEO. Colony of North Borneo: Sandakan and vicinity, *Ramos* 1358 (K, L, US, typ), 1862 (L, BO, US).

Ramos 1358 is represented in the herbarium of the Botanical Gardens, Bogor, by a specimen that seems to belong to *St. axillaris* S. Moore, a species known so far from much higher altitudes only. These two species resemble each other very closely. The leaves of *St. sandakanica* Brem. are on the upper side nitidulous, but otherwise the differences between these two species are almost entirely confined to the inflorescences, and even here there are striking points of resemblance, e.g. in the shape and size of the bracts, bracteoles and calyx lobes and in the presence of capitate hairs. The principal points of difference are found in the greater length of peduncle, rachis and pedicels, in the larger size of the corolla and in the greater number of ovules. A staminode was not found by me, whereas that of *St. axillaris* is unusually large, but the fact that I could dissect but a single flower of *St. sandakanica* makes this difference somewhat uncertain.

The differences between *St. sandakanica* and the three following species are more striking than those between this species and *St. axillaris*, although taxonomically probably of less importance. From *St. merrillii* Brem. it differs in the brown colour the leaves assume in drying, in the presence of capitate hairs on various parts of the inflorescence, and in the greater length of the calyx lobes. From *St. maschalostachys* Brem. it differs in the hairiness of its stem, petioles and inflorescences, and in the somewhat shorter peduncle and rachis. *Staurogyne capillipes* Brem. is a much smaller plant than *St. sandakanica* with linear leaves and strongly elongated but few-flowered inflorescences.

48. *Staurogyne merrillii* Brem. *nov. spec.*

Inter species sectionis *Maschalanthi* inflorescentiis distincte pedunculatis et elongatis, petiolo folii brachyblastum suffulcientis minime aequilongis instructas foliis lanceolatis vel oblanceolatis, inflorescentiis plerumque e floribus plus quam 4 compositis et pedunculo maxime 1,5 cm longo instructis ad *St. sandakanicam* Brem. et *St. maschalostachidem* Brem. accedens, a priore foliis sicc. haud conspicue discoloratis, inflorescentia pilis capitatis carente, calycis lobis brevioribus, ab altera pubescentia partium omnium distinguenda.

Herba unicaula, 10—20 cm alta. Caulis e basi decumbente ascendens, simplex, dense griseo-pubescent, 1,2—1,8 mm diam., internodiis 0,5—4 cm longis. Folia in petiolum gracilem, 0,8—3,0 cm longum, dense pubescentem contracta; lamina lanceolata vel oblanceolata, 4,5—11 cm longa et 1,0—3,3 cm lata, apice subacuta, basi cuneata vel acuta, discolor, sicc. vix conspicue decolorata, utraque facie pilosa, nervis utroque latere costae 6—10. Inflorescentiae folio brachyblastum suffulciente circ. dimidio breviores. Pedunculus dense pubescens, circ. 5 mm longus; rachis 2—4 cm longa, hirtello-pubescent; flores 3—6, secundi. Bractee bracteolaeque filiformes, 3 mm longae, hirtellae; bractee vix in pedicellum egredientes. Pedicelli 4—5 mm longi, hirtelli. Calycis lobi 8—9 mm longi, basi 0,6 mm lati, dense hirtelli. Corolla nondum visa. Capsula glabra, 6 mm longa. Semina utroque loculo circ. 30, endospermo ruminato instructa.

Habitat Archipelagum Palawanensem.

PHILIPPINES. Palawan: s.l., *Merrill 7225* (L, BM, typi), Malampaya Bay, *Merrill 11575* (K).

Staurogyne merrillii Brem. seems to come nearest to *St. sandakanica* Brem., from which it is, however, easily distinguishable by the character of the indumentum and by the absence of the brown colour the leaves of the latter assume in drying. In this respect it behaves like *St. capillipes* Brem., which has much narrower leaves and whose inflorescences are provided with a longer peduncle and with fewer flowers. From *St. maschalostachys* Brem. it is easily distinguishable by its hairiness.

49. *Staurogyne maschalostachys* Brem. *nov. spec.*

Inter species sectionis *Maschalanthi* inflorescentiis distincte pedunculatis et elongatis, petiolo folii brachyblastum suffulcientis minime aequilongis instructas glabritate partium omnium distinguenda.

Herba probabiliter unicaula, circ. 30 cm alta. Caulis probabiliter simplex, glaber, 1,5—2,5 mm diam., internodiis 3—6,5 cm longis. Folia in petiolum gracilem, 1,2—3,0 cm longum, glabrum contracta; lamina lanceolato-oblonga, 7—10 cm longa et 2,7—3,8 cm lata, apice subobtusata, basi cuneata vel contracta, sicc. supra olivaceo-brunnea, subtus dilute brunnea, utrimque glabra, nervis utroque latere costae 5—8. Inflorescentiae folio brachyblastum suffulciente dimidio vel minus quam dimidio breviores.

Pedunculus glaber, 5—10 mm longus; rachis glabra, 1,5—7 cm longa; flores 3—11, secundi. Bracteae bracteolaeque filiformes, glabrae; bracteae circ. 3,5 mm longae, usque ad 1 mm in pedicellum egredientes; bracteolae circ. 2,5 mm longae. Pedicelli 3—5 mm longi, glabri. Calycis lobi 10—11 mm longi et basi 1,2 mm lati, primum margine irregulariter ciliolati, demum glabrescentes. Corolla colore ignoto, circ. 15 mm longa, extus glabra, intus ad insertionem staminum breviter barbata. Staminodium tenuissimum, 1,0 mm longum. Ovarium glabrum, utroque loculo ovulis circ. 36. Capsula glabra, 6 mm longa. Semina endospermo ruminato instructa.

Habitat partem occidentalem terrae Borneensis.

BORNEO. Sarawak: Baram Distr., Entoyut R., *Hose 159* (K, BM; as the material is rather poor, the identification of this specimen is not fully certain). — Western Div.: Sg. Bluu, *Jaheri 426* (BO, typus).

Staurogyne maschalostachys Brem. is among the species of the section *Maschalanthus* that are provided with elongate inflorescences easily recognizable by its glabrousness. In the large number of ovules it agrees with *St. sandakanica* Brem., but also with *St. jaherii* Brem. and *St. kinabulensis* Brem., two species belonging to the section *Staurogynium*, subsection *Macrosepalae*, series *Isosepalae*, but in these species, which on the whole show a rather striking resemblance to *St. maschalostachys*, the young inflorescence occupies a terminal position. From *St. sandakanica* it differs apart from its glabrousness in the shorter and wider calyx lobes.

50. *Staurogyne capillipes* Brem. *nov. spec.*

Inter species sectionis *Maschalanthi* inflorescentiis distincte pedunculatis et elongatis, petiolo folii brachyblastum suffulcientis minime aequilongis instructas foliis linearibus, pedunculo longo et inflorescentia pauciflora noscenda.

Herba uniucaula, 15—20 cm alta. Caulis e basi decumbente ascendens, simplex, primum dense, deinde sparse strigosus, 0,7—1,2 mm diam., internodiis 0,8—2,5 cm longis. Folia in petiolum strigosum, 0,6—1,3 cm longum contracta; lamina linearis, 2—6 cm longa et 0,4—1,1 cm lata, apice subobtusa, basin versus sensim attenuata, discolor, sicc. haud conspicue decolorata, supra glabra, subtus costa sparse strigosa, nervis utroque latere costae 5—7. Inflorescentiae folio brachyblastum suffulcienti subaequilongae. Pedunculus 2—3 cm longus, subglaber; rachis 0,5—2 cm longa, subglabra; flores 2—4. Bracteae bracteolaeque filiformes, subglabrae; bracteae 2 mm longae, paulo in pedicellum egredientes; bracteolae 1,5 mm longae, paulo ab apice pedicelli remotae. Pedicelli 2—4,5 mm longi, graciles. Calycis lobi 7—8 mm longi et basi 0,5 mm lati, margine sparse ciliolati. Corolla colore ignoto 10—12 mm longa, extus glabra, intus ad insertionem staminum barbata. Staminodium tenuissimum, 0,5 mm longum. Ovarium glabrum, utroque loculo ovulis circ. 30. Capsula glabra, 4,5 mm longa.

Habitat Archipelagum Palawanensem.

PHILIPPINES: Palawan: s.l., *Merrill 7238* (L, K, typi).

Staurogyne capillipes Brem. is easily distinguishable from all other species belonging to the section *Maschalanthus* by its linear leaves and slender, few-flowered inflorescences. Its nearest ally is probably *St. merrillii* Brem., with which it agrees in its relatively small dimensions, in the absence of the brown discoloration in herbarium specimens and in the number of ovules.

51. ?*STAUROGYNE MACRANTHA* C. B. Clarke

Staurogyne macrantha C. B. Clarke in J. As. Soc. Beng. 74: 642. 1908; Ridl., Fl. Mal. Pen. 2: 563. 1923.

Species ?*St. serrulatae* C. B. Clarke affinis et ut ea forsitan ad familiam aliam pertinens, a *Staurogyne* speciebus libello hoc antea tractatis inflorescentiis axillaribus longe pedunculatis et dichasialibus, ovario longo distinguenda, a ?*St. serrulata* foliis latoribus, integris, floribus majoribus distincta.

Herba unicaula, 60—80 cm alta. Caulis villosus, simplex, circ. 2,5 mm diam., internodiis 1,5—3 cm longis. Folia petiolo gracili, 0,6—2,5 cm longo instructa; lamina lanceolato-elliptica vel elliptica, circ. 11 cm longa et 4,5 cm lata, apice breviter acuminata, basi acuta vel cuneata, supra sparse pilosa, nervis utroque latere costae circ. 10. Inflorescentiae pedunculo villosa, circ. 12 cm longo instructae, parce ramosae, pauciflorae. Bractee bracteolaeque anguste lineares; bractee infimae circ. 5 mm longae, dense pubescentes. Calycis lobi anguste triangulares, 4 mm longi, dense pubescentes. Corolla extus pubescens, circ. 2,5 cm longa. Capsula ignota.

Habitat Peninsulam Malayanam.

MALAY PENINSULA. Perak: Larut, alt. 1400 m, King's coll. 2417 (CAL, typus, n.v.).

The description has been based on that given by Clarke (*l.c.*) and on a photograph of the type and a copy of a drawing of the flower kindly sent to me by Dr. Biswas.

Although this species and the next one are here on Clarke's authority included in the genus *Staurogyne*, I am bound to say that I have grave misgivings with regard to the correctness of this decision. The drawings of the flower parts show an unusually long ovary, that of *St. macrantha* being circ. 13 mm long, which is more than is reached by that of any *Staurogyne* species examined by me; even the mature capsules do not reach this length. Then the drawings figure a part that may be either a stamen or the upper part of the style with the stigmata. If these figures represent stamens, the position of the anther lobes and the complete absence of hairs on the filaments are, to put it mildly, unusual for species belonging to the genus *Staurogyne*, but if they represent the upper part of the pistil, which seems to me more probable, than these species can certain-

ly not belong to *Staurogyne*, for the lobes are equal, whereas in that genus one of the stigma lobes is always bifid. The two species, therefore, might well belong to a different family, viz. to the Gesneriaceae. They might perhaps be referred to the genus *Didissandra* C. B. Clarke, of which some species are habitually so similar to *Staurogyne* that Clarke himself once identified a species belonging to the latter as a new *Didissandra* (cf. *St. debilis*), and a similar mistake was made by Ridley when he described *St. bullata* as *Didissandra parviflora*. However, it must be admitted that the supposed stigma lobes of *St. macrantha* and *St. serrulata* are rather large for *Didissandra* species.

The shape of the inflorescences is also unusual for species belonging to the genus *Staurogyne*, and agrees better with the supposition that the plants belong to a genus like *Didissandra*. They are apparently dichasial, and the inflorescences of *Staurogyne* are always of the racemose type.

If these species belong to another family, the fact that they are not represented among the collections I received from the Singapore herbarium, would find an easy explanation; in that case recent findings would probably have been inserted in the herbarium under the genus to which they really belong. If the latter is gesneriaceous, the ovary would have to be uni- instead of bilocular.

52. ?STAUROGYNE SERRULATA C. B. Clarke

Staurogyne serrulata C. B. Clarke in J. As. Soc. Beng. 74: 642. 1908; Ridl., Fl. Mal. Pen. 2: 563. 1923.

Species ?*St. macranthae* C. B. Clarke affinis et ut ea forsitan ad familiam aliam pertinens et a *Staurogyne* speciebus aliis libello hoc tractatis inflorescentiis axillaribus longe pedunculatis et dichasialibus, ovario longo distinguenda, a ?*St. macrantha* foliis angustioribus, serrulatis, floribus minoribus diversa.

Herba. Caulis villosus, simplex, circ. 2,5 mm diam., internodiis 2—6 cm longis. Folia in petiolum gracilem, 1,2—2,5 cm longum, villosum contracta; lamina lanceolata vel oblongo-lanceolata, 8—13 cm longa et circ. 3 cm lata, apice longius acuminata, basi contracta, margine serrulata, utrimque pubescens, nervis utroque latere costae circ. 10. Inflorescentiae pedunculo villosa circ. 10 cm longo instructae, parce ramosae, e floribus 12—18 compositae. Rachis pubescens. Bracteae bracteolaeque anguste lineares; bracteae infimae circ. 2,5 mm longae. Calycis lobi 2,5 mm longi. Corolla alba, 1,8 cm longa. Capsula ignota.

Habitat Peninsulam Malayanam.

MALAY PENINSULA. Perak: Ulu Batang Padang, Wray 1599 (CAL, typus, n.v.).

The description of this species too has been based on that given by Clarke (*l.c.*) and on a photograph of the type and a copy of a drawing of various flower parts made by Clarke, which I received from Dr. Biswas.

It can hardly be doubted that *?St. serrulata* C. B. Clarke is a very near ally of *?St. macrantha* C. B. Clarke, with which it agrees in the villous stem, the axillary, long-pedunculate inflorescences and the comparatively long ovary. My doubts with regard to the correctness of the view that they belong to the genus *Staurogyne* have already been expressed under *?St. macrantha*. The serrulate margin of the leaf found in this species is another argument against this view; in all *Staurogyne* species that I could investigate the leaf margin is entire. Whether the inflorescences are truly axillary or borne by axillary brachyblasts as in the preceding representatives of the section *Maschalanthus*, I am unable to decide. The photographs do not show the scale-like leaves at the base of the peduncle that are characteristic for the section *Maschalanthus*, but this, of course, does not prove that they are absent. If it did, this would be another argument to refer these species to the Gesneriaceae.

?Staurogyne serrulata differs from *?St. macrantha* in the somewhat narrower leaves with their serrulate instead of entire margin, in the more numerous flowers, and in the smaller size of the bracts, bracteoles, calyx lobes and corolla.

THE GENUS NELSONIA R. Br.

Nelsonia R. Br. is a well-defined genus. It agrees with *Elytraria* Vahl in the fusion of the two lower lobes of the morphologically pentamerous calyx, but differs widely from that genus in habit, in the absence of bracteoles, in the subglobose thecae, in the absence of staminodes and in the structure of the testa.

The "hammer-headed hairs" on the latter, which were figured by Kippist (*in* Trans. Linn. Soc. 19: t. 6 fig. 11. 1845), and subsequently by Oersted (*in* Vidensk. Meddel. Naturhist. For. Kjöbenhavn 1854: t. 4, fig. 2 & 18), and by Lindau (*in* Engl. & Prantl, Nat. Pflanzenfam. IV 3 b: fig. 114 K, L & M), and that are mentioned also by Schaffnit (*in* Beih. bot. Zentralbl. 19 Abt. 1: 462. 1906), are according to Clarke non-existent. The latter stated (*in* Hook. f., Fl. Brit. Ind. 4: 395. 1884), "The picture of the seed by Kippist in Trans. Linn. Soc. XIX, t. 6, fig. 11, showing the surface with hammer-headed spines, is erroneous." He himself describes the testa as "smooth with granular marks." In reality the dome-shaped outer walls of the testa cells are provided with bars that are branched at the ends, and when a section through the seed is made, these

bars are set free and straighten elastically. In this way they assume more or less the appearance of glochidiate hairs rising from the surface of the testa. That they are no true hairs already follows from the complete absence of a lumen, and also, of course, from the fact that they do not project beyond the surface so long as the cells are intact.

NELSONIA R. BR.

Nelsonia R. Br., Prodr. Fl. Nov. Holl. 1: 480. 1810 (ed. 3, ed. Nees, 336. 1827); Nees in Wall., Pl. as. rar. 3: 75 et 79. 1832; Endl., Gen. Pl. 697. 1839; Meisn., Pl. vasc. Gen. 293 (202). 1840; Nees in Mart., Fl. bras. 9: 14. 1847; id. in DC., Prodr. 11: 65. 1847; Miq., Fl. Ind. bat. 2: 770. 1858; T. And. in J. Linn. Soc. (Bot.) 9: 450. 1866; Hook. f. in Benth. & Hook. f., Gen. Pl. 2: 1075. 1876; C. B. Clarke in Hook. f., Fl. Brit. Ind. 4: 394. 1884; Baill., Hist. Pl. 10: 414. 1891; Lindau in Engl. & Prantl, Nat. Pflanzenfam. IV 3 b: 289. 1895; Boerl., Handl. Fl. Ned. Ind. 2: 623. 1899; Burkill in Fl. trop. Afr. 5: 28. 1899; Dalla Torre & Harms, Gen. Siph. 479. 1904; C. B. Clarke in J. As. Soc. Beng. 74: 633. 1908; Ridl., Fl. Mal. Pen. 2: 558. 1923; Lemée, Diet. 4: 666. 1932; K. Benoist in Fl. gén. Indo-Chine 4: 621. 1935.

Inter genera *Nelsoniicarum* calyce 4-partito cum genere *Elytraria* L. C. Rich. solum comparandum, caule decumbente ex internodiis satis longis composito, inflorescentiis ramulos ordinarios et interdum brachyblastos axillares terminantibus sed numquam stipite squamifero elatis, floribus ebracteolatis, staminibus thecis subglobosis instructis et inclusis, staminodiis nullis, testa costellata ab eo distinguendum.

Genus monotypicum in regionibus calidioribus Africae, Asiae et Australiae endemicum, in America tropicali introductum.

Species unica: *N. canescens* (Lam.) Spreng.

Brown (*l.c.*) described two species, viz. *N. campestris* and *N. rotundifolia*, which were collected in the northern and eastern parts of tropical Australia. Subsequently some more species were described; Nees enumerated in his monograph of the Acanthaceae in De Candolle's "Prodromus" five species, of which two were based on material collected in South America. Bentham, however, in his "Flora australiensis" recognized but one species, which he described as "a common tropical weed in Asia and Africa, and already abundant in several parts of tropical America." Whether this species may be called a "common" tropical weed seems doubtful, as it is completely absent in the Malay Archipelago. Its absence in this part of the tropics raises the question whether the Australian specimens really are conspecific with those found in the western part of the area. However, as I have not yet found an opportunity to study Australian specimens, I am unable to answer this question. The descriptions published in the various Australian floras certainly do not reveal important differences, and for the time being it seems therefore advisable to accept Bentham's reductions.

As the genus is regarded here as monotypic, it is not necessary to give a detailed description, and I proceed therefore at once to the description of the only species.

1. NELSONIA CANESCENS (Lam.) Spreng.

Nelsonia canescens (Lam.) Spreng., Syst. Veg. 1: 42. 1825; Nees in DC., Prodr. 11: 67. 1847; *Justicia canescens* Lam., Tab. Encycl. méth., Bot. 1: 41. 1791; Vahl, Enum. Pl. 1: 122. 1804; Lam., Encycl. méth., Bot., Suppl. 2: 98. 1811; *Nelsonia canepensis* R. Br., Prodr. Fl. Nov. Holl. 1: 481. 1810; C. B. Clarke in Hook. f., Fl. Brit. Ind. 4: 394. 1884; Boerl., Handl. Fl. Ned. Ind. 2: 656. 1899, Burkill in Fl. trop. Afr. 5: 28. 1899; C. B. Clarke in J. As. Soc. Beng. 74: 633. 1908; Ridl., Fl. Mal. Pen. 2: 558. 1923; — *N. brunelloides* (Lam.) O. Ktze, Rev. Gen. Pl. 1: 493. 1891 et Lindau in Engl. & Prantl, Nat. Pflanzenfam. IV 3b: 289 fig. 114. 1895, comb. falsa nam *Justicia brunelloides* Lam., Tab. Encycl. méth., Bot. 1: 40. 1791 est *Hemigraphia brunelloides* (Lam.) Brem. in Verh. Ned. Akad. Wetensch., Afd. Natuurk., 2e Sect., 41 (1): 90. 1944.

Herba decumbens, valde ramosa. Caulis ramique subteretes, villosi, 0,7—1,5 mm diam., internodiis plerumque 2—9 cm longis. Folia opposita, caulis et ramorum principalium petiolo usque ad 4 cm longo et lamina usque ad 12 cm longa et 5,5 cm lata instructa, ramorum floriferorum multo minora, petiolo interdum vix 1 mm longo et lamina vix 1 cm longa et 0,4 cm lata munita; petiolus semper dense villosus; lamina elliptica, apice basique acuta vel subobtusa, tenuis, utrimque opaca, sicc. supra olivacea, subtus griseo-viridis, primum utraque facie dense villosa, deinde costa nervisque satis dense villosa sed inter nervos sparse villosa vel in foliis majoribus plus minusve glabrescens, nervis utroque latere costae in foliis minoribus 3 vel 4, in foliis majoribus usque ad 7. Inflorescentiae subspiciformes, ramulos et interdum brachyblastos axillares terminantes, 0,7—3,0 cm longae, dense villosae, plerumque sessiles, i.e. basi foliis oppositis magnitudine reductis instructae. Bracteae utraque facie pilis partim capitatis villosae, 5- vel 7-nerviae; infimae ovatae, 7,5 mm longae et 4 mm latae; superiores oblongae, paulo minores et numero majore pilorum capitatorum vestitae. Pedicelli 0,4—0,8 mm longi, dense villosi. Bracteolae nullae. Calyx 4-partitus; lobus posticus circ. 3,5 mm longus et 1,0 mm latus, conduplicatus, acutus, 5- vel 7-nervius; lobus anticus 3 mm longus et 0,6 mm latus, apice breviter bilobatus, 2-nervius, lobulis triangularibus 0,5 mm longis; lobi laterales 3 mm longi et 0,7 mm lati, 3- vel 5-nervii; lobi omnes pilis capitatis brevibus sparsi. Corolla bilabiata, extus glabra, dilute violacea vel coerulea, intus ad insertionem staminum praesertim ad faciem posticam parce barbata, tubo 1,5 mm longo, apice constricto, faucibus tubo aequilongis, labio superiore 2 mm longo, 2-partito, labio inferiore 2,3 mm longo, 3-partito. Stamina 2 ad constrictionem tubi inserta, inclusa; filamenta glabra, 0,5 mm longa; antherae thecis subglobosis 0,5 mm diam. et connectivo non dilatato, in mucronem producto instructae. Ovarium conicum, 1,5 mm altum, glabrum, utroque loculo ovulis 8. Stylus glaber, 1 mm longus. Stigmata inaequalia. Capsula conica, 4 mm alta et basi

1.5 mm diam., utroque loculo seminibus 4—8. Semina globosa, brunnea; testa cristis numerosissimis sed pusillis notata.

Habitat regiones calidiores Africae, Asiae et Australiae; in regione Malesiana tamen ad Peninsulam Malayanam restricta; in America tropicali introducta.

SIAM. Lower Siam: West Coast, Tapli, *Kloss 6746* (K), *6752* (K); Tasan, *Kloss 6830* (K).

MALAY PENINSULA. Perlis: Tebing Tinggi, *Ridley 11968* (SING, K); Ginting Kabok, Mar. 1910, *Ridley s.n.* (SING). — Kedah: Langkawi Is., s.l., *Ridley & Curtis 8312* (SING); Alor Star, Mt. Gerean, *Ridley 11967* (SING), K. — Penang: Pulau Butong, *Curtis 1730* (SING); Balik Pulau, *Deschamps s.n.* (K). — Pahang: Pekan, *Ridley 2181* (SING, K).

The synonyms quoted above are those that at one time or another have been used for the species in its widest delimitation; the basionyms of these names are, of course, also given. Names like *N. rotundifolia* R. Br. and *N. pohlii* Nees that have never been applied to plants collected in the Malay Peninsula have been omitted.

THE GENUS ELYTRARIA L. C. Rich.

Elytraria L. C. Rich. is like *Nelsonia* R. Br. a well-defined genus. It agrees with the latter in the structure of the calyx, the two anticonic lobes being partly united, and in the presence of but two fertile stamens, but it differs in habit, the leaves being of two kinds, the large lower ones forming a sessile or stipitate rosette, and the much more numerous scale-like upper ones covering the comparatively long stalks that bear the inflorescences, further in the bracteolate flowers, the elongate form of the thecae, the presence of two minute staminodes, and in the granulate instead of costulate testa.

ELYTRARIA L. C. Rich.

Elytraria L. C. Rich. in Michx., Fl. bor.-amer. 1: 8. 1803 (nom. conserv.); Vahl, Enum. 1: 106. 1804; Nees in Wall., Pl. as. rar. 3: 75, 79. 1832; Endl., Gen. Pl. 697. 1839; Meisn., Pl. vasc. Gen.: 293 (202). 1840; Nees in Mart., Fl. bras. 9: 13. 1847; id. in DC., Prodr. 11: 62. 1847; Miq., Fl. Ind. bat. 2: 770. 1858; T. And. in J. Linn. Soc. (Bot.) 9: 449. 1866; Hook. f. in Benth. & Hook. f., Gen. Pl. 2: 1073. 1876; C. B. Clarke in Hook. f., Fl. Brit. Ind. 4: 394. 1884; Baill., Hist. Pl. 10: 425. 1891; Lindau in Engl. & Prantl. Nat. Pflanzenfam. Nachtr. 1: 304. 1897; Boerl., Handl. Fl. Ned. Ind. 2: 423. 1899; Burkill in Fl. trop. Afr. 5: 27. 1899; Dalla Torre & Harms, Gen. Siph. 479. 1904; Lemée, Dict. 2: 838. 1930; Leonard in J. Wash. Acad. Sci. 24: 443. 1934; — *Tubiflora* J. F. Gmel., Syst. Pl. 2: 27. 1791 (nom. rejiciend.); O. Kuntze, Rev. Gen. Pl. 1: 500. 1891; Lindau in Engl. & Prantl. Nat. Pflanzenfam. IV 3b: 289. 1895.

Inter genera *Nelsoniearum* calyce 4-partito cum genere *Nelsonia* R. Br. solum comparandum, foliis inferioribus satis magnis et in rosulam sessilem vel stipitatum congestis, foliis superioribus ad squamas stipites inflorescentiarum obtegentes redactis, floribus bracteolatis, staminibus thecis elongatis instructis, exsertis, testa granulata ab eo distinguendum.

Herbae parvae, rosulatae vel subrosulatae. Rosula sessilis vel interdum internodio satis longo elata, interdum e centro rosulas secundarias etiam ab internodio gracili elatas emittens; caulis rarius ex internodiis distinctis compositus. Folia alternantia, basi in pseudopetiolum contracta, tenuia. Inflorescentiae terminales et axillares, spiciformes, stipite foliis squamosis appressis oblecto elatae, simplices vel ad basin ramosae. Bracteae rigidae, appressae, foliis stipitem obtegentibus similiores sed majores. Bracteolae angustae, calyci subaequilongae, conduplicatae et incurvatae. Calyx 4-partitus; lobus anticus 2-nervius, bilobatus, bifidus vel bipartitus; lobi alii 1-nervii; lobi omnes hyalini. Corolla bilabiata, parte connata cylindrica, labio inferiore in lobos tres bifidos diviso. Stamina 2, filamentis glabris paulo infra orem corollae inserta, exserta; antherae thecis elongatis per totam longitudinem ad connectivum affixis instructae, connectivo interdum in mucronem producto. Staminodia 2, vix conspicua. Ovarium glabrum, utroque loculo ovulis 8—12 in series 2 dispositis. Stylus glaber; stigmata 2 inaequalia. Capsula conica. Semina globosa; testa granulata.

Speciebus adhuc notis sex in America tropicali et subtropicali et una in Africa et Asia tropicali distributum; species Afro-Asiatica in horto botanico singaporensi et una species Americana in insula Philippina Luzon dicta introductae.

KEY TO THE ELYTRARIA SPECIES FOUND IN THE MALESIAN AREA

1. Plant consisting of a single, sessile or subsessile rosette. Leaves on the upper side glabrous, on the lower side on midrib and nerves slightly pubescent. Anticous calyx lobe almost completely split. 1. *E. acaulis* (L. f.) Lindau
- 1: Plant with several stipitate rosettes rising from a central stem; the rosettes sometimes replaced by shoots with more or less distinct internodes. Leaves on the upper side at first densely, afterwards sparsely strewn with long septate hairs, on the midrib densely hirsute; the lower side with sparsely hirtellous midrib and nerves. Anticous calyx lobe shortly bilobate. 2. *E. imbricata* (Vahl) Pers.

1. ELYTRARIA ACAULIS (L. f.) Lindau

Elytraria acaulis (L. f.) Lindau in Engl. & Prantl, Nat. Pflanzenfam., Nachtr. 1: 304. 1897; *Justicia acaulis* L. f., Suppl. Pl. 84. 1781; Vahl, Symb. 2: 3. 1791; Roxb., Pl. Corom. 15 t. 127. 1819; *Tabiflora acaulis* (L. f.) O. Ktze, Rev. Gen. Pl. 1: 500. 1891; Lindau in Engl. & Prantl, Nat. Pflanzenfam. IV 3b: 289. 1895; — *Elytraria crenata* Vahl, Enum. 1: 106. 1804; Nees in Wall., Pl. as. rar. 3: 79. 1832; id. in DC., Prodr. 11: 63. 1847; T. And. in J. Linn. Soc. (Bot.) 7: 20. 1864 et op. cit. 9: 449. 1866; C. B. Clarke in Hook. f., Fl. Brit. Ind. 4: 394. 1884; Burkill in Fl. trop. Afr. 5: 28. 1899; — *E. lyrata* Vahl, Enum. 1: 106. 1804 (cf. var. *lyrata*); *E. crenata* Vahl. var. *lyrata* (Vahl) Nees in DC., Prodr. 11: 63. 1847; — *E. indica* Pers., Syn. Pl. 1: 23. 1805.

Var. *lyrata* (Nees) Brem. nov. comb.

Elytraria crenata Vahl var. *lyrata* Nees in DC., Prodr. II: 63. 1847; *E. lyrata* Vahl, Enum. 1: 106. 1804.

Varietas foliis basin versus magis minusve sinuatis a typo recedens. Herba acaulis vel subacaulis, rosularis. Folia sensim in pseudo-petio- lum villosum, 1,0—1,5 cm longum contracta; lamina spatulata, 3,5—9 cm longa et 1,2—2,4 cm lata, apice acuta vel subotusa, margine in foliis plu- rimis profunde sinuato-lobato, lobo terminali aliis multo majore, sicc. supra olivaceo-brunnea vel brunnea, subtus griseo-viridis, supra glabra, subtus costa nervisque sparse et vix notabile pubescens, nervis utroque latere costae 8—10. Scapi plerumque plures, 10—20 cm longi, vix 1 mm diam.; folia squamacea angusta, 5 mm longa et 1,2 mm lata. Inflorescentia 1,5—3 cm longa et 2,5—3 mm diam., basi interdum ramosa. Bracteae foliis squamaceis paulo longiores et distincte latiores, 5,5 mm longae et 2,0 mm latae, sed ut ea margine anguste hyalina ciliolata instructae et aristatae, margine numquam in lobos productae, non carinatae. Bracteolae lineari- oblongae, 2,8 mm longae et 0,5 mm latae, late hyalino-marginatae, dorso ciliolatae. Calyx 4-partitus; lobus anticus tamen fere ad basin partitus; lobus posticus ovato-ovalis, 2,5 mm longus et 1,5 mm latus; lobi laterales 3 mm longi et 1 mm lati, concavi; lobuli lobi antici 3 mm longi et 0,5 mm lati; lobi et lobuli apicem versus ciliolati. Corolla 4 mm longa, extus intus- que glabra, labiis 1 mm longis, labio superiore breviter 2-lobato, labio in- feriore 3-fido, lobulis emarginatis. Stamina fertilia filamentis 1 mm longis, antheris 0,7 mm longis, connectivo longius producto. Capsula glabra, oblonga.

Habitat Peninsulam Indicam et Ceylaniam, in graminetis horti botani- nici singaporensis adsuefacta.

MALAY PENINSULA. Singapore, Botanic Garden, *Ner s.n.* (SING), "weed on the lawns."

Elytraria acaulis (L. f.) Lindau differs very conspicuously from its American allies by the almost completely split anticus calyx lobe. It is found in West and East Tropical Africa, the Deccan Peninsula and Ceylon; the variety *lyrata* (Nees) Brem. seems to be confined to Asia; it is easily recognizable by the sinuate-lobate leaves.

2. **ELYTRARIA IMBRICATA (Vahl) Pers.**

Elytraria imbricata (Vahl) Pers., Syn. Pl. 1: 23. 1805; *Justicia imbricata* Vahl, Eclog. amer. 1: 1. 1797; Merr., Enum. Philipp. flow. Pl. 3: 468. 1923; — *Elytraria tridentata* Vahl, Enum. 1: 107. 1804; Nees in DC., Prodr. II: 64. 1847; Merr., Fl. Manila 435. 1912; id., Sp. Blancoanae 351. 1918; — *E. amara* Blanco, Fl. Filip., ed. 2, 8. 1845; id., op. cit., ed. 3, 1: 15. 1877; — *E. crenata* Vahl in errore apud F. Vahl, Novis. App. 152. 1880; — *E. fasciculata* H.B.K., Nov. Gen. Spec. 2: 235. 1817;

Nees in DC., Prodr. 11: 64. 1847; F. Vill., Novis. App. 152. 1880; — *E. squamosa* (Jacq.) Lindau, Anal. Inst. fisico-geogr., Costa Rica 8: 299. 1895; id. in Perkins, Fragm. Fl. Philipp. 38. 1904 quoad specimina citata, vix quoad typum a Jacquino sub nomine *Verbena squamosa* descriptum (Pl. Hort. schoenbr. 1: 3 t. 5. 1787) qui fide Nees probabiliter ad speciem aliam (*E. caulescentem* Nees) pertinet; — quoad synonymia in libris de flora americana tractantibus reperta cf. Leonard in J. Wash. Acad. Sci. 24: 444. 1934.

Herba probabiliter primum rosularis et e rosula primaria rosulas novas internodiis gracilibus elatas emittens, scapis floriferis e rosulis secundariis orientibus; rosulae secundariae interdum in caules internodiis distinctis instructos mutatae, casu quo folia semper alternantia. Folia in pseudo-petiolium alatum interdum satis longum contracta; lamina ovata vel rhomboidea pseudo-petiole usque ad 4,5 cm longo incluso usque ad 15 cm longa et 4 cm lata, plerumque tamen circ. 8 cm longa et 2,2 cm lata, apice acuta vel subacuminata, infra medium contracta, sicc. supra olivacea, subtus griseo-viridis, supra pilis valvulatis longis primum dense, deinde sparse vestita, costa pilis iisdem densius hirsuta, subtus costa nervisque sparse hirtella, inter nervos subglabra, nervis utroque latere costae 8 vel 9. Scapi singuli vel plures, circ. 1 mm diam.; folia squamacea angusta, 3 mm longa et 1 mm lata. Inflorescentia 4—5 mm diam., basi plerumque ramosa. Bracteae foliis squamaceis paulo longiores et latiores, distinctius mucronatae et margine hyalino latiore instructae, 3,5—4,0 mm longae et 1,3—1,6 mm latae, margine ciliolatae et costa alba carinatae, margine hyalina utroque latere mucronis in lobulum producta. Bracteolae anguste lineares, 2 mm longae, costa viridi excepta hyalinae. Calyx 4-partitus; lobus anticus 2-lobulatus, lobus posticus 0,6 mm latus; lobi laterales et anticus 0,5 mm lati; lobi laterales conduplicati; lobi omnes 2,5 mm longi et apicem versus ciliati. Corolla 2,5 mm longa, extus intusque glabra, labiis 0,5 mm longis, labio superiore lobis 2 rotundatis, labio inferiore lobis 3 bifidis instructo. Stamina fertilia filamentis 0,5 mm longis, antheris 0,2 mm longis, connectivo non producto instructis. Capsula glabra, conica.

Habitat partem australem Americae Borealis, Insulas Antillanas, Venezuelam; in India et in insula Philippina Luzon dicta introducta.

PHILIPPINES. Luzon: Manila, *Merrill Sp. Blanc. 362* (BO, L, K, NY), 641 (K), 704 (L, U), *Ramos B.Sc. 12137* (K); Prov. of Cavite, *Dasmariñas, Mangubat B.Sc. 380* (BO, K, NY); Central Luzon, s.l., *Lohr 4262* (K).

Although *Elytraria imbricata* (Vahl) Pers. is known from the Philippines since 1845, it does not seem to have spread very far.

Elytraria imbricata is easily distinguishable from *E. acaulis* (L. f.) Lindau var. *lyrata* (Nees) Brem., the only other representative of the genus *Elytraria* that so far has been found in the Malesian area, by the multiple rosettes, the shape of the leaves and their indumentum. Taxonomically of greater importance is the bilobate instead of bipartite anticous calyx lobe.

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- elongatum Bl. = *Staurogyne elongata*
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 lanceolatum Bl. = *Staurogyne lanceolata*
 spatulatum Bl. = *Staurogyne spatulata*
 uliginosa Nees var. erecta Nees = *Staurogyne setigera*

Didissandra C. B. Clarke

- clarkei Kds cf. *Staurogyne debilis*
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Ned. Akad. v. Wetensch., Afd. Natuurk. 2e Sect. 41, No 1,
 90, 1944

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- javanica Lindau = *Pararuellia napifera* (Zoll.) Brem. cf. Brem. & Nann. in Verh. Kon. Ned. Akad. Wetensch., Afd. Natuurk., 2e Sect., 45 (1) : 30. 1948
26. *kinabaluensis* Brem. n. spec.
 " " var. *angustifolia* Brem. n. var.
 " " var. *kinabaluensis*
14. *kingiana* C. B. Clarke
 " " var. *angustifolia* Brem. n. var.
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 " " var. *magnifolia* Brem. n. var.
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51. ?*macrantha* C. B. Clarke, anne ad genus *Didissandram* C. B. Clarke removenda?
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 27. *samarensis* Brem. n. spec.
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 52. ?*serrulata* C. B. Clarke, anne ad genus *Didissandram* C. B. Clarke
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 11. *setigera* (Nees) O. Ktze
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 44. *spiciflora* (Miq.) Brem. n. comb.
 " " " var. *glabricaula* Brem. n. var.
 " " " var. *spiciflora*
 " " " var. *stenosepala* Brem. n. var.
 12. *subcapitata* Brem. n. spec.
 subcordata (Elm.) Brem. in Verh. Ned. Akad. Wetensch., Afd. Na-
 tuurk., 2e Sect., 41 (1) : 113. 1933 = *Gymnostachyum subcordatum*
 Elm.
 17. *subglabra* C. B. Clarke
 " " " var. *prianganensis* Brem. n. var.
 " " " var. *subglabra*
 7. *sundana* Brem. n. spec.
 36. *tenuispica* Brem. n. spec.
 1. *viscida* (Ridl.) Brem. n. comb.
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Abdul Aziz: 462 St. 39;	Arshad: F.D. 11145 St. 35; F.D. 11271 St. 35;
Ajoeb: 103 St. 14 (1); 147 St. 44 (3)*; 229 St. 44 (3);	
Altmann: 539 St. 3 (1);	Backer: 9363 St. 16 (1); 10217 St. 13; 10365 St. 16 (1); 10427 St. 13; 11184 St. 7; 11845 St. 13; 14118 St. 16 (1); 14185 St. 13; 14407 St. 13; 16858 St. 3
Alvins: 230 St. 11 (1); 1654 St. 18; 1913 St. 6;	
Amdjah: 212 St. 13;	

⁶ *Elytraria* has been abbreviated to E., *Nelsonia* to N. and *Staurogyne* to St.; the species are indicated by the numbers given to them in the text, and the number of the variety has been added in brackets; type specimens are indicated by an asterisk. Unnumbered specimens are recorded only when they represent types; in that case the locality has been added.

- (1); 18673 St. 13; 18784 St. 13; 21065 St. 13; 22608 St. 7; 22741 St. 13; 23053 St. 16 (1); 23159 St. 13; 23252 St. 13; 23294 St. 13; 23380 St. 16 (1); 23486 St. 16 (1); 23677 St. 22 (1); 24886 St. 14; 26123 St. 3 (1);
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- Bakhuizen van den Brink Sr.: 2 St. 13; 5 St. 16 (1); 669 St. 16 (1); 1410 St. 16 (1); 3300 St. 13; 3490 St. 13; 4046 St. 16 (1); 4738 St. 16 (1); 4982 St. 22 (1); 5633 St. 16 (1); 5983 St. 17 (2); 6385 St. 13; 7384 St. 16 (1);
- Bartlett: 6628 St. 44 (1); 7375 St. 44 (2)*; 8170 St. 44 (1); 8518 St. 24;
- Batten Pool: 2 St. 17 (1);
- Beccari: 7157 St. 6;
- Best: S.F. 14109 St. 19;
- Beumée: A 281 St. 13; A 488 St. 44 (1);
- Blume: 1208 St. 22 (1)*; s.n. (Batavia) St. 3 (1)*; s.n. (Nanggung) St. 13*;
- Boden Kloss, cf. Kloss;
- Brass: 3234 St. 29 (4);
- Brown: B.Sc. 38358 St. 29 (1);
- Bünnemeyer: 1052 St. 34; 1162 St. 44 (3); 1196 St. 44 (3); 1207 St. 11 (1); 1247 St. 11 (1); 3105 St. 44 (3); 3193 St. 44 (3); 3283 St. 44 (3); 3473 St. 34; 3532 St. 44 (3); 5895 St. 9*; 6784 St. 14 (1); 7251 St. 44 (3);
- Burbidge: s.n. (Tawar R.) St. 37*;
- Burkill: 1144 St. 15; 1145 St. 11 (2); 2189 St. 6; S.F. 2572 St. 44; 3124 St. 6; 3180 St. 6; S.F. 7632 St. 11 (1); S.F. 13505 St. 18;
- Burkill & Haniff: S.F. 12872 St. 17 (1); S.F. 15711 St. 18;
- Burkill & Holtum: 7781 St. 17 (1);
- Buwalda: 3613 St. 7*;
- Canicosa: PNH 9801 St. 29 (2);
- Carr: S.F. 26322 St. 26 (1)*; S.F. 27067 St. 46;
- Celestino: B.Sc. 7318 St. 29 (1);
- Celestino & Castro: PNH 1941 St. 29 (4);
- Clemens (J. & M.S.): 11182 St. 11 (2);
- 26733 St. 46; 27544 St. 46; 27656 St. 11 (2); 30235 St. 46; 32371 St. 26 (2)*; 32805 St. 26 (2);
- Corner: S.F. 28652 St. 14 (1); S.F. 30033 St. 14 (1); S.F. 30203 St. 19; S.F. 30551 St. 11 (1); S.F. 32542 St. 14 (3)*; s.n. (S. Sedili) St. 14 (2)*;
- Cramer: 50 St. 16 (2);
- Cumling: 1083 St. 4*; 1373 St. 29 (1)*; 2350 St. 18*; 2355 St. 11 (1)*;
- Curtis: 406 St. 41; 1730 N. 1; 1931 St. 20 (2)*; 2000 St. 8; 2362 St. 18; 2363 St. 11 (1);
- Daud & Tachun: 35634 St. 38*;
- de Voogd: 312 St. 16 (2)*; 558 St. 34; 1247 St. 11 (1); 1294 St. 34; 1301 St. 6; 1368 St. 6; 1504 St. 34; 2361 St. 13;
- Docters van Leeuwen - Reynvaan: 698 St. 16 (1); 702 St. 22 (1); 3249 St. 11 (1); 7909 St. 16 (1);
- Edaño: B.Sc. 26848 St. 12; B.Sc. 46018 St. 29 (3); B.Sc. 46028 St. 29 (3); B.Sc. 75854 St. 27; B.Sc. 77537 St. 45; B.Sc. 77673 St. 45; B.Sc. 79516 St. 29 (1); PNH 3379 St. 29 (4); PNH 11133 St. 31; PNH 11274 St. 31; PNH 11357 St. 31*; PNH 12044 St. 29 (1); PNH 15264 St. 27; PNH 15315 St. 27; PNH 15578 St. 27; PNH 15635 St. 27;
- Elmer: 8708 St. 29 (2)*; 10347 St. 29 (1); 11392 St. 31; 12364 St. 30*; 13843 St. 31*; 14738 St. 29 (2); 15354 St. 29 (2);
- Endert: 3263 St. 11 (1);
- Eyma: 2660 St. 33 (1);
- Fenix: B.Sc. 28063 St. 29 (2);
- Forbes: 3054 St. 14 (1);
- Forestry Guard: F.D. 12575 St. 19;
- Fox: 38 St. 41;
- Foxworthy: B.Sc. 12278 St. 29 (1);
- Frey-Wyssling: 156 St. 39;
- Galoengi: 347 St. 44 (1); 526 St. 44 (1);
- Gibbs: 3991 St. 46*;
- Ginlette: s.n. (Kuala Lebir) St. 26*;

- Goodenough: 35 St. 18; 1461 St. 11 (1);
1500 St. 6; 1689 St. 18;
Griffith: 189 St. 20 (1)*; HIC 6078 St.
6*; HIC 6079 St. 18;
Grutterink: 3237 St. 3 (1);
- Hallier: 2645 St. 40*;
Haniff: 647 St. 14 (1); S.F. 14159 St.
6; S.F. 15512 St. 15; S.F. 21025 St. 15;
Haniff: & Nur: S.F. 2088 St. 36; S.F.
2340 St. 17 (1); S.F. 3860 St. 20 (2);
S.F. 3861 St. 35; S.F. 6975 St. 19; S.F.
7184 St. 15; S.F. 8065 St. 14 (1); S.F.
10086 St. 11 (1); S.F. 10373 St. 6; S.F.
10397 St. 14 (1);
Hasakari: 368 St. 16 (1);
Haviland: 1828 St. 11 (1); 1829 St. 25
(1);
Haviland & Hose: 3514 St. 11 (1); 3587
St. 11 (1); 3588 St. 10; 3590 St. 10;
Helfer; Kew Distr. 6081 St. 35*;
Henderson: S.F. 11081 St. 17 (1); S.F.
11669 St. 17 (1); S.F. 17810 St. 17 (1);
S.F. 19618 St. 20 (2); S.F. 21353 St. 41;
S.F. 29655 St. 35;
Henny: 23 St. 18;
Holtum: 9355 St. 14 (1); 9949 St. 18;
S.F. 10883 St. 14 (1);
Hose: 159 St. 49; 423 St. 11 (1);
Houwing: 537 St. 3 (1); 843 St. 3 (1);
879 St. 3 (1);
Hullet: 367 St. 41; 403 St. 18; 613 St. 6;
Hume: 7239 St. 14 (1); 7457 St. 11 (1);
7791 St. 6; 8155 St. 6; 9593 A St. 34;
9711 St. 18; 9839 St. 18;
- Iboet: 6 St. 43;
- Jaamat: F.D. 28143 St. 17 (1);
Jacobson: 2593 St. 44 (1);
Jaheri: 202 St. 25 (2); 288 St. 10; 379
St. 10; 426 St. 49*; 600 St. 25 (1)*;
636 St. 11 (1); 858 St. 10; 1594 St. 11
(1); 1638 St. 10; 1644 St. 25 (2)*;
Jeswiet: 184 St. 16 (1); 251 St. 16 (1);
361 St. 16 (1); 411 St. 16 (1);
Junghuhn: z.n. (Tobing) St. 44 (1)*;
- Kajewski: 2084 St. 29 (4); 2658 St. 29
(4);
Kanehira & Hatusima: 12449 St. 23*;
Kiah: S.F. 31722 St. 14 (1); S.F. 35093
St. 15;
King's coll.: 208 St. 14 (1); 1355 St. 41;
1834 St. 19; 2192 St. 11 (1); 2292 St.
15; 2417 St. 51*; 8427 St. 17 (1)*;
10704 St. 14 (1)*; 10705 St. 19;
Kleinboonte: 462 St. 39;
Kloss: 41 St. 18; 6746 N. 1; 6802 St.
6; 6950 St. 15; 6967 St. 15; 6974 St.
15; 6802 St. 15; 6830 N.L.; 6911 St.
36*; S.F. 13099 St. 6; S.F. 13100 St. 11
(1); S.F. 14098 St. 43*; S.F. 14778 St.
11 (1); 19094 St. 11 (2);
Kooper: 537 St. 3 (1);
Koorders: 15130 St. 16 (1); 19727 St. 29
(1)*; 23933 St. 13; 27120 St. 16 (1);
29748 St. 16 (1); 34018 St. 16 (1); 40869
St. 16 (1); 41280 St. 16 (1); 41184 St.
13; 43994 St. 13; 47976 St. 16 (1);
47981/2 St. 13;
Kornassi: 533 St. 33 (2);
- Lam: 2688 St. 29 (4);
Landbouwk. Inst.: 5 St. 3 (1);
Leenart: 106 St. 3 (1);
Lobb: 428 St. 41;
Lörxing: 4364 St. 44 (1); 4705 St. 44
(1); 5512 St. 44 (1); 8492 St. 11 (1);
9617 St. 11 (1);
Loher: 4262 E. 2; 6621 St. 29 (1);
- Maingay: 1173 St. 41; 2257 St. 41; 2258
A St. 41;
Mangubat: B.Sc. 380 E. 2;
Martellino & Edaño: B.Sc. 35351 St. 29
(1);
Merrill: Sp. Blanc. 362 E. 2; 641 E. 2;
704 E. 2; 755 St. 5; 1215 St. 45*;
5063 St. 29 (1); 7225 St. 48*; 7238
St. 50*; 7396 St. 5; 11576 St. 48;
Motley: 368 St. 11 (1); 942 St. 11 (1);
Moulton: 81 St. 10;
Moysey & Kiah: S.F. 31847 St. 14 (1);
S.F. 33001 St. 6; S.F. 33702 St. 14 (1);
S.F. 33728 St. 6; S.F. 33847 St. 14 (1);

- Ngadiman: S.F. 36945 St. 6;
 Nur: S.F. 7302 St. 44 (1); S.F. 11607 St. 6; S.F. 11914 St. 15; S.F. 18563 St. 6; S.F. 19994 St. 18; S.F. 24638 St. 6; S.F. 34326 St. 18;
 Nur & Foxworthy: S.F. 11921 St. 11 (1); S.F. 12034 St. 14 (4)*;
 Posthumus: 477 St. 11 (1); 738 St. 44 (3); 1007 St. 14 (1);
 Raap: 503 St. 42; 559 St. 42*; 681 St. 42; 703 St. 6; 889 St. 22 (1);
 Rahmat: 1404 St. 11 (2); 1687 St. 11 (1); 2323 St. 11 (1); 2585 St. 11 (1); 2712 St. 11 (1); 4248 St. 11 (1); 4384 St. 11 (1); 4602 St. 11 (1); 4637 St. 6; 4755 St. 11 (2); 4795 St. 3 (2); 4798 St. 11 (1); 4800 St. 11 (1); 4801 St. 6; 5256 St. 11 (1); 5257 St. 6; 7132 St. 44 (1); 7342 St. 6; 7638 St. 44 (3); 7786 St. 44 (1); 8132 St. 6;
 Rajaratnam: 1 St. 15;
 Ramos: 1219 St. 11 (2); 1358 St. 47*; 1862 St. 47; Phil. Pl. 2007 St. 29 (1); B.Sc. 17534 St. 27*; B.Sc. 30232 St. 29 (1); B.Sc. 41189 St. 45;
 Ramos & Edaño: B.Sc. 12137 E. 2; B.Sc. 28643 St. 29 (1); B.Sc. 29340 St. 29 (1); B.Sc. 30918 St. 28*; B.Sc. 30922 St. 29 (3); B.Sc. 30996 St. 29 (3); B.Sc. 33819 St. 29 (2); B.Sc. 34155 St. 29 (2); B.Sc. 37396 St. 29 (1); B.Sc. 45315 St. 29 (2); B.Sc. 46478 St. 12; B.Sc. 46871 St. 5; B.Sc. 49108 St. 31; B.Sc. 49718 St. 11 (2); B.Sc. 49746 St. 45;
 Rant: 977 St. 13;
 Reillo: B.Sc. 16127 St. 29 (5)*;
 Ridley: 346 St. 6; 406 St. 41; 1636 St. 20 (1); 2175 St. 6; 2176 St. 14 (1); 2177 St. 18; 2178 St. 11 (1); 2181 N. 1; 2699 St. 11 (1); 2891 St. 19; 2892 St. 8; 6998 St. 20 (2); 7588 St. 15; 7589 St. 19; 7590 St. 18; 8328 St. 15; 8543 St. 19; 9766 St. 18; 10098 St. 18; 10705 St. 19; 10777 St. 11 (1); 11896 St. 19; 12089 St. 18; 12186 St. 14 (1); 13576 St. 17 (1); 13675 St. 17 (1); 13676 St. 17 (1); 14052 St. 18; 14430 St. 11 (1); 14431 St. 11 (1); 14432 St. 8; 14433 St. 6; 14525 St. 35; 14966 St. 22 (2)*; 14937 N. 1; 14968 N. 1; 15150 St. 1*; 15430 St. 11 (1); 15670 St. 20 (2);
 Ridley & Curtis: 8312 N. 1;
 Robinson, H. C.: 6258 St. 20 (2); 6276 St. 35;
 Robinson, C. B.: B.Sc. 9003 St. 29 (1); Rostado: 50 St. 11 (1);
 Rutten-Kooistra: 22 St. 11 (1);
 Ruttner: 69 St. 39*;
 Scheffer: H.B. 18942 St. 16 (1);
 Schiffner: 2580 St. 16 (1);
 Scortechini: 40 St. 6; 155^b St. 18; 285^a St. 35; 406^a St. 17 (1); 456 St. 8;
 Seidenfaden: 2244 St. 20 (2);
 Seimund: 73 St. 11 (1); 449 St. 14 (1); 593 St. 18; 606 St. 18;
 Sinclair: S.F. 38869 St. 14 (1); S.F. 38911 St. 6; S.F. 39076 St. 41;
 Spanoghe: s.n. ("Java") St. 16 (1)*;
 Spare: 3818 St. 35; SF 33295 St. 11 (1); SF 36218 St. 11 (1); SF 36237 St. 19;
 Strugnell: F.D. 13014 St. 11 (1); F.D. 14614 St. 18; F.D. 20387 St. 15; F.D. 25972 St. 17 (1);
 Symington: F.D. 21100 St. 18; F.D. 22944 St. 6; F.D. 37610 St. 35;
 Teysmann: 1190 St. 11 (1); 11500 St. 11 (1); 11501 St. 11 (1); s.n. (Hutumuri) St. 32*;
 Valetou: 101 St. 13;
 van Steenis: 2242 St. 16 (1); 2831 St. 13; 3999 St. 7; 5448 St. 22 (1); 5937 St. 44 (3); 6232 St. 44 (3); 6279 St. 2*; 6629 St. 3 (1); 8800 St. 44 (3); 9259 St. 44 (3); 9465 St. 44 (3); 9855 St. 24*; 10077 St. 44 (3); 10459 St. 16 (1); 11201 St. 13; 11218 St. 16 (1); 11339 St. 13; 12203 St. 16 (1); 17397 St. 13;
 Versteeg: 1404 St. 33 (1)*;
 Vidal: 3351 St. 29 (1);
 von Römer: 402 St. 33 (2); 607 St. 33 (2)*; 898 St. 33 (2); 929 St. 33 (2);

Wallich: 2336 et 2336 B St. 41* ; 2414 St. 19; 9084 St. 15* ;	Winkler: 2632 St. 11 (2) ;
Walter: 197 St. 41 ;	Wisse: 90 St. 3 (1) ;
Warburg: 14228 St. 29 (1) ;	Wray: 694 St. 8* ; 1599 St. 52 ; 1878 St. 11 (1) ; 2192 St. 19 ; 4158 St. 35 ;
Webber: F.D. 11534 St. 18 ;	Yapp: 28 St. 14 (1) ; 162 St. 6 ;
Wenzel: 187 St. 29 (2) ; 3213 St. 29 (2) ;	Yates: 800 St. 44 (1) ; 1140 St. 44 (1) ; 2321 St. 44 (2) ; 2494 St. 39 ;
Whitford: 1592 St. 29 (5) ;	Zollinger: 3507 St. 7.
Winckel: 18 St. 16 (1) ; 65 St. 7 ; 1189 St. 16 (1) ;	

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