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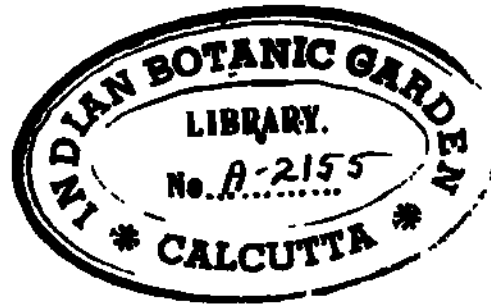


PLATE 2101.

CERATOSTYLIS HIMALAICA, Jlooa\ /.

OHCHIDEA. Sabtribe CCELOGYNEI.

C. himalalca, *Hook. f. Fl. Brit. Ltd.* v. 82t^s; caulibus fascicolatis brevibus simplicibus v. ramosis vaginis lanceolatis acuminatis membranaceis imbricatis opertis, pseudobulbis 0, foliis anguste lanceolatis acuminatis, floribus subsolitariis breviter pedunculatis, bractea lanceolata, c^ario sessili sepalisque araneosis, sepalis lateralibus late triangulari-ovatis subacutis, petalis lineari-lanceolatis acuminatis, mento brevi rotandato, labullo brevi obovato-oblongo saccato carnoRulo, dorso apicem versus gibboso et papilloso, columned ramis brevibus. *Eria ramosissima*, *Wall. MSS.* *

HAD. Eastern tropical Himalaya; E. Nepal, /. *D. H.*; Bhotan, *Griffith*; Khasia Hills, *Gibson (Ic. in Herb. Calcutt.)*.

Gaules 2-4-pollicares, dense cespitosi, simplices v. ramosi, radicibus fibrosis; vagina §-| poll. longsB, erecto, laxe imbricate, scariosas, striato-nervosaB. *Folia* 2-2i poll, longa, subacuta v. acuminata, coriacea v. subcarnosa, sessilia v. in petiolum brevem angnstata. *Pedunculi* vaginis immersi, uniflores, floresque sparse araneoso-pubescentes; bractea lanceolata, ovario ssquilonga. *Flores* minuti; sepala lateralija pallide rosea, 3-5-nervia; petala 3-nervia, alba, purpureo fasciata; labellum obscure 3-lobum, lobis latoralibus purpureo marginatis, terminali aureo. *Colu'mna* brevissima, reniformis. *Oapsula* | poll, longa, ellipse-idea, crasse costata.

The plate is copied from a coloured drawing in the Calcutta Herbarium inscribed '*Eria ramosissima*, Wall., Mr. Gibson's Churra collection.' It represents the flowers as considerably larger than in the native specimens.—J. D. H.

Fig. 1. Flower. 2. Bract, ovary, and column. 3. Anther. 4. Pollinia. *Alt enlarged.*



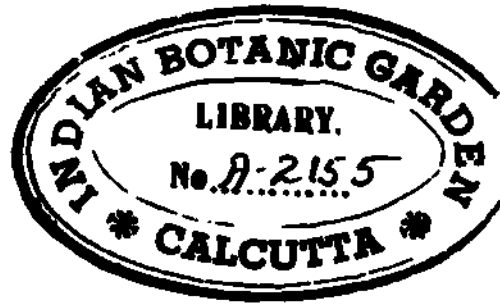


PLATE 2102.

CEBATOSTYIIS LANCIFOLIA, Hoffm. /.

ORCHIDEIS. Subtribe CEELOGYNEA:

C. lancifolia, Hoffm. & F. Z. Unsch. Bot. Z. v. 826; caulibus fasciculatis erectis simplicibus vaginis elongatis laxis lobis tectis, pseudobulbis 0, foliis anguste lineari-lanceolatis acatis erectis, membranaceis, floribus solitariis, pedicello ovarioque puberulis, bractea minuta tubulosa, sepalis lateralibus oblongo-lanceolatis acatis, petalis lanceolatis acatis, mento per brevi 2-lobo/labelli angusti recti hypochilo anguste oblongo epichilo angustiore pugioniforme terminate, columna 9 ramis erectis.

HAB. Malayan Peninsula; Perak, *Scortechini*.

Caudex 2-4 poll, longi, radicibus fibrosis; vaginae 1-1½ poll, longae, teretes, subinflatae, acutae v. acuminatae, striato-nervosae. *Flores* ½ poll, diam.; labellum carnosum, breviter unguiculatum, epichilo tereti hypochilo planiusculo paullo longiore. *Columnae* rami antheram longe superantes, oblongi, obtusi.—J. D. H.

Fig. 1. Flower, with lip removed. 2. Side view of flowers. 3. Lip. *MI* enlarged.



M.S. del et lith

Coelogyne occultata, Hk f.

PLATE 2104.

CCELOGYNE OCCULTATA, *Hook. f.*

OECHIDEE. Subtribe CCELOOTNEA.

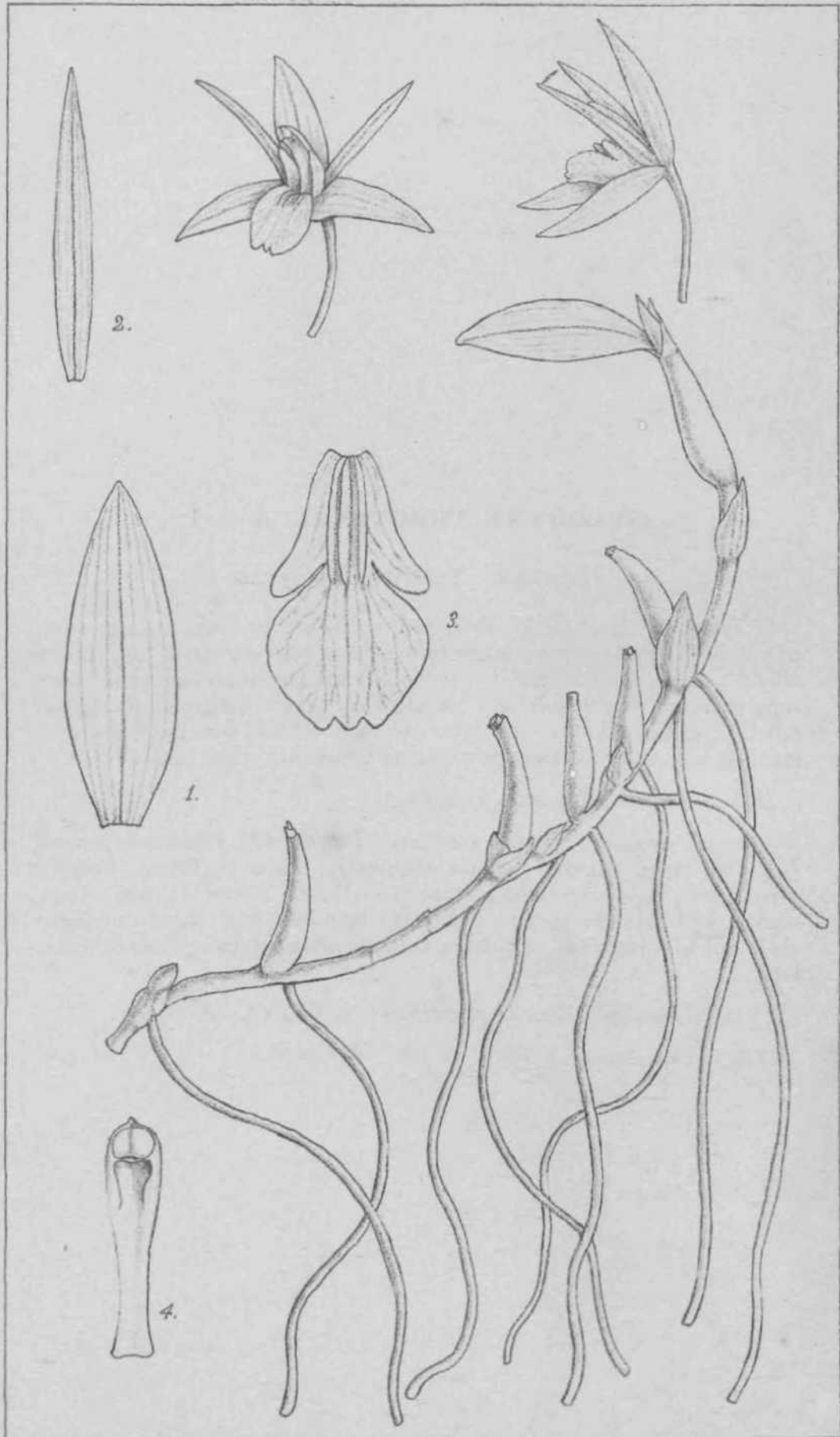
C. occultata, *Hook. f. FL Brit. Ind.* y.832; rhizomate robusto ascendente vaginato, pseudobulbis turbinatim obovoideis sulcatis acute costatis, foliis ellipticis acutis, scapo e basi pseudobulbi enato ascendente toto vaginato, vaginis coriaceis supremis subfoliaceis, floribus paucis breviter pedicellatis vaginis bracteisque obtectis albis, sepalis petalisque paullo angustioribus oblanceolatis acutis, labelli hypochilo lobis rotundatis carinis 2 crassis crenatis percurso epichilo ovato-rotundato crenato, lamina incrassata disco adnata.

HAB. Sikkim Himalaya, *Griffith's Collectors (Ic. in Herb. Gdicutt.)*.

Rhizoma crassitie penniciliorum internodiis brevibus. *Pseudobulbi* pollicares, sessiles, angulis demum undulatis intervallis latis concavis liliiformibus. *Folia* subaequalia v. breviter petiolata, coriacea, 2-3 poll, longa, 5-nervia. *Scapus* 1-2-pollinaris, unicum vaginis crassitie penniciliorum, vaginis viridibus arete imbricatis pollicaribus acutis. *Flores* conferti; bractea pollicares, oblongae, acutae; sepalia pollicaria, interdum flavo-marginata; labellum rubro-lineolatum, lobi laterales plaga brunnea semilanata notatis, carinis brunneo-marginatis. *Columna* apice dilatata, truncata.

The plate is from a coloured drawing in the Calcutta Herbarium, which has supplied some characters for the description, the specimens being very incomplete.—J. D. H.

Fig. 1. Dorsal; and 2, lateral sepals. 3. Petal. 4. Lip. 5. Column. 6. Anther. *All enlarged.*



MS dele^litli.

Coelogyne Treutleri, h.k.f.

PLATE 2105.

CCELOGYNE TBBTJTLBBI, *Hook. f.*

OBOHID&B. Snbtribe CfflLOcnraia.

C. Treutleri, *Hook. f. Fl. Brit. Ind. v. 837*; rhfeomate repente nudo, pseudobnlbis parvis curvis angustis teretibus basi vaginatis, »TM PTM elliptico-lanceolatis, scapo in psendobnlbum terminal!^b TMTM TMTM £ ° ' ' sepalis lateraUbus lanceolatis aoaminatis, petahs angnste_1''¹⁶'' ^ ' labelli hypohUo breviusculo lobia oblongis obtnsis lamellis.3 peroureo, epichilo majore orbicnlari apice obtuse tridentato disco uen.

HAB. Sikkim Himalaya, *Treutler*.

Bhizoma crassitie penn«B anatiniB. *Pseudohdbi* rhizomate remoti, H PoU. longi, snperne sensim attenuati. *Folia* polh(»pia. *Scopus* fjollicaris, toii vaginatns; bractea caduco. *Flares* l\ poll, diam^, Sejalis 7-9-nerviis; petalis 1-nerviis; labellum basi ''''»*»?•* J ^ ohilo epiohUo brevior. *Cohmna* angnste alata, apioe rotundata apicn-lata.

I have seen only the one specimen here figured.—J. D. H.

Kg. 1. DorsalBepaL 2. Petal. 8. Lip. *Ml* enlarged.



M.S. del. et. lith.

Coelogyne stenocaulis, Hk.f.

PLATE 2106.

CCELOGYNE STENOCHILA, *Hook. f.*

OBCHIDEJE. Subtribe GCELOOTNE^.

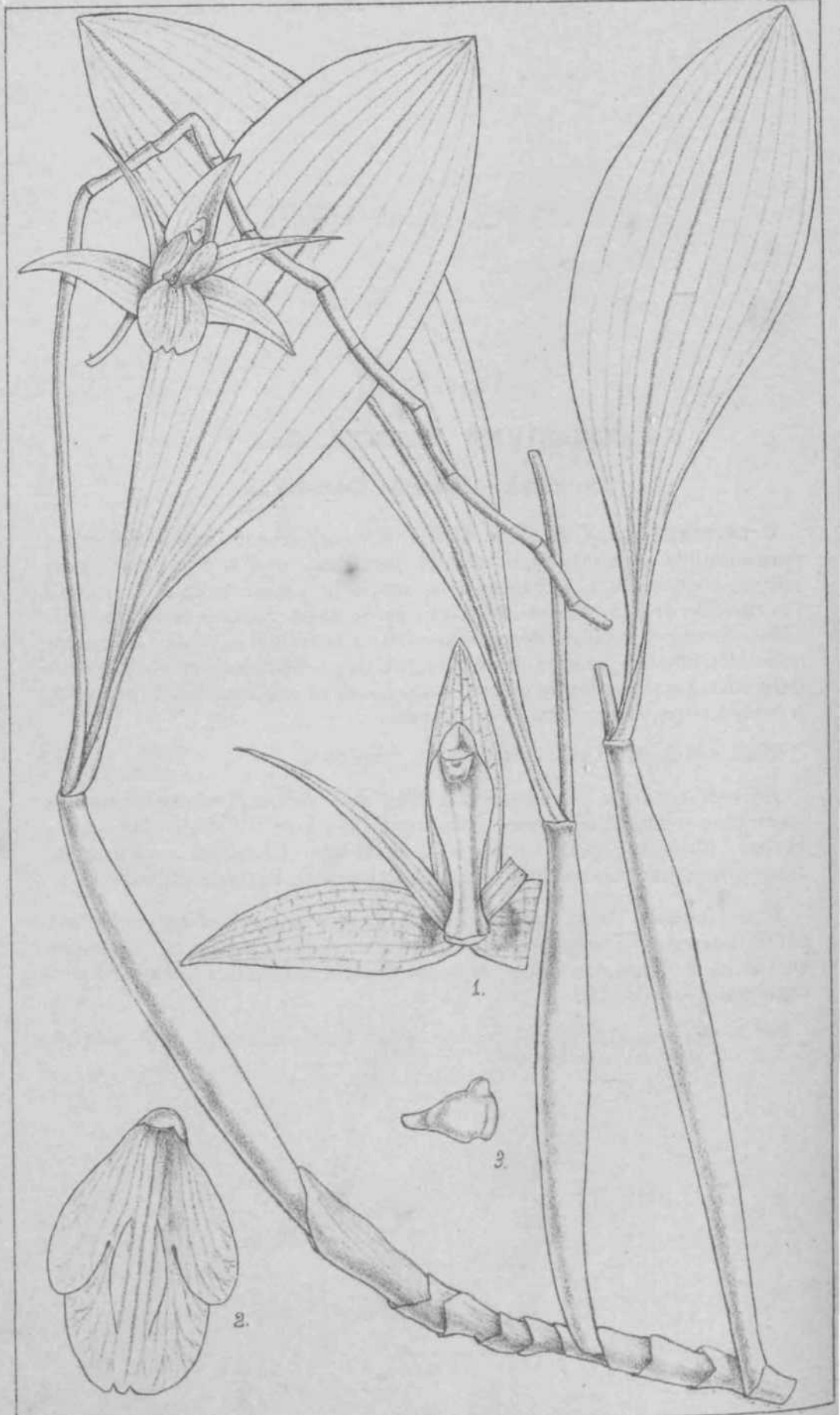
C. Stenochila, *Hook. f. Fl. Brit. Ind.* v. 837; rhizomate repente, pseudobulbis parvis teretibus basi vaginatis, foliis sessilibus ovato- v. elliptico-oblongis, scapo in pseudobulbum terminali brevi basi et apice undato, racemo elongato multifloro flexuoso, floribus inter minoribus albis, sepalis lateralibus ovato-lanceolatis, petalis adnatis linearibus, labelli hypochilo elongato in lobos parvos obtusos producto, epichilo brevioris latiore orbiculari, disco tricarinato.

HAB. Malayan Peninsula; Perak. summit of Gunong Batu Pateh, alt. 6,700 feet, *Wray*.

Rhizoma crassitie pennino corvino, nudum. *Pseudobulbi* 1-2 pollicares, laves. *Folia* 1-1^{1/2} poll, longa, 1/2-3/4 lata, subacuta, rigida, subtus 3-5-costata. *Scapus* compressus, foliis brevior; racemus 8-pollicaris, articulatus; bractes deciduae. *Flores* 1 poll. diam.; sepala 3-nervia; petala uninervia; labellum basi saccatum. *Columna* apice truncata, 3-loba.

The only specimen is that here figured; the flowers were detached.—J. D. H.

Fig. 1. Flower, with one lateral sepal and a petal removed. 2. Lip. Both enlarged.



M.S.del.et. Hilt

Coelogyne carnea, Hk.f.

PLATE 2107.

CCELOGYNE CABNEA, *Hook. f.*

ORCHIDEJ;. Subtribe CCELOGYNEJ;.

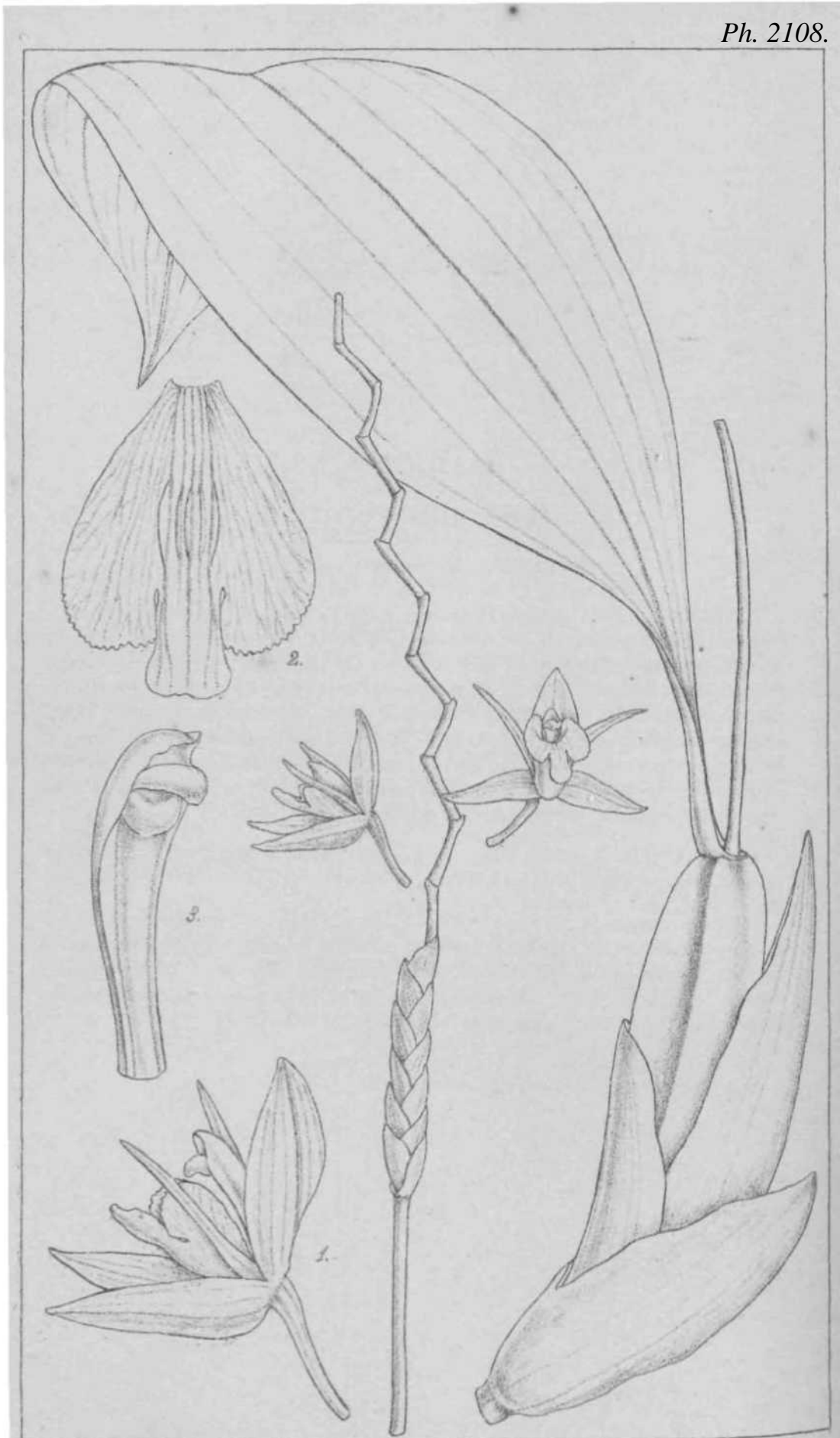
C. carnea, *Hook. f. Fl. Brit. Ind.* v. 838; rhizomate valido vaginato, Pseudobulbis elongato-fusiformibus teretibus nudis, foliis petiolatis ellipticis obovatis v. oblanceolatis, scapo in pseudobulbum terminali breviusculo erecto compresso basi et apice nudo, racemo elongate multifloro flexuoso, sepalis oblongo-lanceolatis acuminatis, petalis elongato-subulatis, labelli hypochilo brevi, lobis oblongo-rotundatis epichilo rotundato emarginato incumbentibus, disco basin versus lamellis 2 instructo, columna superne dilatata apice obtusa.

HAB. Malayan Peninsula; Perak, *Scortechini*.

Rhizoma crassitie pennae olivaceo; vaginis brevibus, terminali longiore basi pseudobulbi vaginante. *Pseudobulbi* 3-3⁴-pollicares, J poll, diam., J^oves. *Folia* 4-5 poll, longa, 1-1¹/₂ poll, lata, 1-costata, multinervia. *Scopus* unacum racemo longiore folia superans; bractes caducis.

Alloes 1⁴ poll. diam.; sepala carnea, nervis numerosis trabeculatis; petala 1-nervia. *Labellum* basi saccatum, carneum, venosum. *Columna* infra medium constricta, superne 2-alata; anthera rostrata vertice ambonata.—J. D. H.

Fig. 1. Flower, with lip and portions of one lateral sepal and petal removed.
Fig. 2. Anther. All enlarged.



itS.deletlith.

Cpelogyne Gnffithn, Hk.f.

PLATE 2108.

CCELOGYNE GRIPPITHII, *Hook. f.*

ORCHIDEJS. Subtribe CCBLOGYNEZE

C. Griffithii, *Hook. f. Fl. Brit. Ind.* v. 838; rhizoma validum, pseudobulbis lineari-oblongis compressis 4-quetris vaginis magnis cymbiformibus tectis, foliis pefciolatis elliptico-lanceolatis acuminatis, scapo in pseudobulbum terraiiali compresso basi nudo apice infra racemum bracteia ovatin arete distiche imbricatis tecto, racemo multifloro rachi angulatim flexuoso, floribus inter minoribus, sepalo dorsali late oblongo, lateralibas ovato-lanceolatis acutis, petalis anguste linearibus, labelli hypochilo amplo lobis rotundatis erosis disco medio lamellis 5 brevibus instructo, epichilo parvo quadrato truncate

HAB. Upper Assam; summit of the Patkoy Mts., *Griffith*; Mun-aipore, alt. 4,000-5,000 feet, *Watt*.

*R*Msowa crassitiepennceanserinaB. *Pseudobulbi* 3-4-pollicares. *Folia* 5 10 poll. loDga, 2-3 lata, 7-costata, petiolo 2-pollicari; racemi erecti i*achis valida articulata; braotero caducBD. *Flores* 1 poll. diam.; ovario unacnm pedicello sepalis brevior; sepala 5-7-nervia; petala 1-nervia. *Golumna* apice cacullata, obtusa.—J. D. H.

Fig. 1. Flower. 2. Lip. 3. Column. All enlarged.



M.S. del et lith.

Coelofyne ancops.Hk-f.

PLATE 2109.

CCELOGYNE AJNCEPS, *Hook. f.*

ORCHIDEJ.: Subtribe CCBLOQYKEM.

C. anceps, *Hodh. f. Fl. Brit. Ind.* v. 840 ; rbizoinate crasso vaginato, pseudobulbis ellipsoideis v. fnsiformibuB teretibus diphyllis, foliis breviter petiolatis ellipticis acutis, scapo in pseudobulbum terminali valido compresso basi nudo apice infra racemum bracteis coriaceis arete imbricatis tecto, racemi rachi articulato, sepalis lineari-oblongis acutis, petals anguste linearibus, labelli hypochilo elongato in lobos laterales preves obtusos producto, epichilo latiore rotundato, disco lamellis 2 orevis instructo, columna subacuta.

HAB. Malayan Peninsula; Perak, *Scortechini*.

finizoma repens, crassitie pennanserinsB; vaginsd breves arete imbricata obtusaeB. *Pseudobulbi* nudi, substipitati. *Folia* 2-4 poll, longa, J-lata 7-9-costata, in petiolum validum angustata. *Seapus* unacum racemo erecto laxifloro 5-10-pollicaris, anceps v. anguste striatus; bractea J poll, longa; ovarium unacum pedicello J-pollicare. *P cores* 2 poll. diam. *Labelli* hypochilum epichilo duplo longior.

A handsome species, remarkable for the acute tip of the column, and very small clinandrium.—J. D. H.

Fig. 1. Flower, with one lateral sepal removed. 2. Lip. 3. Column. All enlarged.



MS deletlrth

Ocelogyne purpurascens, Hk f

PLATK 2110.

CCELOGYNE ? PURPURASCENS, *nook. f.*

ORCHIDEA. Sabtribe CCSLOGTNEJ.

. C.? purpurascens, *Jloch f. Fl. Brit. Tnd. v.842*; caespitosa, pseudobulbis angustis teretibus monophyllis, folio lineari-oblongo v. lanceolato, spapo e basi pseudobulbi erecto gracili 1-3-flore, bracteis parvis, Sepalis lineari-oblongis obtusis, petalis lineari-subspathulatis, labello basi columnae sessili spathulato concavo basi saccato disco nudo, columna angustae albae. *Dendrobium purpurascens, Thwaites, Enum. Pl. Zeyl. 298.*

HAB. Ceylon; in the elevated part of the Central Province, *Thwaites.*

, Caules breves, fastigiati, radices caespitosa elongatas tortas epidennide niflato emittentes. Pseudobulbi poll longi. Folia 1-4 poll longa, < 2 poll, lata, coriacea, rigida, saepe purpurascens, sicca marginibus recurvis. Scapus 3-4-poliicaris, vaginis paucis parvis. Flores f poll, m., fere albidis; pedicello cum ovario poll, longo; sepala erecto-patentia, 3-nervia; petala 1-nervia; labellum suberectum, obscure crenulatum. Columna erecta, apice dilatata, lateribus dentatis; Anthera imperfecte 4-ocularis, persistens, purpurea; pollinia 4, libera, majora subpyriformia, minora ovoidea. Capsula pol. longa, anguste oblonga v. pyriformis, alte 6-costata.

A curious little plant, certainly not a *Dendrobium*; nearer to *Ceologyne* or *Panisea* than to any other genus; differing from the former in the entire spathulate lip not embracing the column, and from the latter in the lip having no claw.—J. D. H.

Fig. 1. Front; and 2, back view of flower, with the lip depressed. 3. Lateral view of flower. 4. Lip (its concavity not represented). 5. Anther. 6. Pollinia.



WLS.del et lith.

Calarvthe diploxiphion, lik £

TLATK 2111.

CALANTHE DIPLOXIPHION, *Hook. f.*

OUCHIDEJ. Subtribe CIELOGYNE*.

C. diploxiphion, *Hook. f. Fl. Brit. Ind.* v. 849; caule brevi, foliis paucis amplis clongato-lanceolatis in petiolum latum angustatis, scapo clato remote vaginato, floribus in racemum brevem congestis pubescentibus, bracteis magnis late ovatis acaminatis pedicellis gracilibus multo brevioribus, sepalis lateralibus ovatis acutis v. acaminatis, petalis obovato-spathulatis v. oblanceolatis, labello subaequaliter 4-lobo, lobis angustis falcato-recurvis, disco basi minute carunculato, calcare gracili incurvo pedicello brevior.

HAB. Malayan Peninsula; Perak, at Goping, *King's Collector*.

Caule brevi, rhizomate lignoso. Folia 2, 12-20 poll, longa, 3-4 poll, lata, 5-7-costata, multinervia, petiolo valide costato. Scapios 1-2-pedalis; vaginas basi tubulosas, inferiores pollicares, ovato-lanceolatae, acuminatae; racemus 2-pollicaris; bracteae 1 poll, longae, subimbricatoprides, pedicello cum ovario 1-pollicari. Flores 1-2 poll, diam., 2-bi; labellum sepalis longius. Oculumna brevis; anthera depressa. rostrata.

Two specimens were figured; it is most nearly allied to the Himalayan *O. alismcefolia*, the lip of which has an obcordate midlobe and a large yellow callus at the base. Except in the much smaller flowers, and very short raceme and larger bracts, it resembles *G. v&ratriifolia*.—J. D. H.

Fig. 1. Lower (*e lateral setae much too small and narrow). 2. Column, with base of lip and spur. Both enlarged.



M.S. del. et lith.

Ai undiria Cantleyi, Hk. f.

PLATE 2112.

ARUNDINA CANTLEYI, Hook. f.

ORCHIDEAE. Subtribe CCELOGYNK^.

A. (Dilochia) Cantleyi, Hook. f. *Fl. Brit. Ind.* v. 858: caulibus robustis foliosis, foliis sessilibus ovatis v. ovato-lanceolatis longe acuminatis basi rotundatis, floribus in paniculam terminalem deorsum latam foliaceo-bracteata dispositis, bracteis cymbiformibus, sepalis oblongo-lanceolatis falcatis dorso infra apicem corniculatis, petalis neari-oblongis, labello parvo trilobo lobis lateralibus oblongis v. subrotundatis terminali flabelliformi, disco carinis 5 crassis crenatis percurso, columna apice dentata.

^eJ5^B- Malayan Peninsula; Perak, on Gunong Batu, alt. 4,500-5,500 feet, *Oantley*, *Wray*.

Caulis 2-pedalis, crassitie pennaB olorinaa, vaginis foliorum i-1 poll. longis teotus. *Folia* 2ℓ-3J poll, longa, subundulata, unicostata et nantmervia. *Panicula* sessilis, ramis rigidis divaricatis basi spathaceo-oracteatis; bractea floralis ^—\ poll, longae, subacutae, subcoriaceae, striatae. *Flores* 1^1-^- poll diam., stramineae, sanguineo-venosae; sepalis petahsque patentibus, labello basi cuneato.

4^{re} remarkable plant, allied to *A. (Dilochia) Wallichii* of Singapore, which has elliptic-lanceolate leaves and few erect branches of the panicle. It much resembles *Eria Scortechini* (see plate 2082) in habit and inflorescence.—J. D. H.

of 1*1? la Ltttolal se PaL 2 and 3. Varieties of lip. 4 and 5. Side and front views <<* column. 6. Anther. 7. Pollinia. All enlarged.



M.S. del. et lith.

Calanthe ifaimil Hk. f.

PLATE 2113.

CALANTHE MANNII, *lloch f.*

ORCHIDEA: Subtribe CCELOGYXEA;

C. Mannii, *Book. f. Fl. Brit. Ind.* v. 850; canle brevi, foliis lanceolatis, scapo gracili pubescente foliis multo longiore, racemo multifloro, bracteis minutis, floribus parvis pubescentibus, sepalis ovato-lanceolatis, petalis oblanceolatis, labello parvo 3-lobo, lobis lateralibus oblongo-rotundatis, terminali paullo majore orbiolari finiarginato v. obcordato, disci carinia 3 apices versus lamellaiformibus instruct*), calcare brevi obtuso.

—HAB. Western Himalaya; Kumaon, below Ramkhet, *Dutlie*; the Khasia Hills, alt. 4,000 feet, *Mann, Clarke*.

Gaulis 2-3-pollicaris, vaginatus. *Folia* 5-6 poll longa, sessilia, p-costata, multinervia. *Scapus* nuncum racemo 6-10-pollicaris et laflorescentia pubescentes; bracteeB ^ poll, long®, membranaceas. ^{f^j^i} poll, diam., nutantes; sepala 3-5-nervia; petala 1-3-nervia; ^{lat.} lum basi colamns brevi adnatum, carinis disci validis, siccis rugulosis.—J. D. H.

?% V Side; and 2, front view of flower. 3. Column and lip. 4. Lip. *MI enlarged.*



M.S. del. et lith.

Calanthe Wrayi, Hi c. f.

PLATE 2114.

CALABTTHE WBAYI, *Hook.f.*

ORCHIDEA: Subtribe CCELOGYNEJ.

C. Wrayi, *Hook.f. Fl. Brit. Ind.* v. 850; snbacaulis, foliis longe petiolatis ellipticis acuminatis, scapo interfoliaceo, racemo gracili puberulo multifloro, bracteis latis rigidis revolutis, sepalis ovato-oblongis acutis, petalis oblongo-lanceolatis, labello sub&qualiter 4-lobo, lobis oblongis obtusis divaricatis, disco basi callis parvis pectinatis instructo, calcare gracili sepalis paullo longiore.

HAB. Malayan Peninsula; Perak, alt. 2,000 feet, *Wray*.

Folia 8-10-pollicaria, acuminata, 5-7-costata, multinervia. *Scapus* unacum racemo 2[^]-pedalis, gracilis; racemus 3-6-pollicaris, laxiflorus; bractesB ovate v. ovato-lanceolatse, persistentes, siccsB saope tortte; pedicello unacum ovario f poll, longo. *Flores* § poll, diam., albo-Jilacini; sepala lateralia dorso infra apicem alato-carinata; labellum lateribus column® adnatum.—J. D. H.

Fig. 1. Flower. 2. Lip and column. *Both enlarged.*



MS.del., lith.

Eulophia Manra: Hk. f.

PLATE 2115.

EULOPHIA MANNII, *JTonhf.*

ORCHIDÆ. Subtribe EULOPHIEJS.

E. Mannii, *Hook. f. Fl. Brit. Ind.* vi. 4; foliis floribus coctaneis uneari-elongatis subacntis, scapo elato, bracteis majubcnlis oblongo-lanceolatis obtusis ovario paullo brevioribus, sepalis lateralibus basi column® insertis oblongo-lanceolatis petalisqne oblongis multinerviis, labello latiore quam longo rlicmbeo-ovato obscure 3-lobo obtnso, disco Tiurvis 3 crassis ultra medinm ramosis v. in pulvinara velutinam con-nuentibus percurso, calcare conico brevi. *Cyrtopera Mannii*, *Reichb.f. in Flora*, 1872, p. 224.

HAB. Upper Assam, *Mann.*

Caulis basi crassitie digiti minoris. *Folia* pedalia, \ poll. **lata.** *anajnu* nmacum racemo laxifloro 3-pedalis; bractea £-£~poll. longie. *iHortis* 1 poll. diam. *Lahellum* sepalis paullo brevius, lobis lateralibus rotundatis termiuali obtuso. *Columna* clavata, apoda; **anthera** depressa; pollinia globosa.

In the 'Flora of British India' I have followed Blume in removing *tyrtppera* from *Cyrtopodium*, and placing it under *Eulophia* as a Pection, caractêrised by the column having a foot, and the insertion of the lateral sepals on the raentum or spur of the lip. *E. Mannii* was referred to *Cyrtopera* by Reichenbach, but, as I can find no trace of such insertion of the lateral sepals, I am obliged to refer it to *Eulophia* proper. Its affinity is certainly with *E. pratensis*, LindL, and *macro-st'xchya*, Lindl.; bnt it differs from these and all others of the group to which these belong in the very narrow leaves, aB well as in characters of the lip.—J. D. H.

7 ^8. If JatoMi sepal. 2. Petal. 3. Column and lip. 5. Column. 6. Anther. --Pollinm. AV enlarged.



M.:sdd. et lith.

Eulophia holoehda. Coll. & Herasl.

PLATE 2110.

EULOPHIA HOLOCHILA, *Coll et Hemsl.*

ORCHIDEJE. Sabtribe EULOPHIEJS.

E. holochila, *Coll. et Hemsl. in Journ. Linn. Soc.* xxviii. 132; foliis hysteranthiis linearibus, scapo valido elato vaginato, racemo laxifloro, bracteis lanceolatis ovario $\text{\textcircled{C}}$ quilon^{is}, floribus magnis, sepalis erecto-patentibus oblongis obtusis lateralibus calcari adnatis, petalis obovato-oblongis obtasis, labello orbiculnri recarvo basi in calcar incnrvm obtusum producto flabellatim nervoso disco nudo ecarinato. *Hook. f. FL Brit. Ind.* vi. 15|g.

HAB. Burma; on the Shan Hills, alt. 4,000 feet, *Gen. Sir B. GoJlett.*

Caulis foliosns, validus, crassitie digiti minoris. *Folia* vix evoluta, 4-5 poll, longa, £ poll, lata, in apicem obtusam angustata. *Sca^{ns}* lateralis, unacum racemo pedalis, validus, vaginis laxis spathaceis instructus; bracteaB § poll, longed. *Flores* 2 poll. diam.; sepala 7-nervia; petala 5-nervia; labellum petalis asquilongum, basi tantum columnnam amplectens. *Golumna* incurva; anthera apice 3-mammillata.

I have seen but one specimen, that here figured.—J. D. H.

Fig. 1. Sepal. 2. Petal. 3. Column and lip.' 4. Column. 5. Anther, seen from above. 6. Pollinia. *All enlarged.*



M. S. del. et lith.

Cymbidium sikkimense, Hk.f.

PLATO 2117.

CYMBIDIUM SIKKIMENSE, Hook. f.

OBCHIDEJE. Subtribe CYMBIDIEJG.

C. Bikkimense, Hook. f. *Fl. Brit. Ind.* vi. 9; epiphyticum, foliis post inflorescentiam bene evolutis ensiformibus, scapo vasinato, racemo multivulso, bracteis minutis, sepalis patentibus lateralibus lanceolatis subfalcatis, dorsali lineari-oblongo erecto, petalis elliptico-ovatis acatis, labello rhombico-ovato patente integro v. obscure 3-lobato, disco calli 2 parvis instructo ceterum ecarinato et inappendiculato.

HAB. Sikkim Himalaya; Lachen Valley, alt. 6,000 feet, / . D. U.

Rhizomob crassum. • *Scapus* unacura racemo pedalis, decurvus; vaginis compressis basalibus brevibus, superioribus elongatis foliaceis; bractee 6 poll, longas, ovato, acutae; ovarium uniovum pedicello 1-2 poll, longo. *Mores* 1 poll, diam!

.. This species I found only twice, on both occasions in full flower in the month of May, with the leaves (as represented) in a very young state. It is the only plant of the genus known to me in which the flowers precede the foliage, except the very curious *G. macrorhizon*, a terrestrial parasitic species with a drooping rootstock, final; a terrestrial parasitic species with an underground rootstock, 2^r the foliage is unknown, if indeed it bears any other than sub-lanceolate sheaths at the base of the scape.—J. D. H.

6^r ASIUM¹ Dor⁸? 1; and 2, lateral sepal. 3. Petal. 4. Column and lip. 5. Column.
* Anther. All enlarged.



M. 3 del et lith.

Thecostele Maingayi, Hk. f.

THECOSTELE MAINGAYI, *Hook.f.*

ORCHIDEA; Subtribe CTMBIDIEA.

T. Maingayi, *Hook. f. Fl. Brit Ind.* vi. 20; foliis ellipticis y. obovato-oblongis in petiolum angustatis, sepalis lateralibus late ovatis acuminatis, petalis lanceolatis acuminatis, labelli parvi lobis lateralibus flabelliformibus terminali late ovato, auriculis basi uncinatim incurvis obtusis.

HAB. Malacca, *Maingay*.

— *Pseudobulbi* §-1-pollicares, late ovato-oblongi, compressi, alticostati. *Folia* 3-4 poll, longa, 1-1¹/₂ poll, lata, obtusa, nervosa. *Bacemus* §-o-pollicaris, decurvus, laxiflorus, breviter pedunculatus; bracteae parvae, ovatae. *Flavae* 1 poll. diam.; sepalia 5-nervia, dorsalia angustiora; petala 3-nervia; labellum parvum, velutinum.

— Under plate 2063 of this work I have, when describing *Ocellularium Wrayi*, suggested the transference of that genus to *Vandaceae*, and a comparison of the structure of its flower with that of *Thecostele* supports this view. The column, with its long arms and tubular base, with two basal auricles or lateral lobes (see note under the following plate), are identical in the two genera. A better knowledge of the specimens is in both wanted, before determining whether they should be retained as separate genera, and whether they are *Vandaceae* or *Epidendraceae*. The figure of the pollinia of *Thecostele Zollingeri* (*alata*, P. et R. f.) given in the 'Transactions of the Linnean Society' (xxx. 29) requires confirmation. *Maingay* (*quinquejida*) describes it in his manuscript and states that the pollinia are four, terminating a long narrow strap upwards and with a glandular base: hence truly *quadricostae*.—J. D. H.

Fig. 1. Flower. 2. Lip. 3. Column. All enlarged.



itS.dfilLetlth

„Thecostele quinquefida, H. f.

PLATE 2119.

THECOSTELB QITINQUEFIDA, *Hook./.*

ORCHIDEJ. Subtribe **CYMBIDIEÆ.**

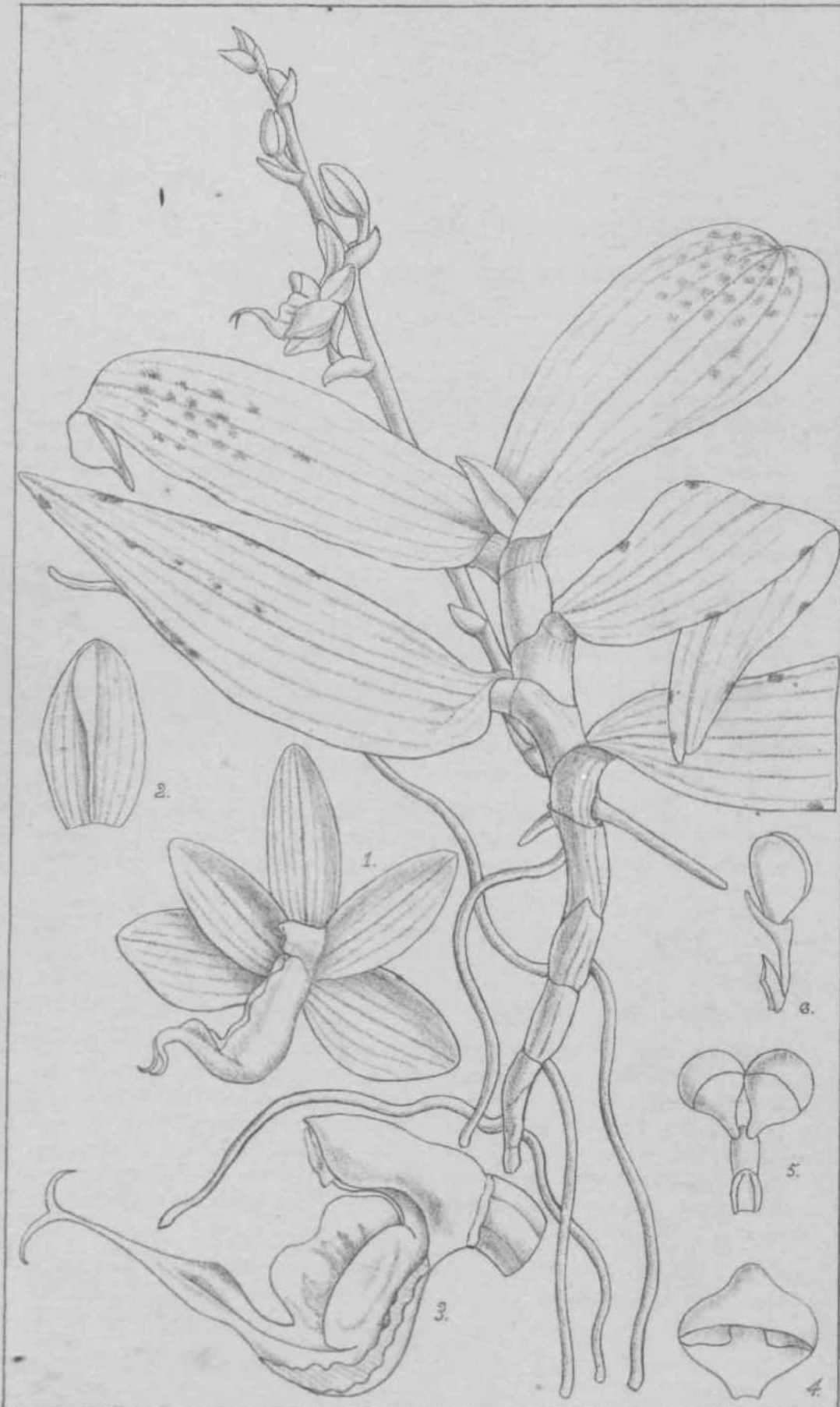
T. quinquefida, *Honh.f. FL Brit. Lid* vi. 20; foliis lineari-elongatis in petiolum angustatis, sepalis lateralibus late ovatis acutia dorsali oblongo, petalis lineari-lanceolatis, labelli 3-lobi lobis lateralibus acmaciformibus terminali late ovato, auriculis basi linearibus erectis.

HAB. Malacca, *Maingay.*

Pseudohdbi 1-1[^]-pollicares, ovato-oblongi, compressi, obtuse costati. *Foha* 5-7 poll, longa, 1-1[^] poll, lata, apice obliquo obtuso. *Eacemvs* [^]-3-pollicaris, gracilis, decurvus, breviter pedunculatus, laxiflorus; bracteaB parvsB, ovat[^]e. *Flores* f poll. diam.; sepala lateralia patentia, o-nepvia, dorsali incurvo; petala obtusiuscula, 3-nervia; labellum pubepulum.

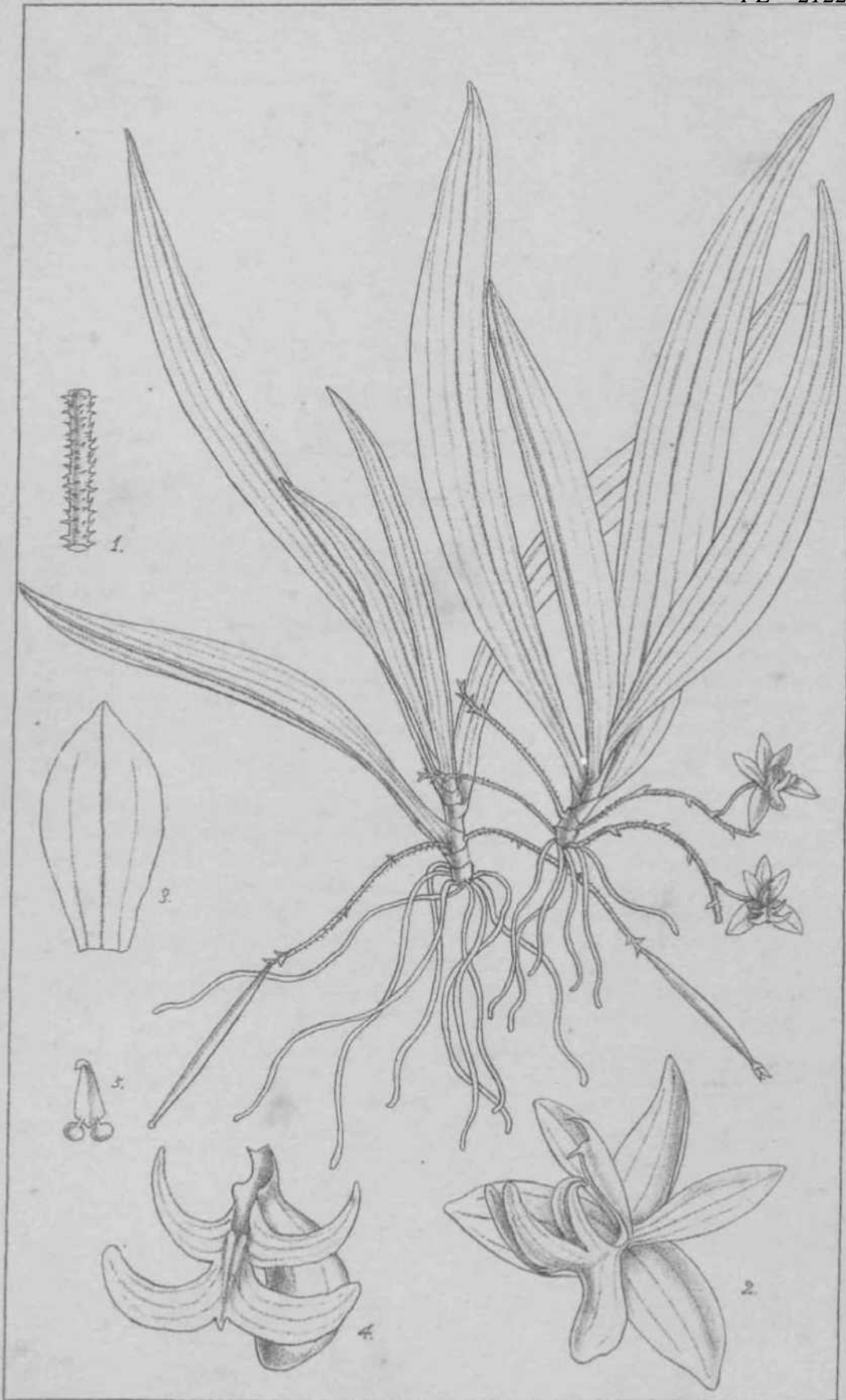
In this genus the lobing of the lip has been variously described, dependent on the view taken of the small divisions at the base of the ~~lip~~ ^{The J have described under} *T. quinquefida* in the * Flora of ~~British~~ ^{India,} as the normal side lobes of the lip, and regarded the ~~grooa~~ ^{grooa} blade as a 3-lobulate midlobe. I now think that the smaller ~~divisions~~ ^{divisions} should more properly be regarded as auricles or appendages of the lip, ^{as I have} ~~described~~ ^{described} them here in this and the preceding ~~plate~~ ^{plate}. For an ~~observation~~ ^{observation} on the affinities of *Thecostele*, see nearer the description of the preceding plate.—J. D. H.

Fig. ^{Dorsal} ~~lateral~~ ^{lateral} sepal, column, and lip. *Both enlarged.* 2.



M. S. del et lith.

Diploprora Charapioni. Hkf.



M.S. del e; lith

Sarcochihis hiriulus, Hk.f

PLATE 2121.

SARCOCHILUS HIRTULUS, *Uuvhf.*

ORCHIDÆE. Subtribe SARCANTHEJE.

S. hirtulus, 'Hook. f. *Fl. Brit, Ind.* vi. 39; caulibus brevibus fasciculatis, foliis anguste lanceolatis falcatis obtuse acuminatis, scapis vaginas inferiores perforantibus foliis multo brevioribus gracilibus hirtulis remote paucifloris, bracteis minutis, sepalis ovatis v. ovato-oblongis subacutis, petalis augustioribus, labello breviter unguiculato basi in eorum elongatum inflatum producto 3-lobo, lobis lateralibus falcato-recurvis, terminali 2-partito segmentis divaricatis falcatis obtusis lobis lateralibus sequilongis et paulo latioribus.

HAB. Malayan Peninsula; Perak, *Scortechini*; Malacca, *Maingay*.

Caules 1-2-pollicares, basi radicales. *Folia* undique inserta, 3-5-pollicaria, 1-2 poll, lata, coriacea, basi et apice angustata, apicibus sæpe recurvis, vaginis perbrevibus. *Scapi* decurvi, 1-2 poll, longi; bracteis paucis ovatis patulis. *Flares* 1-2 poll, diam., sepalis petalisque patentibus 3-nerviis pallide aurantiacis rubro-punctatis. *Labello* sepalis brevibus, quasi 4 partitum, pallidum, sacco v. calcar lobis æquilongum obtuso *Cohmi* labello æquilongum, basi attenuata, apice utrinque calcarata et dorso stipitata incurva. *Pollinia* minuta, globosa, in apicem truncatam glandula majuscula triangulari sessilia.—J. D. H.

Fig. 1. Portion of scape. 2. Flower. 3. Dorsal sepal. 4. Lip. 5. Pollinia. *Fig. 1-5* enlarged.



U S del ethii

Sarcophilus recurvus, Hk f.

PLATE 2122.

SAKCOCHILUS RECURVUS, *Hook. f.*

OBGHIDEJB. Snbtribe SABCANTHEJÉ.

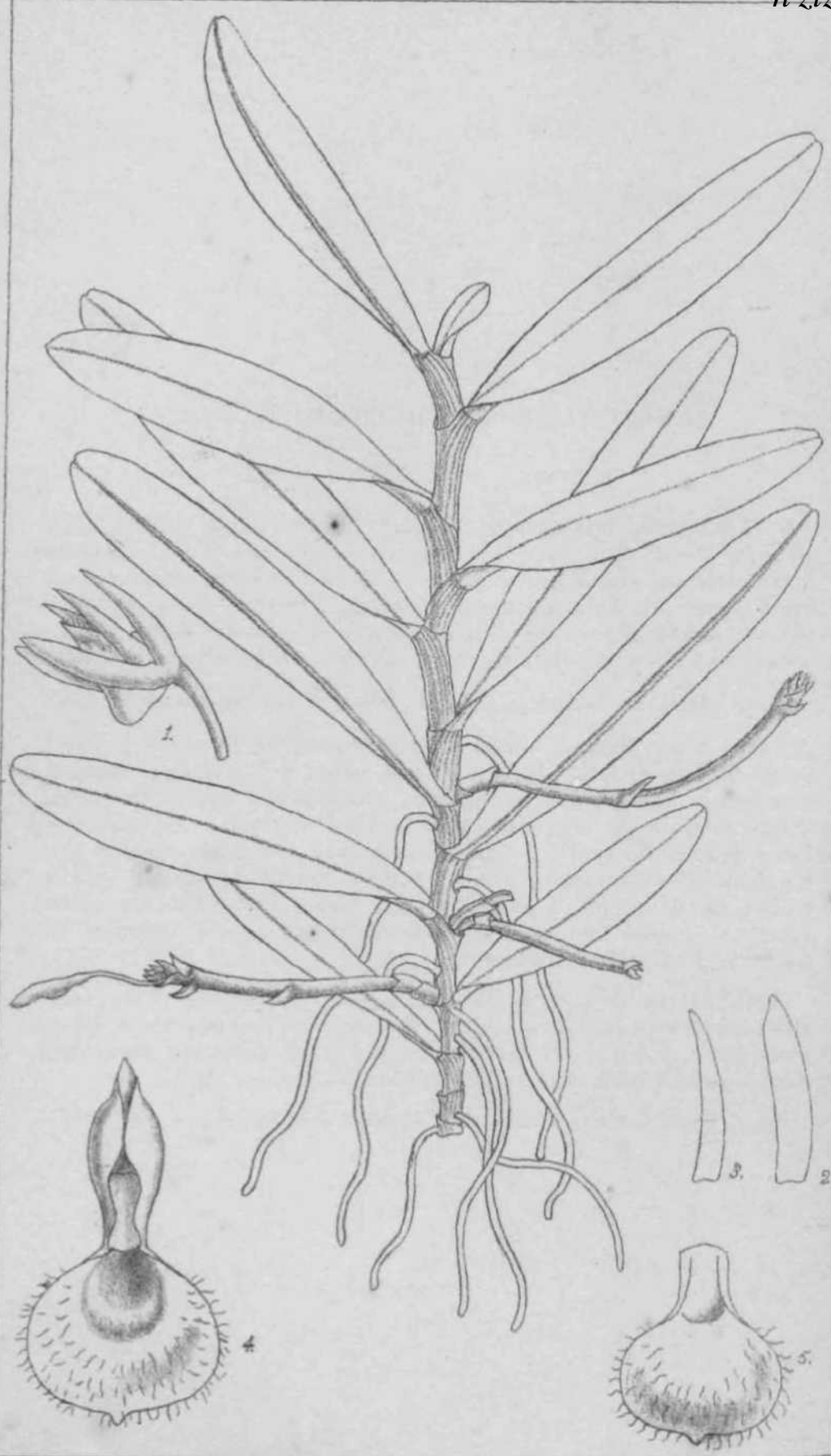
S. (Fornicaria) recurvus, *Hook. f. Fl. Brit. Ind.* vi. 39; canle brovi radicante, foliis lineari-oblongis loriformibnsve planiusculis apice rotundatis dorso costatis, scapis nndis erectis foliis multo longioribus, spica (v. racemo) brevi cylindracea, bracteis dense imbricatis ovato-lanceolatis carnosulis recurvis.

HAB. Malayan Peninsula: Perak, on the Limbo Hills in the Larut Province, *King's Collector*.

Folia 1[^]-2 poll, longa, [^]-\ poll, lata, basi vix angustata, vaginis £ poll, longis striatis. *Scapi* axillares v. vaginas perforantes, 3—5 poll, longi, atrictiusculi, omnino nudi; spica [^]-§ poll, longa, [^] diam. l&ta; bractesB *i* poll, longee.

Though flowerless, I have not hesitated to name and describe this species, which is so marked in character that it cannot be confounded with any hitherto described.

In a note attached to the specimen the flowers **are** described as light red mottled with light brown.—J. D. H.



MS.del.flUrth.

Sarcochilus trichoglottis, ftk.f

SARCOCHILUS TRICHOGLOTTIS, *nook. f.*

ORCHIDÆ. Subtribe SARCANTHEJ.

8. (*Fornicaria*) *trichoglottis*, *Hook f. Fl. Brit. Ind.* vi. 39; caule elongato folioso, foliis distichis lineari-oblongis emarginatis coriaceis dorso carinatis, scapis axillaribus robustis medio 1-bracteatis, racemo brevi paucifloro, bracteis paucis imbricatis, sepalis linearibus obtusis, petalis angustioribus lineari-lanceolatis, labello sessili saccato orbiculari v. subspathulato apiculato ciliato et parce hirsute

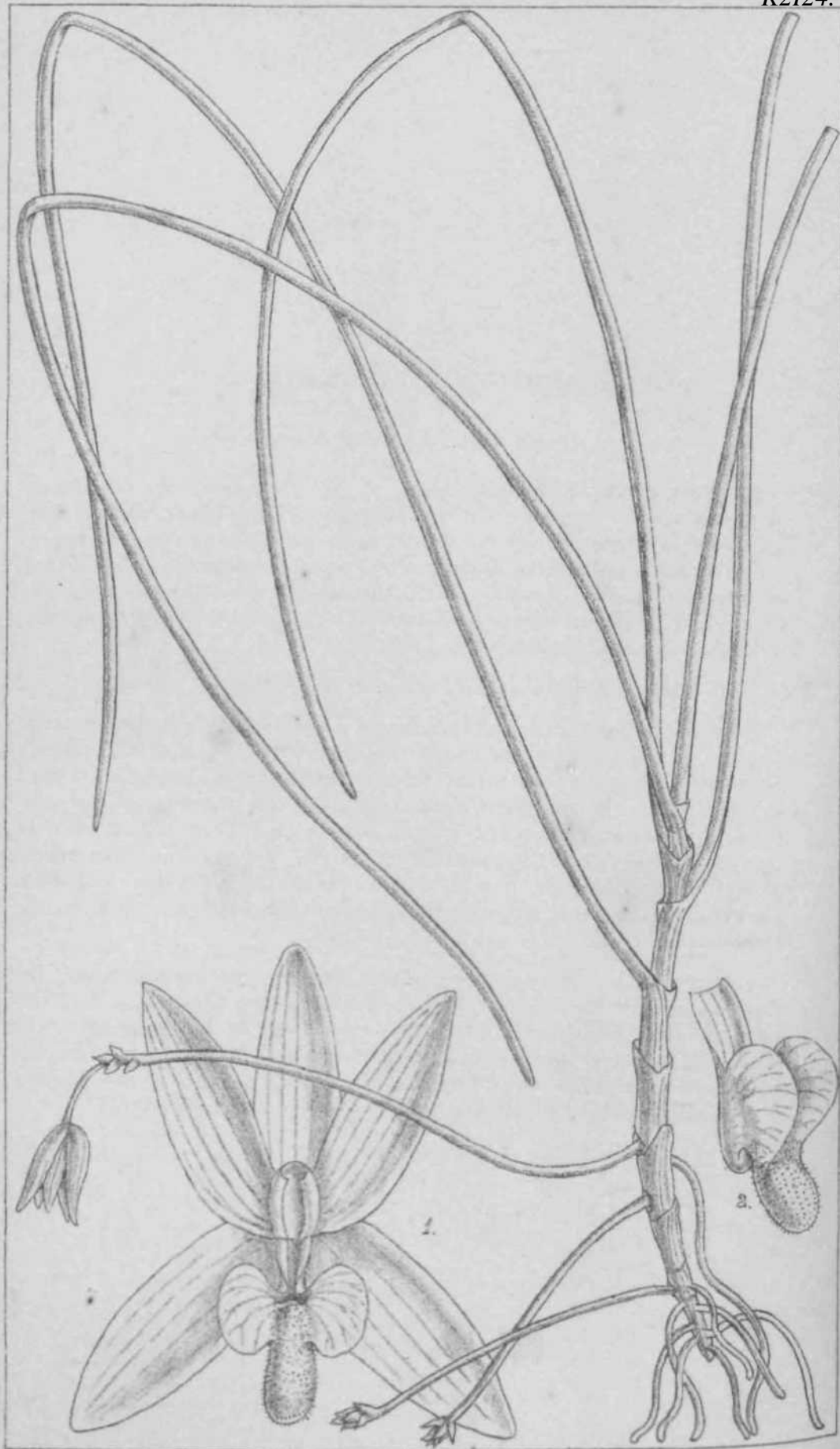
HAB. Malayan Peninsula; Perak, *Scortechini*; Singapore, *Bidley*.

Caules 3-5-pollicares, inferne radicanter, vaginis foliorum 1-2 poll, longis striatis obtecti, *Folia* 2-2^{1/2} poll, longa, 1-1^{1/2} poll-lata coriacea, planiuscula, enervia, basi angustata. *Scapi* axillis inferioribus erecti, horizontalen, foliis breviores; basi breviter vaginati; vaginis tubulosis; bractea ad medium triangulari-ovata; racemi bracteis 1 poll, longis ovatis subacutis carnosulis undique insertis imbricatis. *Floras* pallide flavi. *Sepala lateralibus* 1 poll, longa, basi columnam) apodmserta. *Labelli* saccus late conicus, obtusus, lobi laterales vix conspicui terminalis apiculiformis.

Allied to the Bunnan 8. *Hystrix*, Reichb. f., differing in the much shorter and broader leaves, and in the form of the lip, which is not glandular. I have seen no flowers, and have described them from drawings by Father Scortechini and Mr. Ridley.—J. D. H.

Fig. 1. Flower. 2. Sepal. 3. Petal. 4. Column and lip. 5. Lip. *All enlarged.*

K2124.



MS.deUUith

Sarcochilus filifonnis, Hk.f.

PLATK 2124.

SARCOCHILUS FILIFORMIS, *Hook. f.*

ORCHIDÆÆ. Sabtribe YANDEX.

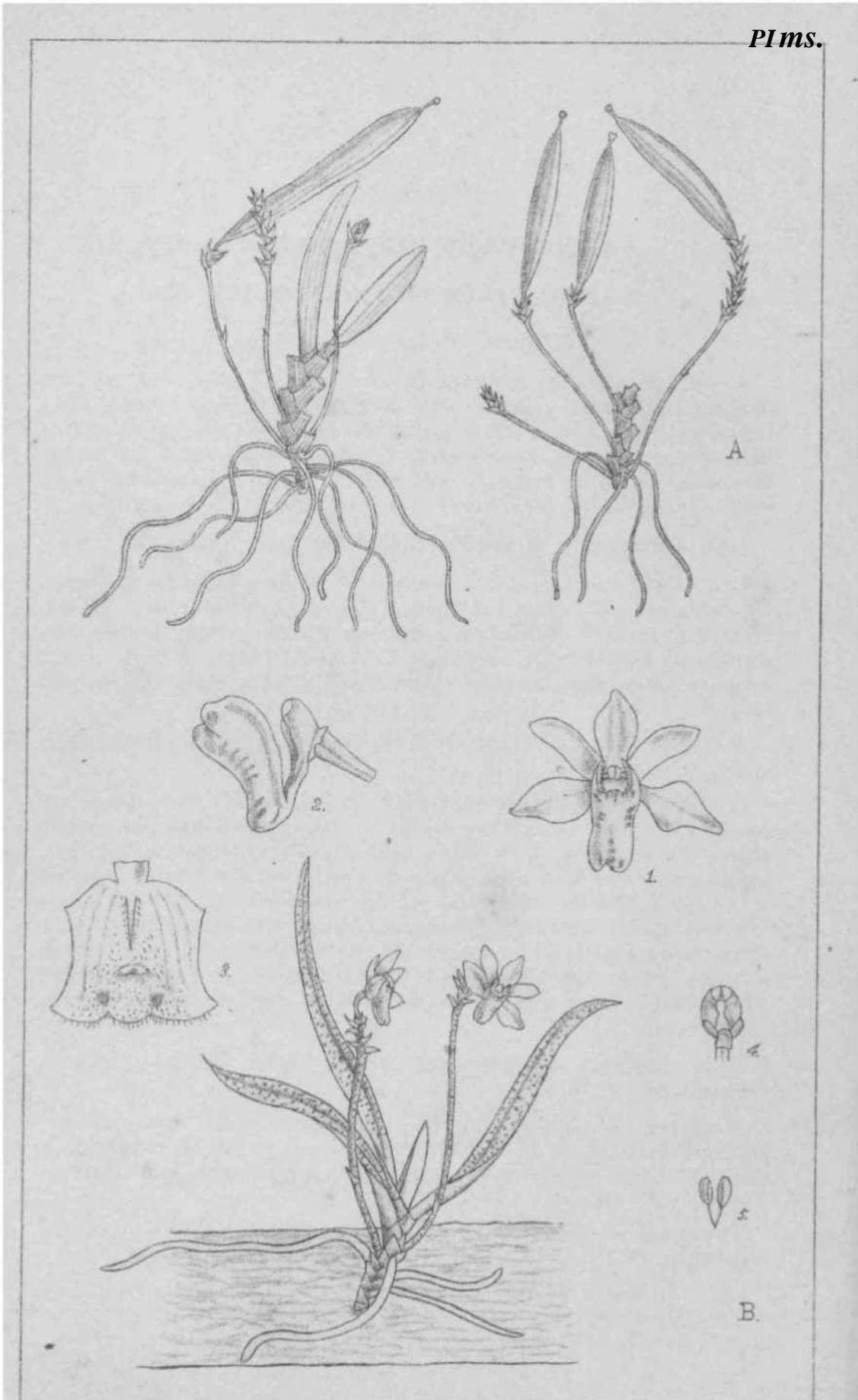
S. (Fornicarfa) filiformis. Hook. f. Fl. Brit Ind. vi. 40; canel on gat o terete vaginato, foliis elongatis filiformibus obtnsiusculis, scapis foliis multo brevioribus nudis apice paucifloris, bracteis paucis minutis ovatis imbricatis, floribns albis, sepalis petalisque subsimilibus oblongo-lanceolatis obtusis, labello basi constricto lateribus involutis dein 3-lobo, lobis lateralibus alseformibus rotandatis terminali in saccum oblongum puberulum ore parvo prod a c to.

HAB. Malayan Peninsula; Perak, on trees, *King's Collector.*

Oaulis 3-pollicaris, vaginis inclusis ad J poll, diam., in feme radicans; vaginae ^ poll, long©, tubulosce, oblique truncataB, costatae. *Folia* 8-10 poll, longa, ^ poll, diam., teretia, laBvia, erecto-potentia. *Scapi* 2-3 poll, longi, basin versus caulis enati, vaginas perforantes, horizontales, snbflexuosi; racemus \-% poll, longus, pauciflorus; bracteoe 3-6, iV poll, long©, obtusae, carnosules; flores albi, pedicello unacum ovario 3 poll, longo. *Sepala* % poll, longa, petalaeque 7-nervia. *Labellum* parv am, basi quasi in unguem brevem (columns pedem P) constricta. *Columna* brevis.

I have seen but one specimen of this singular species with a solitary flower available for analysis, and am not snre that the structure of the base of the lip is accurately described above, or represented in the Pj&te, its texture being exceedingly delicate. What appears in the plate as a claw to the lip, I regard as the prolonged foot of the column, ^{t⁰} which the lateral sepals are adnate at their bases.—J. D. H.

Fig. 1. Flower. 2. Lip. Both greatly enlarged.



M. Söal, et lith.

A *Sarcophilus meruensis*, Hk.f.
B. *Sarcophilus puionifolia*, Hk.f.

PLATE 2125.

A. SABCOCHILUS MEBGUENSIS, *Hook. l.*

B. SAEGOCHILUS PUGIONIPOLIUS, *Hook. f.*

OBCHIDEJB. Sabtribe SARCANTHEJE.

A.—S. (Fornicaria) aerguensis, *Hook. f. Fl. Brit. Ind.* vi. 40; pusillus, caule brevi fblioram vaginis distiche imbricatis tecto, foliis lineari-oblongis obtusis, scapis axillaribus gracilibus, floribus in rachim brevem compressam bracteis arete imbricatis subdistichis pectinatim dispositis, capsulis anguste fusiformibus scapos ©quantibus v. iis iongioribus teretibus stylo brevi et stigmatate capitellato terminatis.

HAB. Tenasserim, at Mergui, *Griffith (in Herb. Lindl.)*

Caules £-f unc, suberecti, compressi; vaginre foliorum £-£ unc., truncates, striato. *Folia* 1-1³ unc. longa, sabcoriacea. *Scajpi* plures, filiformes, medio 1-bracteolati; bractera florales ovata, acute, sab-erectaB, 4s P⁰^* longas. *Capsulce* 1-1^ poll, long©, £ poll, diam., utrinque attenuates, breviter pedicellato, striato, stylo T†~A P⁰^« longo.

A curious little species, of which the specimens are very incomplete, and in fruit only.—J. D. H.

B.—S. pugionifolius, *Hook.f. Fl Brit. Ind.* L c. 196; caule perbrevis compresso, foliis elongato-subulatis v, pugionifbrmibus acuminatis crasse coriaceis punctatis supra canaliculatis apicibus setiformibus, scapis axillaribus foliis brevioribus, floribus in rachim brevem bracteis squarroso-imbricatis dispositis, sepalis ovato-oblongis obtusis latere inferiore gibbis petalisque oblongis obtusis sti-amineis, labello albo aurantiaco maculato basi columnes inserto breviter unguiculato oblongo saccato truncato ore 3-lobo ciliato, intus bimaculato et carunculo parvo ciliato basin versus lobi medio instructo et basin versus disci scutula ciliata acuto.

HAB. Ceylon; at Varuniya, in the North Central Province, *Trimen.*

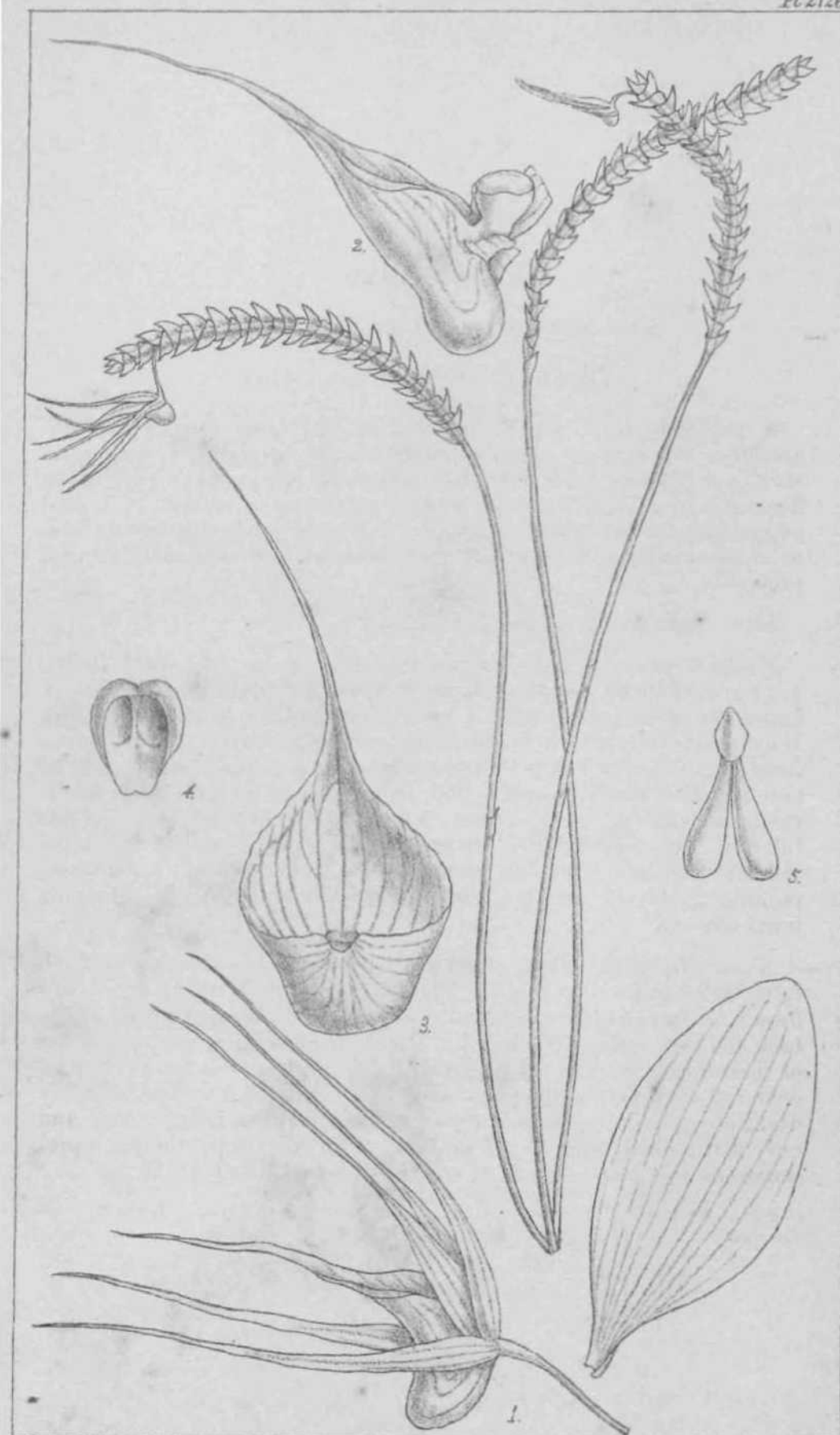
Caulis vaginis distiche imbricatis brnnneis tectus, radicans, apice paucifolius. *Folia* 1^2 poll, longa, supra profunde canaliculata, saturate viridia. *Bcapi* foliis paullo breviores, bracteas fa poll, longte. *Flores* % poll. diam.

The plate is from a drawing made in the Peradenya Botanical Garden by W. de Alwis, kindly communicated by Dr. Trimén.

Fig. 1. Front view of flower. 2. Column and lip. 3. Lip, laid open. 4. Column. 5. Pollinia. *All enlarged.*

SEE. iv. VOL. II. PAST I.

E



M.S. del. et lith.

Sarcophilus notabilis. Hkf.

PLATE 2120.

SARCOCHILTTS NOTABILIS, *Bool. f.*

ORCHIDEJE. Subtribe SARCANTHEJE.

S. notabilis, *TTooh. l. Fl. Brit. Lid. vi. 42*; caule brevi, foliis subsessilibus oblongis v. elliptico-oblongis, scapis gracillimis, floribus in raciim e bracteis arete distiche imbricatis compressam pectinatim dispositis gracile pedicellatis, sepalis petalisque consimilibus e basi anguste lanceolata 3-nervi in caudas filiformes producta, labello basi columnae sessili profunde saccato ore dilatato apice in caudam filiformem prod a cto.

HAB. Singapore, *Ridley*.

Caulis crassus, | poll, louses, foliosus. *Folia* 2-3[^] poll, longa, §-l.j- lata, distiche patentia, ob!usa v. apice 2-dentata, coriacea, supra cupreo-brunnea, juniora viridia marginibus cupreis, subtus pallidiora, *Scapi* axillares, solitarii v. fasciclati, brunnei, medio vagina parva instructi; racemus j-2 poll, longns, bractee J-[^]- poll, longee. *Flares* erecti, pedicello cum ovario £ poll, longo; sepala et petala fere pollicaria, aurantiaca, basin versus sanguineo tincta; label!urn pallide alvum, rubro-aurantiaco raarmoratum, apice caudiforrai albo. *Columna* brevissima, pallide flava; rostello 0; anthera ovata, depressa; pollinia 2, clavata, recurva, stipiti quadrato brevi sessilia, glandula brevi obovata.

A very beautiful plant, of which I am here able to give a much fuller description than that in 'The Flora of British India' which was drawn up from a single leaf and three flowering scapes joined at the base and obviously so produced. Mr. Ridley has, since the publication of that description and the preparation of this plate, sent me a beautiful coloured drawing of the plant with analyses, which differ from my description only in the solitary scapes, the raceme being young and only half an inch long, in the sac of the lip being deeper than is represented on this plate, and in its shorter filiform tip.—J. D. H.

Fig. 1. Flower. 2. Column and lip. 3. Lip. 4. Anther. 5. Pollinia. *MI* enlarged.



M.S.del ©ilth.

Aerides longicorruui, Hk.f.

BRIDES LONGICORNU, *Hook.f.*

ORCHIDEJE. Subtribe SARCANTHEÆ.

M. longicomu, *Hook. f. Fl. Brit. IntL* vi. 44; foliis elongatis teretibus gracilibus, pedunculo gracili paucifloro, pedicellis elongatis, bracteis minutis, Sepalis petalisque linearibus oblongis obtusis marginibus crispatis, labelli lobis lateralibus 2-partitis segmentis elongato-subulatis intermedio obcordato, calcar corniforme sepalis duplo longiore. Mesoclastes uniflorus, *Lindl. in Wall. Cat. No. 1993; Gen. et Sp. Orchid.* 45. *Luisia uniflora*, *Blume, Bumph.* iv. 50; *Mss. Bat.* i. 64. *Lindl. Ful. Orchid.*, *Luisia*, 3.

HAB. Nepal, *Wallich*; Naga Hills, in Upper Assam, alt. 5,500 feet, *C. B. Clarke*.

Caules cespitosi, penduli, flexuosi, laxifolii, diam. penne anserinse. *Folia* 6-8-pollicaria, canibus tenuiora, acuta. *Pedunculi* axillares, pollicares, pedicellis 2-pollicaribus. *Flares* ad 2, albi, 1 poll. lati. *Sepala et petala* 5-nervia, latitudine varia; petala breviora, sepiissime latiora. *Labellum* sepalis aequilongum, loborum lateralium segmenta falcato-decurva, lobo intermedio membranaceo subquadrilobum; calcar incurvatum, acutum. *Capsula* 2-pollicaris, anguste fusiformis, pedicello gracili.

In the absence of flowers, this interesting plant was very naturally placed in *Luisia* (from its terete leaves and long capsule) by Blume. Mr. Clarke's flowering specimen enabled me to refer it to its proper genus, where it consorts with two other terete-leaved species, viz. *L. vandarum*, *Reichb. f.* of the Eastern Himalaya and the Khasia Hills, and *L. cylindricum*, *Lindl.*, of the Malabar Ghats. The side lobes of the lip, divided into two long subulate decurved segments, and the long spur at once distinguish *M. longicomu* from the others. The fact of the peduncle being two-flowered obliges me to discard Lindley's specific name.—J. D. H.

Fig. 1. Flower. 2. Column. Both enlarged.



M.S.deLetjith.

Renanthera angustifolia, Hk.f.

PLATE 2128.

RENANTHERA ANGUSTIFOLIA, *Hook. f.*

ORCHIDEA: Subtribe SARCANTHEI.

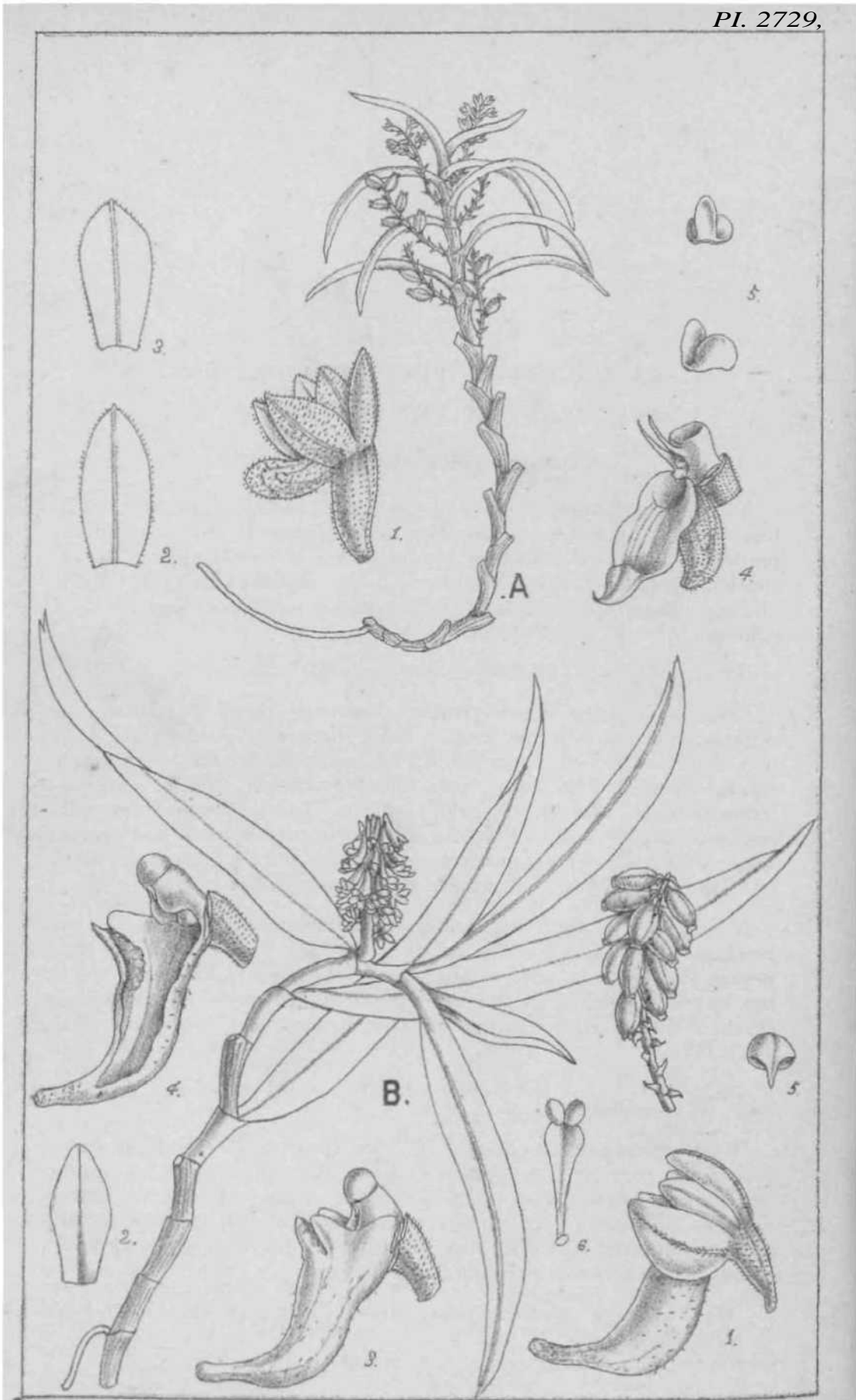
S. angustifolia, *Hook. f. Fl. Brit. Ind.* vi. 49; caule elongate flexuoso, foliis recurvis linearibus interne angustatis apice inaequaliter bilobis, panicula elongata laxiflora, floribus 1½ poll, diam., sepalis lanceolatis lateralibus unguiculatis, petalis angustioribus, labelli minuti lobis lateralibus acatis intermedio calcare infundibulari multo brevior recurvo, columnae apice hispidulo.

HAB. Malay Peninsula; Perak, on Gunong Batu Pateh, *Wray*.

Gardes crassitie penna anserines, striati. *Folia* 4-5 poll, longa, 1½-2 poll. lata. *Pedunculi* laterales, elongati, graciles, parce ramosi; bractee parvas; pedicelli graciles, unicum ovario pollicares. *Sepala* 7-nervia, acuta, dorsali sessili, lateralibus basi rotundatis, abrupte breviter unguiculatis. *Petala* sepalis roquilonga, sed angustiora. *Labellum* sepalis saepe minus, sacculum conicum ore 3-lobis lobis lateralibus 2-dentatis, intermedio linguiformi. *Columna* brevis, crassa, apice bidentata et annulo pilorum instructa; anthera ovoidea, truncata; pollinia oblonga, majuscula, integra, stipite brevi lata, glandula ovata.

Near *R. elongata*, Lindl., of the Malayan Peninsula and Islands, but the flowers are very much smaller, and the spur very small.—J. D. H.

Fig. 1. Flower. 2. Front; and 3, side view of column and lip. 4. Anther. 3. Pollinia. *All enlarged.*



Jf.S-deletltli.

A. *Saccolabium pernisillum*. Hk.f.
 B. _____ . *peiiiaigaiuum*. Hk.f

PLATE 2129.

A.—SACCOLABIUM PERPUSILLUM, *Hook.f.*

B.—SACCOLABIUM PENANGIANUM, *Hook.f.*

ORCHIDEA; Subtribe SARCANTHEA.

A.—*S. perpusillum*, *Hook f. FL Brit. Ind.* vi. 56; parvulum, caulibus curvulis, foliis recurvis teretibus acutis, racemis erectis sessilibus multifloris, bracteis subnatis persistentibus, floribus minutis pubescentibus, sepalis ovato-oblongis, petalis obovato-oblongis, labello oblongo integro apice incrassato acuto, calcare sepalis aequilongo inflato, columna apice longe bicalcarata.

HAB. Singapore; at Sangei Buloh, *Ridley*.

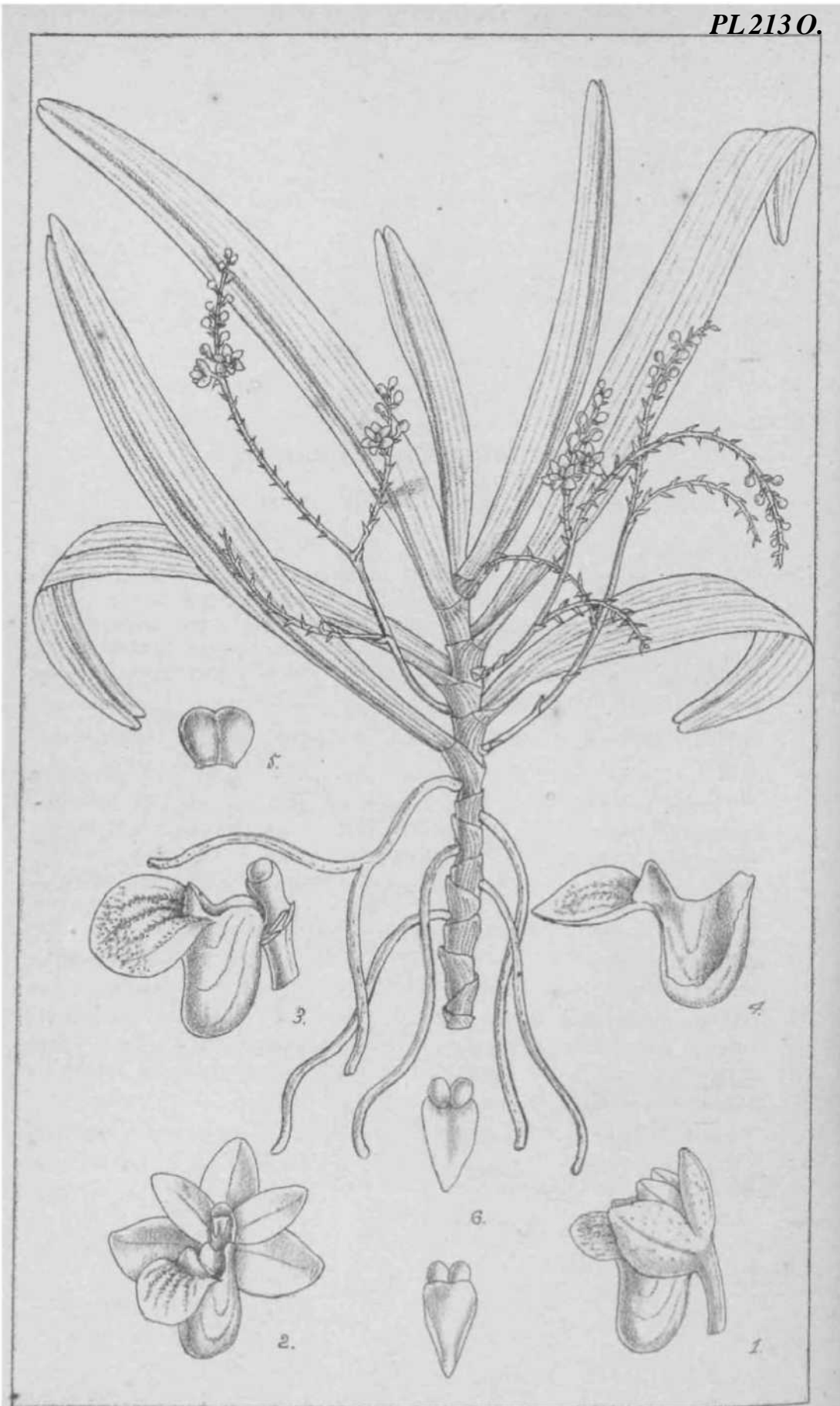
Ovules 3-5 poll., crassitie penne passerinse, rigidi, vaginis rigidis striatis truncatis foliorum tecti. *Folia* disticha v. subsecunda, 3-1 poll., longa. *llacemi* oppositifolii. foliis breviores, multiflori, rachis rigida; flores $\frac{1}{2}$ poll. diam.; pedicellis brevissimis. *Sepala* 1-nervia, lateralia acuta. *Petala* puberula, 1-nervia. *Labellum* angustum, callo erasso postice truncato v. cordato apice incurvo acuminato instructum; calcare incurvo, obtuso, puberulo. *Columna* brevis, cornubus erectis brevior. *Capitulum* $\frac{1}{2}$ poll., longce, erectce, ellipsoideo.

A very curious diminutive species, farther remarkable for the appendage terminating the lip, and the very long horns of the column, if such they are and not rostellar arms. I failed to find any calli in the spur, but, owing to the minuteness of the parts and shrinkage through drying, the analysis of the flowers was very difficult.—*D. H.*

A. Fig. 1. Flower. 2. Dorsal sepal. 3. Petal. 4. Column and lip. 5. Anther-case. All greatly enlarged.

B.—*S. penangianum*, *Hook.f. Fl. Brit. Ind.* vi. 57; caulibus brevibus, foliis anguste lineari-lanceolatis acutis carinatis infra apicem unidentatis, racemo brevi erecto densifloro crasse pedunculato, floribus deflexis puberulis, sepalis lateralibus late ovatis obtusis, petalis oblongis obtusis, labelli lamina brevissima 3-fida, calcare conico subinflato abrupte incurvo sepalis duplo longiore.

HAB. Penang; on tilio Sonkry River, *Curtis*; Perak, *Kuustler* (in *Herb. Calcutt.*).



KS.deletlith.

Saccolabium Helferi. Hkii.

PLATE 2130.

SACCOLABIUM HELFERI, *Hook.f.*

OBCHIDE[^]. Subtribe SARCANTHEJL

8. Helfer, *Hook.f. Fl. Brit. Ind.* vi. 57 ; caulibus brevibus radican-
tibus, foliis loriformibus apice angustatis obtuse 2-lobis, paniculis
gracilibus pedunculatis foliis brevioribus laxe ramosis, ramis curvis
multifloris, floribus parvulis, sepalis orbiculari-ovatis obtusis, petalis
minoribus oblongis obtusis, labelli lobis lateralibus dentiformibus
terminali orbiculari-reniforme integro, calcare sacciformi sepalis
paullo longiore ore amplo.

HAB. Tenasserim; at Moulmein and the Mergui Archipelago,
Eelfer, Griffith, Parish.

Caules 1-3-pollicares, crassitie penne anatinae, vaginis brevibus
striatis foliorum tecti. *Folia* 2[^]-3[^] poll, longa, | | poll, lata, rigida.
Paniculae rami saepe curvi; bracterae minutae, persistentes, patulae;
flores subsessiles, 1/2 poll, diam., vix pubescentes. *Petala* et *sepalum* 1-
nervia. *Labelli* lamina calcare brevior; lobi laterales erecti, basi connati.
Columna brevissima, ecornuta; anthera subdidyma, truncata; pollinia
minuta, subglobosa, apice stipitis magni obovati sessilia, glandula . . . ?

I am doubtful as to the real nature of what I have described as the
minute lateral lobes of the lip ; which, as represented at fig. 2, some-
times appeared as if connate into a callus, representing the callus
within the spur of other species.—J. D. H.

Fig. 1. Side; and 2, front view of flower. 3. Lip and column. 4. Longitudinal
section of lip. 5. Anther-case. 6. Pollinia. *All enlarged.*



M. S. del et lith.

Saccolabium flavuin, Hk.f

PLATE 2131.

SACCOLABIUM FLAVUM, *Hook.*

ORCHIDEAE. Subtribe SARCANTHEAE.

S. flavum, *Hook. f. Fl. Brit. Lid.* vi. 58; caule brevi robusto, folia approximates Joriformibus apice late inasqualiter bitidis lulis acutis sinuque acutis, vaginis brevibus, racemo gracili gracile pedunculato laxifloro, bracteis minutis, pedicellis gracilibus, floribus parvulis, sepalis oblongis, labelli lobis lateralibus calcar magnum infundibulare marginantibus subquadratis erosis, terminali obsolete, columna brevi crassa.

HAB. Tenasserim ; at Moulmein, *Parish.*

Oculis 6-pollicaris, crassitie penned olorinea. *Folia* dUtioha, 4-5 poll, longa, | poll, lata, patula, viridia, nervis saturationibus striata, lobis terminilibus £-§ poll, longis, cuspidate interdum interposito ; vaginis £-£ poll, longis, sinuatis. *Uracemus* supra folia ortus, 3[^]-pollicaris, decurvus; pedunculo 1[^]-pollicari 2-vaginato, pedicellis utiacum ovario £ poll, longis; flores \ poll, diam., pallide flavi. *sepala* 1-nervia, dorsale fornicatum ; petala subspathulata, 1-nervia *Labellum* unicum calcar sepalis duplo longius, ore lato, inter lobos laterales truncatum, intus nudam. *Columna* latior quam longa, rostello magno ut videtur carnosio; anthera acuminata; pollinia 8, per paria stipitata, stipitellibus basi in unum infra apicem stipitis gracillimi elongati flexuosi insertum connatis; glandula minuta.

The plate here given is the reproduction of a coloured drawing by the Rev. G. Parish. It resembles in many respects *Sarcanthus Parishii*, *Hook.* (*Bot. Mag.* t. 5217), in habit, in the lobate bifid leaves, yellow flowers, spur, and especially the curious pollen; but in that plant the leaf-lobes are rounded, the flowers are larger, the spur shorter, there is a distinct midlobe to the lip, the column is longer and narrower, and the spur is septate below the middle, and has a large dorsal callus, thus referring it to the genus *Sarcanthus*. Were it not that Mr. Parish notes that 'there is no apparent septum in the spur,' I should have regarded these two plants as congeneric. The singular structure of the pollinia is repeated with modifications in *Saccolabium obtusifolium* and *acuminatum* (Plates 2134, 2135), but it is carried (according to Parish's drawing), as it were, further in *S. flavum*, for each pollen-mass is broken up into a pair, each pair has a short stipes, and these unite into a common one that is inserted in the very long slender flat flexuous main stipes. I need scarcely add that I regard the genus *Sarcanthus* as separated from *Saccolabium* by a purely artificial character; and that a reclassification of the species of both, together with those of *Cleisostoma*, is to be looked for when better materials are available.—J. D. H.

Fig. 1. Flower. 2. Column and upper portion of lip. 3. Pollinia. *All enlarged.* (From drawing by the Rev. C. Parish.)



M.S. del. et lith.

Saccolatmim rostella Uira, Hk.f.

PLATE 2132.

SACCOLABIUM ROSTELLATUM, *Hookf.*

ORCHIDEA. Subtribe SARCANTHEJE.

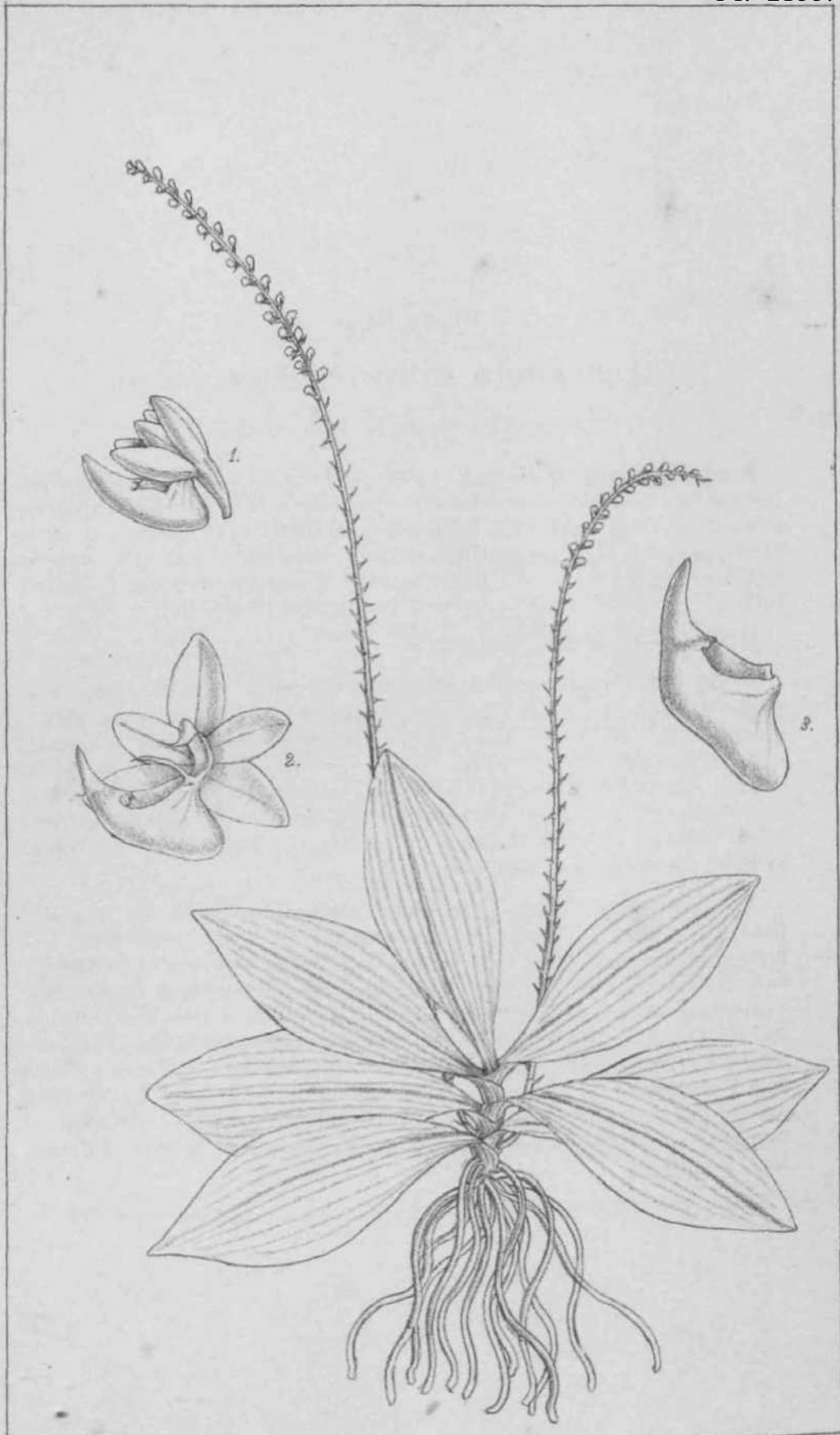
8. *rostellatum*, *Hook. f. Fl. Brit. 2nd. vi. 59*; caule perbrevis, foliis loriformibus planis striatis apice inaequaliter bifidis sinuato, racemum foliis multo brevioribus laxifloro, bracteis floribusque minutis, sepalis late oblongis obtusis, petalis paulo minoribus, labelli lobis lateralibus calcar marginantibus brevibus latius, terminali parvo ovato incurvo obtuso, calcar sepalis duplo longiore superne infundibulari, inferne in cornu producto.

HAB. Sikkim Himalaya; at Darjeeling, alt. 7,000 feet, *Qamble (in Serb. Calcutt.)*.

Gaulis vix pollicaris, radices confertis elongatis planis torquosis. *Folia* 4-7 poll, longa, 1/2-3/4 poll. Jata, fere recta, costata; vaginis 1/2-3/4 poll, longis. *Racemus* cum pedunculo 8-10-floro 2-uncialis, gracilis; flore 3/4 poll, longi (calcar incluso). *Sepala* et *petala* 3-5-nerviata. *Columna* parva, rostello erecto prominulo; pollinia 2-loba, majuscula, apice stipitis angustioris deorsum sensim attenuati sessilia; glandula minutissima.

The specimens of this very distinct species were hardly sufficient for a good description.—J. D. H.

Fig. 1. Flower, *nat. size*. 2. Flower. 3. Dorsal sepal, spur, and column. 4. **enlarged*. 5. Pollinia. *All enlarged*,



M.S. del. et lith.

Saccabium iniuniif lorum, Kk.f.

PLATE 2133.

SACCOLABIUM MINIMIFLORUM, *Booh. f.*

ORCKIDEM. Subtribe SABCANTHEJS.

S. minimiflorum, *fl. oofc. J. Fl. Brit. Ind.* vi. 59; caule brevissimo, foliis elliptico-ovatis - lanceolatisve trinquo acutis, racemis elongatis fraxillimis foliis multoties longioribus multifloris, bracteis subulatis flores minutos fere sequantibus, sepalis petalisque oblongis obtusis, jabello calcariforme sepalis longiore, basi in sacculu obtusum (calcare) instructuni antice in cornu breve ascendentem producto.

HAB. Perak, *Father Scortechini*.

Caulis 1-poll. basi radicibus fasciculatis copiose instructus, paucifolius. *Folia* 1-2 poll. longa, patula, tenniter coriacea, piana, costa tenui. *Scapi* ad basin fere bracteis peristentibus instructi, unacum racemo 2-6-poll. longis; bracteis patulis; flores ad 1 poll. lati. *Sepala* et *petala* (minora) 1-nervia. *Labelli* lobi laterales 0; terminale cornu a latere compressum simlans; ore majusculo intus callo globoso instructo. *Columna* mediocris, basi calcare elongata armata; anthera longe rostrata.

A very curious species, quite unlike any other known to me, probably pendulous in habit. The specimens are very indifferent, but fortunately accompanied by a sketch with rude analysis and a description by its discoverer. The latter and an examination of the few available flowers enabled me to draw up the above description. Father Scortechini describes in the flower 'a something membranous, whitish, which I cannot make out whether it is a rostellum or a stipes;' and this I assume to be the spur-like body which is seen in fig. 2 projecting over the mouth of the lip, and as to the nature of which I can offer no opinion. Probably in fresh specimens it may be of a very different form.—J. D. H.

•Fig. 1. Side view; and 2, front view of flower. 3. Lip. *MI greatly enlarged.*



ICS.WLeilith.

Saccolabium obtusifolium, Hk.f.

PLATE 2134.

SACCOLABIUM OBTUSIFOLIUM, *Hook. f.*

ORGHIDEJ.: Sabtribe SARCANTHE*.

S. obtusifolium, *Hook. f. FL Brit. Ind.* vi. 65; caule brevi robusto, foliis late loratis apicq̄ profunde bifidis lobis rotundatis, rachem elongato multiloro, bracteis ovatis acatis reflexis, sepalis peltatisq̄ne ohlous obtusis concavis, labello cymbiformi v. infundibulari in calcar incurvum apice clavatum producto, lobis lateralibus 0, terminali parvo reniforme basi callo instructo. Uncifera obtusifolia, *Lindl. in Journ. Linn. Soc.* iii. 40.

HAB. Sikkim Himalaya, alt. 5,000 feet, *Clarke*; Bhotan, *Col Lister*; Khasia Hills, alt. 4,000 feet, *J. D. H.* and *T. Thomson*.

Caules 2-4-pollicares, crassitie pence anserinae, radicibus elongatis. *Folia* 4-6-pollicaria, J-1 poll, lata, plana, crasse coriacea; vaginro i-[^] poll. long89. *Scapi* infra folia orti, unacum racemis 4-5-pollicares, bracteaB majusculeB, persistentes; pedicellis unacum ovariiis J poll, longis; flores \ poll, iam., virescentes, demum straminei. *Sepala* et *petala* 3-nervia. *Labellum* unacum calcare sepalis subduplo longius. *Columna* brevis, rostello parvulo; anthera tumida, longe rostrata; pollinia 2. parva, infra apicem late cordatam v. bialatam stipitis magni basi angustati stipitellata, glandula elongato-lanceolata.

The singular pollinia of this and the following species induced Lindley to refer them to a genus apart, which he designated *Uncifera*. This he assuredly would not have done had he been aware of the nature of the pollinia of *S. flavum* (Plate 2131), of *Sarcanthus Parishii*, and of probably other allied plants. It is indeed a singular fact that in the tribe *Sarcanthece* the pollen and its appendages, whilst offering a maximum amount of variety in structure, seem to be of no avail for the purpose of classification.—J. D. U.

Fig. 1. Side view; and 2, front view of flower. 3. Apex of lip, with midlobe and callus. 4. Anther. 5 and 6. Pollinia. *Magnified.*



M.S. del. et lith.

Saccolabium acurrantuia Hkf.

PLATE 2135.

SACCOLABIUM ACUMINATUM, *Hook.f.*

ORCHIDEJE. Subtribe SARCANTHEA.

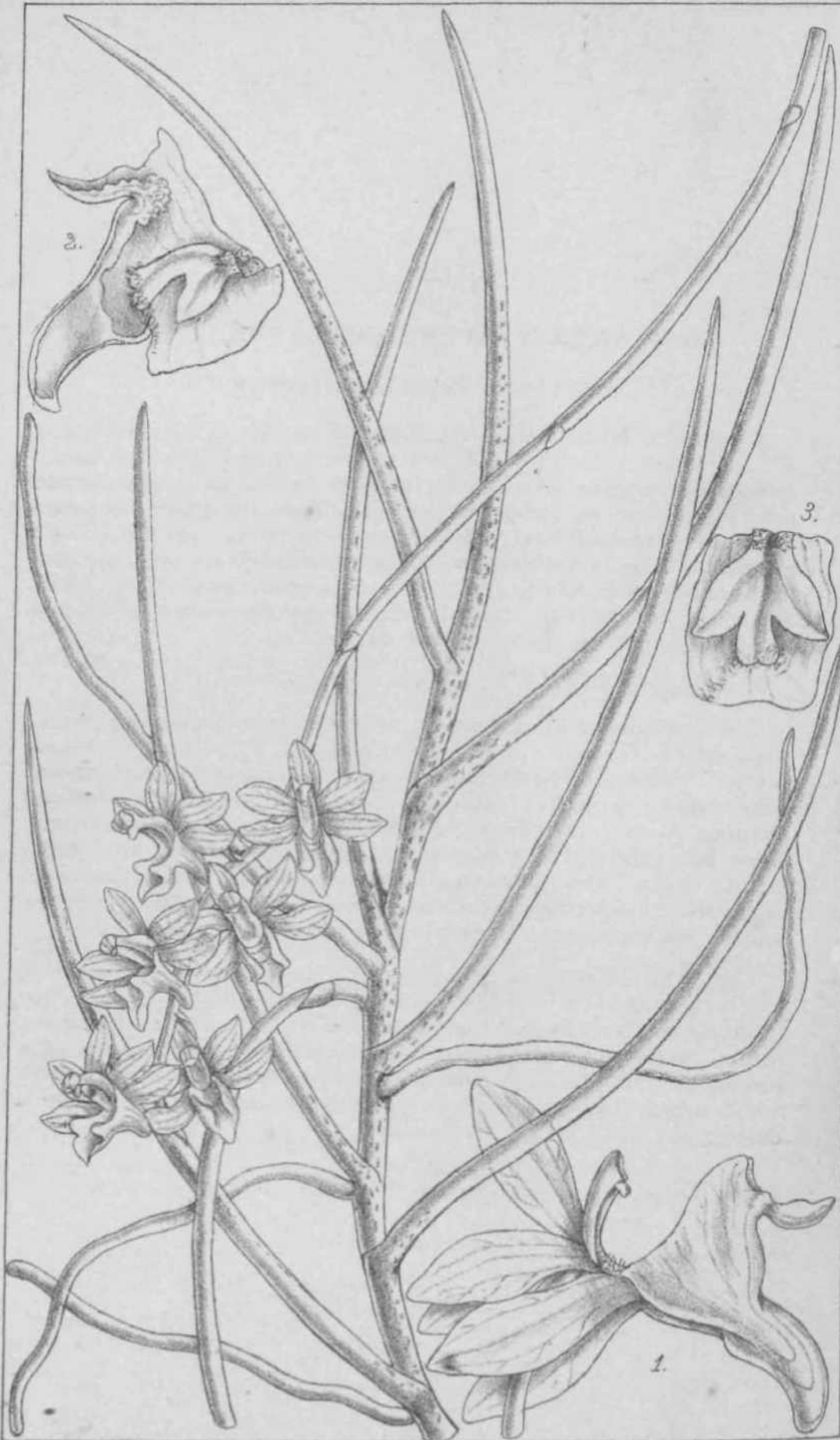
S. acuminatum, *Hook. f. Fl. Brit. Ind. vi. 65*; foliis lineari- v. oblongo-lanceolatis obliquae acuminatis, racemis foliis brevioribus, bracteis minutis, sepalis lateralibus orbiculari-ovatis, petalis obovatis, labello infundibulari in calcar incurvum producto, lobis lateralibus obscuris, terminali brevi ovoideo carnosio. *Cyclophragma acuminata*, *Lindl. in Journ. Linn. Soc. iii. 40*.

HAB. Sikkim Himalaya, alt. 6,000-7,000 feet, *Gamble*; Khasia Hills common, *Griffith*, etc.

Caules quam in *S. obtusifolium* graciliores; sed folia breviora, 2-3 poll, longa, utrinque angustata, non biloba sed nno latere ultra alterum producto et acuto, pedunculi et racemi breviores, sepala latiora et petala dissimilia.

I find little difference between the pollinia and its appendages in this and in *S. obtusifolium*. In both, the lip varies a good deal in form, and in the length and curvature of the spur.—J. D. H.

Fig. 1. Flower. 2. Lip. 3. Front view of column and anther with the rostellar arms spread out. 4. Side view of the same. 5. Anther. 6. Pollinia. *All enlarged.*



11S dd etlith.

Sarcanthus appendiculatus Hk f.

PLATE 2136.

SARCANTHUS APPENDICULATUS, *Hookf.*

ORCHIDEAE. Subtribe SARCANTHEAE.

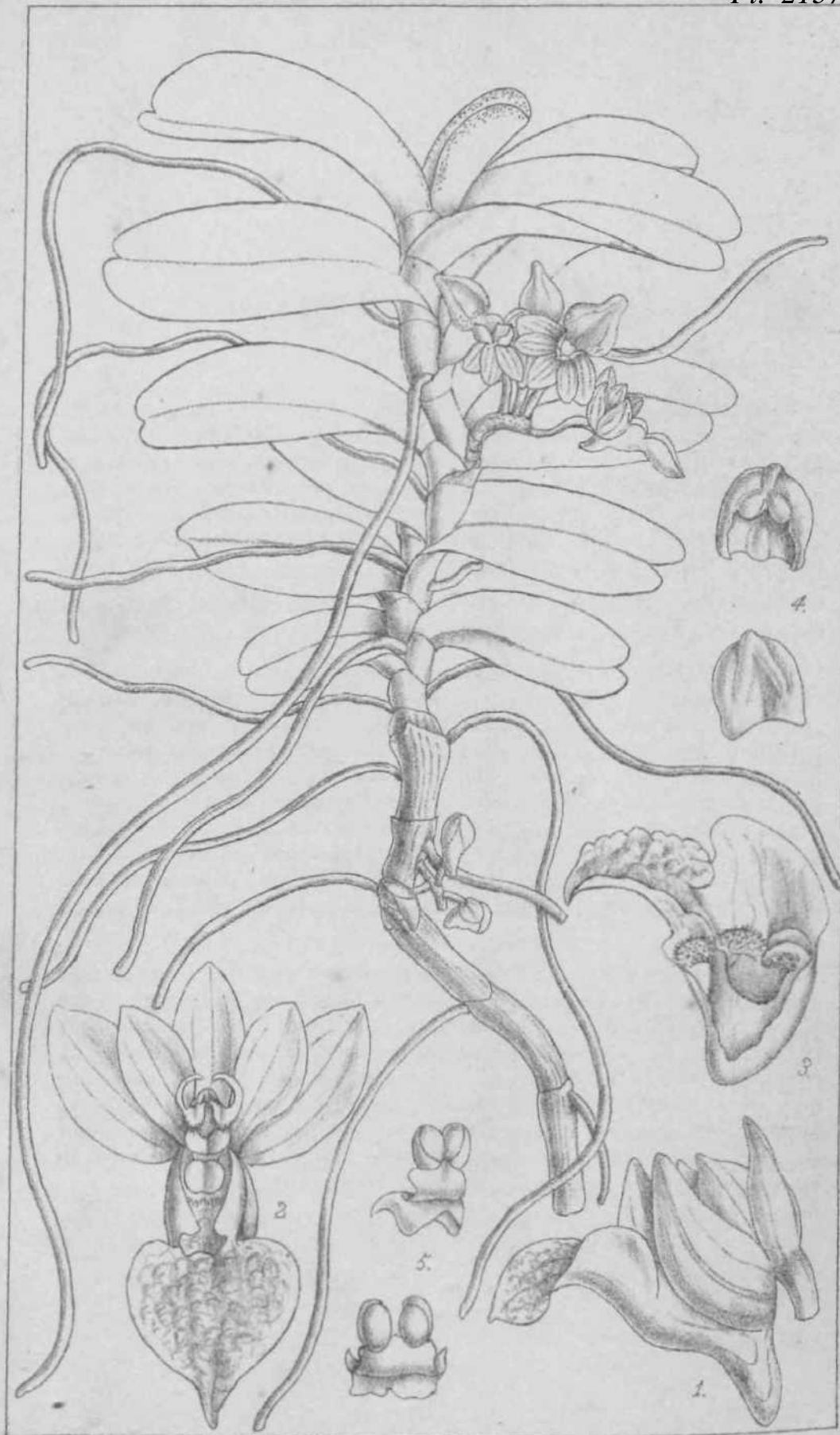
S. appendiculatus, *Hook. f. Fl. Brit. Ind. vi. 67*; caulibus elongatis, foliis elongatis cylindraceis obtusis acutisve, racemis brevibus paucifloris longe pedunculatis, sepalis oblongo-lanceolatis acutis, petalis consimilibus sed minoribus, labello infundibulari a latere compresso in calcar subcylindricum obtusum lente recurvum producto, lobis lateralibus triangularibus, terminali parvo oblongo concavo, columna parvula basi antice pubescente. *S. teretifolius*, *Eichb. f. in Tram. Linn. Soc. xxx. 136* (non *Lindl.*). *Erides appendiculatum*, *Wall. Oat. n. 7315. Lindl. Gen. et Sp. Orchid. 242.*

HAB. Tavoy, *Wallich*; Tenasserim, *Griffith, Parish.*

Caulis pedalis et ultra, crassitie penne anserinae v. anserinae, maculatus, radices validas emittens. *Folia* 3-5 poll., longa, crassitie pennae anserinae, curva. *Scapus* foliis longior, flexuosus, vaginis paucis abbreviatis instructus; racemi 1-2-pollicares, 6-8-flori; bractee minutae; flores 1 poll. diam. *Petala* et *sepala* reflexa, flavo-viridia, 3-nervia et subreticulatim venulosa. *Labellum* roseum, calcar inferne septato, callo infra columnam gracilem magno lobato, callo ad basin labelli lobi terminalis tumido rugoso. *Columna* incurva; anthera brevis; pollinia magna, stipite lato triangulari-ovato.

This, which Reichenbach referred to the Chinese *S. teretifolius*, differs conspicuously from that plant in the longer leaves, much longer peduncle, in the cylindrical spur at the base of the funnel-shaped lip, and in the longer slender column. The plate is a reproduction of a drawing by Mr. Parish, in which the flowers are represented as very much larger than in his dried specimen, where they are hardly a quarter of an inch broad.—J. D. H.

Fig. 1. Flower. 2. Lip laid open, showing the dorsal and ventral calli of the lip, and the vertical septum of the spur. 3. The ventral callus. *All enlarged.*



M.SdeLetlull

Sarcantius insectifer, Reicfb.f.

PLATK 2137.

SARCANTHUS IBTSECTIPBE, *Reichb.f.*

ORCHIDEE. Sabtribe SAKCAXTHEJS.

8. insectifer, *Reichb. f. in Bot. Zeit.* 1857, 159; caule robusto flexuoso scandente, foliis amplexicaulibus oblongis obtuse 2-lobis, racemis breviter pedunculatis paucifloris, sepalis ovato-oblongis obtusis v. subacutis, petalis oblongis, kbello late infundibulari ore annulo villosio ciucto in calcar conicnm attenuate, lobis lateralibus brevibns, terminali sepalis majore triangulari-ovato v. cordato sub apice attenuate carnosio. *Hook.f. FL Brit Ltd.* vi. 68.

HAB. Behar (Western Bengal), /. *B. H.*; Cachar, *Mann* Chittagong (ic. in *Herb. Calcutt.*); Tenasserim, *Parish*

*Caule*8 pedales et ultra, crassitie pennic anatinae, flexuosi, radices elongatas undique proferentes. *Folia* crebra, fere imbricata, distiche patentia, 1[^]-2 poll, longa, rjgide coriacea. *Racemi* subsessiles, foliis multoties breviores, 3v-5-flores, pedunculo rachique ci*asso decurvo; bractero minutee, deciduflB; florea ^ poll. lati. *Sepala* et *pttala* 3-nervia, flavo.-viridia, rutb striat-a. *Labdlum* albo-roseum. v. purpuroum, ore amplo, callo basi lubi terminalis crasso, infra columnam niaguo 2-fido; calcare septate. *Columna* brevissima, laba, rostellis ? brachiis elongatis incurvis; anthora hemispherica; polJinia sulcata, stipite brevi quadrate latiore quam longa, sessilia, glandula niagna niembranacea.

The plate here given is taken from a portrait of a fine mass of this species, attached to the bark of a billet of wood, which belongs to the Calcutta Herbarium, and is marked as having been procured at Chittagong. It represents a much larger state of the plant than that which I found in Behar, and of which the leaves were only about an inch long; the lip is larger than in any of the specimens I have -examined, and in which I have not been able to determine the nature of the two hornlike processes projecting from the column represented in fig. 2, and which I assume are the two arms of the rostellum.

Fig. 1. Side view; and 2, front view of flower. 3. Lip, cut open, showing the septum. 4. Front and buck viom* of antiior. 5. Two views of pulliua., All enlarged.



li.S.deLetlith.

Saxcantius Scortechinn, Bk.f.

PLATE 2138.

SARCANTHUS SCORTECHINII, *Hook. f.*

ORCHIDÆ. Subscribe SARCANTHEJI.

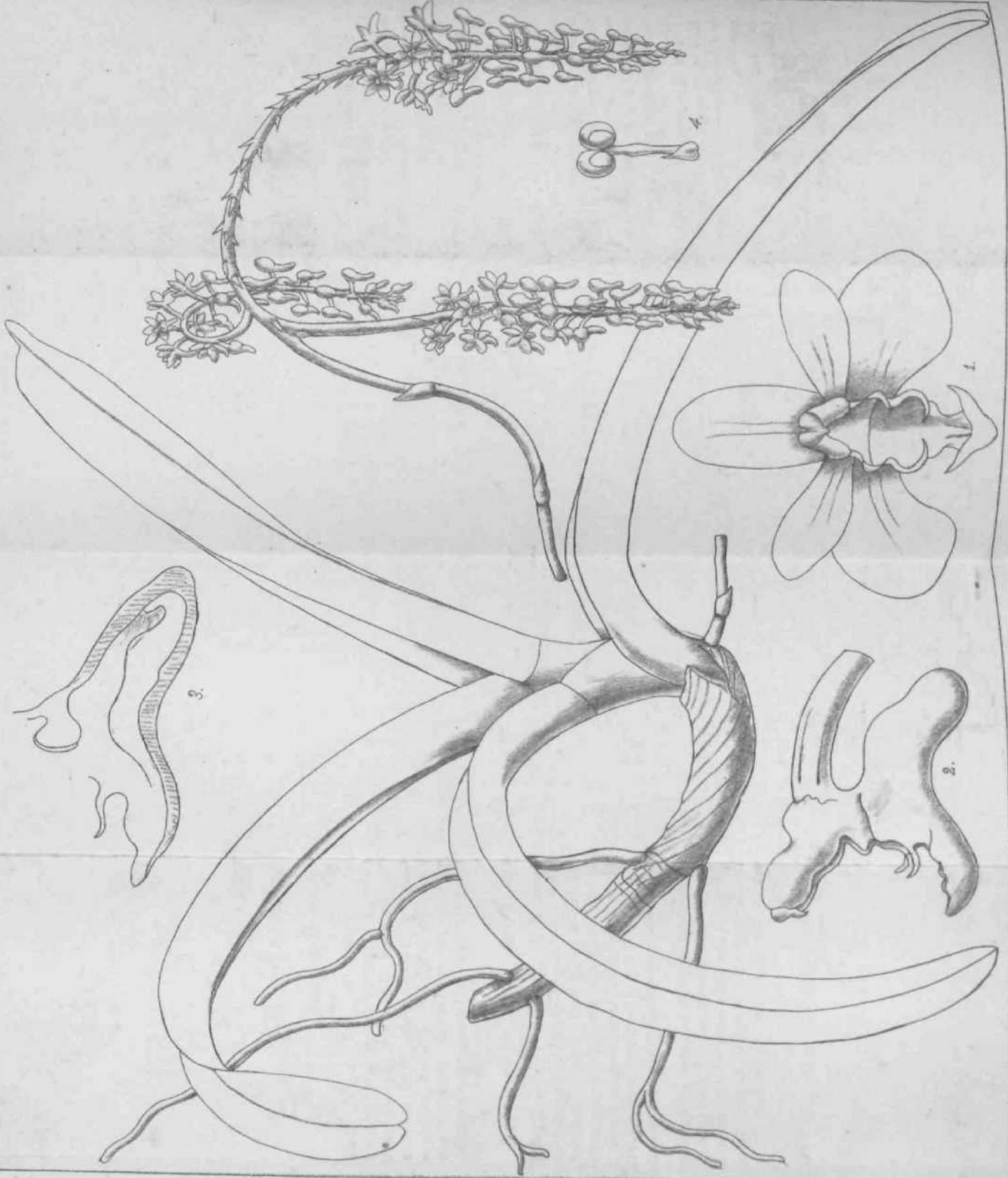
8. **Scortechinii**, *Book. f. FL Brit. Ind.* vi. 68; caule elongato robusto, foliis elliptico-lanceolatis apiculatis basi angustatis fere petiolatis crasse coriaceis, racemis erectis folia cequantibus breviter pedunculatis multifloris, rachi valida, bracteis ovario eequilongis, floribus parvis, sepalis petalisque oblongis, labello infundibulari basi in calcar conico-cylindraceum obtusum producto, lobis lateralibus dentiformibus v. obsoletis, lutermedio parvo deltoid eo erecto obtuso.

HAB. Malayan Peninsula; at Perak, *Father Scortechini, Wray.*

Caulis crassitie penne anserinee. *Folia* 3-5 poll, longa, 1-1½ poll, lata, crasse coriacea, subtns costata, costa excurrente apiculata. *Racemi* oppositifolii; flores ½ poll. lati. *Sepala* et *petali* 1-nervia, sordide purpurea, marginibus coraque purpureis. *Labellum* sepalis longius, ore amplo, callo dorsali crasso, antico puberulo, calcare infra medium ^{reptato.} *Columna* brevis; anthera longe rostrata; pollinia biloba, apice stipitis anguste linearis sessilia, glandula minuta.

I have seen only fruiting specimens of this species, the flowers and analysis of which are from a drawing by Scortechini.—J. D. H.

^{Fig.} 1. Flower. 2. Lip, laid open, showing the calli and position of the septum. 3. 4. Column. 5. Anther-case. 6. Pollinia. *M enlarged.*



Sarcanthus lorifolius, Parish.

PLATE 2139.

SARCANTHUS LOBIFOLIUS, *Parish.*

ORCHIDÆ. Subtribe SARCAHTHEJ.

S. lorifolius, *Parish mss. in Hook. f. Fl. Brit. Ind.* vi. 60; caule brevi crasso paucifoliato, foliis elongatis linearibus recurvis crassis canaliculatis carinatis obtusis v. breviter 2-lobis, scapo elongato flexuoso parce ramoso, ramis spicas multifloras gerentibus, bracteis reflexis, floribus parvis, sepalis lateralibus late obovatis petalis oblongo-obovatis multo latioribus, labello in calcar crassum subincurvum sepalis longius apice rotundarum producto, lobis lateralibus subulatis, intermedio parvo ovato concavo.

HAB. Tenasserim -, at Moulmein, *Parish.*

Qaulis crassitie fere digiti. minimi, 2-3-pollicaris. *Folia* 4-5-pollicaria, 1-2 poll., lata; *Vagina* brevi. *Pedunculus* 4-pollicaris; *Tacemi* 3-4-pollicares, decurvi, rachii valida; *flores* 1-2 poll. lati. *Sepala et petala* flava, rubro irrorata. *Labeum* album, lamella longitudinali Bemiseptatum; callo infra columnam 2-lobo. *Columna* brevis, crassa; *anthera* late ovata; *pollinia* globosa didjma, altero conjunctis massis multo minore, apice stipitis angusti sessilia, glandula ovata acuminata.

The accompanying plate is from an excellent drawing by the Rev. C. Parish made at Moulmein. The nearest ally of the species is *Glossostoma bipunctatum*, Lindl., in which the side-lobes of the lip are rounded, and the spur suddenly inflated and lobulate at the base, besides wanting the septum which distinguishes *Sarcanthus* from *Glossostoma*.—3. D. H.

IV 1. Flower. 2. Lip and column. 3. Section of lip, showing the dorsal callus and longitudinal septum. 4. Pollinia. *All enlarged.*



Cleisostoma andamanicum, Hk.f.

M.S. del. et lith.

PLATE 2140.

CLEISOSTOMA ANDAMANICUM, *Hovh. f.*

*

ORCHIDEA. Subtribe SARCANTHEAS.

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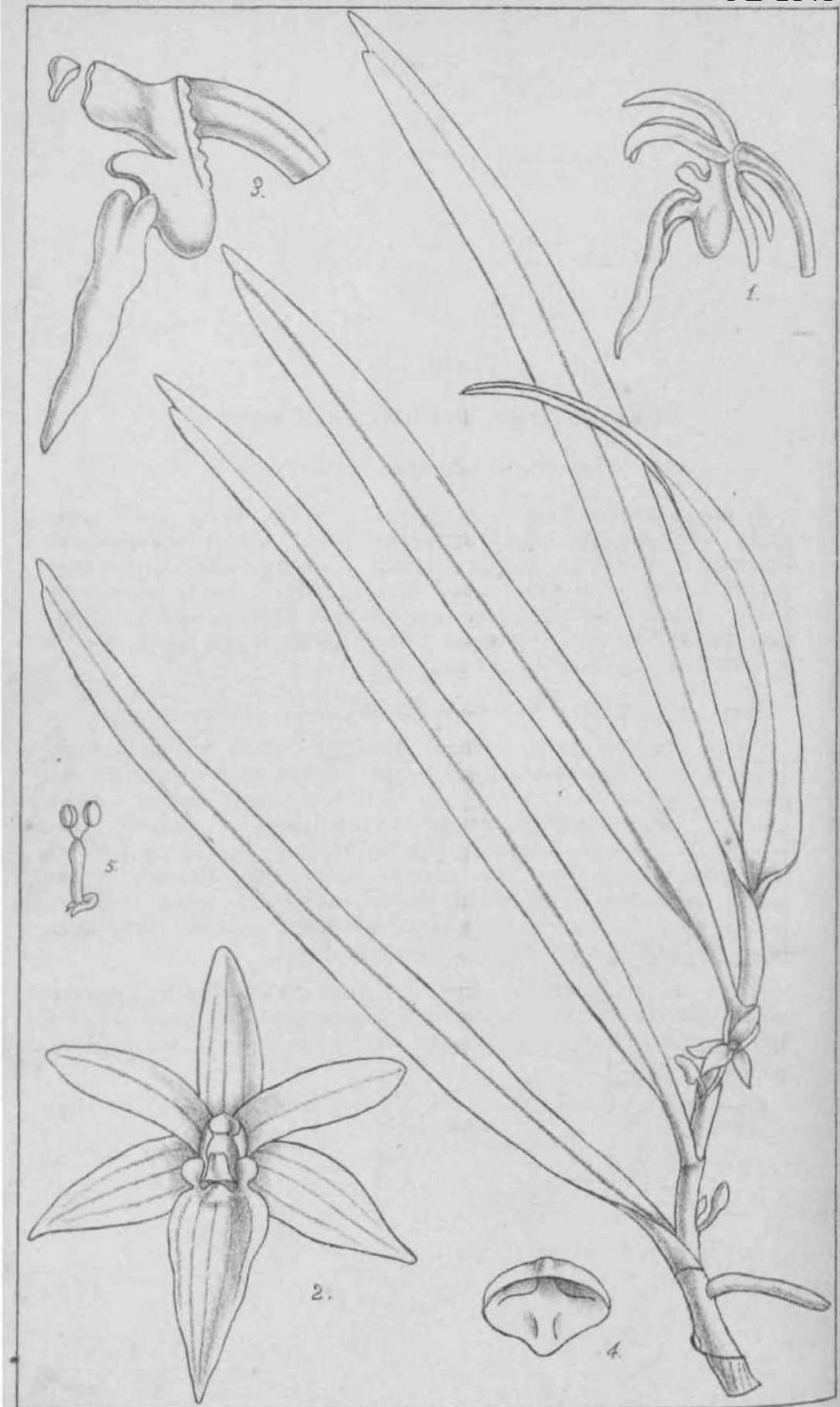
C. andamanicum, *Hook. -/ Fl. Brit. Ind.* vi. 71; caudice robusto elongato, foliis loratis 2-lobis crasse coriaceis, vaginis brevibus, pedunculis elongatis parce ramosis, ramis apice floriferis, bracteis minutis, bracteis oblongis v. obovato-oblongis obtusis, labelli lobis lateralibus truncatis intermedio brevi late cordato v. reniformi apice rotundato, calcaribus cylindraceo inferne subinflato sepalis dimidio longioribus.

HAB. South Andaman Islands, *Kicrz.*

Caulis crassitie pennae anatiniae v. anserinae, radices elongatas infra folia emittentes. *Folia* 4-G poll, long a, 1-J poll, lata, patenti-recurva, costata, lobis rotundatis. *Fedunculi* rigidj, crassitie pennae corvinae, erecto-patentes, vaginis basi annularibus, ramis paucis divaricatis, racemis pollicaribus densifloris; flores 1 poll, diam., pedicellis unicum ovario 1-pollicaribus. *Sepala* et *petala* 3-nervia, flavo-viridia, fascia intramarginali purpurea. *Labellum* flavum, calcaribus rubro maculato, callo infra columnam ligulato retuso, infra lobum terminalem bicurvi. *Columna* brevissima rostello magno porrecto; anthera acuminata v. subrostrata; pollinia parva, ellipsoidea, apice stipitis angustis sessilibus, glandula parva.

Closely allied to the Malayan *G. lalifolium* (of which it may be a slender state), but not nearly so stout, and with much larger flowers.—
J. D. H.

Fig. 1. Side view; and 2» front view of flower. 3. Lip, laid open. 4. Column.
o. Pollinia. *All enlarged.*



M. S. del. et lith.

Cl. eisostoraabipvi TL Ctatuiu, Hk.f.

PLATE 2141.

CLEISOSTOMA BIPUNCTATUM, *Book. f.*

ORCHIDÆ. Subtribe SARCANTHEJE.

C. bipunctatum, *Hook. / Fl. Brit. bid. vi. 73*; canle gracili scandente, foliis angusto linearibus, apice oblique 2-dentatis, pedunculo brevissimo paucifloro, sepalis lateralibus oblongo-lanceolatis acutis, petalis sepalis aequilongis lineari-oblongis obtusis, labelli lobis lateralibus oblongis obtusis intermedio elongato ovato-lanceolato calcaris hemispherico multoties longiore. Saccolabium bipunctatum, *Var. et Ueichb.f. in Trans. Linn. Son. xxx. 245.*

HAB. TeDasserim; Moulmeio, *Pa/risk.*

Caulis crassitie peniisB anati*D8B, flexuosus. *Folia* 4-6 poll, longa, 5-8 poll, lata, crassiuscula, costa valida. *Floret* cauli intra folia fere fiesailia, bracteis minutis, ad \ poll, lati, flavi v. sabparpnrrei. *Sepala* 3-nervia, dorsali oblongo obtuso. *Petala* 1-nervia. *Labelli* lobum intermediam sepalis longius, pendulnm, plan am, marginibus recurvis, 3-5-nerve, album, basi callo tumido instructum; lateralia obtusa, erecta; squama infra column am liguliformis erecta, erosa. *Columna* brevissima; anthera depresso-hemispherica; pollinia subgloboaa, bipartita, stipiti lineari affixa, glandula mediocri.

The materials for the accompanying plate are supplied by a drawing of Mr. Parish's and very imperfect specimens. The name refers to the two spots on the flower due to the lateral lobes of the lip being purple.—J. D. H.

Fig- 1. Side View; and 2, front view of flower. 3. Lip, column, and anther. 4. Anther-case. 5. Pollinia. *All enlarged.*



MIS.deLetliih.

Cleisostoma brevipes, Hk.f.

PLATE 2142.

CLEISOSTOMA BREVIPES, *ITook.f.*

ORCHIDEE. Subtribe SARCANTHEJB.

»

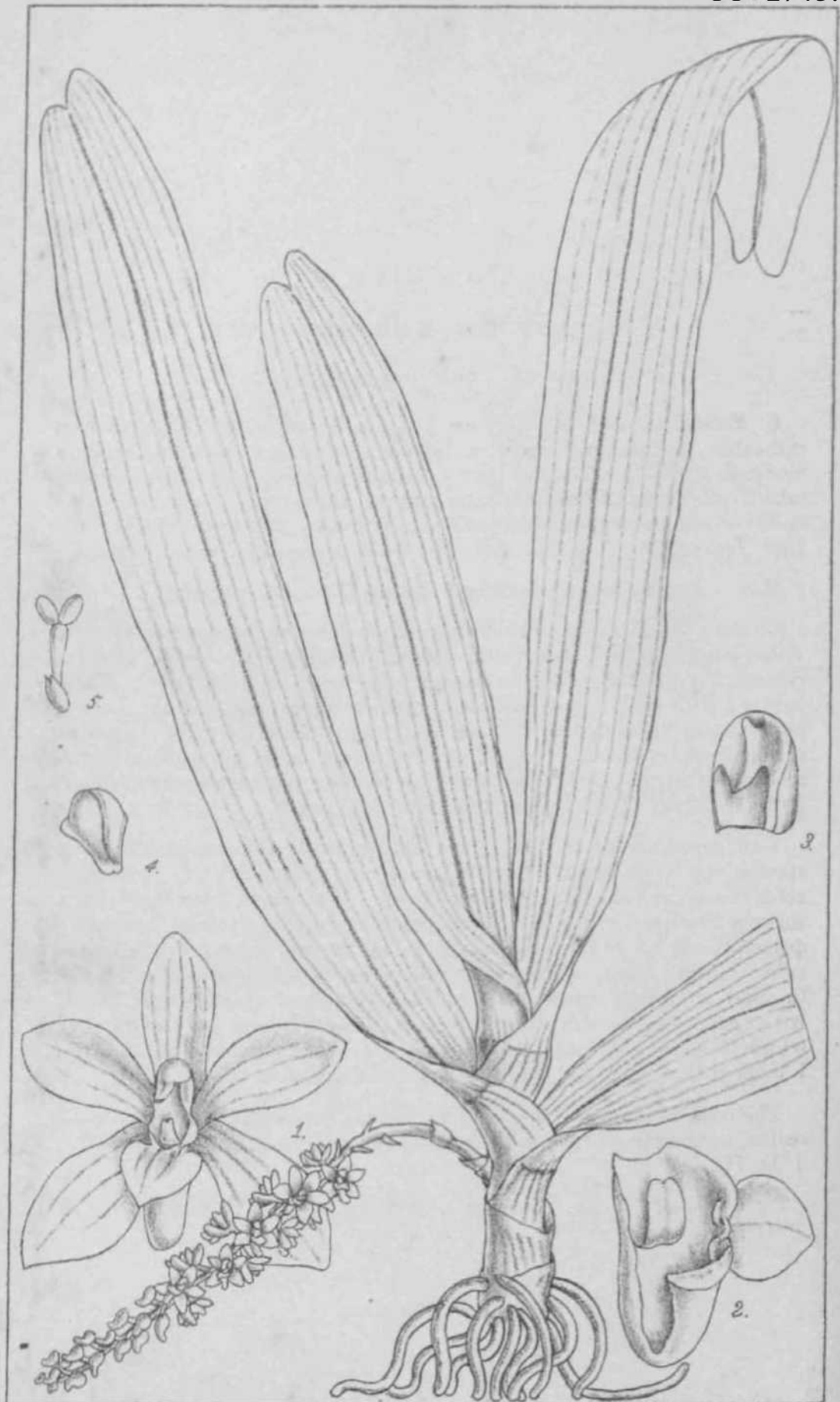
C. brevipes, *Jlooh.f. Fl. Brit. Tml.* vi. 73; canle crasso elongate basi rariicc'inte, foliis lineari-ianccolatis acntis rigide carnosis, spica brevi, rachi crassa, bracteis in inn (is ovatis, sepalis petal is qne consimilibns ovnto-oblongis obtosis, labelli lobis lateraiibus brevi bus falcatis acutia, terminali brevi hastato apice membranacco disco incrassato, calcare Raccato basi rotundato.

HAD. Sikkim Himalaya, alt. 5,000 feet, *Gamble* (ie. *in Herb. Calcutt.*); Assam (*cult.*).

*Caule** coeapitosi, 8[^]12-pollHcares₄ craRsitie pcnnie ^nserinoB; internodiis i-J-pollicaribus, e[^]siccatis rngalosis. *Folia* rcniformia, 3-4-jollicarm, erecto-pt\tentia, plana, apicibus mncroniformibns, costa inconspicna. *Spica* nnacnm pedunculo 1-1[^] poll, longa, craasitie panned anatinas, vaginis infimis annlaribufy snperioribus sparsis ovatis acutis brnnneis; ovariis ^-pollicaribns; viridibns purpureo striatis; flores ^-§ poll. diam. *Sepala* et *petdla* aurantiaca, purpureo bivittata. *Labellum* pallide flavum, callis calcaris orem claudentibus. *Columna* brevis. *Pollinia* 2, snbquadrata, apice stipitis angusti medio dilatati sessilia, snlcata; glandula masrna, membranacea, bipartita, segmentis auricula)-formibas. *CapsulcB* li poll, long©, sessiles, fusiformes, teretes, striati.

The materials for the plate here given are, a drawing in the Calcutta Herbarium, a dried fruiting specimen from Mr. Gamble, and a living plant which flowered at Kew.

Fig. 1. Column, and Hction of lip 2. Pollinia. *Loth enlarged.*



Mr. S. del. et lith.

Cleisostoma Maimii, Hk.f.

CLEISOSTOMA MANNII, *Reichh.f.*

OBCHIDEA. Subtribe SARGANTHEIS.

C. Mannii, *Reichb. l. in Flora*, 1872, 273; caule brevi crasso basi radicante, foliis lorutia obtase bilobis, pedunculo decurvo, racemo elongato multifloro, floribus parvis, sepalis petalisque obovatis obtusis,* labelli lobis lateralibus truncatis obtuse angulatis, intermedio orbiculari-ovato, calcare sepalis brevior inflato v. cylindraco. *Honk.f. FL Brit. hid.* vi. 74; in *King, Ann. Bot. Gard. Calcutt.* t. lxxxvi. (*ined.*).

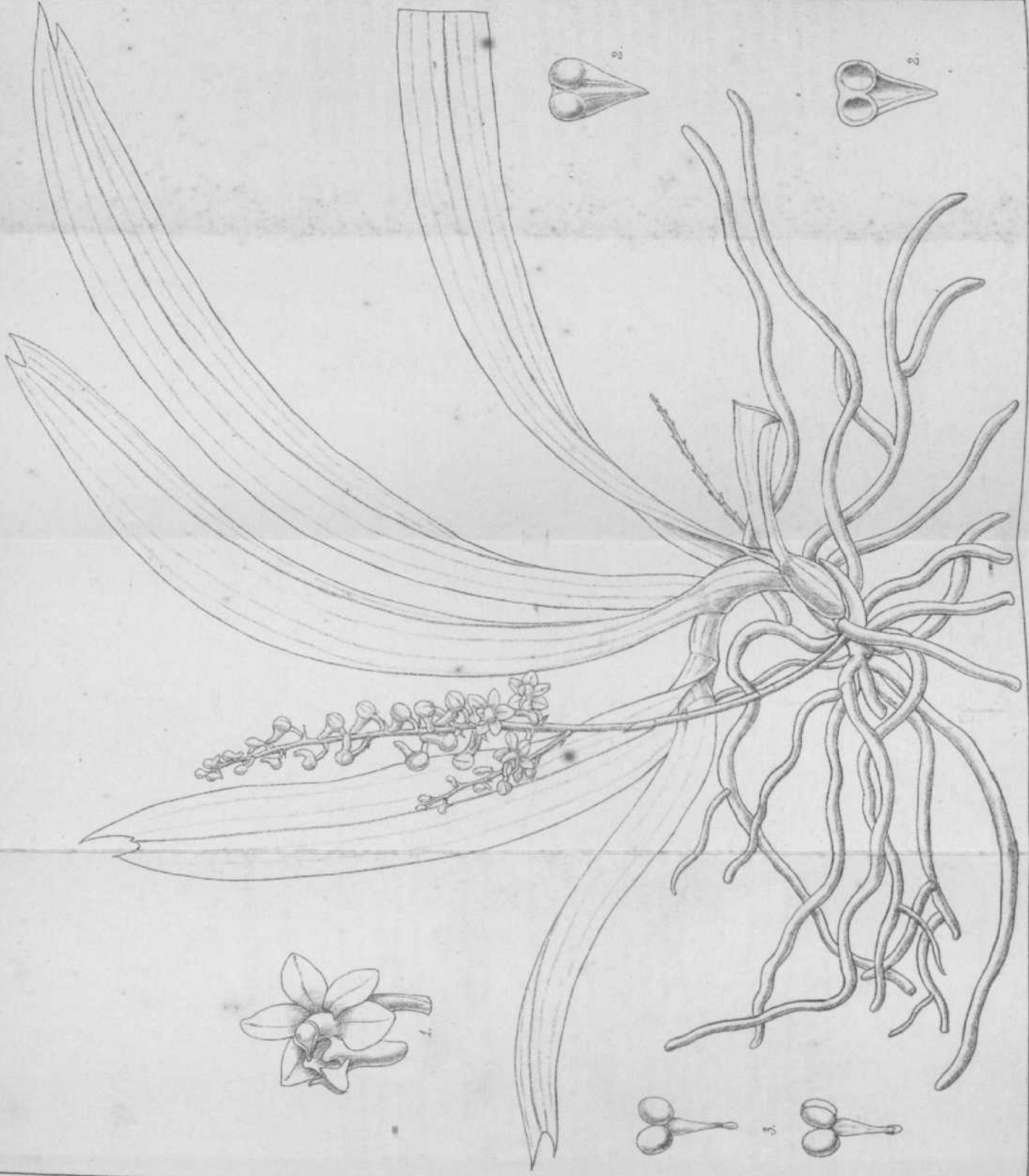
HAD. Assam, *Mann*; Sikkim ? (*fc. in Hort. Bot. Calcutt.*).

Caulea 1-2-pollicares, crassitie penned olorinsa; vagina breves, apertsa. *Folia* 6-pollicaria, § poll, lata, plana, striata. *Pedunculus* unacum racemo 3-pollicaris, bracteis ovatis ovaria sabcequantibus. *Flares* parvi, ½ poll. lati. *Sepala* *otpetala* pallide aurea, basi rosca. *Labdli* parvi lobas intermedius calcare brevior, lateralia obscura; squama infracolumnari linearis, erecta, apice 2-loba; callo infra lobum intermedium label li 3-partitri. *Columna* brevissima; anthera ovata, obtusa; pollinia parva, stipite lineari, glandula mediocri.

I am quite unable to distinguish satisfactorily Reichenbach's three species, *C. undulatum*, *Wendlandorum*, and *Mannii*, and doubtfully refer the plant here figured to the latter. It is copied from the type, a solitary specimen in the Kew Herbarium. According to Reichenbach's descriptions, *C. undulatum* has undulate leaves, oblong sepals, orbicular lateral lobes, a concealed obscurely 3-lobed raidlobe of the lip, and a globose spur; *G. Wendlandorum* is a much larger plant, with (according to a drawing in *Herb. Calcutt*) hairs on the lip (but which I have not found on any specimen that I have examined). I suspect that *C. Mannii* may be a small state of it.

The resemblance in the lip, its dorsal scale and ventral forked callus, to the same organ in (*7. andamanicum* (Plate 2140) is obvious.—
J. D. H.

Fig. 1. Flower. 2. Lip, laid open. 3. Column. 4. Anther. 5. Pollinia. All



Cleisostoma bicuspidatum, Hk.f.

PLANK 2144.

OLEISOSTOMA BICUSPIDATUM, *Uoob.f:*

ORCHIDRS. Subtribe SABCAHTHEJI.

C. biouspidatum, *Hook f. *». Brit. Ind. vi. 75; ^ * King, Ann. BcLChJ OaLoatt. t. tawii.; caule brevi robusto basi radicante, folia loriformibus profunde 2>bis lobis acutis, racemo !<ge pedunculato simplici v. pa™ ramoso, bracteis parr.8 ovat< sepalis late obovatis obfensis, petalis .obloDgo-ovovatw, labelh to^ lateralibus parvis trnncatiB intermedio ovato acuto incurvo, calcare sepalis longiore cylindraceo obtueo.*

HAB Sikkim Himalaya, near Darjeeling, *Aiidmon (>> Herb. Gal-cJt.); K h S HiS, alt.ioOO feet, lfa>>> j TenasBerim, Pansh (*c. *» Herb. Calcutt.).*

Caulis 1-2-pollHcaris, crassitie peniue olorin<, Rfflpas " " ^ V ^ cibus validis elongatis. Mia 3-7 poll, longa, ^-1 poll. 1J». <<<>! ourva, lobis termiaalibus erectia v. incurvis, sinu acuto T. >>pnis rotundato apicolo intetpo^to, wgims i-polhcanbus. Bamm Mm breviores, multi- v. panciflori; flores pam v. inajuscul!, patentes v. reflezi. SepaZa et >i/<< flavo-viridia, fascia media rosea. ^TM^TMTM album, roseo maoulatum v. uroratnm; calcare recto, ore annnto nw crasBato circumdato, callo infracolumnnai 2-lpbo. Golumm brev<< Bima, rostello elongate deenrro; anthera tnangnlans, snbrostrato, pollbia majuscna, globosa, Bnlcata, infra apicem stipitis angnsti Bnperne diktati inserta ; glandula minuta.*

In King's » Annals of the Calcutta Botanic Gardens " I have figured and described several varieties of this plant differing much inter <e and from that here given, -which is a copy of a drawing of a ^a ^{DM} ^J [^] ^X ^o ⁸ specimen in the Calcutta Herbarium, and has much smaller flowers than the others. The acute apical teeth of the leaves are hke no other species of the genus known to me.—J. D. H.

Rg. 1. Plover. 2. Aiither. 3.- Bdliaia. *Mlinlargcd.*



M.S. del et lith.

PodocMLiis unciferus.Hk.f.

PLATE 2145.

PODOCHILUS UNCIFBEUS, *Hook.f.*

ORCHIDEA. Subtribe NOTYLIEJJ.

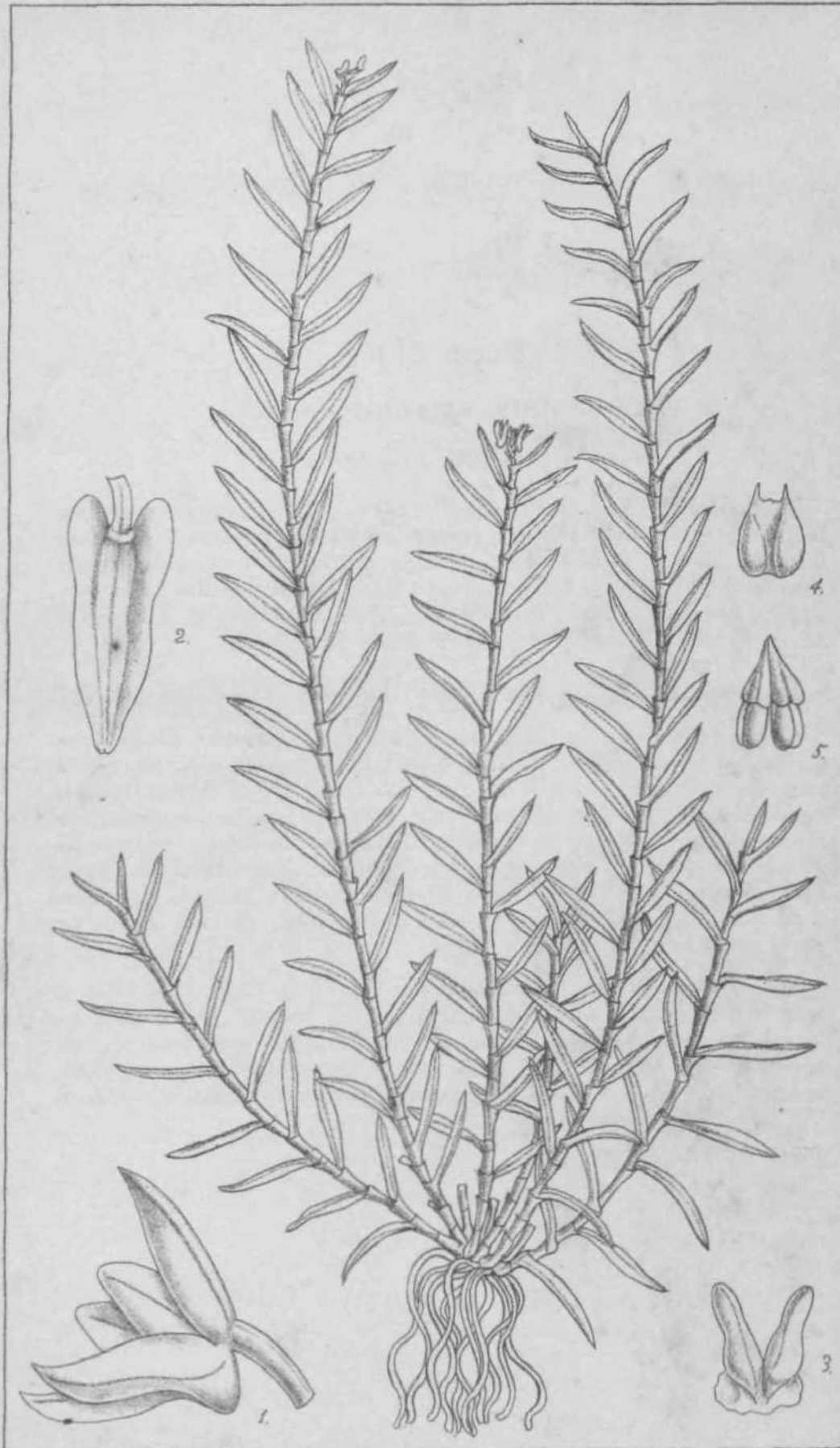
P. nnciferus, *Book. / Fl. Brit Ind.* vi. 81; caulibus gracilibus erectis, foliis oblongis obtusis, pedunculis latorialibus numerosis gracilibus vaginatis foliis subaequilongis imo apice paucifloris, sepalis petalisque oblongis, men to elongato, labelli cuneato-oblanceolati y. -spathulati appendice basali uncinato reciirvo ungae gracili.

HAB. Malayan Peninsula; Perak, *Father Scortechini*; Borneo; Philippine Islands.

Caules fasciculati, 18*24 poll, longi, foliosi. *Folia* disticha, plana, semiamplexicaulia, §-1£ poll, longa, ^-§ poll, lata, apice rotundata, s©pe denticulata et sufimetnbranacea, 1-nervia, striata, nitida; vaginae T~t> poll. longoD. *Pedunculi* erefc-co-patentes, bracteis acicularibus vaginati, racemo brevissimo 1-paucifloro terminati, rachi capillari; bractese Iat89. *Flores* ^ poll, longi. *Sepala* acuta v. acuminata, o-nervia, ineuto cjindraceo obt-uso sepala aequantia. *Petala* late oblonga, 3-nervia. *Labellum* pedi brevi columnse articulatum, apice di lata turn trilobum, nngue gracili, lobis lateralibus rotundatis, termin- &lc triangulari acuto. *Columna* inermis; anthera ovato-lanceolata; pollinia anguste pyriformia.

The only Indian species with flat (not equitant or laterally compressed) broad leaves and many lateral peduncles.—J. D. H.

Fig. 1. Peduncle and mcem*. **2.** Flower. **3.** Lip. **I.** Anther-case. **5.** Pollinia. **All enlarged.**



M.S.deletlitK

Podochilus kha.siauiis.Hk.f.

PLATE 2146.

PODOCHILUS *KHASIANTJ8*, Hook. f.

ORCHIDEAE. Sub tribe NOTYLIEAE.

P. khasianus, Hook. f. *Fl. Brit. Ind.* vi. 81; caulibus gracilibus foliosis, foliis linearibus acutis, racemo brevissimo terminali paucifloro, floribus minutis, sepalis ovato-oblongis acutis, mento tumido, petalis ovato-oblongis obtusis, labello oblongo-lanceolato basi profunde cordato, appendice obsoleto *P. microphyllus*, Wall. *Cat.* 7335 B; Lindl. *Gen. et Sp. Orchid.* 234 in part; in *Journ. Linn. Soc.* iii. 37.

HAB. Silhet, Wallich; the Khasia Hills, at Amwee J.V.H. and T.T.

Ovules fasciculati, 4-6 poll, loci, suberecti, crassitie penes passerines, ad basin foliosi. *Folia* 1/2—3/4 poll, longa, erecto-patentia, rigida, basi torta, vaginis 1/2 poll, longis. *Pedunculus* foliis brevior, bracteae rigidae nervosae. *Flores* 1/2 poll, longi. *Sepala* 1-nervia, lateralia subfalcata, basi in mento breve conico-hemisphaericum immescentia. *Petala* breviora. *Labellum* breviter anguste unguiculatum, ungue basi columnae inserto. *Columna* brevissima, alata, demum in brachia 2 postice concava basi fissa; anthera 2-cuspidata; pollinia brevia, per paria calyptrata.

Very different from *P. microphyllus*, Lindl. in Wall. *Cat.* 7335 A, with which it has been confounded, in the stouter habit, narrower leaves, very short spike, in apparently wanting the large basal appendage of the lip, and especially in the bicuspidate anther. *P. microphyllus* is a native of Burma and the Malay Peninsula and Islands.—J. I. H.

Fig. 1. Flower. 2. Lip. 3. Column after fission. 4. Anther. 5. Pollinia. All greatly enlarged.



M. S. del. et lith.

Podochilus acicularis, Hk.f.

PLATR 2147.

PODOCHILUS ACICULARIS, *Uoohf.*

OKCHIDEJ. Subtribe NOTYLIEA.

P. aciculâris, *Hook.f. FL Brit. hid. vi. 82*; caulibus filiformibus dense caespitosis ramosis, foliis acicularibus, racemis terminalibus paucifloris brevissimis, floribus minatis, sepalis ovato-oblongis obtusis, men to tumido, petalis lineari-oblongis, labello late obovato v. oblongo, basi cordato et 2-cornuto.

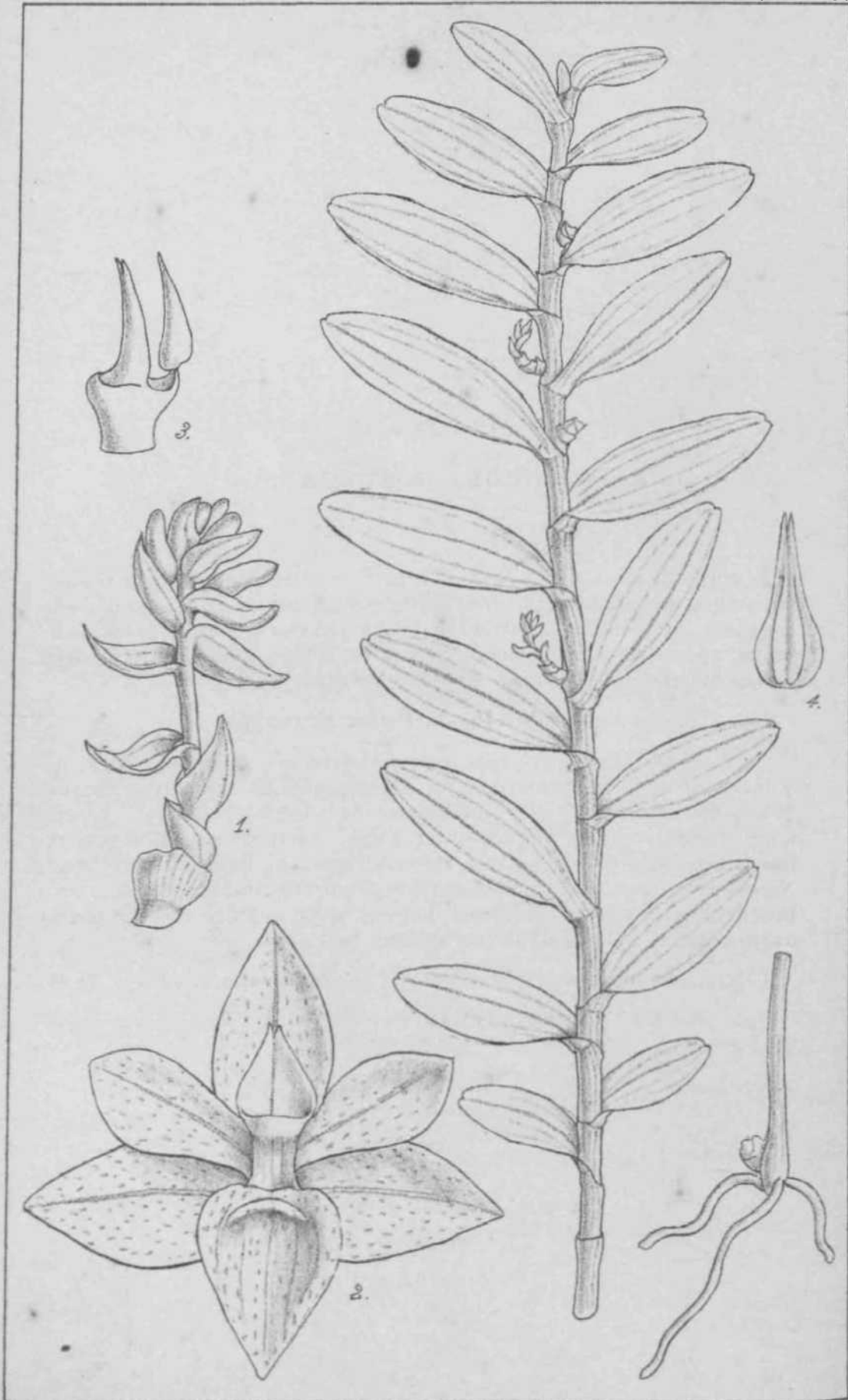
HAB. Malay Peninsula; Perak, *Father Scortechini*, etc.; Penang, *Wray*.

Caules 6-8-pollicares, diffusi, subflexuosi, ad basin foliosi. *Flores* -JV poll. longi, ad apices ramorum subsessiles, albi, bracteis minimis. *tiepala* lateralia falcato-ovata, subacuta, 1-nervia, basi in mentum nunc obscarum rotundatum nunc giobosnm et 2-lobum tumescentia; dorsali pimore. *Petala* obtusa, 1-nervia. *Lahellum* sepalis brevius, 3-nerve, interdum fere rhombeo- rotundatum, ungne gracili, cornubus incurvis qbtusis. *Columna* magaa, demum bipartita; anthera ovato-cordata, a em um bifida, lobis divaricatis acuminatis; pollinia per paria calyptrata, paribus glandulad communi lineari affixa.

P This species so closely reembles *P. distichua* (*Hemmeria disticha*, *Benn. PL Jav. Bar. t. 7*, that I hesitated, and examined several flowers of each before I ventured to propose this.

The development of the column and pollinia in this genus requires a careful study. The difficulty in making out those structures in dried specimens is very great, but I think that the details which I have given on Plate 2147 are fairly accurate. The true nature of the calyptriform cap of the pollinia baffled me. Can it be derived from the dorsal face of the column?—J. D. H.

Fig. 1. Portion of stem and leaf. 2. Flower-bract and portion of rachis of spike. 3. Mower, spread open. 4. Anther-case in early, and 5. later, stnge. 6. Two of the pollen-masses with their calyptriform shenth and gland. *Allyrdtly enlarged.*



M.S. del et lith.

Appendicula cordata, Hkf.

PLATE 2148.

APPENDICULA CORDATA, *Book. f.*

ORCHIDEÆ. Subtribe NOTYLIEJ.

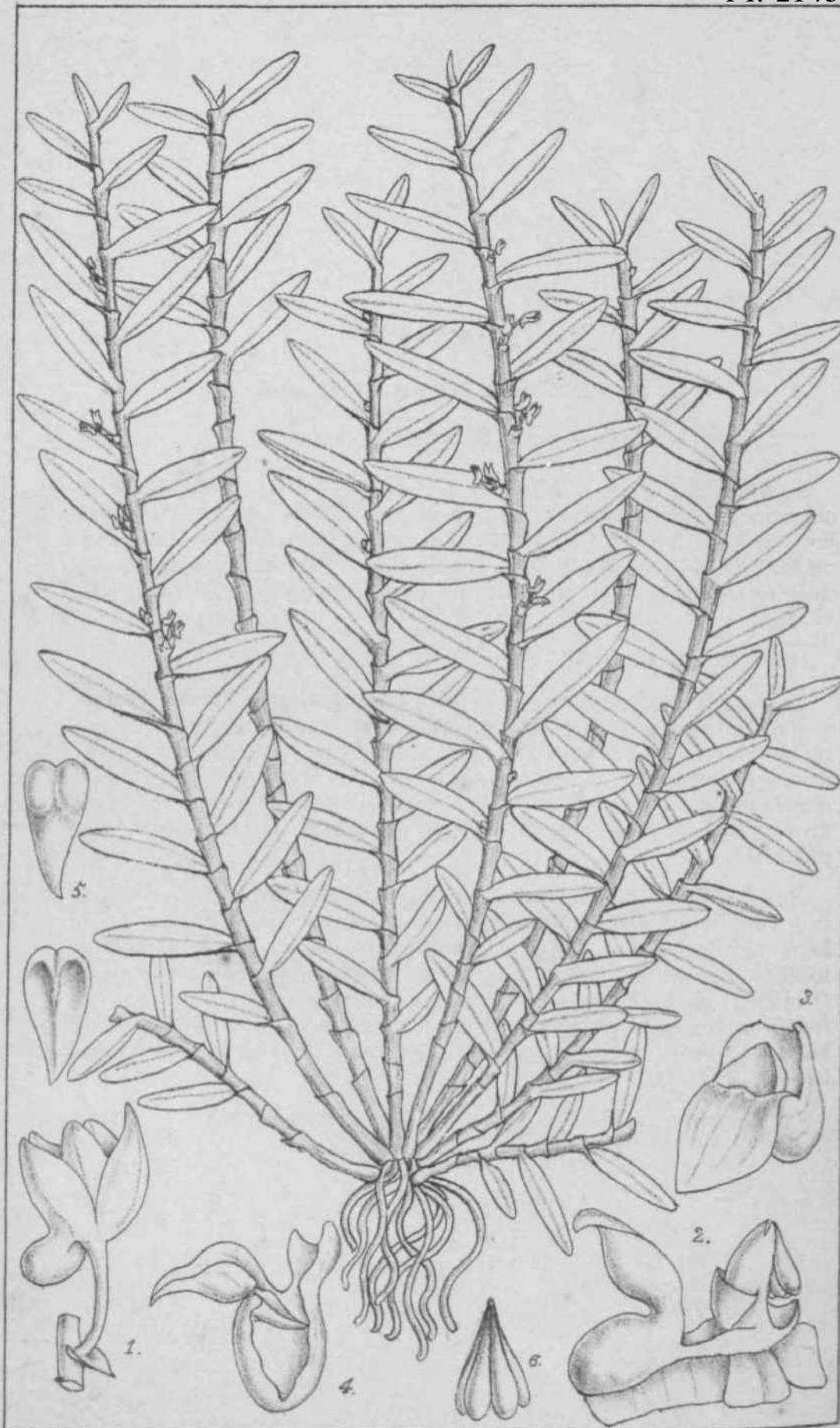
A. cordata, *Hook. f. Fl. Brit. Ind.* vi. 83; foliis oblongis apice obtuse bidentatis, spicis lateralibus brevissime pedunculatis incurvis paucifloris vaginatis, bracteis latis, floribus parvulis punctatis, sepalis ovatis subacutis, mento rotundato, petalis obovatis, labello ovato-cordato basin versus membrana semilunari transversa instructo.

EAR. Malay Peninsula; Perak, *Father Scortechini*.

Caulis 7-pollicaris, crassitie pennæ anatinee. *Folia* pollicaria, ad $\frac{1}{2}$ in. lata, submembranacea, inter dentes apicales apicalata; vaginæ $\frac{1}{2}$ poll, longae. *Spicæ* 3-4-pollicares, 3-4-flores; pedunculi $\frac{1}{2}$ poll, longi, validi, vaginati, vaginis inferioribus cupuliformibus, superioribus bracteisque ovatis demum reflexis nervosis; flores $\frac{1}{2}$ poll, longi. *Sepala* petalaeque 1-nervia. *Labellum* sepalis lateralibus minus, pedi brevi columnæ sessile. *Columna* inermis, apice dilatata, rostello erecto ovato concavo apice 2-dentato; anthera lanceolata.

I have seen but one specimen of this very distinct species.—J. I. H.

Fig. 1. Peduncle and spike. 2. Flower, spread open. 3. Column with rostellum and a pollen-mass. 4. Anther. All greatly enlarged.



NIS.d&L.ethth.

Appendicula Koenigii, Hk. f.

PLATE 2149.

APPENDICULA KOENIGII, *Hook. f.*

ORCHIDEJE. Subtribe NOTTLIEA.

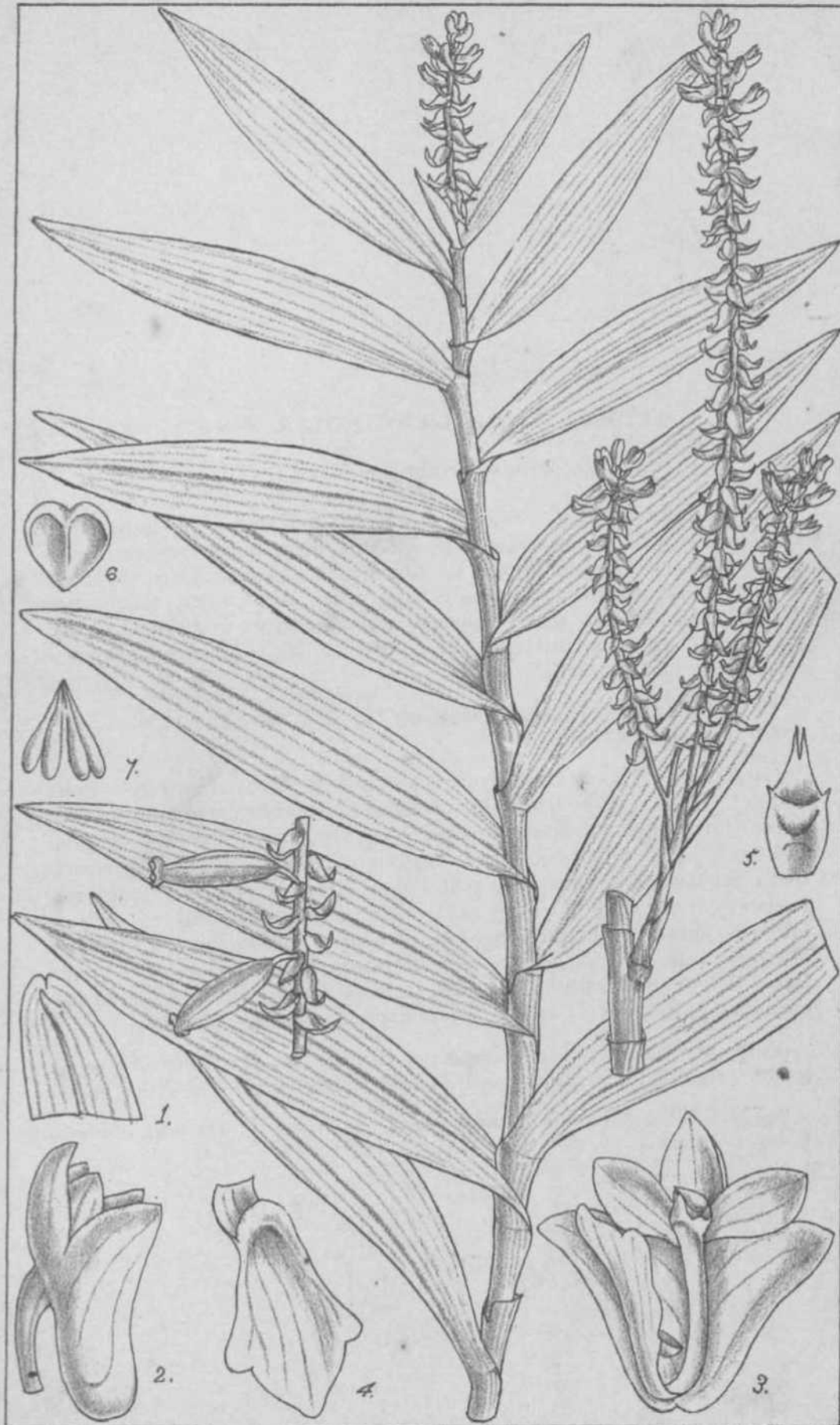
A. Koenigii, *Hook. f. Fl. Brit. Ind.* vi. 84; foliis lineari-oblongis oblongo-lanceolatisve apice obtusis minute 2-fidis, spicis lateralibus brevissimis 2-3-floris, floribus minutis, sepalis lateralibus ovatis acutis, mento globoso, petalis ellipticis, labello ovato v. oblongo basi appendice calceiforme instructo. *Epidendrum hexandrum*, *Koen. in Betz. Obs.* vi. 45.

HAB. India, *Herb. Bottler (in Herb. Kew.)*.

GavHea dense cespitosa, 4-6-pollicares, gracile. *Folia* crebra, longis, membranacea, vaginis longis, pedunculato, longis, patentibus v. recurvae, pedunculo vaginato; bracteis minute, ovatis; flores in racimo. *Sepala* et *petala* 1-nerviata. *Labellum* sepalis brevius, 6-nerviata. *Columna* brevissima, inermis, rostello magno; anthera cordato-lanceolata; pollinia 4.

^a But for the solitary specimen here figured from Bottler's Herbarium, it is very improbable that the *Epidendrum hexandrum* of Koenig would have been brought to light for some time to come. Unfortunately no locality is given for the plant, and as Bottler's Herbarium contains Orchids from both Indian Peninsulas, it may have been sent to him from the Malayan, where the genus is common. In its densely tufted habit and very minute flowers, it differs from all other species known to me.—J. D. H.

Fig. 1. Flower. 2. Lip and column. 3. Lip. 4. Same in section. 5. Anther. 6. Pollinia. All *enlarged*.



M.Ş.d*LetKth.

Appendicula lancifolia.Hk.f.

PLATE 2150.

APPENDICXTLA LANCIFOLIA, *Hook. f.*

ORC&IDE£. Subtribe NOTYLIEJ.

A. lancifolia, *Hook. f. FL Brit. Ind.* vi. 84; cauKbus elongatis, foliis lanceolatis apice obtuse bidentatis, raoemis terminalibus et lateralibus elongatis strictis simplicibus v. ramosis densi-multifloris, bracteis majusculis ovatis deflexis, sepalis lateralibus late ovatis, mento late cylindraceo, labello ovato-oblongo v. -obcuneato nngniculato basi znembrana concava instructo, apice trifido lobis lateralibus parvis rotundatis, intermedio late ovato.

HAB. Malay PeniDsnla: Perak, on G-unong Batn Pat eh, alt. 3,000-4,000 feet, *King's Collector*.

Caules 12-24 polj. longi, crassitie penure fere anserine. *Folia* 3-4 poll, longa, §-f poll, lata, basi semiamplexicaulia, sabmembranacea, dorso infra apicem mncronnlata; vaginis i-pollicaribus. *llacemi* 1-4 poll, longi, pedunculo brevi vaginis imbricatis lanceolatis erectis tecto, racbi stricta; bractere ^ poll, longee, concavse pedicellis longiores, coriacesB, nervosee; flores ^ poll, longi, aurei, disco rabro. *Sepala* lateralia sabacuta, mento breviora, petalaeque mnito minora obovato-oblonga 2-nervia. *Labellum* sepalis lateralibus eequilongnm, ungue lata. *Golumna* brevissima, inermis, pede elongata; antbera late ovato-cordata; pollinia 4. *Cajpsula* ^-pollicaris, fusiformis, costata.

Very like the Javanese *A. cristata*, Blume, bat the limb of the lip is uot "rounded emarginate and crested on either side."—J. D. H.

Fig. 1. Tip of leaf, showing the dorsal mucro. 2. Flower. 3. The same laid open. 4. Lip. 5. Column. 6. Anther. 7. Pollinia. *All enlarged.*



MS. diletlitl L.

Appendicula Mamfayi, Hk.f.

PLATE 2151.

APPENDICULA MAINGAYI, *Huolc. f.*

OuCHIDEiE. Subtribe NOTYLIEiK.

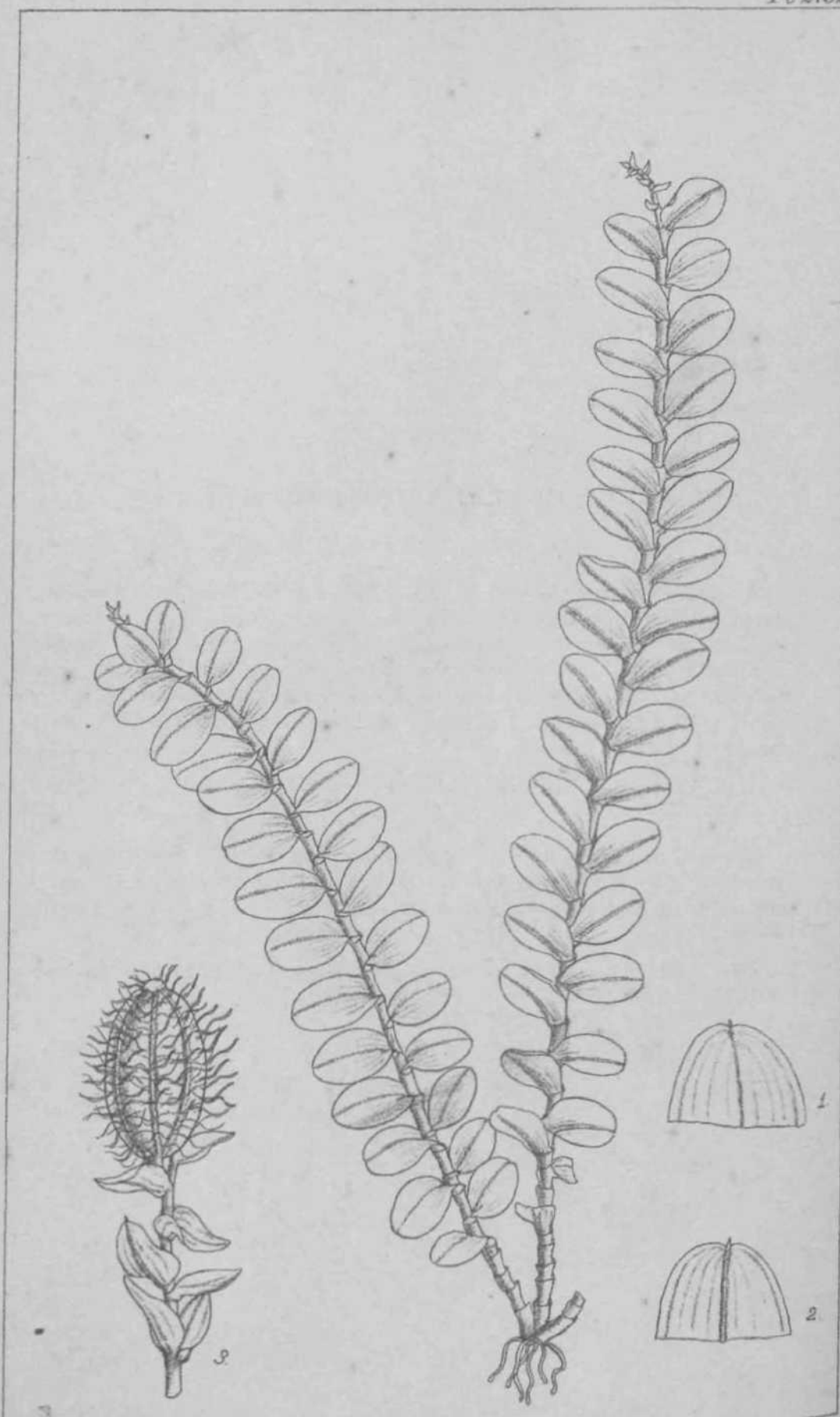
A. Maingayi, *Huolc! f. Fl. Brit. Ind.* vi. 85; canlibus elongatis robustis, foliis lineari-lanceolatis imo apice dilatatis et apicnlatis y. bidenticulatis, racemis terminalibus erectis strictis multi-densifloris, bracteis lanceolatis patenti-incurvis, sepalis lateralibus late ovatis, men to rotundato v. subcylindraco, labello elliptico v. obovato-oblongo obtuso integro basi membrana lata fornicata intracto.

HAB. Malay Peninsula; Perak, *Father Scortechini*; Penang, *JUaingay*.

Gaules 6-16 poll, longi, crassitie fere pennse an serin 80. *Folia* 2-3 poll, longa, £-^ poll, lata, ereeto-potentia, basi angustata, vaginis h~'f poll, longis. *liucemi* 1-2-pollicares, simplices v. basi ramosi, breviter pedunculati, rachi subdexusa; bractesB ¹/₅-^ poll, longae, basi deflexe dein incarvfle, coriaceae, 5-costattB; flores ^ poll, longi. *Sepala* lateralia obtusa, petalaeque lineari- v. obovato-oblonga, 3-nervia. *Labellum* sepalis paullo longias, breviter unguiculatum, 5-nerve. *Golumna* inermis, rostello brevi; anthera ovata, acuminata. *Capsvla* \$ poll, longa, fnsiformis.

The Perak specimens are more slender than those from Penang; the mentum is longer and more cylindrical, and the petals narrower and 1-nerved. The species should be compared with the Javanese *-4 graminifolia*, Teysm. and Binnend. in *Tijdtchr. Nederl. Ind.* xxiv. (1862) 32. The specimen figured is from Penang.—**J. D. H.**

Fig. 1. Flower (of IVnang specimen). 2. Lip and column of the same. 3. Lip of tht* sumo. 4. Flower of Perak specimen. 5. Lip of the banie. All enlarged.



M.S. del. et lith.

Appendicula echinocarpa.Hk.f

PLATE 2152.

APPENDICTTLA ECHINOCARPA, *Hookf.*

ORCHIDEJE. Subscribe NOTYLIEIE.

A. *echinocarpa*, *Hookf. Fl. Brit. Ind.* vi. 85; caulibus 4-6-pollicaribus gracilibus rigidis, internodiis £ poll, longis, foliis ^-^-pollicaribus subimbricatis orbiculari-oblongis apice rotundatis retusis bidentatis dentibus incumbentibus sinu mucronulato, basi superiore reflexo, pedunculis brevibus terminalibus solitariis paucifloris, bracteis ovato-cordatis, capsula J-pollicari ellipsoidea turgida, valvis setis flexuosis obsitis.

HAB. Malayan Peninsula; Perak, on Gunung Batu Pateh, alt 3,400 feet, *Trey.*

. Though wanting the flowers, I have no hesitation in describing this interesting little species as new. It is the eighth species of the genus described from Perak, a locality that seems to abound in orchids.—
J. D. H.

Figs. 1 and 2. Upper and lower surfaces of the upper half of a leaf. 4. Peduncle and capsule. *All enlarged.*



MJSdd.et.litX

Thelasis bifolia, Hk.f.

PLATE 2153.

THELASIS BIFOLIA, Hook. /.

ORCHIDEJS. Subtribe NOTTLIE^.

T. (Euthelasis) bifolia, Hook. /. *FL Brit. Ltd.* vi. 86; foliis pseudo-bulbo 2 nis eiliptico-lanceolatis, scapo eloDgato, spica laxiflora, sepalis lateralibus exalatis, labello ovato-oblongo v. elliptico obtuso.

HAB. Khasia Hills, Lobb.

Pseudohulhus subglobosus, § poll, diam., nudus. *Folia* 3£ poll, longa, sessilia, pa tula,* acata, nervosa, basi angustata. *Scapus* unacum Rpica 2-pollicaris, 10 poll. Ions us, gracilis, flexuosus, vaginis pancis brevibus remotis instractus. *B> act tee* minutce, ovatae, ovaria ©quantas. *Verianthium* £ poll, diam., molliter cellulolum. *Sepala* obtusa, lateraliala late ovata. *Pttala* oblonga v. oblongo-obovata, obtusa, 1-nervia. *Labdlum* obscure 5-nerve. *Rostellum* elongatum, acuminatum, integrum.

I have seen but one specimen of this species, which was obtained in the Khasia Hills by T. Lobb when collecting orchids for Messrs. Veitch in 1850 or thereabouts.—J. D. H.

Fig. 1. Lateral, and 2, front, view of flower. 3. Column. *Ml* greatly enlarged.



M.S. del, et lith.

Thelasis khasiana, Hk.f

TLATK 2154.

THELASIS KHASIANA, *Hook.*

ORCHIDEJB. Subtribe NOTYMKJE.

T. (*Euthelasis*) *khasiana*, *Ilmlc. f. Fl, BHL Ltd.* vi. 87; foliis pseudobulbo solitariis 3-4-pollicaribus elongatis linearibus v. a basi ultra medium sensim dilatatis obtusis, scapo uriacam spica laxiflora ioliam sequante gracili, sepalis lateralibus exalatis, labello elliptico-ovato subacuto.

HAB. Khasia H.H.Js, alt. 3,000-4,000 feet, *Lobb, L. D. JET, and F. Thotnaon.*

Pseudobulbus J poll, diara., obinrbinatus v. deprefso-globosns, nudus. *folium* ^ poll. Jatum. *Scapus* flexuosus, vaginis paucis brevibus mstpuctns; spica 14—2 poll. loDga; bractcee ininutie, kte ovatro v. ovato-lanceolatoD, ovaria eeqaantes v. paallo breviores. *Perianthium* if poll, latum. *Sepala* lateralia ovata v. ovato-lanceolata, obtuaa. •*Petdla* oblongo-lanceolata, obtusa. *Labellum* 3-uerve. *Rostdlum* e l o D g m acuminatum, integram.—J. D. H.

Fig. 1. Lateral, and 2. front, view of flowers. 3. Column and anther. 4. Anther. <<greatly mlarged.



MS.del.etlith.

Thelasis longifolia, Hk.f.

PLATE 2155.

THELASIS LONGIFOLIA, Houhf.

Nat. Ord. ORCHIDEAE; Subtribe NOTYLIA.

T. (Euthelasis) longifolia, Hook. / Fl. Bnt. hid. vi. p. 87; foliis pseudobulbo solitariis 6-9-pollicaribus a basi ultra medium sensim dilatatis apice rotundatis scapo valido paucivaginato longioribus, spica laxiflora, sepalis lateralibus exalatis, labello ovato acuminato.

HAB. Khasia Hills, alt. 3,000-4,000 feet, / D. H. and T. Thomson.

***Pseudobulbus* depresso-globosus, 1 poll, diam., nudus. *Folium* f-1j pml. latum, fere petiolatum. *Scapus* unacum spica laxiflora bipollicari 6-7 poll, longus. *Bracteae* minutae, late ovatae. *Perianthium*, [^]re [^] poll, latum. *Sepala* lateralibus ovato-oblonga, obtusa. *Petala* oblongo-lanceolata. *Labellum* 3-nerve. *Estellum* elongatum, acuminatum, integrum.**

Thelasis is a genus the flowers of which, being of a very soft, lax, succulent texture, are very difficult of examination in herbarium specimens. In this respect of texture the flowers resemble those of the very far removed genus *Phreatia* in *Epidendrees*. *T. longifolia* is very closely allied to *T. khasiana*, but is a much larger plant in foliage and flowers, and has a very robust scape.—J. D. H.

Fig. 1. Flowers. 2. Column. Both enlarged.



M.:3.del,etlith.

Thelasis elata.Hk.f.

PLATE 2100.

OXYANTHEBA ELATA, *Iluok.* /.

OKCUIDEA. Subtribe NOTTLIEIS.

O. elata, *TIDOJC. f.*; foliis 10-14 poll, longis loriformibus apice rotundatis, vaginis compressis coriaceis, scapo pracillimo, mcemo el on gato laxifloro, scpalis oblongo-lanceolatin, labello Hnari marginibns undulatis basi 2-auriculatis. Thelas^as **elata**, *Hook. f. Fl. Brit. bid.* vi. 87.

HAB. Malayan Peninsula; Perak, on decayed wood, *Kintfs Collector.*

Ithizoma crassitie digiti minimi. *Folia* pauca, ad 1 poll, lata; vaginae 3-4 poll, long©, ^ poll, lat», complicate. *Scopus* foliis longior, flexnosus, vapinis 2-4 ^ poll, longis instnictus. *Racemu** 6-pollicaris, pracilis; bractee ovatas, acnniinatro, ovario breviores. *Flures* breviter pedicellati; perianthio -^ poll. lato. *Sepala* acnminata, nervis obscuris. *Petala* sepalis consimilia. *Labellum* subnnguiculatum, obtu3um v. Bubacutum; auriculis revolutis. *Rostellum* bipartitum.

In the 'Flora of British India,* following Blume, Lindley, Be nth am, and Reichenbach, I referred Brongniart's genus *Oxyaiithera* to *T/teiaals*. A re-examination of both genera for the '*Icones' has convinced me that they shoald be kept apart, on the ground of the total difference in habit, *Oxyanthera* having no pseudobcilb, but sheathing equitant leaves on a short stem, with the blade articulate on its complicate vagina, which sheathes the base of the scape; in the lip not being flat, but concave and 2-auricld above the very short claw; and in the rostellum, which is very long in both genera, being entire in *Thela-si**, but bipartite in *Oxyanthera*.—J. D. H.

Fig. 1. Flower. 2 Column ami lip. 3. Lip. 4. Column with anther. 5. Anther. *Ml greatly enlarged.*



M.S. del. et lith.

Thelasis decurva, Hk.f.

PLATE 2157.

OX YANTHER A DECURVA, *Hook.f.*

OACHIDEJE. Subtribe NOTYLIEJ.

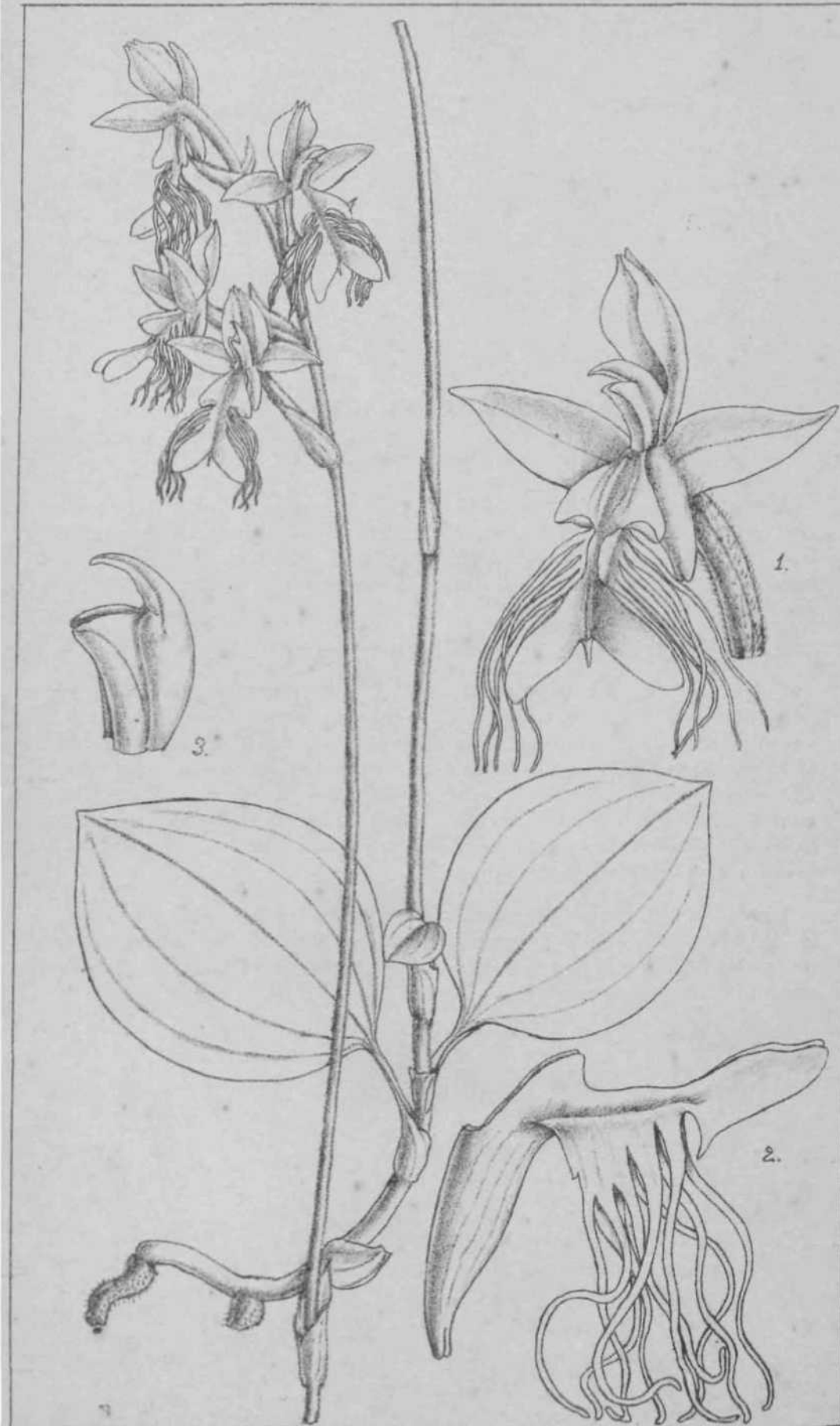
O. decurva, *Hook. f.*; foliis 4-6 poll, longis linearibus v. anguste lineari-lanceolatis apice angustata, scapo gracili foliis brevioribus, racemo brevi densifloro, sepalis ovatis ovato-lanceolatisve, labello carinato pugioniformi, marginibus incurvis, basi 2-auriculato. Thelasis decurva, *Hook.f., Fl. Brit. Ind. vi. 87.*

HAB. Malayan Peninsula: Singapore, at Krangi, *Bidley*; Penang, on Government Hill, *Maiugay*.

Acaulis. Foliis 4-6 poll, lata, apice subacuta obtusa v. oblique emarginata v. 2-loba lobis rotundatis; vaginibus 1-2 pollicares. *Scapulis* filiformis, vaginis 1-2 apicibus lanceolatis. *Raoemus* pollicaris; bracteis oblongis ovario breviores. *Flores* pedicellati, perianthio 4 poll. lato. *Sepala* 1 et *petala* 1-nervia. *Lahellum* basi concavum, membranaceum, dein carnosum, marginibus undulatis v. crispatis interdum ad axin labelli inflexis. *Oocolumna* brevis, rostello bipartito.

Closely allied to *Oxyanthera micrantha*, Brongn., which is figured as having a broadly ovate obtuse lip, narrowed into a broad short claw.—J. D. H.

Fig. 1. Apex of leaf. 2. Lateral, and 3. front, view of flower. 4. Lip and column. 5. Lip. 6. Transverse section of lip towards the tip. *Fig. 1 greatly enlarged.*



MS d^etlitk.

Anaectochilus elation Lindl.

PLATE 215S.

ANFFICTOCHILUS ELATIOR, *Lindl.*

ORCHIDEA; Subtribe **SPIRANTHEÆ**.

A. elatior, *Lindl. in Journ. Linn. Soc.* i. 178; foliis breviter petiolatis, late ovato-rotundatis acutis, scapo elato, spica pauciflora, labelli lingue basi basitatem dilatato isthmo fimbriis utrinque 6 lamina longioribus, laminae alis oblongis divergentibus integerrimis. *Hook. f. Fl. Brit. Isl.* vi. 95.

HAB. Nilgiri Hills; near Walla Ghat, *Melvor.*

Caulis basi decumbens, dein ascendens, 1-2-pollicaris. *Folia* 1-1 1/2 poll, lata, 5-nervi, viridia, petiolo 1/2-1 poll. Longo *Scapus* pedalis, vaginis paucis inflatis acuminatis auctus. *Spica* 3-4-flora; bractea 1/2-1 poll. longe, late ovato-lanceolatae, ovario pubescente breviores. *Flos* majusculi, fere 1 poll. lati. *Sepala* lateraliter ovato-lanceolata, acuta. *Petalum* dimidiato-obovata, acuta. *Lobus* 1/2-1 poll, longum, calcar conico inflato sepalis brevior. *Columna* alae prominulae; rostellum elongatum, incurvum.

I have seen only one specimen of this fine species, which resembles *A. Boxburghii*, Lindl., a much smaller plant, with golden netted nerves on the leaf, much larger cuneately-obovate lobes of the lip, and the spur as long as the sepals.—J. D. H.

Platf. 1. Flower. 2. Lip. 3. Column. *Fig. enlarged.*



M.S. del, et lith.

Anseotochillis Griffithii Hk. f.

PLATK 2159.

AITTOCHILUS GRIFFITH!!, *Hook.f.*

OBCHIDEA. Subtribe SPIRANTHEAE.

A. Griffithii, *Hook.f. Fl. Brit. Iwt.* vi. p. 96; foliis petiolatis ovato-rotundatis acutis v. apiculatis, spica multiflora, labelli nngue basi dilatato trapeziformi, isthmo deutato y. crenato, laminae lobis cuneatis crenatis v. lobulatis.

HAB. Eastern Himalaya, *Griffith*; Naga hills in Upper Assam, *Prain*.

Caulis basi dec urn bens, dein ascendens, 2-3-pollicaris, foliosus. *Folia* 1i-1j poll, diara., 7-nervia, viridia, petiolo ^—\ poll longo. *ticapus* 4-6-pollicaris; vaginas 3, amplee, Jaxse, acuminatee, v. infima foliacea. *Spica* 10-20-flora, stricta; bractee ovato-lanceolate, ovaria pubernla aequanies v. super antes. *Flares* fere ^ poll. lati. *Sepala* lateralia ovata, acuta. *Petala* dimidiato-spathnlata, rostrata. *Labellimi* i poll, longum; lobi terrainales ungui eequilongi, obcancati v. dolabri-formes, sinu acuto; calcare brevi incurvo saccato apice 2-fido. *Golumna* brevis, marginibas in appendicem plicatani dilatatis; rostellum breve.

There is no habitat for Griffith's specimens, which were probably collected in the Patkoi hills, which adjoin those of Naga where •Prain found his. In the latter habitat the claw of the lip presents rudiments of the firabrite which are so markedly developed in most of the species of the genus.—J. D. H.

. Fig. 1. Flower from Griffith's specimen. 2. Petal. 3. Lip from Prain's specimen.
*• Column, Npur, aud lise of lip. 5. Side view of column. *All enlarged.*



M.S. del et lith.

Anaetochilus tetrapterus, Hk.f.

PLATE 2100.

ANJECTOCHILUS TETRAPTERUS, *Hook.*

ORCHIDEA; Subtribe SPIRANTHICE.

A. tetrapteris, *Hook. f. Ft. Brit. hid. vi. 96*; foliis ovatis acutis acuminateve breviter petiolatis, spica pauciflora, labelli ungue basi anguste alato isthmo elongato gracili integerrimo, lamina) lobis bitidis bipartitisve.

HAB. Mannipore; at Eerung, alt. 2,000 feet, *Clarke*.

Caulis basi decumbens, vaginatus, dein ascendens, paucifoliatum. *Folia* 1-2 poll, longa, 5-nervia, petioli vaginis inflatis. *Bractea* 2-pollicaris, vaginis 2 magnis elongato-acuminatis; spica 1-2-pollicaris, tomentosa; bractea lanceolatae, ovaria eequantes v. superantes. *Flores* | poll. lati. *Sepala* late ovata, acuminata, *petalaque* oblique lanceolata apicibus pilis deciduis stellatim ornata. *Labellum* \ poll, longum, ungue basi in auriculas breves producto, isthmo canaliculato arcuato; alis rectangulis divaricatis, intervallo apicalato; calcare perbrevis conico inflato iutus infra columnam appendiculis 2 conicis carnosis instructo. *Columna* brevis, marginibus superne in cornua ascendentia obtusa productis, basi velo bifido calcar occludente instructa.

From the shortness of its spur this species of *Anectochilus* approximates nearest of all to *Odontochilus*, and tends to invalidate the very artificial character by which these genera are kept apart—namely, that in the former genus the spur, even if reduced to a sac, is exposed, whereas in *Odontochilus* the sac is concealed by the bases of the lateral sepals, which hence form a mentum.—J. D. H.

Fig. 1. Lateral, and 2. front, view of flower. 3. Column and spur of lip, the latter laid open. *All enlarged.*



M.S. del. et lith.

Odontochilus macranthus, Hkf.

PLATE 2161.

ODONTOCRILUS MACRANTHUS, *HooLf.*

QR< HIDE£. Subtribe SPIRANTHEJE.

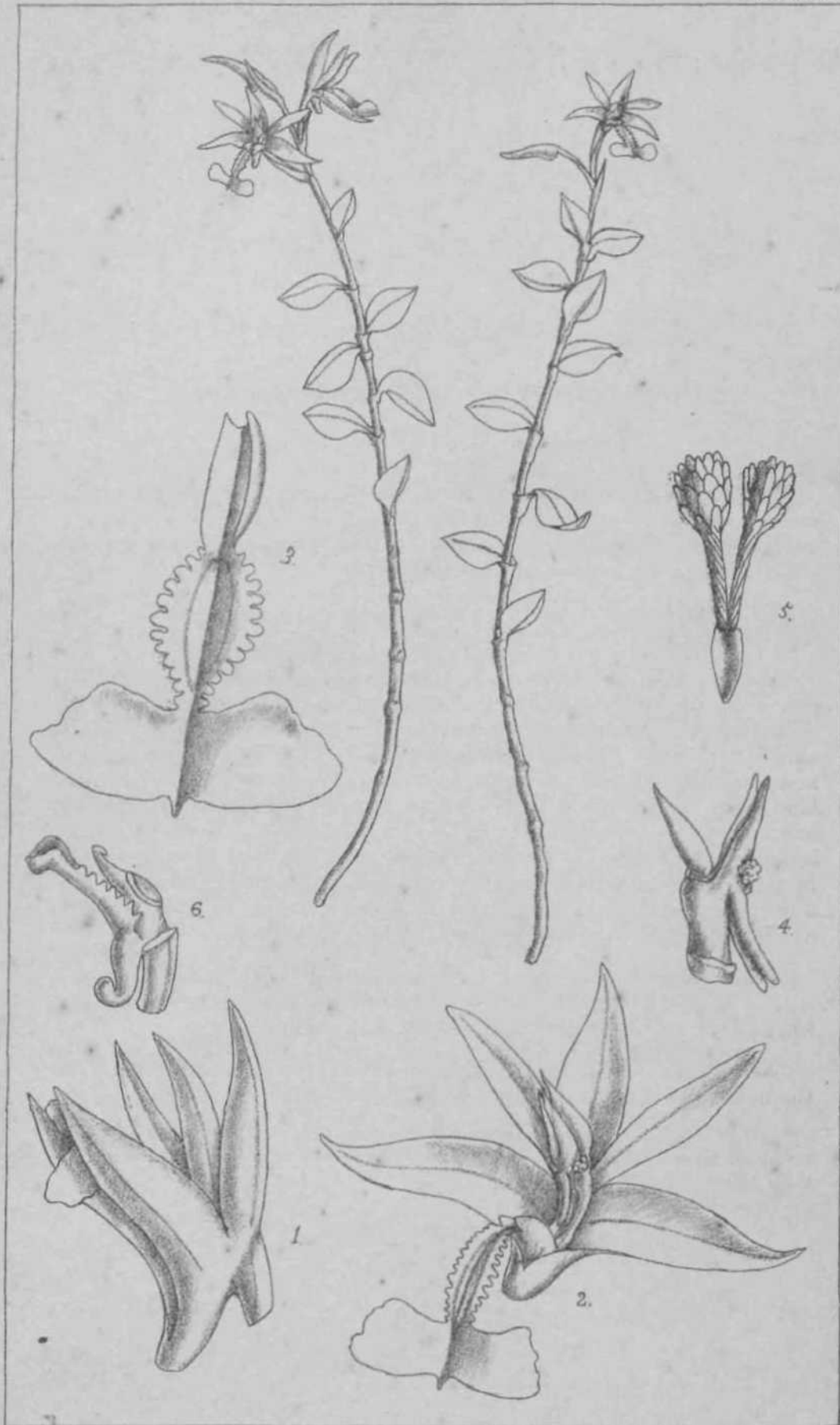
O. (*Myrmechis*) *macrantlius*, *Honk. f. FL Brit, Lid.* vi. 98; canle brevi robusto folioso 1-floro, foliis J-pollioaribus subsessilibns ovatis acutiR, labelli ungne angusto marginibas involatis integerrimis, limbo orbiculari emarginato marginibus basin versus undulato-crenatis.

HAB Malayan Peninsula, Perak, *Father Scortechini*; on **Maxwell's Hill**, *Wray*.

Cauh's basi decumbens, nodosus, dein 2-3-pollicaris, erectns, flexnosus, crassitie pennie corvinae. *Fulia* 1-nervia. *Fins* albus, 1[^] poll, latus; ovario tbliis longiore brevi ter pedunculato brae tea ovata vaginato. *Sepala* erecto-potentia, lateralia Hnari-oblonga, acuminata, basi gibba, 1-nervia. *Petala* dimidiato-ovata, acuminata. *Labellum* \$ poll. Ion gum ; nngais laminso carnusulee ima basi cordataB requilongua ; saccus rotundatus, intus carunculis 2 instructus; velum ad basin columnse 2-fidum. *Columna* brevissima, roatello magno erecto 2-fido, lob is obtusis. *Awthnrrn* lineari-lanceolata; pollinia clavata; caudicula communi elongata, filiformi, gland ula elongata.

As observed in * Fl. Brit. Ind.' this resembles the Javan *Myrmech's glabra*, Blume, but the narrower flowers, long anther, pollen, and rostellar arms distinguish it.—J. D. H.

Fig> 1. Flower. 2. Column and lip with the sac laid open. *Both enlarged.*



MS. del. et lit. K
mo. ac.

Odoniochilus calcaratus, Hkf.

PLATE 2162.

ODONTOCHILUS CALCARATUS, *Hook.*

ORCHIDS. Subtribe SPURANTHERES.

O. (*Myrmechis*) *calcaratus*, *Hook. f. Fl. Brit. Ind.* vi. 09; caule robusto folioso pinnatifido, foliis parvis subsessilibus ovatis acutis v. acuminatis, labelli ungue basi calcarato dein elongato dilatato crenato, alis quadratis rectangulatis divaricatis.

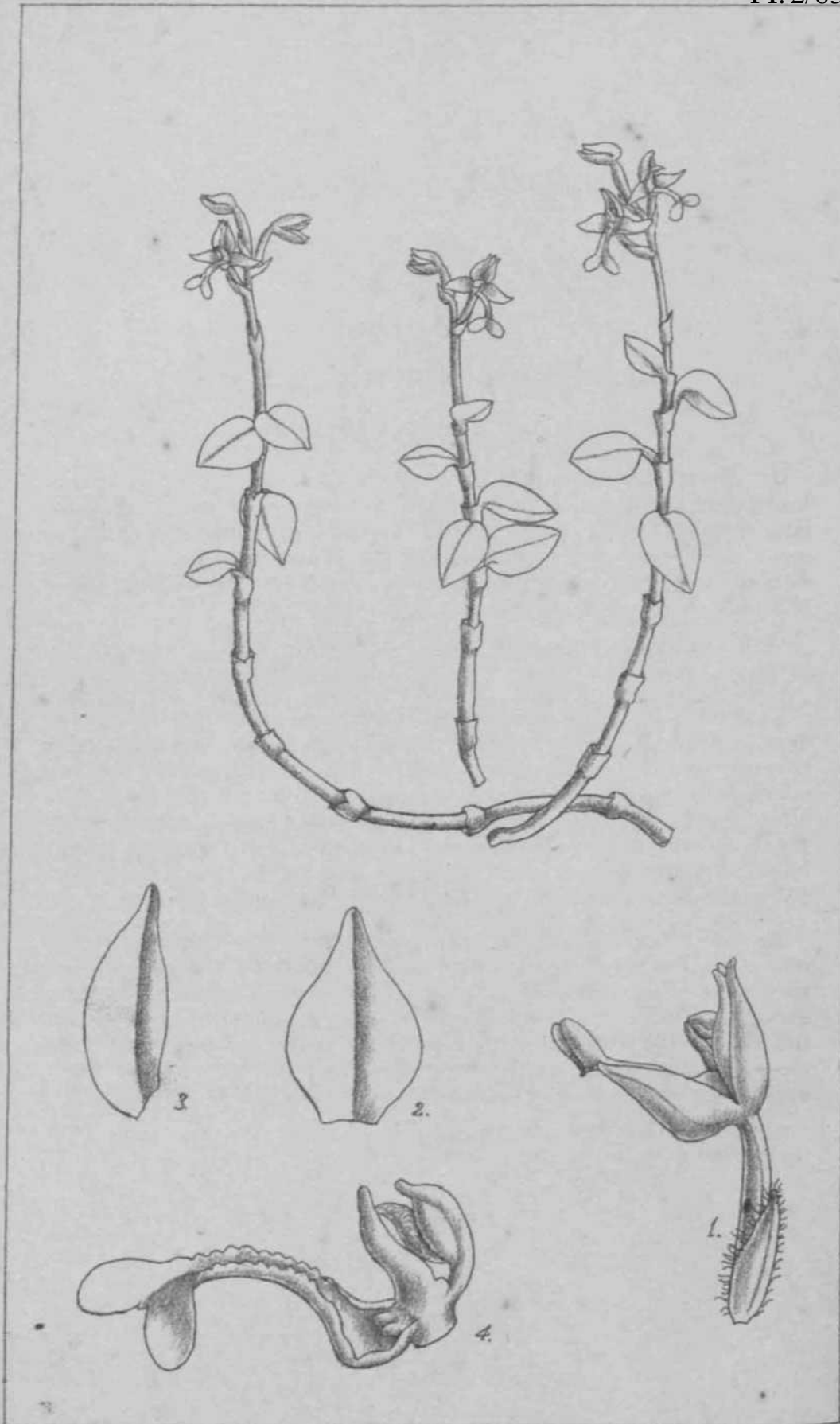
HAB. Malayan Peninsula; Perak, *Father Scortechini*; alt. 3,900 feet, *Wray*.

Caulis 3-5-pollicaris, flexuosus, crassitie penne passerin. *Folia* 1-2-poll. longa, sessilia v. breviter petiolata, acata v. apice aristata. *Prdunculus* brevis, 2-3-florus; bractee lanceolatae, ovaria obovata. *Flutes* albi, 1/2 poll. lati. *Sepala* lateralia ovato-lanceolata, acuminata, basi in mentum calcariforme conicam obtusum connata. *Petalum* linearilanceolata. *Labellum* 1/2 poll. longum, ungue isthmo obovato sed angustiore, basi cuneiformi et in calcar conicam rectum v. apice inflexum productum. *Columna* brevis, basi processu elongato bifido in calcar descendente instructa; rostellum elongatum, erectum, bitidum, segmentis angustis acutis; anthera ovato-lanceolata; pollinia pyriformia, caudiculis liberis crassis striatis; glandula oblonga.

Wray describes the leaves as green dashed with crimson, veined with gold, and bordered with red, the flowers white. *Scortechini* says, leaves dark purple, sepals pale carnation, lip white.

This species invalidates *Blume's* genus *Myrmechis*, of which it has the habit, but the crenate lip-claw of *Odontochilus*.—*J. D. H.*

Fig. 1. Lateral, and 2. front, view of flower. 3. Lip with the spur removed. 4. Column showing the descending bifid appendage. 5. Pollinia. 6. Column and base of lip with spur. *All enlarged.*



MS. del. et lith.

Oclonlochilus purplus, Hk.f.

PLATE 21G3.

ODONTOCHILUS PUMILUS, *Hook f.*

ORCHIDEJ.: Sabtribe SFIRANTHK^.

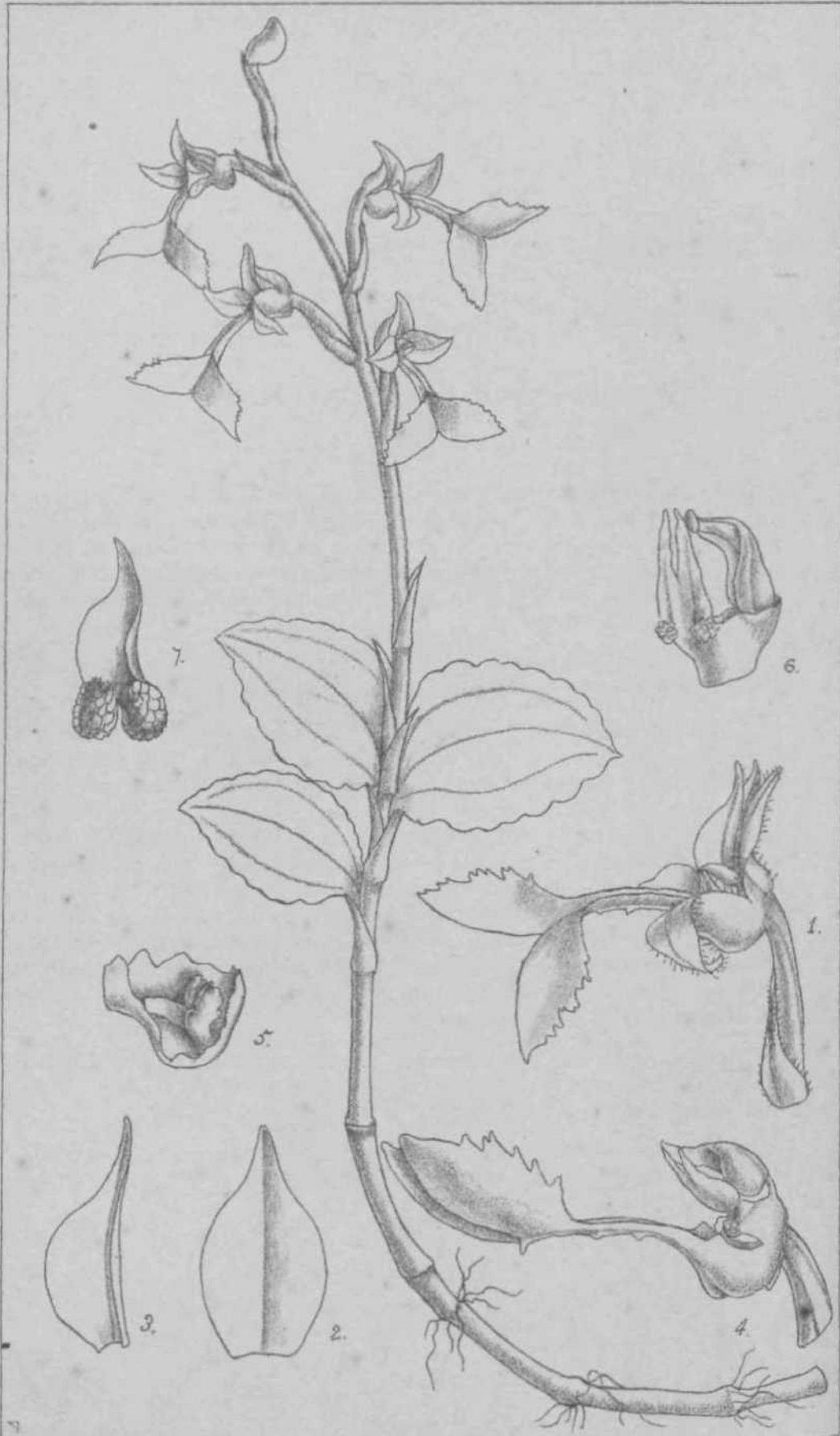
0. (*Myrmschis*) **pumilus**, *Hook f. FL Brit. Lid. v\ 99*; caniiibas brevibus subrobustis tiexuosis paucifloris, fuliis parvis breviter petiolatis ovatis, labelli ungue e basi saccato in ungnera elongatum crenulatain sensim angnstatn, laminae parvee alis oblongw v. quadratis sinn acato. *Cheirostylis pasilla, partim, LindL in Jo urn. Linn. Sac. i. 188 (non Gen. and Sp. Orchid.)*.

HAB. Sikkim Himalaya, alt. 8,000-10,000 feet, *J. P. 1L* and *T. T. Jiomson, King*.

Caulis 3-4-pollicaris, basi d ecu mben a, remote vaginatns, dein ascendens. *Folia* l_2 - l_3 poll, longa, crassiuscula, nervis obscaris, acuta acuminata v. aristata. *Pedunculus* brevis, 2-3-tlorQs, vagina sol it aria ciliata; bractetB ovario breviores, oblongs, ciliatio. *Flores* \ poll, lati, ftlbi. *Sepala* lateralia triangulari-ovata, obtusa, dorsuli a pice recur va. *Petala* obliqua, oblongo-lanceolata. *Labellum* $\frac{1}{4}$ poll, longnm; saccas mtuscallis magnis instructus, lamina ungue brevior, alee ad angalnm 45° coiifluentes, crassinscaleB. *Columna* brevis; anthera magna.

As pointed out in the 'Flora of British India,'⁹ this species so closely resembles *Cheirostylis pusill.n*, that it is difficult to distinguish dried specimens of each without analysis, when the differences are clear enough. In *Cheirosti/lis pusilia* the sepals arc connate to the middle, the lobes of the lip toothed, its claw- Huely hairy towards the tip, its sac with bristles on the nerves within, and the two frontal fleshy appendages are as long as the rostellar arms.--J. D. H.

Fig. 1. FLOWIT and bract. 2. Dorsal sepal. 3. Petal. 4. Column and lip with the HHC laid open. *All enlarged.*



M.S. del, et lith.

Odontochilus crispus, Hk f.

PLATE 2164.

ODONTOCHILUS CBJSPITS, *Hook. f.*

ORCHIDÆ. Subtribe SPIRANTHÆ.

0. (*Euodontoollilus*) *crispus*, *Hook. f. Fl. Brit. Intl.* vi. 99; caule ascendente paucifoliato paucifloro, foliis sessilibus late ovatis marginibus undulato-crenatis, ovario glaberrimo, bracteis sepalisque ciliolatis, labelli ungue basi saccato dein elongato angusto integerrimo v. obscure paucicrenato, lamina) alis divaricatis sinu acuto acinaciforuiibus margine exteriori dentatis.

HAB. Sikkim Himalaya, alt. 5,000-6,000 feet (*l.c. CatJtcart*), *Clarke*; Khasia hills, at Surureem, alt. 6,000 feet, *Clarke*.

Gaulis basi decumbent!, nudus, dein ascendens, unacum pedunculo 6-8-pollicaris, crassitie pennis corvine. *Folia* 2-4, f-1 poll, longa, crassiuscula, 3-nervia, petiolo ^-1 poll. Ion go. *Peduuculus* basi vagi n is lanceolatis acuminatis erectis iustructus, 4-8-florus; bracteaB ovario breviorcs ; ovaria ^-^ poll, longa. *Sepala* late ovata, patenti-recurva, viridia albo-marginata, mentum saccatutn. *Petala* alba, dimidiatim ovata, in rostrum angustata; uervo marginarii. *Labellum* album, ipoll. longum, spalis multo longius; lamina f poll, lata; saccus intus lamella inter callos crassos recurves crenulatos posita iustructus. *Columna* brevissima, rostello erecto 2-fido segmentis acutis; pollinia globosa in apice truncato c:udiculis amplea triangularis coriacee scssilia, glandula parva globosa.

The pollinia of this genus present most singular and diverse forms, which will be best understood by a reference to the analyses on this and Plates 2162 and 2165 to 2168 inclusive.—J. D. H.

Fig. 1. Flower and bract. 2. Dorsal sepal. 3. Petal. 4. Lip and column. 5. Interior of surface of lip. 6. Column. 7. Pollinia. *All magnified.*



M.S. del. et lith.

Odontochilus pectmatus, Ilk.f

PLATE 2165.

ODONTOCHILUS PECTINATUS, *Hook.f.*

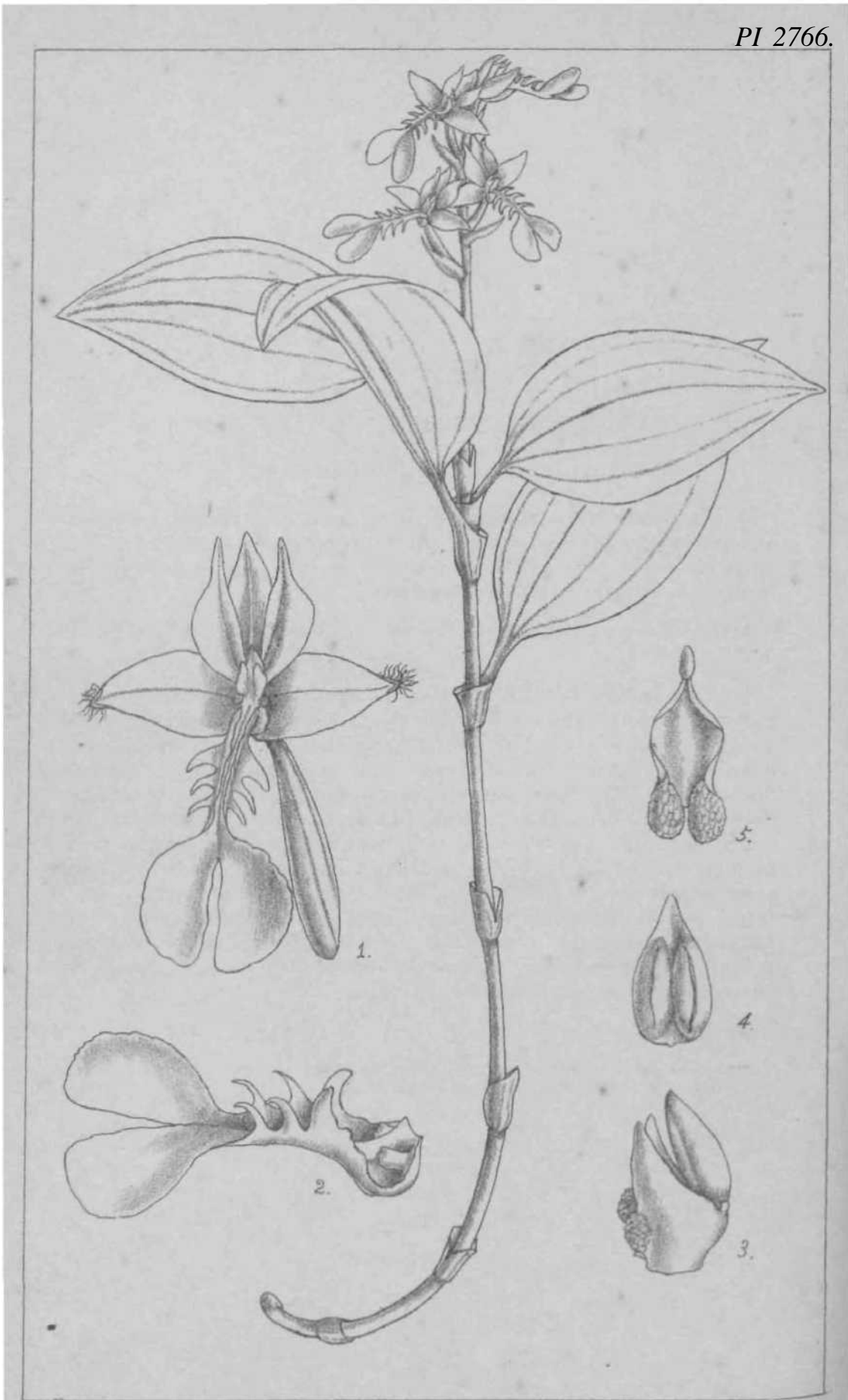
ORCHIDEJE. Subtribe SPIRANTHEJS.

O. (Euofontochilus) pectinatus, *Hook. f. Fl. Brit. Ind.* vi. 99; canle elon^ato folioso, foliis petiolatis ovatis acutis, spica 6-8-flora pubescente, labelli ungue basi integerrimo dein elongato pectinatim dentato, lamiuse luitate alis oblongis subfalcatis integerrimis sinu lato.

HAB. Malayan Peninsula; Perak, alt. 3,000-4,000 feet, *King's Collector*; on Maxwell's Hill, *Wray*.

Caulis crassitie penns antierES, basi deenmbens, dein erectus, 6-9-pollicaris. *Folia* alterna, 1J-2 poll, longa, 5-nervia, crassiuscuJa, pal tide viridia; petiolns |~^ poll, longus. *Pedunculus* unacum spica 3-4-pollicarip, basi vagina foliacea instructns; bractero ^ poll, longa?, lanceolatoe, villosae, ovariiis glabris aBquilongas \ *flares* § poll, lati, albi. *tiepala* lateralialia ovato-lanceoiata, acoiminata, pnbescentia. *Pelala* oblique lanceolata, apicibus attennatis. *Lnbedum* § poll, long am; ala3 divaricate, obtnsae, sinn lato tnberculo interposito; saccus intus callis 2 magna carnosis 2-lobis instructus. *Qolwm.ua* brevissima, auriculis 2 parvis acntis antice marginata; rostellum elongatnm, 2-partitum, lobis angastis aenminatis; anthera elongato-laoceolata; pollinia obovoidea, apice caudioala crassa duplo longiore sessilia, glandula parva oblonga.—J. D. H.

1. Flower. 2. Lip with the sac laid open, showing the calli. 3. Column.
4. Pollinia. *All enlarged.*



M.S. del, et lith.

Odontochilus brevistylis, Hk f.

PLATE 2166.

ODONTOCHILUS BREVISTYLIS, *Hook.f.*

ORCHIDEAE. Subtribe SPIRANTHEJE.

O. (Euodontochilus) brevistylis, *Hook.f. FL Brit. Ind. vi. 100*; caule elongato apicem versus paucifloro, foliis petiolatis ovatis acuminatis, spica pauciflora pubescente, labello basi saccato, ungue paucispinoso, lamina alis semi-circularibus integris.

HAB. Malayan Peninsula; Perak, on G-anong Bata Pat eh, alt. 3,400 feet, *Wray*.

Caulis e basi decumbente erectus, spithameus, crassitie pennaB corvino, remote vaginatus. *Folia* 1-2 poll, longa, 5-nervia, pal lid e viridia; petiolus 1-2 poll, longas. *Peduncululus* pollicaris, nudus; spica 3-4-flora; bractere lanceolatae, ovaria glabra subrostrata subsequentes; flores 1 poll, laevi, albi. *Sepal** lateralia oblique et late ovata, pilis deciduis apice barbellata; dorsali multo minore. *Petala* dimidiato-ovata, rostrata. *Labelum* < 1 poll longum; unguis lamina paullo longior, spinis utrinque 3-4 falcatis carvis superioribus majoribus ornatus; alae approximatae, ungue paullo breviores, sinu angusto; saccus mtns basi 1/2-emiseptatus et callis 2 cylindratis truncatis instructus. *Columna* brevissima; rostellum breve, 2-lobum; anthera ovata; pollinia subglobosa, apice truncato caudiculae dilatatae late triangularis coriacea sessilia, glandula parva oblonga.

The pollinia resemble those of *O. crispus* (t. 2164).—J. D. E.

Fig. 1. Flower. 2. Lip with the sac laid open, showing the caruncles and lamella. 3. Column. 4. Anther. 5. Pollinia. *Fig. enlarged.*



M.S. deUtlitK.

Odontochilus Elwesii, C.B.Cl.

ODONTOCHILUS BLWESII, *Clarke*.

OBCHIDEJJ. Subtribe SPIRANTHEJJ.

0. (*Euodontochilus*) *Elwesii*, *Clarke ex Hook.f. FL Brit. Lid. vi. 100*; caule crassiusculo paucifoliato, foliis ovatis 3-costatis breviter petiolatis, pedunculo elongato et inflorescentia hirsatis, labelli ungue dilatato pectinatim paucidentato, laminae 2-alatae alis subsemicircularibus sinu lato.

HAB. Sikkim Himalaya, alt. 4,000-6,000 feet, *Clarke, King*; Khasia hills, on ShilloDg, alt. 6,100 feet, *Clarke*; Munnejpore on Kohima, *Train*.

Caulis basi decumbens, crassus, articulatus, ad nodos constrictus, dein erectus, 3-4-pollicaris. *Folia* 1-2 poll, longa, crassiuscula, inde viridia, costis crassis rubris; petiolas brevis, crassus. *Pedunculus* 4-florus, validus, v. vaginis 1-2 tomentosus instructus; bractea 2 poll, longior, ovaria tomentosa sequentes. *Sepala* viridia apicibus purpureis, lateralia 1/2 poll. longiora, dorsali brevi latissima acuminata; mentum latum, 2-lobum. *Petala* dimidiato orbicularia, rostrata, alba. *Labelli* linguis sepala vix superans, irregulariter spinuloso-dentata, alba, basi purpureis; lamina majuscula, alis latis integerrimis v. obscure venatis albis, sinu lato; saccus scrotiformis, 2-lobus, intus semi-septatus et callis 2 crassis deformibus instructus. *Columna* brevis, crassa, basi birostrata; rostellum breve, 2-lobum, segmentis subulatis; anthera oblonga, rostrata; pollinia elongato-pyriformia, glandula parva lineari-oblonga W B I W ! D. H.

Fig. 1. Flower. 2. Petal. 3. Column and claw and sac of lip. 4. Sac laid open, showing the septum and caruncles. *Magnified.*



M.S. del. et lith.

Odontochilus Clarkei. Hk.f.

ODONTOCHILUS CLARKEI, *Hook.f.*

ORCHIDEE. Subtribe SPIRANTHEA.

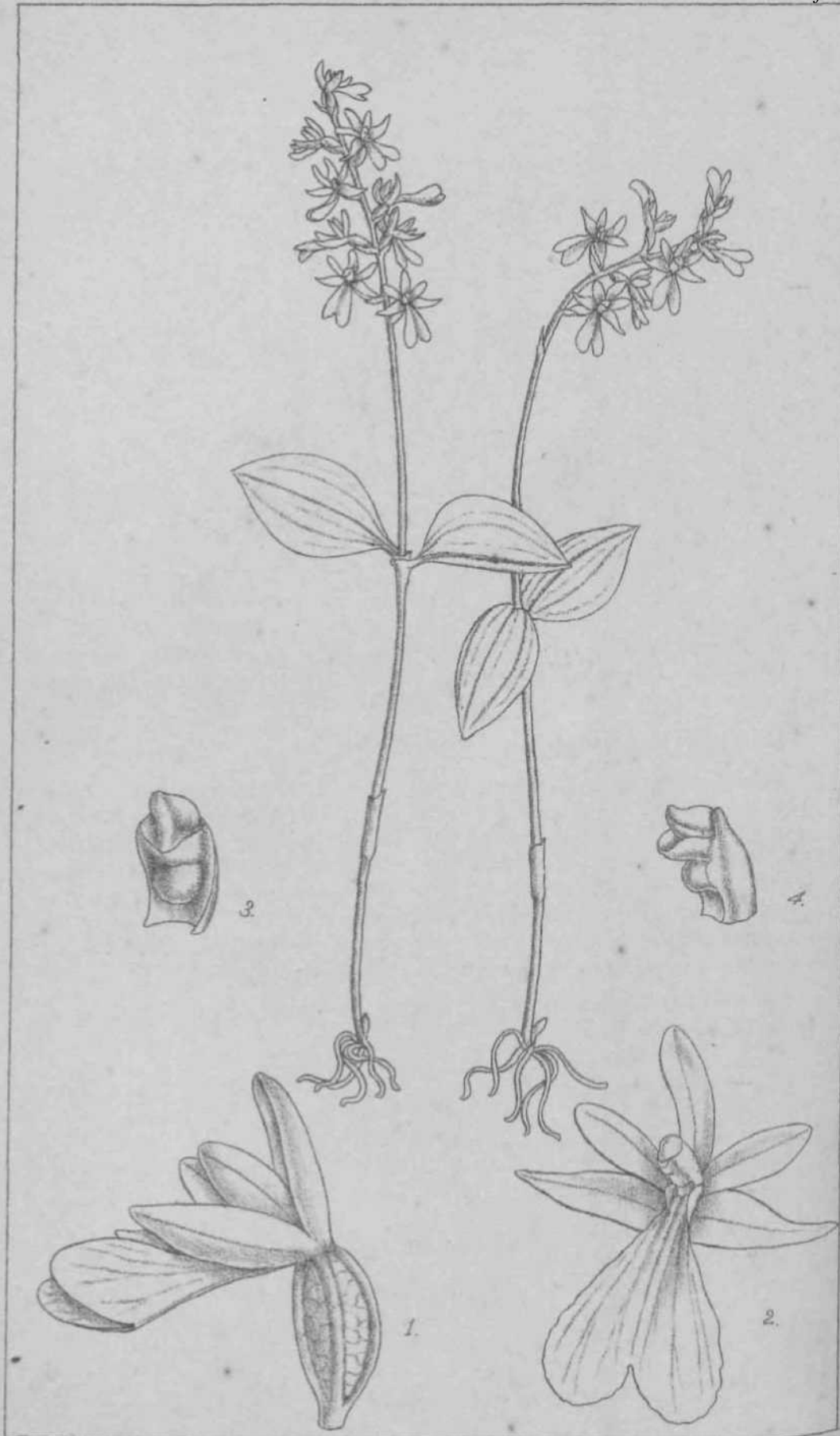
0. (*Euodontochilus*), *Clarkei*, *Hook. f. FL Brit. Ind.* vi. 100; caule elongato remote vaginato paucifoliato, foliis petiolatis ellipticis acutis, pedunculo elongato spicaque (sopalis exceptis) multi flora tomentosis, men to 0, labelli ungue basi facie bi lam el la to et marginibus utrinque late auriculatis dein 2-3 spinoso, laminae alis dolabriformibus integerrimis sinu angusto.

HAB. Sikkim Himalaya; at Mongpo, alt. 3,000 feet, *Clarice*.

Gaulis spica inclnsa[^]pedalis, crassitie pennse anatince, 2-3-foliatns. *Folia* 2-2£ poll. longa, subobliqua, 3-5-nervia; petiolus [^]-1-pollicaris. *Pedunculus* evaginatus. *Spica* 5-6-pollicaris, subdensiflora; bra etc© Kneari-lanceolatae, £-\$ poll. Ion gas, ovaria villosa ©q nan tea. *Flores* § poll. lati. *Sepali* rosea, glabta, lateralia obliqua late ovata, basi contracta, men turn non efficientia; dorsali rotund ata, mucronata. *Petali*, sepalo dorsali cohaerentia. *Labellum* § poll, longam, lamina profnde 2-alata, sepalis integerrimis, ungui sequilongis; saccus parvus, sepalis vix inclnsus, intus semiseptatus et carncnlis 2 elon[^]atis cornuformibus incurvis ad basin columnos instrctus. *Column a* brevis, marginibus productis trnncatis; rostellum bipartitnm, segmentis sulmlatis; antliera elongata, attenuato-acumfnata ; pollinia oblongo-globosa caadicalaa validae flexuosaa striolat© affixa, glandula minuta.

This species is intermediate between *Odontochilus* and *Anectochilus*, having the small sac lamellate within and more or less covered by the sepals of the former genus, but the sepals contracted at the base and not forming a mentnm, and the spurless lip of the latter. It appears to me that these two genera might well be combined, perhaps together with *Cheirostylis*, which only differs in the cohesion of the sepals into a tube, and the appendages of the column ; but if so, *Zevxine* roust follow. These and all the other *Spiranthea*? of India want a very careful analysis of living specimens; so long as the position of the stigma is unknown in so many, and the true natnre of appendages of the column in all, the limitation of the genera must be uncertain. I once hoped that the very remarkable differences in the structure of the pollinia would afford available generic characters, but was obliged to abandon this hope. The analyses of the orchids figured in these 'Icones,' and those described in the pages of the 'Flora of British India/ have been a work of great labour, executed first by myself at various periods between 1882 and 1892; and those of the 'Icones' have been more recently, and quite independently, revised by my accomplished artist, Miss Smith, who has portrayed the results of our analyses, together with the drawings of the plants themselves.—J. D. H.

Fig. 1. Flower. 2. Column and base of lip with the sac laid open, showing the ^{sep}ulum and caruncles. 3. Pollinia. *M enlarged.*



M.S dd, -;thh.

Listera tenuis, Lmcl.

PLATE 2169.

LISTEBA TENUIS, Lindl

ORCHIDACEAE—Subtribe SPIRANTHEJE.

L. tennis, Lindl. in *Journ. Linn. Soc.* i. 176; gracilis, caule teretiusculo medio foliato, foliis ovatis acatis, labello cucullato-obcordato, columna brevi. *Huok.f. FL Brit. Lid.* vi. 104.

HAB. Sikkim Himalaya; Lachen Valley, alt. 11,500 feet, /. D. H.

Leaves 4-5-pollicaris, glaberrimus, infra folia univaginat. *Folia* *longa*, sessilia, 3-5-nervia. *Pedunculus* gracillimus, nudus. *Spica* 1-2 pollicaris, puberula, 6-10-flora; flores brevissime pedicel 1 at, *anthera* poll, lati, virides; bractea ovata, ovatae, membranaceae. *Sepala* lateralia ovato-lanceolata, acuminata, dorsali *petala* linear-oblonga, obtusa. *Labellum* sepalis *JoDgius*, *rotundacis*, sinu acuto. *Columna* vix incurva, anthera obtusa; *columna* breve, concavum, obtusum.—J. D. H.

figs 1. Front, and 2. side, views of flower. 3. Front, and 4. side, views of column. *All enlarged.*



M.S. del, et lith.

Listera pinetorum. Lmdl.

PLATE 2170.

LISTERA PINETORUM, *Lindl.*

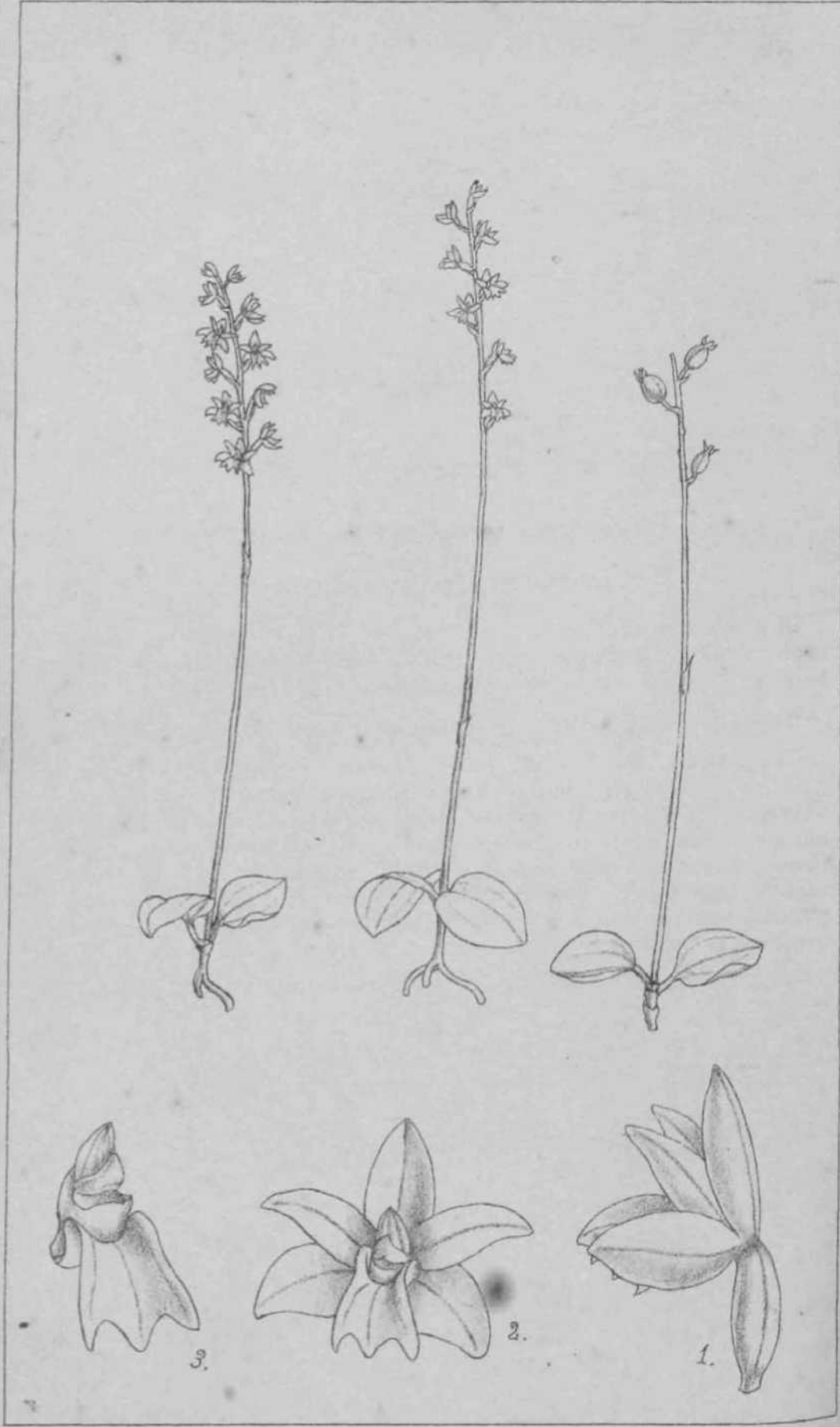
ORGHIDEJL. Subtribe SFIRANTHEJL.

L. pinetorum, *Lindl. in Journ. Linn. Soc. i. 175*; caule robusto angulato longo supra basin foliato, foliis sessilibus cordato-orbicularibus, labello e basi angusta oblanceolato bifido sinu angusto lobis subacutis. *Hook. f. Fl. Brit. Ind. vi. 104.*

HAB. Sikkim Himalaya; in pine woods of the Lachen Valley, alt. 10,000-11,000 feet, *J. 1). H.*; Chumbi Valley, *King.*

Caulis 4-8-pollicaris, glaber, ima basi vaginatus. *Folia* 1-1½ poll, jata, 5-7-nervia, nervis reticulatis. *Pedunculus* brevis, robustus. *Spica* 6-8-flora, pubescens; flores sessiles, decarvi, ^-| poll, longi; bractesae herbaceae, oblongae, obtusae, ovario longiores. *Sepala* ovato-ga, brunnea. *Petala* linearia, obtusa. *Labellum* sepalis bis terve, sinu acuto v. obtuso. *Columna* elongata, incurva, teretiuscula; anthera brevis, obtusa; rostellum rotundatum.—*J. D. H.*

Fig. 1. Flower. 2. Column. *Enlarged.*



MLS.deLethth.

Lislera micrantha. Lindl.

PLATE 2171.

LISTERA MICRANTHA, Lindl

ORCHIDEAE. Subtribe SPIBAKTHEA.

1. *micrantha*, Lindl in *Journ. Linn. Soc.* i. 176; gracillima, foemina subradicalibus petiolatis late ovatis, labello abbreviato) trim cat. o breviter 3-loba, columna brevissima. *Hook. f. Fl. Brit. Ind.* vi. 104.

HAH. Sikkim Himalaya; Lachong Valley, alt. 10,000 feet, J. D. ff.

Gaulia brevis. *Folia* \ poll. longa, 3-nervia, petiolo brevi. *Pedunculus* 2-2[^]-pollicaris, medio univaginat. *Spica* 1-1[^]-pollicaris, puberula, laxiflora; flores brevissime pedicellati, minuti; bracteae minutae, ovatae, acute, ovario breviores. *Sepala* lateralia late ovata, obtusa, decurva, dorsalia oblonga. *Petala* ovato-lanceolata. *Lobellum* sepalis brevibus, quadrato-cuneatum, decurvum, lobis late ovatis obtusis, sinibus rotundatis. *Columna* latior quam longa; anthera ovoidea; rostellum breve, rotundatum.—J. D. H.

Y& 1. Lateral, and 2. front, view of flower. 3. Lip and column. *All greatly enlarged.*



M. S. del. et lit.

Zeuxme goodyeroides, Ldl.

PLATE 2172.

ZEUXINE GOODYEROIDES, *Lindl*

ORCHIDEA. Subtribe SPIKANTHEJ.

Z. (Monochilus) goodyeroides, *Lindl Gen. and Sp. Orchid.* 486; subrobusta, foliis breviter petiolatis ovatis, pedunculo elongato, spatuliformi glabrescens v. pilosula, floribus subsecundis, labello brevi, hypochilo magno saccato, epichilo parvo orbiculari-oblongo v. latissime obcordato. *Hook. f. Fl. Brit. Ind.* vi. 107; *Monochilus galeatus*, *Lindl in Journ. Linn. Soc.* i. 187.

HAB. Eastern temperate Himalaya, from Sikkim, alt. 6,000-8,000 feet, to Mishmi, *Griffith*; and Khasia hills at Moflong, *Griffith*; Pegu, *Kurt (in Herb. Calcutt.)*.

Oculis basi decumbens, radicibus crassis. *Folia* 1-1^{1/2} poll, longa, sessilia v. breviter petiolata, 3-nervia, viridia fascia media pallida, obtusa acuta v. acuminata, petiolo 1 poll, longo. *Pedunculus* 3-6-pollicaris, vaginis paucis lanceolatis. *Spica* 2-3 pollicaris, subsessiflora; bractea 1-2 poll. longae, ovaria glaberrima equantia. *Flora* depressa. *Sepala* rosea, lateralia patentia, oblongo-lanceolata, obtusa v. ^{obtusata} hypochilo incumbente ovato. *Petala* falcata, obtusa, **alba**. *Lobellum* album, sepalis aequilongum; hypochilum eubchemi-sphericum, coriaceum, medio intus 1-costatum, et callis 2 corniformibus recurvis instructum, epichilo hypochilo minore integerrimo v. subulobo membranaceo. *Columna* brevis; rostellum erectum, bipartitum; anthera acuminata; pollinia pyriformia caudiculis gracilibus affixa, **glandula oblonga**.

There are two drawings of the Sikkim plant in *Herb. Calcutt.*; one ^{Das ros 7}, the other green sepals.—J. D. H.

Fig. 1. Lateral view of flower. 2. Front view of flower. 3. Column and lip. 4. Lip removed, showing the cleft and calli. *All enlarged.*



MS. delecth.

Zeuxine rupestris, Hkf,

PLATE 2173.

ZEUXINE RENIFORMIS, *Hook.f.*

ORCHIDEA. Subtribe SPIRAKTHEJ.

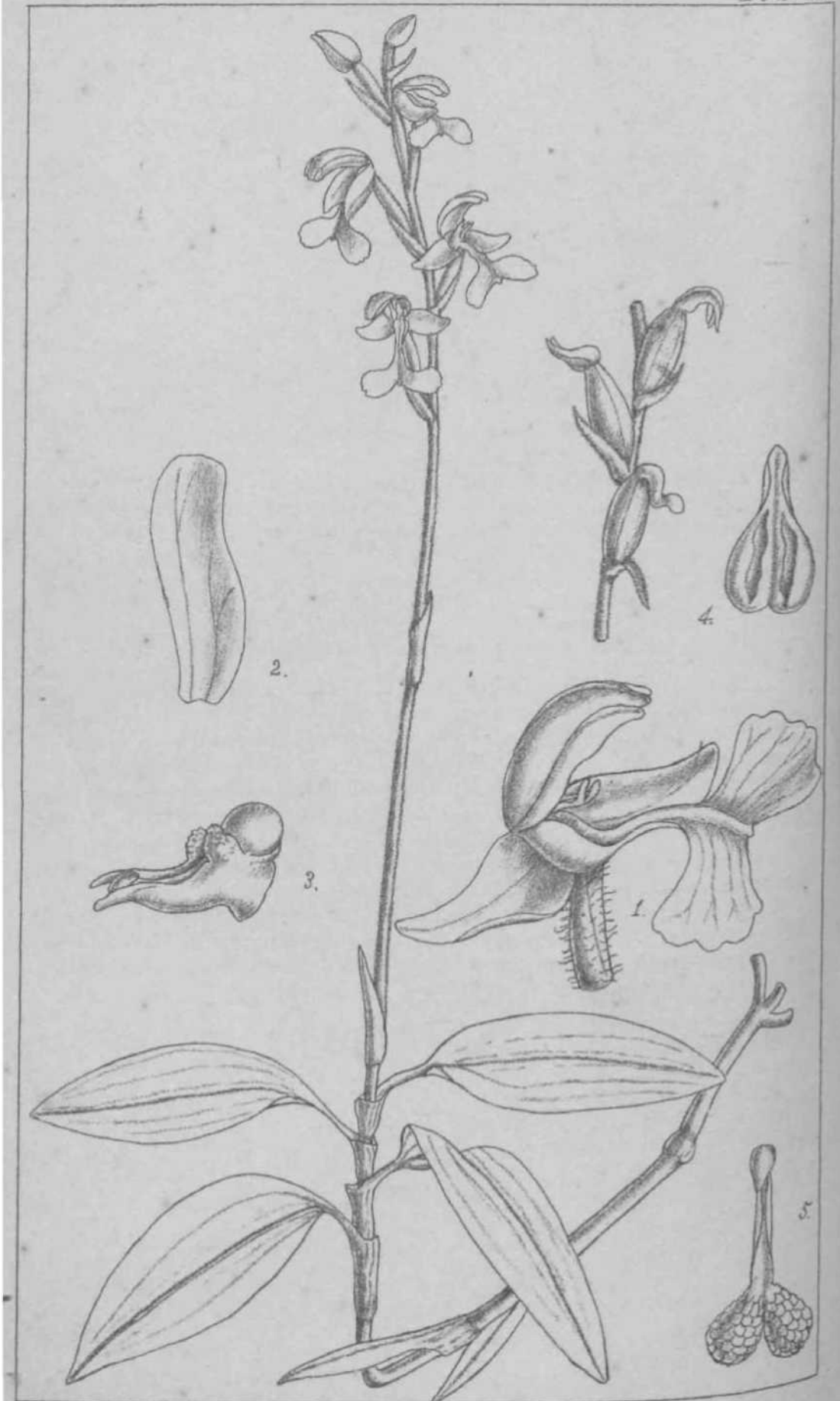
Z. (Monochilus) reniformis, *Hook. f. Fl. Brit. Ind.* vi. 107; caule elongato gracili apicem versus paucifoliato, foliis petiolatis ovato-moecolatis acuminatis, pedunculo spicaeque multiflora pubescentibus, labello basi sacca in unguem brevem angustato, lamina bialata v. oblata indivisa v. dentata lateribus basi inflexis.

HAB. Malayan Peninsula; Perak, *Fatier Scortechini*.

Caulis fere pedalis, erectus, crassitie pennae anaticae, internodiis inferioribus bipollicaribus, superioribus brevioribus vaginatis. **Folia** obliqua, 3-3J poll, longa, membranacea, basi rotundata, petiolo 4 poll, longo. **Pedunculus** 2-3-pollicaris, vaginis lineari-lanceolatis 4-structus. **Spica** 2-pollicaris, laxiflora; bracteis lanceolatis, hyalinis, ovario pubescente longiores. **Flores** 2-2 poll. lati. **Sepala** lateraliter patentia, ovata, obtusa. membranacea. **Petalum** dimidiato-ovatum, acuminatum, erectum. **Labellum** sepalis aequilongum, sacco intus punctato et callis 2 crassis revolutis instructo, unguis marginibus involutis; columna brevissima, rostellum brachia erecta, foveiformia v. biconiformia; anthera lanceolata, acuminata; pollinia pyriformia, lamelliformia, lamelliformis cuneato-quadratae basi et apice truncatae segregatim affixa, gynoecium magna triangularem, cum caudicula continua.

J. In 1881 refer to the figures 4 and 5 to explain the form of the most usual of this species, which it must be difficult to distinguish from the description. A modification of it is given at figs 5 and 6 of PJ. 2175 and it will be seen that both are extreme developments of that represented at fig. 5 of PI. 2174—J. D. fl.

Fig. 1. Column and lip with the sac laid open, showing the semi-septum. 2. Column and lip. 3. Column and lip. 4 and 6. Pollinia. All enlarged.



US.del.ethk

Zeuxinerefi & *Befrih*.

PLATE 2174.

ZEUXINE REGIA, *Benth.*

ORCH\DE£. Subscribe SPJRANTHEiE.

Z. (Monochilus) regia, *Benth. in Gen. Plant* iii. 600 ; caule elongato paucifoliato, foliis petiolatis eilptico-lanceolatis, pedunculo elongato. Spicaque pauciflora pubescenti-pilosis, labelli sepalis longioris lamina alata alis divaricatis late cuneatis v. quadrato-orbicularibus. *Hook. f. Bot. Beechey. Voy. Voy. Pac. fad. vi. 108. Monochilus regius, Lindl. Gen. and Sp. Orchid. 47. Thw. Enum. Pl. Zeyl 313.*

HAB. Ceylon; in damp woods ascending to 4,000 feet, *Walker, Sfc.*

Gaulis gracilis, 4-6-pollicaris, internodiis inferioribus 1-2-pollicaribus superioribus foliaceo-vaginatibus. *Folia* 1-2 poll, longa, acuta, *radix* fasciata mediana pallida, petiolo poll, longo. *Pedunculus* 3-5-pollicaris, vaginis paucis, 4-6-florus; bracteo ovaria pubescentia quantes v. iis breviores. *Sejiala* poll, longa, ovata, obtusa, apicibus dorsali oblongo. *Petala* sepalo dorsali coherentia, lineariter falcata, apice rotundata. *Labellum* poll, longum, basi bifurcatis, dein in unguem v. isthmum sacco sublongum angustatis forma varies, plus minusve truncatis, apice sinuatis, sinu lato; saccus callis 2 parvis uncinatis instructus. *Columna* brevissima, rostellis brachiis elongatis; anthera ovoidea, obtusa, sessilis; pollinia ovoidea in caudicula linearem marginibus inflexis sessilia, glandula parva ovoidea.—J. D. H.

Fig. 1. Lower part of plant. 2. Petal. 3. Column and anther. 4. Anther. 5. Pollinia.



M.S.dslatitlx

Zeuxine nervosa, Bellth..

PLATE 2175.

ZEUXINE NERVOSA, *Benth.*

ORCHIDEJS. Subtribe SPIEANTHEJI.

Z. (Monochilns) nervosa, *Benth. in Gen. Plant*, iii. 600; canle elongato folioso, foliis sparsis petiolatis late ovatis, spica pnbescenti-pilosa, labelli sepalis panllo longioris lamina 2-alata, alis cuneato-obovatis angulo acuto divaricatis. *Hook. f. Fl. Brit. Ind.* vi. 108. *Monochilusnervosus*, *Wall. inlndnl. Qen. andSp. Orchid.* 487; *inJourn. Linn. Soc.* i. 187. *Etaria nervosa*, *Irindl in Wall. Oat.* 7381.

HAB. Sikkim Himalaya, alt. 2,000-4,000 feet, *J. JD. H.*; Silhet and Cachar, *WaUich, Keenan*; E. Bengal, at Oomilla, &c, *Clarke*.

Caulis basi decumbens, 6-10-pollicaris, longe nudus, dein ascendens, crassiusculus. *Folia* 1-2 poll, longa, acuta, 5-7-nervia. *Pedunculus* 2-5-pollicaris, gracilis v. subrobustus, vaginis 2 lanceolatis. *Spica* J--8 poll. lodga, laxi- v. subdensi-flora; bractea ovarium pilosnm. ^quantas, lanceolate; flores viridi-pnrpurei. *Sepalia* ^-J poll, longa, lateralialia ovata, obtusa, patentia. *Petala* dimidiato-ovata, acuminata. *Labellum* basi breviter subsaccatum, in ungiem isthmLmve angnstatnm; & sepala panllo minores; saccus intus semiseptatus, et callis 2 nngui-ymibus recurvis intractus. *Columna* brevissima, basi antice callis < prominulis instrncta; rostellum bipartitum; pollinia pyriformia, in facie caudiculae latso laminiformis (fere *Z. retiiformis* sed pollinia versns acuta) affixa, candicula ope glandnlte elongated rostellum peltatim affixa.—
J. D. H.

F* & ' 1* Lateral, and 2. front, view of flower. 3. Column and sac of lip laid open.
^{4a} -Rostellum, with back of caudicle. 5 and 6. FoLinia. *All enlarged.*



M.S. del et lith.

Zeuxine flava, Benth.

PLATE 2176.

ZEUXINE PLAVA, *Benlh.*

ORCHIDEJ. Subtribe SPIRANTHEJI.

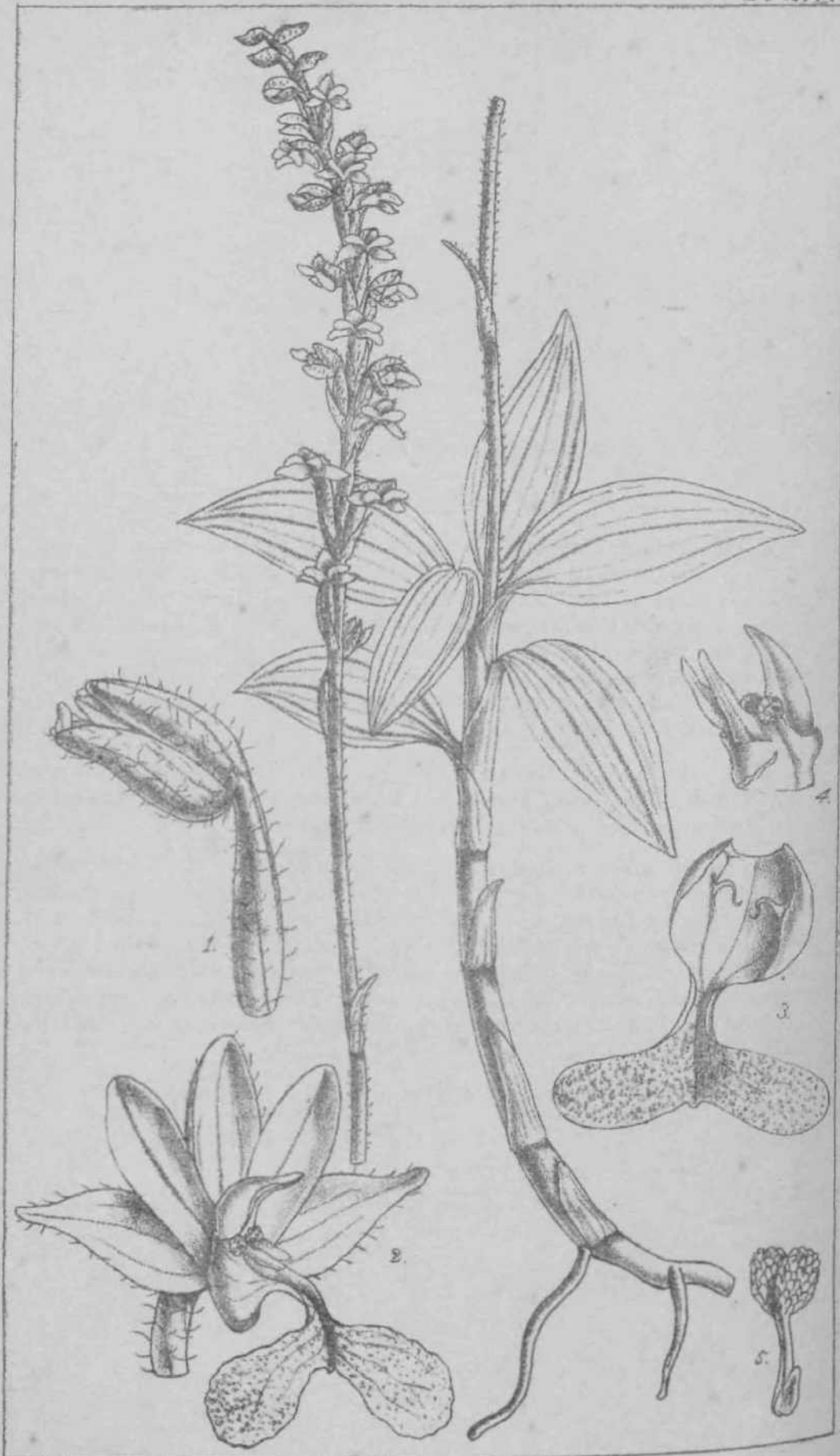
Z. (Monochilus) flava, *Brnth. in Gen. Plant* iii. 600; caule elongato medium versus folioso, folds ovatis acutis, spica glabra v. laxe pilosa multiflora, floribus parvulis, labelli nngne sepalis brevioris ultra saccum marginato, alis late oblongo-obovatis v. dolabriformibus integerrimis v. antice dentatis. *Hook. f. Fl. Brit. Ind.* vi. 108. *Monochilus flavus*, *Wall, in Lindl. Gen. & Sp. orchid.* 487; *Lindl. in Journ. Linn. Soc.* i. 187. *Etroria flava*, *Lindl. in Wall. Gut.* 7380 A. B.

HAB. Nepal, *Wallich*; Assam, *Griffith*; Naga-hills, *Prain*; Tenasserim, *Heifer, Griffith*. Ceylon; Central Provinces, alt. 3,000 feet, *Thwaites*. Malay Isles.

Caulis ascendens, gracilis v. modice robustus, paucifolius. *Folia*, 1-1^{1/2} poll, longa, ssepissime dissita, sessilia v. breviter petiolata, 5-nervia, vagina paulo inflata. *Scapus* 3-6-pollicaris, pauci-vaginatns, saepius laze patentim pilosus; spica gracilis, lnxiflora; bracteae ovaria cequantur v. superantes. *Flares* ad J- poll, expansi, sessiles, ovario breviores. *Sepala* -^{1/2} poll, longa, ovata, obtusa, patentia, alba. *Petala* erecta, subdimidiato-oblonga, obtusa, alba. *Labelli* uoguis basi saccatns, sacco rubro intus calcaribus 2 interdum tortis instructo, alio divaricato. *Oolumna* brevissima; callis anticis elongatis parallels porrectis; anthera ovato-lanceolata; pollinia subgloboso-pyriformia, ope caudiculae brevis glandules parvsa lanceolatae affixa.

Judging from the specimens from many localities, extending over a large area, this species is a very variable one in the form of the lobes of the lip, though in this matter allowance must be made for the mutilation, by drying, of herbarium specimens. The plate is a reproduction of a drawing in the Herbarium of the Royal Gardens, Ceylon, kindly sent by the late Dr. Thwaites; it represents the flowers as white, with a red lip.—J. 1). H.

Fig. 1. Side, and 2. front, view of flower. 3. Column and lip. 4. Lip laid open. 5. Pollinium. *All vn'argcd.*



MIS.del.etliff

Zeuxine affinis, Ben.th

PLATE 2177.

ZEUXINE AFFIWIS, *Benth.*

ORCROIDEM. Sab tribe SPIRANTHEJJ.

Z. (Monochilus) affinis, *Benth. in Gen. Plant ill* 600; caule elongato, foliis ovatis v. ovato-lanceolatis acutis, spica pubescente multi flora, floribus parvulis, labelli ungue ultra saccum marginato sepalis cequi-longo, alis obovato-oblongis obovatis subcaneatisve pnberulis. *Hook. /.* *FL Brit. Ind.* vi. 108. *Monochilas affinis*, *Lindl. Gen. fy Sp. Orchid.* 487 (*excl Bab. Courtallwn*). *Etffiria affinis*, *Lindl. in Wall. Gat.* 7383. *E. flava*, *Wall. Cat.* 7380 0. -<*Etheria mollis*, *Lindl. in Journ. Linn. Soc.* i. 184.

.. HAB. Sikkim Himalaya, in the Terai, *Gamble*; Kbasia Hills, alt. 5,000 feet, *Griffith, &c.*; Larma, at Taong--dong, *Wallich*; Tenasserim, »t Moulmein, *Lobb, Pai-ish*. * Penang, *Maingay*.

.. So closely allied to *Z. flava* (PI. 2176) as to need no detailed description. It may, indeed, prove to be a form of that plant, but the characters Riyeu to it by Lindley are constant, with the exception of the lip not being so l_{ar}g_e as it is described. The flowers are a good deal larger than in *Z. flava*, more hairy, and the two broadly pyriform pollinia have connate candicles as long as themselves. The drawing is a reproduction of one in the Herbarium of the Rojal Gardens, Calcutta, lent by ^Dr. King.-J. D. H.

^Fig- 1. Side, aDd 2. front, view of flower. 3. Lip. 4. Column. 5. Pollinia. *All enlarged.*



VLS ddet] .th.

Ze ux •• i rrechiata.. H k.;"

PLATE 2178.

ZEUXINE ABBBVIATA, Hook.f.

ORCHIDEE. Subtribe SPIRINTHEJJ.

Z. (Monochilus) abbreviata, *Book. f. Fl. Brit. Ind. vi. 109*; caule elongato paucifoliato, foliis petiolatis lanceolatis acuminatis, spica laxiflora pubescente, bracteis ovato-lanceolatis ovariiis elongatis patnlia breyioribus, labelli sacco majasculo costa intus medio 2-lamellata, et basin versus callis 2 magnis instructo, alis parvis ovato-oblongis. *MaBria abbreviata*, *Lindl. in Wall. Oat. 7385*; *Oen. if Sp. Orchid. 491* (-<Etheria). *B. lanceolata*, *Reichb.f. in Trans. Linn. Soc. xxx. 142*. *Dossenia lanceolata*, *Lindl. in Journ. Linn. Soc. iii. 186*.

HAB. Nepal, *Wallich*; Ebasia Hills, alt. 4,000-5,000 feet, /. *D. Uoohar and T. Thomson*.

Berba pedalis, stricta, erecta. *Folia* 2-2[^] poll, longa, ovata v. ovato-lanceolata, mnltnervia, in petiolum % "poll, longum angustata. *bcapus* spicaqae laxiflorio et bracte© puberul®; ovariu glaberrima, fera 4 poll, longa. *Flores* ad £ poll, expansi. *Sepal** late ovata, acuminata, "08ea. *Petala* semi-orbicularia v. lunata, rosea. *Labelli* straminei ^nguis ultra saccum anguste alatus. *Culumna* brevis, atrinque anguste ala ^ . a * * * s ^ndulatis, proceseubus 0, rostello brevi; antbera ovata; polhnia elongata, clavata, caudiculis elongatis, corpusculis lamelliB-formibus; glandula magna.

R The plate is a reproduction of a drawing which I made in the hasxa Hills in September 1850.—J. D. H.

F 6. It? ^l" ?^low <<- 2. Sepal. 3. Petal. 4. Lip with the sac laid open. 5. Side, and •. out, view of column. *All enlarged*.



M.S. del et lith.

Zeuxine moulemer Len. sis. HICL

PLATE 2179.

ZEUXINE MOULMEINENSIS, *Hook. f.*

ORCHIDEJE. Subtribe SPIRANT HEÆ.

Z. (Monochilus) moulmeinensis, *Hook. f. Fl. Brit. Imh* vi. 100; caule gracili, foliis longe petiolatis ovatis ellipticis v. ovato-lanceolatis, vaginis brevibus laxis sacciformibus, scapo gracili spicaque pauciflora glanduloso-pubescentibus, bracteis ovato-lanceolatis ovario glabro aquantibus v. eod. brevioribus, sepalis petalisque acuminatis, labelli ungue ultra saccum rigido immarginato, sacco intus BCCUS costam late alato et basin versus utrinque callo raagno instructo, alis falcato-CQDcatis crenatis lacerisve. *Etceria moulmeinensis*, *Par. et Beichb. f. in Tram. Linn. Soc.* xxx. 142.

HAB. Tenasserim; at Monlmein, *Lohb, Parish.*

Caulis nnaacnm spica 12-18 poll, altus; inferno vnginis cnpulic-formibas instructus. *Folia* pauca, 2-3 poll, longa, inultiuervia, petiolo pracili pollicari. *Scapi* vaginae paucos, remotas, inferiores foliacojo, Kiiuperiores acuminata3. *Furres* ad ^ poll, expans.; ovaria fere i poll, longa. *Sepala* late ovata, acuminata, sicca quasi aristata. *Petala* dimidiato-ovata v. dolabriformia, apicibus recur vis. *Labellum* sepalis longius, sacLi intus sub 4-loceilati lateribus extus carunculatis, unguo alisque pubescentibus. *Columna* brevissima, antice crasse bilamellosn, l'ostello brevi; anthera ovoidea; pollinia pyriformia caudiculaa parva) oblongoB affixa, corpusculis lamelliBformibus.

. A remarkable species, with the interior of the sac of the lip much as m *Z.ahbreviata* (PI. 2178) and having the same thick wing^ on the front of the column, and similar polliuia. The lithograph was made from a dried specimen collected by Mr. Parish in 1868, aided by a pencil sketch by that gentleman.—J. D. H.

. Fig. 1. Dorsal, and 2. lateral, sepal. 3. Petal. 4. Column and lip. 5. Lip with the bac laid open. 6. Column. 7. J'olliiim. *All eniarycd.*



M.S. del et lith.

Zeirine longirolia, Hk.f.

PLATE 2180.

ZEUXINE LONGIFOLIA, *Iluok.f.*

ORCHIDEJE. Snbtribe SPIRANTHEJE.

2. (*H onochilus*) *longifolia*; elata, robusta, foliis lanceolatis acuminatis, spica elongata laxe multiflora, rachi puberula, bracteis ovaribus Kraeilibus glabris paullo brevioribus, sepalis petalisque acuminatis, labelli lingue ultra saccum gracile rigido immarginato, sacco intus secus costam anguste alato et basiti versus utrinque callo ova instructo, alis falcato-cuneatis apice laceris. *Fl. Brit Ind.* vi. 109. *Klombodia longifolia*, Lindl. in *Journ. Linn. Soc.* i. 181. *Hetauria longifolia*, Benth. in *Journ. Linn. Soc.* xviii. 346.

HAB. Sikkim Himalaya; in hot valleys, / *D. Hooker.*

Caulis 6-8-pollicaris, basi procerus ramosus, crassitie pennoolorintD. *Folia* 6-8 poll, longa, in petiolum amplum 1-1 1/2 poll, fungum anrustata, costa valida, nervis obscuris, vaginis brevibus. *Spica* 7-pollicaris, breviter pedunculata; flores quatuorversi, 1-1 1/2 poll. diam.; bractea ovato-lanceolata; ovaria subrostrata. *Sepala* 1-nervia, basica quasi aristata, dorsali ovato; lateralia ovato-lanceolata. *Petala* dimidiato-ovata v. semilunata, longe acuminate. *Labelli* saccus antice alte bilobus quasi 2-alatus, lobis rotundatis sacco intus sub 4-jocellato, lingue inter lobos projecto breviusculo rigido. *Ocolumna* magna, cava, antice truncata et bicarinata; rostellum minutum; pollinia angustiformia, glandula parva lanceolata sessilia, corpusculis laevibus.

The above is from a dried specimen collected by myself. It is the only one known to me.—J. D. H.

Fig. 1. Lower lip with the sac and open. 2. Column. 3. Pollinia. All enlarged.



M.S. del et lith.

Goodyera fusca, Hk.f.

PLATE 2181.

GOODYERA FUSCA, *Lindl.*

ORCHIDACEÆ. Subtribe SPIBANTHEÆ.

G. fusca, *Lindl. in Wall. Oat. ft. 7395*; robusta, foliis radicalibus confertis lute ovatis, spica elongata densiflora pubescente, floribus secundis, bracteis flores superantibus, sepalis ovatis, petalis acinaciformibus falcatis obtusis, labelli sacco magno apice inter sepala exserto iutus alte 5-7-costato, lamina parva decurva uniuiformi v. ovata, columna brevissima. *Fl. Brit. Ind.* vi. 112 (*excl. cit. Hook.!*) [^]*Etheria fusca*, *Lindl. Gen. & Sp. Orch.* 491, *Journ. Linn. Soc.* i. 184. *Cyrtorchis fusca*, *Benth. in Oen. Plant.* iii. 599.

Hab. Subalpina Himalaya; Nepal, *Wallich*; Harnag, *Munro*; Garwhal, alt. 13,000 feet, *Duthie*; Sikkim, alt. 12,000-14,000 feet, *Hooker*.

Radices crasse fibrosæ. *Folia* 1-1 1/2-pollicaria, patenti-recurva, sub-acuta, coriacea; petiolo lato brevi. *Stipulae* crassitie pennæ antherino?, unicum spica 5-10-pollicaris; bracteoæ canaliculatae spathaceæ; flores 1/2 poll. diam. *Sepala* obtusa. *Labeum* costa apexque incrassatum. *Columna* lata; anthera parva, stipitata, didyma.

Referred by Bentham to *Cystorchis* (which is an eminently tropical genus of very different habit) on account of the sac of the lip projecting between the lateral sepals, but I! wants the characteristic calli in the sac of the lip of that genus, and the habit is entirely that of the temperate (*Goodyera*. In 'Fl. Brit. Ind.' when removing *G. fusca* from *Etheria*, in which Lindley had latterly placed it, I overlooked the fact that this author had originally referred it to *Goodyera*.—J. D. H.

Fig 1. Bracts and flower. 2. Petal. 3. Lip and column. 1. Limb of lip. A. Lateral view of column. *All nitid.*



M S del et lith

Goodyera Prainii, Hk f.

TV iii' 2182.

GOODYERA PRAINII, *Hook. f.*

ORCHIDEJ. Subtribe SPIRANTHEJE.

G. Prainii, *Booh. f. Fl. Brit Iml.* vi. 112; foliis pctiolatis elh'pticp. °vut is acutis, spiea recurva glanduloso-pubescentc, floribus secundis, bracteis lanceolatis flores tequantibns, labello cymbiformi obtnso intus costato v. lainellato, rostelli biacLiis eloogatis, anthera longe rostrata ucuminata.

HAB. Upper Assam, on Puliuabadya in the Naga Hills, nit. r20U feet, *Praia*.

Caulis mnacnm scapo et spica 6-poilicaris, robnstns. *Folia* non conferta, 1-2 poll, longa, petiolata, 5-nervia, nervulis anastomosanti- bns petiolas \-h poll, longus; vagina brevi, laxa. *Scopus* 2-3- vaginatDH, vapinis inferioribus foliaceis; flores erecti, ad ^ poll. lati. *Sepala* lateralialia oblongo-lanceolata, dorsali ovato. *Petal a* lineari-oblonga, obtusa. *La bell urn* explanatum, ovatum, v. fere lanceolatura, intus 5-costatum. *Columna* brevissima; rostelli brachiis subulatis; anthera orbicularis, longe rostrata.

Very closely allied to Lindley's *G. recurva* from the Khasia Hills, ^yhioh has liuear-lanceolate leaves, a sharply deflexed spike with linear bractn, much smaller flowers, and a beaked lip. I have seen no "ther specimen than that figured in the accompanying plate, where t he rhizome and pseudobulbs of a species of *Liparis* are seen intermixed with the roots of the *Goody era*.—J. D. H.

Fi?. 1. Bract and flower. 2. Doraal, and 3. lateral, sepal. 4. Petal. 5. Lip and column. 6. Lip laid open. 7. Column. *Ml enlarged*.



M. S. del. et lith.

Goodyera gracilis, Hk. f.

PLATE 2183.

GOODYERA GHACILIS, *Hook. f.*

ORCHIDEJE. Sabtribe SPIBAKTHEJB.

G. gracilis, *Hook. f. FL Brit. Ind.* vi. 112; foliis paucis petiolatis (elliptico-ovatis, scapo gracili, spica brevi puberula, bracteis floribus brevioribus, labello recto oblongo concavo infra apicem emarginatam breviter rostrate, disco lamella crassa percurso et basi callia 2 pyriformibus instructo.

HAB. Perak, *Father Scortechini*.

Oatdis nunc scapo et spica 2-3-bracteata 8-10 pollicaris, gracili. *Folia* subremota, 1-1¹ poll, longa, obtusa r. apiculata, marginibus siccis reticulatis, nervis obscuris. *Spica* 1-1¹-pollicariB, pauciflora, teretis; flores conferti, ad 1 poll. lati. *Sepala* lineari-oblonga v. lanceolata, obtusa, 1-nervi, basi gibba. *Petala* sublinearia, obtusa. *Labellum* Repalis parvis brevius, crassiusculam, marginibus incurvis. *Columna* brevis; rostellum brachia elongata; anthera lanceolata, obtusa; pollinia anguste pyriformia, breviter pedicellata glandulose parvis lineari affixa.

The drawing is made from a specimen collected by Father Scortechini. It was accompanied with a rude figure, in which the leaves are represented as more ovate, acute, and strongly crenate.—J. D. H.

Fig. 1. Bract and flower. 2. Lip and column. 3. Interior of lip. 4. Anther. 5. Pollinia. *AIL enlarged.*



M.S. del et lith.

Goodyera robusta, Hk.f.

PLATE 2184.

GOODYERA ROBUSTA, *Rook.*

ORCUIDK.E. Subtribe SPIKANTHE*.

G. robusti. *Book.* *Fl. Brit. Ind.* vi. 113; data, robtista, foliis pitiolatis ovatis ovato-lauceolatisvc acatis nervosU, spica elon^ata multixitlum gUiJalrtso-totnenUwii, bract era dares secundos ~~nkDK~~ culos coq multibus v. brevioribua, petalift obliqno obovuto-spatiulutus, labello saccato lamina parva ovata terminato, sacco iiiLus scoso.

If vs. Kbasia Hills, alt. 4,000 feet, / *D. Hooker* and *T. Thomson*.

CMu/if nuacnm Bcapo et spica IS polliaris, **oruntia** [pennæ olorinæ. *Foli*i 3—t ptill. longa, conroloria, in petiotum ^-\ **poLL** **LoDgum** angustata, 'J-nervia, reticulatira venosa. *Sca*JH\$ ad 3-bractealus; spica 7-j3ollicaris; brnctca; **i** poll, lungna; flores § poll. dinm. *Sopota* lateralia ovatn, basi jribba, d<irii<li **angnr**ttara. *Petal** **BaW&'oat***, obtusa. *Labethan aepiUit* bn*viu.«, lamina **dSOO** lamullaUi. *Columna* brevisj rofitelli bnujliia subutata ; until era lanccolata.

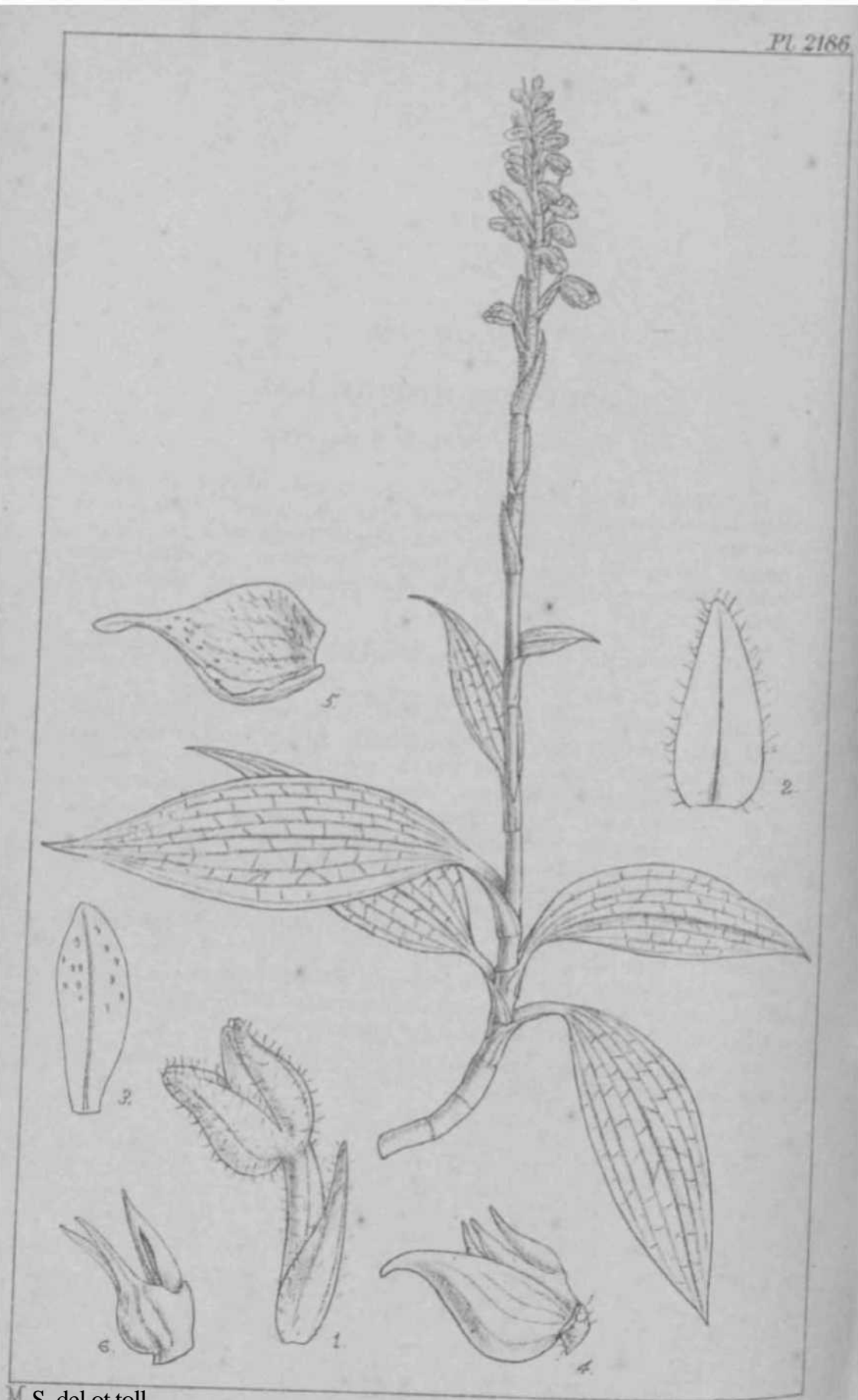
Regarded by Lindley as conspici6c with his *Q. seGuruiiflora*, also a native of tho Kbusia Hills, wbero it was first found by Griffith, and i« figured in his 'loon. Pi. Asiat.' t. 347* f. 2, and subsequently by **Myself and others**. *Bui 0. uamdiflora* is a very **modi** smaller fewer-•1 I- plant, and its leaves are **mottled** with white. **The drawing is** wade ¹¹ in a **unique** (dried) specimen collected by Dr. Thomson and **nrsstf** in 18.>0.—J. D. H.

Viz. \. *VUtwer*. 2. Petal. 3. Lip and column, t. Lip Uid open. 5. Frouit **rfa**< of column. *AH fad*.



M.S. del et lith.

Goodyera vittata, Ber, 131.



M. S. del ot toll.

Goodyera hispida, Lindl.

PLATE 216C.

GOODYEHA HISPIDA, *Lindl*

ORCHIDBJ. Subtribe SPIKANTHE*.

G. *hispida*, *Lindl. in Journ. Linn. Soc. i.* 183; foliis ovato-lanceolatis acuminatis glaberrimis nervosis, spica glaucescens-hispidula tortis, bracteis floribus parvis brevioribus, sepalis ovato-oblongis obtusis, petalis oblongo-obovatis obtusis, labello ciliato in lamina brevem Babrostriformem angustato, sacco intus sparse serotino. *Hook. f. Fl. Brit. bid.* vi. 114.

HAB. Khasia Hills; at Charra, alt. 4,000 feet, /. D. Hooker atid T. Thornton.

Caulis nunc scapo et spica 6-7-pollicaris, gracilis. *Folia* 2-2i-pollicaria, breviter petiolata, licet viridia albo striata et reticulata; vagina brevis. *Scapus* 5-bracteatus, superne cum spica pilis rigidiusculis glandulosis instructus, bracteis inferioribus foliaceis; flores in pollinibus, diam., albi. *Sepala* lateraliter ^ pollinibus, longa. *Petalum* obtusum, uninerviis. *Labello* sepalibus brevibus. *Columna* brevis, rostellum brachium hubulatis; anthera lanceolata; pollinia anguste pyriformia caudiculis brevibus glandula magna affixa.

O. hispida was originally described by Lindley from the solitary specimen here figured, collected in August 1850. I have seen no other, but have a drawing of evidently the same species in the Herbarium of the Calcutta Botanical Gardens, made in 1875, probably from a cultivated specimen brought from Sikkim.—J. D. H.

Fig. 1. Bract and flower. 2. Dorsal sepal. 3. Petal. 4. Lip and column. 5. Lip laid open. 6. Column. All enlarged.



M.S. del, et lith.

Goodyera cordata, Ben.th.

PLATE 2187.

GOODYERA COEDATA, *Benth.*

ORCHIDEJ.: Sabtribe SPIRAKTHEJE.

O. cordata, *Benth. in Herb. Kew.*; gracilis, foliis ovato-cordatis 3-flerviis, spica pauci-laxiflora pa hern la, bracteis floribus magnis sab-[^]rectis brevioribns, sepalis ovato-lanceolatis, petalis dimidiato-obovatis subfalcatis, labello rhotnboideo-ovato subsaccato intas setoso. *Nichols. Met. Gard.* ii. 810. *Hook. f. Fl. Brit. Ind.* vi. 114. Georcbis cordata, *Lindl. Gen. ** *>> *Orchid.* 496 (*excl. Habitat.*); *lieichb. f. in Gard.Chron.lb79,ii.&20.*

HAB. Khasia Hills, alt. 3,000-4,000 feet, *J. D. Hooker* and *T. Thornton*; Naga Hills, in Upper Assam, *Prain*. PPerak, *Father Scortechini*.

Caulis unacum scapo et spica 6-12-pollicaris, radices pancas Bimplices elongatas crassas emit tens. *Folia* H-2.[^] poll, longa, basi rotundata v. cordata, obtusa v. acnta; petiolo gracili, £-£ poll, longo. *Srcif^ut* unibracteatus, nmacum bracteis floribusqne pallide fnsco-raber; Rpica 4-8-flora; flores remoti. 1 poll. lati. *Sepala* trinervia, apicibus obtusis. *Fetala* subacinaciformia. 3-nervia, obtnsa. *Labellnm* mnlti-nervp, sepalis brevius, apice acntum v. obtnsiasculam. *Oolumna* lata; rostellii brachia lanceolata, yalde elongata; antbera longa, e basi rotundata 2-loba fere snbulata ; pollinia angusta, glandale elongates lineari gracili longitndinaliter adnata.

The plate is the reproduction of a coloured drawing made at Pomrang, in the Khasia Hills, by myself in September 1850. There is a plant very much like it found in Perak by Father Scortechini, in which the seta} nearest the tip, in the interior of the lip, are clavellato. Lindley's habitat of Ceylon (Macrae) is most probably an error; the specimen he described was probably received from the Khasia Hills, and collected by Griffith, who sent orchids to Lindley.—J. D. H.

Fig. 1. Lateral, and 2, dorsal, nepal. 3. Petal. 4. Lip laid open. 5. Column. 6. Anther. 7. Pulliuiia. *All tnlurged.*



M.S. del et lith

Oodyera bjioui-a, H. & F.

PLATE 2188.

GOODYERA BIFLORA, *Hovk. f.*

ORCIBIDEM. Sabtribe SPIRAKTHEA.

G. Kflora, *Hook. l. Fl. Brit. Ind.* vi. 114; canle breri robusto foliuso, foliis breviter petiolatis ovatis, spica subsessili 2-4-flora pnbescente, bracteis lanccolatis floribus magnis paacis secundis brevioribus, sepalis lanceolatis lateralibus baei connatis, labello basi Baccato intns setoso in laminam angastam elongatam prodncto. Georchis biflora, *Lindl. in Wall. Oat. n. 7379* ; *Gen. & Sp. Orchid.* 4<J6.

HAB. Western Himalaya; in the temperate region, from Nepal (*Wallich*) to Simla, *Gamble, &c.*

Caulis ascendens, crassns, radices simplices crassas emittens, nncum spica 3-4-pollicaris. *Folia* 1-2 poll, longa, crassiuscula, obtnsa ♣. auuminata; petiolo | poll. longo; vagina brevis, laxa. *Scapus* **brevissimus, bracteis elongatis obtectus; spica 3-4-flora; flores fere 1 poll** longi. *Sepalum* dorsale paullo reenrvum, lateralia recta. *Petala* linearia, obtusa, falcata, sub 3-nervia. *Labelli* lamina angusta, medio 3-nervis, basi eaccata triplo longior. *Cnchimua* brevis, rostelli brachia setiformia valde elongata; anthera subnlata, rostello aequilonga. *Oapsula* ellipsoidea, teres, matara fere pollicaris.

The largest flowered and fruited Indian species. The drawing was Bade from a Simla specimen (dried) collected by Mr. Gamble in October 1877.—J. D. H.

Fig. 1. Dorsal, and 2. lateral, sepals. 3. Fetal. 4. Lip and column. 5. Lip with **the** MC laid open. 6. Column. *All enlarged.*



M.S. del et lith

Hertaeria Helferi, Hk.f

PLATE 2189.

HETJERIA HELFERI, *Rook. f.*

ORCHIDEA. Subtribe SPIRANTHEA.

E. Helfer, *Book, f. Fl. Brit. Ind.* vi. 115; gracilis, foliis petiolatis ovatis acutis, spica elongata multiflora pnbereaia torta, bracteis floribus parvis brevioribus, sepalis ovatis, petalis linearibus obtusis subfalcatis, labello cymbiformi acuto intus ntrinque basin versus setulis paucis instructo.

HAB. Tenasserim (on an island of the Mergui Archipelago), *Heifer.*

Caulis ascendens, inferius nudus, nunc scapo et spica 6-10'-pollicaris. *Folia* 3-4-pollicaria, 3-nervia, in petiolum subgracilem J-^-pollicarem angustata, membranacea, nervis numerosis, primariis* 3; vagina brevifl., laxa. *Scapus* gracilis, univaginatus, et bracteis plurimis bracteis patentibus infra spicam instructas; spica torta; flores in poll. lati. *Lobellum* parvum. *Oolmna* brevis, antice breviter 2-alata; rostellum brachia brevia; anthera ovata, rostrata.

The drawing is from Heifer's specimens.—J. D. H.

Fig. 1. Flower. 2. The same spread open. 3. Lip and column. 4. Column. 6. Anther. *All enlarged.*



M S del et lith.

Heteria elongata Lindl.

PLATB 2190.

HETJERIA ELONGATA, *Id*dl*

ORCHIDEE. Subtribe SPIRANTHEE.

H. elongata, *Limit in Watt. Cut.* ». 738i (Eia?ria); *Oeit. is Sp. Orchid.* 4:11; elatu, irracilis folis petiolatis elliptico-ovatis subsiculis, spica elongata **laxifloram** laxe tomentosa, **braeteia** ovario **brevioribaa** scapulis ovato-oblongis obtusis, petalis obovato-oblongis obtusis, **Ubello** columnae adnato cymibiformi apice rotellato bay in versus intos tooth'ter setoso. ? *Trim. Cat. Ceyl. PL* 91. *Hook. f. Fl. Brit. Ind. vi.* 116. Goodyera? elongata, *Lindl. Gen.* 6 8p. *Orchid.* 4:11. ? *Rhynchophidia elongata, Thwaites Enum. PL Ceyl.* 313.

HAB. Malayan Peninsula? *Finlayson.* ? Ceylon, Hewabetto and Ambagamowa Districts, alt. 4,000 feet, *Thwaites.*

Caulis* nunc scapo spicifera 18-poll. caris, in femore longe foliosus, **Folium** 2-3½ poll. longa, membranacea, inferius obtusa; **petiolus** 1-2 poll. longus; vaginulae breves, laxae, inter nervos hyalinae. **Scopus** paucibracteatus. **Spica** 4-6-pollicaris; bracteae poll. longa?, **lanceolatae**; flores fere 1 poll. hinc. **Sepala** 3-nervia. **Petala** columnae lateribus inferius niargine interioris medio incrassata, gibbata. **Lobus** superioris membranaceus. **Columna** brevis, antice ad basin hinc processibus erectis instructa; rostellum brachia brevia, subulata; anthera ovato-cordata; pollinia subglobosa-pyriformia, caudiculis glandulatis oblongis affixis.

The adnation of the base of the lip to the sides of the column in this species is curious, as is also the vertical insertion of the petala on the sides of the column. Finlayson's habitat for the plant is uncertain; he botanised (during Sir Stamford Raffles's mission to the Court of Siam) in the Malay Peninsula and Siam, and in N. Cochinchina; and Wallich, by whom his specimens were distributed, rarely gave a locality for them in his catalogue. The plate is made from a specimen cultivated at Kew in 1847, which precisely agrees with Finlayson's. I have seen no specimen of the Ceylon plant (which habitat was by oversight omitted in the 'Flora of British India'). *Useless, as is most probable, the Kew Garden specimen was received from Ceylon.-J. D. H.

Fig. 1. Inflorescence and flower. 2. Petal. 3. Lip and column. I. Interior of lip and portion of column. J. Pollinia. All enlarged.



M.S. del et lith.

Hetæria elala.Hk.f.

PLATE 2191.

HET-ERIA ELATA, *Hook. f.*

OKCHIDEJK. Subtribe SPIBANTHEA.

E. elata, *Hook. f. Fl. Brit. Ind.* vi. 116; *gracilis*, *elata*, *glaberrima*, *foliis* longe pttioiatis ovato-lanceolatis acuminatis, *scapo* elongate bracteis pluriniis lanceolatis vaginato, *spica* elongata multi-densiflora, *floribus* minutis, *sepalis* lateralibus late ovatis obtusis, *petalis* linearibovatis, *labello* minimo subhemispherico apice rostellato, basi utrinque intas callis 2 et apicem versus lamina transversa instructo.

HAB. Perak, *Father Scortechini*; on Batang Padong, alt. 4,900 feet, *Wray*.

Gaulis unacnm scapn spicaque 18-24-pollicaris. *Folia* subdistantia, 4-5 poll, longa, in petiolum 2-3 poll, longum gracilem angustata, multinervia, vagina brevi laxa. *Scapus* 6-pollicaris; bracteae inferiores foliaceae, *spica* 3-5-pollicaris; flores quatuorversi, ^ poll, lati glaberrimi. *Labellum* a latere compressum, profunde saccatum, callis ad basin interdu conicis, lamina infra-apicali crassiuscula, membrana 2-fida terminata. *Columna* brevis, subquadrata, rostellis brachia brevia; anthera parva, ovata.

I have not satisfactorily ascertained the structure of the interior of the lip and of the column in this species, which can only be made out on living specimens. The tip of the transverse infra-apical plate of the labellum appeared to me to be an orbicular entire membrane; in Miss Smith's drawing it is fleshy and bifid, and the short rostellar arms which I described in 'Fl. Brit. Ind.' are absent in her drawing or replaced (see fig. 5) by two conical projections towards the base of the column. The drawing was made from dried specimens, aided by a sketch by Father Scortechini.—J. D. H.

Fig. 1. Flower. 2 and 3. Sections of portion of lip. 4. Lip and column. 5. Column. *All enlarged**



MSdele-tlith

Aphyllorchis; **Pranii**, Hk.f.

PLATE 2192.

APHYLLORCHIS PRAINII, *Hook.f.*

ORCHIDEA. Subtribe DIURIDES.

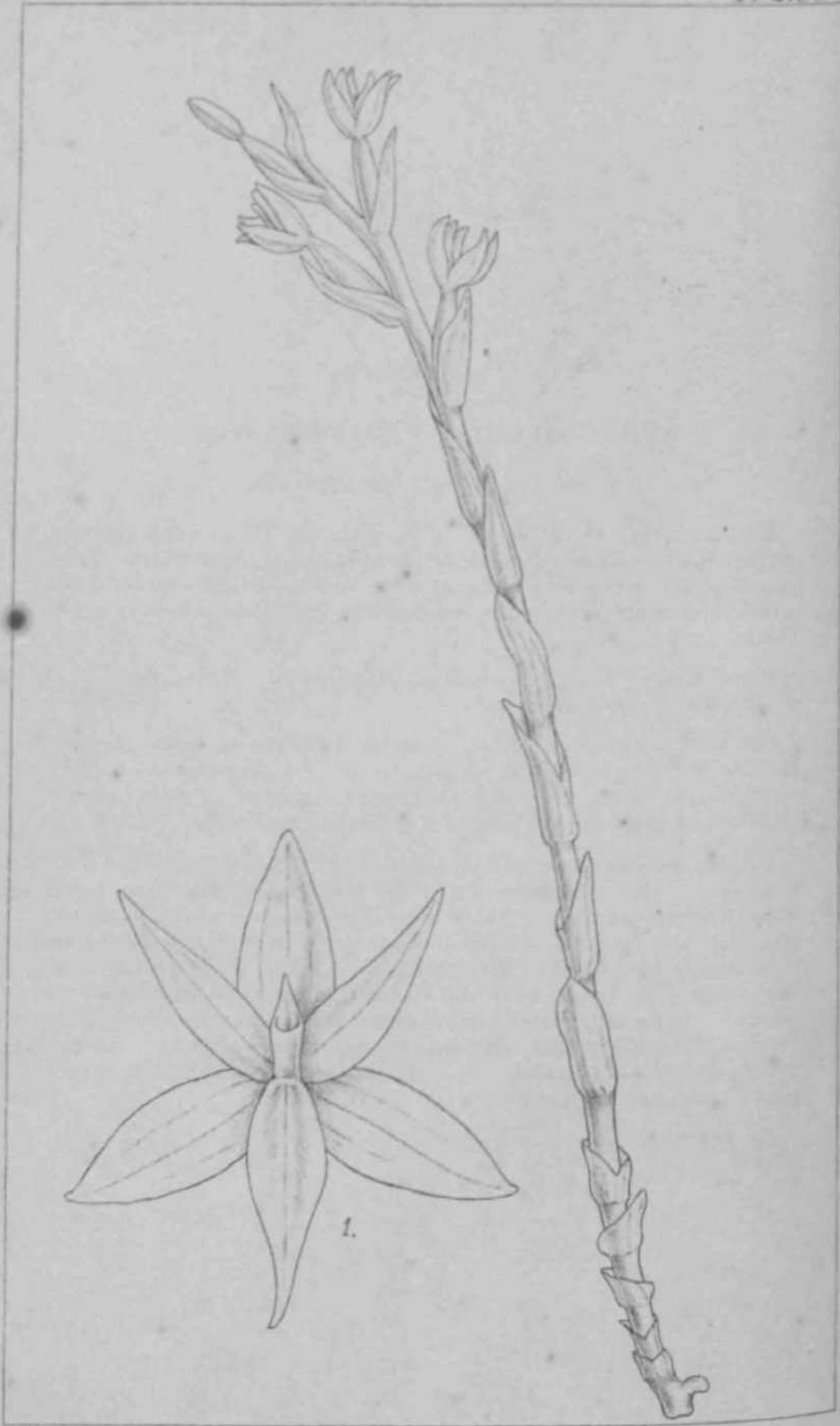
A. Prainii, *Hook. f. Fl. Brit. Ltd.* vi. 117; elata, robusta, canle infra medium vaginato, racemo elongato laxifloro, bracteis lineari-lanceolatis ovario multo brevioribus, sepalis petalisque lineari-oblongis obtusis, labello ovato concavo, lobis lateralibus rotundatis terminali aequilongo oblongo obtuso, ungue brevissimo alis 2 parvis erectis triangularibus instructo.

HAB. Upper Assam, on the Naga Hills, *Dr. Prain.*

Caulis 2-pedalis, crassitie pennis olorinsa, vaginis inferioribus ovatis tubulosis, superioribus lanceolatis. *Racemus* pedalis; bracteo ^-J poll, long®, patulee v. recurves; ovarium elongatum unicum pedicello brevi pollicare. *Sepala* % poll, longa. *Petala* lineari-oblonga, apice rotundata, 3-nervia. *Labellum* sepalis brevius.

I have seen but one specimen of this plant, which belongs to the Herbarium of the Royal Garden, Calcutta; it is closely allied to *A. montana* of Sikkim and Ceylon (which are possibly different species), differing in the winged claw of the lip.—J. I. H.

Fig. 1. Flower. 2. Lip. 3. Column. 4. Anther. *All enlarged.*



M.S. del et lith.

AphyUorchis? va^inata., Hk. f

APHYLLOBCHISP VAGINATA, *Hook.f.*

OBCHIPU. Subtribe DIURID-~~E.E.~~

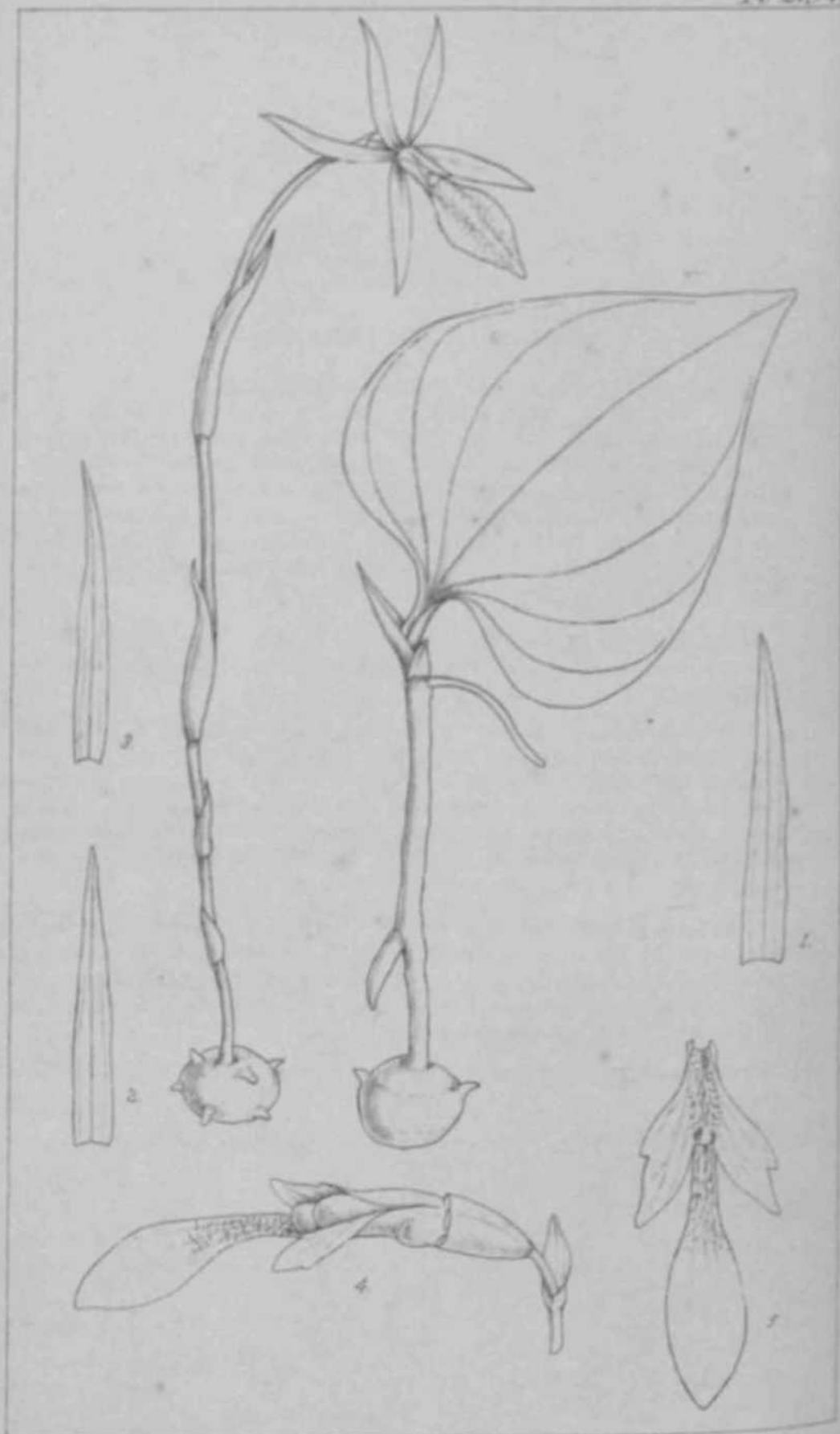
A? *vagūnta*, //·-/-·. *f. Ft. 7Vit. Ind. ri 117*; **caulc robusto**
vaginis iofn medium tsbalani ten ovutis uhtnsis laxo vestito, ppica
puoiflom, bracteisovariaftabaqnantibtis, sepaliHoblixixi^o-nviLtisnhtuxis,
}n -till is luuceolatis acaminatLs, labello o?ato-l«noeol;it., (<iluiiua i^revi-
usct)n.

HAIL. Klmsia Hills, in **woods** at Matntoo, alt 5,000 feet, *J. I.*
Hooker and J. Thomson.

Can·iix 6-poHioam, erertua; vaginie ^-pollicarw, memhraniL'cm.
[^]*fac.ea innāa obhrnscvlttieaoiala, nperiorea angntaoras. Won*
erecti, luriilt rijl>ri. oepala * poll, lonpi, 3-nerviui. Pdaia 1-nurvia.*
Labellum sepalis lequilougum, stssile, **pjanwiq, eeaOotttm.**

I found only one specimen of this cnrions plant, **wbtoh** in its dried
Mats b dificeurl <f exitmirmiion. Tho plate rcpresents it in • Ktip.
pose• ! i-estored condit mu tlutt is, considerably en larked in;ill it spurt*—
 »ud with tho lip much nrrrmvcr thun in the flower I examined imd
des••ribed in the 'Flom of British India,' in which it is brondrr thru
 the nepaU. It differs from the previously described species of the
 Renua in the Up and <*olmm ; but it is not safe to draw any conclusions
 fmm a solitary (proUibly **distorted**) **KMOinMO*** the object in fi^iiriii^'
 "(lioh is to diiwt iic **ittentMB** of Indian botiinists to a very eurimis
 p'ant, presnnwbly a pHprophyte.—J. D. K.

"fig. I. Flower. *Enlarged.*



M.S. del et lith.

Pogonia juhana, Wall.

Pun 21⁹⁴.

POGONIA JULIANA, Wall

ORCHIDEE. Silblnbo AUTHCiUt.

P. jaliaLa, Hall. Cat. n. 7399; f'Uo oYaio-cordato glaberrimo, w» do l-floro, aepaii* poUUqao unilt oblonpultit acamm. tis, l<iwlli lobta Utermhl'iii <ib'ungi> »ub6ur< tis into ifri* ». ntroqoa latent unt<iint*tj>, itiUmned io elliptio x> T. rfamnebo-Uoovoklobmnpabcacri. Lindl. Gen. & Sp. Orchid. 414. Hook. f. Fl. Brit. Ind. vi. 119. T f Enum. Pl. Zeyl. 430. Trim. C. zb. Fl. Ind. iii. p. 453.

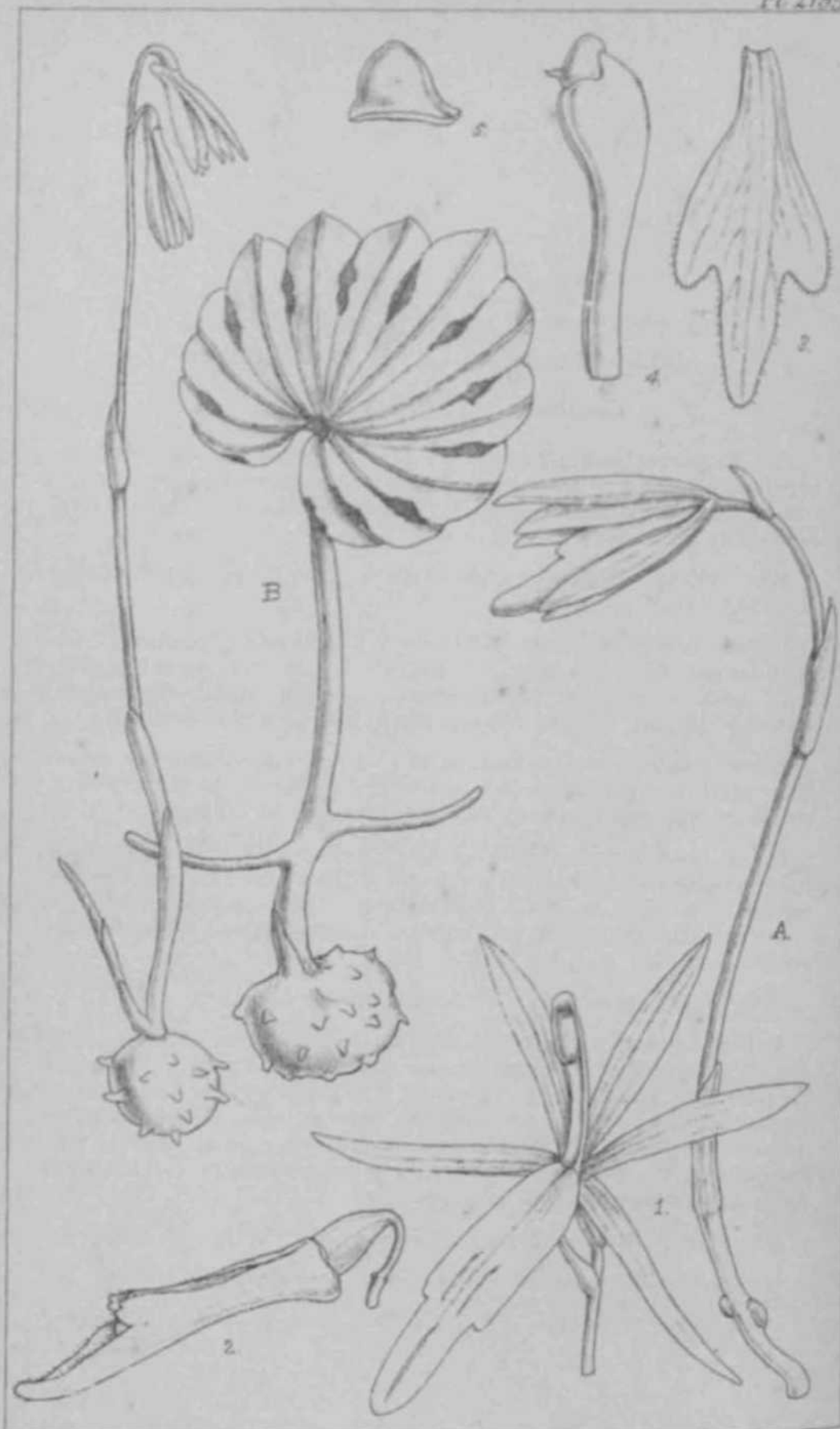
HAB. \Mtn (<' fa /Herb. Calcutt.). Silhet, C. B. Clarke, Lower Bengal, Itarburgh, Ac. Ceylon, ia ibo Duoubw a District, Thua es.

Taber panram, f'lobcMum. Foli<m ad apicem caulin !-3 uncialis hic illio nulice* *nissentis, solitarius n brriurr prtioUt am, 2-3 r-ill. lot'iPim <t Inrua, 5-7-nerve, subtus viride et p iirjuirwwt'titl. Settpu* 2-6-policartK, up..this ensiformibu acaminatis instritotot; bmotes* parva, ovario breviter pedicellato brevior. Flos 1½-2½ poll (iini. Sepala et petab patntta, viridia. Lahdli lubi k*Ur<dw> albi, terminaJ albo, roseo-irrorato.

Amongst a moct rniaable »ct of <Intvingt of Moulr rein orclii<U, presented bjr the Rev. C. Plari<h to the Herbariam of Ki-w, in a figure <ir • Pogtmia (P. cuprM, i'ur. MS) mnch immitltinfl /'. j'uliana, bat with purplo-mcu idp<li a mi t> tain, and a mm?) shorter terminal lobe of tbo Jip. It repectiUi a flower on).—J. D. EL

The drawing here given is * copy of a coloured one in Uoxburgh's collection.

J6 t. Uter.il. ant 2. doml. **f*\ . i. Foul. a. Bract <od flower, with ib< remove U A. lip. Ati mtargtd.



M.S. del. et lith.

A. *Pogonia macroglossa*. Hk. f.
 B. _____ *maculata*. Par. & Reichb. f.

PUT! 2195.

A POGONIA MACROLOSA, //.-;: f.
D). POOWIA MACULATA, /'<r. ami Jtrichb. /.

ORCHIDS*. Sabtribe AurrHDiu.

A. P. maerogloua, J<<k. f. Pl. Brit. /<</ vi. 120; caolp mfl.>n>, sepalis iim-un-lrtt ceolatis m-iimfiatis, labello sepalis longiore line iri-obl. mgo obtuHo ntriinjuu medium venai am<!entato r. lofan juiervis latera libus tostntr-o.

HAH. Sikkim Hi mn lava, iu hot valley*, J. D. Hoottr; at Tamiong, felt, ti,500 fwt, O. B. Clark:

Foli<m tobprqnc ignot*. Scoptu 3-6-pollicaris, flexuosus, mfn* QHsJiQni apHthis pMicii tubalontH inHtructuH. Hmetea purrm. Stj'ala 1-1} pull, long*, ulb* roMtt-irmntta. Frttilu lineari-nblaart>olftta. LabeHum 1f poll, lonirtim, rectum, basi gibbam. Oolumma gracilU.

I hat© seen only two vpecimens of thin very tar^e>flower<d species; they preaent sli^lti diftraDOH in UM lip, a* cluiwn in tln* drawing, which rojtresenta a ipeotmen oollecUtl hy myt*Af in Sikkim.—J.)'. H.

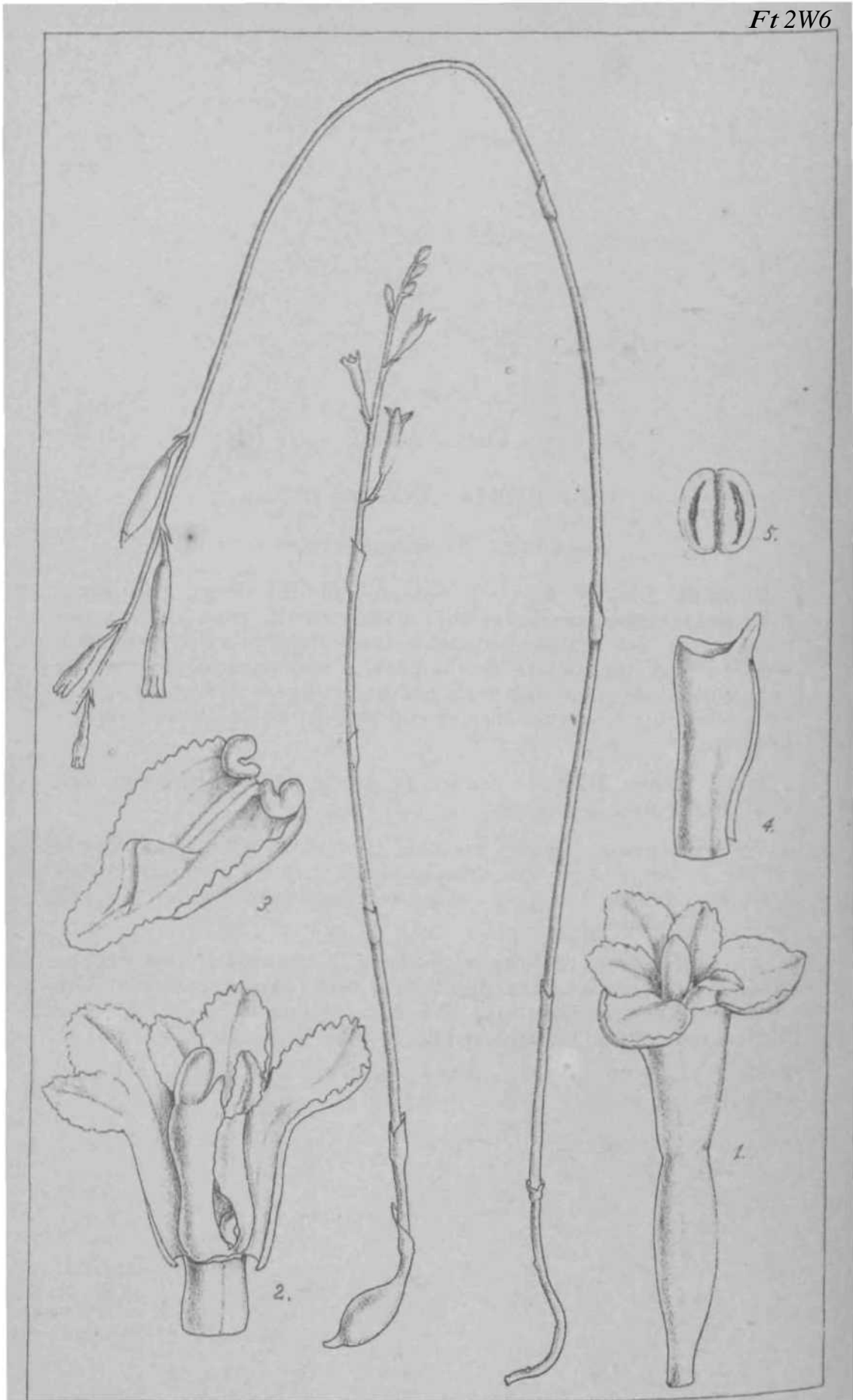
H. F. macalaife, Par. and Reichb. f. in Trans. Linn. Soc. xxx. 143; folio orbiculnri'ConUto plabro plica to, »cap<floro, llorilnu* oamoia, svpatiK petalinqae ;u. -aste oblanceolatis, labello -opaliii MqoilongO oborato.kit<x<-ilht'> 8-li bo, basi breviter o. tu>c calc&rato, lobu eUioUttt obtusis. Book./, n Brit. bd. vi. 120.

HAH. Tenasserim; near Mutiluu'in, Parish.

Tuber globonDin radicelliH oonieil qMM tulxM-cnlaium. Cauli* robustuH, 3 poll, lotigu*, rjyict's vnlidas plices erim]ns. Folium w& 2 [M>H. dimn, sub 13-BMTT^ plicatum, viride, plicis apice late isintipu- lib.us, Khuihiis nmriin atroparpom notatii. Scapus 5-6-pollicai is, vaginis p>, acis instroelM' bxmotaa onnatm Sepala (I pgfafa } poll. longa, viridia. Ltb-lluw Imro>Tiride, niTvia tsitturatiuriljus. OPIMIM apica tubclavata; authera pnrporea.

The plate is from a colored drawing by Mr. Parish.—J. D. H.

ItAT-12195 A, P. maer-gUtta. Rg. I Flower. I Pedicel, ovary, and lip. Both rged.
- ; VATE 2195 B, P. mandate. Fig. 3. Lip. 4. Column. 6. Antln-r. <7 enlarged.



liS.delethtk

Gastrodia exilis, Hk f

PLATE 2196.

GASTRODIA EXILIS, *Hook. l.*

OBCHIDEJE. Subtribe ARETHUSK.

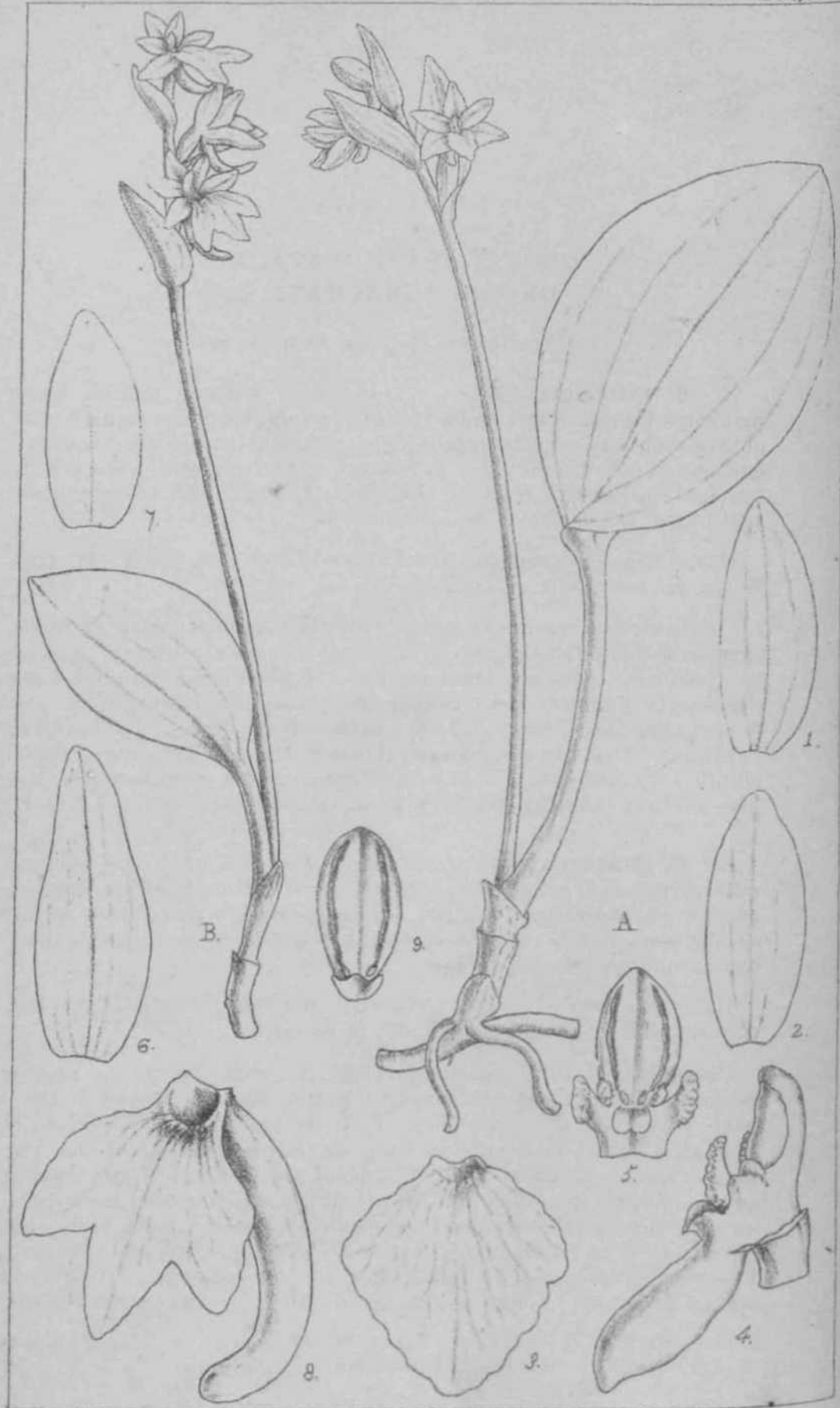
O. exilis, *Hook. f. Fl. Brit Ind.* vi. 123; gracillima, glaberrima, caule basi tuberoso, vaginis brevibus remotis, racemo paucifloro, bracteis minutifl, floribus erectis, perianthii tubo anguste subcarapanulato, sepalis orbiculatis crispatis petalis dimidio minoribus, labelli breviter unguiculati lamina oblongo-ovata marginibus crispatis, disco apicem versus lamellis triangularibus erectis et basi callis 2 reniformibus instructo.

HAB. Khasia Hills, at Amwee, in grassy places, alt. 3,000 feet, *J> D. Hooker and T. Thomson.*

Tuber oblongum, ^-f poll, longum. *Caulis* 6-12-pollicaris, filiformis. *Flores* J poll, longi, cylindracei, albi. *Labelli* unguis brevis, lamina apex exserta. *Columna* apice truncata, tridentata. *Capsula* immatura fusiformis.

I have had great difficulty in analysing the flowers of this singular species. The figure of the lip (3) is as that organ appeared to Miss Smith on a careful dissection. When describing it in the *Flora of British India⁹ I had not observed the reniform calli at its base.—J. D. H.

Fig. 1. Flower. **2.** The same with the perianth laid open. **3.** Lip. **4.** Column. **6.** Anther. *All greatly enlarged.*



M.S. del et lith.

A *Orchis spathulata*, Reiche, hb. f.
 B. _____ Strachey, Flk. f.

A. **ORCHIS SPATHULATA**, *Reichb. f.*

B. **ORCHIS STRACHEYI**, *Hook. f.*

ORCHLIDEE. Subtribe OPHRYDEAE.

A. **O. spathulata**, *Reichb. f. mss.*; folio solitario radicaei longe petiolato elliptico, scapo nudo, spica pauciflora, bracteis magnis ovato-oblongis obtusis, sepalis petalisque patentibus, labello late rhombico. caneo v. elliptico integro v. obscure 3-fido, calcar recto ovario breviori fusiformi). *Hook. f. FL Brit. Ind. vi. 127.* *Gymnadenia spathulata*, *Lindl. Gen. 8f Sp. Orchid. 280.*

HAB. , Alpine Himalaya, alt. 11,000-13,000 feet, from Garwhal, *Boyle, fyc. y* to Sikkim, *J. D. Hooker.*

Caulis brevis, crassiusculus, basi decumbens radices crassas emittens, Ruperne unacum folio vaginis cylindratis truncatis involutus. *Folium* 1-3-pollicare, obtusum, crassiusculum, in petiolum validum laminis sequilongum angustatum. *Scapus* 3-5-pollicaris, validus, apice 2-4-11 or us ;a bractea9 foliaceae ilores sperantes; flores \ poll. diam., purpurei. *Sepala* ovato-oblonga, obtusa v. lateralibus subacuta. *Petala* elliptico-oblonga, obtusa. *Labellum* forma varium, crenulatum, calcar plus minusve elongato. *Anther* ellipsoidea, loculis parallelis.—J. D. H.

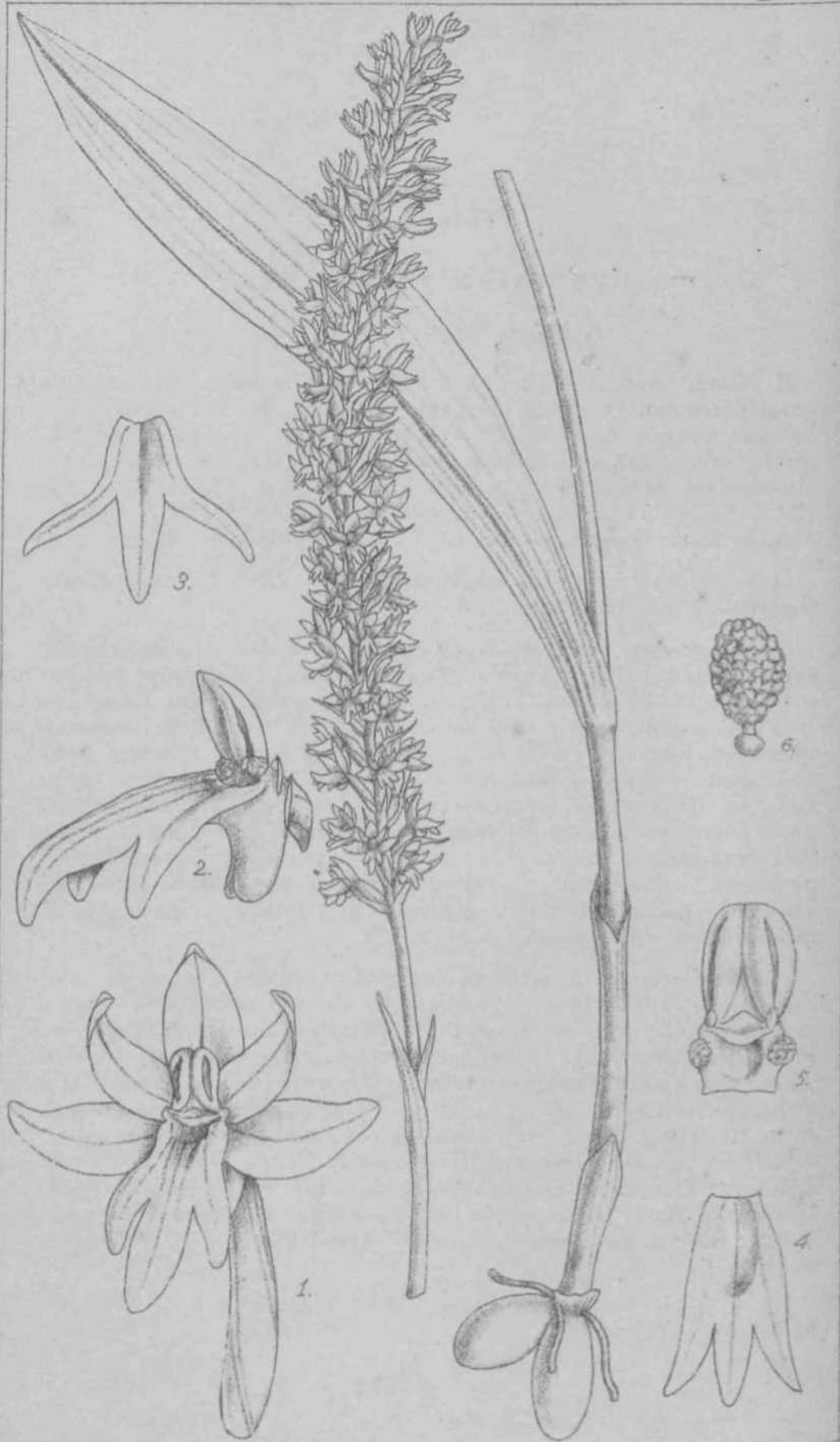
B. **O. Stracheyi**, *Hook. f. FL Brit. Ind. vi. 128*; folio solitario radicali petiolato elliptico v. obovato, scapo nudo paucifloro, bracteis magnis ovato-oblongis obtusis, sepalis petalisque patentibus, labello sepalis longiore late cuneato ad medium trifido lobis obtusis, calcar ovario longiore incurvo obtuso.

HAB. Western Himalaya; Garwhal, near Rogile, alt. 11,000 feet, *Strachey* and *Winterbottom* (*So. 35, Oymnadenia puberula*).

Closely allied to *O. spathulata* (Fig. A), differing in the broadly 3-lobed lip and long incurved spur. In the 'Flora of British India' I have suggested the possibility of its being a hybrid between *O. spathulata* and *O. Chusna*, Don, from its having the leaf of the first-named species and the lip and spur of the second. Unfortunately tubers of both *spathulata* and *Stracheyi* are wanting, and the appearance of the dried specimens suggests their having had subterranean rhizomes. The tubers of *O. Chusua* are oblong, entire, and the leaves linear or linear-lanceolate. A good series of specimens of these three species is wanted to clear up their relations to one another.—J. D. H.

PLATE 2197 A, *O. spathulata*. Fig. 1. Lateral and 2 dorsal, sepal. 3. Lip. 4. Column and spur. 5. Front view of column. *All enlarged.*

PLATE 2197 B, *O. Stracheyi*. Fig. C. Sepal. 7. Petal. 8. Lip. 9. Anther. *All enlarged.*



M.S. del et lith

Herminium fallax, Lindl.

PLATE 2198.

HERMINIUM PALLAX, Lindl

ORCHIDEJE. Subtribe **OPHRYDEE.**

H. fallax, TAndl. in Wall. Gat n. 7412; gracilis, foiiiis 1-2 lincarihus lineari-lanceolačisve, spica elongata multiflora, floribus subsecundis, bracteis ovariis brevioribus, sepalis ovato- v. oblongo-lanceolatis, petalis erectis angustis falcatis, labello scepius oblongo 3-lobo, lobis obtusis basi saccato, sacco polymorpho. *Hook. f. Fl. Brit. Ind.* vi. 320. *Peristylus fallax*, Lindl. *Gen. fy Sp. Orchid.* 298. *Cybele*, *Falc. in Lindl. Veg. Kingd.* 193, c. *G. alpina*, *Falc. mss.*

HAB. Alpine and Rubalpine Himalaya, alt. 7,000-12,000 ft., from Garwhal to Sikkim, *Wallich, &c.*

Gaulis nncacum spica 4-18-pollicaris, medio 1-2-foliatus, vaginis snperioribns aphyllis 1-2 inferioribus subfoliaeeia. *Folium* pierumqne solifarium, 2-5-pollicare, i-1 poll, latum, acutum, rarius folia snbradicalia adsant. *Spica* 2-5-pollicaris, deusi- v. laxi flora; bract ere inferiores longiores, lanceolatee; ovarium %-£ poll, longam, sabrostratum. *iSepala* ^-poll. longa, 1-nervia. *Petala* forma varia. *Labellum*, nnc sepalis inulto brevius crassiuscnlum breviter lobatum, nunc angustum tenuius 3-Iobnm lobis brevibus v. elongatis, limbus basi truncatns v. anguslatas; calcar incurvum, subdidymum sub^lobosnra v. clavellatum. *Avthera* parva, oblonga, oculis parallelis, tubnls 0; pollinia obovoidea, glandalis parvis nudis nitidis sessilia v. caudicnla brevi interposita.

A very common Himalayan plant of the temperate region, and exceedingly variable in stature, fuliago, lip and sac; as *in* the case, more or less, with the other species of that country. At p. 128 of the 'Flora of British India,'⁹ I have stated that there is no other character by which *Senninium* can b8 distinguished from *Habenaria* but the absence of a yell-developed spur. It was, indeed, my original intention to reduce *t to the latter genus, which accounts for my oversight in citing myself (in 'FL Brit. Ind.') as the authority for *H. fallax*, instead of Lindley. The involved synonymy which this would have entailed, however, induced me to refrain from so doing. The drawing is made from a Sikkim specimen collected by myself at about 10,000 feeb.—
J. D. H.

Fig. 1. Flower. 2. Lip ami culumn. 3 and 4. Forms of lip. 5). Column. 6. P'jllinium. *All enlarged.*



M. S. del et lith.

A. *Herminium Duthiei*, Hk. f.
 B. ————— *orbiculare*, Hk. f.



M.S. del et lith.

HaJbenaria andamamca, Hk.f.

PLATE 2200.

HABENABIA ANDAMANICA, *Hookf.*

ORCHIDÆ. Subtribe OPHRIDEJÆ.

H. (Ate) andamanica, *Hook f. Fl. Brit. Ind.* vi. 134; subelata, foliis medium versus caulis confertca ovato-lanceolata acuta, racemo Jaxe multifloro, bracteis lanceolatis ovariiis gracilibus brevioribus, floribus amplis, sepalis louge aristatis, petalorum segmento superiore angusto inferiore in laminas 3 filiformes secto, labelli lobis lateralibus flabellatim mntifidis, intermedio 3-secto segmentis omnibus filiformibus, calcare ovario brevior.

HAD. Andaman Islands, *Parish*.

Tubera giobosa. *Caulis* 1-1[^]-pedalis. *Folia* 3-4-pollicaria, sessilia. *Racemus* 6-8-pollicaris; bractesd 1-1¹-pollicares, lanceolate. *Sepala* i poll, longa, lineari-oblonga. *Antherarum* tubuli locnlos subaeqnantes,* porrecti; glandules polliniormm minntas; stigmatis brachia elongata, subcjindracea, rostellum erectum.

A handsome species, most nearly allied to the Ceylon and Travancore *S. macrostachya*, Lindl., which has longer bracts and snbeqnal segments of the lip. The specimen from which the drawing is made is unique.-J. D. H.

Fig- 1- Sepal. 2. Petal. 3. Column. *All enlarged.*