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ON PLANTS FROM SOUTH ANNAM

BY

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AND H. F. WERNHAM.

With an introduction by the collector,  
MR. C. BODEN KLOSS.

PREFACE

BY

DR. A. B. RENDLE, F. R. S.

The collection of plants made by Mr. C. Boden Kloss, in the South-east corner of Annam, in March, April and May, 1918, has been determined by members of the Department of Botany, British Museum (where the specimens are preserved), and Mr. Ridley. Mr. Kloss has supplied an account of the localities in which the plants were collected, mainly the highlands of the Langbian province; and also records of colour <sup>1</sup>, which are printed between inverted commas. The collection presented by Mr. Boden Kloss to the Natural History Museum comprises 191 species of flowering plants, including one Gymnosperm, *Dacrydium elatum*, and 4 Cryptogams. There are 60 Monocotyledons, 33 of which are Orchids, and among these are a new genus, *Zetagyne*, near *Pholidota*; six new species and a new variety. Three of the six members sent, in the family Zingiberaceæ, are also new species; and there is a new *Smilax*. Of the 131 Dicotyledons the best represented families are Rubiaceæ, 13 species, and Compositæ, 20 species, with six new species in each. Altogether there are 39 new species, including two new genera and 4 new varieties. The majority of the novelties come from the

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<sup>1</sup> Omitted by Mr. Moore.

Langbian Plateau, at altitudes of from 5,000 ft. (at Dalat) to 7,500 ft. (Langbian Peaks); a few were collected on the Dran Plateau at 3-4,000 ft. *Cyclacanthus*, a new genus of Acanthaceæ comes from the coastal plain at Tour Cham, where also was collected a new Asclepiad, *Toxocarpus Klossii*.

Including the 43 novelties the endemic forms number 54, or thirty per cent of the whole; several are Orchids previously collected in the same locality by Micholitz. Sixteen species were previously known from Cambodia, Siam, or some other part of the Burmese Peninsula; the Zingiberaceous genus *Geostachys*, hitherto known only from the Malay Peninsula, is extended in distribution by the new species *G. annamensis*. Twelve species are Himalayan, and a similar number Indian, extending in a few cases to further India and the Malay Peninsula. Thirty-two species, or about one-sixth of the whole, are Indo-Malayan, and 4 are Malayan. *Eriocaulon Hookerianum* has hitherto been found only in Borneo and the Malay Peninsula. Twenty-four per cent of the whole are more widely distributed tropical or sub-tropical species, including, as for instance among the Compositæ, a number of common tropical weeds. The Cryptogams include a new species of fern, *Adiantum Klossii*.

#### INTRODUCTION

BY

C. BODEN KLOSS, F.R.G.S., F.Z.S.

During the spring of 1918 I spent some time in South Annam, French Indo-China, and though not primarily concerning myself with plants, succeeded, in the intervals of other collecting pursuits, in bringing together the material dealt with below. My visit, in company with Dr. Malcolm Smith, was made during the second half of the dry season which is not the best time for gathering botanical specimens, as in some of the districts where our camps were made vegetation was much dried up. When I came away towards the end of May the rains had just started; the country was beginning to look greener and many plants were showing signs of budding; this time would apparently be the best for a botanist's visit to commence; he would not experience the pleasantest

weather, which is during the cool season, but would probably enjoy the most favourable conditions for furthering his objects.

The collection secured contains practically all the species in flower that I met with round our camps, and was made between Phanrang, on the coast of South Annam in Lat.  $11^{\circ} 35' N.$ , and the Langbian Peaks, 7,500 ft. (in the hill province of Langbian which contains almost all the southern extremity of the Annamite mountain chain), distant from Phanrang about fifty miles in a  $NW \frac{1}{2} N$  direction.

The places from which specimens came are:—

1. TOUR CHAM, Phanrang Province: on the coastal plain four miles from Phanrang. The country in the neighbourhood is covered with short grass and scattered thorny bushes, many with succulent leaves: it has a superficial resemblance to much South African scenery and is very sterile except where irrigated for rice. (Specimens collected in March and May).

2. DABAN, Phanrang Province: about thirty miles  $NW \frac{1}{2} N$  from Tour Cham. Situated within the lower spurs of the mountain range at a height of 650 ft. The locality is mainly clothed with forest, tropical, but very different from dense equatorial jungle owing to the scantiness of undergrowth and the absence of parasitic plants and lianas: very dry except along the banks of the Kronfa river and largely very rocky. In March while I was sojourning there the prevailing tints of the foliage were yellow and pink and the ground was covered with dry leaves; but in May, when I passed by again, all the vegetation had become a beautiful fresh green. (Specimens collected in March).

3. DRAN, Langbian Province; about twelve miles from Daban and up in the mountains at 3,000 ft. on a broad shelf or plateau through which the Da Nhim (river) runs to join the Donai. The first pines were seen at 2,700 ft., and at 3,000 ft. and higher they predominate in grass-land, though green and denser non-coniferous forest also occurs. The pine-woods consist principally of *Pinus Khasya* with a small proportion of *Pinus Merkusii* and a few solitary trees of *Thuya* sp.; corky-barked oaks grow also among

the pines on the ridges and afford support to the common scarlet and white orchid, (*Dendrobium draconis*), at 4,000 ft. and higher. Some of the plants obtained round Dran came from swampy spots; some others were collected along the road-side, and of these part have probably been brought up through the construction of the road which is now being made from Daban. (Specimens collected in March and May).

4. ARBRE BROYE, 5,400 ft., and LE BOSQUET, 5,200 ft., Langbian Province, are on the way from Dran to Dalat; the route is mainly through pine-forest and grass-land though there are some stretches of leafy jungle also. A few plants were obtained during the journey out and back in March and May. At the latter time a good many things not noticed on the way up were in flower between these two places, no doubt the result of recent rain; at Arbre Broyé I saw on a tree a charming white clematis with a brown and yellow centre. No collecting could be done as my supply of paper had come to an end.

5. LIAN KHANH, GOU GAH, TAMBOR, and TAMBOU are all between Dalat and DJIRING, 3,000 ft., about thirty five miles to the south-west of the former. A flying visit was paid to Djiring in April: the route runs over slightly undulating country, between 2,700 and 3,200 ft. in height, through various kinds of forest, scrub and grass-land.

6. DALAT, 5,000 ft., in Langbian Province, is about twenty-one miles N. W. of Dran. It is situated near the south-western edge of the Langbian Plateau, the centre of which is an undulating area of treeless grass-land surrounded by pine and oak forest with undergrowth of grass and bracken: there are also some patches of mixed forest. The open country is about eight miles by five in extent and at the New Year the grass, then three or four feet high, is regularly burnt by the Moi (as the Indonesian inhabitants of the hills are called by the Chinese Annamites). This burning, which spreads to the forests also, destroys all seedling trees and is probably the cause of the open area, though now the indigenous population in the immediate neighbourhood is very small. (Specimens collected in April and May).

7. LANGBIAN PEAKS. 7,500 ft., situated at the north-eastern extremity of the Plateau. The massif is roughly crescentic in form, and the hollow side, facing Dalat, is clothed below the central and higher summits with mixed forest, very open beneath, which becomes small and dense near the ridges and on the two highest peaks, which are adjacent to each other. The eastern ridges are covered with oaks, while pines and grass-land predominate on the outer slopes and on the western arm of the range. I met in this locality only one species of *Rhododendron* and one very unornamental *Begonia* (*B. langbianensis* Bak. fil., sp. nov.); but, unfortunately neither was in flower. (Specimens collected in April).

The flora was largely new to me, and as I am no botanist but took practically everything I saw in blossom at each place during the periods of my visits, I shall not attempt to record the occurrence at the various collecting stations of species not in flower. Ferns were very scarce.

The temperatures experienced varied from 65° F. in the early mornings and over 90° in the shade in the afternoons at Tour Cham and Daban to about 52° at sunrise and 65° on dull afternoons in our camp at 6,000 ft. on the Langbian Peaks. The weather was very dry until the third week in April, but subsequently a good deal of rain fell in the hills after midday.

The rainy season at Dalat is from April to October and this is also the period of most equable temperature. The dry season lasts from mid-November to mid-April, and though the nights are considerably colder than in summer, the days, on the other hand, are hotter. In February three or four degrees of frost sometimes occur, and in that month and March the diurnal range of temperature may be between 30° and 90° F., whereas in August and September it is between 50° and 80°. The winter season is much the pleasanter time for a visit.\*

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\*For another account of my visit, with a sketch map showing route and localities, and plates of scenery and vegetation, see "Ibis", July 1919, pp. 392-402, text-figure 3, pls. VII-IX. Note that the upper illustrations on pls. VII and VIII have been misplaced: the upper picture on pl. VIII goes with the upper legend on pl. VII, while the upper picture on pl. VII is a photograph of the Langbian Peaks and Plateau.

The general aspect of the Langbian hill region is probably very like that of the Shan States. The pine woods which extend to fifteen or twenty miles south of Djiring belong to the most southerly forests of this kind in continental Asia.

It is sometimes stated, even as recently as 1913 (cf., Groom and Rushton in Journ. Linn. Soc., Bot., XLI, pp. 458,484), that *Pinus* occurs in the Malay Peninsula. This is not known to be the case even if we consider this peninsula to commence, as we must if we want to be accurate, at the head of the Gulf of Siam, i.e., in lat. N. 13° 30'.

Pines are not recorded from Mt. Nwalabo near Tavoy in Southern Tenasserim and are therefore unlikely to occur on Mt. Myengmolekhat, 6,800 ft., a little further south and just within the peninsular area.

The species of *Pinus* and their distribution in Southern Indo-China and the adjacent archipelago are:—

*Pinus Khasya* North Tenasserim (Martaban); North Siam (Chiengmai District); Annam.

*Pinus Merkusii* North Tenasserim (Martaban; Salwin and Thoungyin rivers); North Siam (Chiengmai district); Annam; Cochin China;\* Philippines (Luzon and Mindoro); South-eastern Borneo; North Sumatra.

*Pinus insularis* Philippines (Luzon); Timor.

Under the circumstances the absence of *Pinus* from Java is remarkable.

#### MONOCOTYLEDONS.

#### ORCHIDACEAE

BY

H. N. RIDLEY, C. M. G.; F. R. S.

#### 1. DENDROBIUM SECUNDUM Wall.

Dran, 3-4,000 ft. "Crimson with orange lip, no leaves."

*Distrib.* Cochin China, Martaban, Malay Peninsula, Sumatra, Java.

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\*Not indigenous; but introduced from Annam.

## 2. DENDROBIUM WILLIAMSONI Day &amp; Rehb. fil.

Langbian Peaks, 6000 ft. "Whitish to pale yellow, lip streaked scarlet, top of throat carmine." Dalat, 5000 ft. "Flowers yellow, hairy part of lip and base of hood blood-red, 2 to 4 flowers in a cluster."

*Distrib.* Assam, Khasiya.

## 3. DENDROBIUM DRACONIS Rehb. fil.

Dran, 3-4,000 ft. "Flowers white, lips striped vermilion becoming yellowish in front." Flowers in clusters of 2-6.

*Distrib.* Tenasserim, Siam, Cochin China.

## 4. DENDROBIUM PIERARDI Roxb.

Dran, 3-4,000 ft. "Sepals white faintly tinged green and tipped faint crimson. Petals white faintly tinged green. Lip pale yellowish green, throat streaked with purple."

*Distrib.* Himalayas, Bengal south to Tenasserim and Malay Peninsula.

## 5. CIRRHOPETALUM MACULOSUM Lindl.

Langbian Peaks at 6,000 and 6,500 ft. "Dull greenish yellow spotted brown to dull pale crimson, greenish slightly marked with reddish brown."

*Distrib.* Nepal, Kumaon, Sikkim.

## 6. IONE ANNAMENSIS Ridl., sp. nov.

*Rhizoma* validulum, pseudobulbis remotis curvis conicis flavis rugulosis (in sicca) 2.5 cm. longis 1 cm. latis ad bases. *Folium* lineari-lanceo-laterae coriaceum obtusum minute bilobum, basi in petiolo 1 cm. longo attenuatum, 12 cm. longum, 1-5 cm. latum. *Scapus* gracilis 30 cm. longus, vaginis ad 6, remotis 3 cm. longis. *Racemus* 6 cm. longus floribus nutantibus 6. *Bracteae* lanceolatae subscariosae 1 cm. longae appressae. *Pedicelli* graciles 1.5 cm. longi. *Sepalum* pasticum ovatum obtusum 1.2 cm. longum 7 mm. latum, lateralia angustiora sublanceolata aequilonga basi connata. *Petala* ovata obtusa minute denticulata 3-nervia multo breviora. *Labellum* carnosum basi cymbiforme, apice crasso minute papilloso, 8 mm. longum, kermesinum marginibus ad basin videtur viridulum; callo ad basin transverso cornubus 2 minutis. *Columna*

flava sepalo postico adnata, steldiis parvis augustis recurvis. *Pollinia* globosa. *Capsula* obconica 1 cm. longa.

Langbian Peaks, 6,000–7,500 ft. "Dull pale green to dull pale crimson streaked dark crimson."

Allied to *I. paleacea* Lindl., of the Himalayas, but with shorter sepals and petals, and shorter lip with upcurved sides and a very different callus at the base.

#### 7. *ERIA PANICULATA* Lindl.

Langbian Peaks, 6,500 ft. "Greenish and yellowish white blotched with crimson." This form differs from typical *E. paniculata* in its long narrow lanceolate subulate bracts .7 mm. long.

*Distrib.* Sikkim, Assam.

var. *ANGUSTIFOLIA* Ridl. var. nov.

*Caulis.* 11 cm. longus, foliis carnosioribus angustioribus 14 cm. longis 3 mm. latis. *Racemus* ut in typo sed callis in labello multo longioribus. Dalat 5,000 ft. "Flowers pinkish crimson white." A somewhat similar form but more intermediate between this and the last was collected in Laos by Micholitz; the very narrow stiff leaves, and the stronger developed calli on the lip, which is purple in the centre of the terminal lobe, are distinguishing marks.

#### 8. *ERIA GLOBIFERA* Rolfe.

Langbian Peaks, 6,000 ft. "Lip yellow streaked brownish, throat much streaked with crimson." This specimen has remarkably large flowers, the sepals 3–5 cm. long, .5 mm. across. The type plant, however, with smaller flowers, came from the same locality.

#### 9. *ERIA NIVOSA* Ridl., sp. nov.

*Caulis* lignosi 3–5 cm. longi. *Folia* carnosa linearia 10 cm. longa 3 mm. lata, canaliculata. *Racemus* terminalis 8 cm. longus omnino albo-lanatus, floribus ad 6, pedicellis 3–4 mm. longis, bracteis ovatis subæquilongis. *Sepalum* posticum oblongum obtusum .5 mm. longum; lateralia triangularia æquilonga, .4 mm. lata, ad basin extus lanata intus glabra vel parce lanata. *Petala* linearia breviora obtusa sparse lanata; *Labelium* carnosum oblanceolatum obtusum apice incrassata, in medio depresso, carina brevi in ungue, callo oblongo papilloso in medio, marginibus minute ciliatis; *Columna*



brevis; *Anthera* ovoidea breviter apiculata.

Dalat, 5,000 ft. "Yellow; Lip crimson-brown, stem and buds and back of flower silvery to greenish." Allied to *Eria pannea* Lindl, but with a longer stem, narrower leaves, more and smaller flowers and a quite different lip.

10. *ERIA TOMENTOSA* Hook. fil.

Dran, 3-4,000 ft. "Brown; bracts ochraceous." A spike of flowers in bud appears to be this species.

*Distrib.* Silhet, Chittagong, Tenasserim.

11. *ERIA AMICA* Rehb. fil.

Langbian Peaks, 6,500-7,500 ft. "Flowers pinkish white spotted purple; lip yellow; white blotched with yellowish and crimson in centre.

*Distrib.* Himalayas, Assam.

12. *ACANTHEPHIPIUM STRIATUM* Lindl.

Langbian Peaks. "White tinged yellowish faintly streaked with crimson, lip spotted with deep crimson."

*Distrib.* Sikkiin, Nepal.

13. *PHAIUS WALLICHII* Lindl.

Dalat, 5,000 ft. "Flowers crimson brown and white. 5 to 6 ft. tall."

*Distrib.* Sikkim through Burmah to Malay Peninsula.

14. *CELOGYNE LAWRENCIANA* Rolfe.

Dalat, 5,000 ft. "Flower cream, upper side of mouth orange." Originally collected by Micholitz in this district.

15. *CELOGYNE MOOREANA* Rolfe.

Langbian Peaks, 6,500-7,500 ft. "White lip blotched orange; Corolla pale yellow." Originally collected at this spot by Micholitz.

16. *CELOGYNE ANNAMENSIS* Ridl., sp. nov.

*Rhizoma* crassum, vaginis coriaceis tectum, pseudobulbis oblongo-conicis 5 cm. longis. *Folia* lanceolata acuta, basi in petiolo alato angustata, 20 cm. longa 4.5 cm. lata; petiolo 7 cm. longo. *Scapus* in apice pseudo-bulbi 30 cm. longus. *Racemus* flexuosus 14 cm. longus parte leasali bracteata, 7 cm. *Pedicelli* cum ovariis

1 cm. longi. *Sepala* oblonga lanceolata acuta 2 cm. longa 5 mm. lata. *Petala* angustiora lanceolata acuminata .2 mm. lata. *Labellum* 2 cm. longum, lobis lateralibus oblongis obtusis; epichilio 1.5 cm. longo obtuso, marginibus denticulatis. *Labellum* 2.2 cm. longum, lobis lateralibus latis rotundatis denticulatis, epichilio oblongo-ovoideo obtuso margine denticulato, nervis elevatis 3 a basi usque ad epichilium currentibus processibus conicis elevatis in seriebus 2 vel pluribus. *Columna* arcuata, clinandrium margine brevi bilobo rotundato. *Anthera* conica.

Langbian Peaks, 6,500 to 7,500 ft. "White, lip blotched orange and yellow."

17. SIGMATOGYNE PANTLINGII Pfitzer.

Langbian Peaks, 6,500 ft. "Flowers pinkish yellow. Leaves bronze green, bulbs yellowish. Leaves and bulbs green."

*Distrib.* Assam. Also collected by Micholitz on Langbian.

In the original drawings of this plant 3 small calli are shown on the lip, the middle one very small and nearer the base. This middle one does not occur in Kloss's specimens which otherwise exactly resemble the type.

18. PHOLIDOTA CONVALLARIE Hook. fil.

Langbian Peaks, 7,000 ft. "White."

*Distrib.* Khasiya, Tenasserim.

ZETAGYNE Ridl. gen. nov.

*Pseudobulbi* globosi; approximati. *Folia* synanthia 2 lineari-lanceolata, vaginis ad basin ovatis coriaces. *Scapus* gracilis brevis. *Bractee* cymbiformes persistentes. *Flores* mediocres, pauci. *Sepala* lanceolata acuminata carinata. *Petala* angustiora. *Labellum* integrum late lanceolatum basi saccatum gibbosum, nervis 3 elevatis. *Columna* breviuscula sigmoidea, basi incrassata, margine clinandrii elevato oblongo truncata. *Anthera* lata ovata rotunda. *Rostellum* latum crassum rotundatum. *Stigma* magnum margine crasse dilatato. Species 1.

19. ZETAGYNE ALBIFLORA Ridl., sp. nov.

*Pseudobulbus* 2 cm. longus, caules foliacei 1.5 cm. bracteis ovatis nervosis. *Folia* 3 cm. longa .5 cm. lata subobtusa, basi in

petiolo angustata. *Scapus* terminalis gracilis 4 cm. longus basi nudo. *Bractee* distichæ distantes coriaceæ cymbiformes acutæ .5 mm. longæ. *Pedicelli* vix longiores. *Sepala* .8 mm. longa alata. *Petala* subsecunda haud alata. *Labellum* petalis aequilongum late lanceolatum acutum integrum. *Columna* brevis.

Langbian Peaks, 6,500–7,500 ft. "Flowers white."

This little plant has exactly the habit of *Panisea parviflora* Lindl., but differs entirely in the form of the column which suggests that of some species of *Platyclinis* or *Pholidota*. It is short and sigmoid, with a tall oblong truncate hood to the clinandrium nearly as long as the rest of the column and much overtopping the anther. The rostellum is very prominent and thick, and the stigma cup-shaped with a thick edge. The sepals have a strong thin wing or keel running along the back.

20. *OTOCHILUS PORRECTA* Lindl.

Langbian Peaks, 6,000–7,000 ft. "White blotched brown lip; *Columna* greenish brown."

*Distrib.* Himalayas to Tenasserim.

21. *CALANTHE VELUTINA* Ridl., sp. nov.

*Rhizoma* validulum. *Folia* ovata, apice subacuminato, superne glabra subtus hirtula, nervis prominulis ad 7, 18 cm. longa, 9 cm. lata; petiolo 30 cm. longo. *Scapus* 26 cm. longus hirtulus; flores ad 8. *Bractee* lineares acuminatæ .7 mm. longæ; pedicelli 1 cm. longi omnes hirtuli. *Sepala* ovata acuminata cuspidata 1.2 cm. longa. *Petala* ovata subobtusa glabra breviora aequilata. *Labellum* sepalis aequilongum, puberulum obtusum integrum, basi angusto, callis 2–4 brevibus semiellipticis ad basin calcare brevi crassiusculo uncatu .5 mm. longo.

Langbian Peaks, 6,500 ft. "Flowers white. Lip streaked ochreous."

This has the habit of *C. alismaefolia* Lindl., but with an entire lip. The underside of the leaf and inflorescence is covered with very short hairs.

22. *ARUNDINA SPECIOSA* Bl.

Dran, 3,000–4,000 ft., Lian Khanh Falls, 3,000 ft. "White,

throat spotted purple; bottom of lip yellow, edges yellowish." The tip of the lip is however distinctly pink.

*Distrib.* India, Malay Peninsula, Java, China.

23. *CYMBIDIUM LANCIFOLIUM* Hook.

Dalat, 5,000 ft. "Flowers white or pinkish white. Striped deep crimson, hood tipped yellow. Ground orchid with coarse roots, no bulbs."

*Distrib.* Himalayas, Malay Peninsula, Java, China, Japan.

24. *VANDA MICHOLITZII* Rolfe.

Gou Gah Falls, 2,900 ft. "White becoming pale green at extremities of petals. Leaves alternate and opposite." First obtained at Langbian by Micholitz.

25. *VANDA WATSONI* Rolfe.

Langbian Peaks, 6,000-7,000 ft. "White slightly tinged with pink, base of lip orange and yellow. Leaves green spotted crimson." Also previously collected by Micholitz.

26. *RENANTHERA IMSCHOOTIANA* Rolfe.

Dran, 3,000-4,000 ft. "Upper sepal and petals dull reddish yellow spotted crimson, throat white. Column white; lower sepals crimson, reverse salmon red. Stems red."

*Distrib.* Assam and Burma.

27. *SACCOLABIUM CALCEOLARE* Lindl.

Langbian peaks, 6,000-7,000 ft. "Yellow blotched with red, fringe of lip white."

*Distrib.* Himalayas, Assam.

28. *SACCOLABIUM KLOSSII* Ridl., sp. nov.

*Caules* erecti 14-18 cm. longi; *vaginis* valde rugosis 1 cm. longis. *Folia* linearia carnosae inaequaliter biloba obtusa 8 cm. longa .7 mm. lata. *Racemi* plures multiflori densi 4 cm. longi. *Bracteeae* persistentes 3 mm. longae. *Flores* rosei .5 mm. longi, *pedicellis* .5 mm. *Sepala* ovata obtusa lateralia carinata. *Petala* late ovata rotundata. *Labellum* lateribus ad basin involutis, epichilio brevi acuto ovato cymbiformi callo v-formi ad basin. *Calcarea* crasso in medio attenuato apice subgloboso dilatato. *Pollinia* oblongo-rotundata, *pedicello* brevissimo lata, disco oblongo quadrato quam

pedicellus multo majore. *Capsula* ellipsoidea ad basin angustata .5 mm longa.

Langbian Peaks, 6,000–7,500 ft. "Pale crimson, spur white."

Allied to *S. rubescens* Rolfe, of the same district, but the flowers are much smaller, and the spur is pinched in before the globosely dilated tip.

29. SACCOLABIUM EBERHARDTII Finet.

Langbian Peaks, 6,000 ft. "Pale crimson." This was the original locality of the species.

30. SACCOLABIUM GEMMATUM Lindl.

Dalat, 5,000 ft. "Deep crimson, lip white."

*Distrib.* Himalayas.

31. THRIXSPERMUM FRAGRANS Ridl., sp. nov.

*Folia* lorata biloba 16 cm. longa 1.5 cm. lata. *Racemus* 2 cm. longus, bracteis cymbiformibus remotis 4 mm. longis. *Flores* ad 4; pedicellis gracilibus .5 mm. longis. *Sepala* et *petala* lanceolata caudata angusta 1.5 cm. longa. *Labellum* saccatum, lateribus elevatis apice subulato, 1 cm. longum, calcare oblongo linguiforme truncato in ore. *Columna* pede sepalis unita, marginibus elevatis involutis.

Dran, 3,000–4,000 ft. "Flowers white tinged yellowish with strong scent of tuberoses. Leaves alternate. Roots greyish green."

Allied to *Th. notabile* Ridl., but the leaves much larger and a callus in the mouth of the spur.

32. SPIRANTHES AUSTRALIS Lindl.

Dalat, 3,000 ft. "Flowers pink."

*Distrib.* Tropical and subtropical Asia except Malay Peninsula, Australia, New Zealand.

33. CYPRIPIEDIUM VILLOSUM Lindl.

Langbian Peaks, 7,000 ft. "Dull waxy yellow, washed and veined with reddish brown. Lip green veined darker, its centre chocolate and edges whitish."

*Distrib.* Tenasserim.

## ZINGIBERACEÆ.

BY

H. N. RIDLEY.

34. *KÆMPFERIA ALBO-VIOLACEA* Ridl., sp. nov.

*Folia* 2 ovata sessilia 5-9 cm. longa, 4 cm. lata glabra. *Flores* congesti inter folia circiter 8. *Calyx* tubulosa uno latere fissa, lamina lanceolata acuminata 1.5 cm. longa. *Corollæ* tubus gracilis 4 cm. longus. *Petala* oblonga obtusa sepalis latiora. *Labellum* obovatum, ungue longo breviter bilobum, lobis rotundis.

Dran, 3,000-4,000 ft. "White faintly tinged with violet. Lip darker and blotched with violet."

"This belongs to the affinity of *K. galanga* L., but the flowers are much larger than in any species known to me and the lip but shortly lobed at the tip.

35. *AMOMUM LACTEUM* Ridl., sp. nov.

*Folia* glabra angusta linearia acuminata 24 cm. longa 5 mm. lata, vaginis angustis longis, ligula brevi truncata. *Capitulum* 2 cm. longum, scapo 11 cm. bracteis inferioribus ovatis, superioribus oblongis 2 cm. longis, cuspidatis, rachide velutino; bracteis capituli truncatis oblongis margine hirtis. *Calyx* 2 cm. longus tridentatus, marginibus et dentibus hirtis. *Corollæ* tubus 2 cm.; lobi lineares oblongi 5 mm. longi. *Labellum* integrum obovatum 7 mm. longum 6 mm. latum. *Anthera* oblonga, crista biloba in angulis supremis.

Dran, 3,000-4,000 ft. "Flowers yellowish white, bracts reddish."

Allied to *A. uliginosum* Kœn, var. *lappaceum* Ridl., but with narrow leaves, hairy bracts and longer scape.

36. *GEOSTACHYS ANNAMENSIS* Ridl., sp. nov.

*Rhizoma* crassum lignosum vaginis coriaceis tectum. *Folia* 6 vel plura linearia-oblonga longe acuminata, subtus pubescentia demum glabrae: 30 cm. longa 4 cm. lata, vaginis 18 cm. longis rubropunctatis. *Scapus* erectus 14 cm. longus basi 7 cm. vaginis coriaceis pluribus tecto, panicula 7 cm. longa compactus multiflorus. *Bracteæ* chartaceæ oblongæ 3 cm. longæ. Rami paniculæ 2-3 flori. *Pedicelli* 5 mm. *Calyx* tubulosus truncatus breviter in uno latere fissus 1.5 cm. longus. *Corollæ* tubus 2 cm. longus cylindricus

supernedilatatus, lobus posticus lanceolatus cucullatus cuspidatus 1.5 mm., laterales lineari-oblongi breviter cucullati. *Labellum* late obovatum trilobum, lobis lateralibus latis rotundatis medio angustiore oblongo, 3 cm. longum, 2.5 cm. latum. *Anthera* 7 mm. longa, crista tenui oblonga reniforme in dorso.

Dalat, 5,000 ft. "White tinged with pink and spotted crimson."

The genus *Geostachys* has been hitherto known only from the Malay Peninsula. This species has not secund flowers or rather branches as most of the species, and has a distinct thin crest.

37. ALPINIA BRACTEATA Roxb.

Langbian Peaks, 7,000 ft. White lip crimson with yellow extremity.

*Distrib.* India, Burma, Shan States, Siam.

38. ALPINIA VELUTINA Ridl., sp. nov.

*Folia* lanceolata utrinque attenuata glabra 34 cm. longa 6 cm. lata. *Panicula* densa 11 cm. longa tomentosa. *Bractea* caducæ oblongæ obtusæ 1 cm. longæ molliter hirtæ. *Calyx* tubulosus densa hirtus 2 cm. longus apice breviter trilobo. *Corolla* tubus æquilongus lobi spatulate cucullati hirti. *Labellum* carnosum, ungue longo, limbo decurvo obovato apice rotundato trilobo, nervis elevatis. *Anthera* oblonga dorso hirta appendice nullo filamentum petalo æquilongum. *Capsula* globosa rubra 1 cm. longa hirta.

Langbian Peaks, 6,500 to 7,000 ft. "Flowers white streaked with crimson, mantle pale green, fruit blood-red."

This very soft tomentose plant is allied to *A. Murdochii* Ridl.; *A. oxymitra* Schum. is also allied to it, but has distinct staminodes and a crested anther.

39. ALPINIA CONCHIGERA Griff.

Dalat, 5,000 ft. "White."

In young bud but I think it is this species.

*Distrib.* Burma, Malay Peninsula.

## BURMANNIACEAE TO GRAMINEAE.

BY

DR. A. B. RENDLE, F.R.S.

## BURMANNIACEAE.

## 40. BURMANNIA DISTICHA L.

Lian Khanh Falls, 3000 ft. In grassy swamps.

"Flowers violet and yellow."

*Distrib.* India, China, Australia.

## LILIACEAE.

## 41. SMILAX ANNAMENSIS Rendle, sp. nov.

*Frutex* scandens, glaber. *Caules* subangulosi, laeves, aculeis parvis subrecurvis sparse armati. *Folia* ovata vel ovato-elliptica; apice acuta, basi rotundata demum subacuta, conspicue 5-nervia, nervi duo centrali propiores cum eo supra basin coaliti; petioli infra medium in vaginam subfoliaceam saepe cirrhiferam expansi. *Racemi* ♂ 2-umbellati, ♀ in exemplo unico 3-umbellati, inter folium et squamam ovatoacutam nunc fissam nascentes, folio duplo vel triplo breviores. *Bracteae* late ovato-cordatae, acumine setaceo. *Umbellae* multiflorae, globosae; alabastrae oblongae obtusae pedicelli tenues patententes. *Fl. mas.* Sepala oblonga, ut petala lineari-angustata paullo longiora demum revoluta; stamina 6, antherae obtusae demum excurvatae. *Fl. fem.* Sepala anguste ovato-oblonga; petala e basi latiore linearia, sepalis subaequalia; stamina sterilia 3, sepalis opposita; stigmata pæne e basi libera, crasse linearia, excurvata.

Langbian Peaks, 6000 ft. "Flowers green and pinkish or pale crimson."

Leaves 10-16 cm. long by 4.5-9 cm. broad; petiole 2-4 cm. long. Bracts .5 cm. or less. Peduncles of umbels 2-4 cm. long, pedicels slender, generally 6-10 mm. long. Sepals and petals about 6 mm. long. Most nearly allied to the Indian *S. prolifera* Roxb., but easily distinguished by the few-umbelled inflorescence.

## 42. DIANELLA ENSIFOLIA Red.

Dalat, 5,000 ft. "Flowers blue and white; stamens yellow tipped with brown; fruit violet."

*Distrib.* Tropical Asia to tropical Australia, Mascarene Is.



## 43. DISPORUM PULLUM Salisb.

Langbian Peaks, 6,500 ft. "4 ft. tall. Flowers dull crimson, stamens yellow."

*Distrib.* Himalayas, Java, Sumatra, China.

## PONTEDERIACEAE.

## 44. MONOCHORIA PLANTAGINEA Kth.

Dran, 3,000-4,000 ft. "Flowers blue."

*Distrib.* India, Malay Archipelago, China, Japan.

## ERIOCAULACEAE.

## 45. ERIOCAULON HOOKERIANUM Stapf.

Dalat, 5,000 ft. "Flowers white."

*Distrib.* Borneo and Malay States.

## 46. ERIOCAULON BROWNIANUM Mart.

Dalat, 5,000 ft. "In grass swamps. Flowers white."

*Distrib.* India, Ceylon.

## COMMELINACEAE.

## 47. COMMELINA NUDIFLORA L.

Daban, 650 ft; Dran, 3,000-4,000 ft. "Flowers blue."

*Distrib.* Tropics generally.

## 48. ANEILEMA GIGANTEUM R. Br.

Dran, 3,000-4,000 ft. "Flowers pale violet."

*Distrib.* Old world tropics.

## 49. FLOSCOPA SCANDENS Lour.

Daban, 650 ft. "Pale purple."

*Distrib.* India, Malaya, China, Australia.

## AMARYLLIDACEAE.

## 50. HYPOXIS AUREA Lour.

Dran, 3,000-4,000 ft. Dalat, 5,000 ft. "In grass-land. Flowers yellow."

*Distrib.* India, Java, China, Japan.

## 51. CURCULIGO LATIFOLIA Dryand.

Dalat, 5,000 ft. "Flowers yellow."

*Distrib.* Burma, Malay Peninsula and Islands.

## 52. CRINUM ASIATICUM L.

Dran, 3,000-4,000 ft. "Flowers deep pink and white."

*Distrib.* Tropical India, Ceylon.

*DIOSCOREACEAE.*

53. *DIOSCOREA LAURIFOLIA* Wall.

Dalat, 5,000 ft. "Flowers green."

*Distrib.* Penang.

*CYPERACEAE.*

54. *MARISCUS SIEBERIANUS* Nees.

Dran, 3,000-4,000 ft.

*Distrib.* Warm regions of Old World.

55. *TIMBRISTYLIS NIGROBRUNNEA* Thw.

Dalat, 5,000 ft. "Brown with yellow inflorescence."

*Distrib.* India, Ceylon, Malay Peninsula.

56. *KYLLINGA MONOCEPHALA* Rottb.

Dran, 3,000-4,000 ft. "White."

*Distrib.* Tropical and subtropical regions of Old World.

57. *SCLERIA CHINENSIS* Kth.

Dran, 3,000-4,000 ft. "Fruits white."

*Distrib.* China, Malaya, North Australia.

*GRAMINEAE.*

58. *PANICUM MONTANUM* Roxb.

Dran, 3,000-4,000 ft.

*Distrib.* India, Malaya, China.

59. *AXONOPUS SEMIALATUS* Hook. fil.

Dalat, 5,000 ft. "Brown."

*Distrib.* India, Philippines, China, Australia, Mauritius, S. Africa.

60. *THYSANOLENA AGROSTIS* Nees.

Dran, 3,000-4,000 ft.

*Distrib.* India, Malaya, South China, Mauritius.

**DICOTYLEDONS.**

*POLYPETALÆ.*

BY

EDMUND G. BAKER, F.L.S.

*RANUNCULACEÆ.*

61. *ANEMONE SUMATRANA* De Vriese.

Langbian Peaks, 6,000-7,000 ft. "White, centre green, stamens

yellow. Leaves pale and dark green."

*Distrib.* Sumatra.

*MENISPERMACEÆ,*

62. *CISSAMPELOS PAREIRA* L.

Dran, 3,000-4,000 ft. "Flowers pale greenish."

*Distrib.* Widely distributed.

*BERBERIDACEÆ.*

63. *MAHONIA KLOSSII* Bak. fil., sp. nov.

*Frutex* sec. cl. detectorem 10-15 pedalis ad *M. nepaulensem* D.C. et *M. japonicam* D. C. accedens. *Folia* imparipinnata, multijuga, jugo infimo remotiusculo et ceteris subaequante, foliolis sessilibus terminalibus petiolulatis coriaceis glabris supra subnitidis ovatis vel ovato-lanceolatis ad marginem dentatis, dentibus spinescentibus, spinis utrinque 3-4, 5.5-10 cm. longa, 2.5-4.0 cm. lata. *Flores* flavi in paniculas dispositi, paniculis foliis multo brevioribus. *Sepala* 9 glabra. *Petala* 6. *Ovarium* atro-caeruleum, ovato-globosum, stylo brevi, stigmatibus orbiculato.

Langbian Peaks, 6,500 ft.

"Shrub, 10-12 ft. tall. Leaves in terminal circles. Flowers yellow. Berries plumbeous." A plant with multifoliolate leaves, leaflets 17-25 and with 2-3 rather strong spines on each side.

Allied to *M. nepaulensis* D.C., *M. japonica* D.C., and *M. conferta* Takeda.

Differs from *M. annamica* Gagnep., in the number of leaflets, etc.

*CAPPARIDACEÆ.*

64. *CAPPARIS GRANDIFLORA* Wall, var. *ANNAMENSIS* Bak. fil., var. nov.

*Rami* cinereo-pubescentes spinosi, spinis uncinatis brevibus. *Folia* ovata vel elliptico-ovata 2.0-3.5 cm. longa, 15-20 mm. lata, petiolo  $\pm 5$  mm. longo suffulta. *Flores* solitarii, majusculi. *Ovarium* cinereo-pubescentem, anguste oblongum.

Tour Cham. "Flowers pale yellow with a crimson or orange patch."

The species is described in the *Flora of British India* as having a glabrous ovary.

## 65. CAPPARIS HORRIDA L.

Tour Cham. "Crimson to purple."

*Distrib.* Widely distributed.

## 66. CAPPARIS CORYMBOSA Lam.

Tour Cham. "Yellow-white."

It is with considerable hesitation that I venture to refer this plant to the above African species, but it presents all the leading characteristics, namely, the branches have the short spines, the flowers are in fascicles, the buds globose and glabrous or nearly so, and the ovary is ovoid, glabrous and the stigma minute.

## 67. NIEHUHRIA DECANDRA Gagnep.

Tour Cham. "Greenish white."

*Distrib.* Cambodia, Siam.

## VIOLACEÆ.

## 68. VIOLA ANNAMENSIS Bak. fl., sp. nov.

*Perennis.* *Folia* ovata vel triangulari-ovata, margine serrata, glauca, glabra vel fere glabra, apice acuta, basi cuneata, graciliter petiolata, lamina 15-20 mm. longa, 13-18 mm. lata, petiolo 10-18 mm. longo suffulta. *Peduncululi* graciles, pubescentes, bibracteolati, apice reflexi. *Flores* parviusculi, solitarii, pallide violaceo-albi. *Sepala* lanceolata, omnia deorsum in appendices producta, lineis notata 4.5-5.0 mm. longa. *Petala* patentia, inferius deorsum in calcar breve productum. *Stylus* superne clavatus. *Capsula* ignota.

Dalat, 5,000 ft. "Flowers pale violet, lip white streaked with dark violet."

A plant with glabrous glaucous foliage and rather small flowers with a short saccate spur. The petioles are slender.

Allied in some respects to *V. serpens* Wall.

## 69. VIOLA SERPENS Wall.

Langbian Peaks, 6,000-6,500 ft. "White, lip streaked with violet; other petals faintly veined or tinged with violet."

*Distrib.* India.

## 70. VIOLA DISTANS Wall.

Dalat, 5,000 ft. "Pale violet with darker violet blotches and reticulations."

*Distrib.* India.

*PORTULACACEÆ.*

71. *PORTULACA OLERACEA* L.

Dran, 3,000–4,000 ft. "Flowers yellow, stem pink, succulent."

*Distrib.* Widely distributed.

*HYPERICACEÆ.*

72. *HYPERICUM JAPONICUM* L.

Dran, 3,000–4,000 ft. Dalat, 5,000 ft. "Flowers yellow."

*Distrib.* Widely distributed.

*MALVACEÆ.*

73. *SIDA ACUTA* Burm.

Dran, 3,000–4,000 ft. "Apricot yellow."

*Distrib.* Widely distributed.

74. *URENA LOBATA* L.

Dran, 3,000–4,000 ft. "Flowers with pink centre, carmine."

*Distrib.* Widely distributed in the Tropics.

75. *HIBISCUS SAGITTIFOLIUS* Kurz.

Tambou, 2,700 ft. "Carmine. In tall grass swamps." A form of this species.

*Distrib.* Cochin-China, Cambodia, Laos, Siam.

*STERCULIACEÆ.*

76. *HELICTERES HIRSUTA* Lour.

Dran, 3,000–4,000 ft.

*Distrib.* Cochin-China, Tonkin, Annam, Laos, Java, Philippines, &c.

*TILIACEÆ.*

77. *TRIUMFETTA PSEUDOCANA* Sprague & Craib.

Dran, 3,000–4,000 ft. "Yellow."

*Distrib.* Siam.

*RUTACEÆ.*

78. *EVODIA TRIPHYLLA* D. C.

Dalat, 5,000 ft.

*Distrib.* Widely distributed.

## BALSAMINACEÆ.

## 79. IMPATIENS PROTRACTA Hook. fil.

Dran, 3,000–4,000 ft. A herb with opposite leaves and with purplish red flowers in the axils of the leaves.

Lian Khanh Falls, 3,000 ft. "Flowers bluish red." Dalat. In wet grass land. "Flowers maroon red."

The above differ in size and colour of flowers but do not seem specifically separable.

*Distrib.* Annam.

## AMPELIDACEÆ.

## 80. TETRASTIGMA PLANICAULE Gagnep., var. ANNAMENSIS Bak. fil., var. nov.

*Cirrhosum scandens*. *Caulis* glaber. *Folia* saepissime 4-foliolata, foliolis elliptico-lanceolatis margine serratis supra glabris penninerviis apice subacuminatis 9–13 cm. longis, 3–4.5 cm. latis longiuscule petiolulatis petiolulis 2–4 cm. longis, petiolo communi 7–10 cm. longo suffulta. *Inflorescentia* composita, multiflora, laxa, corymbosa. *Flores* feminei. *Calyx* brevis, papillosus. *Petala* ± 4 mm. longa, extus sublentè minute papillosa, lanceolata. *Ovarium* conicum, stylo brevissimo, stigmatè dilatato 4-lobato. *Fructus* ignotus.

Langbian Peaks, 6,000 ft. A scandent shrub with usually 4-foliolate leaves and a lax corymbose cyme.

I have carefully compared this with the figure of *Vitis planicaulis* Hook. fil., Bot. Mag., t. 5685. The plant from Annam differs more particularly in having a much laxer broader inflorescence, and the leaves are only 4-foliolate.

## 81. LEEA COCCINEA Planch.

Dran, 3,000–4,000 ft. "Stem, buds, edges and base of leaves red."

*Distrib.* Burma.

## ANACARDIACEÆ.

## 82. BUCHANANIA SIAMENSIS Miq.

Tour Cham. "Flowers greenish white."

*Distrib.* Siam.

## LEGUMINOSÆ.

## 83. URARIA LAGOPOIDES D. C.

Dran. "Pale purple."

*Distrib.* Malaya, India, China, Polynesia, N. Australia.

## 84. URARIA CRINITA D. C.

Daban, 650 ft. "Blackish."

*Distrib.* India, China, Malaya, Siam.

## 85. CLITORIA TERNATEA L.

Tour Cham. "Purplish blue."

*Distrib.* Widely distributed in the Tropics.

## 86. DESMODIUM OVALIFOLIUM Wall.

Dran, 3,000-4,000 ft. "Shrub, purplish red." Fruit required to confirm this identification.

*Distrib.* India.

## 87. PITHECOLOBIUM CLYPEARIA Benth.

Dalat, 5,000 ft. "Tree. Flowers greenish white."

*Distrib.* Tenasserim, Penang, Malacca, Malay Isles, China.

## ROSACEÆ.

## 88. RUBUS (IDLEOBATUS) KLOSSI Bak. fil., sp. nov.

Caules fruticosi, glauci vel subglauci, glabri. *Rami* aculeis a basi dilatata subrectis armati, aculeis majoribus 8-9 mm longis. *Folia* pinnata 9-10 cm. longa, foliolis 8-11 ellipticis vel ovatis, margine serratis 2-3 cm. longis, 1-2 cm. latis, subtus incanis nervis lateralibus subtus prominentibus supra glabris, petiolulis brevissimis, foliolis terminalibus majoribus. *Stipulae* inaequilateraliter lanceolatae. *Inflorescentia* foliis brevior. *Flores* parviusculi, glomerati. *Calyx* in toto 5 mm. longus, extus incanotomentosus, lobis acuminatis. *Petala* pallide rosea, obovata, unguiculata cum ungue + 4 mm. longa. *Fructus* ignotus.

Dran, 3,000-4,000 ft. "Flowers pale pink." A plant with pinnate leaves, with leaflets incanous below and clusters of small flowers, allied to *R. trijugus* Focke, and *R. rosaeifolius* Sm.

## 89. RUBUS ANNAMENSIS Card. (e descript.).

Langbian Peaks, 6,000-6,500 ft. A plant with palmately lobed leaves tomentose below, allied to *R. glomeratus* Blume.

*Distrib.* Annam.

90. *PRUNUS OCCIDENTALIS* Sw.

Langbian Peaks, 6,500–7,000 ft. "White perfumed shrub or small tree."

*Distrib.* Widely distributed.

*SAXIFRAGACEÆ.*91. *DROSERA LUNATA* Ham.

Dalat, 5,000 ft. "Flowers white. In open grass-land."

*Distrib.* Widely distributed.

92. *DROSERA BURMANNI* Vahl.

Dalat, 5,000 ft. "In wet grass-land. Flowers crimson. Pitchers greenish red. Leaves and stem red-green."

*Distrib.* Widely distributed.

*CRASSULACEÆ.*93. *KALANCHOE ANNAMICA* Gagnep.

Tour Cham. "Yellow."

*Distrib.* Annam.

*MYRTACEÆ.*94. *RHODOMYRTUS TOMENTOSUS* Ait.

Djiring, 3,000 ft. "Pink."

*Distrib.* Widely distributed in Tropical Asia.

*MELASTOMACEÆ.*95. *OSBECKIA CHINENSIS* L.

Dalat, 5,000 ft. "Flowers mauve. Growing in grass-land which is burnt yearly."

*Distrib.* Widely distributed.

96. *MELASTOMA KLOSSII* Bak. fil., sp. nov.

*Species* ad *M. decemfidum* Roxb. accedens. *Rami* subteretes, fuscohirsuti. *Folia* lanceolata vel oblongo-lanceolata, supra laevia vix strigillosa, subtus pallidiora, apice acuta vel subacuminata, saepius 5–nervia, lamina 6–10 cm. longa, 2.5–3.5 cm. lata, petiolo hirsuto 6–9 mm. longo suffulta. *Flores* 5–meri, saepissime terni. *Calyx* setis subulatis hirsutus, calycis dentibus lineari-lanceo-latis tubo brevioribus. *Petala* inaequilateraliter obovata 23–25 mm. longa. *Stamina* valde inaequalia, antherae lineari-subulatae, apice uniporosae, loculis undulatis, majores infra loculos connectivo producto et



antice bicalcarato. *Ovarium* superne pilis longis obtectum ad calycem plus minus adnatum.

Dalat, 5,000 ft. "In scrub at edge of forest."

Noticeable on account of the calyx being densely covered and the segments being narrow. The flowers are generally in threes.

The anthers of the larger stamens are 10 mm. long, those of the smaller 8 mm. long.

I have carefully compared it with specimens of *M. decemfidum* Roxb., collected by W. Jack on Penang Island. The flowers of *M. Klossii* are smaller and generally in threes, whilst those of *M. decemfidum* are solitary or subsolitary.

97. MELASTOMA CANDIDUM Don.

Dran, 3,000-4,000 ft. "Pale purplish pink."

*Distrib.* Widely distributed.

LYTHRACEÆ.

98. ROTALA ROTUNDIFOLIA Koehne.

Lian Khanh Falls, 3,000 ft. Dran, 3,000-4,000 ft.

*Distrib.* Widely distributed.

ONAGRACEÆ.

99. JUSSIEUA ANGUSTIFOLIA Lam.

Dran, 3,000-4,000 ft. "Flowers yellow."

*Distrib.* Widely distributed.

BEGONIACEÆ.

100. BEGONIA LANGBIANENSIS Bak. fil., sp. nov.

*Herba* caulescens, caule longitudinaliter striato validiusculo ad *B. laciniatam* Roxb., et *B. circumlobatam* Hance, accedens. *Stipulae* 2 liberae, subacuminatae. *Folia* parum inaequilatera palmatim usque ad medium 5-7 lobata, utrinque praecipue ad costam pilis adpersa, lobis lobulatis remote serratis apice acutis vel subacuminatis, 12-15 cm. longa, 13-16 cm. lata, petiolo 6-9 cm. longo praedita. *Flores* desunt. *Pedunculus* fructiferus 14-17 cm. longus. *Fructus* capsularis inaequaliter 3-alatus, ala maxima 12-15 mm. longa.

Langbian Peaks, 7,000 ft. "Leaves green, stems and fruit red." A plant allied to *B. laciniata* Roxb., with green leaves and

red stem. The leaves are palmately 5-7-lobed to about the middle, the lobes being themselves somewhat lobed. The fruiting peduncles are long, the capsule 3-ate, one wing being much longer than the others. It probably belongs to the section *Platycentrum*, but flowers are absent.

## GAMOPETALÆ.

## CAPRIFOLIACEÆ TO LABIATÆ.

BY

DR. H. F. WERNHAM.

## CAPRIFOLIACEÆ.

## 101. LONICERA MACRANTHA Don.

Arbre Broyé, 5,400 ft. "Flowers white to yellow."

*Distrib.* India, China.

## RUBIACEÆ.

## 102. ARGOSTEMMA BORRAGINEUM Blume.

Dalat, 5,000 ft. "Stamens yellow."

*Distrib.* Malaya.

## 103. HEDYOTIS EQUISETIFORMIS Wernham, sp. nov.

*Herba* humiliuscula inter gramina florens. *Caulis* graciles altiuscule longitudinaliter canaliculati glabrati, basi subnigrosi sparse ramosi, basinque versus cortice subargenteo stipularum necnon vaginae onusti reliquiis. *Folia* pro rata sessilia firmiuscule pergamacea angustissime lanceolata apicem versus leniter necnon conspicue acuminatissima atque acutissima, utrinque glabra; *venae* subtus prominentissimae laterales valde obliquae utrinque 2; stipulae infra in vaginam tardius cohaerentes tumidiusculam persistentem insuper in setam tenuissimam necnon elongatam productae quisque interpetiolaris. *Flores* minimi in cymulis trichotomis paucifloris umbellatis dispositi laxiusculis axillaribus; *pedunculi* tenues foliis multo breviores; *bractea*e inconspicuae saepius breves oblongo-lanceolatae. *Calyx* infundibularis lobis lanceolatis obtusis. *Corolla* anguste infundibularis lobis 5 patentibus.

Dalat, 5,000 ft. "Violet-white. In grass-land." A delicate little herb, branched from the base and sparsely branched above, 20-30 cm. in height. It is allied to the group with pedunculate in-

florescences, of which *H. vestita* is the principal example; but this new species is distinct in its delicate habit, very narrow leaves, and persistent stipular cup-like sheaths, the latter producing an appearance in the older nodes that has suggested the specific name. The nearest allies are, apparently, the Chinese *H. loganioides* Benth., and *H. Vachellii* Benth., both much coarser plants with large broad leaves.

Leaves 5-6 cm.  $\times$  5-8 mm.; sheath of *stipules* about 2 mm. deep, the solitary seta 5-7 mm. long. Primary peduncle not more than 1.5 cm. long. The whole flower is barely 2 mm. in length at maturity.

104. OLDENLANDIA SUBTILIOR Wernham, sp. nov.

Herba gracillima caulibus tenuissimis parum elongatis conspicue sub-lente canaliculato-striatis minutissime argenteo-pubescentibus, debilibus ascendentibus. *Folia* filimentosa-subulata necnon subrigida adscendentia opposita arete revoluta glabra breviuscula acuta; *stipulae* interpetiolares simplices setaceae. *Flores* 4-meri parvi plerumque solitarii in axillis superioribus oriundi; *pedicelli* tenuissimi ebracteolati multo excedentes. *Calyx* cum ovario glaber dentibus anguste triangularibus acutissimis. *Corolla* anguste campanulata inter minimas.

Lian Khanh Falls, 3,000 ft. "Pink."

A delicate little herb, 20-30 cm. high, very sparingly branched, with long internodes, and *leaves* (2 cm. long at most) and stems extremely slender. The setaceous *stipules* are as much as 3 mm. in length. *Pedicels* 1-1.8 cm. *Calyx*-lobes nearly 2 mm., *ovary* about 1 mm. long. *Corolla* 3-4 mm. long.

Allied to *O. Stocksii* from Malabar, but readily distinguished by the small and differently shaped flowers.

105. OPHIORRHIZA HARRISIANA Heyne.

Dran, 3,000-4,000 ft. "White."

*Distrib.* India, Malaya.

106. MUSSAENDA PUBESCENS Ait.

Dalat, 5,000 ft. Lian Khanh Falls, 3,000 ft.

"Flowers orange-yellow, foliaceous calyx-segments pale yellow."

*Distrib.* China.

107. *MUSSAENDA DRANENSIS* Wernham, sp. nov.

Verisimiliter *frutex* ramulis glabris cortice striato in siccitate castaneo-brunneo onustis conspicue sparsiuscule lenticellatis gracilibus subteretibus. *Folia* inter minora pergamacea elliptica basi acuta apice acuminata acutissima, nisi subtus in venis primariis minute puberulo-strigillosa glabra, lateralibus utrinque ca. 5; *petiolus* gracilis minute strigillosus; *stipulae* fugaces. *Flores* inter minores in cymis densiusculis corymbosis dispositi compositis foliis subaequilongis; *bractea* parvæ inconspicuæ subulatæ. *Calycis* limbus dentibus deltoideis acutissimis brevissimis onustus uno lobo nonnuncquam in laminam petaloideam expanso suborbicularem basi acutissimam petiolo gracillimo, apice nec acuminatam necnon acutam. *Corolla* pro genere inter minimas angustissima basin versus fere filamentosa, extus minute strigillosa limbo angusto, lobis triangularibus subacutis.

Dran, 3,000–4,000 ft. "Flowers orange; foliaceous calyx-lobes yellowish white."

*Leaves* 8–10 cm. × 3–4 cm.; *petiole*, less than 2 cm. *Calyx*-teeth barely 1 mm. long, the petaloid lobe about 5 cm. × 3.5 cm. with stalk barely 1 cm. long.

This species is related to *M. variolosa* Wall., differing in the indumentum of stem and leaves, and in the shape of the latter, and specially distinguished by the extremely slender corolla, and the very inconspicuous calyx-lobes.

108. *PAVETTA TOMENTOSA* Smith.

Dran, 3,000–4,000 ft. "Flowers white. Small shrub."

*Distrib.* India, Malaya, South China, North Australia.

109. *MORINDA POLYNEURA* Miq., var. *ASPERA* Wernham, var. nov.

*Ramuli* densiuscule scabrello-puberuli; *folia* matura utrinque scabridula.

Dran, 3,000–4,000 ft. "Flowers white."

*Distrib.* This species has been recorded hitherto only from Java. The variety resembles the type closely in all respects save the indumentum.

## 110. PRISMATOMERIS ALBIDIFLORA Thw.

Dalat, 5,000 ft. "White; shrub."

*Distrib.* India and Malaya.

## 111. PSYCHOTRIA MONTANA King &amp; Gamble.

Dalat, 5,000 ft. "Shrub. Flowers greenish-white."

*Distrib.* Ind. Or. and Malaya.

## 112. PSYCHOTRIA BODENII Wernham, sp. nov.

*Frutex* ramulis graciliusculis mox cortice rugosulo glaberrimo indutis. *Folia* glabra minuscula papyracea, anguste elliptico-lanceolata utrinque praesertim apicem versus acutum acuminata; *petiolus* breviusculus gracilis; *stipulae* breviter vaginantes insuper furcis 2 plus minus distantibus angustissime lanceolatis subsetaceis longiusculis divisae. *Inflorescentia* cymosa pauciflora trichotome disposita foliis multo breviora, *bracteis* parvis etsi manifestis brevibus setaceis. *Flores* inter minimos, *corollae* tubo pro rata lato brevi, lobis late lanceolatis 5 obtusiusculis deflexis. *Staminum* 5 antherae ellipsoidea-oblongae omnino exsertae filamentorum longitudinae manifesto.

Dalat, 5,000 ft. "Flowers white. A shrub."

*Leaves* 5-10 cm. x 1.5-2.8 cm., secondary veins up to 10 or 11 pairs; *petiole* rarely exceeding 1 cm. in length; *stipules* consisting of a sheath 2-3 mm. deep, with two prong-like projections, more or less setaceous, above, 5-6 mm. long. The inflorescence, a compound cymose umbel, measures about 4 cm. in diameter, the setaceous bracts 2 mm. at most in length, these being at the apex of the primary peduncles rather more than 1 cm. long. The whole *flower* is barely 3 mm. long; *calyx* 1 mm.; *corolla-tube* 2-2.5 mm., lobes rather more than 1 mm. long.

This species has undoubted relationship to the Indian *P. symplocifolia* Kurz, but it is readily distinguished by the leaf-characters and the stipules, alone.

## 113. PSYCHOTRIA LANGBIANENSIS Wernham, sp. nov.

*Frutex* ramulis graciliusculis diutius dense flavo-pubescentibus. *Folia* internodia multo excedentia firme papyracea, anguste elliptica utrinque aequaliter leniterque acuminata apice tamen non-

nunquam caudato-acuminata acuta, supra glabra subtus in venis tenuibus etsi manifestis præsertim centrali densiuscule pilis flavis onustis, lateralibusque primariis crebriusculis (utrinque circa decem); *petiolus* pro rata validiusculus brevis densiuscule pubescens basin versus plus minus inflatus; *stipulae* longiuscule vaginantes insuper 2 in lobis vaginam subaequantibus divisæ lanceolatis submembranaceæ dorso carina prominente centrali onustæ. *Flores* in cymulis dispositi trichotomis subterminalibus foliis multo brevioribus, ramulis dense flavo-puberulis, *bracteis* parvis setaceis pedunculis brevibus. *Flores* inter minimos, albi. *Calyx* companulatus cum ovario extus densissime adpresse flavo-pubescens, lobis late triangularibus obtusis; *corollæ* tubus brevis necnon latus, lobi patentes anguste deltoideo-lanceolati apice inflexo. *Antheræ* exsertæ.

Dalat, 5,000 ft. "White. Shrub."

*Leaves* 5-9 cm.  $\times$  1.3-2.5 cm., with *petiole* not exceeding 8 mm. in length. Sheath of *stipules* 2-3 mm. deep, the upper lobes about the same in length. *Cyme* 3-4 cm. in width, the primary peduncles about 1 cm. long. *Calyx* about 1.5 mm. deep, the *corolla*-tube rather more than 2 mm. long and nearly the same in width at the mouth. *Anthers* about 6 mm. long.

This species is allied to *P. arborea* Ridley, of Java and Sumatra, from which it may be readily distinguished by the leaf characters—texture, indumentum, and venation—alone.

114. LASIANTHUS WRAYI King & Gamble.

Dalat, 5,000 ft. "Small tree; flowers white."

*Distrib.* Malay Peninsula.

115. LASIANTHUS DALATENSIS Wernham, sp. nov.

Frutex vel arbor parva nisi stipulis necnon corollis glaberrima polita, ramulis subteretibus rugosulis gracilibus lævissimis. *Folia* opposita utrinque glaberrima crassiuscule pergamacea elliptico-lanceolata sæpius longe caudato-acuminata apice necnon basi acuta breviuscule petiolata; *venæ* primariæ præsertim subtus conspicuæ prominentes, laterales utrinque 7-9, reticulo interveniente manifeste transverso; *stipulae* subcoriaceæ concavae lanceolatae acuminatae dorso dense griseo-hirsutae. *Flores* minimi in cymulis alaribus con-

gestis sessilibus dispositi paucifloris. *Calyx* latiuscule lobatus limbo brevi; *corollae* tubus cylindræus basi paullo inflatus glaber, lobi breviter oblongi apice obtusi supra dense pulveruloento-puberuli.

Dalat, 5,000 ft. "Shrub or small tree. Crimson to pink and ultimately white."

*Leaves* 9-16 cm.  $\times$  2.5-4.5 cm.; *petiole* 1 cm. long at most. *Stipules* barely 5 mm. long before falling. *Inflorescence* scarcely 1.5 cm. in diameter, about equalling the leaf-stalks. *Calyx* about 1 mm. deep. *Corolla*-tube nearly 4 mm. long, lobes 1.5 mm long.

Related to the Malayan *L. constrictus*, but readily distinguished by the leaf-shape and venation.

116. PAEDERIA TOMENTOSA Blume.

Dran, 3,000-4,000 ft. "White, centre crimson with pale violet hairs; buds greyish-mauve."

*Distrib.* India, and Eastern Asia generally.

CAMPANULACEÆ.

117. LOBELIA TRIGONA Roxb.

Lian Khanh Falls, 3,000 ft. "Flowers white and violet."

*Distrib.* India (Eastern) and Java.

MONOTROPACEÆ.

118. MONOTROPA UNIFLORA L.

Dalat, 5,000 ft. "Growing in clumps on the ground. Waxy bluish-white."

*Distrib.* Himalayan region, China, Japan, N. America.

OLEACEÆ.

119. JASMINUM ANNAMENSIS Wernham, sp. nov.

*Frutex* ramulis graciliusculis subteretibus notabiliter densissime dulciter puberulis. *Folia* simplicia papyracea opposita ovata parum acuminata apice acuta basi truncato-obtusa nec cordata, utrinque dulcissime puberula; *petiolo* validiusculo pubescente nec longo. *Flores* albi in cymulis subcapitatis dispositi ramula breviter virgata terninantibus. *Calyx* campanulatus puberulus limbi lobis aciculari-subulatis longiusculis. *Corolla* glabra tubo gracili inter breviores, lobis 7-9 ovato-lanceolatis breviter acuminatis, limbum subcampanulatum formantibus.

Djiring, 3,000 ft. "Flowers white."

*Leaves* about 6 cm. x 4 cm., with stalk up to 1 cm. in length. Branches of *inflorescence* (exclusive of corolla) about 5 cm. long, with a pair of small leaves close under the base of the inflorescence, *Calyx*-tube 3-4 mm. deep, the awl-shaped lobes 6-7 mm. long, rarely more. *Corolla*-tube 1.7 cm. or rather longer, lobes 1 cm. long, barely 5 mm. broad.

Allied to *J. pubescens* Willd., this species is readily distinguished by the smaller flowers, and the relatively much narrower corolla-lobes.

#### APOCYNACEÆ.

##### 120. CARISSA CARANDAS L.

Tour Cham, "White, scented." Dalat, 5,000 ft. "Flowers blue, leaves purple-brown."

*Distrib.* India and Malaya.

##### 121. RAUWOLFIA (OPHIOXYLON) SERPENTINUM Benth.

Dran, 3,000-4,000 ft. "Shrub. Flowers white, buds dull pale crimson."

*Distrib.* Eastern India, Malaya.

#### LOGANIACEÆ.

##### 122. GERTNERA VIMINEA Hook. fil.

Dalat, 5,000 ft. "White, tipped pink. Small tree."

*Distrib.* Malay Peninsula.

#### GENTIANACEÆ.

##### 123. GENTIANA QUADRIFARIA Blume.

Langbian Peaks, 6,000-6,500 ft. "Flowers blue and yellow." Dalat, 5,000 ft. "Blue. In open grass-land."

*Distrib.* E. India, China, and Malaya.

#### CONVOLVULACEÆ.

##### 124. EVOLVULUS ALSINOIDES L.

Tour Cham. "Blue."

*Distrib.* Everywhere in the tropics.

##### 125. IPOMAEA OBSCURA Ker.

Tour Cham. "Yellow."

*Distrib.* Old World Tropics.



## SOLANACEÆ.

## 126. LYCOPERSICUM ESCULENTUM Mill.

Dran, 3,000-4,000 ft. "Flowers and fruit yellow."

*Distrib.* Native of the warmer parts of America; long introduced into most other warm and temperate countries, where it is cultivated for the sake of its fruit—the Tomato of commerce.

## 127. SOLANUM NIGRUM L.

Dran, 3,000-4,000 ft. "Flowers white, and stamens yellow."

*Distrib.* Ubiquitous.

## 128. SOLANUM INDICUM L.

Dran, 3,000-4,000 ft. "Purple, stamens yellow."

*Distrib.* India, Malaya, China to Philippine Islands.

## 129. DATURA FASTUOSA L.

Tour Cham. "White."

*Distrib.* India, tropical Eastern Asia, tropical Africa. In America probably not native.

## SCROPHULARIACEÆ.

## 130. TORENIA ASIATICA L.

Dran, 3,000-4,000 ft. "Violet-blue; edge of lip and entire throat deep violet."

*Distrib.* Tropical Asia.

## 131. VANDELLIA PEDUNCULATA Benth.

Dran, 3,000-4,000 ft. "White or pale violet."

*Distrib.* India, Ceylon, Malay Peninsula.

## 132. STRIGA LUTEA L.

Dran, 3,000-4,000 ft. "Yellow."

*Distrib.* Asia and warmer parts of Africa.

## 133. SOPUBIA DELPHINIFOLIA G. Don.

Dalat, 5,000 ft. "In open grass-land. Flowers primrose-yellow."

*Distrib.* Eastern India and Ceylon.

## BIGNONIACEÆ.

## 134. DOLICHANDRONE FALCATA Seem.

Tour Cham. "Pinkish white."

*Distrib.* India.

## VERBENACEÆ.

## 135. VERBENA OFFICINALIS L.

Dran, 3,000–4,000 ft. "Pale violet."

*Distrib.* World-wide.

## 136. CONGEEA TOMENTOSA Roxb.

Daban, 650 ft. "Greyish lilac bracts: very large."

*Distrib.* India, Burma, Siam.

## LABIATÆ.

## 137. ACROCEPHALUS KLOSSII, sp. nov.

*Herba* caulibus gracillimis e basi nonnunquam copiose ramosa, internodis tenuibus longissimis tenacissimis. *Folia* parva perpauca distantia pergamacea anguste elliptica apice obtusiuscula basi cuneata breviterque petiolata, *venis* lateralibus paucis (3–5) subtus valde prominentibus griseo-hirsutis. *Flores* minuti in capitulis lanatis dispositi nonnunquam spicatum cylindraceutis; *bractae* florales parvae numerosae dense aggregatae ovato-lanceolatae acuminatae apice acutissimae in siccitate nigricantes. *Calycis* labia integra extus dense griseo-strigosa. *Corolla* parum e calyce exserta.

Lian Khanh Falls, 3,000 ft. "Flowers whitish and pink." A straggling and naked-looking plant. *Leaves* to 2.5 cm. long and 8 mm. broad, with *petiole* about 5 mm. long. *Heads* 1–2 cm. long, about 8 mm. wide. *Bracts* at base 8 mm. × 4 mm. *Calyx* 2 mm. in greatest depth. *Corolla*-tube and lips about 1 mm. each in length.

In its floral characters this species appears to be related to the African *A. cylindraceutus* Oliv., but it is quite distinct in habit, also in size and shape of the leaves.

## 138. SCUTELLARIA DISCOLOR Colebr.

Dran, 3,000–4,000 ft. "Pale blue, lip whitish."

*Distrib.* India, Burma, Malaya.

## 139. SCUTELLARIA LANGBIANENSIS Wernham, sp. nov.

*Herba* erecta e basi ramosa lignosa caulibus subteretibus circiter bispithameis gracilibus simplicibus minute necnon dense puberulis. *Folia* inter minora tenuiter membranaceo-papyracea elliptica utrinque nisi paucis in *venis* distantibus sparse strigosis glabrata in siccitate laevi-grisea, *petiolo* gracillimo necnon longo

velut caules dense minutiuscule puberulo. *Flores* inter minores terminali in racemò dispositi internodis conspicuis, *pedicellis* brevibus ebracteolatis. *Calyx* subcupularis ore hiante tumidiusculus venosus membranaceus; *corolla* parva inconspicua infra tubo tenuissimo longitudinis toti circa dimidium occupante, insuper plus minus subito dilatata.

Langbian Peaks, 6,500 ft.

The type-specimen consists of two shoots about 30 cm. long, joined at the base, from which fibrous roots spring. The stem is less than 3 mm. in the thickest part. *Leaves* about 6 cm.  $\times$  2.5 cm. at most, with stalk as much as 1 cm. in length. *Pedicels* 5 mm. long. The narrow, almost filamentous, lower part of the *corolla*-tube about 1 cm. in length; the upper part rather shorter, about 5 mm. wide, with lips sub-equal, about 5 mm.

This species is readily distinguished by the small leaves, with very few and distant teeth, cuneate base, and slender stalks.

140. LEUCAS ASPERA Sprengel.

Tour Cham.

*Distrib.* Mauritius, India, Java, Philippine Islands.

COMPOSITÆ.

By S. MOORE, B.Sc.

141. VERNONIA (§ XIPHOLEPIS) ANNAMENSIS S. Moore, sp. nov.

Planta parva, semispithamea; caulis erectus fere e basi foliosus griseo-tomentosus. *Folia* sessilia lineari-oblongata pungenti-acuta basi obtusa margine distanter denticulata vel integra subcoriacea supra scabrida subtus griseo-tomentosa. *Capitula* circa 21-floresciosa pauca ramulos breves solitatem terminantia ita corymbum brevem terminalem 4-6-cephalum mentientia. *Involuceri* campanulati phylla 6-serialia exteriora abbreviata subulata pubescentia cetera oblonga pungenti-acuta margine piloso-ciliata apice colorata necnon pubescentia. *Flosculi* punicei exserti. *Achenia* subcylindrica callo basali parvo optime 10-costata inter costas puberula. *Pappi* setae 1-2-seriatæ breviter barbellatæ dilute stramineæ perpaucae exteriores nonnunquam abbreviatæ.

Le Bosquet, 5,000 ft.

*Stem* subterete, 2 mm. thick, really leafy from the bottom, but a few of the lowest leaves have been shed. *Leaves* up to  $3 \times 1$  cm., but usually somewhat smaller, drying greyish, the veining prominent on their underside. *Inflorescences*  $2-2.5 \times 2.5-3$  cm., the heads in the axils of leaves reduced to about 1 cm. more or less in length. *Peduncles* 3-6 mm. long, tomentose. *Involucre*  $12 \times 12$  mm.; outermost leaves about 2-3 mm. long, intermediate 4-9 mm., innermost 10 mm. long. *Corollas* sparsely papillose with a narrowly infundibular tube 6.5 mm. long, double the length of the linear lobes. *Style-arms* 2.5 mm. long. *Achenes* 2.5 mm., pappus 6 mm. long.

Affinity with *V. bracteata* Wall.; differing chiefly in the lowly habit, smaller heads with fewer florets, narrower achenes and shorter pappus.

142. VERNONIA (§ XIPHOLEPIS) DRANENSIS S. Moore, sp. nov.

Ramuli elongati sat tenues subdistanter foliosi eximie longitrosorum striati scabridi. *Folia* subsessilia oblongo-lanceolata acuta vel obtusiuscula basi obtusa margine integra vel distanter denticulata papyracea utrinque scabriuscula. *Capitula* circa 23-flosculosa in paniculas axillares vel pseudoterminales quam folia breviores longioresve ordinata. *Pedunculi proprii* involuero saepe circiter æquilongi uti pedunculus pubescentes. *Involucrum* campanulatum 6-seriale phyllis exterioribus parvulis subulatis patentibus recurvisve ceteris anguste oblongo-lanceolatis omnibus pungenti-acutis pubescentibus. Flosculi breviter exserti punicei. *Achenia* oblongo-turbinata callo basali prominente prædita 10-costata pubescentia. *Pappi* setæ 1-2-seriatæ (paucis exterioribus abbreviatis) breviter barbellatæ albæ.

Dran, 3,000-4,000 ft.

Probably a tall shrub, the specimens about two spans in height. *Leaves*  $9-13 \times 1.5-2.3$  cm., grey when dry; midrib prominent on the lower side but thin; reticulation well seen on both faces; petioles 2 mm. long, broad, excavated on the upper side. *Panicles*  $10-20 \times 4-5$  cm., their linear or subulate bracts 5 mm. more or less in length, at most 1 cm. *Involucres*  $8 \times 7$  mm.; leaves of the outer two rows 2-3 mm. long, of the middle rows 4-6 mm., of the inmost row 7 mm., all pale straw with a green tip. *Corollas* infundibular

with pronounced narrowing in the lower half, sparsely papillose, including the 2 mm. long lobes, 8 mm. in length. *Style-arms* 2 mm. long. *Achenes* 2 mm. long; pappus 7.5 mm. with the short outer hairs about .5 mm. long.

Near the last, but quite different in habit, foliage and heads.

143. ELEPHANTOPUS SCABER L.

Dran, 3,000-4,000 ft.

*Distrib.* A tropical weed.

144. AGERATUM CONYZOIDES L.

Daban, 650 ft.

*Distrib.* A weed in both hemispheres.

145. DICHROCEPHALA LATIFOLIA D. C.

Dran, 3,000-4,000 ft.

*Distrib.* Common in warmer parts of the Old World.

146. CONYZA AEGYPTIACA Ait.

Dalat, 5,000 ft.

*Distrib.* Asia, Australia, Africa.

147. BLUMEA GLANDULOSA D. C.

Tambor, 2,800 ft.

*Distrib.* East Asia, Malaya, Tropical Africa.

148. BLUMEA LACINIATA D. C.

Dalat, 5,000 ft.

*Distrib.* India, China, Malaya.

149. BLUMEA CHINENSIS D. C.

Dran, 3,000-4,000 ft.

*Distrib.* India, China, Indian Archipelago.

150. BLUMEA KLOSSII S. Moore, sp. nov.

*Caulis* subteres foliosus pubescens; *Folia* (superioribus solummodo visis) petiolata ambitu obovata acuta pinnatifida pag. sup. pubescentia pag. inf. tomento cinereo obtecta segmentis paucis oblongo-ovatis acutis margine denticulatis folia summa imminuta sessilia vel subsessilia lineari-lanceolata acuta. *Capitula* interminora in paniculam laxiusculam foliis majoribus circa aequilongam pubescentem digesta. *Involucri* anguste campanulati pubescentis phylla exteriora abbreviata lineari-lanceolata interiora linearia acuta.

*Receptaculum* puberulam. *Flosculi* breviter exserti ♂ ♀ pro capitulo circa 16. *Styli* fl. ♂ ♀ rami aliquanto complanati obtusiusculi. *Achenia* nondum matura cylindrica puberula. *Pappi* setae leves dilute stramineae.

Annam.

*Leaves* with a blade 6–8 cm. long, at most 3–4 cm. broad, running out below in a pubescent petiole 2–3 cm. long; lobes 1.5–2 cm. long, but often shorter; younger leaves usually 1.5–2 cm. × 5–8 mm. *Panicles* 7–8 × 6–7 cm. *Peduncles* (of individual heads) more or less 5 mm. long, occasionally reaching 1.5 or even almost 2 cm. *Bracts* linear, more or less 2 mm. in length. *Heads* in flower 6 × 6 mm. Involucre with outer leaves more or less 2 mm. long, and inner 5 mm. *Corolla* of ♀ florets 4 mm. long, their exserted style-arms nearly 2 mm. long, *Corolla* of ♂ ♀ florets 5 mm. long, its teeth triangular and pilose-ciliate. *Androecium* half-exserted. *Style-arms* 1.75 mm. long. *Achenes* barely 1 mm., setae of pappus 4–4.5 mm. long.

The chief distinctive mark of this species from among its allies is found in the pinnatifid leaves.

151. LAGGERA ALATA Sch. Bip.

Dran, 3,000–4,000 ft.

*Distrib.* India, China, Malaya, Tropical Africa.

152. PLUCHEA INDICA Less.

Dran, 3,000–4,000 ft.

*Distrib.* India, Malaya, China.

153. WEDELIA ALBICAULIS S. Moore, sp. nov.

Caules sat tenues caespitosi e rhizomate valido oriundi pauciramosi subdistanter foliosi scabridi. *Folia* brevipetiolata lanceolata vel lineari-lanceolata acuminata apice mucronulata basi rotundata trinervia margine denticulata pagina utraque scabrida. *Capitula* terminalia (raro itaque axillaria) pedunculis scabridis quam folia brevioribus insidentia. *Involuceri* anguste campanulati scabridi phylla subbiseriata ovato-oblonga vel ovata obtusiuscula omnia rigida diluteque straminea. *Receptaculi* paleae lineari-lanceolatae trilobae ciliatae lobo intermedio elongato acuminato. *Ligulae* 5 exsertae apice 2–3-dentatae. *Disci* flosculi 14 omnes etsi ♂ ♀ verisimiliter steriles.

*Achenia* radii oblonga compressa dorso rotundata necnon paucicostata superne scabriuscula disci linearia. *Pappus* cyathiformis dentatus incrassatus scabriuscule pubescens.

Daban, 650 ft.

*Stems* striate, with a dirty white cortex, 1.5–2 mm. thick. *Leaves* mostly 3.5–4.5 cm. long, towards the base 8–12 mm. broad; hispid petioles about 2 mm. long. *Peduncles* 3–15 mm. long. *Involucres* 8 × 6 mm., the leaves 7 × 2–4 mm. *Palea* discoloured, 6.5 mm. in length. *Ligules* ovate-oblong, 6.5 mm. long. *Corolla* of disc-florets 4 mm. long. *Achènes* of the ray 4–4.5 mm. long, (inclusive of the nearly 1 mm. long pappus), and more than 1 mm. broad; of the disc 2.5 × .2 mm., the squamulose pappus being .35 mm. long.

154. *BIDENS TRIPARTITA* L.

Dalat 5,000 ft.

*Distrib.* Europe, North Africa, North and East Asia, North America.

155. *TRIDAX PROCUMBENS* L.

Tour Cham.

*Distrib.* A South American introduction.

156. *GYNURA ANNAMENSIS* S. Moore, sp. nov.

*Caulis* ascendens tetragonus sparsim foliosus puberulus. *Folia* radicalia-caulina parva oblongo-vel lineari-lanceolata obtusa inferne petioliformi-extenuata margine undulata crassiuscula vix omnino glabra. *Capitula* homogama fere 50-flosculosa nonnunquam solitaria plerumque in corymbum laxum longipedunculatum oligocephalum parvibracteatum digesta. *Pedunculi* proprii involuero breviores pubescentes. *Involuceri* anguste campanulati pubescentis phylla 14 lineari-oblonga sursum attenuata apice acuta marginibus scariosis additis circiter 10 multo brevioribus linearibus calyculum constituentibus. *Flosculi* lutei breviter exserti. *Styli* rami breviter extrusi. *Achenia* (hucusque cruda) oblongo-turbinata glabra. *Pappi* setæ scabruisculæ albæ.

Dran, 3,000–4,000 ft.

*Leaves* including the stalklike portion up to 6.5 × 1 cm., but sometimes about 4 cm. × 5 mm. or even less, drying greyish, a few

uppermost linear and about 2 cm. in length. *Peduncles* usually 10–20 cm. long, slender; proper peduncles usually 1–2 cm. long, with narrow bracts of 2–4 mm. *Involucres* 8 mm. long, the often carinate leaves 1.25–nearly 2 mm. broad. *Corollas* with narrowly infundibular tube 8 mm. long, expanding to rather more than 1 mm. under the limb; lobes oblong, obtuse, 2 mm. long. *Style-arms* 3 mm. in length. *Achenes* 1.5 mm., pappus 8 mm. long.

## 157. AINSLIAEA PTEROPODA D.C.

Langbian Leaks, 7,500 ft.

*Distrib.* India, Malay Peninsula.

## 158. GERBERA PILOSELLOIDES Cass.

Dalat, 5,000 ft.

*Distrib.* India, China, Madagascar, Tropical and South Africa.

## 159. LACTUCA VERSICOLOR Sch. Bip.

Dran, 3,000–4,000 ft.; Langbian Peaks, 6,500 ft. A specimen from Daban, 650 ft. with a brown pappus may perhaps be a form of this very variable species.

*Distrib.* N. Asia, China.

## 160. LACTUCA KLOSSII S. Moore, sp. nov.

*Herba* fere glabra, circiter bispithamea. *Caulis* ascendens frequenter ramosus uti rami gracilis quadrangularis necnon in longitudinem striatus. *Folia* pauca parva anguste linearia obtusiuscula. *Capitula* inter minora in paniculam laxam pleiocephalam ordinata pedunculis propriis filiformibus quam involucrum longioribus nudis vel bractea parvula donatis. *Involuceri* cylindrici puberuli phylla ext. pauca linearia vel anguste lineari-lanceolata obtusa acutave interiora 8 oblonga obtusa marginibus decoloribus. *Flosculi* pro capitulo 10 corollis bene exsertis. *Achenia* compressa anguste linearia in rostrum breve extenuata paucistriata. *Pappi* setæ scabrida albæ.

Dran, 3,000–4,000 ft.; Dalat, 5,000 ft.

*Stem* in its lower part about 2 mm. thick and leafless there or nearly so; branches 1 mm. or less in thickness, their leaves few and far between. *Leaves* more or less 1 cm. long, sometimes only 5 mm.



or even less, sometimes 2 cm. *Peduncles* (of individual heads) generally 1-2 cm. in length, their bract when present about 1 mm. long. *Involucres* about  $7.5 \times 4$  mm.; outer leaves usually  $2-3 \times .5-1$  mm.; inner  $7 \times 1.5$  mm. *Corollas* 1 cm. long, of which the oblong 5-toothed ligule claims 7 mm. *Achenes* (including the 1.5 mm.-long beak) 6 mm. long, barely .5 mm. broad, much compressed, straw-coloured. *Pappus* 5 mm. long, apparently persistent.

The frequently branching, almost leafless habit, with the strong quadrangular stem and branches, serve to identify this among its nearest allies.

## ASCLEPIADACEAE.

BY S. MOORE.

## 161. TOXOCARPUS KLOSSII S. Moore, sp. nov.

Planta scandens. *Caulis* volubilis ramosus, fulvo-sericeus deinde glaber. *Folia* petiolata anguste oblongo-ovata apice basique obtusa coriacea supra glabra pallideque nitida subtus praesertim in nervis fulvo-sericea. *Cymae* terminales leviterve extra-axillares foliis saepius breviores pedunculatae ramosae pluriflorae fulvo-sericeae. *Flores* pro rata majusculi breviter valideque pedicellati. *Calyx* sericeus segmentis ovato-oblongis obtusiusculis. *Corollae* tubus calyce paullulum brevior, lobis oblongo-lanceolatis sursum curvatis apice acutis glabris. *Coronae* phylla quam antherae paullulum longiora gynostegio prope basin imposita linguaeformia obtusa intus appendice parvula filiformi instructa; *retinacula* linearia. *Stylus* filiformis longit. petala fere semi-aequans apice subaequaliter biramosus.

Tour Cham.

*Stems* slender, the young branches much twisted. *Leaves* up to  $7 \times 2.8$  cm., more often about  $4.5-6 \times 2-2.3$  cm., drying greyish, paler below; midrib impressed above, prominent below; side-nerves 4-5 on each half of the leaf, and but little visible on its upper face; petioles stoutish, fulvo-sericeous, 5 mm. or less in length. *Cymes* usually 3-5 cm. long; the peduncle more or less 1 cm. *Pedicels* 1 mm. in length or rather longer. Flowers yellow. *Calyx* 2.5 mm. long. *Corolla* with 2 mm. long tube and 6.5 mm. long lobes. *Corona*

.65 mm. long. *Pollinia* ovoid, about .1 mm. long. *Style*, including the 1 mm. long arms, 3 mm. in length.

This can be distinguished from *T. Hosseusii* Schlechter by the more hairy leaves and the smaller flowers with shorter calyx-segments and markedly shorter and relatively broader corolla-lobes; the coronal leaves also are smaller and with a tiny very narrow appendix, and the style is much thinner.

Schlechter has described the style of *T. Hosseusii* wrongly, thus leading Costantin (*Flore Gen. Indo-China*, IV. 47) to place the species among those with an entire style, whereas that organ is most clearly biramose.

162. CALOTROPIS GIGANTEA R. Br.

Tour Cham.

*Distrib.* India to South China and Malay Archipelago.

163. TYLOPHORA DALATENSIS S. Moore, sp. nov.

*Caulis* gracilis volubilis bene foliosus glaber. *Folia* petiolata oblongo-lanceolata acuta basi truncato-undulata tenuiter membranacea glabra costis lateralibus utrinque 5-6 delicatulis. *Cymae* laterales solitariae nisi binae quam folia saepius paullo breviores laxe pluriflorae glabrae. *Pedicelli* tenues quam pedunculus breviores. *Calycis* segmenta lanceolata acuta corollae tubo aequilonga. *Corollae* lobi ovati obtusi tubum duplo excedentes. *Coronae* phylla oblonga basi gibbosa superne columnae stamineae omnino adnata carnosae. *Antherae* erectae membrana brevi rotundata inflexa terminatae. *Stigma* crassum umbonatum antheras haud vel levissime superans.

Dalat. 5,000ft.

*Leaves* mostly 5-7 × 1.7-2.5 cm., green when dry, the reticulum forming a fine network visible only under the lens; petioles 6-9 mm. long. Inflorescence usually 4-5 cm. long, the slender peduncles more or less 2 cm. in length. *Cymules* minutely bracteate, composed for the most part of 3-5 flowers. *Pedicels* more or less 1 cm. long. *Flowers* yellowish green, when moistened about 9 mm. in diameter, the oblong-ovoid buds 4 mm. in length. *Calyx*-segments 1.5 mm., tube of corolla 1.5 mm. long; corolla lobes 3 × 2.2 mm.

*Corona* with leaves 6 mm. long. *Anthers* .25 mm. long. *Pollinia* ovoid, .15 mm. long. *Stigma* about 1 mm. in diameter.

Appears from Costantin's clavis (l. c. 106) to come nearest *T. Pierrei* Cost., differing from it in shape of leaves and short petioles, shorter inflorescences, and smaller flowers with broader calyx segments and coronal leaves united to the stamens throughout except for the gibbous base.

164. HOYA PARASITICA Wall.

Dalat, 5,000 ft.

*Distrib.* India, Malay Peninsula, Siam, Cochin-China.

#### ACANTHACEÆ.

By S. MOORE.

165. STROBILANTHES (EUSTROBILANTHES, BRACTEATÆ) SQUALENS  
S. Moore, sp. nov.

Verisimiliter *frutex* vel *suffrutex*. *Ramuli* subteretes foliosi scabridi. *Folia* obovata vel late obovato-oblonga obtusa nonnunquam breviter cuspidato-acuminata basin versus in petiolem brevem gradatim attenuata margine obtuse dentata vel solum undulata pergamæa utrobique scabrida. *Spicæ* pedunculatæ foliis breviores densifloræ. *Bracteæ* lanceolatæ obtusæ uti inflorescentiæ axis scabride hispidissimæ. *Bracteolæ* parvulæ filiformes calyce plane breviores. *Calycis* segmenta fere usque basin divisa linearia obtusa hispidissima. *Corollæ* flavæ intus albo-pilosæ tubus inferne tenuis a medio inflatus limbi lobi postici paullo altius connati. *Stamina* 4 filamentis in membranam corollæ omnimodo adnatam connatis. *Staminodium* 0. *Ovarium* apice glandulosum. *Stylus* breviter puberula. *Capsula* oblonga apice subpungens microscopice puberula 4-sperma. *Semina* complanata suborbicularia margine pilis hygroscopicis copiosissime induta.

Daban, 650 ft.

*Leaves* up to 10 × 5.5 cm., more usually about 8 × 3 cm., sometimes reduced to 6 × 2.5 cm. or even less, grey-green when dry, very scabrous; petioles about 5 mm. long. *Spikes* on 5–25 mm. long peduncles, up to 3 × 1.5 cm. *Bracts* mostly about 1.5 cm. long, in the middle 5 mm. wide. *Bracteoles* only 2.5–3 mm. long. *Calyx* 7 mm. long. *Corolla* 14 mm. long; tube barely 2 mm. wide below, in the upper

half about 5 mm.; lobes suborbicular, about  $3 \times 3$  mm. *Filaments* of front stamens 3 mm., of hinder-pair 1 mm. long; anthers obtuse, 1.7–1.9 mm. long. *Ovary* nearly 2 mm., style 9 mm. long. *Capsule*  $9 \times 2.2$  mm., light brown; seeds barely 2 mm. in diameter.

At sight this is barely distinguishable from the Indo-Burmese *S. scaber* Nees, as understood by Clarke: the somewhat smaller flowers with greatly reduced filiform bracteoles afford an easy means of identification.

A small specimen from Dran, 3,000–4,000 ft., is conspecific.

166. STROBILANTHES (EUSTROBILANTHES, NUDATÆ)

SALTIENSIS S. Moore, sp. nov.

*Frutex* subgryalis ramulis aliquanto anfractuosis ad nodos tumidis citis glabris. *Folium* unicum juxta ramuli apicem solum visum subsessile lineari-oblongum basi attenuatum glabrum. *Flores* breviter pedicellati in capita distantia pedunculata pauciflora digesti. *Bractea bracteolæque* fugaces. *Calyx* fere usque basin partitus segmentis elongatis linearibus obtusis uti pedicelli glanduloso-pubescentibus. *Corolla* dilute albo-punicea tubo quadrante inf. constricto inde gradatim dilatato lobis inter sese fere æqualibus suborbicularibus. *Stamina* 4. *Ovarium* sursum glandulosum. *Stylus* elongatus fere glaber. *Capsula* calyce paullo brevior oblonga acuta 4-sperma. *Semina* suborbicularia pilis appressis dense obsita.

Langbian Peaks, 6,500ft.

*Leaf* apparently about 4 cm. long (top not seen), only 3.5 mm. broad. *Peduncles* of the flowering heads slender, usually 1–2 cm. long. *Pedicels* 3–4 mm. *Calyx* 25–28 mm. long. *Corolla* 34 mm. long, the narrow portion  $8 \times 2$  mm., tube enlarged to 10 mm. wide in the middle and 15 mm. at the throat; lobes  $5 \times 5$  mm. *Anthers* ovate, 1.5 mm. long. *Ovary* narrowed below, 6 mm., style 20 mm. long. *Capsule* 18–20 mm. in length, brown. *Seeds* grey,  $4 \times 4$ –4.5 mm.

A very distinct species, near *S. isophyllus* T. And., and *S. oligocephalus* T. And. The narrow leaves and long lobes of the calyx are special features.

The material is incomplete, there being but one leaf, and that not quite entire, as well as only a single corolla, which it has been

thought advisable not to dissect. In spite of this there seems ample warrant for publishing a description.

167. BLEPHARIS BOERHAAVIA Pers.

Tour Cham.

*Distrib.* East Indies, Tropical and South Africa.

168. CYSTACANTHUS TURGIDUS Nichols.

Daban, 650ft,

*Distrib.* Cochin China.

169. LEPIDAGATHIS HYALINA Nees.

Dran, 3,000-4,000 ft.

*Distrib.* East Indies, South China.

170. JUSTICIA PROCUMBENS Linn.

Dran, 3,000-4,000 ft.

*Distrib.* Africa, East Indies, Australia.

\* CYCLACANTHUS,

*Acanthacearum e tribu Justiciearum genus novum.*

*Calyx* alte 5-partitus, segmentis aequalibus linearibus. *Corollae* tubus sat elongatus, sursum incurvus, infra medium constrictus inde gradatim inflatus; limbus bilabiatus, labio postico aestivatione interiore late ovato sursum attenuato apice emarginato, antico tripartito lobis linearibus. *Stamina* 2, faucibus inserta; antherae biloculares, loculis paullo inaequalitatis basi muticis. *Pollinis* grana globosa, poris 3 induta, tenuiter paucicostata, inter costas subtiliter punctulata. *Discus* cupularis. *Stylus* filiformis, apice bifidus. *Ovula* quove in loculo 2. *Capsula* ———. ———. *Suffrutex*? *Folia* parva, integerrima. *Flores* coccinei, in axillis saepius verisimiliter foliis jam orbis breviter cymoso-subspicati rarius subsolitarii. *Bractea*e parvulae.

171. CYCLACANTHUS COCCINEUS S. Moore, sp. unica.

Rami sat validi cortice ochraceo obducti prominenter costati foliorum delapsorum cicatricibus prominulis hacataque illac minuti juveniles minutissime cinereo-pubescentes tandem glabrescentes. *Folia* brevipetiolata ovata apice basique obtusa membranacea supra

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\* Gr. Kuklein, to bend, in allusion to the shape of the corolla.

glabra subtus secus nervos appresse pubescentia puberulave neonon microscopice pustulato-cystolithigera. *Flores* mediocres subsessiles. *Bracteae* lineares uti inflorescentiae axis calyceoque dense glanduloso-pubescentes. *Calycis* segmenta acutiusecula. *Corollae* calycem facile superantis tubus extus puberulus. *Stamina* breviter exserta, ovarium oblongo-ovoideum fere glabrum. *Stylus* elongatus basi pilosulus.

Tour Cham.

*Leaves* 2-3.5 x .1.3-1.8 cm., when dry, dark above, greyish green below; petioles up to 5 mm. long, minutely pubescent. Axis of the *inflorescence* reaching nearly 2 cm. in length, more often about 1-1.5 cm., sometimes only 5 mm. long. *Bracts* about 2 mm. long. *Bracteoles* not seen. *Calyx* with segments 6 x .5 mm. *Corolla* 17 mm. long in the tube, at the base 2.5 mm. wide, this soon reduced to 1.25 mm. hence gradually enlarged to 5 mm. at the throat; upper lip 7 mm. wide at the base, reduced to 1 mm. some distance below the top; lobes of lower lip apparently reflexed, or at least patent, 7 x .5 mm. *Filaments* flattened, glabrous, 9 mm. long; anthers with oblong, obtuse, 2.5 mm. long, cells. *Disk* fleshy, .65 mm. high. *Ovary* 2.5 mm., style 2 cm. long.

This plant has given much trouble, as, while evidently closely allied to several genera, it cannot be included in one of them without enlarging already recognised boundaries. It was at first thought to be referable to *Clinacanthus*, but the two-celled anthers exclude it; then it appeared to fit in with *Graptophyllum*; for although the inflorescence is not that of the well-known *G. pictum* Griff. (*G. hortense* Nees), the Australian *G. Earlii* F. Muell. has a very similar arrangement of its flowers. But *Graptophyllum* has, besides two stamens, a couple of staminodes, organs there is no sign of in the plant under notice, though it is undoubtedly its affinity. In the absence of staminodes it agrees with the Papuan *Calycacanthus*, but this genus has quite a different corolla.

172. PERISTROPHE FERA var. INTERMEDIA Clarke.

Daban, 650 ft.

*Distrib.* Pegu, Tenasserim.

## APETALÆ.

By S. MOORE.

## POLYGONACEÆ.

## 173. POLYGONUM CHINENSE L.

Dran, 3,000—4,000 ft.

*Distrib.* India, China, Japan, Malaya.

## 174. POLYGONUM STRIGOSUM R. Br.

Dran, 3,000—4,000 ft.

*Distrib.* India, China, Malaya.

## PIPERACEÆ.

## 175. PEPEROMIA REFLEXA Dietr.

Langbian Peaks, 6,500—7,500 ft.

*Distrib.* East Asia, Malaya, Australia, Africa, America.

## NEPENTHACEÆ.

## 176. NEPENTHES ANNAMENSIS Macfarl.

Lian Khanh Falls, 3,000 ft., and Dalat 5,000 ft. "In swampy grass-land. Pitchers yellow to green with crimson or pinkish spots."

The specimens have been compared with authentic material in the Kew Herbarium with which they seem to agree well, except that none of the pitchers have the ciliate wings sometimes found on those of *N. annamensis*. The latter's flowers and fruits were not seen by Macfarlane (*Pflanzenreich*, 36 Heft (IV. iii.) p. 39.); the fruits, but not the flowers, can now be described; they are borne in a rather close raceme about 6 cm. in length on about 35 cm. long peduncles, and are fusiform in shape, with oblong-lanceolate, truncate, glabrous, palely-shining, brown valves, varying in length from 12 to 15 mm.

The above naming must obviously be regarded as provisional.

*Distrib.* Annam.

## ELAEAGNACEÆ

## 177. ELAEAGNUS ANNAMENSIS S. MOORE, sp. nov.

Ramuli graciles subteretes brunneo-lepidoti mox glabrescentes. *Folia* petiolata obovato-oblonga obtusa vel obtusissima basi obtusa chartacea supra cito glabra leviterque nitidula subtus arcte brunneo-argenteo lepidota nervis lateralibus utrinque 5-6 supra planis subtus

prominulis. *Flores* pedicellati axillaries solitarii vel pauci ramulos breves subumbellatim terminantes omnimodo arcte brunneo-argenteo-lepidoti. *Perianthium* inferne oblongo-ovoideum supra constrictionem anguste campanulare lobis ovatis acutis tubum semiaequantibus. *Filamenta* antheris paullulum longiora basi annulo parum prominulo pubescente connexa. *Fructus* subovoideus fortasse fere exsiccus saltem in sicco anguste alateus arcte lepidotus.

Langbian Peaks, 6,000 ft.

Apparently a *shrub* with slender, leafy, brown branches. *Leaves* with the blade 5-7 × 3-4 cm., but sometimes smaller or larger, green or grey-green above and at first covered with small scales which soon disappear, closely scurfy below; petioles usually about 1 cm. in length, closely scurfy. *Pedicels* slender, up to 12 mm. in length, though often shorter. *Perianth* with the adherent portion at first only 2 × 1.5 mm., but rapidly enlarging to 10 × 5 mm.; free portion (including the 4 × 3 mm. lobes) 12 mm. long, 3 mm. wide at the base, and 6.5 mm. under the limb; the lobes with fewer silvery scales on their inner than upon their outer face. *Filaments* 2 mm. long; anthers broadly oblong, obtuse at either end, 1.5 mm. long. *Style* shortly exerted, 11 mm. long. *Fruit* apparently not yet quite ripe, 15 × 7 mm.

In foliage this agrees with the widely diffused *E. latifolia* L.; the longer slender pedicels and the size and the shape of the perianth, both tube and limb, are, points of difference.

#### LORANTHACEÆ.

178. LORANTHUS (§ELYTRANTHE) DRANENSIS S. Moore, sp. nov.

*Frutex* scandens. *Rami* subteretes longitrorsum costati crassiusculi glabri. *Folia* opposita petiolata oblongo-lanceolata vel ovato-oblonga obtusa obtusis-simave basi rotundata costis lateralibus utrinque saltem 12 parum perspicuis rete arcto sejunctio opacta coriacea glabra. *Spicæ* 2-3-floræ pedunculo brevi valido insidentes. *Bracteae* bracteolæ que amplæ calycem facile superantes ovato-oblongæ obtusæ vel apice rotundatæ crassæ glabræ. *Calycis* tubus oblongo-ovoideus truncatus. *Corolla* ex bracteis longe eminentis tubo incurvo sursum gradatim dilatato quum lobi 6 anguste lineari-



lanceolati acutiuseculi longiore. *Filamenta* valida compressa antheris linearibus acutis. *Stigma* subglobosum.

Dran, 3,000-4,000 ft.

*Branches* pale-coloured, the oldest 5 mm., the younger 2-3 mm. wide.

*Leaves* with a blade 8.5-12 cm. long, at the middle 3.5-4 cm. broad, grey-green when dry; petioles stoutish, channelled above about 2 cm. long. *Peduncles*, 5-7 mm. long, somewhat angular, 3 mm. across, after boiling. *Bracts* and *bracteoles* about 1 cm. in length, the former rugulose on the back, reddish brown. *Calyx-tube* 4 mm. long. *Corolla tube* (unmoistened) about 3 cm. long, 3 mm. wide below, 5 mm. near the top, pink; lobes 2 cm. long, purple at base, carmine above. *Filaments* (of bud) 7 mm., anthers 5 mm. long. *Berry* ovoid, 10 × 8 mm., brown when ripe.

*L. albidus* Bl. has similar foliage, but slenderer peduncles, smaller bracts and bracteoles and corollas unlike in several respects.

#### BALANOPHORACEÆ

179. BALANOPHORA (DIPHORA) ANNAMENSIS S. Moore, sp. nov.

*Rhizoma* sparsim lobatum omnimodo pustulis stellatis arcte indutum. *Squamæ pedunculæ* paucae imbricata ovatae vel ovato-oblongae obtusae. *Capitula* magna dioica. *Bracteae* ♂ oblongo-obovoidae triquetrae apice truncatae tuberculoque parvulis obsitae.

*Perianthium* 4-5-lobum lobis oblongo-lanceolatis. *Antherae* 4-5 in columnam connatae oculis hippocrepiformibus. *Flores* ♀ receptaculo necnon spadicellorum ampulliformium stipiti crasso inserti. *Ovarium* subsessile ovoideum in stylum loniorem desinens.

Dalat, 5,000 ft.; Langbian Peaks, 6,000 ft.

*Rhizome* up to 7 cm. in thickness, sometimes reduced to 3 cm.; pustules dull brown, nearly 3 mm. high and somewhat more in diameter, each with several deep radiating grooves. *Peduncle* short, about 1-1.5 cm. long and some 2 cm. broad; the squamæ coriaceous, brown, shining, 3-nearly 4 × 1.5-nearly 2 cm. *Receptacle* ♂ cylindrical, 8 × 4 cm. *Perianth* with flattened 10-14 × 1.5-2 mm. tube and 5 mm. long spreading lobes. *Bracts* 4-5 mm. wide, at the more or less quadrangular top 3 × 3 mm. *Staminal column* 6 mm. long. *Receptacle* ♀

obovoid-pyriform, 6 cm. long, 2.2 cm. wide, below, 4 cm. above. *Spadicels* on .75 mm. long stalks, the body twice as long. *Ovary* .4 mm. long; style barely 1 mm.

The material consists of two specimens, two male and two female, only the latter with the rhizome attached. Nevertheless they are considered to form but one species, and that although the receptacular bracts are broader in one case and a little differently marked on their truncate top; this, however, may perhaps be a matter of age.

Besides the deeply furrowed pustules of the rhizome the chief marks of the species are the quadrangular tuberculate tops of the bracts, the bottle-shaped spadicels and the sessile ovaries.

*SANTALACEÆ.*

180. *PHACELLARIA TONKINENSIS* Lecomte.

Dran, 3,000–4,000 ft.

Agrees with the description in Bull. Mus. Nat. Paris, 1914, p. 399, except that the most advanced fruit, evidently not yet ripe, measures only 5 mm. in length instead of 8–9 mm. Some doubt must therefore attend this determination, especially as M. Lecomte, with one exception, does not give floral measurements.

*Distrib.* Tonkin.

*EUPHORBIACEÆ.*

181. *MELANTHESOPSIS FRUTICOSA* Muell.-Arg.

Tour Cham.

*Distrib.* South China, Cochin-China, Borneo.

182. *OSTODES KERRII* Craib.

Langbian Peaks, 5,000–6,000 ft. "A small tree. Flowers pinkish-white. Stamens pale yellow."

*Distrib.* Siam.

183. *HOMONOIA RIPARIA* Lour.

Daban, 650 ft.

*Distrib.* India, Malay Peninsula, and Malay Archipelago.

*URTICACEÆ.*

184. *BOEHMERIA NIVEA* Hook. & Arn.

Dran, 3,000–4,000 ft.

*Distrib.* East Asia. Malaya.

*JUGLANDACEÆ.*

185. ENGELHARDTIA SPICATA Bl.

Langbian Peaks, 6,500 ft.

*Distrib.* India, South China, Malay Peninsula and Archipelago.

*CASUARINACEÆ.*

186. CASUARINA EQUISETIFOLIA L.

Nhatrang.

*Distrib.* India (chiefly cultivated) to Australia and Polynesia.

*GYMNOSPERMÆ.*

*TAXACEÆ.*

187. DACRYDIUM ELATUM Wall.

Le Bosquet, 5,200 ft.

*Distrib.* Malay Peninsula and Western Archipelago, Cochin China.

*CRYPTOGAMS*

BY A. GEPP.

*PTERIDOPHYTA.*

188. ADIANTUM KLOSSII Gepp, sp. nova.

Stipite c. 20 cm. longo ad basin ramentaceo scabrove atropureo nitido, ramis alternis superne pubescentibus; fronde 12–15 cm. longa, 10–12 cm. lata, deltoideo-ovata tripinnata, pinnis infimis obscure pedatis; segmentis alternis subrotundatis sæpe dimidiatis interdum late cuneatis, 8–10 mm. latis, margine externo crenulatis, papyraceis firmis glabris inferne glaucescentibus, haud deciduis; venulis flabellatim dispositis furcatis marginem cartilagineum attingentibus; soris 3–5 parvis rotundatis contiguis vel confluentibus.

Daban, 650 ft.

An intermediate species allied to *A. flabellulatum* in sori and pubescence but not in habit. It appears to differ from *A. induratum* Christ (Langbian) in its larger frond, pubescent petioles and less opaque segments, from *A. Bonii* Christ (Tonkin) in size, ramification, pubescence and sori, and from Copeland's two Philippine species, *A. cupreum* and *A. opacum*, in its non-deciduous segments.

189. SELAGINELLA ATROVIRIDIS Spring.

Dalat, 5,000 ft.

*Distrib.* S. India to Formoso.

*BRYOPHYTA.*

190. *POGONATUM ALOIDES* Brid.

Langbian Peaks, 7,000 ft.; in pine and oak forest.

*Distrib.* Europe, Asia, Africa.

*LICHENES.*

191. *LOBARIA PULMONARIA* Hoffm.

Langbian Peaks, 6,000 ft.

*Distrib.* All temperate regions.