

**A Revision of the Chinese Species of *Lysimachia*,
With a New System of the whole Genus.**

BY

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A study of Chinese *Lysimachias* very soon showed that the systematic arrangement of this genus so far adopted lacks any scientific foundation, and that much new work must be done for the construction of an altogether new one. Knuth's* system is based only on the characters of habit, position of leaves, and inflorescence. No one who had to determine exotic *Lysimachias* could be sure of his results, for characters supposed to be of sectional value very often proved variable in one and the same species. Thus some believed they had found new species when their plants could not be made out by means of Knuth's keys, the statements of which are often in contradiction with those of the diagnoses; others, like Diels, gave up any further attempt.

The basis for a natural system having soon been found in the floral structure, the work was made easier for me by the fact that the usually careful descriptions of the original authors were copied exactly by Knuth. It became of course necessary to consider all the species of the genus, and they are enumerated below, the numbers in heavy type indicating those of the Chinese flora. As not a few of Knuth's determinations also are wrong, collectors' numbers are cited here only when the specimens have been examined by myself. For subgenera, sections, and subsections, I have tried to retain old names which rarely indeed are quite fitting for modern groups but often can be employed without strain when they refer to a couple of really allied species as well as a greater number of unrelated ones.

Besides the complete Chinese material of the herbaria of Edinburgh, Vienna, Kew, the British Museum, Paris, Florence and Geneva, I examined a good number of specimens from Berlin, and I tender my best thanks to the respective directors. Moreover I am especially obliged to Dr. Gagnepain, of Paris, who procured me photographs of some unique types and analyses of flowers before I came there, and to Prof. Chodat of Geneva, for the original photographs of Bonati's

* in *Das Pflanzenreich*, IV 237 (1905), 257.

types. It was extremely difficult for me to deal with the creations of the latter author. As he rarely gave an adequate description of the floral structure, these cannot all be recognized with certainty in absence of the specimens which are not available now; most of them, however, clearly belong to well known species. I have to thank also Dr. W. Mack, of Vienna, who assisted me in this work.

It may be permitted to deal here with the diagnostic characters which I propose to use, according to their importance, which is the reverse of the usual. Very important differences are found in the floral structure within the genus, and these are in correlation with others, both often clearly of either primitive or derived character. Moreover there can be no doubt that several species of *Lysimachia* show the most primitive characters within their family, and thus the genus should be placed at the beginning of the system of *Primulaceae*. Some *Lysimachias*, like the lignescent species of the *Apodanthera* section are very like certain *Myrsinaceae*, and *L. insignis* has an evident *Maesa* habit. Both their androeceum and the capsules not or hardly dehiscent also signify primitive position. From this type of capsule the operculate one of genera like *Anagallis* can be derived directly, whereas the further development in *Lysimachia* has produced dehiscence by valvae.

Although the flower is mostly pentamerous in accord with the characters of the family, exceptions are found in *L. insignis* where the calyx is often 6-lobed, in *L. thyrsiflora* with both calyx and corolla mostly 6-7-lobed, and in the subgenus *Lysimachiopsis* with lobes up to 9. Besides these, abnormal hexamerous specimens occur sporadically in different species. Of course, in the simplest flower type the corolla is of an open funnel shape, deeply cleft, with stamens but little adnate to it and quite free from one another, short filaments, and small, upright anthers. This flower much recalls that of *Myrsinaceae*. By becoming more and more open it tends towards the rotate corolla the central part of which in its extreme development forms a flat disk between ovary and insertion of filaments. In the American *Seleucia* section this is flat while yet in bud, so that the corolla lobes are not contorted in this state but each enrolled separately. In most species of this section the inner face of the corolla is granulate owing to the presence of thick almost sessile glands for the development of which there is ample space. Some Chinese species show the transition in all features so that *Seleucia* (*Steironema*) cannot be treated as a different genus as has been done recently by some American botanists. Another type is the cylindric or more or less campanulate corolla, often only slightly cleft, with lobes either (rarely) erect, or curved outwards or stellately patent, or (in one single species) refracted from the middle. In a few species the corolla, with a short tube and narrow, horizontally spreading lobes, can be properly called stellate. The colour is of first importance, being either yellow, or,

on the other hand, white, often veined with red, or flushed with rose, or deep red. No yellow flowered species belongs to the same natural group as a white or red one, and such as are of a pale yellow colour are of special interest for their intermediate position. Care must, however, be taken in judging from herbarium specimens, for in some white flowered species the corollas readily change into yellow on drying. Astonishing variability reigns in the degree of gamopetaly within several species, whilst the corolla lobes are very constant in shape, and the size of the flower is perceptibly variable only in correspondence with that of the whole plant. Cleistogamous flowers are described below under *L. parvifolia* (no. 133). In the androeceum also very important differences are found. The type already characterized above is very near that preserved in the whole tribe of *Androsaceae*, where, however, the filaments are inserted higher up in the corolla tube. In some species of *Lysimachia* with anthers sessile, upright, and attached to the filament at the base, the thecae which are often very long, open by apical pores. Mez mentions (in D. Pflzr. IV 236, p. 8) that the longitudinal rimae become widened at the top and closed in the lower part here and there in all the genera with long anthers forming a cone, not only in the *Myrsinaceae* but also for instance in *Solanum*. Although this feature is no doubt founded in floral biology, it must be noted that in *Lysimachia* it is found just in these species which are nearest to the *Myrsinaceae* in all their characters. In other large groups of species big very fertile anthers are developed generally attached to the filament about their middle and versatile. The often unequal length of their filaments is neither very constant nor important and may be due to distribution of space in the bud. In some non-Chinese species (*L. Tanakae*, *terrestris*, *chilensis*) the anthers are remarkably small. There is no indication of the significance of this character, and I inserted these species without much regard to it. A thick gland terminating the connective is a special feature of *L. stenosepala*. In the Section *Candidae* the connective is mostly faintly mucronate, but in some specimens, as in *L. candida* collected by De La Touche, this tip is wanting.

The filaments are only very rarely practically free. Usually they are connate in the lower part, either with one another into a low and broad ring or a high and narrow tube which often is glandular-scurfy, or with the corolla tube, or sometimes both. They are highly constant in any single species, presenting valuable diagnostic characters shown in the key.

In *L. crispidens* a feature is found which can be called *heterostylandry*. In many specimens of this species the filaments, which are always inserted at the base of the corolla and are connate into a very short ring, are extremely short as also is the style; in the others both filaments and style are many times longer and even a little exceed the corolla throat. No biologic importance can be attributed to this feature

which must not be confounded with the well known heterostyly as found in other *Primulaceae*. It may, of course, serve to explain its origin. By no means, however, can *L. crispidens* be considered as near the starting point of the *Androsaceae*, but only as showing a certain convergence, and that in spite of its rosulate habit. The relative length of the stamens to the corolla is somewhat variable in *L. glaucina* also and perhaps in others of this affinity, otherwise it is very constant.

The characters of the appendages wrongly called staminodes by Knuth are of little importance. Where true staminodes are developed in the family, they stand in an outer whorl. In species of *Lysimachia*, however, with an open staminal ring with broad sinuses between the filaments, as in *L. remota* and *delloidea*, the margin of the sinus often becomes convex, in *L. fistulosa* even appendaged (see under no. 54), and in species of subsect. *Steironema* the appendages often are not much larger than these excrescences. In *L. thyrsiflora* also they are very irregular, and up to 3 between every 2 filaments. As Thünen stated (*Zur Phylogenie der Primulaceen-Blüte*, 1911) even the most developed of them lack any trace of fibrovascular bundles and are secondary excrescences of the tissue, of no phylogenetic importance. He pointed out that, contrary to Knuth's view, the *Steironema* section is to be regarded as one of the latest branches of the genus, also on account of the reduction of the secondary fibrovascular bundles in the corolla, and I have come to quite the same conclusion.

The ovary is very uniform, but highly variable in indument in some species as in *L. drymarifolia* (no. 76). Both length and thickness of the style show important differences, especially within the subgenus *Palladia*. Mention of the capsule has already been made above when stating the primitive position of the genus within the family.

The calyx is highly uniform within the genus. Exceptions worthy of mention are *L. pentapetala* (see in the key under par. 57a) and *L. pterantha* and *Crista-galli* (see nos. 73 and 74).

Both inflorescence and position of leaves present valuable characters for most species, but, especially in upright ones with opposite leaves, this condition does not extend to a racemose inflorescence the lower flowers of which often become remote and all the leaves not infrequently alternate. Petioles, base and tip of the leaves are mostly constant, but their breadth is very variable in many species. As to the habit, many species are invariably erect, others creeping and rooting; but in a good many species their method of growth is either intermediate or very variable and dependent on environment (as in *L. Christinae* and others) or combined (as in *L. congestiflora*), where a short and upright stem after flowering prostrates and continues to grow creeping and producing branches often again upright and flowering in the following years. In no case is habit alone of sectional value, and doubtless even the very peculiar *Trientalis*-like habit has

been acquired independently in different series of development.

The glands found sometimes in the tissue of all the organs are very characteristic not only generally for a big part of the genus but also in their special development for different species. Those of *L. vulgaris* L. are originally schizogenous, but become later lysigenous (Guttenberg in *Planta*, v (1928) 232). Only in very few are they not constantly present, as in *L. deltoidea* which is of intermediate position between eglandular and glandular series. They do not constitute a primitive character, although similar glands are present in all the *Myrsinaceae*. The most primitive *Lysimachias* are on the contrary eglandular, and the glands found in *L. foenum-graecum* are very small, uncoloured and hardly perceptible by means of a simple lens. There are very many stages between these and the long stripes which colour the dried specimens of *L. Alfredi* almost entirely black. When the content of such glands has no colour, it becomes imperceptible in thin organs such as corollas in dried specimens by being pressed into the tissue. Mostly, however, the glands are coloured orange or red or black. These colours are seen either externally ("glandulae extraneae" of the key) or not till the organ is held against the light ("gl. intestinae"). Stripe shaped glands are often mixed with globular ones and mostly brought about by confluence of several of them. But the scarce and thin gland stripes not mixed with dots, confined in *L. Klattiana* to the corollas, cannot be of the same origin; species like this and *L. trientaloides* and *paridiformis* can be derived only directly from eglandular ones. Attention may here be drawn to the similar glands present constantly along both sides of the midrib in *Androsace lactea* L., as mentioned, it seems, only by Solereder (*Syst. Anat. Dicot.*, 568).

The indument is of different constancy in different groups of species, even entirely wanting in some. It consists of either subsessile globular glands, or eglandular articulate hairs. The latter are either short and somewhat stiff, or longer, soft, often viscid, and fulvescent at least in the dried state. Often both glands and hairs are found mixed. Club-shaped stalked glands are not rarely found in the anthers especially along their margins, but not very constantly, it seems. Also the indument of the corollas seems to be liable to some variation.

Of the 5 subgenera, *Eulysimachia* and *Palladia* are nearer allied together than with the others. In a more-dimensional system the sections *Apodanthera*, *Alternifoliae* and either *Chenopodiopsis* or *Coxia* should be arranged into one line which then would ramify into the other sections of subgenus *Palladia*. Within the subgenus *Eulysimachia*, our arrangement is natural for the first 3 sections. *Theopyxis* and *Lysimastrum* are somewhat isolated and their nearest relationship is not very clear, the latter is of course near the following. The most difficult section is *Nummularia*, and its pedigree is no doubt very much branched. *L. deltoidea* is the most primitive species and near the

starting point of the 3 subsections as well as of the series *Eunummulariae*, most of which are still clearly linked with it, whilst others show greater deviation.

**CLAVIS ANALYTICA (PARTIM ARTIFICIALIS) SPECIERUM
SINENSII.**

1. *a.* Racemi laxiflori secus caulem erectum infra foliorum paucorum ovatorum magnorum comam terminalem aphyllum laterales. Flores parvi, albi. Antherae subsessiles (Subgen. *Idiophyton*) :

1. insignis.

- b.* Racemi foliis axillares vel supra folia terminales vel flores non racemosi : 2.

2. *a.* Flores plerique 6-7-meri, in racemis brevipedunculatis aphyllis in axillis foliorum cauliorum mediorum. Caulis erectus, fistulosus. Folia opposita, raro terna sessilia, lineari-usque ovato-lanceolata, nigropunctata. Filamenta libera stylusque corollae luteae lobos lineares aequantia vel superantia. Antherae parvae. Ovarium nigroglandulosum (Subgen. *Naumburgia*) :

82. thyrsoflora.

- b.* Flores 5- (casu interdum 6-) meri, in racemis terminalibus vel foliatis vel non racemosi : 3.

3. *a.* Planta acaulis vel subacaulis, rosulata, saepe stolonifera, dense hirsuta, foliis spathulatis, mucronulatis, petiolato-angustatis, crassis, dense nigro-punctulatis, scapis tenuibus unifloris ea vix superantibus, floribus stellato-apertis, luteis, 2 cm. diametentibus, corollae lobis latis, rotundatis, erosis, staminibus brevibus, c. ad $\frac{1}{2}$ in tubum glaberrimum, inter filamenta convexum connatis (Subgen. *Lysimachiopsis*, sect. *Rosulatae*) :

83. alpestris.

- b.* Plantae caulescentes, caulibus foliatis, plurifloris : 4.

4. *a.* Flores flavi vel lutei, racemosi vel paniculati vel axillares vel capitati. Filamenta inter se et a corolla libera vel inferne inter se in anulum vel tubum coalita. Plantae (omnes?) perennes (Subgen. *Eulysimachia*) : 5.

- b.* Flores albi usque atropurpurei, longe usque capitato-racemosi, ramis racemiferis interdum additis, raro inferne iterum ramosis subpaniculati. Filamenta corollae brevius longiusve connata, tubum inter se nullum, in sola *L. crispidente* anulum brevem formantia. Corolla nunquam rotata. Antherae rimis lateralibus dehiscentes (Subgen. *Palladia*) : 57.

5. *a.* Filamenta brevissima usque antheras dimidias aequantia, fere libera. Antherae basifixae, erectae, poris apicalibus, raro rimis lateralibus dehiscentes. Corolla anguste vel aperte infundibularis. Plantae punctis striisve glandulosis coloratis carentes (Sect. *Apodanthera*) : 6.

- b.* Filamenta antheris subaequilonga vel longiora raro duplo breviora, tunc corolla crebre nigro-lineolata, vel antherae fere mediofixae et versatiles, semper rimis lateralibus dehiscentes : 17.
6. *a.* Folia alterna (Subsect. *Ramosae*) : 7.
- b.* Folia opposita, membranacea, venulis occultis. Caules $\pm$ alati, demum arcuato-prostrati et flagellato-elongati. Calyx margine brevistipitato-glandulosus. Antherae $1\frac{1}{2}$ –2 mm. longae, rimis lateralibus parte superiore tantum evolutis vel hic ampliatis dehiscentes (Subsect. *Oppositifoliae*) : 15.
7. *a.* Caulis singulus, crassus, erectus, succosus vel fistulosus, saepe ramosus. Folia herbacea, 6 cm. et ultra longa, sicca viridia. Calyx $3\frac{1}{2}$ –10 mm. longus. Corolla 12–30 mm. diametro, lobis oblongis. Herba inodora : 8.
- b.* Caules saepe plures, tenues, saepe ascendentes vel alati vel lignescens. Antherae poris apicalibus dehiscentes : 10.
8. *a.* Folia oblongo-elliptica vel ovato-lanceolata, petiolis quam laminae plus 6-plo brevioribus saepe indistinctis. Racemi foliis normalibus sensim decrescentibus bracteati. Pedicelli 2.3–6 cm. longi. Antherae rimis lateralibus dehiscentes. Capsula lignosa, brunnea, valvis dehiscentis : 10. *ramosa*.
- b.* Folia ovata vel elliptica, petiolis quam laminae $2\frac{1}{2}$ –4-plo brevioribus. Pedicelli 2– $3\frac{1}{2}$ cm. longi. Antherae poris apicalibus dehiscentes : 9.
9. *a.* Racemi axillares numerosi et terminalis pauciflori, bracteis a foliis summis iis duplo maioribus distinctissimis, ovatis. Corolla 12–20 mm. diametro. Antherae 3 mm. longae : 9. *Wilsoni*.
- b.* Flores foliis normalibus sensim decrescentibus bracteati, 25–30 mm. diametro. Antherae $4\frac{1}{2}$ mm. longae : 4. *grandiflora*.
10. *a.* Calyx 5–10 mm. longus, lobis lanceolatis. Stamina corolla plus duplo usque quadruplo breviora. Caules ascendentes, flexuosi, inferne $\pm$ lignescens, striati, exalati, partibus juvenilibus raro et subtilissime glandulosi. Folia late angustiusve ovata, breviuscule petiolata, glandulis minutissimis immersis aegre conspicuis creberrimis praedita, rigidule herbacea, sicca viridia, venosa. Pedicelli 5–25 mm. longi. Corolla 2– $3\frac{1}{2}$ cm. diametro, lobis oblongo-ellipticis. Capsula crustacea, ad 6–7 mm. diametro, albida, valvis brevissimis partim dehiscentis. Herba odore fortissimo Foeni-graeci : 3. *foenum-graecum*.
- b.* Calyx $2\frac{1}{2}$ –vix 4 (sub fructu etiam 5) mm. longus, lobis e parte latiore minuta subulatis. Stamina corollam dimidiam subaequantia vel longiora : 11.
11. *a.* Caulis herbaceus, debilis, angulatus, foliis floribusque paucis cuiusque anni versus apicem subconfertis, annotinus procumbens

et radicans, hornotinus aspectu monopodiali eum continuans ascendens. Folia viridia, late ovata vel rhomboidea. Calyx margine parce glandulosus. 12.

b. Caules saepe fasciculati, longe et aequaliter foliati floriferique, parte annotina erecta $\pm$ lignescens vel e rhizomate repente aphylo ascendente. Folia exsiccando facile fulvescentia. Calyx intus dense glandulosus. Herba aromatica: 13.

12. a. Herba odore foeni-graeci. Corolla 12 mm. diametro. Filamenta ad 1 mm. longa, in annulum ad $\frac{1}{2}$ mm. altum connata; antherae $2\frac{1}{2}$ mm. longae. Capsula $4\frac{1}{2}$ mm. diametro, molliuscule crustacea, evalvis: 6. **pseudotrichopoda.**

b. Herba inodora. Corolla 15–20 mm. diametro. Filamenta brevissima, crassa, libera; antherae $3\frac{1}{2}$ –4 mm. longae:

5. **trichopoda.**

13. a. Corolla $2\frac{1}{2}$ cm. diametro, lobis linearibus. Antherae 7–8 mm. longae. Capsula 7 mm. diametro, albo-crustacea, evalvis. Caulis stricte erectus, rigidus, lignescens, junior tenuiter costatus. Folia magna, ovato-lanceolata, sicca chartacea:

2. **solanoides.**

b. Corolla 13–20 mm. diametro, lobis oblongo-lanceolatis vel ovatis. Antherae 3–4 mm. longae. Capsula 3–5 mm. diametro, tota valvis dehiscens. Folia herbacea: 14.

14. a. Caules stricti, erecti vel diffusi, saepe fasciculati, vix lignescens, alati, plerumque ramosissimi. Pedicelli capillares. Antherae corolla paulo breviores: 8. **capillipes.**

b. Caules stricte erecti vel ascendentes, paulum et praecipue inferne ramosi, lignescens, tenuiter costati. Pedicelli crassiores. Antherae corolla plus duplo breviores: 7. **lancifolia.**

15. a. Folia sessilia, late ovata, 4–8 $\frac{1}{2}$ cm. longa basi late rotundata. Pedicelli recurvato-patentes: 11. **Engleri.**

b. Folia petiolata, basi cordata vel abrupte cuneata, 1–4 cm. longa: 16.

16. a. Folia basi abrupte cuneata, petiolis 2–4 mm. longis. Pedicelli apice nutantes: 12. **plicata.**

b. Folia basi cordata, petiolis 4–8 mm. longis. Pedicelli recurvato-patentes: 13. **cordifolia.**

17. a. Corolla rotata, calycem aequans vel eo brevior. Filamenta (in speciebus sinensibus) basi in tubum brevem connata. Antherae longe lineares. Plantae epunctatae vel glanduloso-punctatae, (sinenses) erectae foliis (interdum praeter infima) sessilibus, (interdum praeter summa) oppositis (Sect. *Lerouxia*): 18.

b. Corolla latius angustiusve infundibularis. Filamenta ad $\frac{1}{2}$ vel altius in tubum angustum contigua, in speciebus foliis petiolatis vel corollis nigro-striatis praeditis tantum breviter connata vel sublibera: 22.

18. a. Corolla glabra vel centro minute glanduloso-pilosa. Filamen-

- torum annulus latus. Flores axillares longipedicellati. Caulis simplex vel inferne parce ramosus (Subsect. *Hypericoideae*): 19.
- b. Corolla intus centro glandulosa. Filamentorum annulus angustus. Antherae mediofixae, versatiles. Caulis ramosissimus (Subsect. *Ophelioideae*): 21.
19. a. Planta vix 10 cm. excedens, epunctata, foliis inferioribus brevipetiolatis subrosulatis basi rufescenti-lanatulis. Folia superiora ad $1\frac{1}{2}$ cm. longa, basi late rotundato-truncata. Pedicelli c. $1\frac{1}{2}$ cm. longi, filiformes. Antherae supra basin affixae: **14. stellarioides.**
- b. Plantae 18–50 cm. altae, foliis punctatis, inferioribus ad squamas reductis, superioribus $3\frac{1}{2}$ – $6\frac{1}{2}$ cm. longis, basi rotundatis, calyce corollaeque interdum colorato-punctatis. Pedicelli $1\frac{1}{2}$ –7 cm. longi: 20.
20. a. Planta 18–32 cm. alta. Pedicelli 15–18 mm. longi, validiusculi. Folia herbacea, inferiora decrescentia pluriparia, superiora apice ipso obtusa. Corolla epunctata, lobis ovatis acutis. Antherae versus tertium inferum affixae: **15. hypericoides.**
- b. Planta 25–50 cm. alta. Folia membranacea, inferiora squamiformia perpauca, superiora acutissima. Pedicelli 4–7 cm. longi, filiformes. Corollae lobi rotundati. Antherae fere mediofixae: **16. omeiensis.**
21. a. Folia lanceolata, lyrata, supra basin auriculatam subpetiolato-angustata. Planta epunctata, papilloso-velutina. Flores apicibus ramorum pauci, subconferti, foliis axillares, pedicellis usque ad 1 cm. longis: **17. ophelioides.**
- b. Folia ovato-lanceolata, basi rotundata, glanduloso-punctata, cum tota planta glabra. Flores in ramis patulis vix foliatis laxe racemosi et subpaniculati, pedicellis $1\frac{1}{2}$ –3 cm. longis: **18. longipes.**
22. a. Flores multi, paniculati. Calycis lobi lanceolato-ovati, striis nigris submarginalibus continuis cincti et glanduloso-ciliolati. Planta erecta, magna, foliis ternis verticillatis vel oppositis, subsessilibus, nigropunctatis. Filamenta glandulosa, ad c. $\frac{1}{2}$ in tubum contigua (Sect. *Lysimastrum*): **19. vulgaris.**
- b. Flores axillares vel verticillati vel apice caulis ramorumque subcapitati vel capitati. Calyx non stria singula submarginali praeditus (Sect. *Nummularia*): 23.
23. a. Corolla glandulis crasse linearibus ecoloratis pellucidis instructa. Caulis repens ramis brevibus erectis. Folia crassa, suborbicularia, impunctata, petiolata. Flores axillares, longipedicellati: **37. patungensis.**
- b. Glandulae nullae vel pellucidae punctiformes vel coloratae punctiformes linearesve: 24.
24. a. Plantae totae punctis coloratis glandulosis carentes, in speciebus foliis verticillatis praeditis autem saepe striis tenuibus

in corolla tantum extraneis instructae. Caulis erectus vel ascendens : 25.

b. Plantae punctis glandulosis coloratis saltem intestinis (versus lucem conspicuis) in foliis vel etiam corollis vel striis fuscis extraneis creberrimis ubique vel in specie quadam flagelliformiprostrata in corolla tantum instructae : 36.

25. a. Petioli inferiores basi auriculato-dilatati. Plantae erectae, pyramidato-ramosae. Flores apicibus caulis ramorumque congesti. Corolla $\pm$ 20 mm. diametro : 26.

b. Petioli tenues vel inferiores basi paulum marginati, non auriculati vel folia sessilia : 27.

26. a. Folia inferiora ovata et surculorum nonnullorum late ovata, superiora e basi ovata saepe longe lanceolata. Planta 20-65 cm. alta, tota subtiliter velutina. Pedicelli 4-13 mm. longi, floribus remotioribus longius pedicellatis paucis additis :

47. melampyroides.

b. Folia anguste ovata, acutissima, subtus glauca et in nervis, ut caulis 60-90 cm. altus superne, tenuiter et longius pilosa. Pedicelli 10-15 mm. longi. Calyx glaber : **48. Brittenii.**

27. a. Caules e rhizomate crasso erecti,* foliorum sessilium vel subsessilium 4—multorum verticillis terminati ceterisque foliis, si adsunt, verticillatis aut lanceolatis. Striae impellucidae in foliis et extraneae in corollis interdum adsunt : 28.

b. Caules e basi interdum longe repente geniculato-erecti, foliis alternis vel paribus pluribus, raro unus alterve verticillo foliorum 3 ovatorum praeter terminalem obsiti. Glandulae intestinae pellucidae, vel nullae : 30.

28. a. Caulis tota longitudine foliatus et villosus. Folia herbacea, lanceolata, usque ad 6 cm. longa : **49. Klattiana.**

b. Praeter foliorum verticillum terminalem raro alter adest. Folia crassiuscula, cetera inferiora ad squamas reducta. Caulis glaber vel subglaber : 29.

29. a. Folia 4—6 verticillata, sessilia. Corolla carnosula, estriata :

25. paridiformis.

b. Folia 5—18 verticillata, subpetiolato-angustata vel distincte petiolata. Corolla tenuior, saepe striata : **26. trientaloides.**

30. a. Flores inter folia summa opposita vel plerumque verticillato-congesta et stellatim patentia subcapitati vel umbellati, raro remotioribus verticillatis aut perpaucis additis, pedicellis horum calycibus vix plus sesquilongioribus : 31.

b. Flores pauci usque permulti racemosi in axillis foliorum summorum immutatorum vel sensim in bracteis decrescentium vel etiam inferiorum, pedicellis saltem inferioribus quam calyces duplo usque pluries longioribus summis quoque conspicuis. Folia infima diminuta : 35.

* nonnunquam annotinus sempervirens prostratus e coma terminali propagatus.

31. *a.* Folia ovata, basi rotundata brevissime tantum cuneata, petiolis laminae maximum $\frac{1}{3}$ aequantibus, imprimis terminalia acuta mediis vix sesquialongiora, usque ad $3\frac{1}{2}$ cm. tantum longa. Caulis validus, villosus, longe prostratus et radicans, dein ascendens. Flores pauci, ultra 2 cm. diametro, corolla extus parce stipitato-glandulosa, lobis acutis : **20. tengyuehensis.**
- b.* Folia ovata et late decurrentia, longipetiolata vel multo maiora vel ovato- usque anguste lanceolata vel elliptica. Caulis e basi interdum longe repente geniculato-erectus : **32.**
32. *a.* Folia elliptica vel ovato-elliptica, saltem inferiora in petiolos late cuneato-contracta vel rotundata, sicut calyces dense strigoso-hirsuta vel -velutina. Caules validiusculi vel validi : **33.**
- b.* Folia lanceolata vel ovato-lanceolata, omnia in petiolos sensim attenuata, sicut calyces glabra vel $\pm$ laxe et longe articulatohirsuta : **34.**
33. *a.* Indumentum laxius et longius, hirsuto-strigosum. Corolla extus glabra vel parcissime glanduloso-pilosula, 20–23 mm. diametro : **21. phyllocephala.**
- b.* Indumentum densius et breve, velutino-strigosum. Corolla extus crebre glanduloso-puberula, 15–vix 20 mm. diametro : **22. pseudo-Henryi.**
34. *a.* Caulis rigidulus, superne parce hirsutus. Folia crassa, petiolis tenuibus. Calyx glaber vel parcissime hirsutus : **24. Henryi.**
- b.* Caulis fistulosus, superne dense hirsutus. Folia crassiuscula, petiolis anguste alatis. Calyx crebre hirsutus : **23. fistulosa.**
35. *a.* Caulis erectus, a basi validus, 13–90 cm. longus interdum, ramosus, cum inflorescentia brevipilosus. Folia ovata usque ovato-lanceolata, maxima laminis 3–11.5 cm. longis, sensim in bracteas decrescentia. Pedicelli superiores multo breviores. Corolla $\pm$ 15 mm. diametro : **28. Franchetii.**
- b.* Caulis tenuis, 3–22 cm. longus, raro ramosus, pilis longioribus quoque obsitus. Folia maxima 8–25 mm. longa, lanceolata usque orbicularia. Flores pedicellis inter se subaequilongis, in axillis foliorum vix decrescentium, 10–15 mm. diametro (varietates sinenses) : **27. deltoidea.**
36. *a.* Folia floresque punctis tantum glandulosis coloratis notata vel altera impunctata, raro illa punctata hi parce et tenuiter striati : **37.**
- b.* Folia floresque striis glandulosis coloratis saepe cum punctis mixtis notata, raro illa eglandulosa : **46.**
37. *a.* Praeter foliorum verticillum terminalem raro alter adest : (cfr. 28b).
- b.* Folia caulina pluriparia : **38.**
38. *a.* Caulis erectus, a basi validus. Folia magna : **39.**
- b.* Caulis prostratus vel tenuis, saepe ascendens, pilosus : **40.**
39. *a.* Folia sursum in bracteas sensim decrescentia ; flores igitur

- racemosi. Puncti sparsissimi: (vide sub. 35. *Franchetii*).
 b. Caulis foliorum verticillo terminatus, glaber. Flores capitati. Puncti densissimi: **31. Fordiana.**
40. a. Caulis repens, apice flagelliformis. Flores axillares: 41.
 b. Caules vel rami ascendentes, foliis superioribus quam inferiora magis approximatis: 42.
41. a. Pedicelli petiolis longiores. Corolla 12–15 mm. diametro, glanduloso-punctata: **36. Hemsleyana.**
 b. Pedicelli petiolis breviores. Corolla epunctata, 6–8 mm. diametro: **35. japonica.**
42. a. Folia superiora vix conferta, inferiorum paria complura iis aequalia. Flores foliis illis axillares, pedicellis 8–17 mm. longis. Corolla parce vel non punctata. Filamenta inferne in anulum brevem, latum connata: **29. remota.**
 b. Folia apice caulis subverticillata praetereaue caulina iis aequalia vel diminuta. Flores subcapitati. Filamenta in tubum angustum contigua: 43.
43. a. Corolla epunctata. Folia apicalia quoque petiolata, flores plus triplo excedentia, caulina summa iis approximata et interdum similia, inferiora plurima diminuta longipetiolata. Pedicelli 4–21 mm. longi: **30. Esquirolii.**
 b. Corolla punctata. Folia et flores apicalia subsessilia, his interdum paucis remotioribus pedicellatis additis, illa floribus vix plus duplo longiora, caulina pluriparia, subaequalia: 44.
44. a. Bractee capituli terminalis floribus duplo breviores, late ovatae. Folia parva, maiora 8–20 mm. longa. Caules vel rami erecti, inferne dense foliati. Indumentum densum, crispulum: **34. gymnocephala.**
 b. Bractee floribus paulo tantum breviores usque multo longiores. Folia plerumque maiora: 45.
45. a. Folia superiora acuta. Bractee acutae vel obtusae. Planta debilis pauciflora, indumento brevi, subadpresso vel crispo: **32. congestiflora.**
 b. Folia maiora, obtusa. Bractee plerumque rotundatae. Planta plerumque validior multiflora, caule longius et patule piloso: **33. Hui.**
46. a. Filamenta sublibera, antheris breviter ovato-oblongis, fere basifixis, erectis breviora. Folia brevipetiolata. Pedicelli breves. Planta crispule pubescens (Sect. *Alternifoliae*): **52. albescens.**
 b. Filamenta inferne in tubum altum et angustum contigua, antheris linearibus, fere mediofixis, versatilibus longiora: 47.
47. a. Flores secus caulem ramosve axillares, pedicellis quam ipsi vix brevioribus usque pluries longioribus: 48.
 b. Flores apice caulis ramorumve capitati, subsessiles vel brevipedicellati: 54.

48. *a.* Folia saltem inferiora petiolata, latius angustiusve ovata usque orbicularia: 49.
b. Folia sessilia, lanceolata. Caules erecti, elati. Flores longissime pedicellati. Plantae glaberrimae: 56.
49. *a.* Folia saltem superiora alterna. Caulis erectus, dense albido hirtellus. Pedicelli longi, tenues. Planta tota densissime striata: **46. grammica.**
b. Folia omnia opposita. Caulis glaber vel glandulosus vel rufo villosulus. Plantae plerumque prostratae: 50.
50. *a.* Calycis lobus quisque dorso tota fere longitudine ala lata cristatus: 51.
b. Calycis lobi plani vel basin versus paululum carinati. Folia floresque crebre striata vel striolata. Pedicelli floribus saepe multo longiores: 52.
51. *a.* Folia brevipetiolata, subcordato-ovata, glandulis intestinis tantum, crassis, flavobrunneis, subglobosis. Pedicelli flores c. aequantes usque sesquolongiores. Calycis cristae antice altiores. Corolla parce et breviter striata: **38. pterantha.**
b. Folia dense nigro striata et striolata, saepe longius petiolata, late cordato-ovata usque suborbicularia. Pedicelli floribus longiores idque saepe pluries. Calycis cristae postice altiores et hic saepe in calcaria productae. Corolla densissime striata, lobis breviter bifidis: **39. Crista-galli.**
52. *a.* Corollae carnosulae striae elongatae, lobi anguste triangulari-ovati, apice ipso rotundati. Calyx glaber vel margine quoque pectinato-ciliatus. Folia ovata, pedicellis non superata: **42. Christinae.**
b. Corollae tenerioris striae breviores, lobi ovati, late rotundati. Calycis lobi dorso tantum hirtelli, marginibus glabri, vel glaberrimi. Folia orbiculari-ovata: 53.
53. *a.* Pedicelli caulisque sessili-glandulosi et parce pilosi: **40. Fargesii.**
b. Pedicelli praeter glandulas dense pilosi; caulis pubescens: **41. drymarifolia.**
54. *a.* Caulis elongatus, debilis, tota longitudine oppositifolius, foliis summis minoribus. Flores apice caulis ramorumque aphyllorum, bracteis vix superati, c. 1 cm. longi, parce et breviter striati: **45. rubiginosa.**
b. Flores apice caulis erecti, fistulosi, foliorum paribus paucis praediti inter folia 4 ceteris maiora permulti, (ubi cogniti) 1½–fere 2 cm. longi, dense longistriati: 55.
55. *a.* Planta pumila, ramosa, brevissime ferrugineo-puberula, laxe brevistriolata et punctata. Folia rotundata. Sepala obovato-lanceolata, 1¼ mm. lata. (Corolla ignota): **43. chrysosplenoides.**
b. Caulis plerumque elatior, simplex, dense articulato-pubescens.

- Folia acuminata, densissime striolata et punctata. Sepala anguste lanceolata, 1 mm. lata : **44. Alfredi.**
56. *a.* Dense nigro brevistriolata et punctata. Folia alterna et hic illic opposita, basi acuta. Pedicelli tenues, patentes. Corolla calyce paulo longior. Antherae $1\frac{1}{4}$ mm. longae : **50. fukienensis.**
- b.* Densissime purpureonigro brevistriolata et punctata. Folia quaterna verticillata, basi rotundata lata. Pedicelli rigidiores, erectopatentes. Corolla calyce sesquialongior. Antherae fere 2 mm. longae : **51. Rosthorniana.**
57. *a.* Calyx turbinatus, ultra $\frac{1}{3}$ vel ad $\frac{1}{2}$ gamosepalus, tubo quinque-carinato, lobis latis, circumcirca anguste membranaceo-marginatis. Corollae lobi fere a basi liberi. Filamentorum pars libera antherae ellipticae aequilonga. Stylus capsulam parvam aequans. Planta annua, scoparia, angustifolia (Sect. *Apochoris*) : **60. pentapetala.**
- b.* Calyx lobis fere liberis, si autem altius connatis, non turbinatus. Corolla $\pm$ alte gamopetala : **58.**
58. *a.* Stylus crassus, brevissimus usque corollae lobos dimidiato aequans, inclusus, capsula matura multo brevior usque aequilongus. Folia alterna, raro opposita, subpetiolato-angustata. Corolla paulum vel vix ad $\frac{1}{3}$ gamopetala : **59.**
- b.* Stylus corollam totam saltem aequans vel ea paulo brevior, ex alabastro saepe exsertus, quam capsula matura longior ; cum brevior, tum folia auriculato-sessilia vel corolla ad $\frac{1}{3}$ vel ultra gamopetala : **66.**
59. *a.* Calycis lobi elliptici vel oblongi, margine membranaceo lato circa apicem cincti. Antherae magnae. Stylus capsulam aequans vel subaequans. Inflorescentia densa : **60.**
- b.* Calycis lobi lanceolati, margine membranaceo superne angustissimo. Folia ovata usque lanceolata, undulata : **63.**
60. *a.* Antherae fere basifixae, erectae, elongatae. Flores foliis paulum decrescentibus bracteati, c. 1 cm. longi, corollae lobis erectis. Pedicelli crassi, inferiores elongati. Capsula 4-5 mm. longa. Stylus subulatus. Planta glaberrima, crebre glanduloso-punctata, litoralis (Sect. *Lubinina*) : **53. mauritiana.**
- b.* Antherae versatiles. Flores bracteis subulatis axillares, corollae lobis patulis. Pedicelli tenues. Capsula usque ad 3 mm. longa. Stylus crassissimus, subclavatus. Plantae saltem inflorescentia $\pm$ glanduloso-puberulae (Sect. *Spicatae*) : **61.**
61. *a.* Corolla 3-4 mm. longa, lobis ovatis. Filamenta brevissima. Antherae breviter oblongae. Capsula vix 2 mm. longa. Planta gracilis, superne brevissime glanduloso-puberula : **57. Fortunei.**
- b.* Corolla 6-9 mm. longa, lobis oblongis vel linearibus. Filamenta antheris lineari-oblongis longiora. Capsula ad 3 mm. longa. Plantae robustae, crispule pubescentes : **62.**

62. *a.* Corolla 6 (rarissime ad 8) mm. longa. Folia lanceolata vel subrhombea, tenuia, acutissima, exsiccando facile rufescentia. Planta parcius rufulo-pubescens : **58. clethroides.**
- b.* Corolla 8–9 mm. longa. Folia crassiora, oblonga vel sublinearia, acuta vel obtusa, viridia nisi frigore tacta : **59. barystachys.**
63. *a.* Flores remoti, brevissime pedicellati, parvi vel petalis reflexis (Sect. *Chenopodiopsis*) : 64.
- b.* Racemi densi, aphylli, floribus speciosis, infundibularibus, c. 1 cm. longis : 79.
64. *a.* Flores foliis normalibus petiolatis axillares. Filamenta elongata. Stylus $1\frac{1}{2}$ mm. longus : **61. chenopodioides.**
- b.* Flores praeter infimos bracteis minutis axillares. Filamenta antheris breviora. Stylus vix 1 mm. longus : 65.
65. *a.* Folia tenuiter herbacea, crebre nigropunctata. Calyx glaber. Corolla glanduloso-vittata, $7-7\frac{1}{2}$ mm. longa, lobis lingulatis, a medio reflexis : **62. reflexiloba.**
- b.* Folia herbacea, margine ceterumque hic illic rufo-glandulosa. Calyx margine papilloso-ciliatus. Corolla intus glanduloso-pilosula, ad 5 mm. longa, late urceolata, lobis late ellipticis : **63. excisa.**
66. *a.* Connectivum antherae sublinearis versatilis glandula crassa purpurascens terminatum. Folia (praeter summa) opposita, basi angustata vel lyrato-auriculata. Planta perennis, erecta, glabra, racemis rigidis, subaxillifloris, bracteatis (ad sect. *Milandra*) : **56. stenosepala.**
- b.* Connectivum eglandulosum, muticum vel minute apiculatum : 67.
67. *a.* Antherae fere basifixae, sublineares, erectae vel curvatae. Folia plurima opposita, saltem summa ad basin auriculato-subcordatam sensim dilatata. Plantae praeter glandulas perpaucas sessiles glabrae, caulibus erectis quadricostatis, racemis rigidulis laxifloris. Calycis lobi angusti, vix marginati (Sect. *Milandra*) : 68.
- b.* Antherae fere mediofixae versatiles, vel subglobosae : 69.
68. *a.* Corolla 4 mm. longa. Folia crassiuscula, laxa et subtus tantum conspicue rufo-glandulosa, infima quoque semiamplexicaulis sessilia. Bractee subulatae. Stylus c. 2 mm. longus : **54. auriculata.**
- b.* Corolla 5–6 mm. longa. Folia membranacea, utrinque dense nigropunctata, infima ad basin attenuata, subpetiolato-sessilia. Bractee ovato-lanceolatae. Stylus 4–5 mm. longus : **55. heterogenea.**
69. *a.* Planta tota punctis striisque glandulosis carens, praeter glandulas paucas sessiles glaberrima, foliis rosulatis magnis margine cartilagineo crispulis, caulibus plerumque pluribus, suberectis, subnudis vel foliis parvis in bracteas paulum

- decrescientibus obsitis. Pedicelli floribus longiores. Calycis lobi late lanceolati, vix marginati. Corolla 7-10 mm. longa, ad tertium vel ultra medium gamopetala et cylindrica. Filamenta basi brevissime inter se connata, sicut stylus brevissima vel faucem superantia (Sect. *Heterostylandra*): **81. crispidens.**
- b. Plantae punctis vel striis glandulosis saltem in calycibus vel in foliorum apicibus praeditae, caulibus foliatis. Filamenta inter se libera, corollae $\pm$ adnata, longa: 70.
70. a. Flores multi, (plerumque longe) racemosi, bracteis subulatis, raro foliis fulti, tunc albi rubrovenosi, campanulati: 71.
- b. Flores capitati vel perpauci et foliis suborbicularibus axillares, corollis eglandulosis, pallide roseis, stellatis, antheris breviter ellipsoideis, filamentis latis. Calycis lobi lati, obtusi. Folia crasse punctata. Plantae perennes prostratae vel suberectae, tunc foliis inferioribus ad squamas fere reductis. (Sect. *Candidae*, subs. *Pumilae*): 83.
71. a. Corolla aut late campanulata aut stellata et brevissime gamopetala, si anguste campanulata, folia aut anguste linearia aut margine apiceque striato-glandulosa (Sect. *Coxia*): 72.
- b. Corolla anguste campanulata, alba, saepe rubrovenosa, ultra $\frac{1}{2}$ usque ad $\frac{1}{2}$ gamopetala, lobis oblongis. Antherae corollam non superantes, magnae, saepe angustae. Stylus ex alabastro $\pm$ exsertus. Folia elliptico-oblonga usque rhomboidea. Plantae glaberrimae vel apice caulis pedicellisque parcissime et subtiliter sessili-glandulosae, sparse et grosse glanduloso-punctatae (Sect. *Candidae*, subs. *Racemosae*): 84.
72. a. Corolla 5-6 mm. longa, saltem intus glandulis adspersa, lobis obovatis vel obovato-oblongis. Antherae inclusae vel apicibus tantum exsertae. Calycis lobi praesertim apice intus glanduloso-striati. Folia membranacea, lanceolata usque late elliptica, glandulis praeter marginales apicalesve perpaucis (ser. *Lobelioidae*): 73.
- b. Corollae 7-10 mm. longae vel filamenta exserta: 74.
73. a. Corolla anguste campanulata, calyce brevior vel aequilonga, lobis obovato-oblongis. Antherae fere $1\frac{1}{2}$ mm. longae, sublineares, filamentis c. aequilongae. Calycis lobi lanceolati, acuminati. Racemus densiusculus. Caulis crassus, elatus. Folia alterna, margine apiceque crasse striato-glandulosa: **65. Silvestrii.**
- b. Corolla late campanulata, calyce longior, atropurpureo-glandulosa. Calycis lobi lati, subtriangulares vel obtusi. Antherae vix ultra $\frac{3}{4}$ mm. longae, ovatae vel subglobosae. Racemi laxi: **64. circaeoides.**
74. a. Folia glandulis minutis densissimis punctulata, crassiuscula, subpetiolato-sessilia. Flores nutantes, corolla $5\frac{1}{2}$ -8 mm. longa, campanulata, lobis orbiculari-obovatis, staminibus valde

superata; antherae ovoideae. Pedicelli fructiferi erecto-patentes. Capsula ad 5 mm. longa (ad ser. *Lobelioideae*):

68. platypetala.

b. Folia glandulis crassis irregulariter et laxe punctata vel striolata vel praeterea punctulata, tunc folia opposita semiamplexicaulis sessilia: 75.

75. *a.* Corolla $2\frac{1}{2}$ –3 mm. longa, campanulata, filamentis longe superata. Capsula 3 mm. diametro. Pedicelli sub flore fructuque divaricati subnutantes. Folia membranacea, petiolata, ovata usque lanceolata. Antherae globosae (ad ser. *Lobelioideae*):

67. decurrens.

b. Corolla 5 mm. longa et longior. Capsula plerumque 4 mm. et ultra longa: 76.

76. *a.* Corollae lobi late obovati vel suborbiculares (ser. *Violascentes*): 77.

b. Corollae usque ad 8 mm. longae lobi oblongi, non ultra 2 mm. lati, patuli, sinubus acutis seiuncti. Antherae oblongae: 81.

77. *a.* Stylus crassus. Folia lanceolata vel ovato-lanceolata, alterna, casu tantum opposita. Antherae latae, ovoideo-ellipticae: 78.

b. Stylus tenuis. Folia late sublinearia vel angustissime lineari-lanceolata, petiolis non distinctis sessilia, opposita vel saepe terna, raro hic illic alterna. Corolla calyce duplo vel subtriplo longior. Antherae parvae, oblongo-ellipticae: 80.

78. *a.* Corolla calyce duplo longior, 9–12 mm. longa, sinubus inter lobos obovatos angustis acutis. Stamina profunde inclusa. Pedicelli 4–13 mm. longi, erecti. Capsula 3 mm. diametro:

71. violascens.

b. Corolla calyce vix sesquolongior, 5–9 mm. longa, sinubus inter lobos saepe orbiculares latis rotundatis. Stamina corollam aequantia vel exserta: 79.

79. *a.* Pedicelli saltem inferiores 10–20 mm. longi, sub fructu sursum arcuati. Capsula vix 4 mm. diametro. Folia glauca, glandulis vix prominulis:

69. glaucina.

b. Pedicelli 3–8 mm. longi, sub fructu erecti. Capsula 4–5 mm. diametro. Folia saturate viridia, glandulis crassis, fuscis pustulata:

70. lichiangensis.

80. *a.* Folia angustissime lineari-lanceolata, basi longe angustata auriculis minutis sessilia, saepe terna, flaccida. Corolla late infundibularis, 8–10 mm. longa. Pedicelli erectopatentes. Calycis lobi lanceolati, deorsum tantum anguste membranaceo-marginati. Planta plerumque ramosissima: 72.

72. taliensis.

b. Folia decussata, late sublinearia, ad basin semiamplexicaulis sessilem breviter angustata, erecta, subcoriacea. Pedicelli patuli. Calycis lobi ovati, marginibus membranaceis apice truncatis. Corolla 6.5 mm. longa, tubo brevissimo, lobis patentibus:

73. robusta.

81. *a.* Planta debilis ascendens. Folia petiolata, lanceolata usque late ovata. Calycis lobi latiusculi, membranaceo-marginati. Corollae lobi oblongo-obovati. Stamina longe exserta, antheris oblongis. Stylus tenuis (ad ser. *Lobelioideae*) :

66. lobelioides.

b. Plantae robustae erectae. Stamina corollam c. aequantia. Stylus crassiusculus (ad ser. *Violascentes*) :

82.

82. *a.* Folia lineari- ad rhombeo-lanceolata, sessilia. Corolla 6-8 mm. longa :

74. Delavayi.

b. Folia late ovata ad ovato-lanceolata, petiolata. Corolla ad 1 cm. longa :

75. tsarongensis.

83. *a.* Flores capitati, 4-5 mm. longi, pedicellis suis multo longiores. Planta diffusa, foliis aequalibus :

76. pumila.

b. Flores foliis paucis axillares, 6-7 mm. longi, pedicellis suis breviores. Planta erecta vel ascendens, foliis infimis ad squamas reductis :

77. prolifera.

84. *a.* Caules multi, debiles, $\pm$ prostrati, saepe ramosissimi, centrali erecto nullo. Folia crassiuscula, rhomboideo- vel spatulato-elliptica, saepe lata. Racemus juvenilis laxiusculus angustissimus, saepe axi foliata superatus, florifer laxus vel laxissimus, a caule foliato ob bracteas sensim accrescentes vel pedicellos remotos et longissimos non vel vix distinctus, pedicellis (praeter cleistogamos) 4-35 mm. longis, crassiusculis, sub flore fructuque erectis vel erectopatentibus (in caulibus procumbentibus tantum unilateraliter divaricatis). $\odot$ (vel perennans?) foliis rosularum multis saepe magnis, sub anthesi interdum vivis. Calyx 3-5 mm. longus, atropurpureo-punctatus, lobis latiusculis. Corolla 6-10 mm. longa. Stylus 5-8 mm. longus :

78. parvifolia.

b. Caulis unicus vel centralis inter plures erectus, 12-50 cm. altus. Folia angusta, elliptico-oblonga. Racemus juvenilis floriferque densus, a caule foliato bene distinctus. Pedicelli fructiferi $\pm$ patuli :

85.

85. *a.* $\odot$ foliis rosularibus sub anthesi saepe vivis. Caulis centralis interdum ramosissimus, 12-50 cm. altus, laterales saepe multi et interdum nonnulli steriles. Racemus juvenilis anguste conicus, florifer laxior quam in sequente, a caule foliato interdum interstitio nudo discretus. Pedicelli 5-23 mm. longi, crassiusculi, sub flore erecti, fructiferi $\pm$ patuli. Calyx 3-6 mm. longus, saepe glanduloso-striolatus. Corolla 8-11 mm. longa. Stylus 5-8 mm. longus*) :

79. obovata.

b. $\odot$ vel $\odot$, foliis basalibus sub anthesi emarcidis. Caulis singulus vel caules centrales erecti, elati, 20- ultra 40 cm. alti, laterales ascendentes. Racemus juvenilis applanato-conicus, densissimus,

* The Indian specimens have often smaller flowers (6-7 mm. long, style 3-4 mm. long).

florifer densus, a caule foliato interstitio nudo seiunctus. Pedicelli 9-16 mm. longi, tenues, sub flore fructuque patuli. Calyx 3-5 mm. longus, nigro striolatus vel striatus. Corolla 6-8 mm. longa. Stylus 4-6 mm. longus : 80. *candida*.

ENUMERATIO SYSTEMATICA SPECIERUM OMNIUM ET NOTAE CRITICAE.

Subgenus *Idiophyton*† Hand.-Mzt.

Syn. : Sect. *Insignes* R. Kn. in Pflzr., IV 237 (1905) 308.

Characteres vide in clave sub no. 1a.

1. 1. *L. insignis* Hemsl. in Hook., Ic. plant., xxvii (1900), t. 2634. R. Kn., l.c.

S. Yunnan. Henry 547, 10406, 10406A ; Handel-Mazzetti 5986.

Kwangsi. Lung-chou. Morse 547, 748.

Kweichou. Between Pinfa and Lofu. Cavalerie 2721.

Flowers of this interesting plant were collected by Morse as well as by me, and there may be added the following to the description :

Calycis lobi 5-6, 2-2½ mm. longi et 1½ mm. lati, ovati, in apicem sensim angustati, ima basi tantum connati, glandulis sessilibus supra sparse, subtus dense, apice densissime obsiti. Corollae albae lobi 5, subliberi, 4 mm. longi et 2 mm. lati, ovato-elliptici, rotundati. Filamenta brevissima, ima basi cum petalis et inter se in anulum brevissimum connata. Antherae c. 3 mm. longae et 1 mm. latae, e basi cordata sensim in apicem angustatae. Gynoeceum stamina aequans, ovario globoso, stylo crasso eo aequilongo, in alabastro inclusio.

Subgenus *Eulysimachia* Hand.-Mzt.

Ephemerum p.p. et *Lysimachia* Reichenb.

Sect. *Lysimastrum* Endl., Gen. (1839) 732, amplif. et incl. *Lysimandra* et *Lerouxia* ; Duby in DC., Prodr., viii (1844), 63, excl. *L. glaucophylla*.

Sect. *Lysimastrum*, *Steironema*, *Nummularia* p.p., *Lubinina* p.p., *Cilicina* (excl. *L. alpestri*), gen. *Asterolinon* p.p., *Lerouxia* Klatt 1866.

Sect. *Nummularia*, *Pteranthae*, *Lerouxia*, *Hypericoideae*, *Verticillatae*, *Alternifoliae* (excl. *L. chenopodioidi*), *Steironema*, *Cephalanthae*, *Lysimastrum*, *Theopyxis*, incl. *L. longipede* et *stricta* R. Knuth 1905.

Characteres vide in clave sub no. 2b, 3b, 4a.

Sectio *Apodanthera* Hand.-Mzt.

Syn. : Sect. *Alternifoliae* R. Kn. p.p. max.

Sect. *Hypericoideae* R. Kn. p.p. min.

Characteres vide in clave sub no. 5a.

The name *Alternifoliae* cannot be used for the section, as *L. alternifolia* Wall. does not belong here and the name does not fit for all the species included here. There is no fear that the new name could become invalidated by the homonymous genus of *Cucurbitaceae*, for the section will, I think, never get generic rank.

† Ἰδιος, peculiar, alluding to the specific name.

Subsect. *Ramosae* Hand.-Mzt. Characteres vide in clave sub no. 6a.

Series *Evalves* Hand.-Mzt.

2. *L. solanoides* Hand.-Mzt. Sp. nov.

Radix perennis fibris rigidis atris. Caulis stricte erectus, tenuis, 40 cm. altus, rigidus, lignescens, spadiceus, praeter quartum vel dimidium inferum foliorum cicatricibus nonnullis obsitum subaequaliter foliatus et florifer, junior tenuiter costatus et superne parce sessili-glandulosus. Folia alterna, ovato-lanceolata, subaequalia vel summa infimis sensim duplo longiora, 3.5–12.5 cm. longa et 1–3 cm. lata, acuta, basi in petiolum lamina quadruplo usque sextuplo breviora sensim angustata, margine angustissime revoluta, exsiccando facile fulvescentia, sicca chartacea, densissime reticulato-venosa, aromate foeni-graeci, supra sparsissime, subtus $\pm$ dense sessili-glandulosa et paulum farinosa. Flores singuli vel geminati axillares. Pedicelli tenues, 1–2 mm. longi, rigiduli, ut caulis glandulosi. Calyx 2.5–4 (–raro ad fructum 5) mm. longus, fere totus in lobos e parte ovata minuta subulatos fissus, extus sparse, intus dense glandulosus. Corolla flava (vide infra!), 2.5 cm. diametro, fere ad basin in lobos lineares fissa. Antherae subsessiles, ea tertia parte breviores, 7–8 mm. longae, 1 mm. latae, e basi cordata sensim longe angustatae, apice ipso obtusae, poris apicalibus dehiscentes. Stylus 8 mm. longus, tenuissimus. Capsula 7 mm. diametro, crustacea, alba, indehiscens.

Kweichou. "Tché-chou" (Cheh-shu), Aug. 1905. (Esquirol 749). Grotte "Kouan yn tang" (Kwan yin tang), jul. 1905 (Esquirol 772).

This is the species most recalling the *Myrsinaceae* in the genus as well as in the whole family. For his no. 772 the collector gives "fl. jaune," for no. 749 "fl. blanche," the latter surely, I think, by mistake or referring to the fruit; in the dried plant the colour is quite the same in both. The species is nearly allied to *L. foenum-graecum* and was distributed by Lévillé as the latter.

3. *L. evalvis* Wall. (*L. evalvis* var. *a* *pedicellata* R. Kn.)

4. *3. L. foenum-graecum* Hce. in Journ. of Bot., xv (1877), 355.

R. Kn. in Pflzr., IV 237, 270, p.p.

Syn.: *L. evalvis* var. ? *sessiliflora* Clke. in Journ. Linn. Soc., Bot., xxv (1889), 43, var. β *sessiliflora* R. Kn., l.c.

Kwangsí. Graves in herb. Hance 19587.

S. Yunnan. Mengting S. of Red River. Henry 10643.

Khasia. 2–3,000, ft. Hooker et Thomson 1773 = *Lysim.* 11.

Naga Hills, Piffima. Clarke, 40942. N. Cachar Hills, Haflong. Craib.

Hance describes his plant as with sepals 4 lin. long (i.e. 8½ mm.) whereas Knuth gives 3 mm. through confounding it with several

different species. Besides the type, of little value as a herbarium specimen, only the two numbers cited above show the same calyx which matches exactly that of *L. evalvis*. The capsule of Hance's plant is not membranous as in *evalvis* but strongly crustaceous; it opens at the top but it cannot be seen whether very regularly or not. In the Khasia plant, a good fruiting specimen of which I have seen in the Berlin herbarium, the capsule, of the same texture, opens by very short regular valvae. Its leaves have the same glands close set but minute, immersed and colourless which produce the aroma still perceptible in the dry plant. Thus I agree with Clarke who suspects a species different from *evalvis* although he overlooked the character of the fruit and relied on the short pedicels which are, however, very variable in this group. I see no difference between his and Hance's plant, the capsule of which, so far as can be made out in its crushed state, also attains almost 6 mm. in diameter. Henry's plant is in flower only, but matches exactly in all the comparable parts. His other numbers cited by Knuth are very different and belong to *L. lancifolia* and *pseudotrichopoda*.

5. 4. *L. grandiflora* (Franch.) Hand.-Mzt. Comb. nov.

Syn.: *L. ramosa* var. *grandiflora* Franch. in Journ. de Bot., ix (1895), 464. R. Kn. in Pflzr., IV 237, 271.

N.E. Yunnan. Tchenfongchan, May and July 1894. Delavay.

The plant differs much from *L. ramosa* by the anthers opening by apical pores and by its habit being congruent with that of *L. evalvis*. The capsules, however, are thinly crustaceous, 4-5 mm. in diameter, and open by short valvae quite like *L. Foenum-graecum*. The calyx lobes are $3\frac{1}{2}$ mm. long, very broad with short tips. The pedicels are 2- $3\frac{1}{2}$ cm. in length and slightly nodding at the tips. The other characters are shown in the key.

6. 5. *L. trichopoda* Franch. in Journ. de Bot., ix (1895), 464.

N.E. Yunnan. Delavay 5130. Mey in Ducloux 5115.

W. Hupeh. Chienshi. Wilson, Veitch Exp. 1297.

7. 6. *L. pseudotrichopoda* Hand.-Mzt. Sp. nov.

Syn.: *L. foenum-graecum* R. Kn. in Pflzr., IV 237, 270 p.p., non Hce.

Caulis herbaceus, tenuis, debilis, angulatus, annotinus procumbens et radicans, hornotinus aspectu monopodiali eum continuans, ascendens, superne $\pm$ sessili-glandulosus, foliis floribusque paucis cuiusque anni versus apicem subconfertis. Folia alterna, late ovata vel rhomboidea, summa inferioribus duplo vel triplo, raro quinquies longiora, maxima 2.5-5 cm. longa et 1-2.2 cm. lata, acuta, basi breviter cuneato-attenuata, margine angustissime revoluta et paulum unduiata, herbacea, viridia, reticulato-venosa, aromate foeni-graeci; petiolus

lamina duplo vel triplo brevior. Flores axillares singuli. Pedicelli tenuissimi, 14–40 mm. longi, sparse sessili-glandulosi. Calyx 2.5 mm. longus, fere ad basin in lobos triangulari-lanceolatos vel -subulatos fissus, margine parce glandulosus. Corolla flava, 12 mm. diametro, in lobos 2–3 mm. latos obtusos profunde fissa. Filamenta inferne in tubum angustum versus $\frac{1}{2}$ mm. altum connata, partibus liberis ad 1 mm. longis duis tertiis antherarum $2\frac{1}{2}$ mm. longarum poris apicalibus dehiscentium partibus basalibus sagittatis celatis. Stylus 4–5 mm. longus. Capsula 4.5 mm. diametro, molliuscule crustacea, evalvis.

Kweichou. Majo. Cavalerie 3278.

N.E. Szechuan. Bord des ravines à Han ky se dans la s.-p. de Tchenkou. 24 Mai 1899. Farges 1479.

W. Hupeh. Henry 5942, 7326. Patung. Henry 5386.

This plant is far from *L. foenum-graecum*, but very near *L. trichopoda* from which it differs very considerably in the androecium, also by being aromatic. Henry's specimens are in fruit and bud, Farges' in flower, but there is no reason to doubt that they are conspecific, although there is no actual proof of it. Of *L. trichopoda* the fruit is not known, and that also may prove somewhat different.

Series Valvatae Hand.-Mzt.

8. *L. linearifolia* Griff.

This species, only imperfectly known, seems to be very near the following, but has a stem which is lignescent and very straight upright from the ground and has leaves much narrower, although not exactly linear, but narrowed from the middle towards both ends. It has not been collected again.

9. 7. *L. lancifolia* Craib, in Kew Bull., 1918, 363.

Syn.: *L. foenum-graecum* R. Kn. in Pflzr., IV 237, 270 p.p.

Radices rigidi, fasciculati, atri. Caules fasciculati, c. 15–40 cm. alti, erecti vel ascendentes parte annotina erecta non radicante, interdum paulum et praesertim inferne ramosi, tenues, lignescentes, tenuiter costati vel saepe superne manifeste quadrangulares, superne longe aequaliter foliati et floriferi, basi ferruginei vel $\pm$ brunnei glabrescentes, superne vel apice tantum $\pm$ dense glandulis subsessilibus obsiti. Folia alterna, tertio superiore caulis vel duis tertiis aequalia vel subaequalia vel summa inferioribus duplo maiora, maxima 2.5–11 cm. longa et 0.6–4 cm. lata, inferne ad squamas decrescentia, lanceolata vel ovato-lanceolata, acuta, basi sensim angustata, margine angustissime revoluta et undulata, herbacea, aromate foeni-graeci, exsiccando facile fulvescentia, reticulato-venosa, supra glabra vel sparse, subtus $\pm$ dense vel densissime subsessili-glandulosa et hic farinosa; petiolus lamina plus triplo usque sexies brevior, utrinque eodem modo glandulosus vel praecipue supra glabrescens.

Flores singuli vel plures axillares. Pedicelli tenues, 0.5–4.8 cm. longi, aequae ac caulis sparse glandulosi. Calyx $2\frac{1}{2}$ –vix 5 mm. longus, fere totus in lobos e parte ovata minuta subulatos fissus, extus $\pm$ sparse, intus dense glandulosus. Corolla flava, 15–20 mm. diametro, fere ad basin in lobos oblongo-lanceolatos fissa. Antherae subsessiles ea plus duplo breviores, 3–4 mm. longae et ad 1 mm. latae, e basi profunde cordata sensim angustatae, apice ipso obtusae, poris apicalibus dehiscentes. Stylus ad 5 mm. longus. Capsula 3–4 mm. diametro, crustacea, tota valvis angustis dehiscens, pallide brunnea vel fere alba.

S.W. Kweichow. Hin-yi-fou (Hsing-yi), juin 1912 "fl. jaunes." (Cavalerie 7757). Houang-ts' ao-pa, 19 sept. 1921 fr. (Cavalerie 4358).

Yunnan. Mengtze, forests, 5,500 ft. "yellow fl." (Henry 9471A). S. of Red River from Manmei, 7,000 ft., "leaves when dry have a strong odour, used for scenting hair oil, hsiang-tsao, yellow fl." (Henry 9471). Hills to the east of Tengyueh, lat. 25° N., 6,500 ft. Fl. deep golden yellow. Whole plant aromatic with a strong fennel-like odour. Amongst grass and scrub in side valleys. May 1912 (Forrest 7620). Shweli-Salween divide, 25° 30' N., open stony pasture, 7–8,000 ft. Fl. yellow, all parts strongly aromatic. July 1913 (Forrest 11880), Aug. 1917 (Forrest 15863). Shweli-Salween divide, 25° 30' N., 98° 58' E. Creeping plant of 9–16 inches. Strongly aromatic. Fls. orange yellow. Shady banks in forest and scrub, 7–8,000 ft., May 1924 (Forrest 24239).

Although it can be seen at the first glance that this plant in any state is very different from *L. foenum-graecum*, it is less easy to convince oneself that the specimens cited above are conspecific and that they do not belong to *L. fragrans* Hay. described from Formosa, and it was only after a long study and comparison that I decided to keep them as a single species.

As to the first question, I have no more the slightest doubt. The differences in growth are due to different environment, viz., the Karst soil in the East producing stronger erect stems, and the wet West producing rather straggling ones. At the same time the former have them ribbed as an expression of stronger development, the latter not. The variability in length of pedicels is usual in this affinity.

The second question is more difficult to answer. There is a similar plant in Formosa and the Philippines (Warburg 9984, 10571, Price 394 bis, Merrill 6991). This perhaps cannot be distinguished in the flowering state, but by the capsule which is quite like *sikokiana*, viz., much bigger and opening more irregularly, mostly not to the base, by broad valvae. Hayata describes his species, the capsules of which are unknown to him, as a herb leafy throughout with leaves membranous, and filaments connate into a ring 1 mm. high. This description matches neither my plant nor that just mentioned nor any specimen I have seen from Taiwan. Thus I think it cannot be the same as *L. lancifolia*.

A plant collected by K. Ward under no. 1720 in Upper Burma (Naung chaung valley. On banks under trees in gullies etc. fairly damp and well shaded 6000-8000 ft., 4 July 1914. Also on wet rocks and cliffs by streams) differs from *L. trichopoda* practically only by being aromatic.

10. *L. capillipes* Hemsl. in Journ. Linn. Soc., Bot., xxvi (1889), 48.

W. Hupeh. Henry 251, 679, 1529, 4176; Wilson, Veitch Exp. 717, 2308, 4011.

Szechuan. Faber 251; Farges 1320; Bock et Rosthorn 481.

Kweichow. Martin et Bodinier 1698; Esquirol 395, 3008; Beauvais 105; Handel-Mazzetti 10507; Cavalerie 204.

E. Yunnan. Py, distr. Bonati 558.

To the description must be added that the plant has a strong fenugreek smell still perceptible in my plant after ten years and also noted by Esquirol. The plant from Lulan in Yunnan has much broader corolla lobes than the others.

11. ? *L. fragrans* Hayata, Mat. Fl. Form., in Journ. Coll. Sci. Univ. Tok., xxx (1911), 175. (*L. sikokiana* R. Kn. p.p.).

The position of this plant of which I have seen no authentic specimen is not quite clear to me. If it is the plant mentioned above under *L. lancifolia*, the description is not quite correct as to "herba - - ad totam longitudinem foliata." This comes very near *L. sikokiana*, and perhaps runs into it. The differences are the thin, lignescent, angular stem, in the lower part with reduced narrow scale-like leaves and in the upper with very acuminate ones narrower than in that species.

12. *L. sikokiana* Miq. (*L. simulans* Hmsl.)

As opposed to the plant taken, under reserve, for *L. fragrans*, this has a thick, fistular, herbaceous, cylindrical stem, with decurrent lines in exceptionally thick specimens only, and broader more obtuse leaves which show less decrease in size downwards. I agree with Knuth that *L. simulans* is identical with this, which was collected in Formosa also by Matsumura under no. 75. Specimens from Riu-kiu (Ferrié 232) and at least several of the others are also decidedly aromatic. There are very ramose specimens in the Berlin herbarium, with bracteate racemes quite like *L. Wilsoni* (Unger's collector from Liu-kiu; Matsumura 75) as well as with normal leafy and flowering branches (ex herb. Lugd.-Bat.). The corolla varies from 6 to 9 mm. long, the capsule is 6-8 mm. in diameter and not always very white (Faurie 4118), the leaves are not always glossy on the upper side, the pedicels vary from 2 to 5 cm. long, so that the only reliable character differentiating it from *L. ramosa* seems to be the anthers opening by apical pores.

13. 9. *L. Wilsoni* Hemsl. in Kew Bull., 1906, 161.

N.E. Yunnan. Longki. Delavay. Tchenfongchan. Bord des torrents, 790, in Maire.

W. Szechuan. Omi, rare. Wilson, Veitch Exp. 5061.

This species is imperfectly known, in flowering state only. The characters given in the key distinguish it from *L. ramosa* and give it a particular habit. There is no difference from certain Indian forms in the calyx lobes nor in the size of the corolla. But it is nearer, and very near, indeed, to *L. sikokiana*, which has the same mode of opening the anthers, but the blade long decurrent into a shorter petiole. Both calyx and corolla are here always smaller, and it is moreover at least partly aromatic and the leaves are inclined to dry brown. Immersed glands are, however, also seen in *L. Wilsoni*. Delavay's plant was undetermined and is not *L. ramosa* var. *grandiflora* Franch. quoted by Hemsley with reservation as a synonym.

14. 10. *L. ramosa* Wall. & Duby in DC., Prodr., viii (1844), 65. R. Kn. in Pflzr., IV 237, 271 excl. var. γ *grandiflora*.

W. Yunnan. From Tengyueh (Forrest 8018, 8615) to Chamutong (Handel-Mazzetti 9543).

The plants collected by me in mountain forests at 2900 m. alt. are only 15 cm. high with simple stems. The var. *zeylanica* Hook. f. can hardly be kept separate, I think.

15. *L. cuspidata* Blume, with var. α *glabrescens* and β *hispida* R. Kn.

It often matches in habit exactly *L. evalvis* but the capsule is hardly 4 mm. long, thinly crustaceous, and opens by valves, and the filaments are equal in length to the anthers in the longer stamens, but a little shorter in the two shorter ones. By this character it approaches the next section.

16. *L. grandifolia* Hemsl.

This has from the analysis quite the same flower-structure as all the *Apodantherae* except that last mentioned and having regard to the strong tendency towards variation in the inflorescence found in this section and the strong fenugreek smell certainly belongs here and not to *Theopyxis* whose flowers are far different.

L. peduncularis and *alternifolia* have short anthers hardly two times longer than broad, and shorter than the filaments, and differing also in habit, the latter especially, show no affinity here.

Subsect. *Oppositifoliae* Hand.-Mzt. Characteres vide in clave sub. no. 6b.

17. 11. *L. Engleri* R. Kn. in Pflzr. IV 237 (1905), 265.

S. Yunnan. Szemao. E. forests, 5,000 ft. Henry 13025.

I have seen no specimen determined by Knuth nor does he cite the

no. 13025 anywhere. The plant, which was named thus in the Edinburgh herbarium, agrees fairly well with his description, except that it is not the stamens as a whole but only the filaments which are "brevissima." The description may be completed from this specimen as follows:

Caulis arcuato-deflexus, apice radicans (?), pars summa deest) foliorum marginibus decurrentibus alis 1 mm. latis praeditus. Folia sursum valde diminuta.

It is very dissimilar externally to *L. omeiensis*, and has also quite different flowers.

18. **12. *L. plicata*** Franch. e Knuth in Pflzr., IV 237 (1905), 265.

Yunnan. Kouty près Pin-tchouan. Py in Ducloux 5283, 7638.

These plants in the Paris herbarium bear no name from Franchet's hand but only from Bonati's. They are exactly intermediate between the preceding and following species.

19. **13. *L. cordifolia*** Hand.-Mzt. Sp. nov.

Perennis radicibus multis rigidulis, fasciculatis, atropadiceis, pluricaulis. Caulis e basi erecta arcuatus, debilis, usque ad 1 m. longus, ad basin hic illic ramosus, quadrangulus et angustissime bialatus, ± pallide brunneus, superne virescens; internodia foliis ± aequilonga. Folia decussato-opposita, petiolis 4-7 mm. longis. Lamina cordata, 1-4 cm. longa et 1.2-2.6 cm. lata, mucronato-acuminata, sinu basali apertissimo, membranacea, margine subcartilagineo dense papillosa, supra intense viridis saepe paulum strigillosa, subtus paululum glaucescens; nervi 3-5 basales cum mediani ramis paucis in nervum submarginalem confluentes, in sicco utrinque prominuli; venae occultae. Flores secus totum caulem axillares solitarii, pedicellis capillaribus, superne sensim incrassatis, 2.5-4.3 cm. longis, hic illic sparsissime strigillosis, recurvulo-patentibus. Calyx 4-6.5 mm. longus, fere totus in lobos e basi ovata longe subulatos, margine et intus prope illum glandulis brevistipitatis obsitos fissus. Corolla glabra, flava, late aperta, c. 15 mm. diametro, profunde partita, lobis late ovatis obtusis 4.5-6.5 mm. longis 4.5 mm. latis, marginibus inferne invicem se tegentibus, sinubus rotundatis. Filamenta basi ad 0.75 mm. corollae adnata, parte libera ad 0.5 mm. longa, glabra; antherae obtuse conicae, c. 2 mm. longae et basi emarginata 1 mm. latae, rimis lateralibus apice ampliatis dehiscentes. Ovarium globosum, glabrum; stylus alabastro inclusus, ad fructum ad 3 mm. longus. Capsula matura crustacea, ad 4.5 mm. diametro, pallide brunnea, valvis usque ad medium dehiscens.

W. Yunnan. Shweli-Salween divide, 25° 12' N., 10,000 ft., margins of shady thickets in side valleys. Fl. pale yellow. July 1918. (Forrest 17602). 25° 45' N., 98° 40' E., on moist pasture on the margins of thickets, 10,000 ft. Fl. buttercup yellow. June 1924. (Forrest 24437.)

Sectio Lerouxia (Mér.) Endl., Gen. plant. (1839), 732. Knuth in Pflzr. IV 237, 261, sensu ampl.

Syn.: *Nemorella* Ehrh., Beitr., iv (1789), 147, nom. nudum.

Lerouxia Méral, Nouv. Fl. env. Par. (1812), 77.

Sect. *Lysimastrum* Duby in DC., Prodr., viii (1844), 63, p.p.

Characteres vide in clave sub no. 5b et 17a.

Although *Lerouxia* s. str. refers only to our subsection *Godinella*, it is impossible to employ the name at present for that, and the younger name of *Godinella* for the section superposed to it.

Subsect. Pedunculares Hand.-Mzt.

Plantae parvae, erectae, alternifoliae. Corolla parva, subrotata, epunctata. Filamenta antheris erectis, fere basifixis, brevibus, rimis lateralibus aperiundis aequilonga vel sesquilongiora, basi in annulum membranaceum brevissimum angustiusculum, a corolla liberum connata.

20. *L. peduncularis* Wall. in Hook., Fl. Brit. Ind., iii (1882), 504.

Flowers were unknown to Hooker and also to Knuth when he wrote his account in the "Pflanzenreich," but since then there have been distributed from Kew with this determination, confirmed by Knuth, a plant from Siam (Kerr 1457) and another from Singbun (Haines 532), both in flower. Both are strigillose-hairy all over in contradiction with the latter's description. The corollas are hardly more than 5 mm. across, apparently bright yellow, divided little more than half way down, with lobes broad and acutish. The stamens (see diagnosis of subsection) are somewhat shorter than the corolla, and the basal ring is glabrous.

21. ?*L. Pierrei* Petitmgn. in Bull. Ac. int. Géogr. bot., xviii (1908), 337.

Described as glabrous, but otherwise from the diagnosis, which is in very bad Latin, hardly different from the previous species.

Subsect. Godinella Lestib. f. p.p., pro sectione.

Syn.: *Lerouxia* Mér.

Ephemerum Reichb. p.p.

Plantae debiles oppositifoliae, foliis pellucido-glandulosis, cartilagineo-marginatis. Corolla rotata, epunctata. Stamina inter se libera, antheris longis fere basifixis.

I owe a copy of Lestiboudois' diagnosis and remarks to the kindness of Director Diels. The former runs "Étam. libres, alternes avec 5 appendices," and the species included are *L. nemorum* L., *ciliata* L., *thyrsiflora* L. and *Linum-stellatum* L. Everyone belongs to another section and one even to another genus in our sense. If his name be retained in any rank, it can be done only for *L. nemorum* and its allies, although the description fits for this least. All the others

belong to sections provided with older valid names. Knuth's placing of the name under *Lysimastrum* has no reason at all.

22. *L. nemorum* L.

23. *L. Cousiniana* Coss.

24. *L. serpyllifolia* Schreb., in Nov. Act. Nat. Cur., iv (1770) 144.
(*L. anagalloides* Sibth. et Sm. 1806, cfr. Grande in Bull. Ort. bot. Nap. viii, 86.)

Subsect. *Hypericoideae* R. Kn. in Pflzr., IV 237, 264 pro sect., p.p. min. Characteres vide in clave sub no. 18a.

Only three of the species placed by Knuth in his section form a natural group, and two of them are identical. *L. glandulosa* is *L. Christinae*, *L. Engleri* and *plicata* have already been treated of, *L. yunnanensis* has often alternate leaves and is conspecific with *L. albescens*.

25. 14. *L. stellarioides* Hand.-Mzt. Sp. nov.

Radix perennis, tenuis, fibris longis tenuissimis. Caulis erectus vel geniculato-erectus, vix 10 cm. altior, simplex vel inferne parce ramosus, tenuis, inferne rufescens et sicut pedicelli, calyces, petioli, foliorum bases costarumque nervorumque dorsa pilis pluriarticulatis, ad $\frac{3}{4}$ mm. longis, rufescentibus lanatus et sparse sessili-glandulosus. Folia decussata, ovata vel late ovata, acuta, basi late rotundato-truncata, 3-4 paria inter se aequaliter remota, sessilia, 9-15 mm. longa et 5-11 mm. lata, inferiora subrosulata saepe minora et e basi rotundata abrupte in petiolum 2-3 mm. longum contracta, margine subcartilagineo paulum revoluta, $\pm$ glaucescentia. Pedicelli foliis superioribus axillares singuli, 9-16 mm. longi, filiformes. Calyx 4-5.5 mm. longus, fere ad basin in lobos subulato-lanceolatos, longe acuminatos, ad $\frac{1}{2}$ mm. latos, margine subcartilagineo dense papillosos fissus. Corolla lutea, rotata, 11-13 mm. diametro, glabra, epunctata, in lobos ovato-lanceolatos profunde fissa. Filamenta filiformia, basi in annulum brevem et latum connata, partibus liberis ad 2 mm. longis; antherae longe lineares, 2 $\frac{1}{2}$ mm. longae, supra basin affixae, rimis lateralibus dehiscentes. Ovarium glabrum; stylus 4-5 mm. longus. (Capsula ignota.)

W. Szechuan. Nr. Maochou, 4,000 ft., 21 May 1908. Wilson, Arn. Arb. Exp. 3802 in herb. Kew.

26. 15. *L. hypericoides* Hemsl. in Journ. Linn. Soc., Bot., xxix (1893), 314.

W. Hupeh. Henry 5842.

The dwarfer habit of the single type sheet collected at the commencement of flowering whence the suprabasal leaves may be not yet lost,

in the absence of more important distinctive characters suggests the possibility of it being only a more xerophytic form of the following species.

27. **16. *L. omeiensis*** Hemsl., l.c. (1893), 314.

Syn. : *L. nemorum* var. *moupinensis* Franch., Plt. David., ii, in Nouv. Arch. Mus. Par., x (1888), 58.

L. moupinensis R. Kn. in Pflzr., IV 237 (1905), 266.

L. Limprichtii Pax et Hffm. in Fedde Rep., xvii (1921), 195.

W. Szechuan. David; Faber 224; Wilson, Veitch Exp. 4013, 5059; Limpricht 1560.

This species shows a considerable variability in breadth and base of the leaves, in length of pedicels which are sometimes considerably longer than the leafy bracts, the latter often being alternate, in the corolla glandular punctate or not (both represented in Wilson's no. 4013), and varying in size from 12 to 25 mm. diameter. Notwithstanding, both the congruence in habit and the uninterrupted fluctuation of the characters within the limits indicated, observed in relatively large material, prove that there is but one species involved. In writing "*tota crispule pubescens*" Knuth says too much about the indument which is very scarce.

Subsect. Ophelioideae Hand.-Mzt. Characteres vide in clave sub no. 18b.

28. **17. *L. ophelioides*** Hemsl. in Journ. Linn. Soc., Bot., xxvi (1889), 54.

Szechuan. Faber 334; Wilson, Veitch Exp. 4012.

Kiangsu. Styan.

29. **18. *L. longipes*** Hemsl. in Journ. Linn. Soc., Bot., xxix (1893), 316.

Chekiang. Faber 99, 1638.

This species is of peculiar interest as forming a link with the following section which is limited to America. It was badly misplaced by Knuth in his *Ephemerum* section. The corolla much recalls that of the former species, but its glands become more granular and approach the *Seleucia* section as also do the corolla lobes, which are apparently separated in the bud. The corolla is clearly yellow in the flowering Ningpo specimen. It was only the fruiting one which misled the collector to take it for a *Stellaria*. In the vegetative parts it is far enough from the preceding species but no other is nearer.

Seccio Seleucia Bigel.*

Although I could not pursue my study far enough to form an opinion

* *Steironema*, used here for a subsection, would be the absolutely oldest name, but *Seleucia* is the oldest in sectional rank.

on the value and grouping of the species described, I have no doubt that these enumerated below are allied together and form two natural subsections, and that the section does not merit generic rank. *L. stricta* was far removed by Knuth on account of its racemose inflorescence. It has, however, exactly the same flowers as *quadrifolia*, and in several specimens (Ohio, Nuttall, as *L. revoluta*) the lowest are in the axils of normal leaves, those of the upper flowers, however, gradually decrease in size but the uppermost are still much longer than half the pedicels; moreover there are not rarely approaches to whorls in the racemes whence the species not a little resembles *L. fukienensis* in habit (not in floral structure). Thus it must remain where Duby placed it. Whorled leaves and flowers also are not rare in *L. quadriflora*, *lanceolata* and *tonsa*, and the last comes very near *quadrifolia* in habit and *lanceolata* in the flowers.

Subsect. *Steironema* (Raf. pro gen., Klatt pro sect.) Hand.-Mzt.
(Sect. *Lysimandra* Endl.)

30. *L. membranacea* (Greene sub *Steironema*) Hand.-Mzt. Comb. nov.
31. *L. Greeneana* Hand.-Mzt. Nom. nov. (*Steironema pumilum* Greene, non *Lys. pumila* Franch.)
32. *L. quadriflora*† Sims, Bot. Mag. xviii (1803) 660. (*L. longifolia* Pursh 1814).
33. *L. lanceolata* Walt.
var. *hybrida* (Michx.) A. Gray.
var. *angustifolia* (Lam.) R. Kn.
34. *L. radicans* Hook.
35. *L. tonsa* (Bickn.) Wood.
var. *simplex* (Kearn.) R. Kn.
36. *L. validula* (Greene sub *Steironema*) Hand.-Mzt. Comb. nov.
37. *L. ciliata* L.
38. *L. longipedicellata* (Lun. sub *Steironema*) Hand.-Mzt. Comb. nov.
39. *L. Lunellii* (Greene sub *Steironema*) Hand.-Mzt. Comb. nov.
40. *L. verticillata* (Greene sub *Steironema*) Hand.-Mzt. Comb. nov.
41. *L. graminea* (Greene sub *Steironema*) Hand.-Mzt. Comb. nov.
Said to be very different from the others.

† Erroneously cited by Knuth and others as *quadrifolia*.

Subsect. Verticillatae (R. Kn. pro sectione, sensu mutato) Hand.-Mzt.

(*Sect. Lysimastrum* Endl. p.p.).

42. *L. terrestris* (L.) Britt., St., Pogg. (*stricta* Ait.)
var. *angustifolia* Chapm.
43. *L. quadrifolia* L.
44. *L. producta* (A. Gr.) Fern. in *Rhodora* i (1899) 134. (*L. stricta*
var. *producta* A. Gr. *L. foliosa* Small (1903). ? *L. quadrifolia* × *terrestris*).
45. *L. asperulifolia* Poir.

Sectio Theopyxis (Gris.) Pax ; R. Kn. p.p.

46. *L. chilensis* (Griseb.) R. Kn.
47. *L. mexicana* R. Kn.
Not seen by me.

Sectio Lysimastrum Endl., Gen. pl., 732 (1839) p.p. min. ; R. Kn.
excl. syn. *Godinella*.

48. *L. salicifolia* F. Muell.
49. *L. Fraseri* Duby.
50. **19. *L. vulgaris*** L., Sp. pl. (1753), 146.
Syn. : *L. Fauriei* Lévl. in sched. For others from non-Chinese literature see Knuth in Pflzr., IV 237, 304.
In China together with var. *stenophylla* Boiss., Fl. or., iv (1879), 8. (*L. davurica* Ledeb., *L. vulgaris* var. *davurica* R. Kn.) which differs only very obscurely.
Szechuan. Legendre 1470.
Yunnan. Forrest 12831, 16498, 22071, 22387 ; Maire 1212/1913 ; Handel-Mazzetti 7157 ; Schoch 221 ; Ducloux distr. Bonati 141.
Chekiang. Faber 1626.
Shantung. Fauvel.
f. umbrosa P. Kn.
f. intermedia P. Kn.
f. aprica P. Kn. (*L. mixta* Mer., Fl. Galic., ii, 31, e descr.)
f. fissa Boas, e Vollmann, Fl. Baiern, 588.

Sectio Nummularia (Gilib.) Klatt, R. Kn., ampl.

Syn. : *Lys.*, sect. *Cilicina* Klatt p.p. mai.

Characteres vide in clave sub nr. 5b, 17b, 22b.

Subsect. Phyllocephalae Hand.-Mzt.

Syn.: Sect. *Cephalanthae* R. Kn. in Pflzr., IV 237 (1905), 279, p.p. maiore (excl. *L. cephalantha* aliisque).

Flores inter folia summa opposita vel plerumque verticillato-congesta et stellatim patentia subcapitati vel umbellati, raro remotioribus verticillatis aut perpaucis additis, pedicellis horum calycibus vix plus sesquolongioribus. Plantae erectae vel ascendentes, punctis coloratis glandulosis carentes, in speciebus subglabris praeter foliorum verticillum terminalem raro altero praeditis saepe striis tenuibus in corolla tantum extraneis instructae, petiolis tenuibus vel nullis.

51. **20. *L. tengyuehensis*** Hand.-Mzt. Sp. nov.

Caulis longe prostratus et radicans, ramosus, ramis ascendentibus, validis, 1.5 mm. crassis, 6–23 cm. longis, teretiusculis, fulvescentibus, pilis articulatis, patentibus, c. 1 mm. longis, pallidis breviter villosis. Internodia foliis subaequilonga usque subduplo longiora. Folia decussata, hic illic terna verticillata vel superiora alterna, summa congesta et interdum distincte maiora, petiolis 2–7 mm. longis, impunctata, iisdem pilis ac caulis densissime et subtus densius quam supra obsita. Lamina ovata, 11–36 mm. longa et 7–22 mm. lata, acuta, in petiolum subito angustata, crasse herbacea, supra obscure viridis, subtus pallidior, paulum glaucescens. Costa nervique utrinsecus 2–3 valde obliqui subtus paululum prominuli in foliis superioribus intense kermesini. Flores in axillis foliorum congestorum solitarii ideoque 4 apice caulis subcapitati vel paulum remoti, pedicellis validis, 3–8 mm. longis, aequae ac caules pilosis. Calyx 7–10 mm. longus, lobis subliberis lineari-lanceolatis, 1½–2 mm. latis, extus pilis iisdem densissime et glandulis ecoloribus, margine sessilibus, faciebus utrinque subsessilibus sparse obsitis. Corolla 13–15 mm. longa, profunde partita, pallide aurantiaca vel lutea fauce kermesina (e collectore) intus dense subsessili-glandulosa, lobis late lanceolatis, acutis, 10–11 mm. longis, 5–6 mm. latis, dimidio superiore dense ecolori glanduloso-gibbosis, sinibus acutis. Filamenta 5 mm. longa, in tubum extus glanduloso-furfuraceum c. 2 mm. longum connata et ima basi corollae tubo adnata, parte libera subulato-angustata; antherae cordato-oblongae, 2 mm. longae, e basi emarginata 1 mm. latae, rima laterali dehiscentes, ventre clavato-glandulosae. Ovarium globosum, densissime articulato-pilosum; stylus ad 8 mm. longus, parvipilosus. (Capsula ignota).

Syn.: *L. congestiflora* Hemsl. in Journ. Linn. Soc. Bot. xxvi (1889), 50, p.p. minore. Knuth in Pflzr., IV 237, 283 item.

L. cephalantha Kn., l.c., 284, p.p. min.

Yunnan. (Anderson). Momyen 1868 (Anderson). Hills W. of Tengyueh, Lat. 25° N., 6,000 ft. Fl. bright orange-yellow; base and veining of the upper foliage deep crimson. Moist pasture, May 1912

(Forrest 7566). Shweli-Salween divide, Lat. $25^{\circ} 48' N.$, Long. $98^{\circ} 48' E.$, 7-8,000 ft. Fl. bright orange-yellow. Damp shady grassy banks and pasture on the margins of cane brakes. July 1924. (Forrest 24709). N'Maikha-Salween divide, Lat. $26^{\circ} 10' N.$, 8,000 ft. Fl. bright yellow. Moist sandy pasture by streams. May 1919. (Forrest 17978).

This species is very near both the following, but the simple branches equally leafy throughout, with shorter internodes, smaller, more acute leaves and a laxer inflorescence with bigger flowers give it a different habit which approaches *L. debilis* and *deltoides*. Both these, however, have glandular punctate corolla and leaves, also the former longer petioles, the latter longer pedicels and much smaller flowers.

52. 21. *L. phyllocephala* Hand.-Mzt. Sp. nov.

Caulis e basi saepe longe prostratus et radicans erectus, 9-53 cm. longus, simplex vel ramosissimus, crassiusculus internodiis $1\frac{1}{2}$ -14 cm. longis, brunneus, inferne teres glabrescens, superne costatus pilis pluriarticulatis 1-1 $\frac{1}{2}$ mm. longis densissime et glandulis subsessilibus sparsius obsitus, ut rami foliorum paribus summis et floribus dense confertis terminatus. Folia subaequilonga vel summa inferioribus tertia parte usque duplo longiora, latius angustiusve elliptica vel ovato-elliptica, 1.5-8 cm. longa et 0.8-3 cm. lata, acuta, in petiolum lamina 2-12-plo breviora dense pilosum saltem inferiora late cuneato-contracta vel rotundata, superiora interdum sensim angustata, herbacea, utrinque dense vel sparsius et brevius quam caulibus hirsutostrigosa, supra intense viridia subtus pallida; costa crassiuscula subtus distincte et nervi pauci tenues vix prominuli. Pedicelli 1-7 mm. longi, indumento caulibus. Calyx 6-9 mm. longus, fere ad basin in lobos lanceolatos, subulato-angustatos, glandulis immersis pellucidis dense obsitos fissus, extus ut pedicelli indutus, intus brevistipitato-glandulosus. Corolla lutea, 12-20 mm. diametro, ad $\frac{1}{2}$ vel fere ad basin in lobos obovatos vel oblongos, latitudine sua duplo vel triplo longiores, apice acutos vel rotundatos vel erosulos fissas, glandulis immersis ecoloribus densissime vel $\pm$ sparse obsita, intus interdum basi sparsissime furfuraceo-glandulosa, extus glabra vel perparce glanduloso-pilosula. Filamenta inaequalia usque ad $\frac{2}{3}$ - $\frac{3}{4}$ in tubum a corolla liberum, extus densissime furfuraceo-glandulosum connata, partibus liberis glabra, corolla tertia vel quarta parte breviora; antherae ovato-lanceolatae, ad 2 mm. longae, basi cordatae, fere mediofixae, pilis pluriarticulatis obsitae. Ovarium superne prorsus hirsutum; stylus ad 8 mm. longus, glaber vel parce et longe hirsutus. Capsula 4-5 mm. diametro, brunnea, valvis dehiscens.

Syn.: *L. Henryi* R. Kn. in Pflzr., IV 237 (1905), 282, p.p.

L. cephalantha R. Kn., l.c., 284 p.p.

L. rubiginosa R. Kn., l.c., p.p. min.

N. Kwangtung. Canton Chr. Coll. 12091.

Szechuan. Chungking-Omei 1887 (Faber). Mt. Omi, May 1904 (Wilson, Veitch Exp. 5056 p.p.). Nan ch'uan (Bock et Rosthorn 753).

Kweichou. Esquirol 6163. Long-ly, bords des grottes humides, 13 juin 1902; and Kaitcheou, juin 1908, leg. Martin? (both under Cavalerie 3222 in herb. Lévl.). Gan chouen (Nganshun) (Cavalerie 3803). Environs de Houang ko chou. Bords des ruisseaux, 23 juin 1898 (Seguin in Bodinier 2431). Houang-t'sao-pa 1918 (Cavalerie 4472). Yunnan border on the main road from Kweiyang to Yunnanfu (Nordstroem).

Yunnan. Tchenfongchan (Delavay 5066 p.p.). Yunnanfu (Ducloux 681, 2869, 6164). Lan yi tsun (Py in D. 2693). Rives des torrents, vallées derrière Tong-tchouan, 2550 m. (Maire 25/1913). Rives des canaux, plaine de T., 2500 m., sept. 1910 (Maire 9). Vallées humides (Maire, ed. Bonati 654). Yunnansen (Maire 2368, 2677). Y., vallons humides, juin (Maire 1197). Vallées humides des montagnes, juin (Maire 1855). Mengtze (Hancock 205), ravines 5800 ft. (Henry 9428).

Kwangsi. Bourne.

The species described here differs but very slightly indeed from the following but inhabits a different country, and there are no transitions.

53. **22. *L. pseudo-Henryi*** Pamp. in N. Giorn. Bot. Ital., xvii (1910), 686.

Syn: *L. Henryi* Hemsl. in Journ. Linn. Soc. xxvi (1889) 52 p.p. min. *L. congestiflora* R. Kn. in Pflzr., IV 237, 283 p.p.

L. cephalantha R. Kn., l.c. 284 p.p. Pavolini in N.G.B. It., xv (1908), 427.

L. argentata Bailey in Gentes Herb., i (1920), 40, fig. 12.

Hupei. Henry 482, 1983; Wilson 806, 1939, 4020a; Silvestri 1751. Honan. Bailey; Tormquist (5) 106 L.

This species, the type of which I got on loan from the Florence herbarium, is not too near *L. Henryi*, but very near indeed to the preceding. I owe a leaf of the type of *L. argentata* to the kindness of its author, and it, as well as Tormquist's complete specimen from the same locality, shows its identity with *L. pseudo-Henryi* which species may have been unknown to Prof. Bailey.

54. **23. *L. fistulosa*** Hand.-Mzt. Sp. nova.

Caulis erectus vel geniculato-erectus, raro simplex, saepius ramosus ramis brevibus longisve, 13-45 cm. longus, internodiis 4-10 cm. longis, summis saepe brevissimis, fistulosus, basi usque ad 8 mm. crassus, costatus, rufescens, pilis pluriarticulatis ad 1-1½ mm. longis rufescentibus praesertim superne interdum densissime obsitus. Folia lanceolata, summa inferioribus usque ad triplo maiora, 6-8 cm. longa, 1-3 cm. lata, utrinque sensim angustata, acutissima, crassiuscula, subtus sparse pilosa, supra saepe glabrescentia; nervi utrinsecus 3-5 valde obliqui subtus cum costa latiuscula paulum prominui, in

nervum submarginalem confluentes; petiolus foliorum summorum brevissimus, infimorum saepe laminam aequans, anguste herbaceo-marginatus, basi semiamplexicaulis, subtus dense aequae ac caulis pilosus. Flores permulti apice caulis ramorumque umbellato-subcapitati. Pedicelli brevissimi—8 mm. longi, iisdem pilis ac caulis $\pm$ sparse obsiti. Calyx ad 1.5 mm. gamosepalus, lobis lanceolatis 8–13 mm. longis, 1.5–2 mm. latis, sursum subulatis, pilosus. Corolla lutea, versus 20 mm. diametro, ad 3–4.5 mm. gamopetala, lobis obovatis 4–8 mm. latis, rotundatis, saepe apiculatis, glabris. Filamenta in tubum 3–4.5 mm. altum, supra densissime glandulosum connata, partibus liberis glabris 2–4 mm. longis, binis brevioribus*; antherae ovato-lanceolatae, 2 mm. longae, basi cordato-emarginata 1 mm. latae, fere mediofixae, marginibus clavato-glanduloso-pilosa. Ovarium globosum, densissime prorsus articulatopilosum; stylus 7 mm. longus, crassus, glaber. (Capsula ignota).

Syn.: *L. Henryi* R. Kn., l.c., 282 p.p.

Hupei. (Henry 1374 p.p., 3579, 4550). Changyang (Henry 6229 p.p.). Nanto (in herb. Vienna), Kui (in herb. Kew) (Wilson, Veitch Exp. 847).

Szechuan. Mt. Omi. (Wilson, Veitch Exp. 5056 p.p.). Chengkou (Farges in hb. Drake).

55. 24. *L. Henryi* Hemsl. in Journ. Linn. Soc. Bot., xxvi (1889), 52. Knuth in Pflzr., IV 237 (1905), 282, p.p. min., and excluding the plate of Hook. Ic. cited, which is *Androsace Henryi*.

Syn.: *L. congestiflora* R. Kn., l.c., 283 p.p. min.

L. Klattiana var. *pseudo-Klattiana* Bonati in Bull. Soc. bot. Gen., 2. sér. v (1913), 306.

W. Hupei. Henry 250 p.p., 670, 758, 1624; Wilson, Veitch Exp. 504 (not 503 as Knuth cites).

Szechuan: Ab. Chungking 10 June (Faber). Chungking-Omei (Faber). Wilson, Veitch Exp. 4021.

N.E. Yunnan. Delavay.

Although this species is easily recognized from its allies by the differences pointed out in the key, it was mixed up by Knuth with several others. It must have been on account of such wrong determinations that Bonati took the true plant for a new form (*L. Klattiana* var. *pseudo-Klattiana*) and the then undescribed *L. phyllocephala* for *Franchetii* and the latter again for a new species (*L. Petitmenginii*). The drawing of *Klattiana* var. *pseudo-Klattiana* is quite wrong for the original photograph from which it was made shows no sessile leaves, nor is there, in any of the three specimens of *L. Henryi* shown in it, a flower in the axil of the leaf-pair second from the terminal whorl, to which also the uppermost leaf-pair is much

* In one of the 6 flowers opened the edge of the filament tube is formed of very broad sinuses with a small tooth (as in *Seleucia*) in the middle of each, in all the others the sinuses are narrower and without teeth.

nearer, thus representing a very different habit. "Yunnan" the habitat given is no doubt also incorrect. In addition to the three specimens of *L. Henryi* just mentioned there are shown in the photograph, which represents the whole sheet, two other specimens which are not *L. Franchetii* but are either *L. pseudo-Henryi* or *phyllocephala*, the differentiating characters of which cannot be perceived in the photograph. *L. Henryi* is not nearly allied to the striolate *L. Klattiana* at all, but only to the three foregoing species, and amongst Delavay's No. 5066 from Chengfongshan are doubtless transitions towards *L. phyllocephala*.

56. 25. *L. paridiformis* Franch., in Bull. Soc. Linn. Par., i (1884), 433 p.p. (var. *elliptica* only). Forbes et Hemsley in Journ. Linn. Soc. Bot. xxvi (1889), 55 excl. pl. Fordiana. R. Kn. in Pflzr. IV 237 (1905), 280.

Syn.: *L. Bodinieri* Petitmgn. in Mde. des Plts., 2. sér., ix (1907), 30, in Bull. Ac. int. Géogr. bot, xvii (1907), 223.

W. Hupeh. Henry 3500 A, 6228 A, B; Wilson, Veitch Exp. 632, 870.

S.W. Hunan. Noted by me between Tsingchou and Moshih.

Kweichou. Perny; Bodinier; Cavalerie 2210, 2943, 3063, 3500, 3500A, 4202, 6228B; Handel-Mazzetti 10787.

Szechuan. Faber 107; Farges 1066.

N.E. Yunnan. Delavay 4913, 5142 p.p., 6821; Maire 8 p.p.; Ducloux.

There are specimens with 6 leaves, also clearly belonging to this and not to the following species. It needs further observation whether the differences given in the key are of importance or not. *L. trientaloides* is so variable that the distance between the extreme forms of it is much greater than between that form most approaching *paridiformis* and *L. paridiformis* itself. Thus it is not impossible that sooner or later Franchet's conception of both as varieties of one species will prove to have been the best. Sometimes *L. paridiformis* also continues to grow during the winter as will be described of the following species. The characters by which *L. Bodinieri* is stated to differ are quite inconstant, as thick but not prominent glands on the upper surface of the leaves are also found, for instance in Henry's no. 6228B and are not regularly distributed in Bodinier's plant at all. The latter is more remarkable for the brown cylindric glandular hairs on the upper surface around the basal part of the midrib, which are not mentioned by the author, but traces of which can also be found in the plant collected by me.

57. 26. *L. trientaloides* Hemsl. in Hooker, Ic. pl., xxviii (1901), t. 2707. Knuth in Pflzr., IV 237 (1905), 281.

Syn.: *L. paridiformis* var. *stenophylla* Franch. in Bull. Soc. Linn. Par., i (1884), 433.

S.W. Hunan. Handel-Mazzetti 12088.

Kweichou. Perny; Esquirol 393; Bodinier 1627; Beauvais 71; Cavalerie 302; Handel-Mazzetti 10514.

N.E. Yunnan. Maire 7, 8 p.p.; Delavay 5142 p.p., 5187; Ducloux 4579.

Szechuan. Faber; Scallan; Wilson, Veitch Exp. 4010, 5053; Limpricht 1493; H. Smith 2351.

The species is highly variable as stated under the last, the leaves being linear and 18 in a whorl to broadly lanceolate and but 5. Sometimes flowers are produced also in the axils of the one to two uppermost whorls of scale leaves on the stem. Glandular stripes or dots are always present in the leaves, but rarely in the corollas being both present and wanting in specimens of one and the same collection (my no. 12088). The calyx lobes are often broadly ovate, almost cordate dilatate at the base, with tips very variable, always more or less with glandular stripes, and beset with glands at the edges besides some cilia often present near the base. In my specimens from Kweichou the stem of the last year was fallen and had rooted at one of the nodes beset with scale leaves and produced three complete new specimens from the centre of the inflorescence the leafy bracts of which were still alive when the new shoots flowered.

Both *L. trientaloides* and *paridiformis* are not very near to the others of this subsection, but they cannot be placed better, for both *L. Alfredi* and *Fordiana*, although similar in habit, have very different types of glands and are certainly related elsewhere.

A transition or even an approach to the genus *Trientalis* cannot, I believe, be seriously considered.

Subsect. Eumnumulariae Hand.-Mzt.

Syn.: Sect. *Nummularia* R. Kn., *Pteranthae* R. Kn., *Lerouxia* R. Kn. p.p., *Hypericoideae* R. Kn. p.p. min. (quoad *L. glandulosam*), *Cephalanthae* R. Kn. p.p. min.

Plantae repentes usque erectae, foliis oppositis vel apicalibus subverticillatis, raro alternis, petiolis tenuibus vel nullis, raro eglandulosae, plerumque glanduloso-punctatae vel crasse striolatae, floribus axillaribus vel subcapitatis.

Series Deltoideae Hand.-Mzt.

58. 27. *L. deltoidea* Wight, Illustr. Ind. Bot., ii (1850), 137, t. 144. Knuth in Pflzr., IV 237 (1905), 263, var. *typica* Kn., p.p. (excl. pl. sinensibus), *cordifolia* Hook. f. (= *L. umbrosa* Gardn., excl. syn. *L. ferruginea*) p.p., *Metziana* (Hohen.) R. Kn.

Wight's illustration and description exactly match Hohenacker's type specimens of his *L. Metziana* (no. 1443), and he gives the same

habitat (Neilgherries) as well as Pulney and Ceylon. Thus Knuth was not justified in making a variety *Metziana*. Var. *cordifolia* is, I believe, but an ecologic shade form of it connected with the type in Ceylon by specimens collected (or communicated?) by Hooker in 1837. *L. ferruginea* is not mentioned by Wight nor is its locality (N.W. Himalaya) given which is omitted also by Knuth. Thus the former does not consider it allied, as indeed it really is not (see below). The specimens distributed under Wight's no. 1787 as *L. ferruginea* show a high amount of variation also, e.g., in the upper leaves being either opposite or in threes or alternate, and are partly quite identical with the Khasia plant with cuneate leaf base. All these have the leaves densely provided with small immersed transparent glands but have no coloured dots which however occur in the corolla, where they are often brick red, and always in the calyx. Hohenacker's name is published validly in the printed label with a differential diagnosis but is later than Wight's. In its section this species recalls most *Lerouxia* by the very open corolla and the relatively short filament tube.

The type is confined to India from Khasia to Ceylon; in China are the following varieties:

var. *cinerascens* Franch. in Journ. de Bot., ix (1895), 461. Knuth in Pflzr. IV 237, 263 p.p.

Caules basi tenuiores et debiles, dein erecti crassiores. Folia late elliptica usque suborbicularia, rotundata, raro subacuta, opposita vel interdum omnia alterna, glandulis immersis globosis coloribus transparentibus parvis. Planta dense longiusque ochrascenti-pilosa. Corolla glandulis coloribus pellucidis tantum praedita.

Syn.: *L. Leveillei* Petitmgn. in Bull. Ac. int. Géogr. bot., xvii (1907), 222, cfr. l.c., xviii (1908), 334.

Kweichou. Bodinier.

Yunnan. Delavay 119, 2370; Henry 10970; Forrest 6004; Ducloux 620, 3597; Py in D. 3856; Ngueu in D. 5857; Maire, distr. Bonati 656 p.p.; Schneider 2036; Handel-Mazzetti 3222; Ten 116; Gregory.

W. Szechuan. Wilson, Veitch Exp. 4009; Handel-Mazzetti 3040.

Burma. Maymyo plateau, 3,500 ft. (Lace 61, 5870). Hpimaw Pass (Ward 1876). Shan States, Kengtung (M'Gregor 686).

The indument is hardly different from that of certain specimens belonging to the type (Herb. Wight 1787). Specimens with all the leaves alternate are present in Forrest's no. 6004 together with others with opposite leaves. Very small specimens of this variety are not rare, with the shortest pedicels 6 mm. long only, but the proportions are always the same.

var. *brunelloides* (Pax et Hffm.) Hand.-Mzt. Comb. nov.

Caules saepe plures et interdum ramosi, a basi aequales, rigiduli, inferne hibernantes. Folia ovato-vel oblongo-lanceolata. Indumentum breve, reflexo-velutinum, in planta juniore pilis rufulis longioribus immixtis.

Syn.: *L. deltoidea* var. *cinerascens* R. Kn. in Bot. Jahrb., Beibl. 82 (1905), 85; in Pflzr., IV 237 (1905), 263 p.p. et excl. descriptione.
L. brunelloidea Pax et Hoffm. in Fedde Rep. xvii (1921), 194.
 W. Szechuan. Arid regions. Scallan in hb. Biondi 6127; Wilson, Veitch Exp. 4022; Limpricht 1389.

Under this variety may be included the most xerophytic, narrow leaved forms, the most extreme of which yet surpass the specimens described by Pax and Hoffman, who were quite mistaken as to their affinity, for which fault the blame can be ascribed to Knuth for creating so unnatural a section as are the *Hypericoideae* and giving so contradictory descriptions under one and the same name at the two places cited above. The variety perhaps inhabits a region of its own, the locality of Wilson's no. 4009 (see under the former) not being known, but should it be kept as a species the same must be done with var. *cinerascens* which differs too little from and runs too gradually into the type.

? var. *glabra* Bontl. in Bull. Soc. Bot. Fr., lvi (1909), 466.

Yunnan. Py in Ducloux 121 ex autore.

Said to have toothed leaves up to 4 cm. long, quite glabrous. Not seen by me. It is past all belief that it belongs here.

59. 28. *L. Franchetii* R. Kn. in Pflzr., IV 237 (1905), 283.

Syn.: *L. Hemsleyi* Franch. in Journ. de Bot., ix (1895), 461, non *L. Hemsleyana* Maxim.

L. bracteata Forr. in Not. Roy. Bot. Gard. Edin., iv (1908), 235.

L. longisepala Forr., l.c., 237 (1908).

? *L. Petitmenginii* Bonati in Bull. Soc. bot. Gen., 2 sér., v (1913), 303.

L. ovalifolia Pax et Hoffm. in Fedde Rep., xvii (1921), 195.

Yunnan. Delavay 79, 2369; Forrest 426, 571, 16630, 21179; Maire 2368, distr. Bonati 662; Ducloux 3858, 7423; Ten in D. 5657; Handel-Mazzetti 3328, 4888; Schoch 301.

W. Szechuan. Omi. Wilson, Veitch Exp. 5057.

As the synonymy shows, Knuth's placing this species with the *Cephalanthae* caused much blundering. The species is very near *L. deltoidea*, from which the smallest specimens differ only in the characters given in the key. It is of the same inconstancy in the glands, which are colourless and transparent only or a few of them coloured reddish or even blackish. Rarely a specimen is ramose from the upper as well as the lower leaf axils and then the branches carry the same inflorescences as the main stem. Wilson's specimen is more glabrous and has thinner leaves, from the damper growing place no doubt. Forrest's *L. bracteata* is founded on a very luxuriant specimen in early flowering state with almost abnormally broad bracts and *longisepala* on a feeble but fully developed one, and there can be, I believe, no doubt that they are conspecific. The photograph of *L. Petitmenginii* so exactly matches *L. Franchetii* that a re-examination of the corollas,

which are said to be striolate, seems highly needed, in as much as the author does not mention this as a differential character when comparing his species with *L. japonica*, *omeiensis* and *moupinensis*, the corollas of which have no stripes. His indication "Stamina brevis" is neither Latin nor sufficient for judging anything.

60. 29. *L. remota* Petitmgn. in Mde. de Plt., 2 sér., ix (Jul. 1907), 30 ;
in Bull. Acad. Géogr. Bot., xvii (Oct. 1907), 222.

Syn.: *L. japonica* Hemsley in Journ. Linn. Soc. Bot., xxvi (1889), 53 p.p.

L. deltoidea var. *a typica* Knuth in Pflzr., IV 237 (1905), 263 p.p.

L. cephalantha R. Kn., l.c., 284 p.p.

Kiangsu. d'Argy. Shanghai. Carles 385. Oliver.

Chekiang. Faber. "China" Fortune 52. Ching in Wulsin, 1568.

Chusan Archipel. Schindler 291.

The plant, by the upright habit and congested flowers, distinctly differs from *deltoidea typica* to which it is next and nearer than to its Chinese varieties. The figure of Klatt in Abh. Naturw. Ver. Hambg., iv, t. 19 (as *L. japonica*) exactly fits *L. remota* although in the letterpress he mentions no specimen which can belong to this. A complete description will be of use.

Caulis erectus vel geniculato-erectus, 10-38 cm. longus, interdum basi saepeque superne brevissime ramosus, herbaceus, teres, pilis articulatis pallide brunnescentibus brevibus deflexis dense et glandulis sessilibus laxius obsitus, internodiis inferioribus saepe 1 cm. tantum, superioribus usque ad 8 cm. longis. Folia decussata, apice partim alterna magis conferta a medio caule subaequalia inferioribus duplo vel triplo maiora, late ovata vel deltoidea, 1.5-3.2 cm. longa et 0.7-1.7 cm. lata, acuta vel obtusa, inferiora saepe obovata rotundata, in petiolum lamina duplo usque quintuplo breviora cuneato-attenuata et decurrentia, herbacea, supra viridia subtus $\pm$ glaucescentia, utrinque aequae ac caulis sed laxius et supra brevius pilosa. Flores foliis subconfertis axillares singuli. Pedicelli 8-17 mm. longi, sub fructu deflexi, densissime pilosi et sparse sessili-glandulosi. Calyx 6-7.5 mm. longus, ad basin in lobos subulato-lanceolatos fissus, extus et margine pilosus, intus glanduloso-verruculosus. Corolla flava, 9-13 mm. diametro, late aperta, ad 1.5 mm. gamopetala, lobis obovatis apice rotundatis erosulis, marginibus invicem se tegentibus, glandulis immersis saepe rufis punctata. Stamina in anulum latum, ad 1 mm. altum connata, sinibus rotundatis saepe convexis; antherae filamentorum partes liberas aequantes, ovato-oblongae, vix 2 mm. longae, apice rotundatae, supra basin paulum emarginatam affixae. Ovarium pilis articulatis prorsus directis obsitum. Stylus ad 3 mm. longus, basi patentipilosus. Capsula crustacea, brunnea, 4 mm. diametro, valvis dehiscens.

61. 30. *L. Esquirolii* Bont. in Bull. Soc. bot. Gen., 2. sér., v (1913), 302.

Syn.: *L. Henryi* Knuth in Pflzr., IV 237, 282 p.p.

L. sutchuenensis Bonati in Bull. Soc. bot. Gen., 2. sér., v (1913), 302.

W. Hupeh. Fang, Jul. 1901. Wilson, Veitch Exp. 2222. Changyang. Wet places. Fl. yellow. Jul. 1901. Wilson, Veitch Exp. 2222.

E. Szechuan; N. Wushan, 6,000–8,000 ft., fr. Henry 7154. Tchenkou. Farges, 468, 901.

Kweichou. Tchang tien—Panpo. Esquirol 6064.

The specimens united here agree fairly well together in these characters which are independent of the different states of their development and can be placed with no other species. The single type specimen of *L. sutchuenensis* was obviously stunted and had developed only the lowermost longstalked flowers. The calyx is by no means gland-stripped but only nerved. A new description of the species is unavoidable.

Caules et stolonibus tenuibus, radicanibus geniculato-erecti, herbacei, simplices vel parce ramosi, 6–18 cm. alti, costulati, sparse sessili-glandulosi et pilis 1.5–2 mm. longis pluriarticulatis villosi. Folia pauca apice caulibus subverticillata, interdum paribus 1–4 iis similibus additis, ovata 2–7 cm. longa et 1.3–4 cm. lata, obtusa vel obtusissima, in petiolum anguste alatum lamina triplo breviorum usque eius $\frac{2}{3}$ aequantem vel in infimis ei subaequalem villosum breviter cuneato-decurrentia, membranacea, glandulis punctiformibus et pellucidis minutis et impellucidis maioribus crebris praedita, utrinque aequae ac caulibus sed sparsius et brevius pilosa, inferiora valde remota 1–2-paria diminuta. Flores numerosi, foliis terminalibus et bracteis diminutis foliaceis axillares subumbellato-capitati. Pedicelli tenues 4–(sub fructu) 18 mm. longi, villosi et sessili-glandulosi. Calyx 8–9 mm. longus, fere ad basin in lobos lineari-lanceolatos, 1–1.5 mm. latos, apice ipso obtusos fissus, extus ut pedicelli, intus glandulis sessilibus vel subsessilibus indutus. Corolla flava, ad 15 mm. diametro, ad tertium inferum in lobos obovato-lanceolatos, ad 4 mm. latos, acutos, antice erosulos, utrinque et margine glandulis brevistipitatis dense pilosulos fissa. Stamina 2 longiora ad 7 mm. longa, 3 breviora, basi in tubum 3.5 mm. longum, extus densissime glanduloso-furfuraceum connata; antherae oblongae, 1.5 mm. longae, fere mediofixae, marginibus dense brevistipitato-glandulosae. Ovarium superne densissime prorsus articulato-hirsutum; stylus 7 mm. longus glaber. Capsula crustacea, 5 mm. diametro, valvis dehiscens.

62. 31. *L. Fordiana* Oliv. in Hooker's Ic. pl., 3. ser., x (1891), t. 1983. R. Kn. in Pflzr., IV 237 (1905), 281.

Syn.: *L. paridiformis* Forb. et Hemsl. in Journ. Linn. Soc. Bot., xxvi (1889), 55 p.p.

Kwangtung. (Ford 268). Cult. North River. Native (ex herb. Hongkong Bot. Gard. 133). Lung'tou shan 60 km. to the east of Shaochou, along streams, 800 m. ? 10 Oct. 1917. Native (coll. Mell 784 in herb. Vienna university).

The androecium of this plant proved quite congruent with that of the foregoing and other allied species. Mell's plant, which is fragmentary only, is in fruit, and the capsule is still very short stalked, 4 mm. in diameter. The species is not very near to the others of this series, but no doubt much more remote from any other series.

Series Debiles Hand.-Mzt.

Syn.: Sect. *Cephalanthae* R. Kn. in Pflzr., IV 237 (1905), 279 p.p. min. (the species *L. cephalantha* is invalid).

63. *L. ferruginea* Edgew. (non Klatt. *L. japonica* Hook. f., Fl. Br. Ind., iii (1882), 505 p.p.).

Knuth wrongly refers to both Edgeworth and Hooker as saying that this is nearer to *L. deltoidea* than to *japonica*, for neither of them said so. Klatt (like Knuth in many cases) copied, or rather, translated the original description which did not at all match the specimen which he had received unnamed and determined wrongly himself. From the type and the only other specimen matching it (In umbrosis c. 8,000' s.m. ad Mahásu prope Simla. Drummond 2773) both seen from the Kew herbarium, I must take it for a distinct species characterised by the relatively long pedicels and the very small coal black glandular dots to the corollas. It may be regarded as somewhat intermediate between *debilis* and *deltoidea*. The filaments are connate for $\frac{1}{3}$ of their length into a tube such as is never found in *deltoidea*, their free parts beset with stalked glands, the anthers small, twice as long as broad. Both growth and leaves resemble those of the former, the indument approaches that of the latter.

64. ? *L. scandens* Bontl. in Bull. Soc. Bot. Genève, 2. sér., v (1913), 307.

The author makes no mention of the gland dots. Possibly it is the same as or very near to the plant from Darjeeling (Griffith 3529 in herb. Kew only) mentioned by Hooker, Fl. Br. Ind., iii, 505 under *L. japonica*, from which in his conception (*L. debilis*) it differs by most of the leaves being alternate, the pedicels longer than the petioles, and the staminal tube very short, similar to *L. deltoidea*.

65. *L. debilis* Wall. (*L. japonica* Hook. p.p. Miquel p.p. Knuth p.p. *L. deltoidea* Knuth p.p. *L. siamensis* Bontl. in Bull. Soc. Bot. Gen., 2. sér. v (1913), 304. ? *L. Eberhardtii* Bontl., l.c., 307).

This species distributed throughout India (though partly replaced in the E. Himalaya by the species which follows), Siam, and found also in Java (Ridley, Zollinger 2501) and in Sumatra (Schiffner

2401, 2402), is very distinct from *L. japonica* with which it has been confounded since Hooker's time, not only by the very acute leaves and much bigger corollas as I stated in Act. Hort. Gothobg., ii (1926), 118, but also in that the latter prove invariably gland-dotted, whereas they are eglandular in *L. japonica*. It was placed by Knuth in another section than *congestiflora* to which, however, it is very nearly allied, and no doubt transitions occur sporadically on the borders of the areas of distribution, or in a zone common to both. Even admitting that plants at the commencement of flowering and thus more compact cannot be compared, the following specimens clearly approach *L. congestiflora*: Mussoorie (Edgeworth 470); Hazara, Siran valley (Inayat in Duthie 19931), both in the Kew herbarium.

In big specimens the pedicels become 13 mm. long but do not exceed the petioles, and the lamina attains 37×26 mm. The stems vary from prostrate and rooting with ascending ends only, to non-rooting and erect except for the geniculate base. The same can be observed in all the following species of the series and in several others besides.

66. **32. *L. congestiflora*** Hemsl. in Journ. Linn. Soc. Bot., xxvi (1889), 50, excl. pl. Andersoniana. R. Knuth in Pflzr., IV 237 (1905), 283 p.p.

Syn.: *L. japonica* var. *cephalantha* Franch. in Journ. de Bot., ix (1895), 461.

L. cephalantha R. Kn. in Pflzr., IV 237 (1905), 284.

L. Christinae var. *pubescens* R. Kn., l.c., 260 p.p. as to Henry's no. 10742.

L. japonica Hooker, Fl. Brit. Ind., iii (1882), 505 p.p. R. Kn., l.c., 262 p.p.

L. Smithiana Crb. in Kew Bull. 1922, 238.

W. Hupeh. Watters; Faber 331, 4727; Henry 862, 1822, 4727; Wilson 503, 806 p.p., 1332, 4020.

S. Shensi. Giral di in hb. Biondi 567, 3949. N. Shensi. Giral di 69. Szechuan. Farges 629; Henry 8855; Pratt 392; Wilson 5058 p.p., 5060; Legendre 77; H. Smith 2403.

Kweichou. Bodinier 1629, 1718; Esquirol 3590, 6074; Cavalerie 371, 3064, 3065; C. et Fortunat 1713; Beauvais 63.

Kwangsi. Morse 563.

E. Yunnan. Delavay 5154; Py, distr. Bonati 667; Lietard in Beauvais 1028. S. Yunnan. Henry 11924. W. Yunnan. Forrest 7542; Handel-Mazzetti 9422.

E. Tibet: Choongthang. Dungboo.

E. Himalaya. Griffith 3529 p.p. Bhutan (King). Rungli 6,000 ft. (Gamble 557A).

Sikkim. Hooker; King; Anderson 258, 301; Clarke 12054, 35232; Watt 5535.

Naga Hills (Rep. Econ. Prod. Govt. Ind. 11769).

Since I came to the conclusion from a communication of Dr. Gagnepain that *L. cephalantha* is conspecific with *congestiflora* (Act. Hort. Gothobg., ii 117) this fact was confirmed by personal study of the types. Hemsley's original description could easily be misleading as regards the expression "glandulis linearibus," as it is an exception that a few glands unite into short stripes as here and there in Wilson's n. 806, whereas Faber's cotype in the Vienna herbarium has dots only. The true *L. congestiflora* is confined to wet regions, consequently it avoids the Yunnan plateau and is found in this province only in the extreme East (Lulan and Lungchi), South (Szemao), and West (Tengyueh and on the uppermost Irrawadi). The plant widely distributed in the E. Himalayas is quite identical with the Chinese. For its relation with *L. debilis*, see under that species. In E. and S.E. China it is replaced by the following species, and Wilson's no. 503 may perhaps be considered as an intermediate.

67. **33. *L. Hui*** Diels ex Handel-Mazzetti in Sitzgsanz. Akad. Wiss. Wien., 1925, 145.

Syn.: *L. cephalantha* R. Kn. in Pflzr. IV 237 (1905), 284 p.p.

Tota pilis articulatis eglandulosis ochrascentibus patulis $\pm$ dense pilosa, foliis interdum glabrescentibus. Caules rosulati, inferne saepe longe prostrati et ad nodos serius aphyllis radicanter, dein ascendentes, 4-30 cm. alti et foliorum paribus 5-6 aequaliter remotis summis binis autem subverticillato-approximatis et in bracteas transeuntibus obsiti, obtuse quadranguli, simplices vel ex axillis omnibus ramosi, ramis erectopatulis internodia $\pm$ aequantibus foliis bracteisque subverticillatis terminatis floribus autem (an semper?) abortivis. Folia latius angustiusve ovata, 1.5-4.5 cm. longa et longitudine $\pm$ tertio angustiora, obtusa, basi late cuneata et in alas angustissimas erectas petioli laminae tertiam usque duas partes aequantis breviter et late decurrentia, summa subsessilia, infima plerumque breviora; herbacea, saturate viridia, minute rufo glanduloso-punctata, costa nervisque utrinsecus 3-4 erecto-patentibus, arcuatis, in nervum submarginale confluentibus, tenuibus, subtus prominulis, venularum reti elongato $\pm$ perspicuo. Flores in coma foliorum subsessiles c. 4-8 capitati, raro cum pari uno pedicellis usque ad 10 mm. longis suffultorum in axillis foliorum penultimorum remoto. Bractee superiores late rotundato-obovatae, floribus paulo breviores. Calyx 5-7 mm. longus, ad basin in lobos lanceolatos acutissimos 1.5 mm. latos subherbaceos uninervios fissus. Corolla aurea, fauce (semper?) rubra, e tubo brevi et lato aperte infundibularis, c. 2 cm. diametro, ultra tertium inferum in lobos late ovatos, rotundatos, interdum apiculatos, antice parce et minute fulvo glanduloso-punctatos fissa, interdum parce glanduloso-pilosula. Stamina 6-7 mm. longa, ultra tertiam partem paulum dilatata et in tubum contigua et dense,

superne quoque interdum sparse albido-furfuracea; antherae oblongae, 1.5 mm. longae. Ovarium dense et stylus 7 mm. longus parce albo-hirsuta vel hic glaber. (Capsula ignota.)

Kweichou. Esquirol 28. Pinfa. Cavalerie 3821, 7755.

Hunan. Handel-Mazzetti 11962, 12011. Grubb 145B.

Kiangsi. Forbes; Wang-Te-Hui in H.-M. 172; Hu 778.

Kiangsu. Courtois 25898.

Kwangtung. Callery 101; Mell 393.

This species is very near the foregoing, but the differences pointed out in the key give it a different habit and it inhabits also another area. Mell's Kwangtung plant may form a transition to it.

68. 34. *L. gymnocephala* Hand.-Mzt. Sp. nov.

Pilis ochrascentibus vel rufescentibus, articulatis, eglandulosi, crispulis, brevibus in caule dense et superne velutino-, in foliis $\pm$ sparse induta et superne minute sessili-glandulosa. Caulis tenuis, teretiusculus, brevis erectus simplex 3 cm. longus, vel usque ad 25 cm. longus saepe prostratus et ramosus parce radicans, remote et aequaliter oppositifolius parte apicali et ramis erectis, inferne dense superne laxius foliatis et foliis paucis subverticillatis terminatis. Folia parva, maiora 7-24 mm. longa, late et saepe orbiculari-ovata, rotundata usque subacuta, basi praesertim superiora truncata vel subcordata, herbacea, olivascentia, nervis paucis subtus prominulis in nervum fere marginalem confluentibus, crebre, praesertim margine, crasse rufo glanduloso-punctata; petioli laminis inferiorum vix duplo, superiorum plus triplo breviores. Flores capitati, subsessiles, foliis fulcrantibus et bracteis duplo et ultra longiores, pedicellis ne sub fructu quidem 2 mm. excedentibus, raro par unicum axillare 25 mm. remotum pedicellis fere 1 cm. longis vel alterum quoque paululum remotum breviusque pedicellatum. Calyx 5-6 mm. longus, fere ad basin in lobos lanceolatos, planos, acutos, flavidos fissus. Corolla pallide aurea, e tubo brevi et lato aperte infundibularis, 15-20 mm. diametro, praesertim intus $\pm$ crebre sessili-glandulosa, versus basin usque in lobos latos, rotundatos, saepe apiculatos, praecipue antice glandulis rufis, crassis crebre punctatos vel nonnullis confluentibus una alterave striola quoque praeditis fissa. Filamenta c. 5 mm. longa, ultra tertiam partem paulum dilatata, in tubum angustum contigua et glandulosa; antherae $1\frac{1}{2}$ mm. longae, cordato-lineares, fere mediofixae, glanduloso-ciliolatae. Ovarium pilosum; stylus crassus, 6 mm. longus, glaber. Capsula 3 mm. diametro.

Syn.: *L. congestiflora* Hemsley in Journ. Linn. Soc. Bot., xxvi (1889) 50 p.p. min. R. Kn. in Pflzr., IV 237 (1905), 293 p.p.

L. Hemsleyana G. Forr. in Not. R. B. G. Edin., iv (1908), 234.

Yunnan. Anderson a. 1868; Delavay 314; Henry 10742; Hancock 213; Forrest 82, 3842, 6788, 7164, 7542, 8095, 12030, 24709; Ducloux 275 p.p., 4805; Schoch 120; Maire 2676, distr. Bonati 656 p.p.

W. Kweichou. Cavalerie 4401; Martin et Bodinier 1629.

W. Szechuan. Wilson 5058 p.p.

L. gymnocephala is a more xerophytic plant than its allies, as is proved by all its characters as well as by its habitat which is the relatively dry Yunnan plateau, outside of which it has been found but twice, namely, at Hwangtsaopa near the Yunnan border and on Mt. Omei, but Martin & Bodinier's plant from Nganping may yet be considered intermediate between this and *L. congestiflora*. There is no doubt that Hemsley included *gymnocephala* under his species ("folia -- vel interdum fere orbicularia"), but only one of his 5 plants cited belongs here. Thus one would not be entitled to avoid a new naming by restricting *congestiflora* to *gymnocephala* and calling *congestiflora* as conceived here *L. cephalantha*. It is not impossible that *L. gymnocephala* cultivated under the same conditions as *congestiflora* may become this, but it is better to keep it apart as long as there is no proof of it.

Series Japonicae Hand.-Mzt.

69. *L. Tanakae* Maxim.

Not allied to *L. Christinae* as Knuth believes, but much nearer to *L. japonica* and perhaps to *L. Hemsleyana*. It can hardly be believed that the leaves are only very often ("saepissime") glandular, whereas I find the calyx lobes glandular striolate, too, but the corolla not always punctate. The anthers are remarkably small.

70. **35. *L. japonica*** Thbg., Fl. japon. (1784), 83, nec Forbes et Hemsley. Knuth in Pflzr. IV 237 (1905), 262, excl. syn. *L. debilis* et loc. sinensibus.

Syn.: *L. microphylla* Merr. Phil. Journ. Sci., i Suppl. 3 (1906) 221. Kiangsu. Fengwangshan. Forbes 2392.

Kwangtung. Secus fl. Lien chau. Bullock in hb. Hance 8665.

All statements that it has punctate corollas are due to its being confused with *L. debilis* which is very distinct. On the other hand the leaves are glandular punctate, a fact which has been overlooked by Knuth. The species is rather variable and is distributed over the islands as far as Sumatra (Schlechter 15961; Ridley).

Series Drymarifoliae Hand.-Mzt.

71. **36. *L. Hemsleyana*** Maxim. in Hook., Ic. pl., xx (1891), t. 1980. R. Kn. in Pflzr. IV 237 (1905), 259, excl. pl. Delavayi.

Syn.: *L. Christinae* Hemsl. in Journ. Linn. Soc. Bot. xxvi (1889), 49 p.p.

L. Christinae var. *pubescens* R. Kn. in Pflzr. IV 237 (1905), 259 p.p. min.

Easily distinguished from *L. Christinae*, it is not unlike *L. debilis*, which is much more pilose, less densely glandulose, and has shorter pedicels.

N. Shensi. Giral di in hb. Biondi 4692 p.p.

Kiangsu. Carles 28; Bullock in hb. Forbes 2232.

Hupei. Henry 489, 1381; Silvestri 451.

N.E. Szechuan. Farges.

72. **37. *L. patungensis*** Hand.-Mzt.

Caulis repens, 10–ultra 30 cm. longus, saepe ramosus, nodis radicantibus 3–5 mm. inter se distantibus foliorum paribus instructis, herbaceus, crassiusculus, aequae ac pedicelli calycesque pilis pluriarticulatis $\frac{1}{2}$ – $\frac{3}{4}$ mm. longis pallide ferrugineis densissime et glandulis sessilibus $\pm$ dense obsitus, annotinus glabrescens. Rami ascendentes, 3–7 cm. longi, internodiis 1–3.5 cm. longis, foliorum paribus summis 2–3, quorum unum saepe ad bracteas angustas reductum, verticillato-confertis terminati. Folia late ovata vel suborbicularia, raro subelliptica, 1.3–3.8 cm. longa et 0.8–3 cm. lata, obtusissima usque truncata vel interdum levissime emarginata, basi late truncata et interdum anguste cuneata, crasse herbacea, supra viridia, subtus glaucescentia, costa subtus latiuscule prominula ima basi aequae ac caulis pilosa, ceterum pilis articulatis brevioribus subsetaceis dense obsita, nervis paucis tenuibus vix conspicuis; petiolus lamina subaequilongus usque dimidio brevior iisdem pilis ac caulis densissime obsitus. Flores 2–4 foliis terminalibus axillares. Pedicelli 8–20 mm. longi. Calyx 6–7 mm. longus, ad 1 mm. gamosepalus, lobis lanceolatis apice ipso obtusis, marginibus angustissime membranaceis, intus densius sessili-glandulosus nec pilosus. Corolla flava, late infundibularis, 10–20 mm. diametro, ad 2 mm. gamopetala et hic extus densissime brevistipitato-glandulosa, lobis oblongis 3–4 mm. latis rotundatis utrinque sparsius glandulosis, striis paucis glandulosis brevibus crassissimis ecoloratis pellucidis versus apices instructis. Stamina ad 8 mm. longa, 2 ceteris longiora, filamentis ad 2 mm. in tubum angustum extus densissime brevistipitato-glandulosum connatis, superne sparse glandulosis, antheris ovato-oblongis, ad 1.5 mm. longis, fere mediofixis, versatilibus. Ovarium dimidio superiore pilis articulatis pronis densissime obsitum; stylus ad 6 mm. longus, glaber. (Capsula ignota.)

W. Hupei. Patung. Wilson, Veitch Exp. 2474.

The colourless very thick glandular stripes in the corollas, the other parts of the plant not having any glands, are a peculiar feature of this species.

73. **38. *L. pterantha*** Hemsl. in Journ. Linn. Soc. Bot., xxvi (1889), 56. R. Kn. in Pflzr., IV 237 (1905), 260.

Syn.: *L. pteranthoides* Bont. in Bull. Soc. bot. Gen., 2. sér., v (1913), 301.

Szechuan. Faber 332 p.p.; Orléans; Wilson 4019, 4019a, 4023.

N.E. Yunnan. Maire; Ten in Ducloux 5659.

Although the winged keel of the calyx lobes is a very characteristic feature, this species is so near *L. Christinae* and others that it by no means deserves a section of its own. The leaves are densely dotted with thick yellow-brown round or a little elongated glands which are seen only against the light. In the corolla somewhat longer stripes are seen even externally. There is nothing lignescent in the specimens I have seen, the stems of which are prostrate but not rooting, and attain 75 cm. in length. The differences of *L. pteranthoides* are all within the range of variation usual in this affinity and Wilson's no. 4019 represents it. The fruits only have long stalks as seen in the drawing, whereas the flowers are short stalked from the original photograph.

74. 39. *L. Crista-galli* Pamp. Sp. nov.

Syn.: *L. Christinae* var. *pubescens* R. Kn. in Pflzr., IV 237 (1905), 259 p.p. min.

Rhizome tenue, perenne, radicibus fasciculatis tenuissimis, ramosissimis. Caules tenues, 15-45 cm. longi, repentes, flagellato-elongati, simplices vel serius inferne ramosi, ad nodos hic illic radicantes, teretiusculi, glandulis subsessilibus, (saltem siccis) fuscis adpersi et pilis rufulis multiarticulatis pubescentes. Folia opposita, late cordato-ovata usque fere orbicularia, 1-3 cm. longa, acutiuscula usque rotundata, sinu basali plerumque latissime aperto, in petiolo tenues, laminis duplo usque quinquies breviores, supra canaliculatos breviter decurrentia, sicca membranacea (viva crassiuscula?), atro-viridia, punctis striolisque striisque longioribus glandulosis nigris extrinsecus interdum inconspicuis ubique crebris instructa, utrinque pilis brevioribus rigidioribusque strigillosa vel subglaberrima. Pedicelli secus medium caulem axillares singuli, tenues, floribus paulo usque plus triplo longiores, erecti, sub fructu sigmoidei, glandulis iisdem ac caulis dense et raro pilis paucis obsiti. Calycis 4-5 mm. longi glabri, parce nigro-striolati, fere ad basin in lobos oblongo-lanceolatos, obtusissimos, marginibus membranaceos fissi lobus quisque dorso per totam fere longitudinem ala angustiore vel latiore, saepe undulata vel crenata, postice altiore et hic saepe in calcar usque ad 1 mm. longum vel calcaria bina producta cristatus. Corolla lutea, late infundibularis, 10-11 mm. longa, densissime et crasse nigro necnon purpureo glanduloso-longistriata, infra tertium inferum in lobos ovato-oblongos, apicibus breviter bifidos fissa. Stamina corolla breviora; filamenta ad dimidium in tubum densissime furfuraceum contigua, partibus liberis glabris; antherae oblongae, c. 1½ mm. longae, fere mediofixae, versatiles. Stylus crassiusculus, staminibus demum brevior, sicut ovarium glaber. Capsula globosa, brunnea, 3 mm. diametro.

N. Shensi. Monte Lun-san-huo, 23. May 1892. Giraldi in Herb. Biondi 4692 p.p.

N. Hupeh: Silvestri 908. Ma-pan-shan, 1000 m. s.m., May 1907 (Silvestri). Ch'ang-lang-shan (Silvestri 1018). Pao-kang. Huang-lung-shan 17 May (Silvestri).

Near the foregoing species but clearly distinguished by the characters exposed in the key. There are evidently both shade and sun grown specimens which differ somewhat in the leaf texture, the former have them thinner and with the gland stripes evident externally in the dried state, and moreover longer pedicels and petioles. The development of the crests to the calyx lobes varies considerably in one and the same individual, and thus shows even more than in *L. pterantha* that these are of no sectional value. In habit *L. Crista-galli* is nearer to and practically congruent with *L. Fargesii*.

75. 40. *L. Fargesii* Franch. in Journ. de Bot., ix (1895), 463. R. Kn. in Pflzr., IV 237 (1905), 260.

Syn.: *L. drymarifolia* var. *grandiflora* Bont. in Bull. Soc. bot. Gen., 2. sér., v (1913), 303, saltem quoad pl. Wilsonianam.

Szechuan. Farges 658; "W. China" Wilson, Veitch Exp. 4018; H. Smith 2166.

W. Hupeh. Henry 4704 e Knuth.

N. W. Yunnan. Forrest 12513; Ward 256.

This species was placed by Knuth in his section *Nummularia* ("planta repens vel vagans") and that which follows in *Lerouxia* ("ascendens"). Both are, however, when more material is compared, so near together that it is difficult to find any reliable difference at all, and it is to be feared that they will later prove conspecific.

76. 41. *L. drymarifolia* Franch., l.c., 462 (sphalm. "*drynarifolia*"). Knuth l.c., 264.

Syn.: *L. drymarifolia* var. *grandiflora* Bont., l.c., quoad pl. yunnanensem.

Yunnan. Delavay 94, 2122; Forrest 3841, 7157, 9924, 10472; Maire; Py in Ducloux 6941; Handel-Mazzetti 3444; Rock 4086, 4191, 5044; Gregory B88.

The species is highly variable in the shape of the sepals and in the indument of the ovary which is glabrous or hirsute or glandular. See also under the previous species. Considering these fluctuating variations Bonati's plant, even when restricted to the yunnanese specimen, cannot stand as a variety. My own plant from Yunnan seems to form a transition towards *Fargesii*. From *L. Christinae* both are more easily distinguished.

77. 42. *L. Christinae* Hance in Journ. of Bot., xi (1873), 167. Knuth in Pflzr. IV 237 (1905), 259, var. *typica* et var. *pubescens* Franch. (p. 260).

Syn.: *L. grammica* Franch. in Nouv. Arch. Mus. Par., 2. sér., x (1888), 58.

L. latronum Lévl. et Vant. in Bull. Soc. agr. sci. arts Sarthe., xxxiv (1904), 317.

L. glandulosa R. Kn. in Pflzr., l.c. (1905), 264.

L. Hemsleyana R. Kn. l.c. 259 p.p. min.

L. melampyroides Pav. in N. Giorn. b. It., N.S., xv (1908), 427 p.p.

L. Legendrei Bonati in Bull. Soc. bot. Gen., 2. sér., v (1913), 299.

Yunnan. Delavay 2065; Henry 10212; Ducloux 275 p.p., 684, 3857, 6528; Py in D. 3859, 4694; Tang in D. 3860; Forrest 11531; Maire 2675; Beauvais 1031; Schoch; Ten 351, 1300; Rock 6242.

Kweichou. Cavalerie 7744, 7745; Esquirol 2126, 2128.

Szechuan. David; Faber 333; Bock et Rosthorn 2176; H. Smith 1829, 2321; Bonvalot et Orléans; Parker; Pratt 720; Legendre 72.

Shensi. Purdom. Giraldi in hb. Biondi 831, 4690, 4691, 6034, 7093; Nesi in hb. B. 830. Scallan.

Hupei. Henry 1822; Watters in hb. Hce. 17673; Wilson, Veitch Exp. 807, 807a, 1286; Silvestri 75, 124, 236, 640, 915, 1292, 1720, 1910.

Chekiang. Swinhoe.

Kiangsu. D'Argy; Courtois 25991, 26059.

The var. *pubescens* Franch. in Journ. de Bot., ix (1895), 463, differs by characters of the indument, shape of calyx lobes, and length of petioles, but the variations of these characters are in no correlation together and the distinction of this variety as well as of var. *intermedia* Pamp. in Nouv. Giorn. bot. Ital., N.S., xvii (1910), 684, is somewhat artificial. *L. latronum* has been reduced already by Petitmengin in Bull. Ac. Géogr. bot., xvii, 222. From the notes of its collector it is really planted for medical use. *L. glandulosa* agrees in all the details exactly with *L. Christinae* and the stem is not quite straight, which is of no importance for the big Yunnan specimens are often erect. The drawing of *L. Legendrei* is wrong in many respects.

78. 43. *L. chrysospleniioides* Hand.-Mzt. in Sitzgsanz. Ak. Wiss. Wien, 1925, 24.

Pumila, 5-10 cm. alta, caulibus crassis ascendentibus (post anthesin saltem) ad inflorescentiam quoque ramosis, ramis ascendentibus folisque (supra demum glabrat) bracteisque calycibusque brevissime ferrugineo-puberulis et ciliatis et laxe crasseque nigro brevistriolatis et punctatis. Folia opposita ovata et late ovata, 2-5 cm. longa, rotundata, basi quoque rotundata et hac ipsa in petiolum 5-7 mm.

longum late cuneato-producta, crassiuscula, viridia, costa nervisque utrinsecus 4-6 tenuissimis proxime margini in validiorem confluentibus subtus prominulis, venis laxis aegre conspicuis. Flores apicales 6-7-subcapitati, pedicellis ad 2 mm. longis, foliis 2-4 circumdati et bracteis multis foliaceis orbiculari-spathulatis usque ad 12 mm. longis mixti. Calyx 5 mm. longus, totus in lobos 5-7 mm. longos obovato-lanceolatos $1\frac{3}{4}$ mm. latos, obtusos, herbaceos, anguste membranaceo-marginatos partim longius nigrostriatos fissus. (Corolla ignota.) Capsula globosa, calyce brevior, puberula; stylus 5 mm. longus, tenuis, superne crassior, glaber.

S.E. Kweichou. Handel-Mazzetti 10881.

Although the floral structure of this plant, of which but one specimen was collected, is unknown, it is certainly nearly allied to the following species:

79. **44. *L. Alfredi*** Hance in Journ. of Bot., xv (1877), 356. Fin. et Franch. in Bull. Soc. bot. Fr., xlv (1899), 211. R. Kn. in Pflzr., IV 237 (1905), 281.

Fukien. Hance 17884; De La Touche; Carles 619; Chung 2632. Kiangsi. Wang-Te-Hui in Handel-Mazzetti 171. Fukien border.

The same 325.

Kwangtung. Mell 49, 655; Cant. Chr. Coll. 12782.

The species varies greatly in the leaves which may be either narrow or very broad. The pubescence of the whole plant is eglandular except in the corollas. Knuth copied the original description ("folia -- lanceolata - basi -- cuneatim attenuata") but then speaks of "fere cordatis"; both can be found. It does not resemble *L. Klattiana* at all.

Series Cardiosepalae Hand.-Mzt.

80. *L. nummularia* L. (Synonyma et varietates minimi valoris vide in R. Kn. in Pflzr., IV 237, 258; praeterea: *L. vulgaris* f. *rotundifolia* Form.).

Series Rubiginosae Hand.-Mzt.

81. **45. *L. rubiginosa*** Hemsl. in Journ. Linn. Soc., Bot., xxvi (1889), 56. R. Kn. in Pflzr., IV 237 (1905), 284.

Syn.: *L. involocrata* Hemsley in Journ. Linn. Soc., Bot., xxix (1893), 315. R. Kn. in Pflzr., l.c.

L. rubiginosa var. *glabra* Franch. in Journ. de Bot., ix (1895), 463.

Hunan. Henry 7559.

W. Hupeh. Henry 1823, 4945; Wilson, Veitch Exp. 1559, 2440, 4016, 4680.

Szechuan. Faber; Henry 6244, 8884; Scallan; Pratt 4100.

Kweichou. Martin et Bodinier 2371; Cavalerie 3803 p.p.; Esquirol 6017, 6118; Bodinier 1718; Handel-Mazzetti 10614.

N.E. Yunnan. Delavay 5065; Maire.

The specimens of Wilson's no. 1559 in the Edinburgh herbarium have most of the inflorescences very long stalked but two of the undermost excessively short only, and in the Vienna herbarium in all the five individuals of the same no. the stalks are very short, in Faber's specimen they are of intermediate length. Thence one must agree with Franchet that *L. involucrata* is at best a variety only. Franchet calls it glabrous except for the basal parts of the floral leaves, but all the Delavayan specimens I have seen are provided with a short pubescence at more places. Faber's specimen in the Vienna herbarium bears no number and the place is named Kui and not Fee.

Series Grammicæ Hand.-Mzt.

82. **46. *L. grammica*** Hance in Ann. Sci. nat., 5. sér., v (1866), 225.

R. Kn. in Pflzr., IV 237 (1905), 263.

Syn.: *L. nigrolineata* Hemsl. in Journ. Linn. Soc., Bot., xxix (1893), 315.

L. melampyroides Pav. in N. Giorn. bot. It., n. ser., xv (1908), 427 p.p.

L. grammica var. *maior* Pamp. in Nuovo Giorn. bot. Ital., n.s., xvii (1910), 685.

Kiangsu. Bullock; Carles 438, 517; Lobscheid in hb. Hance 10122; Stronach; Schmidt in Faber 1602; Hb. Univ. Nanking 615.

Hupeh. David; Silvestri 208, 252, 391, 766, 778, 1131, 1199, 1732, 1733, 1733a, 1735-1744, 1744a.

Like the two preceding an isolated species representing a series of its own. The differences of var. *maior* are very negligible and have been already included by Knuth.

Subsect. Elatae Hand.-Mzt.

Plantæ erectæ, elatae, eglandulosæ vel nigro-striolatae. Caules tota longitudine foliati. Folia sessilia vel brevipetiolata, lanceolata vel ovato-lanceolata, alterna vel opposita vel verticillata. Flores pedicellati. Filamenta in tubum angustum contigua.

Although the species of this subsection are not very nearly allied together they are no doubt nearer to one another than to species of other subsections. The least tall and stripeless *L. melampyroides* forms the link with the more primitive of the *Eunummulariæ*, viz. *L. deltoidea* and *Franchetii*. *L. punctata* has glandular dots only rarely.

83. **47. *L. melampyroides*** R. Knuth in Pflzr., IV 237 (1905), 284.

N.E. Szechuan. Farges 1457.

S.W. Hunan. On the Yün-shan at Wukang, in the forest at 1,200 m., 6. Aug. 1917 fr. (Handel-Mazzetti 10974) and in scrub at 650-800 m., 6. June 1918 fl. (H.-M. 12013).

Farges' plant matches exactly the smaller of my specimens. In the mode of growth the species resembles *L. ophelioides*, also very slightly in the auricled base of the pedicels, but otherwise it is far from this. It seems to be a rare plant for all the identifications made later by Knuth in the Berlin herbarium are wrong.

84. **48. *L. Brittenii*** R. Kn. in Pflzr., IV 237 (1905), 306.

Hupei. Henry 4550. Ichang. Henry 1995.

The flowering specimen in the Kew herbarium is undoubtedly conspecific with the fruiting one in the British Museum. The differences from *L. melampyroides* as seen in the key are but slight, but the plant is much stronger and it is remarkable that, although very floriferous, it bears no additional flowers below the umbels. It has nothing at all to do with the *Theopyxis* section. The foliaceous bracts are somewhat reduced only in a few umbels on short branches.

85. *L. punctata* L. (var. *villosa* [F. W. Schmidt] Klatt). (For synonymy see Knuth, l.c. 267; moreover: *L. paradoxa* Form.)

Anthers long, attached a little above the base, almost erect. Glandular dots on the leaves only, very small and not always present. Ciliation of leaf margin recalls a little *L. ciliata*.

Subsp. verticillata (Marsch. a Bieb.) Boiss. Knuth, l.c., 268.

86. *L. coreana* Nakai in Bot. Mag. Tok., xxiii (1909), 106; in Journ. Coll. sci. Tok., xxxi (1911), 81, t. X.

From Faurie's nos. 503 and 745 which fairly well match Nakai's description and drawing in all the characters shown by him, the following must be added to the description: Calyx glaberrimus, eglandulosus. Corollae lobis subliberi, sicut androeceum glandulis subsessilibus ubique dense adpersi et margine ciliolati. Filamenta inferne in tubum brevem urceolatum connata; antherae lineari-oblongae, paulo infra vel supra tertium inferum affixae, versatiles. Gynoeceum glaberrimum.

"Corollae lobis apice glandulosus" of the author can refer only to the short glandtipped hairs which are most dense there. The species is remarkably near *L. punctata* which differs only by the indument and bigger flowers with broader lobes.

87. **49. *L. Klattiana*** Hance in Journ. of Bot., xvi (1878), 236. R. Kn. in Pflzr., IV 237 (1905), 282.

Hupei. Watters; Henry 250 p.p., 475, 1374 p.p.; Silvestri 1745, 1746.

Kiangsi. Shearer 188; Forbes 63.

Fukien. Fortune 52 p.p., A189.

Chekiang. Oldham 55.

Kiangsu. Fortune A107; Stronach; Bullock; Cooper; Carles 119, 437; Poli; Forbes; Maingay 356; Courtois 26168; Limpricht 97, 449; Schindler 277; hb. Univ. Nanking 617, 2096.

Shantung. Swinhoe in hb. Hance 17900; Faber 259; Zimmermann 215; Cowdry 764.

See remark under *L. Henryi*. *L. Klattiana* var. *pseudo-Klattiana* Bonti. is that species.

88. **50. *L. fukienensis*** Hand.-Mzt. in Sitzgsanz. Ak. Wiss. Wien, 1925, 25.

Perennis, caulibus erectis pluribus, 80 cm. altis, inferne breviramosis, foliis decurrentibus tenuissime quadrilineatis, remote et aequaliter alterni- et hic illic praesertim inferne oppositifoliis, glabra, dense nigro brevistriolata et punctata. Folia parium 1-2 infimorum squamiformia, sensim accrescentia, dimidio superiore caulis sensim decrescentia, lineari-lanceolata, usque ad 14×2.1 cm., longe acuminata, basi acuta sessilia, membranacea, saturate viridia, subtus subglaucescentia; nervi utrinsecus c. 5, valde obliqui, arcuati et proxime margini $\pm$ conjuncti venaeque laxae reticulatae tenuissimi conspicui. Pedicelli secus totum fere caulem ramosque axillares singuli, tenues, patentes, 2-5 cm. longi, foliis bracteantibus summis 1 cm. tantum longis. Calyx 8-11 mm. longus, totus in lobos lineari-lanceolatos 1 mm. latos, virides, partim anguste membranaceo-marginatos, longe acuminatos, apice ipso obtusos fissus. Corolla lutea aperte infundibularis, antice paulum nigropurpureo-striolata, calyce paulo longior, ultra duas partes in lobos obovatos, obtusos, 5 mm. latos, glanduloso-ciliolatos fissa. Filamenta 5-6 mm. longa, sensim angustata, fere dimidia in tubum glanduloso-furfuraceum connata, ceterum glabra, antheris oblongis $1\frac{1}{4}$ mm. longis, fere mediofixis. Ovarium cum stylo 7 mm. longo tenuiusculo glabrum. (Capsula ignota.)

W. Fukien. Wang-Te-Hui in Handel-Mazzetti, Plt. sin. 415.

It was only from Knuth's system that I compared this species with *L. sikokiana* and *ramosa* when I first described it, but it has nothing to do with these. Like the following it is somewhat isolated in this subsection by its glabrousness and copious glands.

89. **51. *L. Rosthorniana*** Hand.-Mzt. in Sitzgsanz. Ak. Wiss. Wien, 1925, 25.

Perennis, caulibus erectis pluribus, 80 cm. altis, plerisque simplicibus, foliis decurrentibus tenuissime quadrilineatis, remote et aequaliter foliis quaternis verticillatis et superne interdum subverticillatis obsitis, glabra, densissime purpureonigro-brevistriolata et punctata. Folia longissime triangularia, verticillorum infimorum squamiformia, sensim accrescentia et versus caulis apicem sensim decrescentia, usque ad 72×14 mm., longe acuminata, basi breviter attenuata rotundata

late sessilia, herbacea, saturate viridia, subtus subglaucescentia; nervi pauci valde obliqui vix conspicui. Pedicelli a dimidio caule foliis omnibus axillares, rigiduli, 2-3.5 cm. longi, erectopatentes, foliis bracteantibus summis 1 cm. tantum longis. Calyx 8-11 mm. longus, totus in lobos lineari-lanceolatos, 1.5-2 mm. latos, virides, partim anguste membranaceo-marginatos, longe acuminatos, apice ipso obtusos fissus. Corolla lutea, late infundibularis, eo sesquilingior, antice paululum nigropurpurea-striolata, ad $\frac{1}{2}$ in lobos late ovatos, acutos, basi 6-7 mm. latos fissa. Filamenta 7 mm. longa, superne angustiora, fere dimidia in tubum glanduloso-furfuraceum connata, ceterum glabra, antheris sublinearibus, versus 2 mm. longis, fere mediofixis. Ovarium cum stylo 7 mm. longo tenuiusculo glabrum. (Capsula ignota.)

Kiangsi-Fukien border. Wang-Te-Hui in Handel-Mazzetti, Plt. sin. 328.

It is externally similar to *L. quadrifolia* L. but far remote from it in a natural system of the genus.

Sectio Alternifoliae R. Kn. in Pflzr., IV 237 (1905), 268 p.p. min.

Characteres vide in clave sub no. 36b et 46a; pedicelli petiolique in specie extrasinensi etiam longiores corollaque punctata tantum.

90. 52. *L. albescens* Franch. in Journ. de Bot., ix (1895), 460. R. Kn. in Pflzr., IV 237 (1905), 272.

Syn.: *L. yunnanensis* Franch. in Journ. de Bot., ix (1895), 462. R. Kn. in Pflzr. IV 237 (1905), 266.

? *L. Duclouxii* Bont. in Bull. Soc. bot. Gen., 2. sér., v (1913), 301. Yunnan. Delavay 52, 2847; Py in Ducloux 6712?

Franchet's statement, "antheris quam filamenta brevioribus" for *L. yunnanensis*, reprinted by Knuth, is a mistake. Such stamens moreover could not be compared with *L. evalvis* as Franchet did. The type specimens of *L. albescens* are in the fruiting state with only one corolla left, which was dissected and drawn by Franchet; those of *L. yunnanensis* are in full flower. Although it is thus difficult to compare them, I cannot doubt their systematic identity. Leaves opposite and alternate are present in the *yunnanensis* specimens. The thick papillae of the loose epidermis of the old fruiting specimens can also be seen, closer and finer, in the flowering ones. In habit they differ not more than certain forms of *L. Christinae* and *deltoides* from others of the same species, for also in *yunnanensis* one stem is seen continuing to grow at its tip. As far as I can judge from the original photo and description *L. Duclouxii* can hardly be other than this species. It is, however, described but very insufficiently as to the androecium. Short stamens free from the base remove it of course far from where its author placed it. I agree with Knuth that *L. albescens* is comparable with the following, but not that it is very near, for the strongly gland-stripped corolla is quite distinctive.

91. *L. alternifolia* Wall.

Anthers relatively large, affixed above the base, erectopatent, as long as the filaments, which are not dilatate and are connate only a very short way, viz., as long as tube of the corolla. Style long. Corolla sparsely glandular punctate. Knuth's indication "vel albidæ?" for its colour seems unfounded. The glands on the leaves and the upper part of the whole plant are very similar to these found (much scarcer) in *L. microcarpa* and other species of the *Apodantherae* as well as in *Palladia*, and there can be but little doubt that the section forms a certain link from *Apodanthera* and *Pedunculares* to *Palladia*.

Subgenus *Palladia* (Moench) Hand.-Mzt.

Characteres vide in clave sub no. 2b et 4b. In specie una europaea filamenta inferne etiam in discum crassum connata.

Syn.: *Palladia* (genus) Moench, Method. pl. Marb. (1794), 429.

Ephemerum Reichenb., Fl. germ. exc. (1830), 409 p.p. (including, at the first place, *L. nemorum*).

Lys., sect. *Ephemerum* Endl., Gen. pl. (1839), 732; Duby; Klatt; Knuth (excl. *L. longipede et stricta*, incl. sect. *Lubinia* et *L. chenopodioidi*).

Bernardina Baudo in Ann. sci. nat., 2. sér., xx (1843), 348, nom. nud. (excl. *L. salicifolia*).

Sectio *Lubinia* (Comm.) Klatt in Abh. nat. Ver. Hambg., IV 4 (1866),

8. Knuth in Pflzr., IV 237 (1905), 273 p.p.

Characteres vide in clave sub no. 58a, 59a, 60a.

Syn.: *Lubinia* (genus) Comm. in Vent., Descr. pl. Jard. Cels. (1800), 96.

92. 53. *L. mauritiana* Lam., Encycl. méth., III (1789) 592.

Syn.: *L. lineariloba* Hook. et Arn., Bot. Beech. Voy. (1841), 268.

Forbes et Hemsley in Journ. Linn. Soc., xxvi (1889), 53, excl. pl. Sheareri.

L. lubinioides Siebd. et Zucc. in Abh. Akad. Münch., IV 3 (1846), 104.

L. Nebeliana Gilg in Bot. Jahrb., xxxiv, Beibl. 75 (1904), 57.

L. rubida Koidz. in Bot. Mag. Tok., xxxiii (1919), 110.

For others see Knuth, Pflzr., IV 237 (1905), 273.

Shantung. Nebel.

Kwangtung. Faber.

Knuth gives the corollas as "albae vel luteolae," the latter probably from dried material, where they easily become the latter colour. Franchet and Savatier say in Enum. plant. Japon., II, 301, that they are always white. In flowers dissected I always found the stamens connate only with half the corolla tube and the free filament much

longer than Knuth draws it. The only difference in *L. rubida* which would bring it outside the range of variation of *mauritiana* might be found in the more acute calyx lobes as mentioned by the author first, but in the diagnosis he then describes them as blunt.

93. *L. glaucophylla* Hook.

The single type specimen collected is well characterised by the non-margined calyx lobes. From a note in pencil on the label it seems uncertain whether it did not come from the Bonin Islands.

The other species placed by Knuth in this section have no close affinity here.

Section *Miltandrae* Hand.-Mzt. Characteres vide in clave sub no. 58b, 66, 67a.

Syn.: Sect. *Ephemerum*, subs. *Racemosae* Knuth in Pflzr., IV 237 (1905), 293, p.p.

94. 54. *L. auriculata* Hemsl. in Journ. Linn. Soc., Bot., xxvi (1889), 47. R. Kn. in Pflzr., IV 237 (1905), 295, excl. pl. Henry 6883.

Syn.: *L. Paxiana* R. Kn., l.c. (1905), 288.

Hupei. Henry 474, 572, 641, 752, 3892. Faber 641.

Szechuan. Scallan in Hb. Biondi 4325, 4326.

The specimens of *L. Paxiana* are very badly pressed, and are in fruiting state with some flowers still at the top. The upper leaves are narrow, 5 × 100 mm. when expanded, the lower broader, with the relation of length to breadth the same as in Faber's plant, with which they otherwise agree completely. There is nothing in the specimens to support the suggestion made by Knuth: "corollae aureae?"

95. 55. *L. heterogenea* Klatt in Linnaea, xxxvii (1872), 501 (sphalm. "*heteroganea*"). Franchet in Journ. de Bot., ix (1895), 459.

Syn.: *L. paludicola* Hemsl. in Journ. Linn. Soc., Bot., xxvi (1889),

54. R. Kn. in Pflzr., IV 237 (1905), 294.

Kiangsu? Faber. Locality? Faber 375. Univ. Nanking 1282, 2109.

Chekiang. Faber 1730; Ching in Wulsin 2107, 2389; Cheng in W. 5022.

Kiangsi. Bullock 202; Carles 202.

Kwangtung. Krone; Mell 457.

Hupei. Henry 3519.

96. **56. *L. stenosepala*** Hemsl. in Journ. Linn. Soc., Bot., xxvi (1889),

57. R. Kn. in Pflzr. IV 237 (1905), 298.

Syn.: *L. millandra* Franch. in Journ. de Bot., ix (1895), 458.
R. Kn., l.c. (1905), 298.

L. candida subsp. *eucandida* R. Kn., l.c. 300 p.p. min. Pav. in N.
Giorn. b. It., n.s., xv (1908), 426 p.p. min.

L. acroadenia R. Kn., l.c. 300 p.p.

L. auriculata R. Kn., l.c., 295 p.p. min. cum. ?

L. candida subsp. *oppositifolia* R. Kn., l.c. (1905), 301.

Hupei. Henry 643, 1804, 1819, 4527, 4715, 5866, 6265, 6883;
Wilson, Veitch Exp. 1217; Silvestri 419, 970, 1296, 1397, 1728a,
1752, 1752a, 1752b-1757, 1757a.

Szechuan. Farges 344; where? Faber 3892 the fragment in the
Vienna herbarium; Scallan in hb. Biondi, 4324.

Kweichow. Esquirol 417, 6147; Beauvais 76; Bodinier 1616;
Cavalerie 9 p.p., 9 bis, 3096 p.p., 7742; Martin 1616, 1616 bis; Handel-
Mazzetti 10459.

E. Yunnan. Delavay; Henry 13743; Maire 1069/1913, 731/1914;
Mey in Ducloux 4373, 4958; Ten in D. 5658.

S. Shensi. Giraldis in hb. Biondi 1785; Purdom.

There can be no doubt about the identity of *L. millandra* with
stenosepala already suggested by Knuth. Both lanceolate and
auriculate leaves are found in Wilson's no. 1217, and Farges' specimens
are only specially developed in the vegetative parts. I can see but one
gland at the top of each connective, perhaps a little notched at the
tip. Knuth's *L. candida* ssp. *oppositifolia* is a grave fault which needs
no discussion. Henry's no. 6883 is a small specimen with lyrate
leaves, dotted red, not black, as Knuth says.

Sectio Spicatae R. Kn. in Pflzr., IV 237 (1905), 286, pro subsect., p.p.

97. **57. *L. Fortunei*** Maxim. in Bull. Acad. Péthg., xii (1868), 68. R.
Kn. in Pflzr., IV 237 (1905), 290.

Syn.: *L. barystachys* Klatt in Abh. nat. Ver. Hambg., IV 4 (1866),
11, tab. 1 (excl. analysi).

L. clethroides R. Kn. in Pflzr. IV 237 (1905), 290 p.p. min.

L. Fortunei var. *pubescens* Pamp. in Nuovo Giorn. bot. It., n.s.,
xviii (1911), 132.

L. chikungensis Bail., Gentes Herb., i (1920), 40.

Kiangsu. Courtois 26391.

Kiangsi. David; Forbes 98, 103; Schindler 352A p.p.; Carles.

Chekiang. Faber; Forbes 965; Steward 1911, 2363.

Fukien. Fortune A7; Dalziel; Carles 565; Ching 1911; Chung
2088, 2220, 2751, 2793, 2821; Price 1135, 1149.

Kwangtung. Sampson, Hance 654, 14214; Wawra 564; Hille-
brand; Mell 326, 394; Ex hb. Hongkong B. G. 648.

Kwangsi. Simond.

Hunan. Handel-Mazzetti 12521; Grubb 148.

E. Kweichou. Cavalerie 2679; Handel-Mazzetti 10831.

Honan. Bailey; Schindler 169a.

Hupeh. Silvestri 141, 3137.

"Corollae lobi tubo subtriplo breviores" of Knuth is quite wrong. In this species the leaves vary from broadly elliptic (55 × 30 mm. in Carles' plant) to narrowly lanceolate, and often they are opposite. Quite glabrous specimens must be very rare if such exist at all. At least the top of the young inflorescence is glandular-puberulous, and often this indument extends to the stem. No definite varieties can be distinguished, still less can *L. chikungensis* be kept separate.

98. 58. *L. clethroides* Duby in DC., Prodr. viii (1844), 61. R. Kn. in Pflzr., IV 237 (1905), 290.

Syn.: *L. barystachys* Petitmgn. in Bull. Ac. int. Géogr. bot. xvii (1907), 222. Pav. in N. Giorn. b. It., n. ser., xv (1908), 426.

Chih-li. Schindler 60 (163).

Shantung. Faber.

N. Shensi. Nesi in hb. Biondi 4689.

Hupeh. Henry 241, 377, 1582, 1987, 3163, 3163A; Wilson, Veitch Exp.; Silvestri 728, 1724-1726, 1726a-1728a p.p., 1729-1731.

Kiangsi. Shearer; hb. Univ. Nanking 2409; Schindler 352a p.p.

Kiangsu. Bullock.

Chekkiang. Hickin.

Hunan. Handel-Mazzetti 12239; Grubb 158.

Szechuan. Farges 439; Bock et Rosthorn 2178 e Knuth; Parker.

Kweichou. Bodinier 1617; Beauvais 100; Martin 2659; Cavalerie 3992; Handel-Mazzetti 10332.

E. Yunnan. Hancock 3; Henry 10249; Maire 1367, 2673; Esquirol 496, 882; Schoch 201; Ducloux 622, 7382, 7469; May. in D. 4970; Py in D. 2667, 3781; Ly in D. 5245; Ten in D. 5660.

Although this species is easily recognized, in details it differs but slightly from the following. Perhaps, however, the anthers are somewhat bigger compared with the corolla and more acute than in *barystachys*. In northern China both inhabit almost the same area, but towards the South the latter is confined to the West and *L. clethroides* to the East, and in central Yunnan neither occurs. *L. sororia* Miq. seems hardly to represent a variety.

99. 59. *L. barystachys* Bge. in Mém. Acad. Péthg., ii (1835), 127. R. Kn. in Pflzr., IV 237 (1905), 289.

Chih-li. Staunton; David; Clemens 2040, 2040a; Bretschneider 484; Moellendorff in hb. Hance 6510; Hancock 88; Bushell; Wawra 879; H. Smith 577, 660, 837; Provost 71, 171; Beauvais; Meyer 1202; Chanet 952, 1244; Williams.

Shantung. Debeaux 94, 611; Forbes; Wawra; Zimmermann 206, 380, 389; Perry; Licent 6376; Mayers.

Hupeh. Henry 176, 1574; Silvestri 1713, 3135.

S. Shansi. H. Smith 5972, 6640; Licent 1351, 2390.

Shensi. Giraldu in hb. Biondi 719-721, 1631, 1799, 1800, 4675-4682; Scallan 10, 21, in hb. Biondi 4683; Purdom; Piccoli 549.

E. Kansu. Potanin.

N.W. Szechuan. H. Smith 2434. W. Szechuan. Bonvalot et Orléans.

W. Yunnan. Delavay 228, 3174; Forrest 2515, 5800, 10307; Schneider 1749; Rock 4310, 5204.

Sectio Apochoris (Duby in DC., Prodr., viii (1844), 67, pro gen.) Hand.-Mzt.

Syn.: *Bernardina* §§ *Lysis* Baudo in Ann. Sci. nat., 2. sér., xx (1843), 349, nom. nud.

100. **60. *L. pentapetala*** Bunge in Mém. Acad. Pétrbg., ii (1835), 127. R. Kn., in Pflzr., IV 237 (1905), 302.

Syn.: *Apochoris pentapetala* Duby in DC., Prodr., viii (1844), 67.

Lysis pentapetala O. Ktze., Revis. gen. (1891), 397.

Lysimachia unguiculata Diels in Bot. Jahrb., xxix (1901), 524.

Chih-li. Williams in herb. Hance 6497; Wawra 1000; Bretschneider; Swinhoe; Simon 16; Clemens 6306; Carles; Chanet 537 bis, 540; Bodinier 20; Licent 1615, 3047.

Shantung. Fortune; Schindler 244; Zimmermann 257, 506; Hancock 144; Cosi; Clemens 1456; Cowdry 804.

S. Shansi. H. Smith 6824.

Shensi. Giraldu in herb. Biondi 1830, 4687, 5990, 6160, 7073; Scallan 73, 78; Licent 2404.

Honan. Schindler 156a.

W. Hupeh. Wilson 401. N. Hupeh. Silvestri 637, 1750.

Szechuan. Omei. Scallan ? in hb. Biondi 6141.

The calyx being gamosepalous high up is in a strange contradiction to the almost free petals. The former is either eglandular or with glandular stripes along the edges. The filaments are loosely adnate to the petals high up and free only for a part equal in length to the short anther. The raceme as well as the upper part of the stem is densely furfuraceous-farinose owing to subsessile glands.

Sectio Chenopodiopsis Hand.-Mzt. Characteres vide in clave sub no. 57b, 58a, 59b, 63a.

101. *L. pyramidalis* Wall.

Knuth calls the corollas "aureae," following Duby, but Wallich 1824 (not 1832 as Knuth cites) "flesh coloured" and other eye-

witnesses as Hooker and Collett (Fl. Siml.) white. Thus the species belongs certainly here.

102. **61. *L. chenopodioides*** Watt in Hook., Fl. Brit. Ind., iii (1882), 503. R. Kn. in Pflzr. IV 237 (1905), 272.

Yunnan. Delavay 2115, 2384, 3025, 4452; Ducloux 593; Maire.

The corollas are also called "luteae" by Knuth, but are white according to Hooker, whence the species belongs here and not to the affinity of *L. albescens* or *cuspidata*.

103. *L. minoricensis* Rodrig.

The important floral characters must be completed from the original description and my own dissection as follows: Calyx lobes narrowly ovate, blunt, with membranaceous margin of equal breadth throughout but almost wanting around the top, with thick gland stripes up to the tips, faintly glandular-fringed at the edges. Corolla 4 mm. long, almost campanulate, violet-blue at the base, greenish yellow at the tip, very shortly gamopetalous, the tube inside sparsely glandular, otherwise glabrous and not gland dotted; lobes narrowly oblong, rounded and erose at the tops. Filaments connate with it to a very little above the tube, the free parts at the base as broad as the corolla lobes, glabrous, 3 times as long as the big, almost upright, subglobular anther. Style thick, as long as the ovary, both glabrous.

This interesting plant is no doubt very near to the preceding species.

104. **62. *L. reflexiloba*** Hand.-Mzt. in Sitzgsanz. Akad. Wiss. Wien, 1923, 136.

E radice parva perenni (?), crebre fibrosa uni- vel pluricaulis, praeter racemum superne primum subtiliter rufo-glandulosum glaberrima. Caules ascendentes, 20-55 cm. longi, herbacei, virides, quadricostati, ad tertium inferum ramosi ramis inferioribus ad foliorum fasciculos reductis superioribus racemiferis, foliis crebris alternis, basalibus quoque sub anthesi saepe vivis, dimidio vel duis tertiis racemis laxissimis apice saepe nutantibus obsiti. Folia elliptica, 6 × 15 vel 9 × 16 usque 16 × 25 vel 17 × 38 mm., acuta, in petiolum quam lamina 5- vix 3-plo breviora sensim attenuata, superiora flores infimos fulcrantia, in bracteis vis transeuntia, herbacea, crebre nigro glanduloso-punctata, margine cartilagineo minute undulata, costa nervisque utrinsecus ± 4 valde obliquis latiusculis in sicco utrinque conspicuis. Bractee subulatae, pedicellos 2 mm. longos tenues erectopatulos vel raro etiam calyces aequantes. Flores remoti, inferiores nonnulli interdum oppositi. Calycis fere ad basin fissi lobi oblongi, 3-4.5 mm. longi, apice longo patente, late membranaceo-marginati, ceterum virides et sicut corolla nigropurpureo-vittati. Corolla alba, calyce plus duplo longior, tubo 2-2.5 mm. longo, lobis

lingulatis 5 mm. longis, rotundatis vel truncatis et erosulis, a medio reflexis. Filamenta tubo fere toto adnata, partibus liberis quam antherae late ellipticae ad 1 mm. longae versatiles brevioribus. Ovarium globosum; stigma clavatum magnum, sessile. Capsula 2.5-3 mm. diametro, brunnea, valvis dehiscens.

S.W. Szechuan. Handel-Mazzetti 7572.

A very remarkable species in that the style is almost wanting and that the shape of the corolla exactly recalls *Primula szechuanica* Pax.

105. **63. *L. excisa*** Hand.-Mzt. in Act. Hort. Gothobg., ii (1926), 118.

W. Szechuan. H. Smith.

Even allowing that in other species also the same variations in length of style and stamens can occur as in *L. crispidens* (see below), the species placed together here are not nearly related to any others.

106. *L. Woodii* Schltr.

In floral structure approaching *L. Ephemerum*.

Sectio Ephemerum (Reichenb. p.p.) Endl. p.p.

Folia opposita. Calycis lobi lati, circumcirca late hyalino-marginati. Corolla brevissime gamopetala, late aperta, tenera. Filamenta ad dimidium in discum cupularem validum corollae leviter adnatum connata, partibus liberis longis; antherae parvae, fere mediofixae, versatiles, apiculatae. Stylus longus, crassus.

107. *L. Ephemerum* L.

? **Sectio Marginatae** Hand.-Mzt.

108. *L. marginata* Macloskie in Scott, Rep. Princ. Un. Exp. Patag., viii (1903), 652.

Not seen by me. A very small, annual plant with reddish flowers and the filaments connate into a tube, thus probably forming a section of its own at this place.

Sectio Coxia (Endl., sensu amplif.) Hand.-Mzt.

Syn.: *Coxia* (genus) Endl., Gen. pl. (1839), 733.

Characteres vide in clave sub no. 57b, 58b, 66b, 67b, 69b, 70a, 71a.

Series Lobelioideae Hand.-Mzt.

Syn.: *Dugezia* Montrouzier, e Beauvisage in Ann. Soc. bot. Lyon, xxvi, 82, nom. nud.

109. **64. *L. circaeoides*** Hemsl. in Journ. Linn. Soc., Bot. xxvi (1889), 49. R. Kn. in Pflzr. IV 237 (1905), 299.

Huieh. Henry 1991, 3513, 7287; Silvestri 607, 1721, 1722, 1722a.

Hunan. Handel-Mazzetti 11975.

C. Yunnan. Peyenching. Sankoushui. Ten 1204.

- var. ***lyratifolia*** Hand.-Mzt. in Sitzgsanz. Akad. Wiss. Wien, 1925, 26.

90-110 cm. alta, polystachya, caule subalato-tetragono, foliis lanceolatis, usque ad 12×2 cm., petiolis inferiorum alatis et basi auriculato-semiamplexicaulibus. Calycis glandulae obsoletae. Corolla intus minute et crebre purpureo-glandulosa.

Huieh. Wilson 781.

Hunan. Handel-Mazzetti 11927.

The species is remarkable in its section for the short filaments which possibly are a primitive character. The variety is represented by very well developed specimens and the auriculate leaves are no doubt in relation with this development as in *L. militandra* (see above under *stenosepala*), but there are here some small additional differences.

110. *L. Keiskeana* Miq., Prol. Fl. Jap. (1866), 284 e typo.

Syn.: *L. acroadenia* Maxim. in Bull. Acad. St. Pétrbg., xii (1868), 70. R. Kn. in Pflzr., IV 237 (1905), 300, excl. pl. sinensi.

The lowermost fruiting pedicels are 1 cm. long and upwards.

111. **65. *L. Silvestrii*** (Pamp.) Hand.-Mzt.

Syn.: *L. decurrens* R. Kn. in Pflzr., IV 237 (1905), 296 p.p. min. Pampanini in N. Giorn. bot. It., n. ser., xviii (1911), 131.

L. circaeoides var. *Silvestrii* Pamp., l.c., xvii (1910), 684.

N. Shensi. Giraldu in Hb. Biondi 5586.

N.E. Szechuan? Farges.

Huieh. (Silvestri 958). Kai-shan, Sept. 1909 (Silvestri 3136). Kao-kien-shan, c. 800 m., June-July 1907 (Silvestri 1723, 1723a).

This plant has been known so far only in the fruiting state and with some shrivelled flowers. In this state it resembles a very big and robust *L. lobelioides*, and the glands on the leaves are quite the same as in that species. But Silvestri's no. 958, collected recently, is in an early state of flowering and shows a floral structure quite different from both species so far compared with it; it agrees well with Pampanini's description and completely with the fruiting specimens. It is no doubt a distinct species allied to *L. acroadenia* and less strongly so to *L. lobelioides*.

112. **66. *L. lobelioides*** Wall. in Roxb., Fl. Ind., ii (1832), 29. R. Kn. in Pflzr., IV 237 (1905), 296, where synonyms from non-Chinese literature.

Yunnan. Delavay 243, 1533, 4368, 6918; Hancock 269; Henry 10002; Forrest 7973; Limpricht 922; Schneider 1657; Handel-

Mazzetti 3217; Schoch 205; Maire 34/1913, 84, 498/1914, 2258, 2670; Cavalerie 75; Howell 265, 266; Rock 4225; Ducloux 214, 266, 4375, 7535; Py in D. 3866; Ly in D. 5231; Ngueou in D. 4260; Leduc.

W. Szechuan. Wilson, Veitch Exp. 4015; Handel-Mazzetti 2707; H. Smith 1770.

Kweichou. Cavalerie 37, 3096 p.p.; Esquirol 59, 1529, 6071; Handel-Mazzetti 10309.

113. **67. *L. decurrens*** Forst., Fl. ins. austr. Prodr. (1786), 12. R. Kn. in Pflzr. IV 237 (1905), 296 (var. *a. eudecurrens* Kn.), excl. pl. Giraldii.

Syn.: *Cerium spicatum* Lour., Fl. Coch. (1790), 136.

L. sinica Miq. in Journ. bot. neerland., 1 (1861), 110.

L. consobrina Hance in Ann. sci. nat., 5. sér., v (1866), 224.

L. acroadenia Kn., l.c., 300 p.p.

? *L. racemiflora* Bonati in Bull. Soc. bot. Gen., 2. sér. (1913), 308.

Others see in Knuth, l.c.

Fukien. Dalziel; Krone.

Kwangtung. Sampson in hb. Hance 11033. Wulsin 12195, 12726.

Hainan. Henry 8116; Mc. Clure, Cant. Chr. Coll. Herb. 9292.

Kwangsi. Morse 258; Beauvais 6.

Kweichou. Esquirol 3604, 3640; Cavalerie 9 p.p.

N.E. Yunnan. Delavay.

Bonati's *L. racemiflora*, judging by the small corollas, most probably belongs here. There can be no doubt that it is a specimen showing abnormal propagation, as mentioned above under *L. trientaloides* and also found in Farges' fruiting specimens belonging probably to *L. silvestrii* and by no means is a species representing a new section (*Racemiflora* Bonti.). The description, however, is insufficient for identifying it with certainty.

114. **68. *L. platypetala*** Franch. in Nouv. Arch. Mus. Hist. nat. Par., x (1888), 59.

Syn.: *L. decurrens* var. β *platypetala* R. Kn. in Pflzr., IV 237 (1905), 297.

W. Szechuan. Muping. David. Tachienlu. Bonvalot et Orléans. 4,000 ft. Wilson, Veitch Exp. 4014.

Yunnan. Tzoku. Soulié 1321. Tapintze. Delavay 3578, 4274.

The glands in the leaves are very peculiar and the other differences so important that it can by no means be considered a variety of the foregoing species. It is rather nearer to the following.

Series Violascentes Hand.-Mzt.

115. 69. *L. glaucina* Franch. in Journ. de Bot., ix (1895), 457. R. Kn. in Pflzr., IV 237 (1905), 298.

W. Yunnan. Delavay 2371, 3578, 4274; Py in Ducloux 7091.

C. Yunnan. Ten 1284; Maire 2671, 2672; Cavalerie 7741, 7758; Schoch 315.

Type specimens show in some flowers stamens distinctly exceeding the corollas. They do much more so in Maire's no. 2672 from Yunnanfu which is also more ramose. A somewhat doubtful plant is his no. 2671, loose specimens with fruits already opened and with few flowers only, very ramose whence the inflorescences are almost paniculate below and bear normal leaves as bracts to the lowermost flowers; however, as it agrees in all other details I cannot place it better than here. This species and the three following are very near together and have no other differences than those exposed in the key. Possibly there will be found intermediates here and there.

116. 70. *L. lichiangensis* Forr. in Not. Roy. Bot. Gard. Edin., iv (1908), 237.

Yunnan, N.W. and N.E. Forrest 2352, 5971, 10321; Handel-Mazzetti 4131; Schneider 1795, 3021; Rock 4309, 4406, 4725; Maire 275/1913.

There are some specimens collected by Rock with long exerted stamens, but otherwise these plants agree so completely that they doubtlessly belong here. This character is somewhat variable in this group.

117. 71. *L. violascens* Franch. in Journ. de Bot., ix (1895), 459.

W. and C. Yunnan. Delavay 67, 1686, 3062, 3400, 4283; Forrest 447, 6133; Ten 77; Py in Ducloux 4540, 7103.

S.W. Szechuan. Handel-Mazzetti 3041.

Franchet's description is a little inexact for in the type at least the inflorescence is glandular and the free part of the filament glabrous.

118. 72. *L. taliensis* Bont. in Bull. Soc. bot. Gen., 2. sér., v (1913), 309.

Syn.: *L. violascens* Forr. in Not. R.B.G., Edin., iv (1908), 236 p.p. Pax et Hoffm. in Fedde Rep. Beih. xii (1922), 461.

W. Yunnan. From Tapingtze to the Yangpi river. Delavay 4024, 4029; Forrest 3839, 4120, 7026, 7126; Schneider 2509; Limpricht 1044; Rock 6201.

Quite congruent with *L. Delavayi* in the vegetative parts, it differs widely in the corollas. Delavay's plant possibly forms a transition to the foregoing species.

119. ***L. robusta*** Hand.-Mzt.

Planta 1-ultra 1½ m. alta. Caulis erectus, fistulosus, quadricostulatus, basi ad 1 cm. crassus, superne saepe ramosus, inferne ferrugineus, racemo terminali longe cylindrico, ad 24 cm. longo et c. 2.5 cm. crasso, ante anthesin denso obtuse conico, florifero et fructifero densiusculo, racemis lateralibus brevioribus erectis. Folia decussata, erecta, longe lineari-lanceolata, margine paululum revoluta, ad 11 cm. longa et 1.5 cm. lata, ad apicem breviter acutum sensim attenuata, ad basin semiamplexicauli-sessilem breviter angustata, subcoriacea, penninervia, supra obscure viridia, subtus caesioviridia et subtiliter et dense glanduloso fuscopunctata. Bractee e basi latiore subulatae, ad 6½ mm. longae et 1 mm. latae, dense glanduloso-punctulatae et striolatae, margine saepe submembranaceae. Pedicelli ad 1 cm. longi, patuli, rigidi, sessili-glandulosi. Calycis lobi ovati, ad 4 mm. longi et 1.2 mm. lati, basi tantum connati, marginibus membranaceis, apice truncato dentatis, glandulosi, basi obscure virides, apicem versus purpurascens et irregulariter atropurpureo lineati vel punctati. Corolla 6.5 mm. longa, roseo suffusa vel pallide lilacino-rosea (e collectore), tubo brevissimo intus densissime glanduloso, lobis subpatulis obovatis subunguiculatis, ad 5 mm. longis et 4 mm. latis, ad apicem rotundatum crenatum rubescenti-lineatis, intus paulum glandulosi. Stamina ad 8.5 mm. longa; filamenta a basi loborum libera et glabra, antherae oblongo-ellipticae, 1 mm. longae, mediofixae, versatiles. Ovarium globosum, dimidio inferiore atropurpureo-punctatum. Stylus filiformis, alabastro inclusus, sub anthesi 5-8 mm. longus. Capsula globosa, ad 4 mm. diametro, brunnea.

Yunnan. Tengyüeh. (Howell 49). Hills to the N.E. of T., 25° 15' N., amongst scrub, 8,000 ft., Oct 1912. (Forrest 9286). Shweli-Salween divide 25° 30' N., 8-9,000 ft. Open situations on the margins of thickets. July 1913. (Forrest 11997).

Caulis foliaque omnino *Lysimachiae Ephemerum* L., inflorescentia magis *L. Leschenaultii* Duby, sed angustior. Inter species sinenses valde peculiaris.

120. *L. Leschenaultii* Duby.121. *L. nutans* Nees.122. *L. atropurpurea* L. (= *L. atrop.* var. *thessala* Form. [e Vandas, Rel. Form.])123. *L. Volkensii* Engl.

Not seen.

124. *L. africana* Engl.

125. *L. saganeitensis* Schwfth.

126. *L. Ruhmeriana* Vatke.

127. *L. parviflora* Bak.

128. *L. dubia* Soldr.

To the synonyms add *L. atropurpurea* var. *Kindingeri* Adamov. in Dkschr. Ak. Wiss. Wien., m.-n. Kl., lxxiv (1904), 134.

Var. *longibracteata* Reg., Turk. Fl. (1876), 22, matches this and is hardly more than an individual variation.

129. 74. *L. Delavayi* Franch. in Journ. de Bot., ix (1895), 457. R. Kn. in Pflzr., IV 237 (1905), 297.

N.W. Yunnan. Tapingtze (Delavay 175, 222, 222bis, 2387). Between Yungning and Mutichin, on limestone rocks (Schneider 1633).

This seems to be a rare plant. The original description is not quite exact, for the inflorescence is not quite glabrous and the raceme can not always be called "apice attenuatus." The inflorescence when well developed much resembles that of *L. stenosepala*.

130. 75. *L. tsarongensis* Hand.-Mzt.

Radix biennis, fasciculata, rigidula, foliis basalibus sub anthesi nullis. Caulis erectus, 37 cm. altus, ima basi longiramosus, tenuiter costatus, pallide brunneus, subsessili-vel sessili-glandulosus. Folia alternantia et ima interdum opposita, haec late ovata, media angustiora et summa ovato-lanceolata, lamina usque ad 3.3 cm. longa et 1.7 cm. lata, acuta, basi cuneata et secus petiolum ad 1 cm. longum anguste producta, margine crispata et irregulariter rubro glanduloso-punctata, herbacea, supra obscure luteo-viridia, subtus glaucescentia, sicut petioli caulisque utrinque glanduloso-pulverulenta. Racemi cauli ramisque terminales, cylindrici, apice rotundati, ad 9 cm. longi et 2.8 cm. lati, praesertim apice densiflori, parce glandulosi. Bractae longe subulato-lanceolatae, ad 5 mm. longae, margine membranaceae. Pedicelli ad 6 mm. longi, patuli, graciles. Calyx c. 5 mm. longus, valde glanduloso-striatus, lobis longe lanceolatis, longiacuminatis, ad 4 mm. longis et 1.4 mm. latis, apice ipso obtusis, margine membranaceis saepe subdenticulatis. Corolla ad 1 cm. longa, candida vel paulum roseo suffusa (e collectore), $\pm$ rubro glanduloso-striata, profunde partita, lobis patulis oblongis, indistincte unguiculatis, ad 6.5 mm. longis et 2 mm. latis, apice subcrenatis, sinubus acutis, tubo dense, unguibus sparse glandulosa. Stamina corollae aequilonga. Filamenta lobis alte adnata, inter se libera, partibus liberis glabris. Ovarium globosum glabrum. Stylus ante anthesin alabastro inclusus, ad 5 mm. longus, crassiusculus, glaber. Capsula immatura globosa, 3.1 mm. diametro.

S.E. Tibet. Tsarong, Salween-Kiu-chiang divide, 28° 40' N., 98° 15' E. Moist meadows by streams. Aug. 1919. Forrest 19282.

Two specimens only which cannot be placed with any of the known species. In the floral structure it is very near *L. Leschenaultii* which differs by being much bigger and more robust, having much longer pedicels and styles and a different shape of the leaves. In the vegetative parts it is also similar to *L. obovata*.

Sectio Candidae Hand.-Mzt. Characteres vide in clave sub no. 57b, 58b, 66b, 67b, 69b, 70, 71b.

Subsectio Pumilae Hand.-Mzt. Characteres vide in clave sub no. 70b.

131. **76. *L. pumila*** (Baudo) Franch. in Journ. de Bot., ix (1895), 460. R. Kn. in Pflzr., IV 237 (1895), 276.

Syn.: *Bernardina pumila* Baudo in Ann. Sci. nat., 2. sér., xx (1843), 349 e Franchet l.c.

N.W. Yunnan. Delavay 874, 1091; Forrest 2068, 5625, 10005; Handel-Mazzetti 6565; Ward 261.

W. and S.W. Szechuan. Soulié 559, 963; Pratt 853; Wilson, Veitch Exp. 3585; Legendre 926; Handel-Mazzetti 2286; Schneider 4139.

This is the only species in the genus attaining the subalpine region up to 4,030 m. on mount Waha near Yungning, noted by me.

132. **77. *L. prolifera*** Klatt. in Abh. nat. Ver. Hambg., IV 4 (1866), 30. R. Kn. in Pflzr., IV 237 (1905), 275.

N.W. Yunnan. Salween-Kiu-chiang divide, at 27° 58' and 28° 18' N. Handel-Mazzetti 9438; Forrest 21639.

Subsectio Racemosae R. Kn. in Pflzr., IV 237 (1905), 293 p.p. min. Characteres vide in clave sub no. 70a et 71b.

133. **78. *L. parvifolia*** Franch. in Journ. Linn. Soc., Bot., xxvi (1889), 55. R. Kn. in Pflzr., IV 237 (1905), 302.

Syn.: *L. candida* var. *microphylla* Franch. in Journ. de Bot., ix (1895), 459 (Subsp. β) R. Kn., l.c., 301. Forrest in Not. R.B.G., Edin., iv (1908), 236 p.p.

L. humifusa R. Kn., l.c. (1905), 301. Hand.-Mzt. in Act. Hort. Gothobg. ii (1926), 119.

L. crispidens R. Kn., l.c. (1905), 295 p.p.

L. lobelioides Forr. in Not. R.B.G. Edin., iv (1908), 235.

L. Valbrayi Lévl. in sched.

Yunnan. Delavay; Hancock 88; Tanant; Forrest 3838, 5596, 10214, 16266; Ducloux 208, 2305, 3865 p.p., 7565; Maire 591, 839,

905/1914, 2669, 4764; Schoch 38; Ten 371; H. Smith 1565; Rock 4579.

S.W. Szechuan. Handel-Mazzetti 841, 1141, 3113; Schneider 551. Chekiang. Savatier.

Since I pointed out (Act. Hort. Gothobg., l.c.) that *L. candida* var. *microphylla* and *L. humifusa* are one and the same, I have seen the type of *L. parvifolia* Franch. and specimens from Yunnanfu which agree with this perfectly in having the axis of the raceme prolonged and leafy beyond the flowers, and some of the lower flowers alternating with branches. In this species as well as the following cleistogamous flowers occur not rarely in the lower part of the raceme. These are on stalks only 1-1½ mm. long, and have a normal calyx, but a corolla only 1½ mm. long, petaloid as usual, and a well developed gynaeceum and androecium, although the stamens do not exceed the corolla and the style is only ¾ mm. long.

134. 79. *L. obovata* Ham. in Hook. f., Fl. Brit. Ind., iii (1882), 502.

Syn.: *L. candida* ssp. *a. eucandida* p.p. et. ssp. *δ obovata* R. Kn. in Pflzr., IV 237 (1905), 300-301.

L. candida ssp. *eucandida* and ssp. *microphylla* p.p. Forr. in Not. R.B.G. Edin., iv (1908), 236.

L. parvifolia Hand.-Mzt. in Act. H. Gothobg., ii (1926), 120.

Chih-li. Oliver 118.

Hunan. Handel-Mazzetti 11705.

Yunnan. Delavay 164, 1534; Henry 10601, 10885; Forrest 456, 3840, 4103, 4104, 4796, 9846; Ducloux 164, 1482, 3865 p.p.; Py in D. 2868; Nguen in D. 6470.

Hainan. Henry 8193.

This plant forms a link between the foregoing and the following species. In certain parts of Yunnan it is not much rarer than the former, whereas the latter does not grow there. In India it is the only representative of its group, mostly provided, it seems, with somewhat smaller flowers than in Yunnan. It should rather be kept separate than serve to unite the three species into one; but observation in the field may prove that their peculiarities depend on local conditions and that they are of less systematic value than is here given to them. In Forrest's no. 4104 are seen cleistogamous flowers as described under *parvifolia* above.

135. 80. *L. candida* Lindl. in Journ. Hort. Soc. Lond., i (1846), 301.

Syn.: *L. inconspicua* Miq. in Journ. bot. néerland., i (1861), 110.

L. samolina Hce. in Ann. sci. nat., sér. 5., v (1866), 224.

L. lineariloba Forb. et Hemsl. in Journ. Linn. Soc., Bot. xxvi (1889), 53 p.p. min.

L. verruculosa Gilg in Bot. Jahrb., Beibl. 75 (1904), 57.

L. candida subsp. *eucandida* R. Kn. in Pflzr., IV 237 (1905), 300 p.p. max.

N.E. Yunnan. Maire.

Kweichow. Cavalerie 1861, 2739; Bodinier 1558.

Szechuan. Faber 833.

Hupei. Watters; Henry 465, 595; Wilson, Veitch Exp. 401, 402; Silvestri 1714-1719, 1747-1750, 3139.

N. Shensi. Giral di in hb. Biondi 446, 1494, 1496, 3426, 3430, 4684, 4686, 7072; Zuo in hb. B. 4685; Scallan.

Shantung. Faber; Perry; Bullock 335; Carmichael in hb. Forbes 259; Haas 53; Nebel; Krug 175.

Kiangsi. Shearer; Hemsley in hb. Forbes 259.

Kiangsu. Debeaux; Faber 474, 480; Hance; Forbes 2231; Bodinier; Carles 118, 135; Oliver 262; Maingay 418; Wenyon; Du Bois-Reymond 350; Schindler 276b; Limpricht 408; Steward Nank. Un. hb. 1988; Courtois 25560.

Chekiang. Hancock 38; Fortune 12a; Franchet; Oldham 43; Warburg 6902; Ching in Wulsin 1289.

Fukien. De La Touche 146; Foochow, without data in hb. Edin. Chung Un. Amoy hb. 1320.

Kwangtung. Krone; Hance und Simson in Wawra 719; Lamont 1088; Hance 10004; Tutchter Hkg. hb. 10834a; Callery 113; Mell 238.

Kwangsi. Morse 307; Beauvais 3; Playfair.

Hainan. Swinhoe.

"China." Fortune 18; Reeves.

136. *L. leucantha* Miq. in Ann. Mus. Lugd. bat., iii (1867), 121. R. Kn. in Pflzr., IV 237 (1905), 301.

Syn.: *L. candida* subsp. γ *samolina* (Max.) R. Kn., l.c.

L. candida var. *leucantha* Mak. in Bot. Mag. Tok., xxi (1907), 162.

For the characteristics of this Japanese, Korean and Quelpert plant see my notes in Act. Hort. Gothobg., ii, 120.

Section *Heterostylandra* Hand.-Mzt. Characteres vide in clave sub. no. 57b, 66b, 69a.

137. 81. *L. crispidens* (Hcc.) Hmsl. in Journ. Linn. Soc., Bot. xxvi (1889), 50. R. Kn. in Pflzr., IV 237 (1905), 295 p.p.

Syn.: *Stimpsonia crispidens* Hance in Journ. of Bot. xviii (1880), 234.

L. hupehensis Pamp. in Nuovo Giorn. bot. Ital., n.s., xviii (1911), 132 e Pamp. l.c. 174.

Hupei. Watters; Henry 259, 276, 1257, 3368, 3850; Faber; Wilson, Veitch Exp. 9, 9a; Silvestri 278, 394, 3138.

N.E. Yunnan. Delavay.

I find the corolla tube mostly longer than is shown in the illustrations published by Hemsley, Pampanini and in the Bot. Mag., t. 7919. Only in Silvestri's recent plants is it sometimes as short, but then it is cylindrical and a little inflated and so brings this species next to the genus *Primula* to which it also approaches in habit. Another feature which gives it a peculiar position is its heterostylandry (see above p. 53). Only in Wilson's no. 9a are both filaments and style very long. The style is always of about the same length as the stamens. Knuth overlooked this variability in his description, but speaks of heterostyly at the foot of p. 10. In the position of the leaves *L. crispidens* is very variable. The flowering stem is either largely provided with alternating leaves or bears but one pair which are exactly opposite, or is a leafless scape.

As Hancock's plant from Yunnan, placed here by Knuth, is *L. parvifolia*, *L. crispidens* is in this province found only in the extreme N.E. near Chenfongshan or Laowatang, where, from the date, Delavay's locality lies.

Subgenus *Naumburgia* (Mönch) Klatt.

138. 82. *L. thyrsiflora* L., Sp. pl. (1753), 147. R. Kn., l.c. (1905), 302.

Syn.: *L. kamtschatica* Gandgr. in Bull. Soc. bot. Fr., lxx (1918), 58 (teste Hultén).

Yunnan. Yunnanfu, in the *Phragmites* islands in the lake between the town and the Hsi-shan. Handel-Mazzetti 8630.

I found in April 1916 only sterile specimens of this species which does not seem as yet to have been recorded from China proper.

Subgenus *Lysimachiopsis* (Hell.) Hand.-Mzt.

Syn.: *Lys.*, sect. *Fruticosae* R. Kn. in Pflzr. IV 237 (1905), 309, incl. s. *Rosulatae*, l.c., 308.

Lysimachiopsis (genus) Heller in Minnes. bot. stud., i (1897), 874.

The distinguishing characters (flowers 5-9-merous; corolla urceolate; filaments connate into a short ring) by no means justify generic separation. The fruticose habit is lacking in the yellow-flowered *L. alpestris* which doubtless is nearly allied to the shrubby red-flowered species.

Sectio *Rosulatae* R. Kn., l.c., 308.

139. 83. *L. alpestris* Champ. in Journ. Bot. Kew., iv (1852), 299. R. Kn., l.c.

Hongkong. Hance 648; Wilford 425; Tate; Champion 124; Lamont 413; Wright 341; Bon; Bodinier 111.

The name of this plant is most inappropriate. The flower is yellow as Benthams and Dunn and Tutchers say, but no mention of this can be found in Knuth's work, and its shape is drawn there very incorrectly and not in agreement with the description.

Section Cilicina Klatt in Abh. nat. Ver. Hambg., IV 4 (1866), 10.

Syn.: sect. *Fruticosae* R. Kn. in Pflzr., IV 237 (1905), 309.

I have no personal opinion on the value and relations of the entities described.

140. *L. Hillebrandtii* Hook. f.

var. *subherbacea* Hillebr.

var. *maxima* R. Kn.

var. *venosa* Wawra.

var. *Helleri* R. Kn.

141. *L. Lydgatei* Hillebr.

142. *L. Remyi* Hillebr.

143. *L. rotundifolia* Hillebr.

144. *L. glutinosa* Rock in Bull. Torr. Bot. Cl., xxxvii, 300.

145. *L. longisepala* Forb. in Occ. pap. Bish. Mus. Honol., iv (1909)
222. (*L. Forbesii* Rock in Fedde Rep., xiii [1915], 361).

146. *L. filifolia* Forb. et Lydg. in Occ. pap. Bish. Mus., vi (1916), 74.

147. *L. daphnoides* (Gray) Hillebr.

Species excludendae:

L. Knuthii Petitmgn. in Bull. Herb. Boiss., 2. sér., vii (1907), 529 = *Solanum lysimachioides* Wall. e typo.

L. quadriflora Petitmgn., l.c., 530 = *Pseudopyxis quadriflora* (Ptn.) Koidz. teste Koidzumi, e Chodat in litt.

L. Mairei Lévl. in Bull. Ac. Géogr. bot., xxv (1915), 40 = *Clematoclethra* sp.