HOOKEE'S

ICONES PLANTARUM;

OR,

FIGURES, WITH DESCRIPTIVE CHARACTERS AND REMARKS,

OF NEW AND RARE PLANTS,

SELECTED FROM THE

KEW HERBARIUM.

FOURTH SERIES.

EDITED FOR THE BENTHAM TRUSTEES BY

SIR WILLIAM T. THISELTON-DYER,

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Price Four Shillings.
S. africanum, Stapf (sp. nov.); affine S. montano, spiculis paulo minoribus, glumis plerumque plus minusve inaequalibus, valvarum nervis magis distinctis, carinis omnibus tenuiter brevissimeque spinuloso scabris diversum.


South Africa: Cape Colony, Calvinia Div., “Lowermost Roggeveld,” near Wilhelm Stenkamps Farm (Elands Fontein of Burchell’s map, about twenty miles south-east of Calvinia), Thunberg.

Thunberg says in his Travels i.e.: “These (the lowermost Roggeveld) as well as the others (Roggevelds) have been so named from a kind of rye which grows wild here in abundance near the bushes.” Curiously enough it has not been collected again since Thunberg’s times. Burchell (Travels, i. p. 256) says: “I saw none of the wild rye which has been said to be so abundant as to give the name to this district, but this might be owing to the season of the year.” He visited this district in August, when grasses like this would naturally have disappeared. It might be suggested that S. africanum is a variety of S. cereale, which had been introduced by the farmers and then run wild; but rye varies very little altogether, and, so far as I am aware, never in a way which would explain the differences that characterise the new species described above.
This and the three following plates were drawn from the original specimens in Thunberg's herbarium at Upsala, for the loan of which Kew is indebted to Professor Fries, who with great liberality placed the whole of Thunberg's South African grasses at our disposal for purposes of comparison.—O. Staff.

Fig. 1, a spikelet; 2, a pale; 3, a lodicule. *All enlarged.*
B. ciliare, Stapf; spiculis parvis, valvis secundum marginem rigidociliatis, ciliis tuberculis impositis uniseriatis, ab omnibus speciebus generis distincta.

Gramen annuum. Culmi fasciculati, geniculati, ascendentes vel suberecti, tenues, 4-6 poll. longi, glabri, leves, 2-3-nodi, ad paniculam vaginati vel internodii intermedii paulo exsertis. Folia tenuiter laxequa hirsuta; vaginae arctae, inferiores sêpe purpurascentes; ligulae ad marginem redactae; laminae anguste lineares, 1-3 poll. longae, circiter \( \frac{1}{2} \) lin. lateae, sêpe convolutae, subflaccidae, summa paniculam longe excedens. Panicula spiciformis, oblonga, densissima, interdum lobata, 4-9 lin. longa, 2-3 lin. lata; rhachis ramique teretes, leves, hice brevissimi; pedicelli ad \( \frac{1}{2} \) lin. longi. Spiculae perlatae, ovatae, turgidae, \( 1\frac{1}{4} - 1\frac{1}{2} \) lin. longae, 3-6-flore. Glumae lateae, ovatae, acutae vel subacutae, ad 1 lin. longae, 5-nerves, tenues, marginibus albis latissimis, inferior in dorso herbaceo hispida pilis et tuberculis ortis, superior subglaber. Valves ovatae (a laterae) subobtusae, 1 lin. longe secundum marginem serie ciliorum rigidorum tuberculis impositis munitae, ceterum glabrae, firmiuseculae, apice purpureae, subcompressae, nervis tenuibus. Paleae lateae, obtuse, carinis scaberulis. Lodiculae minuta, sparse ciliolatae. Antherae \( 1\frac{1}{2} \) lin. longae. Dactylis ciliaris, Thunb. Prodr. Pl. Cap. p. 22; Fl. Cap. ed. i. p. 429; ed. Schult. p. 115; non Linn., nec Nees, in Linnaeae, vii. (1832) p. 322.

South Africa: Cape Colony, without precise locality, Thunberg.

This is a very distinct species and quite different from Lasiochloa ciliaris Kunth, which this author took to be Thunberg's Dactylis ciliaris on the authority of a specimen so named in the herbarium at Berlin. Linnaeus's Dactylis ciliaris (Manti. ii. p. 185) is a perennial with setaceous, perfectly glabrous blades, a small obovoid, capitate panicle, and glumes equalling more or less the valves which are, apart from a white beard at each side of the base, glabrous.

Fig. 1, a ligule; 2, a spikelet; 3, lower glume; 4, upper glume; 5, a valve; 6, a pale; 7, a lodicule; 8, an anther; 9, a pistil. All enlarged.
PLATE 2603.

BRIZOPYRUM GLOMERATUM, Stapf.

Gramineae. Tribe Festuceae.

B. glomeratum, Stapf; affinis B. obliterator, Stapf (Demazeria obli-
terata, Hemsl.), sed habitu erecto, glumis valvisque acutioribus vel
mucronatis tenuius nervosis, lodiculis longe ciliatis, antheris plus quam
duplo majoribus diversum.

Gramen perenne, cæspitosum innovationibus intravaginalibus
numerosis. Culmi suberecti, gracies, ad 1 ped. alti, glabri, laeves,
2–4-nodi, internodiis exsertis. Vaginae foliorum arctæ, glabremitæ,
laeves, inferiores breves, albidæ, firmiussculæ; ligule ad marginem minute
ciliolatum redactæ; laminae subsetaææææ, apice calloso indurate, 2 ad
6 poll. vel ultra longæ, glabre, laeves. Panicula spiciformis, lineario-
oblona, sublobata vel subinterrupta, 1–1½ poll. longa; rhachis ramique
teretes, scaberuli vel hispiduli, hice perbreves; pedicelli brevisimi.
Spiculae coarctatae, late, ovate vel elliptice, circiter 2 lin. longæ, vire-
scentes, 3–6-floræ. Glumæ ovatae, acute vel subacuminatae, 1½ lin. longæ,
3–5-nervæ, nervis carinæ scabrae approximatis tenuibus, marginibus
albidis latissimis. Valvæ ovatae (a lateris) plerunque abrupte mucro-
natae, 1–1½ lin. longæ, sub-firmae, secundum margines ciliate vel fere
undique a basi ad medium pilose, pilis tenuibus acutis, nervis tenuibus.
Paleæ late, obtuse, carinis scabris vel inferne ciliatis. Lodiculae
Kunth, Enum. Pl. i. p. 363.

SOUTH AFRICA: Cape Colony, without precise locality, Thunberg.

Why this species was quoted as a synonym of Tetrachne Dregei
Nees, by Nees and subsequent authors, is difficult to understand, as
there is nothing in Thunberg's description to justify it.—O. STAFF.

Fig. 1, a ligule; 2 and 3, spikelets; 4, lower glume; 5, upper glume (flattened
out); 6, a valve (flattened out); 7, a valve (side view); 8, a pale; 9, a lodicule; 10,
a pistil. All enlarged.
**Plate 2604.**

**ACHNERIA CAPILLARIS, Stapf.**

**Gramineae. Tribe Avenae.**

*A. capillaris, Stapf.; affinis A. aurea, sed annua, glumis acutioribus tenuioribus pubescentibus valvis pro ratione brevioribus glabris diversa.***


**South Africa:** Cape of Good Hope, Thunberg.

This grass does not seem to have been collected since Thunberg, nor is there any evidence that subsequent writers have seen his specimen. As, moreover, Thunberg’s diagnosis and description of this plant were partly contradictory, it is no wonder that Roemer and Schultes, as well as Kunth, were misled in their endeavours to find a place for it in Andropogoneae. Hackel (Monogr. Androp. p. 651) has already pointed out that it could not belong to this tribe. Thunberg says in *Prodr. Pl. Cap.* i.c. and in the diagnosis of the species in *Fl. Cap.* i.c., ‘flosceulo hermaphroditico mutico, masculo aristato’ and ‘glumis glabris,’ whilst in the description no mention is made of the

*Call by Schlecten, Herrenmund, 11310. See Schlecten*
heteromorphism of the florets, and the glumes are described as having a 'carina subvillosa.' As the description agrees otherwise very well with the specimen named Holcus capillaris in his herbarium, I assume that Thunberg drew up his diagnosis from a different plant, perhaps a Holcus or Aira.—O. Staff.

Fig. 1, a ligule; 2, a spikelet; 3, the 2 florets; 4, a valve (flattened out); 5, an upper floret; 6, pale of an upper floret (5 and 6), showing the minute continuation of the rhachilla at the base; 7, a lodicule; 8, a pistil. *All enlarged.*
DEYEUXIA SCLEROPHYLLA, Stapf.

Gramineæ. Tribe Agrostideæ.

D. sclerophylla, Stapf (sp. nov.); nulli speciei arcte affinis, glumis valvaque rigidis, arista e sinu orta distincta, potius sectionem novam Sclerodeyeuxiam sistens.

Gramen dense cespitosum innovationibus intravaginalibus. Culmi stricte erecti, 1–2½ ped. alti, glabri, læves, plerumque 2-nodi, internodiis 2–1 exsertis. Folia glabra, lævia, basi arcte et distiches congesta, sœpe (praecipue in innovationibus) sublabellata; vaginae compressae, obtuse carinatæ, arcte, inferiores circiter 3 poll. longæ, sulcato-striatae; ligulae hyalinae, ovate, acuta ad 2 lin. longæ; laminae erectæ, lineares, arcte plicatæ, perfores, rigidæ, basi transverse callosæ, subpungentes, 6–9 poll. longæ, ¾–⅝ lin. late (in statu plicato), subbis lœvissimæ, supra scabridæ et sulcato-nervosæ, marginibus lævibus.

Panicula erecta, linearis, 4–6 poll. longa, contracta; rhachis lævis, gracilis; rami fasciculati vel geminati, erectæ, inaequalis, longiores 1–2 poll. longi, parce ramulosi vel simplices, a basi spiculigeri vel inferne plus minusve nudi, filiformes, læves vel superne scaberuli; pedicelli circiter 1 pin. longi, cæteri sœpe multo longiores, superne incrassati, lœvissculi. Spiculæ cinereo-virescentes vel plus minusve glauco-purpurascentes, 3½ lin. longæ; rhachillé processus 1 pin. longus, plumosus. Glumæ subæqualès, lanceolatæ, muceratnocuminate, carinatæ, subcoriaceæ, 3-nerves, omnino scabridæ. Valva lineari-lanceolata, 2⅔ lin. longæ, firma, omnino scaberula, sub-7-nervis, ad ¾ bifida lobis bidentulis vel bimucronatis, e sinu aristata, arista scabra patulo-recumva; callus pilosus, pilis ¼–⅓ valvæ equantibus. Palea angusta, 2-dentula, carinis superne scaberulis. Lodiculae oblongæ, 2-dentatæ, fere ¼ lin. longæ. Antherae 1 pin. longæ. Ovarium glabrum. Caryopsis lineari oblonga, 1 pin. paulo longior, a dorso compressa; embryo parvus; hilum ½ caryopsis æquans.

NEW GUINEA: Mount Scratchley, 12,200 feet, Giulianetti.

The glumes are as rigid as those of Ammophila, and the valve, though thinner, is still firmer than in any other Deyeuxia I have seen. The leaves are very like in structure to the leaves of Ammophila arenaria, but the blades are more compressed. The awn springs from the sinus of the valve, whilst it is, I believe, always dorsal in the true
Deyeuxia, and reduced to a subterminal mucro or quite absent in *Ammophila*. This insertion of the awn in connection with the rigid side lobes and the shortly excurrent side nerves would bring the species near to *Pentapogon*, but in that genus the rhachilla is glabrous and the ovary top conspicuously appendaged. The great similarity of the structure of the blades of *Deyeuxia sclerophylla* and of the other grasses of Giulianetti's collection from Mount Scratchley, with the exception of *Microlaena*, is very singular, and indicative of great (probable periodical) dryness of the air.—O. Stapp.

Fig. 1, a ligule; 2, a spikelet; 3, a floret, with the continuation of the rhachilla; 4, a pale; 5, a grain, back view; 6, the same, front view. *All enlarged.*
**Plate 2606.**

**DANTHONIA OREOBOLOIDES, Stapf.**

**Gramineae. Tribe Avenae.**


*Gramen* cespites densissimos 1 poll. vix altiores formans, innovationibus creberrimis cum culmis floriferis fasciculatis. *Culmi* floriferi vix 1 poll. alti, ad medium vaginati, glaberrimi, lævissimi, tenues. *Folia* glabra, in innovationibus et ad culmorum basin distiche imbricata; *vaginae* arctæ, laxe striatæ; *ligulae* pilorum brevissimorum serie notatae; laminae tenuiter setaceo-subulatae, acutæ, $\frac{1}{4}$–$\frac{1}{3}$ poll. longæ, curvæ, læves. *Spiculae* solitariae in culmorum apice, albidæ, $\frac{1}{3}$ lin. longæ, circiter 3-floræ; rhachilla parce pilosula. *Glumæ* æquales, ovato ellipticae, subacute vel obtuse, ima basi obsolete 5-nerves, caeterum 1-nerves. *Valvae* oblongæ, integrae, breviter acuminatae, vix 1$\frac{1}{4}$ lin. longæ, ad latera utrinque penicillis minutissimis ornatae, 7-nerves, nervo medio interdum in mucronulum excurrente, callo minuto barbulato obtuso. *Pala* valvam subquasans, carinis superne scabris. *Lodiculae* glabrae. *Antheræ* $\frac{1}{3}$ lin. longæ. *Ovarium* glabrum.

**New Guinea**: Mount Scratchley, 12,200 feet, Giulianetti.

I have no doubt that this is the grass which Sir Ferdinand von Müller described in *Trans. Roy. Soc. Vict.* i. 2. pp. 38, 39, and named provisionally *Festuca oreoboloides*.

Fig. 1, a part of the plant; 2, a ligule; 3, a spikelet; 4, a valve (flattened out); 5, a floret (side view); 6, a pale; 7, a lodicule; 8, a pistil. *All enlarged.*
POA PAPUANA, Stapf.

Gramineæ. Tribe, Festucæe.

Poa papuana, Stapf (sp. nov.); affinis P. minimiflora, Stapf, sed foliis minus tenuibus rigidioribus scaberulis, spiculis paulo majoribus, valvis acute acuminatis quam palea levi paululo brevioribus diversa.


NEW GUINEA: Mount Scratchley, 12,200 ft., Giulianetti.

Poa papuana, P. callosa, P. minimiflora and P. epileuca, Stapf, form a small natural group, the affinity of which lies evidently with Poa kerguelensis, Hook. f. and P. antarctica, Stapf (Triodia antarctica, Hook. f.). In my paper on the flora of Kinabalu (Trans. Linn. Soc., ser. 2, iv. p. 247), I have pointed out that the grass which I then described as Deyeuxia epileuca was "a very marked species, the affinity of which lies rather with some Australian species (of Deyeuxia) than with any others, though it is far from being closely connected" and that "the spikelets come, perhaps, nearer to those of D. gunniana,
Benth.”; but I was then “still doubtful as to the true systematic position” of the grass (l. c. p. 105). The discovery of *Poa papuana* and *P. minimiflora* has given me now the key to it in the direction indicated above. This group of *Poa* is well marked off from the rest by the minute 1–2-flowered spikelets and the firmer texture of the glumes and valves, and will probably have to stand as a section of *Poa*. *Deyeuxia gunniana*, Benth. and the closely allied *D. breviglumis*, Benth., are, in general habit, strikingly similar to *P. papuana* and *P. minimiflora*, but the obtuse glumes and the minutely emarginate and mucronulate valves with basewards evanescent nerves point to a different genus. *P. papuana* and perhaps also *P. minimiflora* are evidently the same grasses which Sir Ferdinand von Mueller enumerated as *Festuca pusilla* (*Trans. Roy. Soc. Victoria*, i. pt. 2, p. 38).—O. StafF.

Fig. 1, a ligule; 2, a spikelet; 3, a floret with the continuation of the rhachilla; 4, a valve (flattened out); 5, a pale. *All enlarged.*
POA MINIMIFLORA, Stapf.

**Gramineae. Tribe, Festuceae.**

*Poa minimiflora,* Stapf. (*sp. nov.)*; affinis *P. epilena,* Stapf (*Deyeuxia epilena,* Stapf), sed foliis tenuiter setaceis, paniculis uberioribus, spiculis minoribus diversa.


**New Guinea:** Mount Scratchley, 12,200 ft., Giulianetti. O. Stapf.

Fig. 1, a ligule; 2, a one-flowered spikelet; 3, floret of the same, with the continuation of the rhachilla; 4, a two-flowered spikelet; 5, a pale, flattened from the back; 6, a grain, side view; 7, the same, front view; 8, the same, cross section. *All enlarged.*
PLATE 2609.

CROSSOTROPIS GRANDIGLUMIS, Rendle.

GRAMINEÆ. Tribe CHLORIDEÆ.


A minor variety of *C. grandiglumis* was described by Mr. A. Rendle, l.c., from specimens collected by Welwitsch in Pungo Andongo (2,709) and in Huilla (7,492). It has spikelets smaller and more delicate than in the type, 2½–3 lines long; flowering glumes subhyaline, more prominently awned than in the type, pale hyaline.

*Crosstropis* is allied to *Triraphis* and *Leptocarydion*, which has erroneously been reduced to *Triodia*, a very different and natural genus having 7–9-nerved valves. *Triraphis* differs in the usually distinctly pedicelled spikelets, which are often arranged in compound and dense panicles and the longer awns, and excurrent side nerves of the valves. *Leptocarydion*, on the other hand, has dense spiciform panicles, long and finely awned valves, and peculiar leaf blades. The true *Leptochloa*, to which Nees referred *C. grandiglumis*, differ in the usually very minute spikelets, entire, muticous, broader valves, and mostly globose or subglobose grain. *Diplachne*, again, to which Hackel referred the plant figured here, has firmer valves of the peculiar texture of those of *Eragrostis* and relatively short glumes, the florets being usually much exserted from the latter. Two other species from tropical Africa and Arabia, viz. *C. mollis*, Stapf (*Leptochloa mollis*, Kunth; *Triodia mollis*, Durand & Schinz), and *C. arenaria*, Stapf (*Diplachne arenaria*, Nees; *Uralepis arenaria*, Steud.), have spikelets of a very similar structure. They are both annuals.—O. STAFF.

Fig. 1, a ligule; 2, a terminal spikelet; 3, lower glume; 4, upper glume; 5, a floret with the contiguous rhachilla joint; 6, a valve; 7, a pale; 8, a lodicule; 9, a grain, back view; 10, the same, front view; 11, cross section of a grain. All enlarged.
POGONARTHRIA FALCATA, Rendle.

Gramineae. Tribe Eragrostieae.


Portuguese West Africa: Loanda, Museque de Luiz Gomes, Welwitsch, 7287, 7367; Barro do Bengo, between Quicuxe and Cacuaco, Welwitsch, 7287 C; Pungo Andongo, between Lombe and Quibinda, Welwitsch, 7408; Huilla, between Lopollo and Monino, Welwitsch, 7487.


Hackel, who described this species under Leptochloa, has already remarked that it differs considerably from all other species of Leptochloa. In fact, the affinity lies with Eragrostis, to certain species of which it approaches rather closely.—O. STAFF.

Fig. 1, a ligule; 2, a spikelet; 3, an intermediate rhachilla joint; 4, terminal rhachilla joint; 5, lower glume; 6, upper glume; 7, a valve; 8, a pale with rhachilla joint; 9, a lodicule; 10, front view of a grain with hilum; 11, side view; 12, cross section of a grain. All enlarged.
LOPHACME DIGITATA, Stapf.

Gramineæ. Tribe Chlorideæ.


L. digitata, Stapf (sp. unica). Culmi graciles, erectæ, ultra 1 ped. alti, glabri, leves; internodium summum perlongum. Folia culmæ glaberrima; vagine arcte, teretes, leves, summa 5-5½ poll. longa; laminae lineares, acutæ, subglaucescentes, leves, summæ brevissimæ vel obsolete, inferiores 1½ poll. longa, 1-1½ lin. latae. Panicula 3½-5 poll. longa; axis filiformis, 1 poll. brevior, scaberula, purpurascens; rami 4-5, tenuiter filiformes, 3-4½ poll. longi, scaberulæ, purpurascentes, a bæsi vel fere a bæsi spiculigeri. Spiculae inaequales dissitæ, superiores approximate, angustæ, rubescuentes, 2½-3 lin. longæ. Glumæ linearis-lanceolatae, acutæ, glabrae, inferior brevior. Valvæ florigere tenuiter pubescentes, inferne purpureæ, superne albae, 1½-2 lin. longae, dentibus tenuibus; arista inferne scabra, tenuis, 3-4 lin. longæ, erecta; valvæ superiores vacue, glabraæ (aristis demptis) ab inferioribus superatae. Anthereæ ignotæ. Stigmata aurantiaca.

South Africa: Transvaal, near Rhenoster Poort, Nelson, 32.*

The spikelets resemble those of the Australian genus Ectrosia, which has, however, a very different panicle and comparatively shorter glumes.—O. STAFF.

Fig. 1, a ligule; 2, a spikelet; 3, lower glume; 4, upper glume; 5, a spikelet with the glumes removed; 6, a fertile valve; 7, its pale; 8, terminal tuft of barren valves; 9, a lodicule. All enlarged.


Triphebia differs considerably from Lasiochloa in the nervation and texture of the glumes and valves; I can, however, for the present, not suggest a better place for it than near Lasiochloa. It resembles superficially Koeleria in habit and has, like K. cristata, 3-nerved valves; but the shape and texture of the glumes and valves, and particularly the structure of the grain, are quite distinct.—O. Stapf.

Fig. 1, a ligule; 2, a spikelet; 3, lower glume; 4, upper glume; 5, a floret; 6, a valve; 7, a pale; 8, a lodicule; 9, an ovary; 10, a grain (side view); 11, the same (front view). All enlarged.
ARUNDINARIA AURICOMA, Mitford.

Gramineae. Tribe Bambuseae.

A. auricoma, Mitford, Bamb. Gard. p. 100. A. macrosperma, var. suffrutescens, Munro, affinis, sed habitu, foliorum vaginis superne obscurius ciliatis, ore haud vel fugaciter fimbriatis, laminis subtus semper densius molliterque pubescentibus, glumis longioribus plerumque subfoliaceis distincta.

Fruticulus circiter 3-pedalis, praeter basin parce ramosus. Culmi teretes, graciles, subfistulosi, infra nodos annulo glauco ceree induti et interdum praeterea puberuli; internodia inferiör in culmis sterilibus 3-5 poll. longa, sepe breviter exserta, superiör 3-4 brevia, vaginis arcte imbricatis tecta, in floriferis ut in illis sed internodiis 2-4 elongatis horuotinis additis. Foliorum vagine arctae, striatae, ad nodos pilosula, secundum margines superne tenuiter vel obscure ciliatae, ore nudae vel parce atque fugaciter fimbriatae, superiores sepe superne pubescentes, subcompressae, purpurascaces; ligule brevis-sime, truncate; lamine breviter petiolatae, lineari-lanceolatae, setacea-acuminatae, basi rotundatae, 5-7 poll. longae, 9-12 lin. late, virides vel plus minusve aureo-vittate, supra parce pilosulae imprimis secundum costam, infra molliter pubescentes, nervis secundaris utrinque 5-6 venis transversis tenuibus sed distinctis, areolis subelongatis. Spicula terminalis plerunque solitaria (raro secunda paulo infra addita) lin-aris, laxe 5-10-flora, \( \frac{1}{2} - \frac{1}{2} \) poll. longa; rhachilla pubescens articulis superne clavatis. Gluma spicularum terminalium solitaria subfoliacea, lanceolata, caudato-acuminata, spicula dimidium equans vel longior, superne puberula, glumae spicularium lateralium 2, oblonga, mucronato-acuminatae, superne pubescentes, inferior 5-, superior 7-nervis, illa \( \frac{1}{2} \), haec \( \frac{1}{2} \) lin. longa. Valve ovata, inferiores caudato-acuminatae, superiores acute et plus minusve mucronatae, intermediae 7-8 lin. longae, superne puberula, marginibus ciliolatae, herbaceae, interdum purpurascenses 9-nervae, plus minusve tesselatae. Palea lineari-oblonga, 2-cuspidata, carinis dense ciliatae, inferiores quam value breviores, superiores eas equantes vel subsuperantes. Lodiculae ciliatae. Anthereae 5 lin. longae. Stylus stigmata 3 equans.—Bambusa Fortunee var. aurea, Hort.

Native country unknown. Drawn from specimens cultivated at Kew.
This species has been in cultivation for some time. It was referred to *Arundinaria Fortunei*, Riv. Bamb. p. 314 (*Bambusa variegata*, Standish in Proc. Hort. Soc. 1861, p. 614; Sieb. et Miq. Ann. Mus. Bot. ii. p. 285; Franch. & Sav. Fl. Jap. ii. p. 183; *B. Fortunei* folii niveo-vittatis, Van Houtte, Fl. des Serres, xv. p. 69, t. 1535; *A. picta*, Sieb. et Zucc. ex Munro in Trans. Linn. Soc. xxvi. p. 111), a species only known in the barren state, and distinguished by the more graceful and dwarf habit and smaller and less hairy leaves. Some specimens of this come, however, so near to *A. auricoma* that the discrimination becomes uncertain, in any case, so far as their specific distinction is concerned; but as *A. Fortunei* is so imperfectly known, this question must remain in abeyance. The affinity of *A. auricoma* lies evidently with the North American *A. macrosperma*, Mich., and more especially with the smaller variety, described by Munro as var. *suffruticosa* and identical with *A. tecta*, Mühl. The empty bract preceding the lowest flower-bearing bract or valve is described above as glume, but it may be equivalent to the bract which, in the two instances where I have observed an additional lateral spikelet, supported the latter. The glumes of these lateral spikelets are well differentiated, which is the rule in *A. macrosperma*.—O. Staff.

Fig. 1, junction of sheath and blade with ligule; 2, under side of a part of a leaf; 3, glume of a solitary terminal spikelet; 4, a floret; 5, a rhachilla joint; 6, a valve; 7, a pale from the back; 8, a flap of a pale; 9, an anterior lodicule; 10, a posterior lodicule; 11, an anther; 12, a pistil. *All enlarged.*
Plate 2614.

**PHYLLOSTACHYS HENONIS, Mitford.**

**Gramineæ. Tribe Bambuseæ.**

P. Henonis, Mitford, Bamb. Gard. p. 149; affinis P. Stauntonii, Munro, sed paniculis magis decompositis et contractis, valvis brevioribus latioribus firmioribus distincta.


**Native Country** probably Japan. Drawn from flowering specimens grown in Lord Moreton's garden at Sarsden, Chipping Norton and a barren branch grown at Kew.

This bamboo was introduced from Japan, where it is called Ha-chiku, and has for some time been known to gardeners as *Bambusa Henonis*. It comes very near to *P. Stauntonii*, Munro, a Chinese species, and I thought for some time that it might be identical with it, but the more complete specimens in R. Brown's collection at the British Museum have since convinced me of the two plants being decidedly distinct.—O. Staff.

Fig. 1, junction of sheath and blade with ligule; 2, a spikelet with a subsoliaceous glume; 3, this glume, seen from the front; 4, a spikelet with a non-soliaceous glume; 5, this glume, seen from the front; 6, spikelet with the glumes removed; 7, a valve; 8, a pale; 9, an anterior lodicule; 10, a posterior lodicule; 11, pistil and filaments. *All enlarged.*
**Plate 2615.**

**POLAKIA PARADOXA, Stapf.**

**LABIATÆ. Tribe, MONARDEÆ.**


*Herba* perennis radice crassa. *Caulis* simplex vel ima basi parce divisus, parte subterranea $\frac{1}{3} - 1$ poll. longa, crassa, foliorum basium residuis obtecta, coma foliorum verticillarium coronata quorum et corde caulis floriferus surgit; hic crassus, ad panicule basin circiter semi-pedalis, obtuse angulatus, albidus vel purpurascens, tomentellus vel demum superne glabrescens. *Folia* ima circa caulis floriferi basin verticillatim congesta numerosa, eetra in 2 - 3 verticilliis 5 - vel 4-meris, sursum decrescentia et brevius petiolata vel summa sessilia, cinereotomentella et præterea hinc inde pilis longis patulis conspansa, ambitu oblongo-lanceolata, pinnatisecta, majora ad 3 (cum petiolo ad 5) poll. longa, segmentis linearibus, lanceolatis vel ovato-lanceolatis, forma et magnitude valore variis, plus minusve profunde dentatis; folia floralia lineari-lanceolata vel linearia, integra vel inferiora utrinque lacinias nonnullis aucta, acuta, mucronata. *Panicula* rigide-patula, $\frac{1}{3} - 1$ ped. longa et lata, ramis in verticilliiis 4-3-meris distantibus; axis inferne subglabra, superne patule villosa, crassa; rami virgati, inferiores semipedales, simplices vel interdum parce ramosi, plus minusve patule villosi, apicem versus sepe steriles, cæterum cymas oppositas plerunque ad florem solitariam redactas et bracteis linearibus vel subulato-lanceolatis mucronatis suffultas gerentes; pedicelli stricti, tenues, patule villosi, $\frac{1}{3} - \frac{3}{4}$ poll. longi. *Flores* heteromorphi. *Forma androdynamica*: Calyx obconico-campanulatus, circiter 9 lin. longus (dentibus inclusis), fere ad medium in labia æquilonga fissus, dentibus labii superi lateraliibus et basi lanceolata longe subulati attenuati, summò multo breviore e basi lata acuminato, dentibus labii inferi ad basin fissi, lanceolato-subulati, totus longe et patule glandulosos-pilosus, fructifer auctus, amplius. *Corolla* albidula; tubus subrectus, sensim in faucem ampliatus, circiter 10 lin. longus, intus nodus; labium superum 3 - 4 lin. longum, bilobum, lobis planis, inferum æquilongum, trilobum, lobis lateraliibus late ovatis, porrectis, medio majore emarginato, convexulo. * Stamina* subinclusa, antica filamentis glabris, loculis ob connectivum 2 - 2½ lin. longum remotis, postica suppressa (?). *Stylus* labium superum subaequans. *Forma gynodynamica*: Calyx

Orient: Persia, near Urmiah, Owerin; between Zenjan and Soltanieh, Bunge; Hamadan, Polak & Pichler; Irak, at Girdu and Mowdare near Sultanabad, Strauss; without precise locality, Aucher, 1563. Assyria, Mendel, Noé.

A very peculiar plant, the position of which has always been doubtful. Bentham, in describing it from very incomplete material, put it into Salvia, but was uncertain whether it should go into the section Eusphace or in the section Ethiopian. Bunge referred it also to Salvia, but based on it a new section Physosphace. Trautvetter, who saw only the top of a panicule, described it as a new species of Salvia, adding "habitu peculiari a Salvis nostratibus omnibus longe recedentibus et procul dubio generis sectionem propriam exhibentis." Boissier has it in the section Ethiopian; Briquet in the section Congrosphace of Salvia under two names, and besides as a distinct, although provisional, genus (Polakia), the position of which, he says, cannot be cleared up before the subgenera Viasala, Allogospadonopsis and Corola have been revised. When I described it as Polakia in 1885, I did not know Aucher's S. aristata, of which I saw a fruiting panicule at Kew several years later. The material at Kew is hardly sufficient to decide the question as to the true affinity of the plant, which, in any case, would have to occupy a separate place, even if it should be, as is very likely, reduced to Salvia. The specimen drawn represents the gynodynamic state and has been figured from a plant collected by Mr. Th. Strauss near Sultanabad.—O. STAFF.

Fig. 1, calyx, cut open, and pistil; 2, corolla, cut open; 3, an anticus stamen; 4, a mature nutlet; 5, cross section of the same.
GIULIANETTIA TENUIS, Rolfe.

Orchideæ.


G. tenuis, Rolfe (sp. unica).


New Guinea: Mount Scratchley, 12,200 ft., Giulianetti.

A very interesting monotype, clearly allied to Ceratostylis, but differing in its large solitary flowers, in the auriculate bases of the lateral sepals united into a limb behind the spur of the lip, and in the long spur, which is about three times as long as the limb. The polinia were missing from the flower examined.—R. ALLEN ROLFE.

Fig. 1, a flower; 2, lip and column. All enlarged.


*Brazil*: Organ Mountains, Barbosa Rodrigues. Figured from a plant grown in the Royal Gardens, Kew.

The male of this species was described by Barbosa Rodrigues in 1881, since which time nothing further seems to have been known about it until last autumn. In September a *Catasetum* which had been purchased at a sale produced a scape of female flowers, which, as often happens with this genus, could not be determined. A second scape soon followed from the opposite side of the same bulb, and when the flowers opened, in December, they proved to be males belonging to the above-named species. It is an ally of *C. luridum*, Lindl., and *C. Hookeri*, Lindl., but differs in the details of the lip. The flowers are green, except that in the males the lip is dull yellow internally. A dried male flower and sketch of a plant which flowered in the collection in April 1861 are preserved in the Herbarium, and clearly belong to this species, for they agree in structure and colour, but there is no note as to the origin of the plant. The present species is the
twenty-third of which the female flowers have been recorded, but there is a greater number of which this sex is still unknown.—R. ALLEN ROLFE.

Fig. 1, plant, showing male and female scapes (the latter after the flowers had fallen); 2, leaf; 3, male scape; 4, male flower, with the sepals and petals laid open; 5, male column, with antennae (side view); 6, the same, with part of the antennae removed (front view); 7, pollinia; 8, female flower. 1, reduced; 2, 3, 4, and 8 natural size; 5, 6, and 7 enlarged.
MOQUILEA PLATYPUS, Hemsl.

ROSACEÆ. Tribe CHRYSOBALANÆ.


Arbor usque ad 150 ped. alta, ramulis floriferis crassiusculis primum puberulis. Folia distincte petiolata, crassa, coriacea, glaberrima, oblonga vel anguste lanceolata, 6-10-pollaria, acuta vel subobtusa, basi rotundata vel cuneata, supra nitida, venis primariis lateralis numerosis leviter curvatis; petiolus crassus, 6-7 lin. longus. Flores racemoso-paniculati, 3-4 lin. diametro, distincte pedicellati, solitarii vel fasciculati; paniculæ terminales, 9-12 poll. longae (forsan interdum multo majores), ramulis crassis compressis primum puberulis. Calyx dense cano-tomentosus, lobis late ovatis obtusis demum reflexis, tubo intus villoso. Petala elliptica, ciliata, quam lobi calycini longiora, caducissima. Stamina sepius 15, subequalia, filamentis basi villosi. Ovarium atque stylus infra medium plus minusve villosus. Fructus pro genere maximus, drupaceus, compresso-ellipsoideus, leviter obliquus, 6-7 poll. longus, 4-5 poll. diametro, grosse irregulariterque tuberculatus vel verrucosus, sepius unispermus, mesocarpio fibroso, endocarpio tenui. Semen ellipsoideum vel oblongo-ovoideum, circiter 3 poll. longum, cotyledonibus magnis valde fibrosis, plumula cum radicula parva.

CENTRAL AMERICA: Panama (?) Cuming, 1272; neighbourhood of Granada, Nicaragua, cultivated, Levy, 222; Botanical Station, British Honduras, Campbell.

Kew is indebted to Mr. E. J. F. Campbell, Curator of the Botanic Garden, British Honduras, for a number of fruits of this remarkable species of Moquilea, with the information that it bears the local name of 'monkey apple,' and that it is edible. The fruit is an uncountable object, and by no means suggests an apple. Mr. Campbell describes the tree as thirty to forty feet high; Mr. Levy as 50 metres. It does not appear certain that any of the specimens are from wild trees.—W. Botting Hemsley.

Plate 2618. Fig. 1, a flower, from which the petals have fallen; 2 longitudinal section of the same in an earlier stage; 3, section of ovary; 4, embryo, with one cotyledon removed; 5, basal part of embryo, showing radicle; 6, axis of the embryo; 7, fibrous tissue of cotyledon. Figs. 4 and 5 natural size; all the rest enlarged.

Plate 2619. Flowering branch and fruit, natural size.
Plates 2620 and 2621.

COUEPIA DODECANDRA, Hemsl.

ROSACEÆ. Tribe CHRYSOBALANEÆ.

*C. dodecandra*, Hemsl. ; Hirtella dodecandra, DC. Prodr. ii. p. 529; *Calq. des Dees. Fl. Mex. 302*; species ex affinitate *C. Uiti*, Benth. brasiliensis, sed folis majoribus subtus argenteis.


**British Honduras** : Botanical Station, *Campbell*; **Mexico** : Tabasco, cultivated, *Rovirosa*, 179.

It is uncertain where this tree is really wild. Under the original description, cited above, Mexico is given as the native country, without any localisation. In 1889 Kew received a set of Rovirosa's Mexican plants, including a specimen of *C. dodecandra*, with the note: “Cultivado en todas las quintas de S. Juan Bautista, Tabasco.” In 1898 Mr. E. J. F. Campbell sent flowering and fruiting specimens to Kew from British Honduras, under the name of “baboon cap.” He also describes the fruit as edible; but he does not state whether his specimens were taken from a wild or a cultivated tree.

The two-seeded fruits of this species present a curious and misleading appearance in section, as the embryos are free from the outer
testa, so that the fruit might easily be passed as two celled.—
W. Botting Hemsley.

Plate 2620: fig. 1, a flower; 2, a petal; 3, longitudinal section of ovary and calyx; 4, cross section. All enlarged.
Plate 2621: fig. 1, a fruit; 2, longitudinal section of the same; 3, cross section of a fruit containing one seed; 4, an embryo; 5, axis of embryo with part of one cotyledon; 6, cross section of a fruit containing two seeds; 7, longitudinal section of a fruit containing the corresponding portions of the testa of two seeds. All except fig. 6 natural size.
A. biglandulosum, Hemsl. (sp. nov.) ; species foliorum lobis 2 basilaribus conspicue 1-glandulosi facile distinguitur.


China: in woods Mengtze plain, Yunnan, Hancock, 346; A. Henry, 9390, and 9390. A. and B. The flowering branch was drawn from a plant raised in the Royal Gardens, Kew, from seed sent by Dr. A. Henry; the fruit and seed from his dried specimens.

A. biglandulosum presents several peculiarities that require further elucidation. The glands on the basal lobes of the leaves are very marked, and the terminal filiform appendage of the connective is unusual. Further, the nature of the downward (?) axile prolongation of the calyptera has not been ascertained. Only quite ripe fruits are present, so that neither the attachment of the seeds nor the connection of this central axis could be traced with certainty.—W. Botting Hemsley.

Fig. 1, male flowers; 2, androecium; 3, dorsal view of anther; 4, a fruit; 5, calyptera of the same; 6, a seed; 7, an embryo. 1–3 enlarged; 4–7 natural size.
PASSIFLORA HENRYI, Hemsl.

Passifloraceae.

P. (§ Decaloba-Polyanthea) Henryi, Hemsl. (sp. nov.); inter species chinenses P. cupuliformi, Mast. (hujus operis t. 1768) magis quam aliis accedit, recedit foliis minoribus basi rotundatis, floribus majoribus in axillis foliorum fasciculatibus, nec cymosis.


China: plain of Mengtze, Yunnan, at 4,500 feet, A. Henry, 10,282.

This makes the third described species of Passiflora known to inhabit China, and there are fruiting specimens of a fourth very distinct species in Dr. A. Henry's collection from the same region as the above.* P. Henryi, Hemsl., is also near P. Leschenaultii, DC., a native of the Pulney and Nilghirri mountains, having much larger solitary flowers. It is doubtful whether any of the Khasia specimens referred to the latter are really the same species.—W. Botting Hemsley.

*Passiflora (§ Decaloba-Polyanthea) franchetiana, Hemsl. (sp. nov.); ab omnibus speciebus sinensibus differt foliis subcoriaceis alte bilobatis reticulato-venosis, petiolo infra medium biglandulosae.

Frutex vel herba alte scandens, ut videtur undique glabra vel glabrescens, ramulis fructiferis crassiusculis subteretibus. Folia iis...
Bauhinie specierum quarundam similia, longe petiolata, demum leviter coriacea, e basi rotundata vel subcordata sursum latiora, absque petiolo 3-4 lin. longa, ab apice fere ad medium bilobata, lobis ovato-oblongis apice rotundatis divaricatis sinu aperto, vel interdum erectis sinu angusto, a basi subquinquenervia, venis conspicue reticulatis; petiolus gracilis, 1½-2 poll. longus, paullo supra basin biglandulosus. Cirrhi in specimine kewensi desunt. Flores in axillis foliorum 2-6, fasciculati, pedicellis rigidiusculis puberulis circiter semipollicariibus; bracteae minutæ, lineares, cito deciduae. Calyx . . . Fructus globosus, siccitate 6-9 lin. diametro, gynophoro circiter 2 lin. longo; semina numerosa, nigra, compresso-ovoidea, scrobiculata, arillo aliformi cincta, absque arillo circiter 1½ lin. longa.

China: in woods Mengtze, Yunnan, at 5,500 feet, A. Henry, 11,192.

Fig. 1, section of flower showing corona; 2, a filament of the outer series of the corona; 3, a filament of the intermediate series; 4, a portion of the inner plicate series; 5, androecium and gynaeceum. All enlarged.
SHORTIA SINENSIS, Hemsl.

DIAPENSIACEÆ.

S. sinensis, Hemsl. (sp. nov.); a speciebus hactenus cognitis foliis oblongo-lanceolatis deorsum gradatim attenuatis differt.


CHINA: south-eastern mountains at 5,000 feet, Mengtze, Yunnan, A. Henry, 11,490.

The genus Shortia was founded by Torrey and Gray, in 1842, for a plant inhabiting the mountains of North and South Carolina. Later, a second species was discovered in Japan, and more recently another has been found in Tibet, which, with the present very distinct one, brings the total up to four. It is doubtful whether, in view of these later discoveries, which exhibit some deviations from the genus as originally described, Siebold and Zuccarini's Schizocodon (1843) should not be regarded as a section of Shortia.—W. BOTTING HEMSLY.

Fig. 1, pistil and part of calyx; 2, a corolla laid open; 3, a cross section of an ovary. All enlarged.
LESPEDEZA DIVERSIFOLIA, Hemsl.

Leguminosae. Suborder Papilionaceae.

L. diversifolia, Hemsl. (sp. nov.); inter species chinenses foliis dimorphis insignis.


China: in the southern mountains at 6,000 feet, Mengtze, Yunnan, A. Henry, 9243.

This very distinct species of Lespedeza is one of three different species (belonging, perhaps, to as many different genera) of Leguminosae in Dr. A. Henry’s Mengtze collection, exhibiting the same kind of dimorphism in the leaves. One or both of the others will be figured in a future part of the Icones.—W. BOTTING HEMSLEY.

Fig. 1, a flower from which the petals have been removed; 2, a wing-petal; 3, a keel-petal; 4, section of pistil showing the solitary ovule. All enlarged.
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SHUTERIA SINENSIS, Hemsl.

LEGUMINOSÆ. Suborder Papilionaceæ.

S. sinensis, Hemsl. (sp. nov.); species S. suffulta, Benth., simillima sed robustior, omnibus partibus majoribus, calycis dentibus haud acuminatis.

Herba glabrescens, scandens, caulibus ramulisque teretibus gracilimis. Folia trifoliolata, longe graciliterque petiolata, vel in ramis floriferis subsessilia; foliola petiolulata vel subsessilia, membranacea, circumscriptione valde variabilis, elliptica, ovalia, orbicularia, vel foliorum superiorum minorum reniformia vel orbiculari-cordata, amplicaulia, maxima bipollicaria, cito glabrescentia, integerrima; petioli filiformes, longiores bipollicares; stipulae conspicue, scariosæ, cordato-ovatæ, acuta, sepius circiter semipollicares, striatae; stipellae bracteolæque stipulis similes sed multo minores. Flores circiter 5 lin. longi, purpurei (Henry), numerosi, racemosi, brevissime pedicellati, racemis gracilibus ramulos laterales terminantibus. Calyx tubulosus, primo pilis paucis vestitus, dentibus deltoideis vix acutis. Petala subæqualia, vexillo unguiculato elliptico emarginato paulo longiore. Ovarium sessile, glabrum. Legumen lineare, fere rectum, circiter 2 poll. longum, compressum, glabrum; semina circiter 8, matura non visa.

China: Mengtze, Yunnan, at 5,000 ft., A. Henry, 5216.

Dr. Henry describes this as shrubby, but this means only that the stems become hard and wire-like.—W. Botting Hemsley.

Fig. 1, a stipule; 2, flower from which the petals have been removed and calyx laid open; 3, standard; 4, a wing-petal; 5, a keel-petal; 6, ovary in section; 7, a pod. All except 7 enlarged.
Plate 2627.

DUMASIA CORDIFOLIA, Benth.

Leguminosae. Suborder Papilionaceae.


_Herba_ gracillima, glabra, volubilis. _Folia_ trifoliolata, brevissime petiolata; foliola brevissime petiolulata, membranacea, \( \frac{1}{2} \)-1 poll. diametro, stipulis stipellisque minutis. _Flores_ flavi, parvi, in racemos parvos axillares dispositi, breviter pedicellati. _Calyx_ tubulosus, oblique truncatus. _Petala_ longe unguiculata, vexillo basi biauriculato. _Ovarium_ glabrum, circiter 6-ovulatum, stylo supra medium incrassato. _Legumen_ leviter falcatum, circiter pollia; semina rotundata, compressa, vix 1 lin. diametro.

**China**: Mountains south-east of Mengtze, Yunnan, at 5,000 feet, A. Henry, 10326.

This is also a native of Khasia and Manipur, and is figured here because there is no really good and easily accessible representation of the genus. The thickening of the style above the middle is characteristic.—W. Botting Hemsley.

Fig. 1, a flower from which the petals have been removed; 2, standard; 3, a keel-petal; 4, a wing-petal; 5, an ovary in longitudinal section; 6, a seed. _All enlarged._
Plate 2628.

SLOANEAST HONGKONGENSIS, Hemsl.

TILIACEÆ.

S. hongkongensis, Hemsl. (sp. nov.); foliis graciliter petiolatis integris, fructu aculeis longis undique instructo.

Arbor circiter 15-pedalis (Ford), præter flores glabra, ramulis floriferis rectis rigidis. Folia ad apices ramulorum conferta, longe petiolarata, vix coriacea, lanceolata vel oblanceolata, absque petiolo 2-4 poll. longa, integra, acuminata sed vix acuta, basi subcuneata, venis primaris utrinque 5-7 tenuibus inter se arcuatim anastomosantibus; petioli usque ad 1½ poll. longi, apice leviter incrassati. Flores nautantes, 6-8 lin. diametro, in axillis foliorum 7-9 superiorum solitarii vel in corymbos subterminales dispositi; pedunculi 9-12 lin. longi, fructiferi elongati. Sepala crassa, sericea, late oblonga vel ovalia, apice integra vel paucidentata. Petala glabra, quam sepala paullo longiora, multifida vel grosse fimbriata. Stamina numerosissima, petalis paullo longiora, filamentis brevissimis, antheris apiculatis. Ovulium 5-6-loculare, setulosum, stylo stamina superante. Capsula cum aculeis circiter 6 lin. longis saltem 2½-3 poll. diametro, 5-6-locularis, valvis post dehiscentiam divaricatis diu persistentibus; semina in quoque loculo sepius 4-5, arillo carnoso aurantiaco usque ad medium vestita.

HONGKONG: Happy Valley and Aberdeen New Road, W. J. Tutchert, Herb. Hongkong, 611 (1895), and C. Ford, 1898, without number.

Kew is indebted to Mr. C. Ford, Superintendent of the Hongkong Botanic Garden, for the excellent and copious specimins from which the accompanying plate was prepared.

With regard to the generic name adopted, I have followed the late Sir Ferdinand von Mueller and other botanists in regarding Echinocarpus of the Old World as not being generically distinct from the American Sloanea. The distinctive characters of these genera, as well as those of Miquel’s Phoenicospermum, are untenable. The last was supposed to differ from the others in having arillate seeds; a character common to the present plant, to some, at least, of the Indian species of Echinocarpus, as well to the American Sloanea Massonii, Sw., and probably to other species, the seeds of which are unknown. The genus Sloanea as originally limited was apetalous, but S. jamaicensis,
Hook (Ic. Pl. tt. 194-196) has distinct petals; therefore the geographical separation of *Sloanea* and *Echinocarpus* fails in two of the principal characters. K. Schumann (Engler and Prantl, *Natürliche Pflanzenf.* iii. 6, p. 5) divides *Sloanea* into three sections, namely: *Eusloanea*, apetalous; *Echinocarpus*, petaliferous; and *Phenicosperrnum*, having arillate seeds. The two last should be united under the former name.

The other Chinese species of *Sloanea* are: *S. sinensis*, Hemsl. (*Echinocarpus*, Hance); *S. hanceana*, Hemsl. (*E. sinensis*, Hemsl. non Hance); *S. dasycarpa*, Hemsl. (*E. dasycarpus*, Benth.). The last is another species having arillate seeds, and it is probable that they all have.—W. Botting Hemsley.

Fig. 1, a petal; 2, gynaeceum and one stamen on the receptacle; 3, back view of a stamen; 4, vertical section of ovary; 5, cross section of ovary; 6, arillate seed; 7, the same in section showing the embryo; 8, another section showing the edges of the cotyledons; 9, a cross section of the same. *All enlarged.*
GENLISEA GUIANENSIS, N. E. Brown.

Lentibulariaceæ.

G. guianensis, N. E. Brown (sp. nov.) ; affinis G. africanae, Oliv., sed foliis lanceolatis et floribus majoribus differt.

Folia 1^{1/4}-2^{1/4} poll. longa, 1^{1/4}-3 lin. lata, anguste lanceolata, obtusa, basi attenuata, membranacea, flaccida, glabra. Utriculi descendentes, breviter vel longissime stipati; tubus 9-10 lin. longus, basi ovoido-inflatus; lobi spiraliter torti 4^{1/4}-7 lin. longi. Scapus 4-12 poll. longus, 1/2-3 lin. crassus, plurisquamosus; flores 3-10, racemosi. Squamae et bracteæ basilixæ; 2^{1/4}-3 lin. longæ, ovatae, acutæ, minute ciliolatae. Pedicelli 3-8 lin. longi; basi bibracteolati, apice subitus tenuiter et minute hirtelli. Bracteolæ 1/2-3/4 lin. longæ, lanceolatae, acutæ, minute ciliolatae. Calyx 5-partitus, minute hirtellus, lobis 1 lin. longis 1/2 lin. latis, lanceolatis vel ovato lanceolatis acutis ciliatis. Corolla personata, violacea, 6-6^{1/2} lin. longa; labium superius 2 lin. longum, erectum, ellipticum, obtusissimum, leviter emarginatum, margine reflexum; labium inferius 3-3^{1/2} lin. longum, deflexum, calcari incumbens, trilobum, lobis oblongis obtusis, palato minute puberulo luteo; calcar 5 lin. longum, crassum, conicum, obtusum, glabrum. Capsula 2 lin. diam., globosa, tenuiter minuteque pubescens, stylo brevissimo coronata.

British Guiana: Arabapu River, Quech & Mcconnell, 150.

G. guianensis is one of the most distinct species of the genus, having larger leaves than any other at present described. In appearance it more nearly resembles G. africanae, Oliv. (a native of Angola), than any other species known to me. The curious utricles, which are characteristic of the genus Genlisea, have a very remarkable structure, which has been well described and figured in Darwin's Insectivorous Plants, p. 446, and Goebel's Pflanzenbiologische Schilderungen, ii. p. 121, tt. 15-16. G. guianensis demonstrates that budding sometimes takes place at the tips of the leaves, as on one leaf a young plant had commenced to develop near the apex, and on another tufts of small utricles had formed, as shown in fig. 2.—N. E. Brown.

Fig. 1, a utricle with one of the terminal lobes flattened out; 2, apex of a leaf with tufts of utricles growing from it; 3, fragment of a scape with bract and two bracteoles; 4, a flower; 5, calyx and ovary; 6, front and side view of a stamen; 7, fruit, with the upper half of the capsule fallen away, displaying the seeds; 8, seed. All enlarged.
**DOLICHOLOBIUM ACUMINATUM, Burkill.**

**Rubiaceæ.** Tribe Cinchoneæ.

*D. acuminatum, Burkill*; foliis late obovatis acuminatis distinctum.

_Arbor_ 50-60 ped. alta. _Folia_ late obovata, apice acuminata, basi obtusa vel rotundata, supra glabra, infra pilis fulvis hirsuta, 8-10 poll. longa, 4-6½ poll. lata; petioli 1 poll. longi; stipulae magnæ, elliptico-ovatae, apice rotundatae, hirsutæ, 2 poll. longæ, 9 lin. latae, caducæ. _Inflorescentia_ 4-9-flora, ovariis pedicellos simulantibus umbelliformis; pedunculus petiolo sæquilongus, hirsutus. _Flores_ albi, unisexuales; _flos_ terminalis femineus, maximus, sessilis; aliæ masculi, minores, petalis sæpissime pauperiores, sed corollæ tubo longiores, pedicellati. _Calyx_ infundibularis, brunneus et fere scariosus vel basi subherbaceæ viridis, margine leviter sinuatus vel dentibus obtusis ornatus, hirsutus; _calyx_ floris masculi longus; _floris_ feminei 2½-3 lin. longus. _Corolla_ tubus extus hirsutus, intus glaber, rectus; tubus floris masculi bene evolutus ad 2½ poll. longus et 1 lin. latum, os versus ad antheras paullulo inflatus; tubus floris feminei bene evolutus 1 poll. longus, tubo floris masculi paullulo latior, equalis; _lobi_ oblique elliptici, contorti, intus ad margines interiores extus ad margines exteriorum puberuli, apice unilaterali erosi; _lobi_ floris masculi 5 (vel 4), 9 lin. longi, 3 lin. lati; _lobi_ floris feminei 6 (vel 5), 11-12 lin. longi, 5 lin. lati. _Antheræ_ sessiles, floris masculi 5 (vel 4) floris feminei duplo majores, tot quot corollæ lobi. _Stylus_ cum stigmatibus floris feminei corollæ tubum subequans; stigmata elongato-spathulata; _stylus_ stigmatique floris masculi multo minores. _Discus_ elevatus. _Ovarium_ flore feminæ maturæ, 8-9 lin. longum, extus albido-hirsutum. _Fructum_ maturum non vidi; semina immatura in alas typicas elongata.

**SOLOMON ISLANDS**: Treasury island, along the banks of a stream, *Guppy, 187*; Faro island, at 1,600 ft., *Guppy, 219*; New Georgia, in a collection chiefly from this island, *Officers of H.M.S. 'Penguin."

It is named "Lowasi" by the natives; and flowers in June and July.

Hitherto the genus *Dolicholobium* has been only known from Fiji. Asa Gray described two species, B. Seemann a third, and J. G. Baker two more. Imperfect material of a sixth Fijian species exists in the
Kew Herbarium. *D. acuminatum* extends the range and brings the number of known species up to seven.

I have not been able to examine specimens of *D. latifolium*, A. Gray. The other six apparently exhibit the separation of the sexes in the manner described above, i.e., the inflorescence ends in a female flower with more and larger petals than in the males, but with a shorter tube; round it are the male flowers, sometimes as many as eight, more commonly about three, and rarely absent. This last-named condition occurs in the two specimens of *D. longissimum*, Seem., at Kew, and it is possible that the sexes may be more widely separated here.

In the male flower the inflated tube points to the presence of perfect anthers, the style and stigma are small, and the ovary, if present, is not to be distinguished from the pedicel. In the female flower, which opens in *D. acuminatum* before the males, the straight stoutish uniform tube attracts the eye, the style and stigma are large, and the ovary is obvious.

It is no surprise that this genus should prove to be diclinous; for Burck has admirably demonstrated the abundance of such forms in the order to which it belongs (see Ann. du Jardin Bot. Buitenzorg, iv. p. 12). *Timonius Rumphii*, DC., whose floral mechanism he describes, is a comparable species. Its male flowers have a longer and narrower tube than the female and fewer corolla-lobes, and the stamens, as many as the corolla-lobes—5 in the male, 10 in the female flower. Here, however, the plant is polygamodioecious.

In some genera of Rubiaceae, e.g. *Canthium*, Burck remarks that a complete series exists from full hermaphroditism of the flower to dioecism; this is hardly the case in *Dolicholobium*; and I believe that Asa Gray's character "flores . . . 4-meri" for *D. latifolium*, the species which I have not seen, really indicates that in his specimen the corolla of the female flower had fallen and that those remaining were 4-merous male flowers.—I. H. Burkill.

Fig. 1, ovary, style, and stigma of male flower; 2, part of corolla of male flower laid open; 3, ovary, style, and stigma of female flower; 4, part of corolla of female flower, laid open; 5, seed (immature). *All enlarged.*
Plate 2631.

HELICIA GRANDIS, Hemsl.

Proteaceae.

H. grandis, Hemsl. (sp. nov.); ab omnibus speciebus sinensibus hactenus cognitis magnitudine omnium partium differt.


China: mountains to the south-west of Mengtze, in forests at 5,000 feet, A. Henry, 10704.

This is a very handsome species, having ample foliage clothed with a rich brown tomentum, and brown flowers with blue stamens, according to Dr. Henry. The very long racemes are remarkably deflexed, judging from the dried specimens. A singular testa is developed by the seeds of this tree. In the upper part of the large ripe seeds it is merely a thin pellicle which early disappears, whereas in the lower part it consists of two or more irregular woody or almost bony layers.—W. Botting Hemsley.

Fig. 1, a flower; 2, upper part of a perianth-lobe and a stamen; 3, disk and pistil, upper part of the style removed; 4, cross section of an ovary; 5, fruit; 6, a seed from which the membranous testa in the upper part has disappeared; 7, inner face of one of the cotyledons showing the minute radicle at the top; 8, portion of cotyledon and radicle. All except 5 and 6 enlarged.
Plate 2632.

LONICERA CALCARATA, Hemsl.
CAPRIFOLIACEAE.

L. (§ Xylosteum) calcarata, Hemsl. (sp. nov.); ab omnibus speciebus hucusque cognitis longitudine calcaris insignite differt.

Frutex alte scandens, omnino glaberrimus, ramulis floriferis elongatis rectis teretibus fistulosus ad nodos septatis, cortice pallide brunneo. Folia breviter petiolata, subcoriacea, ovata, elliptica, vel lanceolata, 3-6 poll. longa et 1-3 poll. lata, acute acuminata, basi rotundata, rarius cuneata, integra, venis primariis paucis subitus sat conspicua. Flores geminati, rubro-lutei, bene evoluti circiter 2 poll. diametro, involuci; pedunculi recti, \( \frac{3}{4} - \frac{11}{12} \) poll. longi; involuci bractee 2, foliaceæ, sessiles, ovato-lanceolatæ, maximæ \( \frac{1}{4} \) poll. longæ sed sæpius minores, subacutæ, diu persistentes. Calycis limbus brevissimus, annularis. Corollæ tubus latus, brevis, antice in calcar semipollicare curvatum productus; limbus alte bilabiatus, labio inferiore loriformi revoluto, superiore erecto lato breviter 4-lobulato, lobulis obtusis vel rotundatis. Stamina labium superius vix exceedentia, filamentis filiformibus infra medium puberulis. Ovarium 5-loculare, loculi multiovulatis, stylo puberulo. Baccae geminate, subcarnosæ, omnino confluentes, involucri bracteis et bracteolis binis brevibus rotundatis bracteis alternantibus suffultæ; semina elliptica vel ovata, valde compressa, margine elevato.

China: Szechuen, without special locality, A. Henry, 8937; chiefly near Tachienlu, at 9,000 to 15,000 ft., A. E. Pratt; Yunnan, rocky mountains near Mengtze, at 5,000 ft., A. Henry, 10721, 10721 A, 10721 B.

This is an exceedingly ornamental and at the same time a most interesting species of the genus Lonicera, which finds its greatest concentration in Western China, where there are probably not less than fifty or sixty species. L. calcarata is remarkable in having the hollow stems and 5 celled ovary of Leycesteria, associated with a long-spurred corolla, which is represented only by a more or less pronounced gibbosity in other species.—W. Botting Hemsley.

Fig. 1, anther and part of filament; 2, stigma and part of style; 3, a twin-ovary; 4, cross section of the same; 5, a twin-fruit; 6, a seed; 7, section of the same showing the embryo. All except 5 enlarged.
LEYCESTERIA SINENSIS, Hemsl.

Caprifoliaceae.

L. sinensis, Hemsl. (sp. nov.); a speciebus hactenus cognitis floribus ad apices ramorum capitatis differt.

Frutex fere glaber, paucipedalis, ramis fistulosis ad nodos septatis. Folia breviter petiolata, membranacea, lanceolata vel ovato-lanceolata, cum petiolo 1/3-3 poll. longa, longe acutte acuminata, basi rotundata, supra parce strigillosa, subtus glauca, præcipue in venis ruis parce strigillosa, margine obscure sinuato-lobulata ac ciliolata, venis primariis utrinque circiter 5. Flores albi, 8-10 lin. longi, sessiles, in capitulo parva ramulos breves laterales terminantia dispositi, pedunculis brevissimis; capitula 5-6-flora, bracteis 5-6 foliaceis rotundato-ovatis vel lanceolatis quam floribus brevioribus suffulta, bracteolis inter flores minoribus. Calycis limbus brevis, cupularis, inaequaliter 5-dentatus vel 5-lobatus, lobis subacutis atque ovario fusiformi piloso-glandulosis. Corolla hypocriteriformis, fere recta, extus parce minuteque piloso-glandulosa, intus infra medium pilosa, lobis brevibus rotundatis. Stamina brevissime exserta, filamentis glabris. Ovarium 5-loculare, multiovulatum, stylo filiformi glabro, stamina paullo superante. Fructus angularis, glandulosus; semina (perfecta non visa) ovoidea, laevia.

CHINA: Mountains north of Mengtze, Yunnan, at 7,000 ft., A. Henry, 9692 c.

From the above description, it is evident that Leycesteria sinensis is quite distinct from the familiar L. formosa, which has elongated racemes and large coloured bracteoles below the flowers. It is equally distinct from L. glaucophylla, Hook. f., which has loose racemes of flowers and very small bracteoles. Dr. A. Henry collected all three species in Yunnan, but sends comparatively little of the one here figured, which he seems to have taken for a possible variety of L. formosa, as he sends the latter under the same number, though lettered as from a different locality.—W. Botting Hemsley.

Fig. 1, small portion of leaf showing hairs; 2, pistil and calyx; 3, section of corolla and ovary; 4, a young fruit; 5, a cross section of ovary; 6, an imperfect seed. All enlarged.
LYSIMACHIA INSIGNIS, Hemsl.

Primulaceæ.

L. insignis, Hemsl. (sp. nov.); a speciebus omnibus hactenus descriptis habitu facile distinguitur.


China: Forests to the south-east of Mengtze, Yunnan, at 5,000 ft., A. Henry, 10406.

About sixty species of Lysimachia are known to inhabit China, and they exhibit a greater diversity in habit, foliage, and inflorescence, than is found in the whole of the rest of the area of the genus. L. insignis is quite different in habit from all the other species known.—W. Botting Hemsley.

Fig. 1, a ripe fruit; 2, cross section of the same; 3, different views of a seed; 4, section of a seed showing the embryo. All enlarged.
BEGONIA BRETSCHNEIDERIANA, Hemsl.

Begoniaceae.

B. bretschneideriana, Hemsl. (sp. nov.); inter species sinenses B. Henryi similis, differt rhizomate elongato dense squamoso, capsula exalata.


China: province of Kwangtung, C. Ford, 87 of 1887 collection.

*Begonia bretschneideriana* is thus named to commemorative the author of the "History of European Botanical Discoveries in China:"

probably the most complete account of the botanical exploration of a country extant. It is a very distinct species, especially in the fruit. — W. Botting Hemsl.

Fig. 1, a bract; 2, a female flower; 3, stigmas; 4 and 5, fruit; 6, cross section of the same; 7, an hermaphrodite flower. *All enlarged except 4.*
BENTHAMIELLA NORDENSKIOLDII, Dusén.

Solanaceae. Tribe Cestrineae.

B. Nordenskioldii, Dusén, ms. (sp. nov.); a B. patagonica, Speg., foliis angustioribus acutis et floribus minoribus differt.


South Patagonia: Nordenskiold.

This is the second species at present known of the genus Benthamiella, Speg., which is closely allied to Fabiana, Ruiz and Pav., chiefly differing in habit and the few ovules in each ovarian cell. For the opportunity of figuring it we are indebted to Mr. P. Dusén, who presented a specimen to Kew in April 1899.—N. E. Brown.

A. Fig. 1, a flower, accompanied by a leaf and two bracts; 2, corolla laid open; 3, pistil; 4, transverse section of the ovary. All enlarged.
ACICARPHA ROSULATA, N. E. Brown.

CALYCEREE.

A. rosulata, N. E. Brown (sp. nov.) ; habitu a speciebus reliquis distinctissima.


SOUTHERN PATAGONIA : Cerro Toro, Nordenskiold, A 60.

This remarkable species differs from all the other members of the genus in its dwarf habit and densely rosulate leaves, and at first sight would seem to be better placed in Boopis, but the cohesion of the filaments decides us to place it in Acicarpha. It was collected by Dr. Nordenskiold during a Swedish expedition to Antarctic America in 1895–1897, and was sent to Kew for determination by Mr. P. Dusén of Stockholm.—N. E. Brown.

B. Figs. 5 & 6, leaves; 7, a separate head of flowers with its involucre and bract; 8, flower; 9, bracteole; 10, longitudinal section of flower; 11, three anthers and a fragment of the staminal tube. All enlarged.
Plate 2637.

ZSCHOKKEA UTILIS, Hemsl.

APOCYNACEÆ.


This is one of the trees called *Hyā-hyā* by the natives of Guiana; and it is the cow-tree of the English colonists. Mr. G. S. Jenman, to whom Kew is indebted for the specimens described and figured here, states in a letter accompanying the specimens, that a bottle of milk was taken from the same tree and allowed to dry in the bottle, when it was found to contain a large proportion of rubber of good quality. G. A. Walker Arnott’s botanical description (*Edin. N. Phil. Journ.* viii., 1830, pp. 315-318), is preceded by a detailed account of the *Hyā-hyā* or milk-tree of Demerara, by James Smith, from which the following paragraphs have been extracted:

“I was then in company with a Mr. Couchman, the superintendent of a wood-cutting establishment in the immediate vicinity. We had
sent a lad to search around for the tree, and he returned in a short
time to tell us he had met with it. We followed him to the spot, and
found that he had felled the tree. It had fallen across a little rivulet
the water of which, when we arrived, was completely whitened from its
juice. On striking a knife into the bark, a copious stream of milk-like
fluid immediately followed. Our guide drank of it, and Mr. Couch-
man and myself tasted it after him. It was thicker and richer than
cow's milk, and destitute of all acrimony, leaving only a slight feeling
of clamminess on the lips. I had already seen that it mixed freely
with the water of the little stream, and as I slept that night near the
spot, the next morning Mr. Couchman and myself drank it in warm
coffee. With this it commingled equally well, and lost all the viscosity
before perceptible in its pure state, so much so as to appear to us
incapable of being distinguished from animal milk. Mr. Couchman
was determined, he said, to use it as a substitute for milk at his little
neighbouring woodland establishment. A variety of experiments, too,
have since tended to confirm me in my opinion, that it in no way differs
in quality from the vegetable milk of the cow-tree. Yet it was plain
that the tree was not that described by Humboldt."

"The milk I send you has now been in bottle thirty-six days. It
did not commence to curdle before the seventh day after it was taken
from the tree, and even then the process appeared exceedingly slow;
so much so, that on the twelfth day I used some of another portion,
which had been bottled at the same time, in tea, without its being dis-
tinguished from animal milk by those who drank it."

The very closely allied *Lacmellea edulis*, Karst. (Fl. Columb. ii. p.
101, t. 152), is described as yielding a drinkable juice or sap, called
*leche y miel*, literally milk and honey, by the Spanish Americans.

An analysis of the milk of *Zschokkea utilis*, sent home by Mr. James
Smith, was published by Professor R. Christison (Edin. N. Phil. Journ.
x. (1830) pp. 31–35).

With regard to the systematic position of the plant here figured
there may be some doubt, because the limits of the allied genera are
badly defined; but it certainly should not be left in *Tabernamont-
tana.*—W. Botting Hemsley.

Fig. 1, a flower; 2, pistil and portion of calyx; 3, a corolla; 4, vertical section of
ovary; 5, a seed; 6, a section of the same showing the embryo in position; 7,
embryo. All enlarged.
ERYNGIUM GOLDMANI, Hemsl.

UMBELLIFERÆ.

E. Goldmanii, Hemsl. (sp. nov.); ex affinitate E. Rosei, Hemsl. (Huij. op. t. 2579), a quo differt inflorescentia magis ramosa, involucri bracteis argute multidentatis.


NORTH MEXICO: Sierra Madre, near Guasarachi, Chihuahua, at 6,500 to 6,800 feet, Goldman, 168.

Figured from specimens lent for the purpose by the Secretary of the Smithsonian Institution, Washington, U.S.A., through the intermediary of J. N. Rose, Ph. D., of the Botanical Department.—W. Bottig Hemsley.

Fig. 1, a pale; 2, a flower; 3, a petal; 4, a carpel; 5, cross section of a carpel. All enlarged.
ONOSMA EXSERTUM, Hemsl.

Boraginaceae.

**O. exsertum**, Hemsl. (sp. nov.); species ob stamina longe exserta distincta.


**China**: on grassy hills near Menglze, Yunnan, at 6,000 feet, A. Henry, 9334.

The genus *Onosma* is numerous in species in the Mediterranean region and eastward to North-western India and Western Central Asia; but until comparatively recently it was not known to be represented east of Sikkim. *O. burmanica*, Coll. et Hemsl., was discovered by Colonel Sir Henry Collett in the Shan Hills in 1887. *O. paniculatum*, Bur. et Franch., was one of Bonvalot and Prince Henry of Orleans's discoveries in Szechuen, and the authors state (*Journ. de Bot.* 1891, p. 105) that the Abbé Delavay had collected about half-a-dozen undescribed species in the province of Yunnan.—W. H. Potter, Hemsley.

Fig. 1, pistil and portion of calyx; 2, insertion of stemens; 3, a nutlet. All enlarged.
Plate 2640.

CHLORIDION CAMERONI, *Stapf*.

Gramineae. Tribe Paniceae.


British Central Africa: Shire Highlands, Buchanan, 407; North Nyasa, Whyte; Namasi, Cameron, 15 (coll. of 1899).
Chloridion might be described as a Digitaria in which the lower glume is entirely suppressed and the upper reduced to a scale, whilst the lower (barren) valve runs out into a fine bristle-like awn. The pale in the axil of the lower valve is represented by a mere scale or two collateral scales $\frac{1}{25}-\frac{1}{20}$ lin. long. A similar reduction of the glumes and the lower pale occurs in the section which I now designate Setaridium of Digitaria ($\S$ Setariopsis, Stapf, in Thiselton-Dyer, Fl. Cap. vii. 373, 1898, not Setariopsis [gen.] of Scribner in Field, Columb. Mus. i. 288, 1896); but the species of this section have no awn, nor is there in any other species of Digitaria, and they have distinct lodicules. The general appearance of the inflorescence is strikingly like that of Chloris pycnothrix, Trin.—O. Staff.

Fig. 1, spikelet, with the upper (only) glume at the base; 2, the same, seen from the other side; 3, fertile floret, lower part with 2 scales at the base, representing the pale of the barren floret; 4, fertile valve; 5, pale of the fertile floret; 6, usual form of the pale of the barren floret; 7, pistil. All enlarged.
Plate 2641.

Dracontomelum sinense, Stapf.

Anacardiaceae.

Dracontomelum sinense, Stapf. (sp. nov.); affinis D. mangiferum Blume, foliolis haud nitidulis, minoribus, tenuioribus, nervis magis curvatis, reticulatione tenuiore, panicula minore, minus pilosa, fructibus minoribus diversa.


Tropical Eastern Asia: Tonkin, in woods in the valley of the Lankok, Balansa, 3427; near Sontay, Balansa, 3428. Hanoi, in gardens, Balansa, 4378, 4401, 4527, 4604. South China, commonly cultivated on the West River, Ford, 10.

Mr. Ford’s specimens were accompanied by a label stating that “this is said to yield Chinese Olives,” and this label was referred to by Mr. Hemsley l.c. I find, however, that there is a sheet in the herbarium, containing a flowering branch, communicated by Ford, of Canarium Pimela, the plant actually yielding the “Chinese Olives” (see Hance in Journ. of Bot. 38). This specimen was, according to a note on the sheet, received mixed with Ford’s specimen of Dracontomelum sinense, and I suspect that the name “Chinese Olives” was originally intended for the Canarium, or that the fruits of either species are known by the name in South China. There is little difference in the panicles, flowers, and fruits of D. sinense and D. mangiferum, apart from the length of the panicles and the size of the fruits, as all the species of this genus resemble each other very much in those points; but the much smaller and thinner leaflets distinguish D. sinense sufficiently from D. mangiferum.—O. STAPF.

Fig. 1, flower; 2, fruit, copied from a coloured figure in the collection of drawings at Kew; 3, stone; 4, stone cut open; 5, seed; 6, embryo. All enlarged.
KOELREUTERIA MINOR, Hemsl.

Sapindaceae.

K. minor, Hemsl. (sp. nov.); a speciebus duabus descriptis foliorum et fructuum exiguitate differt.

Arbor parva vel frutex 13-pedalis (C. Ford), ramulis fructiferis crassisculus brevibus pubescentibus. Folia in apicibus ramulorum confertissima, simpliciter pinnata, breviter graciliterque petiolata, maxima vix 6 poll. longa, praecipue subtus et secus rhachim tenuissimam pubescentia, demum glabrescentia; foliola 15–21, confertissima breviter vel brevissime petiolulata vel subcuneata, margine crenulata. Flores in paniculas axillares et subterminales folia sequantes vel superantes dispositi. Calyx, etc. . . . Capsula 3-alata, ante dehiscentiam circiter 9 lin. longa lataque; semina subglobosa, strophiolata, circiter 2 lin. diametro, fere nigra, nitida, embryone spiraliter convoluto, cotyledonibus longissimis, radicula brevi.

China: Province of Kwangtung, C. Ford, 291, August 1887.

Of this miniature Koelreuteria no flowers have yet been received, but it is so very distinct that we do not hesitate to describe the otherwise complete specimens. It is only known to us from the province of Kwangtung, whereas the original K. paniculata, Laxm., ranges from Japan to Kansuh and Szechuen, and the more recently described K. bipinnata, Franch., extends from Formosa, Ningpo, and Kiukiang, to Western Yunnan.—W. Botting Hemsley.

Figs. 1 and 2, a seed in different positions; 3, a section of the same, showing the embryo; 4, the same, with the embryo removed. All enlarged.
C. Hobsoni, H. H. W. Pearson (sp. nov.) ; species affinis C. himalaica, Hook. f. et Thoms., a qua habitu, petalorum forma et stylo post anthesin reflexo differt.


**TIBET**: Yatung, near the Sikkim border, Hobson.

It is doubtful whether this species belongs to the genus Cochlearia. It is, however, placed here for the present on account of its close affinity to _C. himalaica_, Hook. f. and Thoms. Mr. Hobson also collected another specimen closely related to the one here described, and identical with Watt, 5795, from Jongri. The material from both collections is, however, so meagre that it is impossible to assign it to a species.—H. H. W. Pearson.

Fig. 1, a flower from which the petals have been removed; 2, a sepal seen from within; 3, a petal; 4, a stamen; 5, a pistil and disc; 6, a cross section of the ovary; 7, a fruit; 8, seed; 9, an embryo. All enlarged.
OSTEOMELES SUBROTONDA, C. Koch.

Rosaceæ. Tribe Pomeæ.


Frutex ramosus, nanus (?) novellis plus minusve sericeo-hirsutis, ramulis ultimis sterilibus gracilimis, floriferis lateralibus rigidis brevibus. Folia conferta, brevissime petiolata, \( \frac{3}{4} \)–1\( \frac{1}{2} \) poll. longa; foliola 11–17, contigua, brevissime petiolulata, crassa, demum fere coriacea, obovato oblonga, 1\( \frac{1}{2} \)–3 lin. longa, apice rotundata, sepius minute apiculata, ob apiculum deciduum demum obscure emergiata, supra glabrescentia, nitida, subtus adpresso-sericea; stipule lineares, cito decidui. Flores albi, circiter 6 lin. diametro, in corymbs parvos ramos laterales breves terminantes dispositi. Calyx albo-sericeus, dentibus lanceolato-ovatis acutis quam petalis paullo brevioribus. Petala oblongo-rotundata. Ovarium 5-loculare, stylis glabris stamina æquantibus. Fructus maturus non visus.

China: North river, Kwangtung, C. Ford, 614, April 1896. Also recorded from Japan.

Most authors have regarded Osteomeles subrotunda, C. Koch, as a variety of O. anthyllidifolia, Lindl., or even reduced it to this species, without giving it the status of a variety. Indeed, I, among others, formerly considered all the forms of Osteomeles found in the Pacific Islands and Eastern Asia as belonging to one species, anthyllidifolia. The plant here figured is in cultivation at Kew and elsewhere, and Mr. G. Nicholson, the Curator, called my attention to it, pointing out characters in which it differs from the forms represented in the Botanical Magazine, t. 7354. So far as we know, it has not produced flowers under cultivation in Europe, and it was originally described by Koch from flowerless specimens. But Kew possesses flowering specimens received from Mr. C. Ford, superintendent of the Hong Kong Botanic Garden, in 1896. The specimens were from a plant originally obtained from the North river, Kwangtung, and cultivated in Hong Kong. After examining the copious material of this genus at Kew from Eastern Asia, I now think that there are several distinguishable, though not very distinct, species.—W. Botting Hemsley.

Fig. 1, part of a leaf seen from below; 2, a petal; 3, stamens; 4, longitudinal section of ovary. All enlarged.
ACTINOSTEMMA BIGLANDULOSUM, Hemsl. ♀.

**Cucurbitaceae.**

*A. biglandulosum,* Hemsl. in *Hook. Ic. Pl.* t. 2622 (speciei description hic emendata et aucta); species foliorum lobis 2 basilaribus conspicue 2-glandulosus facile distinguitur.


*China:* in woods near Mengtze, Yunnan, Hancock, 346; A. Henry, 9390.

A second figure of this plant, which has been cultivated both at Kew and Edinburgh, is given to elucidate the peculiar structure of the fruit, imperfectly described under plate 2622. The Edinburgh plant produced female flowers (some of which were obligingly communicated by Dr. I. B. Balfour) from which it is clear that the ovary is originally 3-celled, though usually, if not always, described as 1-celled. As the fruit ripens the dissepiments partially disappear, and the central axis is carried away with the operculum in dehiscence.—W. Bottig.

*Hemsley.*

Fig. 1, bud of a female flower; 2, same expanded; 3, pistil with shrivelled stigma; 4, stigma in mature state; 5, cross section of an ovary; 6, longitudinal section of the same; 7, section of immature fruit; 8, section of mature ditto; 9, a seed. *All enlarged.*
**Didesmandra Aspera, Stapf.**


**D. aspera, Stapf (sp. unica).** *Ramuli* asperrimi insuper parce adpressae hirsuti, deinde glabrescentes. *Folia* oblongo-ovata, acuminata, basi rotundata, serrata, 6–8 poll. longa, 2–3 poll. lata, utrinque aspera et precipue in nervis strigillosa, sicca supra nigro-, infra rubrofusca; petioli $\frac{1}{2}$–$\frac{3}{4}$ poll. longi, canaliculati, basi ramulum amplectentes. *Panicula* 6 poll. longa; rami 2–4 poll. longi, asperi, parce strigillosi; bracteæ parvæ, subulate, hirsute, plerumque a floribus plus minusve remote, interdum suppressæ. *Sepala* exteri a do oblonga, subplana, aspera et parce minuteque strigillosa, cætera majora subnavicularia, minus aspera, omnia obtusa, ciliata, firmiuscula. *Petala* ampla, fugacia, rotundato-ovata, crenulata, ad 1 poll. longa. *Stamina* fertilia (explanata) 8 lin. longa, sterilia 3–4 lin. longa. *Carpella* glaberrima; stylus ad 9 lin. longus, cirrosus.

**Borneo:** Sarawak, Belaga on the Rejang River, *Haviland*’s collector, 2324.

*Didesmandra* is nearest allied to *Schumacheria,* a genus confined to Ceylon. It differs from it in the peculiar structure of the androecium, which, in both genera, is placed in front of the gynaeceum. In *Schumacheria,* the number of stamens is indefinite, and they are united into one bundle, all being equal and fertile. In *Didesmandra,* however, they are arranged in two distinct bundles and heteromorphous, and only the posterior of each bundle seems to be fertile. The flowers are also considerably larger in *Didesmandra* and of a somewhat different facies.—O. *Stapf.*

Fig. 1, floral diagram; 2, carpels and one bundle of stamens; 3, one bundle of stamens, one fertile; 4, fertile stamen; 5, section of a carpel; 6, section of an ovule. All enlarged.
SAPIUM VERUM, Hemsl.

S. verum, Hemsl. (sp. nov.); species ex affinitate S. stilaris, Muell. Arg., differt folis basi haud auriculatis, petiolorum glandulis contiguis subglobosis, stylis elongatis omnino confluentibus.

Arbor 60-80-pedalis, sursum parce laxaeque ramosa (White), novellis glabris. Ramuli floriferi crassi, rigidi. Folia ad apices ramulorum conflerta, longe petiolata, coriacea, oblonga vel oblongo-lanceolata, absque petiolo 5–8 poll. longa, apice rotundata et interdum glandula munita, sed non introflexa, basi subcuneata, margine integra vel plus minusve glanduloso-denticulata vel crenulata, costa supra impressa subtus elevata, venis primariis lateralibus numerosissimis tenuibus sinuatis superne subdibrachiato-anastomosantibus; petioli ½–2 poll. longi, supra apice glandulis 2 contiguis subglobosis praediti. Flores in axillis foliorum superiorum racemosi; racemì folia subsequentes, rachi crassa rigida. Perianthium etc. . . Capsulae breviter pedicellatae, subglobosae, 7–8 lin. diametro, 3-loculares, columna stylari elongata coronata; semina compressa, rotundata vel subquadrata, circiter 4 lin. diametro, testa crustacea verrucosa; embryo centralis, cotyledonibus orbicularibus.

COLOMBIA: Departments of Tolima and Cauca at 6,000 to 7,000 feet, R. B. White in 1890, and again in 1895, n. 9.

This is the first of a series of figures of American forms or species of Sapium, drawn for publication in the Icones, with a view to the elucidation of their affinities. Dr. J. Mueller (Muell. Arg.) placed a large number of forms—some of which had previously been described as species—under Sapium biglandulosum, Muell. Arg., syn. Exsaccaria biglandulosa, Muell. Arg., Stillingia biglandulosa, Bail. (DC. Prodr. xv. 2, pp. 1204–1207); but he protected himself in the following statement: “Pro coordinatione accurata synonymorum varietates et formae varie amplius exponendas sunt, nonnullae tamen hodie nimis imperfectae note, olim pro speciebus distinctis forte habendae sunt.” This was in 1866, and little has been done in the genus since then except to add to the previously existing confusion and uncertainty. The activity recently developed in the cultivation of plants yielding rubber
has resulted in numerous inquiries being addressed to the Director of the Royal Gardens, Kew. Many of these questions it has been difficult or impossible to answer satisfactorily. Considerable time has been expended in the examination of the forms of *Sapium* inhabiting Colombia, Venezuela, and Guiana as a beginning towards a more useful and scientific classification of the whole of the American species of this genus. It is not to be expected that we shall arrive at once at correct conclusions, because the synonymy is so involved that it is almost impossible to unravel it. Some of the earlier writers on the genus combined two or more species under one designation, while some subsequent botanists endeavoured to separate them, each in his own way, and others went still further in combining, thus creating almost inextricable confusion.

The form here figured under the name of *Sapium verum* is from material supplied by Mr. R. B. White at different dates, which was at first referred to the supposed polymorphic species *S. biglandulosum*; and the *Kew Bulletin* (1890, pp. 149-158) contains some correspondence on this so-called “Virgen Cauncho” or “Colombia Virgen,” one of the main features of which is the uncertainty then surrounding its identity. In a label accompanying his specimens Mr. White states that it grows all through the Andes at 6,000 to 8,000 feet elevation. If so, it is singular that botanical travellers have neglected to collect it. It is possible that it may prove to be specifically the same as *S. stylare*, Muell. Arg., but it has been thought better not to risk further confusion by combining possibly distinct species.

There is also in the Kew collection a sample of seeds sent from Colombia by Mr. R. Thomson in 1890. He was of opinion, from his own experience and observation in the country, that it was distinct from *S. biglandulosum*; but there was not sufficient material to prove this botanically. The seed differs only in size from that furnished by Mr. White, as may be seen from the figures 5 to 8, described below, and it will probably prove to be the same species.

On this subject some notes have appeared in the *Tropenpflanzer*, No. 11, 1899; in the *Belgique Colonials*, January 21, 1900; and in the *Revue des Cultures Coloniales*, 1900, pp. 16 and 86. Two different names, *S. Thomsonii* and *S. Tolimensi*, are proposed; but as neither figures nor adequate descriptions are given, it is impossible to determine whether one or more species are in question, though probably only one, and that the same as ours. In conclusion, it may be added that *S. verum*, Hemsl., *S. stylare*, Muell. Arg., and *S. biglandulosum* var. *moritzianum*, Muell. Arg. (*DC. Prodr.* xv. 2, p. 1206), have persistent styles; and the two last, which are probably identical, have the blade of the leaf distinctly auricled at the base, and elongated glands on the petiole. — W. Botting Hemsley.

Fig. 1, section of a fruit of the plant figured; 2, a seed of the same; 3, ditto; 4, embryo embedded in albumen; 5, a seed from the sample furnished by Mr. R. Thomson; 6, the same; 7, the same from which half of the testa has been removed; 8, embryo embedded in albumen. *Figures 1, 2, and 5 natural size; the rest enlarged.*
SAPIUM ? PAUCINERVIIUM, Hemsl.

EUPHORBIACEÆ. Tribe Crotonææ.

S. ? paucinervium, Hemsl. (sp. nov.); inter species guianenses paucitata foliorum venarum primariarum distinctum.

Arbor magna (Jenman), ramulis crassiusculis, cortice nigrescente, novellis glaberrimis. Folia in ramulis floriferis confecha, in ramulis sterilibus elongatis sparsa, distincte graciliterque petiolata, coriacea, oblongo-lanceolata vel oblanceolata, cum petiolo 2–6 poll. longa, acuminata sed vix acuta, basi subrotundata, margine crebre minuetteaque glandulosos-serrata, supra nitida, subitus pallidiora, opaca, venis primariis lateralibus utrinque 7–9 sat conspicuis; petioli usque ad 1 poll. longi, apice (vel basi lamina?) biglandulosi, glandulis longe graciliterque stipitatis divergentibus. Flores ignoti. Capsulae paucae in racemos solitarii breves subterminales dispositae, distincte stipitatae, 3-loculares, ovoideæ, maximae 5–6 lin. longae, glabrae, stylis deciduis, carpellis demum ab axi secedentibus. Semina oblongo-ovoidea vel ellipsoidea, circiter 3 lin. longa, membrana cellulari colorata arilliformi (stratum exterius testæ?) inclusa, sub membrana leviter corrugata.

BRITISH GUIANA: Pomeroon river, above Maccaseema, G. S. Jenman, 2092.

Mr. Jenman describes this as a large forest tree, producing abundance of milk, and associated by the Indians with "toukpong." In the absence of flowers, and from the characteristics of the seeds, there is a doubt about the genus. Possibly some modifications of the generic limits may arise out of the continuation of these investigations.—W. BOTTING HEMSLY.

Fig. 1, base of blade of leaf and glands; 2, a fruit; 3, a seed enclosed in the shrivelled pulpy external covering; 4, the same without the pulp; 5, a section of the same showing the albumen, which occupies only a portion of the cavity; 6, a section through the same showing the embryo.—All enlarged.
PLATE 2649.

SAPIUM JENMANI, Hemsl.

EUPHORBIACEAE. Tribe Crotonae.

S. Jenmani, Hemsl. (sp. nov.); species foliis oblongo-lanceolatis abrupte obtusaeque acuminatis crebre pellucido-punctatis venis primariis lateralibus numerosis tenuibus, glandulis petiolorum parvis distincta.

Arbor magna (Jenman) novellis glaberrimus, ramulis ultimis rectis gracilisulcis, siccitate cortice nigrescente. Folia sparsa, longe petiolata, tenuiter coriacea, oblonga vel oblongo-lanceolata, cum petiolo 2-9 poll. longa, sepius 3-5 poll. longa, abrupte obtusaeque acuminata, basi sepius subcuneata, haud auriculata, margine integra vel remotissime glanduloso-denticulata, concoloria, crebre minuteque pellucido-punctata, venis primariis lateralibus numerosis arcuatis; petioli tenues, usque ad 1½ poll. longi, in ramulis floriferis sepius 6-9 lin. longi, glandulis in apice sessilibus parvis sepius oblique positis. Spica terminales, graciles, rectae, folia superantes, biseuales vel sepae omnino masculae, glandulis geminatis peltatis sub floribus instructae. Flores masculi 3-7 aggregati, bracteolis minutis fimbriatis intermixti; perianthium sepe bipartitum staminibus 2, interdum tripartitum staminibus 3. Flores feminei p. uci, basin versus spicarum solitarii; perianthium membranaeum, gamophyllum, ovarium arcte vestiens, demum rumpens; ovarium glabrum, 1-loculare, 1-ovulatum (an primum 3-loculare, 3-ovulatum, citissimo abortu 1-loculare?); stili ramuli stigmatosi, cito decidui. Capsulae tenuiter crustaceae, semper 1-loculares, 1-sperme, ovoidea vel subglobose, 2-3 lin. diametro, 2-valves, valvis deciduis, axi (vel columna) laterali curvato seminifero cum semine persistente; semen subglobosem, compressum, circiter 2 lin. diametro, sub strato exteriores carnosum verrucosum, embryone parvo in axi albuminis.

BRITISH GUIANA: throughout the alluvial forest in the Pomeroon district, G. S. Jenman, 2091, 6645, 7505.

Mr. Jenman has sent copious specimens of this species, which he says is called Toukpong by the Caribs and Hy-a-hya by the Arawacks; but there are two or three points connected with it which the material is insufficient to clear up satisfactorily. Its characteristics are: finely veined leaves thickly beset with minute transparent glands; few marginal glands; small, usually obliquely placed petiolar glands; a
membranous, gamophyllous perianth closely enveloping the ovary, the enlargement of which eventually ruptures it; and a one-celled, one-seeded capsule, the equal valves of which fall away leaving the seed hanging from the curved axis, which has become (?) lateral. The youngest ovaries I have seen are one-celled, containing one ovule, and present no obvious indications of obliterated or aborted cells; yet the assumption is, from the structure of the capsule, that two out of three carpels are suppressed in an early stage of the development of the gynaeceum. We are also ignorant of the shape of the style and stigma, for what looks like a sessile stigma on the ovaries represented in the plate is possibly only the scar left by a disarticulated portion.—W. Botting Hemsley.

Fig. 1, part of an inflorescence; 2, one of the pair of glands below each female flower and each cluster of male flowers; 3, bract from between the male flowers; 4, perianth of male flower laid open; 5, the two stamens of a flower; 6, calyptriform perianth of female flower; 7, longitudinal section of the one-celled ovary; 8, cross section of the same; 9, two-valved capsule and seed borne on lateral axis; 10, the same after valves have fallen away; 11, section of seed in which the albumen and embryo do not fill the cavity.—All enlarged.
SAPIUM AUCUPARIAUM, Jacq.

EUPHORBIACEÆ. Tribe Crotoneæ.


BRITISH GUIANA: common in the coast region in the neighbourhood of Georgetown, on the Canje and Lamaha rivers, and elsewhere, Jenman, 1957, 3653, 7506, 7508, and 7509.

In order to avoid further confusion where so much already exists, a complete synonymy of the species of the Sapium described above will
not be attempted here; but references may be given and some suggestions offered. First there can be little doubt that our plant is the same as that figured and described by Jacquin, excluding from his synonymy the *Sapium arborenum* foliis ellipticos, &c., of P. Browne (Hist. Jam. i. p. 338). Linnaeus (Sp. Pl. ed. 2, p. 1431), under the name of *Hippomane biglandulosa*, combined at least two distinct species. Swartz, Adnot. Bot. (1829) p. 63, points this out, and says of *S. aucuparium*, Jacq., "foliis . . . apice rostro parvo subcartilagineo crasso introrsum flexo auctis a *Sapium jamaicensi* diversum." *S. jamaicense*, Sw., is probably the same as *S. Laurocerasum*, Desf. (Cat. Pl. Hort. Par. ed. 3, p. 411), published the same year, from cultivated plants. Kew possesses a specimen bearing this name from Herb. Gay, labelled: "Jardin des Plantes, Ecole, le 7e Sept. 1822." In 1818 G. F. W. Meyer (Prim. Fl. Esseq. pp. 275–6) distinguishes two species, namely: *S. Hippomane*, Mey., and *S. aucuparium*, Jacq.; but the synonymy is incorrect, and from his descriptions and localities it seems highly probable that both are forms of *S. aucuparium*. Going back to the earlier writers, Plukenet's *Tithymalus arbor americanus*, &c. (Ailmagest. Bot. p. 369, t. 229, f. 8), was described and figured from specimens cultivated at Hampton Court before 1691, and is recorded as having been received from Barbados. With the permission and assistance of the authorities of the Botanical Department of the British Museum, Kew has obtained accurate drawings of all Plukenet's specimens, some of which, at least, seem to belong to *S. aucuparium*; but further investigation is necessary before coming to a decision. It is almost certain, too, that the *Hippomane foliis ovato-oblongis*, &c., of Plumier's *Plant. Amer. ii.* p. 164, t. 171, f. 2 (1757), is a conventionalised representation of *S. aucuparium*. But the identification of these old figures is a matter of sentiment rather than of importance.

As to the geographical area of *S. aucuparium*, neither Kew nor the British Museum possesses any West Indian specimens that could be referred to it, but it appears to be a common coast tree from Guiana to Colombia. *Sapium obtusilobum*, Muell. Arg. (Linnaea, xxxii. p. 116), syn. *Excoecaria obtusiloba*, Muell. Arg. (DC. Prodr. xv. 2, p. 1023), should, perhaps, be reduced to *S. aucuparium*. It was collected by Fendler (n. 1230) near Tovar, Merida, Venezuela, and by Goudot at Turbaco, Magdalena, Colombia. An account of the petiolar glands of "*Excoecaria biglandulosa* var. *grandifolia*" by F. A. Poulsen will be found in the *Vidensk. Meddel. Nat. Foren. Kjøbenhavn.* 1897, pp. 356–360, tt. 1 and 2. From the foliage figured this might well be *S. aucuparium*, Jacq.—W. BOTTING HEMSLEY.

Fig. 1, base of leaf-blade and glands; 2, apex of leaf; 3, portion of male inflorescence; 4, a male flower; 5, portion of female inflorescence; 6, longitudinal section of ovary; 7, cross section of the same; 8, a seed in its fleshy integument; 9, a section of the same. *All enlarged.*
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CASTILLOA TUNU, Hemsl.

URTIACEÆ. Tribe ARTOCARPEÆ.

C. Tunu, Hemsl. (sp. nov.); affinis C. elastica, Cerv., a qua differt foliis tenuioribus basi haud cordatis utrinque multo minus hirsutis, drupeolis receptaculo fere omnino immersis.

Arbor excelsa ramulis floriferis crassis valde medulloso primum strigosissimus glabrescentibus, internodiis circiter pollicaris. Folia (paucà imperfecta tantum visa) vix coriacea, brevissime petiolata, oblonga vel lanceolato-oblonga, usque ad 18 poll. longa, basi rotundata, apice gradatim acuminata, supra parce strigillosa, aspersa, subtus precipe secus costam venasque minutestrigillosa, sed vix aspera, inter venas parce puberula, venis primariis numerosis conscipuis curvatis prope marginem et inter se connexis, tertiariis fere parallelis venas primarias connectentibus; petioli circiter semipollicares; stipulae non visae sed cicatrices prominentes oblique annulatae. Receptacula in axillis foliorum delapsorum sessilia, unisexuales, masculina primum bracteis calyptriformibus tecta, feminina juvenilia non visa; masculina circiter 6–8 lin. diametro, bracteis multiseriatis parvis hirsutis; feminina matura, fructifera usque ad 2½ poll. diametro, bracteis multiseriatis latis rotundatis tomentosis. Flores masculini nudis, diandri, filamentis basi cohaerentibus. Drupeolae apice tantum libere; semina magnitudinie ac forma variabilia, testa glabra levii.—Castilloa no. 4, Hook. f. in Trans. Linn. Soc. Bot. series 2, ii. p. 212, t. 28, ff. 7–9; W.B.H. in Kew Bull. 1898, p. 141.

BRITISH HONDURAS: Belize Estates Company, fruits only, received May, 1886; R. W. Cater, imperfect leaves, received April, 1896.

COSTA RICA: Quebrada de Potrero Grande, H. Pittier.

In consequence of the misapplication of the native name tunu or toonu in Morris's British Honduras, p. 74, and the absence of adequate specimens, this species was formerly confused at Kew with Castilloa elastica, Cerv. This mistake was rectified in the Kew Bulletin, 1898, p. 141; and now, through the courtesy of Prof. E. Bureau, and Messrs. Godefroy-Lebeuf and Jules and Eugène Poisson, we are able to figure C. Tunu, Hemsl. almost fully (young female flowers alone being wanted to complete the material) from specimens.
collected by M. H. Pittier. As long ago as 1885 Sir Joseph D. Hooker published a good figure of the fruit of C. Tunu, in the place cited above, but he gave it no name. In an article on trees that yield caoutchouc (Boletin de Agricultura, etc., año 8 (1899) num. 12, p. 6), M. Pittier alludes to this species as et hule macho, or mule caoutchouc, "which yields rubber in abundance and of excellent quality." M. J. Poisson, to whom we communicated the name we proposed giving to this species, published (Bulletin du Muséum d'Histoire Naturelle, 1900, and in the Revue des Cultures Coloniales, vi. (1900) p. 302) some further particulars of this tree. But, as pointed out in the Kew Bulletin, 1898, p. 141, Mr. Rowland W. Cater was the first to furnish Kew with satisfactory evidence of C. Tunu being specifically distinct from C. elastica.

The name Castillioa markhamiana having been applied to two totally different plants, it is desirable to explain its proper application. C. markhamiana, Collins (Report on Caoutchouc (1872) p. 12, t. 3), as suggested by Bentham and Hooker (Gen. Pl. iii. p. 372), is a species of Perebea. It is very closely allied to the original P. guianensis, Aubl., and should bear the name Perebea markhamiana. Castilla markhamiana, Markham (Peruvian Bark, p. 453), not of Collins, is C. elastica, Cerv., which ranges from Mexico and Honduras to Ecuador. In this wide area, extending through about 25 degrees of latitude, or 1,750 miles, C. elastica exhibits a considerable amount of variation, due to local conditions and the age of the trees; but with copious herbarium material it is not possible to define varieties. Yet the name markhamiana is still used (Revue des Cultures Coloniales (1900), pp. 277, 303) for the variety, if it may be so called, of C. elastica cultivated in Ceylon and perhaps elsewhere. It was obtained from Darien, Panama, and there is an excellent coloured figure of it in Sir Joseph Hooker's paper cited above. A third species of Castillioa—C. australis, Hemsl.—is figured in plate 2676, ined.

Castillioa costaricana, Liebm., in K. Dansk. Selskab. v. 2 (1851), p. 319; reprint, p. 35, judging from the description and the specimens of Castillioa seen from Costa Rica, is not specifically different from C. elastica, though it is described as having 'foliis majoribus crassioribus subsessilibus vel brevissime petiolatis cordatis magis abrupte acuminatis subtus dense fulvo-hispidis.'—W. Botting Hemsley.

Figs. 1 and 2, portions of a branch bearing male inflorescences; 3, piece of bark from the same to show the strigose hairs; 4, calyptrate bract (or bracts) which shields the male inflorescence; 5, section of a young male inflorescence; 6, an involucral scale; 7, bracteoles between the male flowers; 8, a male flower; 9, infructescence seen from below; 10, the same from above; 11, a section through a portion of the same showing that the carpels (pistils) are completely immersed; 12, a single pistil (fruit); 13, seeds of different shapes; 14, embryo; 15, portion of one cotyledon and axis.—All more or less enlarged, except figures 1, 2, 8, 10, 11, 12, 13, and 14.


**Tropical Asia**: Malay Peninsula, Selangor, Gua Batu woods, *H. N. Ridley, 8464.*

*Ranalisma* resembles in general habit *Elisma* and *Caldesia*; but it differs from both in the structure of the mature carpels and in the elongated torus, and from *Elisma* also in the extrorse position of the micropyly. The elongated torus might point to *Sagittaria* and *Lophio-carpus*, but the whole facies of the plant and the absence of any dimorphism in the flowers are against the assumption of a close affinity with those genera. Professor Buchenau, to whom I submitted drawings and fruits of the plant, suggested *Caldesia* as the nearest ally. The name *Ranalisma* is intended to refer to the great resemblance of the flowers and fruits of this plant with those of certain species of *Ranunculus*.—*Otto Stapf.*

Fig. 1, a flower and bracts; 2, a stamen; 3, a young carpel; 4, section of a fruit; 5, a carpel; 6, an embryo.—All enlarged.

**SERIES IV. VOL. VII. PART III.**
Plate 2653.

DICHOTOMANTHES TRISTANIÆCARPA, Kurz.

Rosaceæ. Tribe Prunæ.


China: Hotha, Yunnan, D. J. Anderson; Mengtze, Yunnan, at 5000 to 6000 feet, W. Hancock, 276; the same locality, A. Henry, 9367, 10255.

This very distinct genus was referred by Kurz to the Lythraceæ, but when I had to deal with it (Journ. Linn. Soc. xxiii. p. 307) I was able to indicate its real affinity, and now, with copious specimens from Mr. Hancock and Dr. Henry, there is no doubt that it should be placed near Pygeum. The fleshy calyx of the fruit, the dry carpel, and ascending ovules are characteristic.—W. Bottig Hemsley.

Fig. 1, part of calyx and pistil; 2, a petal; 3, section of ovary; 4, cluster of drupes; 5, a fruit from which a part of the calyx has been removed; 6, cross section of carpel; 7, embryo.—All except 4 enlarged.
Plate 2654.

PANDANUS COMINSII, Hemsl.

Pandanaceae.

P. Cominsii, Hemsl. (sp. nov.); inter species carpellis angustis liberis ob syncarpium solitarium elongatum cylindricum insignis.

Folia ad basin inflorescentiae femininae 2–4 ped. longa et 2–2½ poll. lata, complicata, acuta, margine serrato-aculeolata, supra prope apicem secus costas duas laterales aculeolata, subtus secus costam centralem aculeolata. Syncarpium (spadix) brevissime pedunculatum, erectum, solitariurn, cylindricum, circiter 1 ped. longum et 2–2½ poll. latum. Carpella permulta, libera, 6–8 lin. longa, 1½ lin. diametro.

Solomon Islands: Mouth of creek, Siota, Florida Island, Comins, 363.

For this and so many other novelties from the Solomon Islands, Kew is indebted to the Venerable Archdeacon Comins. He does not give dimensions, but notes that most of the native mats are made from the leaves of this screw-pine.—W. Botting Hemsley.

Fig. 1, female inflorescence and foliage, half natural size; 2, tip of leaf, natural size; 3, basal and apical portions of female inflorescence, natural size; 4, carpels, enlarged; 5, section of a carpel, enlarged.
IMPATIENS GRANDIFLORA, Hemsl.

Geraniaceæ. Tribe Balsamineæ.

I. grandiflora, Hemsl. (sp. nov.); species magnitudine florum insignis.


Madagascar: without special locality, Warpur.

Impatiens grandiflora, Hemsl., is one of many instances of unusually large flowers for the genus in the Madagascar Flora. Ixora siphanantha, Oliver, of this work, plate 2236, having flowers eight inches long, is another.—W. Botting Hemsley.

Fig. 1, androœcium; 2, pistil.—Both enlarged.
BEGONIA WARPURI, Hemsl.

Begoniaceæ.

B. Warpuri, Hemsl. (sp. nov.) ; species ex affinitate B. nanæ, L'Hér., a qua differt foliis paucidenticulatis nec ciliato-serratis.


Madagascar: without special locality, Humblot, 565 ; Warpuri.

This belongs to an imperfectly known section named Erminea by De Candolle (Prodr. xv. 1. p. 393), comprising two other species figured by L'Héritier (Stirpes Novæ, tt. 47, 48), the placentation of which is unknown. Both are natives of Madagascar.—W. Botting Hemsley.

Fig. 1, andræcium ; 2, pistil ; 3, fruit ; 4, cross section of the same.—All enlarged.
C. cathayensis, *Hemsl.* (sp. nov.); foliis lanceolatis eglandulosis, calycis lobis rotundatis erectis, fructu minore a *C. sinensis*, Thouin, differt.


Dr. Henry's specimens of this quince are the only ones Kew possesses from China, and he notes that he had never met with it in an undoubtedly wild state. It has been cultivated at Kew for twenty years at least; but the history of its introduction is not known, and until the Director brought specimens last year of the fruit of the true *C. sinensis*, Thouin (Ann. Mus. Hist. Nat. Par. xix. 1812, p. 144, tt. 8 et 9; Bot. Reg. t. 905; Rev. Hort. 1889, p. 228, cum ic. color.) from the garden of the Commendatore Hanbury, at La Mortola, it bore the name of *C. sinensis*. A more detailed history of the cultivation and synonymy of the two species will appear in the *Kew Bulletin*. The Kew Herbarium contains specimens of *C. sinensis*, Thouin, cultivated in Paris in 1815; a cultivated specimen from Seringe, without any particulars; and a cultivated specimen from Kiukiang, communicated by Dr. Shearer in 1875.—W. Botting Hemsley.
Plate 2659.

LIGHTFOOTIA LEPTOPHYLLA, C. H. Wright.

Campanulaceae. Tribe Campanuleae.

L. leptophylla, C. H. Wright (sp. nov.); ad L. capitatum, Baker, accedit, ramiis minute pubescentibus, foliis majoribus tenuioribusque, capitulis bracteis foliis similibus cinctis prima facie distinguenda.


Portuguese East Africa: near water on hills between Unangu and Lake Shiré, W. P. Johnson, 40.

In general appearance this plant approaches Jasione, a genus which has not yet been found south of the Tropic of Cancer. Its large thin leaves and capitate inflorescence, surrounded by leaf-like bracts, render it easily distinguishable from its congeners.—C. H. Wright.

Fig. 1, a flower-bud; 2, an expanded flower; 3, a stamen, front view; 4, the same, back view; 5, transverse section of ovary.—All enlarged.
MELINIS TENUISSIMA, Stapf.

GRAMINEÆ. Tribe Paniceæ.

M. tenuissima, Stapf (sp. nov.) ; a M. minutiflora, Beauv., differt spiculis minoribus, gluma superiore truncata, tenuissime (nec prominenter) 7-nervi, valva inferiore (sterili) 3-nervi, superiore (fertili) quam palea distincte minore.

Gramen 2–3 ped. altum, perenne (?). Culmi tenues, multinodi, e basi decumbente ascendentes, inferne ramos perlongos erectos edentes, leves, glabri, internodiis e vaginis exsertis. Foliorum vaginae arctæ, striata, teretes, sparse vel ima basi densius pilose, pilis sepe tuberculis minutis impositis; ligula ad seriem brevim pilorum redactæ; laminae linearissimaeolate, longe et tenuitier acutatae, patulæ, 2–3 poll. longæ, $1\frac{1}{2}–2\frac{1}{2}$ lin. late, rigidae, glabrae, præter margines scaberulos leves. Panicula oblonga vel ovoidea, laxa, erecta, circiter 6 poll. longa; rhachis tenuis, levis; rami 2–3-nati, tenuiter filiformes, ad nodos pilosi, leves; ramuli pedicellique tenuissime capillares, hinc infra apicem incrassatam pilis $1–1\frac{1}{2}$ lin. longis argenteo-nitentibus muniti, plerique $1\frac{1}{2}–2$ lin. longī. Spiculae pallide virides, oblongae, $\frac{3}{4}$ lin. longae. Gluma inferior ad squamam annuliformem redactá; superior late oblonga, truncata, superne minutissime puberula et insuper apice pilis longioribus instructa, tenuitier 5–7-nervi. Valva inferior vacua, angusta oblonga, breviter bifida, e sinu aristata, glumam superiorem æquans, 3-nervis, apicem versus pilosula, arista tenuissime flexuosa 7 lin. longa; superior oblonga, obtusa, $\frac{1}{2}$ lin. longa, hyalina, 1-nervis. Palea late oblonga, truncata, obscure 2-nervis, quam valva superior major, $\frac{3}{4}$ lin. longa. Lodiculae subquadratae, minutæ. Antherae $\frac{3}{4}$ lin. longae.

SOUTH AFRICA: Nyasaland, Namasi, K. J. Cameron, 33.

A specimen collected by Schimper in Abyssinia, probably in Beugmeder, No. 1410 of the '1863–8' collection, represents, as it seems, a variety of the species described above. It may be characterised thus:—

Var. abyssinica, Stapf. Panicula angusta, 4 poll. longa; ramuli pedicellique breviores. Valva inferior 5–, superior obscure 3-nervis. Antherae $\frac{1}{2}$ lin. paululo longiores.—O. Stapf.

Fig 1, a pedicel; 2, a spikelet with the anthers fallen; 3, lower glume; 4, upper glume; 5, lower valve; 6, fertile floret; 7, its valve; 8, its pale; 9, lodicule. All enlarged.
PLATE 2661.

QUERCUS EDITHÆ, Skan.

Cupuliferæ.

Q. (§ Cyclobalanopsis) Edithæ, Skan (sp. nov.); Q. semiserrata, Roxb. valde affinis, differt foliis semper obtusis, nucibus longioribus angustioribusque.


China: new British territory on mainland opposite Hongkong, near Tatitin, at 500 feet above sea-level, Ford, 623.

An examination of further material of this oak, remarkable among Chinese species on account of its long acorn, may determine that it is a variety of Quercus semiserrata, Roxb. The acorns of that species in the Kew Herbarium are never so long, and usually scarcely more than half as long, as those of Q. Edithæ; but it appears to be extremely variable both in fruit and foliage. Q. Edithæ is named after Lady Blake, the wife of Sir Henry Blake, G.C.M.G., Governor of Hongkong.—S. A. Skan.
Plate 2662.
Quercus Blakei, Skan.
Cupuliferae.

Q. (§ Cyclobalanopsis) Blakei, Skan (sp. nov.); ad Q. Editha, Skan, maxime accedit, differt foliis angustioribus tenuioribusque, involucris patelliformibus, nucibus brevioribus crassioribusque.


China: New British territory on mainland opposite Hongkong, near Tatitin, at 500 ft. above sea-level, Ford, 622.

Q. Blakei is easily distinguished from all the previously described Chinese species of the section Cyclobalanopsis by the broad, shallow cupule. It is named after the distinguished Governor of Hong Kong, Sir Henry Blake, G.C.M.G., from whom botanical investigations in the colony have received constant support and encouragement.—S. A. Skan.

Figs. 1 to 4, acorns and cupules in different positions. Natural size. The shallowness of the cupules is not represented so distinctly as it might have been.
Plate 2663.

QUERCUS REX, Hemsl.

Cupulifera.

Q. (§ Cyclobalanopsis) Rex, Hemsl. (sp. nov.); ad Q. velutinam, Lindl., accedit sed omnibus partibus minoribus, foliis anguste oblongo-lanceolatis, nuce apice haud excavata.

Arbor 60-pedalis (fide Henry) ramulis floriferis gracilisculis glabris cinereis egregie lenticeellatis. Folia ad apices ramulorum conflerta, juvenilia omnino densissimem fulvo-tomentosa, matura supra deum glabra nitidaque, subtus etiam glabra glaucaque, distincte petiolata, coriacea, lanceolata, oblongo-lanceolata vel ob lanceolata, maxima (in ramulis floriferis) circiter 10 poll. longa, acuminata sed vix acuta, basi cuneata, supra medium minute serrata; venae primume laterales numerose, angulo acuto excurrentes, per totam longitudinem fere rectae, supra impressae, subtus elevatae; petioli 9-12 lin. longi, crassi, tomentosi; stipulae lineares, fere pollicres, citissime deciduae. Amenta masculina circiter 3 aggregata, subterminalia, tenuia, flexilia, pendula, 3-6 poll. longa. Perianthium florum masculinorum alte 6-lobatum, lobis patentibus rotundatis. Stamina 6, filamentis glabis, antheris pilis paucis obsitis. Flores feminini ignoti. Fructus delapsus tantum visus, 2-2½ poll. diametro. Involucrum late cupuliforme, fulvo-tomentosum, bracteis in laminas 6-7 annulares concentricas irregulariter dentatas connatis. Nux ossea, depresso-globosa, apice excavata, e cupula semi-exserta. Semen unicum, cotyledonibus sinuato-lobatis.

China: Szemao, Yunnan, at 4000 ft., A. Henry, 12665.

This very handsome oak is similar to the Himalayan Q. lamellosa, Sm., but that has coarsely serrate leaves, and relatively small, ovoid acorns, more than two-thirds immersed in a very thick, lamellate cup. It is, however, more closely allied to Q. velutina, Lindl., but the differences are more easily seen than described. Apart from the smaller size, the leaves of Q. velutina are thicker and harder in texture, broadest below the middle, and have fewer primary veins. In both Q. Rex, Hemsl., and Q. velutina, the young leaves are densely clothed with a woolly tomentum, and become quite glabrous with age. Flowering branchlets bear leaves in both conditions as shown in the plate. A parallel to this is exhibited by the tropical South American Con- narus erianthus, Benth. It is difficult to say what benefit plants, under such widely different conditions, derive from this covering.—W. BOTTING HEMSLEY.

Fig. 1, a bract from a male catkin; 2, a male flower; 3, a fruit; 4, a nut; 5, cross section of the same; 6 and 7, embryo in different positions; 8, radicle.—Figures 1, 2, and 8 enlarged; the rest natural size.
QUERCUS FORDIANA, Hemsl.

Cupuliferae.

Q. (§ Pasania) fordiana, Hemsl. (sp. nov.); species Q. cornea, Lour., proxima, differt imprimit foliis subtus pubescentibus margine serrulatis, venis primariis lateralibus multo numerosioribus.

Arbor 10-30 pedalis (fide Henry), ramulis floriferis fructiferisque gracilissimis pubescentibus. Folia distincte petiolata, coriacea, oblongo-lanceolata vel oblanceolata, cum petiolo usque ad 8 poll. longa, sed sēpius breviora, acuta acuminata, basi cuneata vel rotundata, supra præter costam impressam pubescentem glabra, subnītida, subtus diūturne pubescentia, mollia, margine precīpue supra medium serrulata; venæ primariæ laterales utrinque 17-25, fere rectæ, in serraturas egressae, supra impressae subtus elevatiæ; petioli graciliissimi, ½-1 poll. longi, pubescentes; stipulae minutæ, cito deciduae. Amenta masculina plura in axillis foliorum superiorum vel subterminalia, fasciculata, erecta, 1½-2½ poll. longa. Perianthium florum masculiorum 6-partitum, segmentis ovalibus. Stamina 12, glabra, filamentis filiformibus perianthium longe excedentibus. Flores feminini (juveniles non visi) plures fasciculati. Fructus sessilis, 1-1½ poll. diametro. Involucrum hemisphaericum vel ultra medium productum, glabrescens; bracteæ multisériate, triangulares, demum confluentes, marginibus elevatis, regulariter insculptæ, superiores aciculatae. Nux ossea, depresso-globosa, spuria subplurilocellata, unde seminis cotyledones plurilobatas.

China: Szemao, Yunnan, at 4000 to 5000 ft., A. Henry, 12054, 12054 A, 12054 B, and 12054 C.

This is one of several species of Quercus inhabiting South China and Cochin China, belonging to a group characterised by having a very thick, hard pericarp, with ingrowths into the cell-cavity, nearly dividing it into separate cells, and causing the cotyledons to become lobed as in the walnut.—W. Botting Hemsley.

Fig. 1, portion of the margin of a leaf; 2, a male catkin; 3, a bract; 4, a male flower; 5, female flowers in a somewhat advanced stage; 6, section of one of the same; 7, cross section of a nut.—All except 7 enlarged.
Plate 2665.

Quercus cornea, Lour.

Cupuliferae.


China: Hongkong, various collectors; Hainan, B. C. Henry; Tonkin, Balansa, 2364, 2369 (hemisphaerica), Balansa, 568, 2367, 2368 (cornea).

The fruit, and more especially the seed, of this species had not previously been adequately figured. Lindley (Nat. Syst. Bot. ed. 2, p. 441) made a separate genus—Synandra—of it, on account of the 'glans ossea, intus semiquinquelocularis seminis cotyledonibus in tot lobos divisis quot loculi, more Juglandis.' As explained under Plate 2664, there are several species of this group in Eastern Asia, and it is a little uncertain whether this is really Loureiro's plant, because his description is insufficient. But, as it has been accepted by Bentham, Seemann, and A. De Candolle, and as there is not, so far as I can ascertain, any specimen in existence to settle the point, we may adopt the name. With a considerable series of specimens before me, I have no hesitation in treating Q. hemisphaerica Drake as the same species as Q. cornea, Lour., and the author agrees with me after seeing the Kew specimens. The acorns from different sources exhibit considerable variation, but not more than those of the common oak. They are edible and commonly offered for sale in the markets of South China. Mr. C. Ford, the Superintendent of the Hongkong Botanic Garden, who recently sent a fine sample of the acorns, says that their flavour is not unpleasant, and that they are certainly the most palatable of any acorn he had tasted. He further states that Q. cornea fruits sparingly in Hongkong, and that the acorns sold in the markets are said to come from the province of Kwangsi, to the west of Canton; but he never saw the tree in sufficient abundance either in Kwantung or Kwangsi to supply the quantities seen in the markets.—W. Botting Hemsley.

Fig. 1, a fruit; 2, a portion of the top of a fruit and the marginal series of bracts; 3, vertical section of a nut removed from the involucre or cup; 4, cross section of a nut near the top; 5, cross section of the same near the base; 6, cross section of an empty nut near the base showing the ingrowths of the endocarp; 7 and 8, an embryo in different positions.
MONADENIUM ECHINULATUM, Stapf. (with a cyathium of M. læve, Stapf).

Euphorbiaceæ. Tribe Euphorbiæ.

M. echinulatum, Stapf, a specie unica hucusque nota aculeis in omnibus partibus presentibus, cyathio latiore, glandula multo minus producta diversa.

Radix tuberosa. Caulis erectus, succulentus, aculeolatus, circiter 1 ped. altus. Folia breviter petiolata, obovata, acuta, basi cuneata, ad 3 poll. longa, ad 1½ poll. lata, carnosa, supra lævia glabraque, infra et in marginibus aculeolata; petiolus crassus, ad 6 lin. longus. Inflorescentiae axillares et dichasii primo nutantibus aculeolatis comp dissipatae, pedunculo crasso 1 poll. longo suffulta; bracteæ late rotundatae, apiculatae vel truncatae, uno latere libere, altero fere tota longitudine connatae, carnosulae, nervis saturate viridibus notatae, ad 4 lin. longae, ad 6 lin. late. Cyathium subsessile, subglobosum, 2 lin. longum, læve, uno latere ad medium fissum, 5-lobum, lobis membranaceis albis glabris fimbriato-laceratis incurvis inaequalibus glandula subannulari crassa integra circumdatis et superatis. Flores ♀ in cincimnos circiter 5-floros cyathii lobis oppositos dispositi, calyce destituti; bracteolæ fimbriatae cum cyathii tubo et inter se alte connatae involucelli more Flores ♂ cingentes. Floes ♀ e cyathii fissura exsertus, nutans, calyce bracteisque destitutus; ovarium 3-sulcatum, glabrum.

Tropical West Africa. Described from a living plant communicated by Mr. F. Sander.

Monadenium was described by Professor Pax in Engler's Bot. Jahrb. xix. p. 126, from flowers and fruits, collected by Fischer in East Africa. It differs from Synadenium in the zygomorphism of the cyathium and the usually much more developed cyathial gland, which in this species as in M. coccineum, Pax, exceeds considerably the lobes of the cyathium. A third species was collected by A. Whyte in Nyasaland. It may be described as follows:

M. læve, Stapf; a M. echinulata absentia aculeolorum, bracteis majoribus minus alte connatis, glandulae margine recurvo cyathii lobos æquante diversa.

BRITISH CENTRAL AFRICA. North Nyasaland, between Kondowe and Karonga, at 2000–3000 ft., Whyte.

The general appearance of the inflorescence of M. læve is rather similar to that of certain species of the section Tithymalus of Euphorbia, on account of the large involucral bracts.—OTTO STAPF.

Fig. 1, cyathium of M. echinulatum; 2, diagram of the same; 3, part of the cyathium, seen from within; 4, a cyme of male flowers; 5, fimbriate radial bract. All enlarged. Fig. 6, cyathium of M. læve.—Enlarged.
Plate 2667.

**ALLOSPONDIAS LAKONENSIS, Stapf.**

**ANACARDIACEÆ. Tribe Spondieæ.**


**A. lakonensis, Stapf** (sp. unica). *Arbor* 10–20 ped. alta. *Ramuli* floriferi 2–3 lin. crassi, molliter tenuissime pubescentes, cinereo-fusci. *Folia* 1–1½ ped. longa, 8–12-juga; *petiolus* communis basi 1½–2 lin. crassus, molliter tenuissime pubescens; *foliola* petiolo 1–1½ lin. longo suffulta, plerumque subopposita vel superiorea alternantia, lateralia oblique oblonga, acuminata, basi oblique subacuta, 3–3½ poll. longa, fere 1 poll. lata, summum symmetricum ad 1¾ poll. latum, omnia membranacea, exsiccando fuscescentia, supra primo puberula, mox glabrata, infra ad nervos venasque puberula et insuper secundum nervum medium nec non alibi pilis tenuissimis rigidulis aspersa, nervis secundariis utrinque 9–10 obliquis prorsus curvatis, nervo marginali collectivo tenuissimo sepe obscuro. *Paniculae* axillares, ambitu ovata, laxe ramose, 6–8 poll. longæ, 4–6 poll. latæ, tenuissime griseo-


This plant was made the type of a new section Allospondias of the genus Spondias by Pierre, l.c. The author, who did not know the fruit, remarked, however, that it differed in certain characters from Spondias, and that it might have to be referred to a new genus when the fruit should be known. The Kew collections do not contain complete fruits, but several stones (putamina) deprived of their fleshy covering, which is, according to Balansa, edible. The structure of those stones with their large cavities occupying the angles and much wider than the seed-containing cells, with their considerably reduced stony substance, and the absence of the terminal pits so characteristic of Spondias, appear, in connection with the thin leaflets and their nervation, to justify the raising of the section Allospondias to generic rank. Dr. Pierre, to whose kindness we owe a specimen of the type of his Spondias lakonensis, has confirmed this view after having seen a sketch of the fruit which I had sent to him. There are large resin canals in the decurrent parts of the styles in the ovaries, and therefore outside the ovary cells and in their median line, whilst no trace of them is to be seen in the stone; on the other hand, fine resin canals occur between the cells, and these may possibly give rise to the large cavities of the endocarp. The resinous solution in these was, of course, dried up in the stones which I have seen, and formed thin transverse films, dividing the cavities more or less perfectly into chambers.—O. Staff.

Fig. 1, a branchlet of an inflorescence; 2, a calyx; 3, a disc with 3 of the 5 stamens; 4, a disc expanded; 5, an ovary; 6, the same, cut longitudinally; 7, a stone, seen from the side; 8, the same, seen from the top; 9, a stone in cross-section; 10, an embryo.—All enlarged.
Note to Plates 2668–2670.

Since the publication of the last part of the Icones Plantarum, the Bulletin de la Société Botanique de France, part 1, March 1900, has come to hand. It contains an article by the late A. Franchet entitled: 'Les Scrophularinées de la Chine dans l’herbier du Muséum de Paris.' Under Plate 2668 of this work it is mentioned that the writer's last communication from Mr. A. Franchet contained some queries concerning the affinities of Scrofella and Calorhabdos. This was dated February 4, and he died on February 15, no reply having been sent to him in the meantime. Franchet had communicated the paper on January 12, and it has been published as originally drawn up. In this paper he reduces Scrofella to Calorhabdos (p. 19), as I think, erroneously. He describes a genuine Calorhabdos—C. sutchuenensis—which must be very near C. cauloptera, Hance. He also describes a C. Fargesi, which is a Botryopleuron and very near B. stenostachyum, Hemsl. Although he retains the genus as left in Bentham and Hooker's Genera Plantarum, he divides the species into two sections, which he names Acrostachys and Plagiostachys, and suggests that it would be better to limit Calorhabdos to those species having a terminal inflorescence; so we independently arrived at the same conclusion except so far as Scrofella is concerned.—W. Botting Hemsley.
SCROFELLA CHINENSIS, Maxim.


CHINA: Northern Szechuen, Potanin.

The last communication received by the writer from the late M. Franchet, written a little more than a week before his sudden death, contained some queries respecting the affinities of _Scrofella_ and _Calorhabdos_, which led to an investigation of these genera, and the results are put on record here, under plates 2668–2670. M. Franchet suggested the existence of a close relationship between these genera, but the points of difference seem to be sufficient to maintain their generic separation.—W. Botting Hemsley.

Fig. 1, a flower and bracteole; 2, calyx and pistil; 3, corolla laid open.—All enlarged.
CALORHABDOS BRUNONIANA, Benth.
(and dissections of C. cauloptera, Hance.)

Scrophulariaceae.


India: Gossain Than, Nepal, Wallich, 405.
China: at the foot of Tsangshan, near Tali, Delavay, 3161.

In Bentham and Hooker's Genera Plantarum, ii. p. 963, Padderota axillaris, Sieb. et Zucc., is reduced to Calorhabdos, but since that was done several plants allied to P. axillaris have been discovered in China, as well as one very closely related to the original Calorhabdos brunoniana, and it seems desirable to separate them generically. The reasons for this course are given under Plate 2670.—W. Botting Hemsley.

Fig. 1, a flower and bracteole of Calorhabdos brunoniana, Benth.; 2, corolla of the same laid open; 3, pistil; 4, a flower of C. cauloptera, Hance; 5, corolla of the same laid open.—All enlarged.
Botryopleuron, Hemsl. (gen. nov.). A Calorhabdo differt caulibus vagantibus vel prostratis, racemis axillaribus amentiformibus, corolle limbo subaequaliter 4-lobato, staminibus longe exsertis.


China: Ningpo mountains, Chekiang, Faber; Ichang, Nanto and mountains to the northward, A. Henry, 55, 2187, 4638.

Botryopleuron as here understood, including four species, namely:


The propriety of giving this little group of plants generic rank will, I think, not be disputed. In the first place, their habit is so entirely
different from that of the genuine species of *Calorhabdos*, and as this is associated with a very peculiar inflorescence and deviations in floral structure, they constitute as distinct a genus as the majority of the genera of the order.—W. Botting Hemsley.

Fig. 1, a flower of *Botryopleuron venosum*, Hemsl.; 2, a corolla of the same laid open; 3, a pistil; 4, a flower of *B. stenostachyum*, Hemsl.; 5, corolla of the same laid open.—*All enlarged.*
**PLATE 2671.**

**PLECTRANTHUS CALCARATUS, Hemsl.**

**Labiatae.**

*P. calcaratus*, Hemsl. *sp. nov.*; inter species hujus generis hucusque cognitas longitudine corollae calcaris insignis.

_Herba_ perennis, hispidula, caulibus gracillimis 1–2-pedalibus adscendentibus. _Folia_ quam internodia saepius breviora, distincte petiolata, tenuia, membranacea, ovato-lanceolata, cum petiolo 1–3 poll. longa, utrinque attenuata, crenata, paucinervia. _Flores_ in racemos terminales dispositi, pauci aggregati, graciliter pedicellati. _Calyx_ hispiduli labium posticum trilobatum, lobis rotundatis, lobis lateralis multoties minoribus; labium anticum latum, emarginatum. _Corolla_ extus glandulosæ, intus glabra, circiter pollicaris; tubus gracilis, curvatus, longe calcaratus, calcare acuto; labium posticum æqualiter 4-lobulatum, lobulis rotundatis; labium anticum, cymbiforme. _Stamina_ quam corolla breviora. _Stylus_ stamina paullo excedens. _Nuculae_ ovoideæ, glabrae, punctatae.

**China:** mountains west of Szemao, Yunnan, at 4500 to 5000 ft., A. Henry, 12,339.

Flowers with spurred corollas are rare in the Labiatae, and although, as the name implies, _Plectranthus_ was founded on a species having that character (L'Héritier, _Stirp. Nov._ t. 41), many of the species are not spurred, and no other species which I have seen has such a highly developed spur as the present one.—W. BOTTING HEMSLEY.

Fig. 1, a flower; 2, calyx laid open showing the disk and nutlets; 3, corolla in section showing two of the stamens; 4, fruiting calyx; 5, a nutlet.—All enlarged.
This singular plant was originally discovered by Sir Joseph Hooker and the late Dr. T. Thomson in Khasia, but it was figured and described in the place cited above from a plant that flowered in the Royal Gardens, Kew, in 1856. As stated in the Genera Plantarum, the series of stigmas are incorrectly figured in the Botanical Magazine, and the seeds are nowhere described, so far as I am aware. Dr. A. Henry having sent ripe fruit containing perfect seeds, it was thought desirable to complete the illustration of the genus, especially as it presents characters of which scarcely a parallel is known. The ovary has sometimes upwards of 160 cells, each cell containing one ovule; and the sessile stigmas are arranged in a sinuous manner, corresponding to the cells. It will be perceived that this arrangement permits of a larger number of cells than could appear in a circle of the same diameter. The nearest approach to this large aggregation of carpels and their arrangement is perhaps in Sararanga sinuosa, Hems. (Journ. Linn. Soc. xxx. p. 216, t. 11, & xxxii. pp. 479-488 tt. 4-7; Hooker's Ic. Pl. t. 2584); but in Sararanga the flowers are unisexual. Tupidanthus is also remarkable in the order for having a very large number of stamens—a character it has in common with Plerandra and Tetraplasandra, two Polynesian genera of Araliaceae. They have been described as 2-to many-seriate in Tupidanthus, but the scars in the circumference of figure 4 show that they are in one series, and upwards of 100 in number. The crustaceous pyrenes and seeds are very thin, otherwise they present no deviation from the ordinary conditions.—W. BOTTING HEMSLEY.

CHINA: Szemao, Yunnan, at 4500 ft., A. Henry, 12298, 12298 a, 12298 b.

Fig. 1, a flower-bud, the calyptrate petals in course of being thrown off by the growing stamens; 2, stamens; 3 and 4, a fruit; 5, a cross section of the same; 6, pyrenes; 7, a pyrene; 8, a section of the same; 9, embryo.—All except 1, 3, and 6 enlarged.
**Plate 2673.**

**ASPIDOPTERYS OBCORDATA, Hems.**

**MALPIGHIACEAE.**

**B. obcordata, Hems. (sp. nov.)**; species forma foliorum facile distinguitur.


**China:** Szemao, Yunnan, at 5000 feet, A. Henry, 12,894.

This is the first record of the genus from China.—W. Botting Hemsley.

Fig. 1, a flower; 2, calyx and pistil; 3, cross section of ovary.
Plate 2674.

Dischidia cominsii, Hemsl.

Asclepiadaceae.

D. Cominsii, Hemsl. (sp. nov.); a D. Nummularia, R. Br. foliis tenuioribus ovatis, corollae lobis quam tubo brevioribus differt.


Solomon Group: Florida Island, on trees on the beach, Comins, 316.

Although this species bears a strong resemblance to the widely spread D. Nummularia, R. Br., it is easily distinguished by the characters indicated above.—W. Botting Hemsley.

Fig. 1, a flower; 2, a section showing the corona; 3, androecium from which the corona has been removed; 4, a pair of pollen masses; 5, a seed.—All enlarged.
CLERODENDRON SUBSCAPOSUM, Hemsl.  

Verbenaceae.

C. subscaposum, Hemsl. (sp. nov.); species habitu distinctissima.

Caulis primarius subcarnosus vel crassus et mollis, ut videtur prostratus, cortice laxo decido; caules (vel scapi) floriferi, erecti, gracies, circiter sesquipedales, leves, glabri, infra medium foliis 2 sessilibus parvis ovatis instructi, cetera nudi. Folia longe petiolata, erecta, tenuia, fere membranacea, rotundato-cordata, sinu angustissimo, absque petiolo 5-6 poll. longa, acuminata, obscure irregulariterque dentata, supra hispidula, subtus glabrescentia pallidiora vel colorata, venis primariis sat conspicuis; petioli crassi, usque ad 10 poll. longi. Flores caerulei (vide Henry), absque staminibus 4-5 lin longi, in paniculam angustam laxam terminalem dispositi; panicula ramuli subverticellati, pauciflori; pedicelli capillares. Calyx hemisphaericus, dentibus brevibus rotundatis. Corollae tubus brevis, limbi lobis ovato-oblongis obtusis.

China: Mountains south-east of Mengtze, Yunnan, at 7000 feet, A. Henry, 9181.

The only specimen of this plant does not bear fully expanded flowers, but it is so different in habit from anything else we know that it was considered worth figuring.—W. Botting Hemsley.

Fig. 1, a flower bud; 2, an expanded flower; 3, part of calyx and disc.—All enlarged.
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CASTILLOA AUSTRALIS, Hemsl.

URTICACEÆ. Tribe ARTOCARPEÆ.

C. australis, Hemsl. (sp. nov.); species a C. elastica foliis minus hirsutis supra levibus, receptaculis distincte stipitatis, perianthio breviter 4-dentato, carpellis haud carnosis coriaceis differt.

Arbor sempervirens trunco erecto levi, ramis horizontalibus, succo lacteo (Pearce), novellis sericeis. Ramuli fructiferi crassi. Folia brevissime petiolata, coriacea, oblonga vel oblongo-lanceolata, 12–18 poll. longa, 4–7 poll. lata, abrupte acutaeque acuminata, basi cordata, margine undulata, supra glabra vel cito glabrescentia, subtus praecipue secus costam venasque hirsuta, venis primariis utrinque 17–19 arcuatis prope marginem conjunctis supra leviter impressis subtus elevatis; stipulae lanceolatae, acute, 1 1/2–2 poll. longae, cito deciduae. Flores masculini ignoti. Receptacula flororum femininorum supra axillarum foliorum solitaria, 1 1/2–1 3/4 poll. diametro, stipitata, stipitibus crassis 9–12 lin. longis; bracteae multiseriatae, acuminatae. Nucleus perfectæ desunt.

PERU: believed to be from the region of Cuzco (but the exact locality is unknown), at 4000 to 5000 feet, Pearce, January 1866.


Messrs Veitch, after much research, can only say that Pearce was somewhere in the region indicated at that date. This is all we know of C. australis at present.—W. BOTTING HEMSLEY.

Fig. 1, stipules; 2, a female inflorescence; 3, a female flower; 4, pistil with part of the ovary removed; 5, an immature nut.—All except 1 enlarged.
SAPIUM MORITZIANUM, Klotzsch.


According to Seemann, loc. sup. cit., this tree bears the name Olivo in Panama. Neither of the collectors has any further note on it; but it is one of the most distinct of the species combined under the name biglandulosum. The specimens from the three collectors named above all agree in having slender branches and small closely serrulated leaves. The Higuerote mountains are probably near Higuerote Point, to the east of Caracas, in Venezuela.—W. BOTTING HEMSL. EY.

Fig. 1, a stipule; 2, under side of base of leaf; 3, margin of leaf; 4, upper side of apex of leaf; 5, lower portion of a flower-spike; 6, a male flower; 7, cross section of an ovary; 8, capsules.—All except the last enlarged.
Sapium Pœppigii, Hemsl. (sp. nov.); similis S. aerei, Klotzsch, ab eo recedit foliis elliptico-oblongis levibus supra nitidis.


The whole of the material seen of this species consists of three flowering branchlets and three detached leaves, though they are shown as attached in the accompanying plate. But this is the type of Mueller’s S. biglandulosum, β hamatum, and apparently all that he had under observation.—W. Botting Hemsley.

Fig. 1, upper side of base of leaf; 2, upper side of apex of leaf; 3, intermediate part of flower-spike; 4, bud of male flower laid open.—All enlarged.
SAPIUM CUPULIFERUM, Hemsl.

EUPHORBIACEAE. Tribe Crotonæ.

S. cupuliferum, Hemsl. (sp. nov.); similis S. marginato, Muell. Arg., a quo differre imprimis petiolis eglandulosis, bracteolarum glandulis cupuliformibus.

Frutex undique glaber, ramulis gracilibus, internodiis quam foliis brevioribus, cortece brunneo. Folia brevissime petiolata, petiolis eglandulosis, coriacea, rigida, erecto-patentia, anguste lanceolata, 1½-2 poll. longa, apice acutis, apicula eglandulosa, basi cuneata, margine inerassata etiamque crebre calloso-serrulata, supra subnita, venis primariis inconspicuis; stipulae squamiformes, crassæ, persistentes, ut videtur, medio 1-glandulosæ. Spicae subterminalæ, solitariae, folia paulo excedentes; in speciminibus visis flores masculini tantum adsunt. Bracteæ circiter 8-10-flore, late, apiculatae, glandulis binis cupuliformibus adnatae.

SOUTH AMERICA: Gran Chaco, Argentina, Hagenbeck in herb. Berol.

S. cupuliferum shows better than any other species that I have examined that the glands of the inflorescence are really appendages of the bracts, though much more prominent than the bracts themselves. In general appearance it so strongly resembles S. marginatum, Muell. Arg., that it might easily be mistaken for that species.—W. Botting Hemsley.

Fig. 1, under side of base of leaf and stipules; 2, upper part of the same; 3, part of flower-spike; 4, one of the glands and a bract.—All enlarged.
Plate 2680.

SAPIUM MEXICANUM, Hemsl.

Euphorbiaceae. Tribe Crotonae.

S. mexicanum, Hemsl. (sp. nov.); a S. aucupario differt foliis in ramulis floriferis crebre serrulatis apice eglandulosis, glandulis petiolorum minoribus, capsulis majoribus lignosis.

Arbor undique glabra, ramulis fructigeris crassisculis glabris. Folia longe petiolata, coriacea, flexilia, pallide viridia, oblongo-lanceolata, cum petiolo 4–8 poll. longa et usque ad 1½ poll. lata, apice subobtusa, eglandulosa, basi cuneata vel rotundata, margine per totam longitudinem minute calloso-crenata, venis primaris lateralis numerosis tenuibus curvatis prope marginem obscure connexis; petioli graciles, 9–15 lin. longi, apice biglandulosis, glandulis crassis subglobosis; stipulae late, squamiformes, diu persistentes. Spicis androgynis, simplicibus, terminales vel pseudoterminalis, solitaris, folia superantes. Bracteae parvae, glandulis geminis peltatis ovalibus instructae. Flores 3 vel 4 inferiores feminini, sub quaque bractea solitaria, sessiles, ceteri masculi, 9–12 sub quaque bractea aggregati. Stylia a basi liberi, crassi, recurvi, cito decidu. Capsula brevissime pedicellata, vere lignosa, subglobosa, ab axe persistenti loculicide dehiscent, expansa circiter 1½ poll. diametro, valvis demum patentissimis diu persistentibus; semina ovoidea, 5–6 lin. longa, sub membrana cellulari cinnabarina testa leviter corrugata; embryo centralis, cotyledonibus orbicularibus.

Mexico: near Cuernavaca, State of Morelos, at 5000 ft., Pringle, 6353; the same locality, collected in July 1835, Schiede; Atlatcumulco, December 1834, Schiede, 1052; Zelaya, Queretaro, Schiede, 1072.

This species was originally collected by Dr. C. J. W. Schiede, in 1834 and 1835, in the same district where Pringle found it: a fact I have been able to establish through the courtesy of Dr. A. Engler in lending the Berlin specimens of Sapium for purposes of comparison. Although Schiede's specimens were collected so long ago, nobody seems to have taken them up, probably because the flowers are not in a good condition. One specimen is doubtfully referred to Sapium zelayense, H. B. K. (Nov. Gen. et Sp. ii. p. 65), a common and distinct tree, now referred to Stilllingia.

Besides the specimens referred here to Sapium mexicanum, Hemsl.,
there are specimens in the Kew Herbarium of two other species of *Sapium* from Mexico; or, possibly, one of them may belong to *Stillingia*, as defined in Bentham and Hooker's *Genera Plantarum*. But, it should be added, the limits of *Sapium, Stillingia, Excexcelia*, and some other allied genera have been so diversely interpreted by different botanists that their proper limits could only be defined, if even then, after a thorough study of all the numerous species of this group of the Euphorbiaceae.

The other assumed species of *Sapium* from Mexico are: *Bourgeau*, 3020, from Santa Aña, near Orizaba, and *Rovirosa*, 769, ‘habitat in Famlrtil sylvus primevis, Tabasco.’ The former is a sterile specimen, and is very similar to *S. mexicanum*, but differs in having oblong leaves, thicker in texture, and furnished with a prominent apical gland. The latter is the same as a sterile specimen in the Berlin Herbarium labelled: ‘Schiede, 44. Vera Cruz, in sylvus.’ It is the *Ficus altera* of Schlechtendal and Chamisso’s enumeration of Schiede and Deppe’s collection, *Linnea*, v. (1830), p. 82; and it bears the manuscript name of *Ficus sapioides*, Kl, in the Berlin Herbarium. The following is a description of Rovirosa’s specimen, so far as it goes.

*Sapium lateriflorum*, Hems! (sp. nov.); a speciebus omnibus hujus aseinitatis hactenus descriptis differt foliorum amplitudine et spicis axillaribus.


As set forth in the differential phrase above, this species differs, among other things, from previously described species in having lateral spikes; but this character may prove not to be of specific value. The only other specimens I have seen which exhibit the character are: *Hahn*, 882, from Martinique, and *Trail*, 765, North Brazil; both, however, specifically different from *S. lateriflorum*, Hems!, and from each other. The former has small leaves with close lateral veins, very thick flowering-branches and rigid androgynous flower-spikes, longer
than the leaves; solitary female flowers in the lower part of the spike, and a two-celled gynaeceum within a tubular perianth, and normal male flowers. The latter, collected by Dr. J. W. H. Trail, at Prainha, on the Lower Amazon, consists of long flowering-branches bearing numerous, very slender, androgynous flower-spikes, springing from the axils of fallen leaves. The spikes are from three to four inches long, distinctly pedunculate, and bear one, or rarely two, small leaves near the lowermost flowers; and the petiole of these leaves is biglandular at the apex. The gynaeceum is similar to that of the Martinique plant but three-celled. Trail describes it as a slender tree, 15–25 feet high, and states that the branches when broken give a copious milky juice, which hardens into a kind of india-rubber. I have not been able to connect any other specimens with any of the three species described above as having lateral inflorescences.—W. Botting Hemsley.

Fig. 1, under surface of the apex of leaf; 2, portion of a flower-spoke bearing a solitary female flower and a cluster of male flowers; 3, a male flower; 4, open capsules; 5, a seed after the removal of the outer cellular, coloured covering; 6, section of a seed showing the embryo.—All enlarged, except 4 and 5.
SAPIUM SUBEROSUM, Muell. Arg.

**Euphorbiaceæ.** Tribe Crotonææ.

*S. suberosum*, Muell. Arg. *in* Linnaea, *xxxiv.* p. 217; 'a reliquis hujus sectionis differt magnitudine et forma capsularum.'


Kew possesses no specimen of *Sapium* from Barbados, and none from the West Indies, or elsewhere, that we can identify with *S. suberosum*, Muell. Arg., though the blistered appearance of the shoots, leaves, and capsules is perhaps abnormal. As stated under plate 2650, the plant figured by Plukenet as *Tithymalus arbor americanus*, &c. (*Almagest. Bot.* p. 369, t. 229, f. 8.), is recorded as having been cultivated at Hampton Court and received from Barbados. What Plukenet says is this: 'Aulae Hamptonie in plantar. rariorum ditissimo hort. Reg. collegim. & ab Insula Barbadensi transmissâ accepimus.' This is important, because it does not follow that the Hampton Court plant was obtained from Barbados. Indeed, from a careful comparison of Plukenet's specimens in the British Museum with his figure, there is little doubt that the figure was made up from fragments of two species. The detached leaves in vol. iv. pp. 82 and 111 of Plukenet's collection probably all belong to *S. suberosum*, Muell. Arg., as they have the very numerous parallel primary veins characteristic of this species; but both *S. Laurocerasus*, Desf., and *S. laurifolium*, Griseb., have very numerous veins, associated with clustered spikes.—*W. Botting Hemsley.*

Fig. 1, apex of leaf seen from above; 2, four-valved capsules; 3, a carpel from within; 4, a seed; 5 and 6, different views of the same.—*All except 2 and 4 enlarged.*
Plate 2682.

**SAPIUM AEREUM, Klotzsch.**

**Euphorbiaceæ. Tribe Crotonæ.**

*S. aereum, Klotzsch in Linnae, xxxii. p. 119; similis S. Paepigii sed foliis scabridulis basi subcuneatis supra nitore submetallico viridiscente insignitis.*

*Folia gracileter petiolata, tenuiter coriacea, ovali-oblonga, absque petiolo $2\frac{1}{2}-4$ poll. longa, apice rotundata et glandula magna cuculliformi-incrassata introflexa instructa, margine hinc inde glanduligera, supra viridiscientia nitida, subtus pallida, scabridula, venis primariis numerosis minus conspicuus quam in icone; petioli graciles, 9-12 lin. longi, apice glandulis binis parvis instructi. Flores ignoti. Ovarium efformatum basi incrassata trilobata stylorum coronatum, stylis cito deciduis. Capsulae 4-5 lin. diametro, leves, 3-loculares; semina suborbicularia, compressa, circiter 2-2\frac{1}{2} lin. diametro, tuberculato-exsculpta, nigra.*

**South America**: Peru, Ruiz & Pavon in herb. Berol.

The type of this species in the Berlin Herbarium consists of detached leaves, advanced ovaries, separated capsules, and two or three seeds as represented in the accompanying plate. The nearest like it in the Kew Herbarium is a specimen from Costa Rica, at an elevation of 1550 metres (Tonduz, 12428), but the leaves want the metallic sheen, the persistent base of the styles is terete, and the brown seeds are only about half as large as those of *S. aereum*. There is also a specimen very near *S. aereum* in the Kew Herbarium from New Grenada, collected at Ubalta, Bogota, at an elevation of 1700 metres, by J. Triana. It bears no number, but is designated 'caucho.'—W. Botting Hemsley.

Fig. 1, base of upper side of a leaf; 2, advanced female flower showing the base of the deciduous styles, natural size; 3, the same enlarged; 4, one valve of capsule, natural size; 5, the same from the inside; 6, seed, natural size; 7 and 8, different views of the same.—*Enlarged, where not otherwise indicated.*
Plate 2683.

SAPIUM CILIATUM, Hemsl.

EUPHORBIACEÆ. Tribe Crotonæ.

S. ciliatum, Hemsl. (sp. nov.); ab omnibus speciebus nobis cognitis margine foliorum per totam longitudinem crebre ciliato-glanduloso recedit.

Arbor 12-15-pedalis (Trail) novellis undique glabris. Ramuli foliiferi graciliusculi, recti, 1-2 ped. longi, internodiis brevissimis. Folia breviter petiolata, tenuia, fere membranacea, anguste oblongolanceolata, 6-9 poll. longa, maxima circiter 1 poll. lata, apice caudata, obtusiuscula, basi subtortundata, margine eximie ciliato-glandulosa, venis primariis lateralibus distantibus inconspicuis; petioli graciles, sæpius semipollicares, apice glandulias binis longe stipitatis instructi; stipulæ parvæ, squamiformes, lunatæ, persistentes. Flores, etc., ignoti.

North Brazil: Santarem, Spruce, without number; District of Cararaucú, between Villa Bella and Serpa, Trail, 770.

A figure of the leaves of this rubber-yielding tree is given in the absence of flowers, because it is so strikingly different from all the other species of the genus Sapium, to which it almost certainly belongs. Richard Spruce, who collected it about fifty years ago, notes it as 'a small tree, occasionally met with, but never yet with flowers.' Dr. Trail collected in 1875, and designated it as 'a tree from twelve to fifteen feet high, yielding india-rubber.' I find no description in the Flora Brasiliensis that will include it.—W. Botting Hemsley.

Fig. 1, base of a leaf, seen from above; 2, apex of the same, seen from below; 3, a portion of the margin of the same.—All enlarged.
SAPIUM SUBSESSILE, Hemsl.
EUPHORBIAE. Tribe Crotonae.

S. sub sessile, Hemsl. (sp. nov.); a speciebus parvifoliis differt folis sessilibus vel brevissime petiolatis limbo paulo supra basin glandulis binis sessilibus conspicuis instructo.

Frutex vel arbor parva ex affinitate S. marginat, novellis omnino glabris. Ramuli florigeri gracies, internodis quam foliis brevioribus. Folia sessilia vel brevissime petiolata, coriacea, oblonga vel anguste ovato-oblonga, 3–12 lin. longa, sed s.epius 6–9 lin. longa, utrinque plus minusve rotundata, apice calloso-apiculata, paulo supra basin glandulis binis sessilibus alte concavis instructa, margine crebre calloso denticulata, venis inconspicuis; stipule minutissimae. Spicæ terminales, solitariae, erectæ, rigidae, dense, usque ad 3 poll. longæ (bene evolute non visæ), androgyne, dimidio inferiori flores feminineos circiter 10–12 gerentes. Bracteæ glandulis binis orbicularibus instructæ. Flores masculi 7–9 sub quaque bractea aggregati; perianthium 2-phyllum; stamina 2. Flores feminei solitarii; perianthium 3-phyllum, phyllis rotundato-acuminatis; ovarium 3-loculare, stylis elongatis recurvis ad medium connatis persistentibus. Fructus ignotus.


This species and S. marginatum, Muell. Arg., to which it is closely related, differ from all those previously figured and described in this work in having smaller leaves, in the proportionately much more numerous female flowers in the androgy nous spikes, and in the distinctly three-leaved perianth of the female flowers.—W. Botting Hemsley.

Fig. 1, stipules; 2, base of a leaf seen from below; 3, portion of a spike bearing a cluster of male flowers, bract and glands; 4, a detached male flower; 5, portion of a spike bearing a female flower, bract and glands; 6, a female flower detached.—All enlarged.
Cyclocheilon minutibracteolatum, Engl.

Verbenaceae. Tribe Chloanthae.


Tropical Arabia: Hadramaut, hillsides near Gambia, Lunt, 222. Tropical Africa: Galla Land, in the desert between Dolan and the Dana River, Rivea, 1175; Abdallah, Keller, 187; Somali Land, near Meid, Hildebrandt, 1515; British East Africa, in Ulu district, Scott-Elliot, 6378; German East Africa, Kilimanjaro, 5000 ft., Johnston.

Cyclocheilon was originally placed in Scrophulariaceae by Oliver, although he added that he did not know any 'genus nearly related to this very curious plant,' nor 'any scrophulariaceous plant with a similar
calyx.' Engler refers it also to Scrophulariaceae without discussing the question of its generic affinities. It has also been described as a Labiata, and indeed it possesses a certain superficial resemblance to Tinnea. Professor Oliver had only very fragmentary material at his disposal when he described Cydocheilon somalense, but when Tinnea erianthera and T. arabica were recognised as congeneric with C. somalense, and Professor Schinz of Zurich was good enough to send to Kew the specimens of Cydocheilon collected by Professor Keller in Somali Land, the material was ample enough to afford a more satisfactory result. There was no difficulty now in recognising the genus as a member of the Verbenaceae, but its position in the order was for some time a puzzle to me until I came across Nesogenes, a genus of two species, one of which is confined to Rodriguez Island, while the other is widely spread throughout Polynesia. Both are annuals, and the general aspect scarcely suggests an affinity with Cydocheilon. They have very much smaller flowers, and the calyx is nearly always 5-toothed and very different from that of Cydocheilon; but, as in this genus, it enlarges during the ripening of the fruit, and it exhibits a similar reticulation. The rest of the flower, however, is—apart from the size and the fact that the upper lip is overlapped by the lobes of the lower, instead of overlapping them, and that the division of the ovary into 2 cells is complete—so similar to that of Nesogenes, that the two genera must be considered as allies. The fruit of Nesogenes is indehiscent, with a hard crustaceous endocarp and two- or, by abortion, one-seeded. That of Cydocheilon is not known in the mature state; but the young fruit possesses a pericarp, the anatomical structure of which is very similar to that of Nesogenes with this difference, that the sclerenchymatic layer which corresponds to the endocarp is interrupted along the sutures of the carpels, thus indicating a dehiscence along those lines. The degree to which the inflexed margins of the carpels are fused into a septum in the ovary of Cydocheilon varies. The fusion is always complete at the base where the funicles rise. Higher up the epidermis of each of the two halves of the septum is quite distinct where they meet, the cells being merely interlocked and mutually agglutinated; still higher up the septum divides into two ridges or disappears altogether. There is usually one ovule in each cell in C. minutibracteolatum; but in Scott- Elliot's specimen I have found two in the anterior cell, which in this case was slightly larger than the posterior. In C. somalense two seems to be the normal number. The position of the ovules relative to the axis of the ovary is equally variable, even in the same ovary, as is also the length of the funicle, which, when elongated, is S-shaped. I now prefer the name C. minutibracteolatum to C. eriantherum, as the latter covers, in the sense of Engler, U. cc., also C. somalense, Oliv.—

Otto Staff.

Fig. 1, a leaf; 2, a flower; 3, a corolla; 4, lower lip of the corolla and anticus stamens; 5, upper lip and posticus stamens; 6, pistil in longitudinal section; 7, cross section of an ovary near the base with a portion of the disc; 8, cross section of an ovary, at the middle; 9, a glandular hair from the ovary—All enlarged.
HABENARIA REPENS, Nutt.

Orchidaceae. Tribe Ophrydeae.


America.—Chiefly on the coast-lands of the Caribbean Sea, and round the Gulf of Mexico to Florida and South Carolina, in marshes and ditches, aquatic or subaquatic: S. Carolina, Nuttall; Georgia, near Savannah, frequent, Elliott; near Augusta, Wray; S. Florida, Sumter Co., Curtiss, 2772; Lake Co., near Eustis, Nash, 578, 873; Guatemala, round Lake Duenas, Salvin, 183; Nicaragua, Greytown, Tate, 462; W. Indies, Cuba, Wright, 3305, 3309; Jamaica, St. Annes, McNab; British Guiana, coast region, aquatic in trenches, Jenman, 4422; near Georgetown, Jenman, 7232; Lower Orinoco, Rusby and Squires, 394; Brazil, prov. Santa Catherina, at Blumenau, Ule, 873.

A very distinct and widely diffused species, readily distinguished by its submersed creeping stems, without tubers, and numerous long roots. Dr. Rusby remarks that it is a characteristic water plant, and his
specimen has a dense mass of roots at the base of the flowering stem, and Jenman records it as 'aquatic in 40 foot trench.' The upper part of the stem is erect, and bears several leaves, which gradually decrease in size up to the inflorescence. Gardner, 3990, referred to this species by Kränzlin, belongs to H. hexaptera, Lindl.—R. Allen Rolfe.

Fig. 1, a flower; 2, a petal (front lobe represented proportionately too broad); 3, the column seen from the side, showing the anther, side lobes of the rostellum, stigmatic processes, and staminode.—All enlarged.
**PLATE 2687.**

**DIPLOCENTRUM CONGESTUM, Wight.**

Orchidaceæ. Tribe Vandeæ.


**India**: Travancore; in the Iyamallay Hills, Wight; without locality, Woodrow.

This remarkable plant has hitherto been known only from Wight's original materials, but now a plant which was received in August 1895, from G. Marshall Woodrow, Esq., formerly Professor of Botany in the College of Science, Poona, has flowered in the Kew collection, and is represented in the annexed plate. A character in the structure of the genus which appears to have been previously overlooked is the curious flap-like appendage at the base of the column which closes the mouth of each spur.—_R. ALLEN ROLFE._

Fig. 1, A flower seen from the front, showing the flaps which cover the mouths of the two spurs; 2, the same with the sepals and petals removed, showing the flaps opened; 3, the preceding seen from the side; 4, anther-case seen from the front and side; 5, the pollinarium.—_All enlarged._
ITOA ORIENTALIS, Hemsl.

BIXACEÆ. Tribe Flacourtieæ.

Itoa, Hemsl. Genus novum ex affinitate Poliothyrsi (Oliv. huj. op. t. 1885), Carrièreæ (Franch. in Rev. Hort. 1896, p. 498, fig. 170), et Idesiae (Maxim. ; Bot. Mag. t. 6794) ; a primo floribus vere unisexualibus perianthio 3-4-mero staminiibus numerosissimis, a secundo floribus unisexualibus perianthio 3-4-mero seminibus circumalatis, a postremo perianthii lobis valvatis fructu capsulari differt, et ab omnibus foliis oppositis vel suboppositis recedit.

Flores unisexuales et probabiliter dioici ; feminini non visi, masculini in paniculas pyramidales erectas terminales dispositi. Calyx 3-partitus vel interdum 4-partitus, sericeo-tomentosus, crassus, coriaceus, segmentis valvatis fere liberis ovato deltoideis 5-6 lin. longis. Petala nulla. Stamina numerosissima, quam calyx dimidio breviore, filamentis filiformibus glabris antheris basifixis loculis parallelis. Ovarium rudimentarium parvum, hirsutum. Fructus lignosus, capsularis, unilocularis, placentis 6 (an semper ?) parvis, anguste ovoideis, 3½-4 poll. longis, utrinque attenuatis, brevissime denseque tomentosus, tardae dehiscens. Semina numerosissima, valde compressa, circumalata, ala tenuissima, magnitudine atque circumscriptione valde variabilia, sepe subdolabriformia, maxima circiter 1 poll. longa ; albumen parum ; embryo magnus, axilis, rectus, cotyledonibus orbicularibus, radicula tereti cotyledonibus aequali.—Arbor 20-pedalis, ramulis floriferis glabris simplicissimis lenticellatis. Folia ampla, opposita vel subopposita, longe petiolata, tenuiter coriacea, oblonga vel elliptica, cum petiolo usque ad 15-18 poll. longa et 5-7 poll. lata, acuminata, basi rotundata, margine crenata, supra nitida, subtus parce pubescentia vel dense glabrescentia, venis primariis lateralibus numerosis propre marginem conjunctis atque secundariis tertiarisque subitus conspicuis ; petiolis teretibus vel supra leviter canaliculatis, pubescentes, 1½-2 poll. longis. Paniculae florum masculinorum breviter pedunculatae, circiter 6 poll. longae.

CHINA : Mengtze, Yunnan, at 5000 feet, A. Henry, 9408, 10703.

Itoa, as will be understood from the comparisons made above, is one of a small group of allied genera, which are peculiar to China and Japan. This name has been given in honour of the patriarchal
Dr. Keisuké Ito, one of the pioneers of modern Botany in Japan, and of his grandson, Dr. Tokutaro Ito. A short memoir of the life and works of Dr. K. Ito, together with a portrait, appeared in the *Annals of Botany* in September, 1900, when he was already in his ninety-eighth year. He was a friend and pupil of P. F. von Siebold, whose acquaintance he made as long ago as 1826. His long life has been devoted to philanthropic and scientific work, and he has been the recipient of many honours, the last being his selection by his countrymen as one of 'The twelve Heroes of modern Japan.' An earlier portrait of K. Ito will be found in the *Journal of Botany* for 1887, with a brief 'History of Botany in Japan' by Dr. T. Ito, who worked at Kew in 1886–87, and enriched the library by the gift of a fine copy of the *Honzo Zufu* and several other illustrated Japanese botanical works. Among the botanical works on which he is at present engaged is a *Flora* of the Luchu Archipelago, in conjunction with Dr. J. Matsumura.

In Balansa's Tonkin collection (n. 4875) are fruits and seeds of *Itoa orientalis*, or of a closely allied species. The fruit differs, however, in being nearly globose in shape.—W. Botting Hemsley.

Fig. 1, a male flower with a tripartite calyx; 2, a male flower with a quadripartite calyx; 3, a longitudinal section of the same; 4 and 5, stamens; 6, seeds with part of testa removed; 7, section of seed, the wing removed, showing embryo.—*All more or less enlarged.*
Plate 2689.

Ochanostachys Amentacea, Mast.

Olacineae. Tribe Olaceae.


The two specimens from Borneo differ slightly from the rest in the presence of a more copious and more persistent rust-coloured tomentum. Haviland's, from which the drawing was made, has, moreover, remarkably small, narrow, and mostly 6-nerved leaves; otherwise I cannot find any divergence from the usual more broad- and large-leaved form.—Otto Staff.

Fig. 1. flower; 2, corolla, flattened out, and stamens; 3, young stamen; 4, anther, dehisced, seen from the top; 5, pistil; 6, ovary and calyx, in longitudinal section; 7, ovary, cross section.—All enlarged.
S. paniculatum, *Staff* et *King*; a *S. arborescens*, Hook f., inflorescentia glabra, floribus paulo minoribus, a ceteris generis speciebus foliorum forma diversa.


MALAY PENINSULA: Perak, in open, old jungle on the tops of low hills, 300-500 ft., *King*’s collector.

The examination of the material of this species in the Kew Herbarium has resulted in the reduction of the genus *Bracea*, described as a member of the *Olacaceae*, to *Sarcospernum*.—Otto STAFF AND G. KING.

Fig. 1, a bud; 2, a flower; 3, a calyx and pistil; 4, a corolla; 5, part of a corolla with stamens, flattened out; 6, longitudinal section of a flower, with the corolla removed; 7, cross section of an imperfectly 2-celled ovary with resin canals in the pericarp; 8, cross section of a 1-celled ovary; 9, an ovule; 10, a young fruit.—All enlarged.
GEOPHILA PILOSA, H. H. W. Pearson.

Rubiaceae. Tribe Psychotrieae.

G. pilosa, H. H. W. Pearson (sp. nov.) ; species affinis G. melanocarpa, Ridl., a qua stolonibus, foliisque pilosis et foliis minoribus precipue differt.

*Herba* stolonifera, stolonibus caulisibus foliisque minute pilosis, pilis multicellularibus. *Caulis* simplex, 2-6 poll. altus. *Folia* 2-4, opposita, petiolata, erecta; petioli dense minuteque pilosi, pilis patentibus, \(\frac{1}{2}-1\frac{1}{2}\) poll. longi; laminae ovate, obtuse vel fere acute, basi cordate, nervatione supra obscura subtus prominent, nervis primariis lateralibus utrinque 4-5 patentim ascendentibus intra margines arcuatin connexis, minute pilose pilis multicellularibus, brevibus, crispis, rectis appressisve, 1-1\frac{1}{2} poll. longe, \(\frac{1}{2}-1\) poll. late. *Stipulae* interpetiolares, simplices, deltaeae, obtuse, pilose, 1 lin. longe, basi \(\frac{3}{4}\) lin. late. *Capitulum* triflorum, bracteareum bracteolarumque pilosarum 6-8 involucrio cinctum, pedunculo dense minuteque piloso pilis patentibus multicellularibus suffultum; bracteae plus minus trilobate, 1\frac{1}{2}-2 lin. longae; bracteoleae simplices lineares vel lineari-lanceolatae, circiter 1 lin. longae. *Flores* sessiles, albidi. *Calyx* tubus dense minuteque pilosus, \(\frac{3}{4}\) lin. longus, lobos 5 linearisoblongos obsolete 3-nervatos pilosos equans. *Corolla* tubus membranaceus, urceolatus, glaber, \(\frac{3}{4}\) lin. longus; lobi ovati acuti, extus ad apicem parce pilosi, 1 lin. longi. * Stamina* 5, inclusa; antherae oblongae, pandurate, obtuse vel subacutae, basi paulo bilobate, \(\frac{3}{4}\) lin. longae; filamenta corollae tubo tenui adherentes. *Discus* cupularis, plus minus bivalvis, magnus, glaber. *Ovarium* 2-loculare, 2-ovulatum; stylus complanatus obsolete glandulosus, glaber, 1-1\frac{1}{2} poll. longus; stigma breviter bilobum. *Bacca* ovoidea, angulata, calycis lobis persistentibus coronata, pilosa glabrescensve. *Sema* plano-convexa, jugo dorsali longitudinali instructa, circiter 2 lin. longa, \(\frac{3}{4}\) lin. late.

Singapore : Bukit Timah, Ridley, 951 G. Borneo : Barber, 249.

I am not satisfied that *G. pilosa* is distinct from *G. hirta*, Korth., the meagre description of which (Nederl. Kruidk. Arch. ii. 2 [1851], p. 247) is insufficient for purposes of identification. Korthals's type is not in the Leyden Herbarium and is therefore probably lost. Under

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these circumstances the publication of the plant as a new species seems justifiable.

_G. pilosa_ bears a strong superficial resemblance to _G. hirsuta_, Benth., from Tropical Africa, and to _G. cordifolia_, Miq., a Guiana species, from both of which it is, however, very distinct; its affinity is clearly with _G. melanocarpa_, Ridl. The specimen sent to us under this name by Mr. Ridley differs externally from _G. pilosa_ principally in the glabrous condition of all its parts, though a very different habit is suggested by the figure accompanying the original description (_Trans. Linn. Soc._ [2] iii. Pl. 62).

The shedding of the branches accompanied by the formation of an absciss layer is not uncommon in the genus; this is seen in _G. pilosa_, but even more markedly in _G. melanocarpa_, Ridl., and in the African _G. obvallata_, Didr. The branch is not detached as a whole; its base slowly decays until all the tissue external to the corky plate disappears, leaving a clean scar, from which an adventitious root frequently emerges.—H. H. W. Pearson.

Fig. 1, portion of a leaf; 2, capitulum; 3, a flower with corolla and part of calyx removed showing gynaeceum and disc; 4, part of andræcium; 5, hair; 6, seed. _All enlarged._
LOBOSTEPHANUS PALMATUS, N. E. Brown.

Asclepiadaceae. Tribe Ceropegieae.

LOBOSTEPHANUS, N. E. Brown (species unica). Calyx 5-partitus, lobis lanceolatis acutis. Corolla campanulato-rotata, profunde 5-loba, lobis sinistrorsum obtegentibus. Corona duplex; exterior imia basi tubo stamineo et corollae affixa, membranacea, basi cupularis, superne alte 10-loba (vel lingulis inclusis 20-loba); lobi erecti; 5 minores calyceis lobis oppositi, inappendiculati; 5 majores corollae lobis oppositi, intus bilingulati, lingulis lobos excedentibus; corone interioris squame 5, tubo stamineo affixa, oblongae, membranaceae. Stamina basi corollae affixa, filamentis in tubum brevissimum connatis; antherae erectae, oblongae, apice membrana parva terminata. Pollinia in quoque loculo solitaria, caudiculis longis subhorizontalibus pendula. Ovarii carpella 2, basi distincta, apice in stylo conjuncta, uniovulata; ovulum pendulum; stylus apice longe rostratus. Folliculi parvi, compressi, oblique obtongulati, angulis breviter spinosis, monospermi. Semen lunato-curvatum, utrinque attenuatum, ecomosum, glabrum.


SOUTH AFRICA: Delagoa Bay, Junod, 502.

This is one of the most remarkable Asclepiads hitherto discovered, for besides being very distinct in its palmatifid leaves and many-lobed corona, it is absolutely unique in the Order in having 1-ovuled carpels and 1-seeded follicles. The triangular 3-horned follicles and curved seeds, which are quite destitute of the usual tuft of hairs at one end, are also quite unlike any other Asclepiad known to me. Its position in the system would appear to be near to Eustegia.—N. E. Brown.

Fig. 1, a flower; 2, a portion of the outer corona; 3, inner corona and beak of the style; 4 & 5, pollen masses in two positions; 6, a follicle; 7, a follicle in longitudinal section, showing the seed in its natural position.—All enlarged.
Plate 2693.

**Kickxia borneensis, Stapf.**

**Apocynaceae.** Tribe Echitideae.

*K. borneensis,* Stapf. (sp. nov.) ; a *K. Blancoi,* Rolfe, differt floribus brevissime pedicellatis, 1\(\frac{1}{2}\)–1\(\frac{2}{3}\) poll. longis, calycis segmentis acutis. 

*Frutex* 6 ped. altus. *Ramuli* juniores exsiccati nigro-fuscescentes, teretes, subgraciles. *Folia* brevissime petiolata; lamina lanceolato-oblonga, basi subacuta, apice acuminata, 4–4\(\frac{1}{2}\) poll. longa, 1\(\frac{1}{4}\)–2 poll. lata, integerrima, glaberrima, exsiccati supra nigro-fuscescents, subtus pallidior, coriacea, nervis secundariis utrinque circiter 9 sub-patulis sub margine arcuratim connectis, tertiariis venisque inconspicuis; petiolus 1\(\frac{1}{2}\)–2 lin. longus. *Cymae* axillares, brevissime pedunculatae, pauciflorae, vel ad florem solitarium redactae; bracteole minute, obtuse; pedicellis brevissimis. *Flores* 1\(\frac{1}{2}\)–1\(\frac{2}{3}\) poll. longi. *Calyx* 2\(\frac{1}{2}\)–3 lin. longus; segmenta ovata, acuta, basi extus gibba, intus glandula solitaria oblonga applana appressa munita. *Corolla* tubus e basi subventricosa ad constrictionem cylindricus, deinde campanulatus, parte inferiore 6 lin. longa, ubi angustissima 1\(\frac{1}{2}\) lin. lata, glabra, parte superiore 5 lin. longa, ore 3–3\(\frac{1}{2}\) lin. lata, intus sparsim papillosopilosula; lobi oblique porrecti, obtusi vel subacuti, 6 lin. longi, 1\(\frac{1}{4}\)–2 lin. lati, intus basin versus sparsim papillosopilosuli, caeterum glabri. *Staminum* filamenta glabra; antherae 2\(\frac{1}{2}\) lin. longae, apicem versus in dorso sparse pilosulae. *Discus* inaequaliter 5-partitus. *Ovarium* cum stylo stigmatique 7 lin. longum. *Fructus folliculi* 6 poll. longi, coriacei, extus longitudinaliter striati. *Sema* ignota.

Borneo: Sarawak, Lobb.

This is one of the four Malayan species of *Kickxia.* An account of the African species described under this name may be found in the text, accompanying the two following plates.—Otto staff.

Fig. 1, a portion of the calyx and pistil; 2, a corolla, opened and flattened out; 3, an anther, front view; 4, the same, back view; 5, a portion of the follicle, cut cut from the middle, showing the free inflexed placentas.—All enlarged, with the exception of fig. 5.
FUNTUMIA ELASTICA, Stapf.

Apocynaceae. Tribe Echitideae.

Funtumia, Stapf (genus novum). Calyx ad basin 5-partitus, intus glandulis munitus, persistens; segmenta imbricata, lata, magis minusve obtusa; glandulae numerosae vel paucae, semper applanatae, segmentis appressae. Corolla hypocretiformis, parvula vel mediocris (tota longitudine pollicem unum haud excedens); tubus brevis, medio vel paulo supra medium ventricosus, superne crassissimus, cardosus, ore annulo crasso prominente cincto poriformi; lobi lineares vel oblongi, praefloratione dextrorsum obtegentes Stamina 5, in medio tubo inserta, in conum os vix attingentem arcte inclusum conniventa; filamenta brevissima, crassa; antherae sagittatae, intus basi glandula viscosa munitae, cruribus duris solidis filamenta subexcedentibus; loculi angustissimis brevibus. Discus breviter tubulosus, 5-lobus vel 5-partitus, cardosus. Carpella libera, brevia, truncata, lateraliter in stylum abrupte constricta, et disco exserta vel ab eo paulo superata, vertice puberula; styli filiformes, supra coaliti, incrassati; stigma ovoideo-clavatum, ope antherarum glandularum cono staminali adhersum; placentae ad basin bipartitae, lamellis carpellis lateris ventralis plane adnatis, facie dorsali ovulis multiseriatae obsitis. Fructus folliculi distincti, breves vel elongati, divaricatim patentes, coriaceae, vel lignosi, secundum suturam dehiscentes; placentae matura > zona angusta rugulosa utrinque secundum suturam percurrente indicatae, caeterum a folliculi pariete haud distinctae. Semina plurima, fusiformia, subsemiferetia, basi comae stipitatae reverse plurimis ornatae; raphae filiformes, prominulae; testa tenuis; albumen carnosum strato tenui embryonem circumdans. Embryo elongatus, subsemiferus; radicula supera, longiuscula; cotyledones foliaceae, longitudinaliter contortuplicate.—Arbor ad 100 ped. alta. Truncus erectus, cylindricus; cortex extus pallidus, maculatus; ramuli teretes, exsiccando nigrantes; latex

**West Africa.** Gold Coast, Mampong hills, Johnson. Sefeohi and Wan District, Armitage. Ashanti, Kumassi, Cummins, 217. Lagos, Jehu District, Milten, 178. Yoruba, Ibadan, Olubi; dense forests near Shagamo and Ibadan, Schlechter. Lower Nigeria, Old Calabar, Lloyd; between Ekuke and Abaragba, Holland, 158, 161 (some of the fruits have remarkably small follicles). Cameroons, right bank of Mungo River, between Malende and Nyoke, and between Nyoke and Moyoka, Preuss, 1381; forests on the Upper Mungo River as far as the Bakossi Mountains, Schlechter; plentiful in the basin of the Ngoko and Dscha, Schlechter.

At a meeting of the Linnean Society, on December 7, 1899, I pointed out that the African species described under *Kickxia* differed very essentially from the Malayan species of *Kickxia*, and I proposed then the name *Funtumia* (derived from 'Funtum,' one of the vernacular names of *F. elastica*) for the first group, reserving *Kickxia* for the other, as this genus was based on the Javanese *Kickxia arborea*. As I

* Quoad fructus.
had already prepared an elaborate report, dealing with the whole ques-
tion, for publication elsewhere, I confined myself to a short note in the
Proceedings of the Linnean Society of the meeting referred to above,
reserving a fuller discussion of the differences of the two genera until
the publication of the report. Of those differences I mention in this
place only the most obvious. The cymes of Kickxia are few-flowered
or reduced to a single flower; those of Funumia are gathered in
congested, many-flowered panicles. The corolla of Kickxia is funnel-
shaped, not salver-shaped, and compared with that of Funumia large
(1½—4 in. long); the tube is narrowest (not widest) near the middle
and widened above into a cup or bell-shaped portion into which the
staminal cone projects, while in Funumia it is completely and
rigidly enclosed in the tube, which is, apart from a small orifice, closed
at the mouth. The follicles are more or less parallel in Kickxia, but
spreading at right angles to the pedicel in Funumia. The placentas
of Kickxia are bilamellate, the lamellae are free and remain free; in
Funumia, on the other hand, they are fused with the ventral wall of
the carpels, and are, in the mature state after the seeds have fallen,
only distinguishable as a narrow more or less rough zone along
both sutures.

At the time I discussed the characteristics of the genera Funumia
and Kickxia before the Linnean Society, there were three species,
described under Kickxia, referable to Funumia, viz. Kickxia africana,
Benth., now Funumia africana, Stapf; K. elastica, Preuss, now
F. elastica, Stapf, and K. latifolia, Stapf, which will have to stand as
F. latifolia, Stapf. F. africana and F. elastica are described
and figured in this place under Nos. 2694–2397, where all the literary
references may be found. F. latifolia was described first as K. latifolia
H. Since then four more species have been described under Kickxia
which belong evidently to Funumia, viz. K. Scheffleri, K. Schum.,
from German East Africa, K. Zenkeri, K. Schum., from the Cameroons,
and K. Gilletii, De Wild., and K. congolana, De Wild., both from the
Lower Congo. I have seen no specimens of those four new species.
K. Zenkeri is evidently very similar to F. africana, while the three
other species are compared by the authors with F. latifolia, to which
they seem to approach so closely that one or two of them may prove to
be identical with it.—Otto Stapf.

Plate 2694.—Fig. 1, a flower; 2, a flower in longitudinal section; 3, portion of a
calyx with the pistil surrounded by the disc; 4, an anther, front view; 5, cross-
section through an ovary,—All enlarged.

Plate 2695.—Fig. 1, a portion of a leaf, underside; 2, a pair of open follicles, seen
from the back; 3, tip of a follicle; 4, a seed; 5, the same without the plume; 6, cross-
section through the seed; 7, embryo.—All enlarged, with the exception of figures 2
and 4.
PLATES 2696–2697.

FUNDUMIA AFRICANA, Stapf.

APOCYNACEAE. Tribe ECHITIDEAE.

F. africana, Stapf in Proc. Linn. Soc., Dec. 7, 1899. Arbor 15–80 ped. alta. Truncus erectus, cylindricus; cortex sublaevis, extus cinereus, medio fuscus, intus albidus; ramuli teretes vel sub nodos compressi, exsiccando plerumque nigrantes; latex copiosus, albus, coagulando viscosissimus. Folia petiolata, forma et magnitudine admodum variabilia; lamina oblonga, rarius ovato-oblonga, basi attenuata vel interdum rotundata, apice breviter et abrupte acuminata, 5–9 poll. longa, 1\(\frac{1}{2}\)–3\(\frac{1}{2}\) poll. lata, integerrima, margine undulata et exsiccando revoluta, supra glaberrima, sicca plerumque fusca, infra in axillis inter costam et nervos secundariis plerumque pubescens et efoveolata, nervis secundariis utrinque 9–10 (raro 11), subpatulis, sub margine arcuato-connexis, tertiariis venisque inconspicuis; petioli 2–4 lin. longi. Cyme breviter pedunculatae, multiflorae, congestae, glabrae; pedunculus 3 lin. longus; bracteae parva, ovatae, acute vel subacutae, pedicelli ad 2 lin. longi. Flores flavescentes, alabastra subcylindrica, paululo curvata, 7–9 lin. longa. Calyx 1\(\frac{1}{4}\) lin. longus; segmenta late ovata vel elliptica, margine minute ciliolato excepto glabra; glandulae plures cum unoquoque segmento lobulatae. Corollae tubus paulo infra medium constrictus, 3–4 lin. longus, glaber; lobi lineares, 5–6 lin. longi. Stamina medio tubo vel paulo supra inserta, filamenta intus minute tomentella; antherae acuminatae, apice minute pilosulae. Discus 5-lobus vel ad basin 5-partitus, ovario \(\frac{1}{3}\) brevior. Fructus foliiculi fusiformes, acute-acuminati, semiteretes, ventre applanati, in lateribus utrinque longitudinaliter angulati, ad 8 poll. longi, angulis 1\(\frac{1}{2}\)–2 lin. distantibus. Semina 6–8 lin. longa.; arista 1\(\frac{1}{4}\)–1\(\frac{1}{2}\) poll. longa, basi nuda, pilis 2\(\frac{1}{2}\) poll. longis.—Kickxia africana, Benth. in Hook. Icon. Plant. t. 1276. Stapf in Journ. Linn. Soc. xxx. p. 90, and in Kew Bull. 1895, p. 244, cum icon*; K. Schum. in Notizbl. Bot. Gart. und Mus. Berlin, i. pp. 217–221, cum icon*; Warb. in Zeitschr. f. trop. Landwirthsch. (Tropenpfl.), i. pp. 99–103, cum icon*; Lecomte in Rev. Cult. Col. i. pp. 12–19, 41–47, fig. 1 and 2; Preuss in Tropenpfl. iii. pp. 65, 71; Jumelle, Les Plantes à Caoutchouc, pp. 68–73, fig. 10*; Preuss in Notizbl. Bot. Gart.

* Descriptione et figuris fructuum exceptis.

West Africa: Sierra Leone, without precise locality, Scott Elliot and Haydon; near Kukuma on the Scarcies River, Scott Elliot, 4506 (a fruit-bearing branch with almost bright green and quite glabrous leaves); Bagroo River, Mann, 817. Ivory Coast, Dobou, Jolly, 174. Gold Coast, Sefooh and Wam District, Armitage; Mampongo Hills, Johnson, 434; E. Akim, Johnson, 692. Lower Nigeria, Bonny, Kalbreyer, 82 (detached leaves, open follicles and seeds; the follicles are rather less coriaceous than in the other specimens); Opobo, Holland, 157; Cross River, Holland, 5; Cameroons, virgin forest near Victoria, Preuss, 1382; Gaboon, Libreville, Klaine, 662. Fernando Po, Mann.

Very common in Togoland in the forests of the Agome Mts. and in the Boëm country, according to Schlechter, and also observed in Lower Nigeria between Ekuke and Abaragha by Holland and in the Cameroons in the forests of the upper basin of the Mungo River by Schlechter; also common in the hill forests of the coast region of the Cameroons according to Dr. Preuss.

Plate 2696. Fig. 1, a flower-bud; 2, a corolla in longitudinal section; 3, a calyx segment, seen from within; 4, a pistil, surrounded by the disc.—All enlarged.

Plate 2697. Fig. 1, a portion of a leaf, under side; 2, a portion of a follicle, cut out of the middle; 3, tip of a follicle; 4, a seed; 5, the same, without plume.—All enlarged, with the exception of fig. 4.
Plate 2698.

**PANICUM PHYLOPOGON, Stapf.**

Gramineae. Tribe Paniceae.

P. (§ Echinochloa) phyllophogon, Stapf (sp. nov.); affinis P. Crus galli, L., sed duratione bienni, habitu stricto, caule compresso, foliiis basalibus peralte carinatis ad laminae basin extus longe denseque barbatis laminis longis angustis inferne arcte plicatis diversa.

Gramen biennae, fasciculatum, 3-4 ped. altum. Caulis stricte erectus, 6-7-nodosus, procerus, compressus, glaberrimus, levis, superne ramosus, i.e. et vagina antepenultima vel etiam penultima ramum florentem edens. Vaginae foliorum basali et basi latiuscula scariosa angustatae, compresse, alte carinatae (imprimis superne), leves, ad laminae conjunctionen dorso dense villoso-barbatae, insuper ad margines summnos pilis tuberculio fasciculatis insidentibus setoso-ciliatæ, caretæ glabre; vaginae foliorum summorum minus vel vix carinatae, omnino glabre; ligula nulla; laminae foliorum basalium anguste lineares, longe tenuissime attenuatae, inferne peralte carinatae, arcte plicatae, 1-1½ ped. longae, explanatae 1-2 lin. late, secundum margines cartilagineos asperrima, apicem versus utrinque scabride; laminae foliorum superiorum latiores, ad 4 lin. late, brevius attenuatae, basi breviter in vaginam decurrentes, magis minusve plane, costa media tenuiore. Panicula angusta, nutans, 4-5 poll. longa, subsecunda; axis triquetra, ad angulos scabra, ad nodos setoso-barbata pilis tuberculis insidentibus; rami rhachi subappressi, graciles, circiter 12, infini ad 1½ poll. longi, rhachi acute triquetra setosa; pedicelli fasciculati, brevissimi, apice discoidei. Spiculae ovoideo-ellipsoidae, 1½ lin. longae, tandem fusescentes. Gluma inferior membranacea, perlata, brevius cuspidata vel acuta, 3-nervis, ½ lin. longa, superior elliptica, cuspidato-acuminata, spiculam aequans, herbaceo-membranacea, 5-nervis, rigide pubescens, inter nervos et superne undique spinuloso-scabra vel secundum nervos spinulosa-setosa. Valva inferior (sterilis) glumae superiori similis sed paululo minor, dorso subapplanata, nervis 5 tenuioribus, in aristam 4-8 lin. longam scaberulum abiens, paleam subaequilongam hyalinam includens; valva superior (fertilis) late ellipsoidæ, cuspidata, 1½ lin. longa, nitens, brunnea vel grisea, obscure 5-nervis, crustacea, cum palea similar 2-nervi.

Italy: in rice fields near Pisa, Arcangeli.
The specimens from which this species is described were communicated by Professor Arcangeli, according to whom this grass first made its appearance in rice fields in Novara in 1896, where certain Asiatic varieties of rice had been sown. As a weed it is worse than the common \textit{P. Crus gallii}, and has caused considerable damage to the rice fields. Although the structure of the spikelets is practically the same as in \textit{P. Crus gallii}, the habit and particularly the leaves are so distinct from those of \textit{P. Crus gallii}, as well as of all the other species of the section \textit{Echinochloa}, that I have not hesitated in adopting Professor Arcangeli's view that it is a distinct species.—Otto Staff.

Fig. 1, portion of an upper leaf showing the junction of sheath and blade, front view; 2, the same, back view; 3, portion of a basal leaf, showing the junction of sheath and blade, flattened out, front view; 4, the same, folded, side view; 5, cross section through the blade of a basal leaf; 6, a spikelet, with the lower glume and lower valve in front; 7, the same, with the upper glume in front. The sheath and blades of the barren tuft of leaves are not quite correctly represented, as some of them might create the impression of being open and having bearded ligules.—\textit{All enlarged}.
GYMNOPODIUM FLORIBUNDUM, Rolfe.

POLYGONACEÆ. Tribe Triplarideæ.

Gymnopodium, Rolfe (genus novum). Flores hermaphroditì. Perianthii segmenta 6, 3 exteriora majora, carina exalata, 3 interiora minora, plana, erecta. Stamina 9, ad basin perianthii biseriatim affixa, 6 exteriora ad margines perianthii segmentorum interiorum prope basin adnata, 3 interiora libera; filamenta filiformia; antheræ ovatae. Ovarium glabrum; styli breves, filiformes, apice capitato-stigmatosi; ovulum erectum, subsessile. Nux acute trigona, perianthio autto clauso inclusa; semen trigonum; embryo magnus, cotyledonibus orbicularibus.

G. floribundum, Rolfe (species unica). Frutex ramosissima, ramis gracilibus subflexuosis parce pilosis. Folia alterna vel fasciculata, breviter petiolata, cuneato-oblonga, obtusa, glabra, reticulato-venosa, \(\frac{3}{4}-1\frac{1}{2}\) poll. longa, 3-6 lin. lata; petiolus 1-1\(\frac{1}{2}\) lin. longus; ochrea brevissima. Racemi gracies, interdum parce ramosi, laterales et terminales, 1\(\frac{1}{2}-3\) poll. longi. Bracteae ochreæ, parvae, apices angustae, reflexæ. Flores parvi, graciliter pedicellati. Perianthii segmenta biseriata, exteriora ovata, acuta, 1 lin. longa, fructifera ad 5 lin. longa, reticulato-venosa, interiora lanceolata, acuta, minora. Stamina inclusa. Nux 3 lin. longa.

BRITISH HONDURAS: Manatee, pine ridges, E. J. F. Campbell, 60.

An interesting monotype, allied to Podopterus, Humb. et Bonpl., of which it has much the general appearance, but differs in its wingless pedicels, and in having an additional whorl of three stamens, which are situated opposite the concave faces of the ovary, and within the outer series of six.—R. ALLEN ROLFE.

Fig. 1, a flower; 2, a petal with two stamens of the outer whorl adnate to the margins at the base; 3, a pistil and the three stamens of the inner whorl; 4, the ovary in longitudinal section, and 5, in transverse section; 6, the seed in longitudinal section, showing the embryo.—All enlarged.
Lespedeza velutina, Dunn (sp. nov.); inter species asiaticas vestitu distincta.


China: Yunnan, near Manpan in the Red River valley, at 3000 feet; and in the Mengtze forests at 4600 feet. A. Henry, 10447.

Maximowicz, in his Synopsis of this Genus (Act. Hort. Petrop. ii. p. 345), shows the importance for the purpose of classification of observing the relative persistence of the bracts and bracteoles. In this respect the present species stands alone in § Campylotropis with L. ciliata, the only member of the section with which it is closely associated geographically.—S. T. Dunn.

Fig. 1, flower from which petals have been removed and calyx laid open; 2, standard; 3, a keel-petal; 4, a wing-petal; 5, ovary in section.—All enlarged.
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<td>Zschokkea utilis, Hemsl. 2637</td>
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