

New Papuasian Orchids

Johannes Jacobus Smith

A translation into English of

Neue Orchideen Papuasiens

from

Beiträge zur Flora von Papuasien XX

as published in

Engler's Botanische Jahrbücher ..., Vol LXVI (1934), pp 161-215
with introduction and index.

D F Blaxell, H J Katz & J T Simmons



Johannes Jacobus Smith
(1867-1947)



Dutch New Guinea [now West Papua &
Papua Provinces, Indonesia]



The Australian Orchid Foundation

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Introduction to the English Translation.

J.J. Smith's major work on Papuasian Orchidaceae was published in six parts between 1909 and 1935 in Volumes VIII, XII, XIV and XVIII of 'Nova Guinea' and generally describes material sent to Buitenzorg by collectors from numerous expeditions into Dutch New Guinea and surrounding territories.

'Neue Orchideen Papuasiens' was published in Engl. Bot. Jahrb. LXVI (1934), pp. 161-215 as a further part of C. Lauterbach's 'Beiträge zur Flora von Papuasien' and it embraced 167 species and varieties of 35 genera, 36 species and varieties being described for the first time.)

The material is, in part, from collections made by E. Mayr in Dutch New Guinea in 1928 and from parts of what had been Kaiser-Wilhélms-Land, or German New Guinea, in 1929. The balance is from collections made by G. Stein in 1931 in the northern part of Dutch New Guinea and from the Islands of Japen and Waigeo off its north coast.

) Smith took the opportunity to express his opinions in several areas here where his taxonomic judgment and opinion was in direct conflict with that of Rudolf Schlechter, particularly from the views expressed by Schlechter in 'Die Orchidaceen von Deutsch-Neu-Guinea' and later in his 'Neue Orchidaceen Papuasiens' published as part of Lauterbach's 'Beiträge zur Flora von Papuasien IX (1922-23).

Smith refused to accept Glossorhyncha and Giulianettia as separate genera and reduced them to sections of Glomera, transferring all Schlechter's species to that genus. Likewise he refused to accept Cadetia as a genus and, regarding it as a section of Dendrobium, transferred Schlechter's species to that genus.

Later taxonomists, van Royen (1974, 1980) and Dressler (1981), have maintained Glossorhyncha and Glomera as separate genera in the subtribe Glomerinae and included Giulianettia in the former genus.

Similarly, many current taxonomists and authors including Dockrill (1969) and Dressler (1981), regard Cadetia as a separate genus in the subtribe Dendrobiinae. It remains for some taxonomist to review Smith's work on these genera and make a further determination since a considerable number of species are involved.

A number of new species of Dendrobium were described in the text and those in the sections Pedionum, Grastidium and Oxyglossum will be of particular interest to many readers.

As may be expected, six new species of Bulbophyllum were described for the first time.

Of particular interest is the occurrence of the genus Thelymitra, albeit a solitary species, collected in the Saruwaged Range of German New Guinea and described by J.J. Smith.

The original text carried only a list of described species and their synonyms, but in this edition it has been expanded into a scientific index covering all genera, sections and species etc. mentioned in the text.

D.F. Blaxell

H.J. Katz

J.T. Simmons

June 1984



Contributions to the Flora of Papuasia XX

Botanical results of investigations in Papuasia carried out with the assistance of the Herman and Elise nee. Heckmann-Wentzel-Foundation, combined with the revision of other collections from this region.

Edited by Professor Dr. C. Lauterbach with support from the Foundation and co-operation of other botanists.

126. New Orchids of Papuasia

From the collections of Dr. E. Mayr and G. Stein.

by

J.J. Smith

The present list comprises both the orchids collected by Dr. E. Mayr in 1928 in northern Dutch New Guinea and 1929 in north-east New Guinea and together with those collected by G. Stein in 1931 in northern Dutch New Guinea and on the islands of Waigeoe, and Japen. The specimens collected by Mayr in Dutch New Guinea were sent to me from Buitenzorg for determination and are at present held at the Berlin Museum. The balance was kindly passed on to me for diagnosis by Professor Dr. L. Diels.

It is my pleasant duty to again express my sincere thanks to Dr. R. Mansfeld of Berlin for the repeated comparison of critical species with the Schlechter Types. Furthermore, he had already determined a part of the specimens originating from northeast New Guinea.



Paphiopedilum Pfitz.

Paphiopedilum praestans Pfitz., in Engl. Bot. Jahrb. XIX (1894),
41; etc.

Waigeoe [I .]: Supintol - G. Stein, no. 262, 12th June 1932.

Peristylus Bl.

Peristylus grandis Bl., in Bijdr. (1825), 405; Tab. Fig. 30 etc.,
var. papuanus J.J. Sm., in Nova Guinea VIII (1909), 3t. I, 1.
Japen [I .] : Alt. c. 600m, bamboo swamp - G. Stein no. 83,
17th Mar. 1931; flowers green.

So far I have not established a single characteristic to justify this plant as a species. With one specimen originating from Tjiapoes on the Salak [River], Java, the three pilose lobes of the spread-out lip were equally long, as for the Papuan variety.

Apparently Habenaria dolichocaulon Schltr. belongs here since Schlechter's illustration agrees even better than mine with the species from Java.

Peristylis bilobus Rolfe, in Kew Bull. 1899, 132; J.J.Sm.,
in Bull. Jard. Bot. Buit. 3^e sér. IX (1927), 25 t. 2, II, etc.

Waigeoe [I .]: Lamlam, alt. c. 200m - G. Stein no. 180, 31st May 1931.

Habenaria Willd.

Section : Salaccenses

Habenaria paucipartita J.J. Sm., in Meded. Herb. Leiden no. 23

(1915), I : in Nova Guinea XII, Livr. III (1915), 179, t.LVII, 92.

Dutch New Guinea : Weijland Range, alt. c. 2100m - G. Stein,
10th Oct. 1931.

Most probably belongs here, but a much more robust plant with a
more floriferous inflorescence than the one I described earlier.

Thelymitra Forst.

Thelymitra papuana J.J. Sm., sp. nov.

..... Inflorescentia erecta glabra, pluriflora, pedunculo
glabro, parte adest 19 cm longa, vaginulis 3 adpressis lanceolatis tenuiter
acuminatis usque ad 4,35 cm longis superne decrescentibus et in bracteas
transientibus, vagina infima subspathulata, rachide novella c. 8 cm longa.
Bracteae convolutae, basin pedicelli amplectentes, adpressae, concavae,
ovato-rhombeae, subulato-acuminatae, nervis 3 (-5) ramosis dorso pro-
minentibus, c. 1,1 cm longae, basi 0,225 cm, infra medium 0,6 cm latae.
Flores c. 11, erecti, supra ovarium 1,25 cm longa, sepalis erectis,
conniventibus. Sepalum dorsale marginibus sepalis lateralibus ob-
tectum, angulato-ovatum, apice obtusiuscula acutatum, conico-apiculatum,
valde concavum, c. 1,15 cm longum, 0,6 cm latum. Sepala late-
ralia dorsali similia sed obliqua, obtuse apiculata, 1,2-1,25 cm longa,
0,50-0,54 cm lata. Petala oblique angulati-ovata, versus apicem an-
gustata, obtusa, breviter obtuse apiculata, basi breviter contracta, concava,
0,9-0,93 cm longa, 0,48-0,45 cm lata. Labellum simplex, ellipticum,
obtuse acutatum, basi leviter contractum, concavum, 9-nervium, 0,93 cm
longum, 0,43 cm, basi 0,25 cm latum. Gynostemium valde a dorso
compressum, dorso convexo et longitudinaliter 5-costatum, costis 3 medi-
anis approximatis, subtus concavum, marginibus utrinque in penicillum
oblongum pilorum longorum stipitatum erectum clinandrium bene supe-
rantem exequis, ambitu oblongo-quadrangulum, totum 0,55 cm, usque ad
apicem clinandrii 0,45 cm longum, 0,3 cm latum, clinandrio abrupte con-
tracto, valde cucullato-incurvo, bilobo, sulco alto longitudinali dorsali
didymo, dorso viso ambitu transverse quadrangulo, 0,25 cm lato, penicillis
cum stipite curvulo 0,1 cm longo, 0,26 cm longis. Anthera sub
clinandrio abscondita, cucullata, cordata, in rostrum longiusculum anguste
triangulum obtusum a dorso compressum producta. Stigma in basi
faciei inferioris gynostemii, gynostemio angustius, margine dilatatum et
antice in lobulos e triangulos-exeuns. Ovarium (fecundatum) obconicum,
6-sulcatum, 0,9 cm longum; pedicellus tenuior, 0,25 cm longus.

Northeast New Guinea : Saruwaged Range, Mongi-Busu, alt. c.
2600m - E. Mayr, without number, Mar. 1929.

I owe Dr. R.S. Rogers in Adelaide and the authorities of the Kew
Botanical Gardens a debt of gratitude for the comparison of this plant
with certain Australian species, viz. T. Colensoi Hook. f., which is
probably the nearest relative of the Papuan species.

Summerhayes writes : 'The Type specimen of Thelymitra Colensoi Hook. f. is not in a very good state of preservation. The drawings made by Hooker and one more or less perfect flower show that this is quite different from Mayr's Papuan plant. The sepals are just 1.0 cm long and they and the petals are narrower than in T. papuana J.J. Sm. The two staminodel appendages are very long while the anther is long-cuspidate. The inflorescence is laxly two-flowered'.

The occurrence of a Thelymitra species in New Guinea is surely very noteworthy. Unfortunately, only a solitary inflorescence was collected.

The description is from herbarium material.

[Ed. - Currently, Thelymitra Colensoi Hook. f. is considered to be a synonym of T. pauciflora R. Br.]

Cryptostylis R. Br.

Cryptostylis maculata J.J. Sm., in Nova Guinea XIV (1929), 341.

Cryptostylis arachnites Hassk. var. maculata J.J.Sm. l.c. VIII (1909), 10.

Dutch New Guinea : Wandamen, Mt. Wondiwoi, alt. c. 1800m - E. Mayr. no. 374, 16th July 1928; flower brownish green.

Cryptostylis carinata J.J. Sm., in Fedde Rep. XI (1912), 134; in Nova Guinea XII (1915), 184, t. LX, 98.

Dutch New Guinea : Without location, E. Mayr no. 515, June - Aug. 1928.

Cryptostylis ligulata J.J. Sm., sp. nov.

Folium ovatum, acute acuminatum, basi breviter in petiolum acuminatum, curvinervium, laxe rectangule reticulato-venosum, costa media dorso prominente, sicco immaculatum, c. 10 cm longum, 4—4,5 cm latum; petiolus 3,5—4,25 cm longus. Inflorescentia pluriflora, pedunculo 22,5 cm longo, vaginulis c. 3 adpressis tubulosis acuminatis superne decrescentibus et in bracteas transeuntibus laxe obsito, rachide novella 5 cm superante. Bracteae e basi ovata longe subulato-acuminatae, concavae, c. 0,775 cm longae, fere 0,3 cm latae. Flores 9 (vel plures), erecto-patentes. Sepalum dorsale lineare, apice deficiente, 3-nervium, 0,17 cm latum. Sepala lateralia oblique linearia, marginibus involutis, apicem incurvulum versus leviter angustata, anguste obtusa, dorso minute apiculata, 3-nervia, 1,15—1,25 cm longa, 0,14 cm lata. Petala linearia, apicem versus sensim angustata, acuta, tenuiter mucronata, 1-nervia, c. 0,825 cm longa, 0,125 cm lata. Labelum angustissimum, linear-ligulatum, apicem versus sensim angustatum, anguste obtusum, basi truncata medio tantum affixum, convexum, excavatione triangula ad basin, excavatione excepta papillosum, ut videtur 5-nervium, nervis exterioribus ramosis brevissimis basi radiato-9-nervium, explanatum linear-triangulum, 1,45 cm longum, 0,35 cm latum. Ovarium pedicellatum alte 6-sulcatum, c. 1,35 cm longum.

Dutch New Guinea : Cyclops Range, alt. c. 1100m — E. Mayr no. 563,
28th Aug. 1928; corona filaments greenish, labellum reddish, in front
with dark red dots.

This is distinguished from the other Papuan species by the very narrow labellum.

The description is from a very poor, dried specimen with a damaged flower.

Aphyllorchis Bl.

Aphyllorchis toricellensis Schltr., in Orch. D.N.-Guinea (1911),
35; Fig. Atl. t. XVI, no. 49; J.J. Sm., in Nova Guinea XII (1913), [7]
t. II, 4.

Dutch New Guinea : Cyclops Range, alt. c. 1100-1300m — E. Mayr.
no. 489, June-Aug. 1928; no. 558, 28th Aug. 1928; no. 578 1st Sept.
1928.

Aphyllorchis arfakensis J. J. Sm., in Fedde Rep. XII (1913), 394;
in Nova Guinea [XII], Livr. III (1915), 188, t. LXIII, 102.

Japen [I .]: Alt. c. 400m — G. Stein no. 75, 17th Mar. 1931;

stalk blue, flowers yellowish.

Apparently belonging here. It still remains to be resolved whether the narrow petals of A. angustipetala J.J. Sm. will suffice to retain the species.

Goodyera R.Br.

Goodyera callosa J.J. Sm., sp. nov.

Caulis pars adest 14,5 cm longa, inferne radicans, laxe 5-foliata. Folia oblique subovato-elliptica, acute acuminata cum mucrone, basi acute acuminata, nervis majoribus 3 pluribusque tenuioribus, curvinervia, costa media dorso prominente, laxe oblique reticulato-venosa, sicco membranacea, 8,5—11 cm longa, 2,7—4,5 cm lata; petiolus conspicuus, foliorum superiorum brevior, cum vagina tubulosa usque ad 6,5 cm longus. Inflorescentia erecta, elongata, dense multiflora, quaquaversa, pedunculo c. 31 cm longo, glabro, superne parce pubescenti, vaginulis adpressis inferne laxissimis foliaceisque superne manifeste densioribus decrescentibus in bracteas transeuntibus donato, rachide c. 11 cm longa, subadpresso crispule pubescenti. Bracteae e basi ovata longe linearis-acuminatae, sparse ciliolatae, 1-nerviae, c. 0,75 cm longae, 0,2 cm latae. Flores parvi, clausi. Sepala lateralia oblique ovata, acutata, acutiuscula, concava, 1-nervia, fere 0,3 cm longa, 0,175 cm lata. Petala sepalum dorsali galeato-agglutinata, e basi breviter unguiculata, apice oblique contracta, obtusa, c. 0,25 cm longa, 0,075 cm lata. Labellum gynostemio adpressum, inferne excavatum, ovatum, acuminatum, serie transversa muri-
cium reversorum conicorum c. 6—8 in excavatione, incrassatione conspicua transversa reversa obtusa anteposita, c. 0,225 cm longum, 0,16 cm latum, explanatum ovato-triangulum, triangulo-acuminatum, plus minusve acutum, 0,23 cm longum, acumine 0,05 cm longo, 0,07 cm lato. Gynostemium deforme. Anthera cucullata, cordata, apice contracta, obtusa, apiculata, 0,13 cm longa. Ovarium tortum, glabrum, 0,625 cm longum.

Dutch New Guinea : Wandamen, Mt. Wondiwoi, alt. c. 1850m — E. Mayr no. 347, TYPE, 10th July 1928, flower whitish; no. 373, 16th July 1928.

The species is related closely to G. procera Hook. but apparently is well distinguished by the narrow, only very short clawed petals and the differently shaped excrescences of the lip.

The column was not developed normally ; at times three stigma appeared to be formed with the rostellum missing, whilst for other flowers a distinct rostellum with viscid mass was present and the stigma was indistinct. The description is from herbarium material.

Goodyera denticulata J.J. Sm., sp. nov.

Caulis satis longus, basi radicans, laxe c. 4 foliatus, c. 9 cm longus. Folia sessilia vel brevissime petiolata, anguste lanceolata, satis sensim longe acuminata, acuta, crispula, laxe reticulato-venosa, sicco membranacea, c. 6,1—6,3 cm longa, 1,4 cm lata; vagina tubulosa, fause obliqua breviter fimbriata, c. 1 cm longa. Inflorescentia erecta, laxius multiflora, secunda, pedunculo dense grosse piloso, c. 7,5 cm longo, vaginulis c. 3 superne in bracteas transeuntibus acutis fimbriatis usque ad 1,8 cm longis donato, rachide c. 6,75 cm longa, indumento pedunculi. Bracteae e basi ovata concava longe subulato-acuminatae, breviter irregulariter fimbriatae, 1-nerviae, 0,85 cm longae, 0,3 cm latae. Flores c. 0,4 cm longi, sepalis petalisque conniventibus. Sepalum dorsale concavum, apice recurvulum, oblongo-quinquangularis, dimidio superiore angustatum, obtusum, obtuse apiculatum, dimidio inferiore marginato-denticulatum, dorso ad basin pilis rarissimis brevibus grossis inspersum, 1-nervium, c. 0,3 cm longum, 0,15 cm latum. Sepala lateralia oblique ovata, apice longe canaliculato-cucullato-contracta, explanata oblique ovata, obtusa, dorso praesertim in costa media parce grosse pilosa, concava, 1-nervia, c. 0,37 cm (margin'e antico) longa, 0,18 cm lata. Petala sepalo dorsali galeato-agglutinata, oblique spatulata, inaequilatera, subsigmoidea, concava, ex ungue cuneato-oblongo sensim subsemiovato-dilatata, obtusa, dimidio superiore margine exteriore repandula, concava, 1-nervia, nervo leviter sigmoideo, c. 0,3 cm longa, fere 0,1 cm lata, ungue c. 0,08 cm longo, basi 0,03 cm lato. Labellum magnum partem saccatum, basi gynostemio adpressum, subtus longitudinaliter sulcatum, 0,34 cm longum; lamina porrecta recta, gynostemium superans, cum sacco angulum obtusum faciens, linearis, canaliculata, obtusa, subtus usque saccum fere 0,1 cm longa, explanata triangula, obtuse apiculata; saccus cum ovario angulum acutum faciens, a latere visus parallelogrammiformis, obtusus, ventre rotundatus, intus muricatus, antice usque ad basin laminae 0,25 cm, dorso usque ad apicem ovarii fere 0,125 cm longus. Gynostemium breve, basi tenuis, c. 0,2 cm longum, clinandrio alte cupuliformi, pariete tenui. Anthera cucullata, cordata, longiuscule acutiuscule triangulo-rostrata, 0,125 cm longa. Rostellum in lacinias 2 subulatas alte fissum. Ovarium sessile, curvatum, 6-sulcatum, basi excepta sparse grosse brevipilosum, 0,46 cm longum.

Dutch New Guinea : Arfak Range, Mt. Lehuma, alt. c. 1700m -

E. Mayr no. 131, 7th June 1928, flower white.

The species belongs to the affinity of G. reticulata Bl. and G. pusilla Bl. which have in common the pouch protruding between the lateral sepals. It is characterised by the narrow leaves, the flowers hirsute outside, but not markedly so, the dorsal sepal dentate in the lower half, the petals appressed at the base, etc.

The description is from a dried plant.

Hetaeria Bl.

Hetaeria falcatula J.J. Sm., in Bull. Dép. Agr. Ind. Néerl XIX (1908), 26; in Nova Guinea VIII (1909), 16, t. V, 15.

Zeuxine falcatula Schltr., Orch. D.N.-Guinea (1911), 77.

Dutch New Guinea : Cyclops Range, alt. c. 1400m - E. Mayr no. 577, 30th Aug. 1928.

Japen [I.] : Alt. c. 400m - G. Stein no. 55, 15th Mar. 1931, flowers ivory coloured, leaf with white-yellow central rib; alt. c. 600m, G. Stein, without number, 16th March 1931.

) Hetaeria ? latipetala Schltr., Orch. D.N.-Guinea (1911), 89;
Fig. Atl. t. XXXVII, no. 125.

Waigeoe [I.] : Alt. c. 250m - G. Stein no. 122, 20th May 1931.

The plant agrees well with the specimens which I described and illustrated earlier as H. oblongifolia Bl. var. papuana J.J. Sm. They agree also with H. latipetala Schltr. but, according to the illustration, the latter appears to have a much shorter anther. Only a comparison with the Type of H. latipetala Schltr. will establish whether Schlechter's illustration is not quite correct or whether the specimens from Dutch New Guinea represent a separate species or variety.

Vrydagzynea Bl.

) Vrydagzynea truncicola Schltr., Orch. D.N.-Guinea (1911), 87;
Fig. Atl. t. XXXVI, no. 122.

Dutch New Guinea : Weijland Range, alt. c. 1800 - 2000m - G. Stein no. 497, 13th Oct. 1931.

Schlechter's description and illustration agree well with this plant except that the claw of the petals is shown as appreciably longer. The latter are adherent at their upper halves with the

neighbouring margins and the auricle-like transverse folds below the apex together form a depression.

Tropidia Bl.

)

Tropidia disticha Schltr., in K. Schum. et Laut. Nachtr. Fl. D. Schutzgeb. Südsee (1905), 94; Orch. D. N.-Guinea (1911), 91; Fig. Atl. t. XXXVII, no. 126.

Dutch New Guinea : Cyclops Range, alt. c. 1400m - E. Mayr no. 2580, 1st Sept. 1928; flower whitish.

)

Even though the material is very sparse, I believe it to be

T. disticha Schltr.

Tainia Bl.

)

Section : Ascotainia

Tainia malayana J.J. Sm., in Fedde Rep. XXXI (1932), 76.

Tainia penangiana J.J. Sm. (pp. non Hook. f.) in Fl. Buit. VI (1905), 183; Fig. Atl. Fig. CXXXVIII.

)

Dutch New Guinea : Arfak Range, [Mt.] Ditschi, alt. c. 1200m - E. Mayr no. 158, 8th June 1928; flower red (brownish), pale inside.

Dendrochilum Bl.

)

Section : Platyclinis

Dendrochilum longifolium Rchb.f., in Bonpl. IV (1856), 329 etc.

var. papuanum J.J. Sm., in Nova Guinea VIII (1911), 527.

Dendrochilum Bartonii Schltr., Orch. D.N. - Guinea (1911), 106: Fig. Atl. t. XXXXI, no. 141.

Platyclinis Bartonii Ridl., in Jour. Str. Br. R. As. Soc. no. 50

(1908), 128.

Dutch New Guinea : Arfak Range, Mt. Lehuma, alt. c. 1800m -
E. Mayr no. 146, 7th June 1928.

Microstylis [Nutt.]

Section : Pseudoliparis

Microstylis Zippelii J.J. Sm., in Bull. Dép. Agr. Ind. Néerl.

XXXIX (1910), 17 etc.

Dutch New Guinea: Weijland Range, Koenoeipi, alt. c. 1800m - G. Stein
no. 484, 13th Oct. 1931.

The plant agrees well with M. Zippelii J.J. Sm. but was collected
at a much higher altitude in the Range.

Oberonia Lindl.

Section : Platystreptus

Oberonia japonensis J.J. Sm., sp. nov.

Rhizoma repens, tenue, radicibus tenuibus glabris. Caules
c. 0,7—1,8 cm dissiti, elongati, valde serpentini, c. 11 cm longi. 8—9 foliati,
internodiis ad c. 1,2—1,5 cm longis. Folia cum cauli angulos acutos
facientia, erecto-patentia, falcatulo-incurva, linearia, apicem versus sensim
angustata, acutissima, mucronata, inarticulata, basi supra fissa, usque
6,25—7,75 cm longa, 0,4—0,45 cm lata; vagina apice conduplicato
excepto tubulosa, compressa, lamina decurrente dorso alato-carinata, carina
basin versus angustata. Inflorescentia breviter pedunculata, multi-
flora, pedunculo c. 1,5 cm longo, rachide alata, parte adest 4 cm longa.
Bracteae linearis-subulatae, erosulo-ciliolatae, c. 0,225 cm longae.
Flores parvi. Sepalum dorsale ovatum, subacutum, basi latum,
fere 0,1 cm longum, 0,07 cm latum. Sepala lateralia oblique
ovata, acuta, fere 0,1 cm longa, 0,07 cm lata. Petala anguste oblonga,
apicem versus angustata, obtusa, irregulariter marginata, fere 0,1 cm
longa, 0,03 cm lata. Labellum ambita oblongo-quadrangulum, basi
apiceque paulum dilatatis subpanduratum, basi auriculis leviter diver-
gentibus obliquis subtrapezoideis angulis subrotundatis gynostemium semi-
amplectens, apice satis alte bilobulum, lobulis divergentibus sinu acuto
separatis oblique oblongis apice obtusis vel oblique subtruncatis praesertim
apice irregulariter marginatis, 3-nervium, totum fere 0,2 cm longum,
usque ad locum insertionis 0,17 cm longum, ad auriculas fere 0,1 cm,
medio 0,07 cm, ad lobulos apicales 0,1 cm latum. Capsula paten-
tissima; oblonga, 6-costata, 0,3—0,32 cm longa, pedicello fere 0,1 cm
longo.

Japen [I .] : Alt. c. 700m, on a tree trunk - G. Stein no. 50,
14th Mar. 1931.

Probably closest to O. bilobata Schltr., but differing in the shorter much narrower leaves, much smaller flowers, pointed sepals, petals narrowed at the apex and a much less constricted labellum which is divided much deeper at the apex.

The specimen had already withered and only part of the inflorescence was present. However, amongst the small fruit fairly well preserved flowers were found, which enabled a description to be made.

) Section : Otoglossum

Oberonia arcuata Schltr., Orch. D.N. - Guinea (1911), 162.

Northeast New Guinea : Sattelberg up to Junzaing, alt. c. 800 - 1500m - E. Mayr no. 763, Jan. 1929; flower pallid terracotta, yellow spot on the lip.

According to Mansfeld, apart from size, the plant agrees completely with Schlechter's Type.

Liparis L.C. Rich.

) Section : Rhachidibulbon

Liparis Lacus J.J. Sm., in Gibbs, Contrib. Arfak Mount. (1917), 111.

) Japen [I .] : Alt. c. 600m - G. Stein no. 61, 16th Mar. 1931.
Agrees well with the plant collected by L.S. Gibbs in the Arfak Range, except that the apex of the lip is slightly longer.

Section : Genychilus

Liparis genychila Schltr., in K. Schum. et Laut. Nachtr. Fl. D. Schutzgeb. Südsee (1905), 103; Orch. D.N. - Guinea (1911), 197; Fig. Atl. t. LXXVI, no. 275.

Northeast New Guinea : Sattelberg up to Junzaing, alt. c. 800-

1500m, terrestrial orchid - E. Mayr no. 717, Jan. 1929; flower cream coloured; no. 737, 29th Jan. 1929, flower greenish, only in bud.

Section : Ensipes

Liparis neo-guineensis Schltr., Orch. D.N. - Guinea (1911), 209; Fig. Atl. t. LXXIX, no. 289.

Liparis minima Lindl. var. neo-guineensis Schltr., in K. Schum. et Laut. Nachtr. Fl. D. Schutzgeb. Südsee (1905), 165.

Northeast New Guinea : Sattelberg up to Junzaing alt. c. 800 - 1500m - E. Mayr no. 751, 29th Jan. 1929.

I hardly believe that the species differs from L. caespitosa Lindl. or L. minima Lindl.

Section : Distichon

Liparis nebuligena Schltr., Orch. D.N. - Guinea (1911), 212; Fig. Atl. t. LXXX, no. 291.

Northeast New Guinea : Herzog Range, Dawong, alt. c. 1500m, highland forest, epiphyte - E. Mayr no. 904, 15th May 1929, flower white-yellowish.

Aglossorhyncha Schltr.

Aglossorhyncha jabiensis J.J. Sm., in Meded. Herb. Leiden no. 23 (1915), 4; in Nova Guinea XII, Livr. III (1915), 237, t. LXXXII, 141.

Dutch New Guinea : Weijland Range, alt. c. 2000m - G. Stein no 447, 10th Oct. 1931.

Glomera Bl.

Section : Euglomera?

Glomera jabiensis J.J. Sm., in Meded. Herb. Leiden no. 23 (1915), 5; in Nova Guinea XII (1915), 240, t. LXXXIV, 144.

Dutch New Guinea : Wandamen, Mt. Wondiwoi, alt. c. 1400m -
E. Mayr no. 413, 17th July 1928, flower white.

Glomera macrantha J.J. Sm., in Bull. Jard. Bot. Buit. 2^e sér. VIII
(1912), 14.

Glomera grandiflora Schltr., Orch. D.N. - Guinea (1912), 284;
Fig. Atl. t. 104, no. 389.

Northeast New Guinea : Sattelberg up to Junzaing, alt. c. 800 -
1500m, epiphytic - E. Mayr no. 771, Jan. 1929, flower white with
lower part of the lip, pink.

The leaves of the specimen to hand are narrow, ovate-lanceolate
and unevenly bi-dentate at the truncated apex, in contradiction to
Schlechter's description. However, Mansfeld has kindly informed me
that the leaf teeth of the Type agreed completely with those of Mayr's
plant. Although there are slight differences in the flowers we must
consider the plants as identical.

[Ed. - J.J. Smith assumes here that his description of Glomera
macrantha J.J. Sm. was published prior to Glomera grandiflora
Schltr. The particular fascicles (16 - 20) of 'Die Orchidaceen
von Deutsch-Neu-Guinea' which contain Schlechter's description
were in fact published on 1st Feb. 1912, which makes Smith's
claim of priority rather doubtful, unless his species was
published during January 1912.]

Section : Glossorhyncha

Glomera uniflora J.J. Sm., in Bull. Dép. Agr. Ind. Néerl. XIX
(1908), 25; in Nova Guinea VIII (1909), 43, t. XV, 49.etc.

Waigeoe [I.] : G. Stein, without number 1931 - alt. c. 250m;
G. Stein no. 139b, 24th May 1931.

The plants which I designated as G. uniflora J.J. Sm. show only
very few differences in the flowers. They all originated from the

lower hills and still need to be compared with the closest related Schlechter specimens.

Glomera stenocentron J.J. Sm., in Bull. Jard. Bot. Buit. 2^e sér. VIII (1912), 12.

Glossorhyncha stenocentron Schltr., Orch. D.N.-Guinea (1912), 294.

Dutch New Guinea : Wandamen, Mt. Wondiwoi, alt. c. 1950m, epiphytic - E. Mayr no. 286, 8th July 1928; flower white.

Northeast New Guinea : Sattelberg up to Junzaing, alt. c. 1400m, intermediate altitude range forest - E. Mayr no. 976, 9th Jan. 1929; flower white.

The differences between G. compressa J.J. Sm., G. adenandroides (Schltr.) J.J.Sm. and G. stenocentron (Schltr.) J.J.Sm. are in fact only minor and particularly if one compares them afterwards with the specimens of these species it is barely possible to keep them separate. A critical revision might perhaps reveal better differences, but it is also possible that it might be better to unite them as one species.

Glomera conglutinata J.J. Sm., in Bull. Jard. Bot. Buit. 2^e sér. II (1911), 4; in Nova Guinea XII (1931) [1913] 25, t. VI, 17.

Glossorhyncha conglutinata Schltr., Orch. D.N. - Guinea (1912), 275.

Dutch New Guinea : Cyclops Range, alt. c. 1600m - E. Mayr no. 600, 8th Sept. 1928; flower white.

Glomera gracilis J.J. Sm., in Bull. Jard. Bot. Buit. 2^e sér.
VIII (1912), 13.

Glossorhyncha gracilis Schltr., Orch. D.N. -Guinea (1912), 307.
Dutch New Guinea : Cyclops Range, alt. c. 1100m - E. Mayr no. 625,
8th Sept. 1928; flower white.
Mansfeld has compared this specimen with the Type and determined
it as G. gracilis (Schltr.) J.J.Sm.

The following species described as Glossorhyncha have not yet been
transferred to Glomera.

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Glomera Hunsteiniana J.J.Sm. [comb. nov.]
Glossorhyncha Hunsteiniana Schltr., in Laut., Beitr. zur Fl.
Papuasien IX (1923), 82.

Glomera Ledermannii J.J. Sm. [comb. nov.]
Glossorhyncha Ledermannii Schltr. l.c. 83.

Glomera pteropetala J.J. Sm. [comb. nov.]
Glossorhyncha pteropetala Schltr., l.c.

)

Glomera tamiana J. J. Sm. [nom. nov.]
Glossorhyncha Schultzei Schltr., l.c. 84.

The same applies to the species below which were published under
Giulianettia.

Glomera verrucosissima J.J. Sm. [comb. nov.]
Giulianettia verrucosissima Schltr., l.c. 85.

Glomera fusca J.J. Sm. [comb. nov.]

Giulianettia fusca Schltr. l.c. 85.

Glomera inflata J.J. Sm. [comb. nov.]

Giulianettia inflata Schltr., l.c. 86.

Giulianettia Keysseri Schltr. has already been transferred
to Glomera by Mansfeld.

Agrostophyllum Bl.

Section : Eu-Agrostophyllum

Agrostophyllum dolichophyllum Schltr., in K. Schum. et Laut.

Nachtr. Fl. D. Schutzgeb. Südsee (1905), 127; Orch. D.N. -Guinea
(1912), 274; Fig. Atl. t, CI, no. 375.

Northeast New Guinea : Sattelberg up to Junzaing, alt. c. 1370 -
1550m, highland forest, epiphyte - E. Mayr no. 747, 29th Jan. 1929;
flower white.

Section : Dolichodesme

Agrostophyllum lamellatum J.J. Sm., in Bull. Dép. Agric. Ind.
Néerl. XXXIX (1910), 1 etc.

Dutch New Guinea : Weijland Range, alt. c. 1800m - G. Stein no.
458a, 10th Oct. 1931.

I believe that I must consider this plant to be A. lamellatum J.J.Sm.,
since the flowers are identical. The peduncles however, are longer with
laxer, more separated, longer leaves, and the flower clusters are reduced
to a solitary one at the end of the peduncles. Perhaps we are considering
a specimen grown in deep shade.

Ceratostylis Bl.

Section : Euceratostylis

Ceratostylis Mayrii. J.J. Sm., sp. nov.

Planta parva. Caules approximati, fasciculati, ut videtur teretes, tenues, c. 3—4,3 cm longi, vaginis amplectentibus tubulosis membranaceis nervosis laxe vencsis ad basin. Foliū linzare, apice conduplicatum, acutum, basi acuta in petiolum contractum, obtusangule canaliculatum, lateribus convexum, coriaceum, c. 4,6 cm longum, maceratum 0,46 cm, sicco 0,3—0,35 cm latum; petiolus teres, canaliculatus, 0,3—0,4 cm longus; vagina canaliculata, c. 0,2 cm longa. Inflorescentiae ut videtur 1 vel pauciflorae, pedunculis c. 0,125 cm longis, 1-floris, vaginulis c. 3 superne accrescentibus et in bracteas vergentibus, subaequalibus donato. Bractea valde concava, late ovata, obtusa, apiculata, 0,3 cm longa. Flos maceratus 0,7 cm longus, sepalis dorso arachnoideo-pubescentibus. Sepalum dorsale oblongum, obtusum, 3-nervium, c. 0,45 cm longum, 0,175 cm latum. Sepala lateralia lacinia oblique oblonga 0,13 cm lata concava ad pedem gynostemii decurrentia, mentum reversum cum ovario angulum acutum faciens calcariforme rectum obtusum dorso 0,25 cm longum formantia, oblique oblonga, apice angustata, obtusa, 3-nervia, c. 0,4 cm, cum lacinia 0,66 cm longa, 0,175 cm lata. Petala anguste oblique lanceolata, sensim acuminata, acuta, inferne concava, superne convexa, apice recurvula, 1-nervia, c. 0,37 cm longa, 0,1 cm lata. Labellum pedi gynostemii gynostemioque parallelum, in bene $\frac{1}{3}$ supra basin obtusangule recurvulum linear-lanceolatum, 3-nervium, $\frac{2}{3}$ partibus inferioribus concavum basi excepta ciliolatum et costis parallelis tenuibus ciliolatis instructum, $\frac{1}{3}$ parte basali versus basin angustatum, basi reverse minute obtuse biauriculatum, $\frac{1}{3}$ parte superiore incrassatum, oblongum, obtusum, supra convexum, totum fere 0,7 cm longum, basi 0,075 cm, medio bene 0,15 cm latum, epichylio 0,24 cm longo, 0,15 cm lato. Gynostemium alte in brachia 2 porrecta parallela oblique oblonga rotundata extus convexa intus concava partitum, 0,24 cm longum. Anthera cucullata, rotundato-subquadrata, basi brevissime 4 lobulata, 0,075 cm lata. Pes gynostemii cum gynostemio angulum obtusum, cum ovario angulum acutum faciens, rectus, linearis, apice brevissime a sepalis lateralibus liber et rectangule incurvus, 0,175 cm longus. Ovarium arachnoideo-pubescent, fere 0,3 cm longum.

Dutch New Guinea : Wandamen, Mt. Wondiwoi, alt. c. 1400 — 2000m —

E. Mayr no. 312, 8th July 1928; flower greenish.

Amongst the very few species of the Papuan representatives of the section Euceratostylis with linear leaves, this is one of the smallest. It is characterised by inflorescences with only one or very few greenish flowers, with a moderately long, straight column-foot to which the lateral sepals are adnate for nearly their whole length, and by the narrow lip. The description is from a dried plant.

Ceratostylis curvimentum J.J. Sm., sp. nov.

Caules approximati, fasciculati, tenues, teretes, 6,5—16,5 cm longi, vaginis tubulosis amplectentibus superne accrescentibus membranaceis laxe reticulato-venosis ad c. 2—3 cm longis ad basin. Foliū lineare, apice conduplicato-acutum, basi subpetiolato-contractum conduplicatumque, costa media sicco dorso plus minusve prominente versus apicem carinata et ultra apicem producta, sicco coriaceum, rigidulum, c. 5,5—9 cm longum, 0,33—0,5 cm latum; parte contracta 0,3—0,4 cm longa; vagina canaliculato-conduplicata, basin versus dilatata caulemque amplexens, prominenter

nervosa, 0,2—0,3 cm longa. Inflorescentia fascicularis, vaginulis numerosis lata, pluriflora, vaginulis ample tubulosis; valde concavis, acuminatis, acutis, fuscescentibus vel albidis, pedunculis unifloris. Flos maceratus c. 0,8 cm longus, sepalis dorso longe tenuiter pilosis. Sepalum dorsale cum ovario angulum obtusum faciens, apice recurvulum, convexum, basi concavum, lanceolatum, acutatum, obtusiusculum, 3-nervium, 0,53 cm longum, 0,15 cm latum. Sepala lateralia lacinia longa oblique angusta apice dilatato incurvula concava ad pedem gynostemii decurrentia, mentum reversum cum ovario angulum acutum faciens calcari-forme clavatum apice incurvulum obtusum 0,33 cm longum formantia, apice recurva, oblique lanceolata, apice angustata, obtusa, 3-nervia, 0,5 cm, cum lacinia 0,83 cm longa, 0,15 cm lata, basi 0,5 cm metientia. Petala oblique anguste lanceolata, sensim longe acute acuminata, apice recurva, 1-nervia, c. 0,5 cm longa, fere 0,1 cm lata. Labellum subrectum, inferne vix curvulum, concavum, subitus convexum cum sulco longitudinali, ex ungue linearis in mesochylium obovatum ciliolatum marginibus superne incrassato-incurvum sensim cuneato-dilatatum, deinde in epichylium carnosocrassatum utrinque convexum oblongum apice acutatum subacutum contractum, incrassatione ad basin epichylii in lobum reversum producta, 3-nervium, costulis 2 parallelis ciliolatis e basi usque ad medium labelli, 0,825 cm longum, ungue 0,25 cm longo, 0,075 cm lato, mesochyli 0,275 cm longo, 0,22 cm lato, epichyli 0,3 cm longo, 0,175 cm lato. Gynostemium rectum, alte in brachia 2 late oblique oblonga apice rotundata intus concava extus convexa partitum, 0,2 cm longum. Anthera cucullata, rotundato-quadrata, basi inaequaliter 4 lobulata, lobulis exterioribus majoribus, 0,075 cm lata. Pes gynostemii cum ovario angulum acutum, cum gynostemio angulum obtusissimum faciens, rectus, apice brevissimo obtusangule incurvo a sepalis lateralibus liber, linearis, 0,25 cm longus. Ovarium pedicellatum albo-arachnoideo-pilosum, c. 0,47 cm longum.

Dutch New Guinea: Wandamen, Mt. Wondiwoi, alt. c. 1700 – 1900m, abundant in mossy highland forest – E. Mayr nos 319 and 382, 8th and 16th July 1928; flower yellowish white.

Amongst the relatives with linear leaves and white flowers, this one is characterised by multiple-flowered inflorescences and fairly large flowers with a spur-shaped, clavate, antrorse mentum.

The description is from herbarium material.

Ceratostylis compressicaulis J.J. Sm., sp. nov.

Caulis approximati, fasciculati, ut videtur compressi, 4,25—8 cm longi, sicco 0,17—0,23 cm lati, pluribus vaginis tubulosis amplectentibus adpressis superne accrescentibus longe angustatis fuscis pellucide marginatis sicco prominenter nervosis ad c. 2,5—3 cm longis initio ad basin. Folium lanceolato-lineare, versus apicem angustatum, breviter oblique vel subaequaliter acutum vel obtusum, dorso carinatum, carina ultra apicem in mucronem lateraliiter compressum producta, basi in petiolum brevem conduplicatum carinatum contractum, sicco coriaceum, 5,8—7,9 cm longum, sicco 0,6—0,75 cm latum, petiolo 0,3—0,4 cm longo; vagina canaliculata, basi dilatata et amplexicaulis, praesertim basi impresse punctata, 0,3—0,4 cm longa. Inflorescentia fascicularis, vaginulis longe et anguste

subulatis fuscis ad c. 1—1,1 cm longa, pedunculis 1-floris. Flos maceratus c. 0,65 cm longus, sepalis glabris. Sepalum dorsale anguste subovato-oblongum, apicem versus angustatum, obtusum, concavum, 1-nervium, c. 0,43 cm longum, 0,13 cm latum. Sepala lateralia lacinia oblique suborbiculari valde concava ad pedem gynostemii decurrentia, mentum reversum ovario subparallelum rectum oblongum obtusum dorso 0,15 cm antice 0,175 cm longum formantia, anguste oblique ovato-oblonga, versus apicem sensim angustata, acutiuscula, concava, 3-nervia, c. 0,425 cm, cum lacinia 0,6 cm longa, 0,15 cm lata, basi 0,2 cm metientia. Petala oblique anguste lanceolata, sensim longe acutissime acuminata, basi leviter contracta, 1-nervia, c. 0,42 cm longa, 0,075 cm lata. Labellum gynostemium longe superans, in bene $\frac{1}{4}$ parte supra basin obtusangule recurvum, apice recurvulum, concavum, unguiculatum, subtrilobum, 3-nervium, costulis 2 parallelis in dimidio inferiore, ungue quadrangulo, lobis lateralibus erectis, rotundato-obtusangulis, leviter ciliolatis, mesochylium obverse subquinquangularis formantibus, epichyli satis longo, subtereti, carnosu, obtuso, totum 0,52 cm longum, ungue fere 0,1 cm longo, 0,06 cm lato, mesochyli 0,2—0,225 cm longo, fere 0,2 cm lato, epichyli bene 0,2 cm longo, 0,075 cm diam. (?). Gynostemium alte in brachia 2 parallela oblique oblonga obtusa intus concava extus convexa partitum, 0,175 cm longum. Anthera cucullata, convexa, suborbicularis, apice excepto late membranaceo-alata, basi 4 lobulata, c. 0,075 cm lata. Pes gynostemii reversus, anguste linearis, supra medium obtusangule fere rectangule incurvus et a sepalis lateralibus liber, inexplanatus c. 0,075 cm longus. Ovarium pedicellatum tenuiter pilosum, 0,34 cm longum.

Dutch New Guinea : Cyclops Range, alt. c. 1400m — E. Mayr no.

586, 1st Sept. 1928; flower pink.

The species is closely related to C. triloba Schltr. and C. longicaulis J.J. Sm., however, differing in much smaller dimensions and smaller flowers with glabrous sepals.

The description is from herbarium material.

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Ceratostylis mamberamensis J.J. Sm., in Nova Guinea XIV (1929), 384, t. LV, 40.

Dutch New Guinea : Wandamen, Mt. Wondiwoi, alt. c. 1400m — E. Mayr no. 262, 8th July 1928.

The flowers are somewhat smaller than those of the Type.

Ceratostylis acutilabris J.J. Sm., in Meded. Herb. Leiden no. 23 (1915), 6; in Nova Guinea XII, Livr. III (1915), 268, t. XCVII, 166.

Dutch New Guinea : Weijland Range, alt. c. 1600 — 1800m — G. Stein no. 358, 9th Oct. 1931.

In accordance with the Type, but with a less pointed lip.

Mediocalcar J.J. Sm.Section : BrevicalcarMediocalcar angustum J.J. Sm., sp. nov.

Rhizoma repens, vaginis magnis ad c. 1,9 cm longis, radicibus tenuibus patentissime hirtellis. Pseudobulbi c. 0,4—1,5 cm dissiti, basi tantum rhizomati adnati, satis elongati, c. 1,6 cm longi, parte libera 1,25—0,7 cm longa, 2-folii. Folia linearia, oblique obtusa, vix bilobulata, cum mucrone longiore valde incurvo, basi petiolato-contracta canaliculataque, costa media subtus obtuse prominente, sicco tenuiter coriacea, rigidula, inaequilonga, 4,1—6,5 et 8,6—10 cm longa, 0,325—0,5 cm lata. Inflorescentia 1, pedunculo c. 0,8 cm longo. Bractea brevissima, infundibuliformis. Flo parvulus, maceratus anguste tubulosus, c. 0,95 cm longus. Sepala paulum ultra medium connata, explanata c. 0,95 cm longa, fere 0,9 cm lata, ad apicem loborum 0,47 cm lata. Sepalum dorsale 3-nervium, 0,83 cm longum, apice libero anguste triangulo, obtuse lateraliter compresso-apiculato, 0,37 cm longo, 0,175 cm lato. Sepala lateralia 0,95 cm longa, parte libera anguste oblique triangula, longe obtuse conduplicato-apiculata, c. 0,4 cm longa, 0,25—0,275 cm lata. Petala oblique linearia, apice conduplicato-acuta, basi paululum contracta, 1-nervia, c. 0,775 cm longa, fere 0,1 cm lata. Labelllum supra basin recurvum, spathulatum, concavum, 3-nervium, nervis exterioribus basi furcatis, 0,86 cm longum, ungue oblongo-quadrangulo, basi conspicue dilatato et in auriculas 2 breves reversas obtusas exeunte, cum auriculis fere 0,3 cm longo, 0,15 cm ad auriculas bene 0,2 cm lato, lamina cum ungue angulos rotundato-obtusos formante, suborbiculari, in acumen acute triangulum acuminata, 0,575 cm longa, 0,375 cm lata, acumine fere 0,2 cm longo, saeco brevissimo longitudinem 0,1 cm non attingente, incrassationibus 2 inconspicuis convexis in fauce. Gynostemium a dorso compressum, in utraque stigmatis parte leviter dilatatum, subtus concavum cum costa longitudinali convexa, 0,525 cm longum, clinandrio alte excavato, transverso, pariete postico truncato retuso, pede 0,1 cm longo. Anthera cucullata, cordato-orbicularis, apice rotundato-truncata, lobulis basilaribus retusis, c. 0,14 cm lata. Pollinia 8, lateraliter compressa, suborbicularia ad rotundato-triangula. Rostellum truncatum. Stigma transversum, semilunatum, basi truncatum. Ovarium pedicellatum 1 cm longum.

Dutch New Guinea : Cyclops Range, alt. c. 1600m — E. Mayr no. 597,

8th Sept. 1928; flower red, tips of the petals whitish.

Amongst the species with a short pouch, this one differs in the very narrow flowers with narrow sepals.

However, it would be desirable to investigate living or alcohol-preserved flowers.

The description is from a dried specimen.

Epiblastus Schltr.

Epiblastus accretus J.J. Sm., sp. nov.

Innovationes basi vaginis conduplicatis basi tubulosis imbricantibus subacutis carinatis superne accrescentibus usque ad c. 9—10 cm longis tectae. Folium novellum conduplicatum, loriforme, usque ad c. 26 cm longum, explanatum 1,6—2,5 cm latum. Inflorescentiae fasciculatae, c. 20, pedunculis c. 12 cm longis, unifloris. Bractea e basi breviter cucullata triangulo-subulato-acuminata, c. 0,2 cm longa. Flos carnosulus, c. 1,25 cm longus. Sepalum dorsale cum ovario angulum obtusum faciens, supra basin rotundato-obtusangule incurvum, ceterum rectum, ovatum, obtusum, concavum, 5-nervium, 0,77 cm longum, 0,43 cm latum. Sepala lateralia ad pedem gynostomii decurrentia, mentum conicum rectum a dorso compressum cum ovario angulum acutum faciens subtus visum ovale obtusum dorso parte mediana triangulo-convexum fere 0,4 cm longum formantia, porrecta, leviter divergentia, oblique obtusangule triangula, apice acutata vel breviter contracta, obtusa et dorso incrassata, margine postico leviter curvata, margine antico basi rotundata inflexa, 5-nervia, 0,77 cm, margine antico fere 1,1 cm longa, basi 0,65 cm lata. Petala oblique elliptica, anguste obtusa, 3-nervia, 0,7 cm longa, 0,325 cm lato. Labellum medio recurvum, lobo intermedio incurvum (an semper?), unguiculatum, 3-lobum, intus incrassatione lata transversa antice leviter rotundata basin lobi intermedii fere attingente utroque latere basique sensim evanescente, 0,83 cm longum, explanatum cruciatum, 0,925 cm, usque ad apicem loborum lateralium 0,75—0,8 cm longum, ad lobos laterales 0,67 cm latum, ungue dorso valde canaliculato, intus carino valida tota longitudine pedi gynostemii adnato, cuneato-quadrangulo, 0,4—0,5 cm longo, basi 0,175 cm, apice 0,375 cm lato; lobii laterales in utraque parte gynostemii erecti, dorsum gynostemii non attingentes, cum ungue angulum obtusum facientes, oblique rotundati, suprepanduli, 0,3 cm longi, 0,34 cm lati; lobus intermedius incurvus (?), marginibus incurvis concavus, ovato-triangulus, obtusus, basi latus, 0,25 cm longus, 0,225 cm latus. Gynostemium breve, latum, dorso convexum, absque anthera 0,3 cm longum, clinandrio transverso, concavo, apice triangulo, auriculis brevibus latis obtusis. Stigma conspicuum, excavatum, transverse subovale. Pes gynostemii cum ovario angulum acutum faciens, subrectus, late linearis, carnosus, tota longitudine carina ungui labelli adnatus, 0,35 cm longus. Ovarium 6-sulcatum, c. 2,3 cm longum.

Northeast New Guinea : Saruwaged Range, Mongi Busu, alt. c. 2600m —

E. Mayr no 773, Mar. 1929; flower red.

Initially, I considered this plant as identical with

E. tuberculatus Rogers. R.S. Rogers in Adelaide was kind enough to send me a specimen of his species so that I was able to compare the two plants side by side, when it became apparent that they were quite specifically different. The principal differences are as follows — With the new species the lateral sepals are much more inclined and spread, the petals more elliptical; the lip has a much longer claw and a much shorter relatively narrower lamina. The most outstanding characteristic of the species, however, is that the column-foot is

adnate for its whole length with the lip-claw.

It is distinguished from E. Schultzei Schltr. by the larger flowers, elliptical petals and a much longer ovary. Some important characters were lacking in the description.

In the flower examined the middle lobe of the lip was retrorse, but I am not sure whether this is always the case. Likewise, I suspect that the swelling at the front of the lip was pressed inwards.

The description was from an incomplete dried specimen.

Podochilus Bl.

Section : Apista

Podochilus scalpelliformis Bl., in Rumphia IV (1848), 45, t. 194, Fig. 4; t. 200 I; etc.

Waigeoe [I.] : Overhanging water - G. Stein no. 209, 10th Jan. 1931.

Podochilus Steinii J.J.Sm., sp. nov.

Caules fasciculati, numerosi, approximati, simplices, tenues, 8—18 cm longis, internodiis 0,15—0,3 cm longis, radicibus puberulis. Folia erecto-patentia, articulata, subtorta, linearia, acuta, angulato-canaliculata, dorso carinata, carina acute apiculata, carnosula, 0,53—1,35 cm longa, explanata 0,08—0,2 cm lata; vagina tubulosa, post defoliationem utrinque dente acuto donata. Inflorescentiae terminales et axillares, sessiles, fasciculato-ramosae, satis multiflorae, rachide tenuissima, flexuosa, 0,45—1,3 cm longa, internodiis 0,06—0,075 cm longis. Bracteae alternatim bifariae, patentissimae, concavae, explanatae semiellipticae, leviter acuminatae, acute conico-apiculatae, 3-nerviae, 0,1 cm longae, 0,08 cm latae. Flores ad c. 21, parvi, 0,25 cm longi, sepalis dimidio inferiore oblique urceolato-connatis, subtus ad basin mentum breve obtusum ventricosum formantibus. Sepalum dorsale ovato-triangulum, obtusum, breviter obtuse apiculatum, concavum, 1-nervium, 0,2 cm longum, parte libera c. 0,1 cm longa et paulo latiore. Sepala lateralia oblique oblongo-triangula, obtusa, concava, 1-nervia, costa curvata dorso prominente, 0,25—0,275 cm longa, parte libera oblique triangula, 0,125 cm longa, 0,1 cm lata. Petala e basi oblique elongato-cuneata margine antico incurvo gynostemio adnata ovato-dilatata, leviter trilobulata, lobulis lateralibus basi latis leviter rotundatis angulo obtuso a lobulo terminali rotundato-quadrangulo subtruncato sejunctis, concavo, 1-nervia, fere 0,2 cm longa, ungue 0,075 cm longo, lamina 0,1 cm paululum superante 0,08 cm lata, lobulo terminali c. 0,05 cm longo et lato. Labellum ungue angusto oblongo-quadrangulo insertum, oblongum, apicem versus paululum angustatum, obtusum, basi in appendicem reversam bilobatam productum, lobulis brevibus triangulis obtusis sinu obtusangulo sejunctis, in $\frac{1}{3}$ et $\frac{2}{3}$, totius longitudinis inconspicue constrictum, concavum, 3-nervium, c. 0,2 cm longum, basi bene 0,075 cm, infra apicem bene 0,05 cm latum, ungue 0,05 cm longo. Gynostemium

breve, a dorso compressum, dorso convexum, apicem rostelli usque 0,16 cm longum, clinandrio excavato. Anthera cucullata, cordata, in rostrum longum producta, connectivo incrassato subovali, 0,06 cm longa. Pollinia 9, inaequalia, oblique clavata, stipitibus 2 superne spathulato-dilatatis concavis basi connatis inserta, cum glandula elongata lanceolata bene 0,1 cm longa. Rostellum porrectum, alte bipartitum, lacinis longis subulatis sinu oblongo rotundato sejunctis. Stigma clinandrio simile, margine inferiore lato leviter obtusangule exciso. Pes gynostemii brevissimus. Ovarium bene 0,1 cm longum.

Japen [I.] : Alt. c. 400m, on a tree trunk - G. Stein no. 77,
17th Mar. 1931.

Distinguished from P. scalpelliformis Bl. by the non-equitant leaves, and from P. imitans Schltr. by the narrower leaves, differently shaped petals, a much narrower lip etc. P. lucescens Bl. is also similar to the new species but differs in the laxer inflorescences, a much narrower non-tri-lobed lip, etc.

The description is from herbarium material.

Appendicula Bl.

Section : Chaunodesme

Appendicula Chalmersiana F.v.M., in Wing's South Sc. Rec. 1
(n.s.) 1885; etc.

Dutch New Guinea : Wandamen, Mt. Wondiwoi, alt. c. 1400m,
epiphytic - E. Mayr no. 352, 15th July 1928.

Appendicula palustris J.J. Sm., in Bull. Dép. Agr. Ind. Néerl.
XIX (1908), 4; in Nova Guinea VIII (1909), 116, t. XXXIX, 130.

Dutch New Guinea : Without locality - E. Mayr nos 467 and 519,
June - Aug. 1928.

Both specimens appear to belong to forma angusta (l.c. 117, t.
XXXIX, 131)

Calanthe R.Br.

Section : Styloglossum

Calanthe chrysantha Schltr., in K. Schum. et Laut. Nachtr. Fl.

D. Schutzgeb. Südsee (1905), 141; Orch. D.N. - Guinea [p. 386]; Fig.

Atl. t. CXXXVI, no. 511.

Dutch New Guinea : Arfak Range, Mt. Ditschi, alt. c. 1200m -

E. Mayr no. 83, 1st June 1928; without locality - E. Mayr no. 531, June-Aug. 1928.

var. orbicularis J.J.Sm., var. nov.

Rhizoma repens, radicibus villosis. Pseudobulbi parvi, c. 3-folii. Folia articulata, linear-lanceolata, sensim longe angustata, acutissima, basi sensim in petiolum angustata, nervis 5 majoribus sicco supra subtusque prominentibus, nervis minoribus alternantibus, c. 14,5—42 cm longa, 0,5—1,8 cm lata; petiolus canaliculatus, glaber, valde 5-costatus, 5—11 cm longus; vagina 2,5—5,5 cm longa. Inflorescentiae erectae, dense pluri-multiflorae, pedunculo 12,25—17,25 cm longo, vaginulis 4—6 persistentibus conspicuis tubulosis acutis 1,75—4,2 cm longis donato, rachide glabra, 2,5—5,5 cm longa. Bracteae caducae. Flores glabri, carnosuli, c. 1,85 cm longi. Sepalum dorsale ovatum, obtusum, concavum, nervis 5 dorso sulcatis, 1,25 cm longum, 0,73 cm latum. Sepala lateralia oblique oblongo-ovata, apicem versus angustata, obtusa, apiculata, margine antico basi recurvo calcari adpressa, concava, 5-nervia, 1,3—1,36 cm longa, 0,58 cm lata. Petala e basi breviter cuneato-unguiculato-contracto obliquae subovato-ovalia, obtuse, vix apiculata, concava, 3-nervia, 1,2 cm longa, 0,58 cm lata. Labellum calcaratum, basi longitudine 0,4—0,47 cm gynostemio adnatum; lamina porrecta, explanata ex ungue transverse quadrangulo basi utrinque leviter rotundato-dilatato incrassationibus 2 longitudinalibus convexis donato 0,14—0,2 cm longo, 0,23 cm lato in laminam orbiculariem obtuse apiculatam basi excepta erosulam c. 0,4 cm longam, 0,47—0,48 cm latam dilatatum; calcar reversum, cum ovario angulum acutum faciens, infra medium obtusangule recurvulum, obtusum, 0,425—0,5 cm longum. Gynostemium longiusculum, leviter recurvulum, subclavatum, tota longitudine labello adnatum, fere 0,5 cm longum, apice truncatum. Anthera cucullata, orbiculari-ovata, apice breviter trilobulata, lobulo intermedio exterioribus angustiore. Ovarium 6-sulcatum, glabrum, fere 0,6 cm longus; pedicellus tenuior, 0,35 cm longus.

Dutch New Guinea : Mt. Moendi, alt. c. 1900m, also lower [altitude]

- E. Mayr no. 17, 27th May 1928; flower saffron-yellow.

Differs from the Type in the lip-lamina which is circular in front and not compressed at the apex.

The description is from herbarium material.

Section : Ecalanthe

Calanthe veratrifolia R.Br., in Bot. Reg. IX (1823), t. 270; etc.

Japen [I.] : Alt. c. 100m - G. Stein no. 109, 26th Mar. 1931.

Possibly a variety.

Calanthe Engleriana Krz1., in K. Schum. et Laut. Nachtr. Fl. D. Schutzgeb. Südsee (1905), 142; etc.

Japen [I.]: Alt. c. 700m - G. Stein no. 37, 14th Mar. 1931; flowers ivory-coloured.

Phaius Lour.

Section : Ephaius

) Phaius Tankervilleae [tancarvilliae Banks ex L'Herit. Bl., Mus..

Bat. Lugd. Bot. II (1852), 177, etc.

Dutch New Guinea : Arfak Range [Mt.] Ditschi, alt. c. 1200m - E. Mayr no. 207, 8th June 1929.

Spathoglottis Bl.

) Spathoglottis parviflora Krz1., in Engl. Bot. Jahrb. XVI (1892), 18; Schltr., Orch. D.N.-Guinea (1912), 401; Fig. Atl. t. CXXXXI.

Spathoglottis obovata J.J. Sm., in Bull. Dép. Agr. Ind. Néerl. XXXIX (1910), 20; in Nova Guinea VIII (1911), 529, t. LXXVII C.

Northeast New Guinea : Sattelberg up to Junzaing, alt. c. 800-1500m - E. Mayr no. 716, Jan. 1929; flower violet.

I am fairly sure that S. obovata J.J. Sm. belongs here.

) Spathoglottis altigena Schltr., Orch. D.N.-Guinea (1912), 396; Fig. Atl. t. CXXXIX, no. 522.

Northeast New Guinea : Saruwaged Range, Ogeramnang, alt. c. 1800m - E. Mayr no. 875, 30th Mar. 1929; flower red-violet.

Spathoglottis wariana Schltr., Orch. D.N. - Guinea (1912), 399;

Fig. Atl. t. CXXXX, no. 526.

Dutch New Guinea : Arfak Range, [Mt.] Ditschi, alt. c. 1200m - E. Mayr no. 75, 1st June 1928; flower violet 'nom inc. Gergwuchermerik'; no. 160, 8th June 1928; flower red; no. 206, 8th June 1928; flower violet; Wasior, alt. c. 0-100m - E. Mayr no. 403, 20th July 1928; flower pink-violet.

Waigeoe [I.] : Lamlam, alt. c. 200m - G. Stein no. 171, 31st May 1931.

Spathoglottis patentibractea J.J.Sm., sp. nov.

Folia lanceolato-linearia, sensim longe angustata, acutissima, basi sensim in petiolum angustata, nervis majoribus c. 7 subtus prominentibus numerosisque minoribus, firmiter papyracea, c. 6,4 cm longa, 3 cm lata; petiolus canaliculatus, costato-nervosus, parte adest 12,5 cm longa. Inflorescentia densius multiflora, quaquaversa, pedunculo dense sublanato-piloso, parte adest 11 cm longa, rachide c. 12,5—19 cm longa, indumento pedunculi, internodiis 0,25—0,8 cm longis. Bracteae patentes ad patentissimae, persistentes, subcymbiformi-concavae, basi lata sessiles, subovales, brevissime acute acuminatae, utrinque breviter puberulae, c. 9—11-nerviae, costa media dorso incrassata, c. 1,2 cm longae, 0,6 cm latae. Flores 60 vel plures, magni. Sepalum dorsale lanceolato-ellipticum, obtusum, minute obtuse apiculatum, dorso puberulum, plurinervium, 2,8 cm longum, fere 1 cm latum. Sepala lateralia margine postico recurva, oblique oblongo-subelliptica, obtusa, conico-apiculata, basi subcontracta, costa media subsigmaidea, margine antico obtusangulae, dorso puberulae, 2,5 cm longae, 1 cm latae. Petala oblique subovali-oblongae, obtusae, basi breviter angustatae, dorso parcissime puberulae, 2,75 cm longae, 1,1 cm latae. Labellum porrectum, 3-lobum, 3-nervium, basi inter lobos laterales longitudinaliter 3-costulatum, explanatum 1,93 cm longum, ad lobos laterales bene 2 cm latum; lobi laterales erecti, explanati divaricati, oblique lineari-oblongi, margine antico subrecti basi leviter dilatati, margine postico apice subrotundato-dilatati, apice oblique truncati, 0,95 cm longi, basi 0,5 cm, medio 0,375 cm, infra apicem 0,475 cm lati; lobus intermedius porrectus, hastatus, explanatus 1,5 cm longus, ad lobulos basilares 0,5 cm latus, inter lobulos basilares callo erecto bipartito donatus, lobis calli subobliqua ovalibus extus concavis intus convexis parceque pilosis, lobulis basilaribus reflexis, explanatis divaricatis, triangulis, obtusis, intus praesertim basi pilosis, lobulo intermedio spathulato, 1,2 cm longo, ungue linearis, convexo, costa media medio leviter incrassata sed non callifera, bene 0,1 cm lato, lamina cuneato-obcordata lobulis angulato-rotundata, 0,7 cm longa, 0,85 cm lata. Gynostemium gracile, arcuatum, apicem versus anguste alato-dilatatum, dorso convexum, subtus concavum, apice productum obtusumque, absque anthera 1,35 cm longum, clinandrio alte excavato triangulo, pede abbreviato, cum ovario angulum rectum faciente, transverse quadrangulo truncato, concavo. Rostellum triangulum, convexum cum costa longitudinali. Stigma breviter triangulum, margine superiore truncatum, concavum. Ovarium dense puberulum.

Waigeoe [I.] : Supintol, cliffs overhanging water - G. Stein

no. 210, 8th June 1931; no 262a, 12th June 1931.

The plant belongs to the affinity of S. plicata Bl. etc. but differs, however, from all these species by the protruding to very non-retrorse, hardly pointed bracts. The claw of the middle lobe of the lip shows a moderately swollen mid-vein; however, a true callus is lacking.

The description is from incomplete herbarium material.

Eria Lindl.

Section : Goniorhabdos

Eria kaniensis Schltr., Orch. D.N.-Guinea (1912), 651; Fig.

At1. t. CCXIX (CCXVIII).

var. constricta J.J.Sm. var. nov.

Pseudobulbi ovoidei, acute quadrangulati, c. 4,2 cm longi, 2-folii, nonnullis vaginis usque ad 9,5 cm longis ad basin. Folia erecta, lanceolata, acuminata, basi sensim in petiolum canaliculatum angustata, nervis c. 5 sicco prominentibus, nervis tenuioribus intermixtis, petiolo 3—7,5 cm longo inclusio 22,5—29,5 cm longa, 2,1 cm lata. Inflorescentiae ex apice pseudobulborum, erectae, laxe pluri-multiflorae, pedunculo c. 8,5—11 cm longo, compresso, vaginulis 3—4 tubulosis donato, rachide alata, 18,5—26 cm longa, alis e bracteis decurrentibus. Bracteae patentes, persistentes, ovatae, acuminatae, acutae, concavae, carinatae, adpresso puberulae, 5-nerviae, c. 1,2 cm longae, 0,57 cm latae. Flores c. 2,3 cm longi, sepalis petalisque divergentibus. Sepalum dorsale ovato-lanceolatum, apicem versus sensim angustatum, acutum, 3-nervium, nervis exterioribus basi furcatis, c. 2 cm longum, 0,47 cm latum. Sepala lateralia cum pede gynostemii mentum breve ovario adpresso conicum obtusum dorso convexum c. 0,55 cm longum formantia, oblique lanceolato-triangula, apicem versus sensim angustata, acuta, 3-(5-)nervia, costa media dorso prominente, fere 2,2 cm longa, basi 0,7 cm, supra basin 0,575 cm lata. Petala oblique rhombo-lanceolata, apicem versus sensim longe angustata, acuta, 3-nervia, c. 1,93 cm longa, supra basin fere 0,5 cm lata. Labellum subsimplex, oblongo-ellipticum, paululum ultra medium leviter constrictum, hypochylio cuneato-obovato, fere omnino integerrimo, epichylio ovato, obtuso, apiculato, erosulo-crenulato, nervis 3 in $\frac{2}{5}$ partibus inferioribus incrassatulis in $\frac{2}{5}$ partibus inferioribus in fasciam linearem incrassatulam confluentibus, nervis exterioribus ramosis, carinis 7 irregularibus lacinulatis interruptisque in nervis sitis in epichylio, totum 1,75 cm longum, constrictione 0,625 cm latum, hypochylio 0,9—1 cm longo, 0,66—fere 0,7 cm, basi c. 0,2 cm lato, epichylio 0,75—0,85 cm longo, 0,725—0,75 cm lato. Gynostemium dorso curvulum convexumque cum costa longitudinali, subtus concavum, satis latum, oblongum, margine in utraque rostelli parte dente triangulo acuto donato, clinandri pariete postico bene producto transverse quadrangulo integerrimo truncato filamento triangulo

imposito, 0,4 cm longum. Anthera cucullata, transverse ovalis, rotundata, carinato-gibbosa, postice in lobulis conspicuis retusis pollinia continetibus producta, 0,25 cm longa, 0,23 cm lata. Rostellum conspicuum, erectum, quadrangulum, apice late retuso bidentatum, margine serrulatum. Stigma bene infra rostellum situm, rotundatum, margine elevatulo. Pes gynostemii basi ovario adpressus, incurvus, linearis, truncatus, concavus, inexplanatus 0,55 cm longus. Ovarium pedicellatum clavato-triquetrum, apice valde obliquum, 0,66 cm longum.

Northeast New Guinea : Sattelberg up to Junzaing, alt. c. 800-1500m, epiphytic - E. Mayr no. 769, Jan. 1929; flowers whitish; Ebenda, alt. c. 1400m - E. Mayr no. 987, Jan. 1929; flower yellowish white, half withered.

) Initially, I have decided on a variety but, if the differences are confirmed, then I consider it will be unavoidable to separate the plant as a species.

I compare the differences below :

Eria kaniensis Schltr. Sepals fairly acuminate, lip not constricted, completely margined, with five veins more prominent on the upper surface. The lateral lobes of the clinandrium are bi-dentate (mono-dentate in the illustration), the middle lobe truncated, denticulated and with a small tip.

) E. kaniensis Schltr. var. constricta J.J.Sm. The sepals are more pointed, the lip with a weak but distinct constriction near the middle, the hypochile completely margined, the epichile minutely serrated with three veins thickened in the lower part and combined into a thickened longitudinal stripe, the outside ones branched; on the epichile there are seven serrated to discontinuous keels. The column has one tooth on each side of the rostellum, the middle section of the clinandrium is obliquely rectangular with a small apex, completely margined and the rostellum dentate.

Mansfeld kindly informed me that only two flowers of the species existed in Schlechter's herbarium and that the description and illustrations generally agreed with them.

Mayr's no. 769 is apparently a robust specimen with multi-flowered inflorescences overtopping the leaves.

The description is from herbarium material.

Section : Hymeneria

Eria oligotricha Schltr., in K. Schum. et Laut. Nachtr. Fl. D. Schutzgeb. Südsee (1905), 181; etc.

Dutch New Guinea : Weijland Range, alt. c. 1300m - G. Stein no. 586, 15th Oct. 1931.

Section : Trichotosia

) Eria brachiata J.J. Sm., in Fedde Rep. XII (1913), 122; in Nova Guinea XII (1916), 356, t. CXXIX, 237.

Dutch New Guinea : Arfak Range, [Mt.] Ditschi - E. Mayr no. 69. 1st June 1928; flower red-white striped, the inner corona with clearer colours.

Eria Mansfeldiana J.J.Sm., sp. nov.

Caulis elongati, vix flexuosi, adpresso rufohirsuti, partes adsunt usque 24 cm longae, internodiis 2,25—3 cm longis. Folia patentia ad subpatentissima, oblique lanceolata, valde oblique acuminata, anguste obtusa, basi angustata, supra initio tenuiter pilosa, mox glabrata, subtus sparse hirsuta, costa media subtus praesertim versus apicem prominente, sicco coriacea, 8,5—10 cm longa, 1,5—1,7 cm lata; vaginae tubulosae, internodia aequantes, patentissime basi densius rufo-pilosae. Inflorescentiae vaginam dorso ad basin perforantes, patentes, foliis breviores, laxe pauci-pluriflorae, pedunculo brevi c. 0,4—0,8 cm longo, nonnullis vaginulis brevibus latis donato, cum rachide tenui patentissime rufescens piloso, rachide c. 1,7—4,75 cm longa. Bracteae patentes ad patentissimae, valde cucullato-concavae, orbiculari-ovatae, breviter acuminatae, patenter hirsutae, c. 0,63 cm longae, fere 0,6 cm latae. Flores 4—9, mediocres, sepalis dorso patenter hirsutis. Sepalum dorsale linearior-oblungum, obtusum, breviter conico-apiculatum, c. 1 cm longum, 0,28 cm latum. Sepala lateralia lacinia oblique oblonga concava ad pedem gynostemii decurrentia, mentum mediocre cum ovario angulum acutum faciens incurvum oblongo-saccatum obtusum dorso, convexum c. 0,45 cm longum formantia, marginibus anticis ad apicem menti contiguis, oblique oblongo-triangula, apice breviter conduplicato-acuminata, obtusa, margine postico curvata, costa media dorso obtuse incrassata, c. 0,9 cm longa, parte antica 0,43 cm lata. Petala oblique late linearia, superne leviter dilatata et irregulariter marginata, obtusa, praescritim dimidio superiore laxe ciliata, bene 0,9 cm longa, 0,75 cm lata. Labellum supra basin obtusangule recurvum, pedi gynostemii gynostemioque parallelum, concavum, 3-lobum, spathulatum, intus dense breviter hirtello-papillosum, costis 2 longitudinalibus superne leviter divergentibus glabris ante basin lobis inter-

medii obtuse terminantibus in c. $\frac{1}{3}$ supra basin evanescentibus, explanatum oblongo-cuneatum, 1,17 cm usque ad apicem loborum lateralium 0,85 cm longum, basi 0,15 cm, ad lobos laterales bene 0,5 cm latum, in c. 0,26—0,275 cm supra basin constrictum; lobi laterales mesochylium cuneato-quadrangulum formantes, apice brevissime liberi, dentiformes, leviter contracti, obtusi, 0,025—0,04 cm longi, dente parvulo obtuso in sinu inter lobos laterales et lobum intermedium; lobus intermedium transverse oblongus, apice retusus, irregulariter marginatus, basi laxe longius ciliatus, costula longitudinali puberula apicem non attingente instructus, 0,33 cm longus, bene 0,6 cm latus. Gynostemium longiusculum, rectum, a dorso compressum, dorso convexum, praesertim superne nonnullis pilis instructum in utraque stigmatis parte leviter rotundato-dilatatum, c. 0,55 cm longum, clinandrio leviter contracto, excavato. Anthera cucullata, ambitu transverse subquadrangula, apice lata retusa cum rostro brevissimo obtuso in sinu, basi biloba, lobis retusis, connectivo lateraliter compresso-gibbosa, fere 0,15 cm lata. Pollinia 8, compressa, oblique cuneato-triangula ad obovata. Rostellum nasiformi-recurvum (amphorae), rotundatum. Stigma transversum. Pes gynostemii cum ovario angulum acutum faciens, linearis, papillosum, apice a sepalis lateralibus libero incurvus dilatatusque, 0,45 cm longus. Ovarium oblique obconicum, curvulum, dense hirsutum, 0,45 cm longum.

Dutch New Guinea : Without locality details — E. Mayr no. 523,
June — Aug. 1928.

The species is closely related to E. paludosa J.J.Sm. but differs in the more protruding hairs, size of leaf, narrower petals and lateral sepals, glabrous ridges of the lip and longer column-foot and ovary. E. collina Schltr. also is similar but specifically different as I was kindly informed by Mansfeld.

The description is from herbarium material.

Eria flexuosa J.J.Sm., sp. nov.

Caulis elongati, leviter flexuosi, subglabri, partes adsunt ad 32 cm longi, internodiis ad 2,4 cm longis, superne usque ad 1 cm decrescentibus. Folia patentia, lineari-lanceolata, obliqua, longe unilateraliter acuminata, anguste obtusa, parcius patenter atrorufa hirsuta, supra glabrescentia, sicco coriacea, 5—11 cm longa, sicco 0,67—1,2 cm lata; vaginae tubulosae, internodia subaequantes vel paulum superantes, atrorufa hirsutae, deinde pilis plus minusve decidentibus. Inflorescentiae e nodis, vaginas 1 vel 2 perforantes, patentes, foliis brevioribus, laxe 8—10-florae, c. 5—6 cm longae, pedunculo brevi, tenui, patentissime rufo-hirsuto, vaginulis 2 ample oblique tubulosis hirsutis donato, rachide tenui, valde flexuosa, indumento pedunculi, internodis 0,4—0,65 cm longis. Bracteae semi-reflexae, valde concavae, ovarium amplectentes, e basi suborbiculari abrupte triangulo-acuminatae, dorso hirsutae, absque pilis c. 0,45 cm longae, 0,35 cm latae. Flores patentissimi, parvi, 0,5 cm longi, sepalis dorso longe patenter rufo-hirsutis. Sepalum dorsale oblongo-subovatum, obtusum, obtuse conico-apiculatum, concavum, 3-nervium, 0,45 cm longum, 0,2 cm latum. Sepala lateralia lacinia oblique oblonga ad pedem gynostemii decurrentia, mentum satis breve cum ovario angulum acutum faciens obtusum basi non contractum 0,14 cm longum formantia, oblique trian-

gula, margine postico leviter curvata, obtusa, conspicue obtuse conico-apiculata, concava, 3-nervia, 0,33 cm longa, margine antico 0,525 cm, basi 0,4 cm metentia. Petala recta, oblique linearia, apice paululum spathulato-dilatata, obtusa, longe erecto-patente hirsuto-ciliata, 3-nervia, nervis exterioribus inconspicuis, 0,45 cm longa, medio fere 0,1 cm, apice 0,1 cm lata. Labelum erectum, cum pede gynostemii angulum acutum faciens, lobo medio recurvo, concavum, tertia parte superiore 3-lobum, intus praesertim margine papillosum, costis 2 inconspicuis e basi usque basin lobi intermedii, costa tertia minore interposita, omnibus superne obsoletis, 0,36 cm longum, explanatum ambitu obovato-sexangulare, basi truncatum retusumque, 0,45 cm, usque ad apicem loborum lateralium 0,35 cm longum, basi 0,14 cm, superne 0,275 cm latum; lobi laterales erecti, falcato-incurvi, apice libero brevissimo, obtuse triangulo; lobus intermedius transverse quadrangulus, basi paululum contractus, apice obtuse bilobulus, subirregulariter marginatus, papilloso-ciliolatus, 0,125 cm longus, 0,17 cm latus. Gynostemium breve, rectum, a dorso compressum, dorso convexum, glabrum, bene 0,2 cm longum, clinandrio transverso, apice lato, auriculis paulo longioribus, rotundato-quadrangulis, concavis. Anthera cucullata, reniformis, connectivo convexo apice breviter obtuse producto, 0,1 cm lata. Pes gynostemii cum gynostemio angulum obtusum, cum ovario angulum acutum faciens, rectus, oblongus, apice paululum dilatatus, truncatus, concavus cum costula longitudinali, 0,17 cm longus. Ovarium oblique obconicum, longe subadpresso, subtus patenter hirsutum, 0,35 cm longum.

Dutch New Guinea : Wandamen, Mt. Wondiwoi, alt. c. 1950 up to 2000m, abundant, epiphytic - E. Mayr no. 269, 8th July 1928; flower reddish-brown with a paler lower lip.

According to the description the species differs from E. breviflora Schltr. in larger, fairly lax and long-haired leaves becoming glabrous above, a rachis strongly bent backwards and forwards, pointed bracts which are appreciably shorter than the flowers, larger flowers, long ciliated petals and the lateral lobes of the lip truncated.

The description is from herbarium material.

Dendrobium Sw.

Section : Cadetia

Dendrobium Mayrii J.J.Sm., sp. nov.

Pusillum. Rhizoma repens, vaginis tubulosis arcte adpresso omnino obtectum. Pseudobulbi c. 1,3--2 cm dissiti, inferne rhizomati adpresso, breves, oblique obtuse quadranguli cum sulcis 4 latia longitudinalibus, c. 0,65—0,8 cm longi, 0,475 cm diam., 1-folii. Folium ovale ad oblongum, plus minusve ovatum, obtusum vel minute inaequaliter bidentatum,

basi brevissime canaliculato-petiolato-contractum, supra canaliculatum cum lateribus convexis, carnosum, utrinque sparse nigrescenti-furfuraceo-puncticulatum, c. 1—2 cm longum, 0,775—0,87 cm latum, petiolo 0,1 cm longo. Inflorescentia 1, pone folium, 1-flora, pedunculo curvato, tereti, c. 0,25—0,3 cm longo, vaginulis brevibus donato. Flos carnosulus, fere 1,2 cm longus, sepalis dorso densiuscule nigrescenti-furfuraceo-punctatis. Sepalum dorsale late ovatum, obtusum, dorso infra apicem minute obtuse gibbosum, basi latum, 5-nervium, c. 0,45 cm longum, 0,38 cm latum. Sepala lateralia ad pedem gynostemii decurrentia, antice omnino libera, mentum curvulum cum ovario angulum anguste acutum faciens conicum obtusum 0,65 cm longum formantia, breviter apiculata, acutiuscula, concava, 5-nervia, c. 0,5 cm, margine antico bene 0,9 cm longa, basi 0,8 cm metientia. Petala parva, oblique oblonga, acute apiculato-acuminata, 1-nervia, c. 0,375 cm longa, 0,175 cm lata. Labellum (corruptum) apici pedis gynostemii insertum, pedi non adnatum, superne curvulum, spathulatum, 3-lobum, minute papillosum, crasse carnosum, 5-nervium, inter lobos laterales carnosum-incrassatum et plus minusve bicallosum, c. 0,8 cm longum, ad lobos laterales 0,27 cm latum, ungue oblongo, antice in lobos laterales minimos erectos vix productos obtusos exeunte; lobus intermedius majusculus, suborbicularis, late retusus, leviter longitudinaliter canaliculatus, papillous, 0,4 cm longus, 0,425 cm latus. Pes gynostemii cum ovario angulum anguste acutum faciens, curvulus, linearis, concavus, 0,65 cm longus. Ovarium curvatum, oblique obconicum, trigonum, dense atrofusce furfuraceo-punctatum, 0,4 cm longum; pedicellus minus dense punctatus, 0,55 cm longus.

Dutch New Guinea : Cyclops Range, alt. c. 1600m, growing on a tree,
like a carpet — E. Mayr no. 601, 8th Sept. 1928; flower red and
yellow.

Closely related to D. furcillatum J.J.Sm., but the leaf is broader, the shape of the flowers different, the mentum not compressed, the petals broader and less pointed, the middle lobe less distinctly bilobed, and the peduncles much shorter. The new species is distinguished from D. chionanthum Schltr., in the blunter petals, the shape of the lip and the shorter peduncle.

The description is from herbarium, as well as alcohol-preserved material. Unfortunately, the middle lobe of the lip and the column were badly insect-damaged.

Dendrobium fluctuosum J.J. Sm., sp. nov.

Pusillum. Rhizoma breve. Pseudobulbi aggregati, uninodes, elongato-oblongi, sicco tenuiusculi, longitudinaliter 4-sulcati, minute puncticulati, nitidi, 0,85—1,9 cm longi, 0,2—0,26 cm diam., 1-folii. Folium oblongum ad linear-lanceolatum, apice minute inaequaliter bidentatum cum mucrone multo longiore lateraliter compresso-conico acuto interposito, basi brevissime subpetiolato-contractum, supra in utraque costae mediae sulcatae parte convexum, dorso carinatum, carnosulum, sicco coriaceum, minute puncticulatum, c. 1,7—3,6 cm longum, 0,75—0,5 cm latum. Inflorescentiae ante et pone folium, 1-florae, pedunculo 0,4—0,45 cm

longo, vaginulato. Flos in sectione inter majores, c. 2,4 cm longi. Sepalum dorsale patentissimum, oblongo-lanceolatum, versus apicem angustatum, obtuse apiculatum, marginibus incurvis, 3-nervium, fere 1,1 cm longum, 0,35 cm latum. Sepala lateralia lacinis angustissime linearibus margine antico omnino connatis ad pedem gynostemii decurrentia, mentum tenuiter calcariforme cum ovario angulem acutum angustum faciens incurvum teres obtusum inexplanatum c. 1 cm longum formantia, oblique oblongo-elliptica, apice oblique angustata obtusa, basi contracta, 3-nervia, nervis 4 minoribus intermixtis, c. 1,7 cm longa, 0,775 cm lata. Petala parva, parallela, gynostemio adpressa et paulum longiora, lacinia anguste oblique lineari ad partem inferiorem pedis gynostemii decurrentia, elliptica, acute acuminata, basi contracta, 1-nervia, 0,43 cm longa, 0,2 cm lata, lacinia decurrente 0,36 cm longa. Labelum spathulatum, parallelum pedi gynostemii gynostemioque curvatum, gynostemium superans, ungue lineari, c. 1,2 cm longo, parte apicali libera canaliculata c. 0,34 cm longa, lamina alte triloba, incrassatione conspicua longitudinali alta lata convexa in medio lobi intermedii terminante instructa, explanata 0,5 cm longa, ad lobos laterales 0,375 cm lata, ambitu ovata; lobi laterales porrecti, oblique ovales, oblique rotundati, parte libera c. 0,14 cm longi, bene 0,15 cm lati; lobe intermedium obovatus, apice in lobulum triangulum obtusum acuminato-productus, glaber, c. 0,34 cm longus, 0,2 cm latus. Gynostemium longiusculum, rectum, 0,35 cm longum, filamento parvo, subulato, auriculis longioribus, quadrangulis, apice obtusangule retusis. Anthera cucullata, convexa, ambitu suborbicularis, basi bilobula, apice breviter contracta truncata bidenticulata, 0,1 cm lata. Pes gynostemii cum ovario angulum anguste acutum faciens, incurvus, anguste linearis, inexplanatus 1,1 cm longus. Ovarium 6-alatum, alis 3 posticis conspicuis undulatisque, 3 anticis multo minoribus bene costiformibus, 0,65 cm longum; pedicellus elongatus, tenuis, c. 3,5 cm longus.

Dutch New Guinea : Wandamen, Mt. Wondiwoi, alt. c. 1400 up to 2000m, epiphytic - E. Mayr no. 378, 16th July 1928, flower white.

This species is reminiscent of D. cyclopense J.J.Sm. in its long thin spur-shaped mentum, but differs appreciably from it in larger flowers and differently-shaped petals, lip, column and anther. It initially gives the impression, as does D. remotisepalum J.J. Sm., that the lateral sepals are inserted at a distance from the dorsal sepal; but closer observation shows that they continue as a quite narrow strip to the lower part of the column-foot.

Since Schlechter should have admitted that the flowers of Cadetia showed no significant differences from Dendrobium (in Engl. Bot. Jahrb. LVIII [1923] 91.), he attempted to maintain the genus Cadetia from the characters of the fruit. Compared with Dendrobium those of Cadetia should be either broad three-winged or closely-set with soft bristles. Three (and more) winged fruit occur, however, frequently,

for example in the section Oxyglossum, and several species of the section Latouria have soft bristled fruit.

The following Cadetia species have not yet been transferred to Dendrobium:

Dendrobium cuneilabium J.J. Sm. [comb. nov.]

Cadetia cuneilabia Schltr., in Laut. Beitr. z. Fl. Papuasien IX (1923), 91.

Dendrobium lactiflorum J.J.Sm. [comb. nov.]

Cadetia lactiflora Schltr. l.c. 92.

)

Dendrobium latoureaoides J.J.Sm. [comb. nov.]

Cadetia latoureaoides Schltr. l.c. 93.

Dendrobium platylobum J.J.Sm. [comb. nov.]

Cadetia platyloba Schltr., l.c.[93.]

Dendrobium maluense J.J.Sm. [nom. nov.]

Cadetia quadriquetra Schltr., l.c. 94.

) On account of D. quadriquetrum J.J.Sm. the species name could not be retained.

Dendrobium bariense J.J.Sm. [nom. nov.]

Cadetia sepikana Schltr., l.c. 95.

Because of Dendrobium sepikanum Schltr. the species name should be changed.

Dendrobium bicornutum J.J.Sm. [comb. nov.].

Cadetia bicornuta Schltr., in Fedde Rep. XVI (1919), 110.

Dendrobium bicornutum Schltr. has been transferred correctly to

D. lobatum Miq. by Kränzlin.

R. Mansfeld has already interpreted Cadetia Foersteriana Schltr. as identical with Dendrobium chamaephytum Schltr.

Dendrobium majus J.J.Sm., in Bull. Jard. Bot. Buit. 2^e ser. VIII (1912), 18.

Cadetia major Schltr., Orch. D.N. -Guinea (1912), 435; Fig. Atl. t. CLI, no. 565.

Northeast New Guinea : Sattelberg near Junzaing - alt. c. 800 - 1500m, epiphytic - E. Mayr no. 718, Jan. 1929.

) Although Schlechter's illustration does not agree in all details, I believe it is conspecific.

Dendrobium infortunatum J.J.Sm., in Nova Guinea XIV, Livr. 3 (1929), 398.

Dendrobium potamophila J.J. Sm., in Bull. Jard. Bot. Buit. 2^e ser. VIII (1912), 18.

Cadetia potamophila Schltr., Orch. D.N. - Guinea (1912), 438; Fig. Atl. t. CLI, no. 568.

) Waigeoe [I .]: Lamlam alt. c. 250m - G. Stein no. 191, 1st June 1931.

The determination is not completely definite.

Dendrobium homochromum J.J. Sm., in Fedde Rep. XII (1913), 29; in Nova Guinea XII Livr. 4 (1916), 278, t.CI, 175.

Cadetia homochroma Schltr., in Engl. Bot. Jahrb. LVIII (1923), 91. Japen [I.] : Alt. c. 400m - G. Stein no. 76, 17th Mar. 1931; flowers green.

Perhaps best placed here. The characteristics of the fleshy lip, especially in the front part which is often bent, are

not easy to distinguish in herbarium specimens.

Section : Diplocaulcbium

Dendrobium ditschiense J.J. Sm., sp. nov.

Pseudobulbi approximati, e basi subovali c. 0,8—1 cm longa in collum tenue sicco costatum apice non dilatatum 6—6,4 cm longum contractum, initio nonnullis vaginis amplectentibus superne accrescentibus acutis usque ad 3—5 cm longis inclusi. Foliū erectum, lineare, apice inaequaliter obtuse triangulo-bidentatum, costa media supra canaliculata subtus prominente, nervis 2 majoribus 3 minoribus utrinque, lateribus supra convexis, rigide coriaceum, c. 4,1—6,8 cm longum, 0,2—0,25 cm latum; vagina paulum contracta, canaliculata, obscura, c. 0,3 cm longa. Inflorescentia fascicularis, spathe linearis, 0,9—1,2 cm longa, pedunculis 1,2 cm longis, 1-floris. Flos majusculus. Sepalum dorsale lineare, basi paululum dilatatum, canaliculatum, 5-nervium, c. 3,7 cm longum, basi 0,26 cm latum. Sepala lateralia cum pede gynostemii mentum conicum, cum ovario angulum acutum faciens dorso convexum obtusum c. 0,4 cm longum formantia, oblique linearia, apicem versus sensim angustata, margine antico basi oblique triangulo-dilatata, concavo-canaliculata, 3-nervia, c. 3,55 cm longa, basi 0,5 cm, supra basin 0,2 cm lata. Petala anguste linearia, basi paululum dilatata, canaliculata, 3-nervia, c. 3,45 cm longa, basi 0,15 cm lata. Labellum leviter curvulum, subtrilobum, 3-nervium, costis 2 parallelis supra basin lobi intermedii evanescientibus, explanatum 1,5 cm longum; lobi laterales superne rotundati, antice non producti, cum lobo intermedio angulum obtusum facientes, hypochylium suborbiculari-ovovatum basi truncatum 0,5 cm longum 0,425 cm latum formantes; lobus intermedius late linearis-lanceolatus, dimidio superiore vix subspatulato-dilatatus, apice angustatus, obtusum (?), fascia longitudinali linearis farinacea-papillosa e basi usque $\frac{1}{4}$ partem infra apicem, 1 cm longus, basi 0,25 cm, superne fere 0,3 cm latum. Gynostemium rectum, subconicum, 0,3 cm longum, clinandrio excavato, filamento e basi triangulo linearis-subulato, auriculis ut videtur triangulis cum clinandrio denticulatis. Anthera cucullata, apice obtusa. Pes gynostemii cum ovario angulum subrectum faciens, subrectus, 0,36 cm longus. Ovarium curvatum, obconicum, 6-sulcatum, 0,33 cm longum; petiolus 2,7 cm longus.

Dutch New Guinea : Arfak Range, [Mt.] Ditschi, alt. c. 1400m, in range forest on the ground — A. Mayr no. 54, 30th May 1928; flower red.

Very similar to D. araneola Schltr., but differing in smaller leaves, larger flowers, the longitudinal ridges which disappear at the base of the middle lobe, the narrow middle lobe with the long floury-haired longitudinal strip, and the much longer peduncles.

The flower was probably already withered on pressing, so that the colour given, perhaps is not identical with that of the fresh flower.

The description is from herbarium material; the column was in poor condition.

Dendrobium regale Schltr., Orch. D.N.-Guinea (1912), 476; Fig.

Atl. t. CLXI, no. 604.

Dutch New Guinea : Arfak Range [Mt.] Ditschi, range forest - E.

Mayr no. 50, 30th May 1928; Stem approximately 50 cm long, tips of petals whitish violet, inside cream-coloured, and red-striped.

Dendrobium centrale J.J. Sm., in Bull. Dép. Agr. Ind. Néerl. XLV (1911), 3; in Nova Guinea VIII (1911), 550, t. LXXXVIIIA; XIV, Livr. 3 (1929), 408.

) var. contractum J.J. Sm., var. nov.

Pseudobulbi basi incrassati, sicco valde longitudinaliter sulcati, apice breviter manifeste dilatati costatique, nitide atrofusci, 20 cm vel plus longi, apice 0,5—0,65 cm lati. Folium lanceolatum, apice aequaliter vel paulum inaequaliter obtuse triangulo-dilatatum, basi subangustatum, supra basin paululum dilatatum contractum, interdum basi (unilateraliter?) undulatum, costa media supra sulcata subtus prominente, numerosis nervis minoribus sicco subtus prominulis utrinque, coriaceum, 8—12,5 cm longum, 1,7—2 cm latum. Spatha straminea, nitida, 1,7—2,5 cm longa, 0,4—0,6 cm lata. Sepalum dorsale lanceolatum, obtusum, minute apiculatum, basi contractum, 5-nervium, 3,8 cm longum, 1,2 cm, supra basin 0,65 cm latum. Sepala lateralia oblique lanceolata, margine antico supra basin concavam constricta, acuta, 5-nervia, tota 3,65 cm longa, 1 cm lata. Petala e basi contracta oblique obovato-elliptica, obtusissima, brevissime acute triangulo-apiculata, 3,5 cm longa, 1,9 cm, basi 0,43 cm lata. Labelum erectum, recurvum, 3-lobum, costis 2 conspicuis, a basi apicem versus altioribus ad basin lobi intermedii in lobulum liberum late triangulum obtusum falcatum terminantibus, basi 5-nervium, explanatum ambitu late rhombeum, 1,8 cm longum, usque apicem loborum lateralium 1,25 cm metiens, ad lobos laterales 1,3 cm latum; lobi laterales erecti, e basi lata oblique triangula anguste oblongo-contracta, falcato-incurva obtusa, parte angusta 0,25 cm longa, fere 0,15 cm lata; lobus intermedius porrectus, anguste triangulus, acutus, apice recurvo repando minute undulato, 1 cm longus, 0,38 cm latus. Gynostemium conicum, absque anthera fere 0,3 cm longum, apice triangulo, auriculis aequilongis, obtusangulis, margine antico denticulatis. Pes gynostemii cum ovario angulum subrectum faciens, ineurvus, 0,9 cm longus. Ovarium obconicum, 6-sulcatum, 0,5 cm longum; pedicellus 4,5 cm longus.

Dutch New Guinea : Weijland Range, alt. c. 1800 — 2100m — G. Stein nos 422, 424, 433, 458 and 498, 10th — 13th Oct. 1931; flowers 'Maréchal Niel' rose-[coloured].

The variety differs from the Type in shorter pseudobulbs and leaves and markedly constricted lateral lobes of the lip.

The description is from herbarium material.

Section : Aporum

Dendrobium pseudocalceolum J.J. Sm., in Bull. Dép. Agr. Ind. Néerl. V (1907), 34 etc.

Waigeoe [I .] : Majalibitbong - G. Stein no. 225, 11th June 1931.

Section : Oxystophyllum

Dendrobium torricellianum Krzl., in Engl. Pflanzenr. IV, 50, II. B. 21 (1910), 215; Schltr., Orch. D.N.-Guinea (1912), 571; Fig. Atl. t. CXCI, no. 716.

) Dendrobium atrorubens Schltr. (non Ridl.), in K. Schum et Laut. Nachtr. Fl. D. Schutzgeb. Südsee (1905), 150.

Dendrobium simile Schltr., in Fedde Rep. III (1906), 80.

Northeast New Guinea: Sattelberg up to Junzaing, alt. c. 1400m, epiphytic - E. Mayr no. 744, Jan. 1929; flower greenish violet.

) Mansfeld has determined this plant as D. torricellianum Krzl. I have no opinion here since I have not seen the original. From dried material one can seldom form a correct picture of the floral characteristics in section Oxystophyllum and, as far as can be gathered from Mayr's material, the flowers appear to diverge considerably from Schlechter's illustrations.

Section : Herpetophytum

Dendrobium vestigiiferum J.J. Sm., sp. nov.

Caulis bene ramosi, tenuiusculi, subteretes, partes adsunt usque 17 cm longae, ramulis plerumque erecto-patentibus, internodiis ad c. 1,3 cm longis, superioribus decrescentibus. Folia parva, erecto-patentia ad patentia, apice inaequaliter obtusa bilobula, basi breviter conduplicata obtusaque, margine minute subcrenulato-crispula, sicco canaliculata cum lateribus convexis, costa media dorso praesertim basin versus carinata, tenuiter coriacea, rigida, nigranti-exarescentia, praesertim subtus nitida, cum vagina articulata, c. 1,4—2,9 cm longa, sicco 0,25—0,45 cm lata; vaginae internodia superantes, tubulosae, apice truncatae cum dente conspicuo adpresso ovato-triangulo obtuso transverse ruguloso laminae opposito, prominenter nervosae, transverse rugulosae, sordide brunneae. Inflorescentiae 2 vaginas perforantes, erecto-patentes, brevissimae, 1-florae, pedunculo 0,1 cm longo, vaginula tubulosa 0,325 cm longa ad basin. Bractea minima. Flos maceratus fere 0,5 cm longus, sepalis petalisque conniventibus. Sepalum dorsale cum ovario angulum obtusum faciens, incurvulum,

oblongum, apice subcucullato-obtusum, concavum, 5-nervium, c. 0.4 cm longum, 0,18 cm latum. Sepala lateralia lacinia oblique oblongo-quadrangulara concava ad pedem gynostemii decurrentia, marginibus anticis apice excepto connata, mentum deorsum spectans cum ovario angulum acutum faciens oblongo-saccatum apice paululum ampliatum obtusum subrectum dorso longitudinaliter canaliculatum dorso 0,14 cm antice 0,26 cm longum formantia, parte antica cum lacinia basiliari angulum obtusum facientia, oblique triangula margine postico rotundata, subfalcata, apice brevissime contracta, obtusa, concava, c. 0,34 cm, margine antico fere 0,5 cm longa, una semiovalia 0,35 cm lata, laciniis basilaribus in laminam quadratam 0,2 cm longam et latam connatis. Petala oblique oblongo-spathulata, subfalcata, apice brevissime contracto cucullato-obtusa, concava, 3-nervia, fere 0,35 cm longa, basi 0,07 cm, supra medium 0,13 cm lata. Labellum apice pedis gynostemii insertum, eo non adnatum, erectum, lamina obtusangule recurvum, gynostemium superans, spathulatum, concavum, 5-nervium, 0,38 cm, explanatum 0,43 cm longum, ungue oblongo, concavo, 0,18 cm longo, 0,12 cm lato, lamina bene semiorbiculari vel potius semiovali, apice lato triloba, intus margineque papillosa, costis 2 longitudinalibus apicem non attingentibus basin versus in-crassatis et V-formiter confluentibus in basi laminae obtuse terminantibus, costa tertia tenuiore interposita, fascia longitudinali papillosa utrinque, 0,25 cm longa, 0,275 cm lata; lobi laterales erecti, rotundato-trapezoidei, angulo antico obtusissimi, subirregulariter marginati; lobus intermedius paulo longior, triangulus, concavus, apice incurvus, obtusus, irregulariter marginatus, bene 0,075 cm longus, bene 0,1 cm latus. Gynostemium supra basin obtusangule incurvum, subclavatum, a dorso compressum, cum anthera 0,25 cm longum, clinandrio transverso, alte excavato, pariete postico conspicue producto, ovato, acuminato, auriculis brevioribus, triangulis, subacutis. Anthera cucullata, semiorbiculari-reniformis, apice breviter aequilateraliter trapeziformi-producta, truncata, firmiter affixa, 0,1 cm lata. Pollinia 4, in corpuscula 2 oblique oblonga paululum a dorso compressa supra convexa subtus concava unita, interiora quam exteriora angustiora, fere 0,1 cm longa. Stigma conspicuum, gynostemii faciem antican magnum partem occupans, rotundato-quadrangulum, margine inferiore in lamella productum. Pes gynostemii cum ovario angulum acutum faciens, apice incurvulus, linearis, canaliculatus, 0,15 cm longus, cum gynostemio 0,45 cm metiens. Ovarium oblique obconicum, crassiusculum, apice valde obliquum, 6-sulcatum, dorso 0,25 cm longum; pedicellus 0,225 cm longus.

Northeast New Guinea : Saruwaged Range, Ogerammang, alt. c.

1800m - E. Mayr no. 861, 29th Mar. 1929; Sattelberg up to Junzaing, alt. c. 800 - 1500m, epiphytic - E. Mayr no. 752, Jan. 1921; flower white.

The species differs from D. lucidum Schltr. in truncated bi-lobed leaves, a broader lip-claw and lateral lobes, a triangular middle lobe with the ridges extended much further to the front : from D. scopula Schltr., in larger leaves, smaller flowers with broader petals and a much broader clawed lip with a triangular middle lobe : from D. hypocreperum Schltr., in equitant leaves, much smaller flowers with a much longer lip-claw, triangular middle lobe and angular

lateral lobes; and finally from D. podocarpifolium Schltr. in smaller leaves and a triangular middle lobe which is not incised at the apex.

Although no. 752 was without flowers, I believe that it is this species.

The description is from herbarium material.

Section : Grastidium

Dendrobium leopardinum Schltr., Orch. D.N.-Guinea (1912), 578;

Fig. Atl. t. CXCII, no. 722.

Northeast New Guinea : Sattelberg up to Junzaing, alt. c. 1400m, rare, epiphytic - R. Mayr no. 742, Jan. 1929; flower yellowish white.

) The material was sparse and the flowers probably not open. The determination was made by Mansfeld.

Dendrobium polyschistum Schltr., Orch. D.N.-Guinea (1912), 575;

Fig. Atl. t. CXCII, no. 720.

var. graminiforme. Schltr., l.c. 576.

Dutch New Guinea : Weijland Range, alt.c. 1500m - G. Stein no. 598, 13th Oct. 1931.

) Dendrobium clavuligerum J.J. Sm., sp. nov.

Caulis pars adest 25 cm longa, internodiis 1—1,2 cm longis. Folia patentissima, basi semitorta; ovato-lanceolata, sensim leviter acuminata, apice angusta, inaequaliter obtuse bidentata, basi rotundato-obtusa, in utraque parte costae mediae subtus prominutis nervis 3 majoribus pluribusque minoribus sicco supra subtusque prominentibus, papyracea, c. 6—7,5 cm longa, 1,3—1,85 cm lata; vaginæ tubulosae, internodia superantes, longitudinaliter striatae et minute verruculosae, apice laminae opposito dente conspicuo adpresso quinquangulari vix acuminato obtuso verruculoso donatae. Inflorescentiae 2 vaginas perforantes, 2-florae, nonnullis, vaginulis tubulosis lateraliter compressis ad basin, vaginula exteriore brevi rotundata c. 0,15 cm longa, 0,45 cm lata, ceteris angustioribus tenuioribus usque ad 0,6—0,65 longis. Flores conspicui. Sepalum dorsale lineare, apicem sensim angustatum, 5-nervium; c. 4 cm longum; 0,325 cm latum. Sepala lateralia cum pede gynostemii mentum oblongum cum ovario angulum fere rectum faciens rectum apice oblique truncato-obtusum c. 0,5 cm longum formantia, oblique linearia, dimidio inferiore sensim oblique lanceolato triangulc-dilatata, concava, 5—6-nervia, c. 4,1 cm longa, basi 0,84 cm, supra basin 0,5 cm lata. Petala e basi oblique linearí longe filiformi-elongata 3-nervia c. 4,1 cm longa, inferne bene 0,2 cm lata. Labellum supra basin recurvulum, porrectum, lobo inter-

medio revolutum, concavum, 3-lobum, intus longe pilosum, pilis in apice marginaque antico subclavatis, costa longitudinali alta angustata inferne dilatata et sulco duplicata glabra inter lobos laterales, inexplanatum 1,45 cm longum, explanatum ambitu oblongum, 1,6 cm, usque ad apicem lobarum lateralium 1—1,1 cm longum, ad apicem lobarum lateralium 0,675 cm latum; lobi laterales antice non producti, angulati vel subrotundati, cum lobo intermedio angulum obtusum facientes, hypochylium obverse oblongo-quadrangulum formantes; lobeus intermedius triangulus, sensim subulato-acuminatus, revolutus, convexus, omnino etiam margine pilis longissimis manifeste clavatis vestitus, absque pilis 0,5 cm longus, 0,3 cm latus, pilis usque ad 0,3 cm longis. Gynostemium rectum, absque anthera 0,4 cm longum, filamento parvo, auriculis triangulis obtusis breviore. Pes gynostemii cum ovario angulum rectum faciens, rectus, apice fere rectangule incurvus, late linearis, 0,55 cm longus. Ovarium 0,55 cm longum; pedicellus 0,8 cm longus.

Dutch New Guinea : Without location details - E. Mayr no. 525,

June-Aug. 1928.

Amongst the relatives of D. acuminatissimum Lindl., this species is characterised in that the lateral lobes of the lip do not extend all the way forward, and that the middle lobe is covered with long clavate hairs.

The description is from a dried peduncle.

Dendrobium iteratum J.J. Sm., sp. nov.

Caulis elongati, partibus adsunt 24—32 cm longis, internodiis 1,7—3 cm longis. Folia patentia, graminea, linearia, apicem versus angustata, apice angusto valde inaequaliter anguste acutiuscule vel obtusiuscule 2-dentata, basi semiamplexicaulia, nervis 5—7 subtus prominentibus numerosisque tenuioribus, reticulato-venosa, papyracea, 13,5—16,5 cm longa, 0,7—1,15 cm lata; vaginae internodia superantes, tubulosae, apice truncatae, tenuiter transverse rugulosae, atropunctatae. Inflorescentiae 2 vaginas perforantes, subpatentissimae vel patentes, brevissimae, 2-florae, vaginulis lateraliter compressis obtusis furfuraceo-punctatis 0,65—0,8 cm longis 0,5—0,55 cm latis ad basin, vaginula exteriore brevissima semiorbiculari. Flores mediocres. Sepalum dorsale oblongum, a medio angustatum, eo quinquangulare, anguste obtusum, concavum, margine superne incurvum, 5-nervium, c. 1,675 cm longum, 0,67 cm latum. Sepala lateralia cum pede gynostemii mentum brevissimum cum ovario angulum obtusum faciens obtusangulum dorso ad basin excavatum formantia, oblique oblongo-triangula, $\frac{2}{5}$ partibus superioribus angustata, marginibus incurva, anguste obtusa, basi angulata oblique dilatata, concava, 5-nervia, costa media dorso incrassata, margine postico 1,625 cm, margine antico 1,4 cm longa, basi 0,95 cm, medio 0,6 cm lata. Petala oblique oblongo-elliptica, basin versus bene angustata, marginibus apice incurvis, obtusa, basi 3-nervia, nervis exterioribus supra basin ramosis, quam sepala tenuiora, 1,55 cm longa, 0,64 cm, basi 0,175 cm lata. Labelllum curvulum, concavum, 3-lobum, 5-nervium, costa longitudinali alta integra supra basin usque in basin lobi intermedii antice sensim evanescente, explanatum ambitu sexangulare, 1,25 cm, usque ad apicem lobarum lateralium 0,7 cm longum, basi 0,2 cm, ad lobos laterales 0,7 cm latum; lobi laterales erecti, incurvi, late subfalcato-trianguli vel petiis subtrapezoidei, margine exteriore rotundati, antice breviter producti, obtusi et parce grosse erosi;

hypochylium cuneato-obreniforme formantes; lobus intermedius hypochylium subsimilis et aequilatus, e basi late cuneata vel obverse aequilateraliiter trapeziformi dilatatus, 3-lobulus, lobulis lateralibus lobis lateralibus subsimilibus, trapezoideis, angulo antico obtusis postice rotundatis, sinibus late rotundatis a lobulo intermedio sejunctis, lobulo intermedio triangulo canaliculato-subulato-acuminato, 0,76 cm longus, 0,7 cm, basi 0,28 cm latus, lobulo intermedio 0,3 cm longo, basi 0,25 cm lato. Gynostemium (fecondatum) crassum, absque anthera 0,45 cm longum, clinandrio contracto, transverso, excavato. Anthera cucullata, antice quinquangularis, apice truncata, postice in lobulos 2 conspicuos producta. Stigma transverse ovali orbiculare, apice contractum. Pes gynostemii cum ovario angulum acutum faciens, supra basin incurvus, oblongus, 0,6 cm longus. Ovarium crasse obconicum (fecondatum), c. 0,6 cm longum; pedicellus 1,5 cm longus.

Dutch New Guinea : Weijland Range, alt. c. 1400m - G. Stein no.

575, 15th Oct. 1931.

The plant belongs to those species described by Schlechter as the 'tridentifera'-group. It is characterised by grass-like leaves and a peculiar lip.

The description is from herbarium material.

Dendrobium Steinii J.J. Sm., sp. nov.

Caulis elongati, compressi, sectione transverse elliptici, nitidi, dilute virides, partibus adsunt ad 40 cm longis, 0,35—0,55 cm latis, internodiis 1,9—2,5 cm longis. Folia patentissima, oblonga, plus minusve ovata, apicem versus angustata, oblique obtuse bilobula, basi rotundata brevissime contracta subtorta semiamplexicaulia, sicco utrinque dense prominenter nervosa, firmiter papyraceo-coriacea, sordide viridia, 8,5—bene 10 cm longa, 1,8—3,3 cm lata; vaginae internodia superantes, tubulosae, compressae, prominenter nervosae, minute rugulosae, apice truncatae et laminae opposito dente minuto donatae, sicco 0,4—0,65 cm latae. Inflorescentiae 2 vaginas perforantes, brevissimae, 2-florae, nonnullis vaginulis lateraliter compressis obtusis vel rotundatis ad 1—1,1 cm longis basi 0,5—0,7 cm latis. Flores mediocres, carnosuli, sepalis basi breviter connatis. Sepalum dorsale oblongum, marginibus superne incurvis, acutatum, subacutum, concavum, 9-nervium, 1,25 cm longum, 0,5 cm latum. Sepala lateralia cum pede gynostemii mentum breve latum cum ovario angulum acutum faciens incurvum 0,65 cm longum formantia, margine antico basi ultra apicem pedis gynostemii breviter connata, oblique triangula, margine antico fere dimidio inferiore dilatata, obtusangule falcata, marginibus superne incurvis, subacuta, concava, 8—9-nervia, 1,15—1,25 cm, margine antico bene 1 cm longa, basi 0,85—0,9 cm, medio 0,475—0,525 cm lata. Petala oblique obovato-oblonga, apice rotundata, basin versus sensim angustata, 3-nervia, nervis exterioribus ramosis, 1,1 cm longa, 0,44—0,45 cm, basi 0,26 cm lata. Labellum porrectum, gynostemium superans, concavum, leviter angulato-recurvulum, 3-lobum, 5-nervium, supra basin costa alta lamelliformi, inferne lobulata deinde rotundato-elevata longe infra basin lobi intermedii sensim evanescente, explanatum ex ungue brevi ambitu oblongum, in $\frac{3}{5}$ partibus supra basin constrictum, 1 cm longum; lobi laterales erecti, rotundati, undulati, apice non producto subtruncati et irregulariter marginati, intus in apice nervorum lateralium cristis c. 5 brevibus transversis ornati, mesochylium suborbiculare cum ungue 0,67 cm longum basi 0,2 cm superne

bene 0,5 cm latum formantes; lobus intermedius transverse ovali-orbicularis, c. 0,4 cm longus, 0,525 cm latus, disco triangulo. Gynostemium longiusculum, apice contractum, anguste conicum: cum anthera 0,6 cm longum, clinandrio excavato, filamento subulato, auriculis aequilongis, oblique quadrangulis, denticulatis. Anthera cucullata, apice membranaceo-producta, truncata et papillosa. Stigma conspicuum, alte excavatum, bene semiellipticum, basi obtusum et intus lobulis 2 instructum. Pes gynostemium ovario angulum acutum faciens, incurvus, late oblongus, concavus, 0,6 cm longus. Ovarium (fecondatum?) oblique obconicum, 6-sulcatum, minutissime furfuraceo-puncticulatum, 0,45 cm longum; pedicellus tenuior, puncticulatum, 1,6 cm longum.

Waigeo [Isl.]; Majalibit Bay - G. Stein no. 264, 12th June 1931.

The species belongs likewise to the 'tridentifera'-group and is related to D. exaltatum Schltr. but differing from it in a much narrower peduncle, non-elliptical leaves, differently shaped petals,) much less distinct lateral lobes of the lip, and a lip-ridge lobed at the base. The shape of the column is very similar to that of the species D. macrostigma J.J. Sm. from Seran, but differs from it in much broader leaves, pointed sepals, much smaller lateral lobes and a different lip-ridge.

The description is from herbarium material.

Section : Latouria

Dendrobium terrestre J.J. Sm., in Bull. Jard. Bot. Buit. 2^e ser. II (1911), 10; in Nova Guinea XII (1913), 45, t. XIII, 35.
) Dutch New Guinea : Arfak Range, Mt. Lehuma, alt. c. 1200m - E.
Mayr no. 115, 2nd June 1928; flower white.

Section: Ceratobium [Spatulata]

Dendrobium Mirbelianum Gaud., in Voy. Freyc. (1826), 423, t. XXXVIII etc.

Dutch New Guinea : Arfak Range, Kofc-Anggi, alt. c. 1900-2100m - E. Mayr no. 231, 10th-14th June 1928.

Waigeoe [I.] : Alt. c. 50m - G. Stein no. 166, 30th May 1931.

In the specimen collected by Mayr in the Arfak Range I found no specific differences of any significance, therefore I am somewhat

doubtful whether the given altitude can be correct. Generally, these species grow in the plain. D. cochliodes Schltr., the species confirmed as growing at the highest altitude in the range, was found at 1000m.

Section : Oxyglossum

Dendrobium scotiiferum J.J. Sm., sp. nov.

Pusillum. Rhizoma breve, ramosum, radicibus flexuosis glabris. Pseudobulbi approximati, fusiformes, paucinodes, sicco valde rugosi, nitide flavi, adulti fibris vaginarum longis tecti, c. 3-folii. Folia elongato-linearia, acuta, mucronata, in utraque parte costae mediae supra canaliculatae subtus prominentis convexa, nervis 2—3 utrinque, rigidula, c. 8,5—15 cm longa, sicco 0,1—0,12 cm lata, cum vagina articulata; vaginae longe lineares, canaliculatae, inferne tubulosae, verruculosae, nervis prominentibus, 2—3 cm longae. Inflorescentiae pseudoterminales, brevissimae, 1-(?)florae, pedunculo c. 0,25 cm longo, nonnullis vaginulis tubuloso-infundibuliformibus oblique truncatis acuminatis acutis verruculosis donato. Bractea vaginis similis, c. 0,8 cm longa. Flos in sectione inter majores, 3,25 cm longus, 2,5 cm latus. Sepalum dorsale erectum, ovato-lanceolatum, apicem versus sensim angustatum, longe subulato-acuminatum, convexum, 3-nervium, fere 1,6 cm longum, supra basin fere 0,4 cm latum. Sepala lateralia lacinia elongata angusta ad pedem gynostemii decurrentia, marginibus anticis longitudine c. 0,65 cm connata, mentum elongatum angustum deorsum spectans ovario adpressum subrectum superne tenuiter calcariforme 1,55 cm longum formantia, patentia, oblique anguste triangula, acuta, longe subulato-acuminata, 5-nervia, 1,65 cm longa, margine antico 3,1 cm, parte connata 0,65 cm, basi 1,7 cm metientia, supra basin bene 0,6 cm lata. Petala patentia, sepalis minora, oblique oblanceolata, subulato-canaliculata-acuminata, superne minute papilloso-denticulata, 3-nervia, 1,25 cm longa, bene 0,3 cm lata. Labellum parallelum pedi gynostemii calcariformi-adnatum, gynostemium bene superans, concavum, spathulatum, apice trilobum, 5-nervium, c. 2,3 cm longum, ungue linearis, superne sensim leviter dilatato, 1,5 cm longo, parte libera 0,5 cm longo, apice 0,27 cm lato, lamina (mesochylio) 6-(si mavi 7-) angulari, 0,65 cm longa, fere 0,5 cm lata, cum lobo intermedio erecto involuto subulato acuto c. 0,2 cm longo angulos obtusos formante. Gynostemium breve, versus apicem dilatatum, absque anthera 0,27 cm longum, clinandrio transverso excavato dorso altius exciso, filamento triangulo, incurvulo, acuto, angulis late acutis ab auriculis sejuncto, auriculis bene brevioribus, transverse quadrangulis, truncatis, concavis. Stigma conspicuum, basin gynostemii attingens, longitudinaliter quadrangulum. Pes gynostemii subrectus linearis, canaliculatus, 1,55 cm longus. Ovarium pedicellatum subrectum, valde 7-alatum, alis basin versus angustatis, 5 dorsalibus approximatis superne subundulatis apice omnibus in lobulum porrectum obtusum productis, ala minore in utraque alae mediana parte, alis 2 conspicuis anticis divergentibus basi menti adpressis, costis 3 humilibus interpositis, c. 2,1 cm longum.

Dutch New Guinea : Cyclops Range, alt. c. 1400m - E. Mayr no. 596,

8th Sept. 1928; flower pink with brick-red.

Amongst the species of the section Oxyglossum with narrow linear leaves, this species appears to be especially close to D. dryadum Schltr., in the shape of the ovary. However, according to the illustrations and descriptions, it differs from Schlechter's plant in the narrower leaves, the much narrower sepals and petals, a lip more distinctly broadened towards the top, truncated column auricles which are overtopped by the filament, and a much shorter ovary.

The description is made from herbarium material.

Dendrobium gemma Schltr., in Laut. Beitr. Fl. Papuasien IX (1923) 108.

Northeast New Guinea : Sattelberg up to Junzaing, alt. c. 800 – 1500m, rare, epiphytic – E. Mayr no. 762, Jan. 1929; flower greenish yellowish white, red spot on the lower lip.

Dendrobium junzaingense J.J. Sm., sp. nov.

Planta pusilla, caespitifica, radicibus tenuibus flexuosis. Pseudobulbi approximati, cauliformes, apicem versus attenuati, 0,35–0,55 cm longi, 2–3-folii. Folia articulata, linear-lanceolata, acuta vel obtusiuscula, mucronata, basi conduplicata sessilia, 3-nervia, nervis tenuioribus alternantibus, nervis omnibus subtus prominulis, macerata c. 1,25 cm longa, 0,22 cm lata; vaginae elongatae, petioliformes, conduplicato-canaliculatae, prominenter nervosae, 0,4–0,5 cm longae. Inflorescentiae axillares, abbreviatae, 2-florae, pedunculo c. 0,2 cm longo, nonnullis vaginulis patentibus bracteis similibus sed minoribus donato. Bracteae pedicello adpressae, marginibus basi rachidi cucullato-adnatae, ovato-triangulae, acuminatae, apiculatae, 5-nerviae, semipellucidae, c. 0,3 cm longae. Flores parvi, bene 1,1 cm longi, sepalis dorso parce punctulatis. Sepalum dorsale erectum, oblongo-triangulum, vix acuminatum, acutum, convexum, 3-nervium, costa media dorso prominente, 0,55 cm longum, 0,175 cm latum. Sepala lateralia divergentia, lacinia longa angusta obliqua ad pedem gynostemii decurrentia, mentum elongatum deorsum spectans ovario adpressum subrectum angustum marginibus anticis longitudine 0,4 cm connatis dimidio superiore calcariiforme et lateraliter compressum obtusum retusum 0,73 cm longum formantia, oblique triangula, subsigmoidea, acutata, longe subulato-acuminata, 4-nervia, costa media dorso prominente, c. 0,575 cm longa, supra basin 0,25 cm lata, margine antico fere 1,3 cm, basi 0,85 cm metientia. Petala linearia, sensim longa acutata, acuta, 1-nervia, c. 0,53 cm longa, fere 0,1 cm lata. Labellum basi longitudine 0,375 cm pedi gynostemii adnatum, erectum, pedi gynostemii gynostemioque parallelum, apice obtusangule recurvum, concavum, 5-nervium, linearispathulatum, gynostemium superans, explanatum totum bene 1,1 cm longum, angue (parte pedi adnata)

lineari, 0,375 cm longo, laminae basi sensim contracta oblonga, antice leviter 3-loba, 0,73 cm longa, basi 0,125 cm, superne 0,2 cm lata, lobis lateralibus obtusangulis, cum lobo intermedio anguste triangulo acuto 0,15 cm longo basi 0,08 cm lato angulos obtusos facientibus. Gynostemium erectum, breve, quadrangulum, dorso convexum, infra clinandrium constrictum, dorso convexum, absque anthera 0,15 cm longum, clinandrio transverso excavato, filamento curvato, lineari, basi dilatata, ab auriculis latis rotundatis irregulariter marginatis sinibus rotundatis separato. Anthera cucullata, antice plana, apice lato truncato papillosa, basi biloba, 0,125 cm lata. Pollinia 4, leviter a latere compressa, antice acuta, in corpuscula 2 oblique obovata conglutinata, 0,075 cm longa. Stigma suborbiculare. Pes gynostemii gynostemium continuus, ovario adpressus, subrectus, medio inconspicue recurvulus, linearis, canaliculatus cum costa longitudinali, 0,7 cm longus. Ovarium pedicellatum trialatum, alis apicem versus dilatatis ala dorsali apice in lobulum obtusum producta, lateribus costa instructis, 1,15 cm longum.

Northeast New Guinea : Sattelberg up to Junzaing, alt. c. 800 - 1500m, highland forest - E. Mayr no. 704, 11th Jan. 1929; flower outside firey-red, tube orange : 'nom. inc. 'Fulebamu'.

Differs from D. pumilio Schltr. which is similar in shape and size of the flowers, in the broader leaves, flower colour and in the three-winged ovary. In the colour and the three-winged ovary the species is closely related to D. tricostatum Schltr. and D. oreocharis Schltr. It differs from D. tricostatum Schltr. in longer and broader leaves, narrower sepals, the column-auricles are not bi-lobed, and from the second species in the petals which are long and gradually narrow, the mentum not bent inwards at the apex and in the lip distinctly broadened towards the front and slightly tri-lobed at the apex.

The description is from herbarium material.

Dendrobium lancilabium J.J. Sm., sp. nov.

Caulis approximati, c. 7 cm longi, internodiis c. 0,75—1,3 cm longis. Folia c. 4 (!), ovalia ad oblonga, in c. 1,1—1,2 cm infra apicem leviter contracta, apice rotundata, mucronata, basi rotundata sessilia, margine minute crenulata, nervis 3 majoribus nonnullisque minoribus sicco prominulis, rigide coriacea, c. 2,8—3,1 cm longa, 1,13—1,5 cm lata; vaginae tubulosae. Inflorescentiae ut videtur a caulinibus defoliatis, brevissimae, sessiles, 2-florae, pedunculo abbreviato, nonnullis vaginulis ample tubulosis donato. Bracteae recurvulae, ovatae, canaliculato-acuminatae, concavae, undulatae, semipellucidae, punctatae, c. 0,6 cm longae. Flores majusculi, c. 3,6 cm longi et lati (compressi). Sepalum dorsale lanceolatum, sensim acutatum, acutum, 5-nervium, 1,9 cm longum, 0,57 cm latum. Sepala lateralia lacinia oblique anguste triangula ad pedem gynostemii decurrentia, marginibus anticis longitudine 6,65 cm calcariformi-connata, mentum ovario adpressum vix curvulum anguste conicum obtusum 1,6 cm longum formantia, oblique oblongo-

triangula, sensim acutata, acuta, 8-nervia, c. 1,65 cm longa, margine antico 2,9 cm, basi 1,9 cm metientia. Petala oblique lanceolata, acuta, apiculata, integerrima, 3-nervia, 1,75 cm longa, 0,4 cm lata. Labellum erectum, apicem versus leviter incurvulum, gynostemium bene superans, basi longitudine 0,7 cm adnatum, concavum, marginibus inferne incurvis, subsimplex, linear-lanceolatum, $\frac{1}{3}$ — $\frac{1}{4}$ apicali inconspicue contractum, apicem versus sensim acutatum, marginibus breviter incurvis apiculatum, marginibus infra partem contractam brevi distantia minute erosulum, nudum, 5-nervium, nervis exterioribus ramosis, explanatum 2,85 cm longum, 0,54 cm latum. Gynostemium breve, latum, marginibus obtusangule dilatatis, 0,35 cm longum, clinandrio transverso excavato, apice late rotundato-exciso, filamento linear-subulato, curvulo, auriculis oblique quadrangulis, versus apicem angustatis, obtuse bilobulis. Anthera cullata, transverse rotundato-quadrangula, postice bilobula, apice truncato fascia lata papillosa, 0,26 cm lata. Pollinia 4, in corpuscula 2 oblique obovata supra convexa subtus concava unita, interiora quam exteriora minora, 0,18 cm longa. Pes gynostemii vix curvulus, linearis, canaliculatus, 1,65 cm longus. Ovarium pedicellatum sensim clavatum, trigonum, 6-sulcatum, furfuraceo-puncticulatum.

Dutch New Guinea : Wandamen, Mt. Wondiwoi, alt. c. 1980m, epiphytic —

E. Mayr no. 370, 16th July 1928; flower blood-red.

This species was distinguished from its relatives in the extended little stalks, broader leaves and the simple lanceolate lip.

The description is from a dried specimen.

Section : Pedilonum

Dendrobium calyculimentum Rogers, in Transac, R. Soc. S.-Aust. XLIX(1925), 261.

Northeast New Guinea : Sattelberg up to Junzaing, alt. c. 800 — 1500m — epiphytic — E. Mayr no. 720, Jan. 1929; flowers violet-reddish.

I am very grateful to R.S. Rogers for kindly sending me some fragments of the Type, whereby I was able to identify both plants.

Dendrobium concavissimum J.J. Sm., in Bull. Jard. Bot. Buit. 2^e ser. II (1911); in Nova Guinea XII (1913), 57, t. XVI, 45.

Dutch New Guinea : Arfak Range [Mt.] Ditschi, alt. c. 1200m, range forest — E. Mayr no 16, 29th May 1928; flower red; no. 20, 30th May 1928, flower outside violet, inside red-yellow; no. 73, 1st June 1928, 'nom. inc. arómeri'.

I am not quite certain whether these specimens represent D. concavissimum J.J. Sm. or an extremely closely related species. Only more abundant material can clarify this point. D. chrysoglossum Schltr. is also very closely related, if not identical.

Section : Calyptrochilus

Dendrobium Lawesii F.v.M., in Melb. Chemist, June 1884, etc.

Northeast New Guinea : Sattelberg up to Junzaing, alt. c. 800 - 1500m, epiphytic - E. Mayr no. 969, Jan. 1929.

) Dendrobium calypratum J.J. Sm., in Bull. Jard. Bot. Buit 2^e sér.

II (1911), 12; in Nova Guinea XII (1913), 62, t. XVII, 50.

Northeast New Guinea : Saruwaged Range, Mongi Busu, alt. c. 2600m - E. Mayr no. 796a, Mar. 1929.

Dendrobium dichroma Schltr., Orch. D.N.-Guinea (1912), 515;

Fig. Atl. t. CLXXV, no. 652.

Northeast New Guinea : Herzog Range, Dawong, alt. c. 1500m, epiphytic in highland forest - E. Mayr no. 900, 15th May 1929.

) This plant [specimen] leafless and only with pieces of flowering peduncle looks very similar to D. dichroma Schltr., but D. calypratum J.J. Sm. is also extremely closely related. I have not combined these species as the specimens are incomplete, and there appear to be slight differences in the flowers.

Dendrobium flammula Schltr., Orch. D.N.-Guinea (1912), 516;

Fig. Atl. t. CLXXV, no. 653.

Dutch New Guinea : Cyclops Range, alt. c. 1400m - E. Mayr no. 574, 30th Aug. 1928; calyx red; corona yellow, labellum orange-red with two dark spots on the yellow upper lip.

The species of section Calyptrochilus are frequently difficult to separate particularly when only incomplete plants are to hand.

Dendrobium angicense J.J. Sm., in Fedde Rep. XII (1913), 116; in Nova Guinea XII (1916), 346, t. CXXVI, 230.

Dutch New Guinea : Arfak Range, Mt. Moendi - E. Mayr no. 5, 17th May 1928; spur red; lip yellow, orange inside.

) Dendrobium phlox Schltr., Orch. D.N.-Guinea (1912), 515; Fig. Atl. t. CLXXIV, no. 651.

Dutch New Guinea : Wandamen, Mt. Wondiwoi, alt. c. 1400 - 2000m - E. Mayr nos 272 and 310, 8th Jul. 1928; flower yellow with pink.

The determination is not completely certain.

) Dendrobium verruculosum Schltr., Orch. D.N.- Guinea (1912), 519; Fig. Atl. t. CLXXVI, no. 658.

Dutch New Guinea : Arfak Range, Mt. Lehuma, alt. c. 1700m - E. Mayr no. 114, 2nd June 1928; flower orange-red, corona yellowish.

Mansfeld determined this plant as D. verruculosum Schltr., and compared it with the Type. To me the determination does not appear quite so certain, since the floral parts are distinctly broader than illustrated by Schlechter and the column does not have the serration shown in the illustration.

Dendrobium aemulans Schltr., in K. Schum. et Laut. Nachtr. Fl. D. Schutzgeb. Südsee (1905), 176; Orch. D.N.- Guinea (1912), 512; Fig. Atl. t. CLXXIII, no. 647.

Dutch New Guinea : Without location - E. Mayr no. 537, June - Aug. 1928.

A very characteristic species.

Dendrobium trichostomum Rchb.f., in Walp. Ann. VI (1861), 282; etc.

Dutch New Guinea : Without location - E. Mayr - no. 469, June -
Aug. 1928.

Section : Calcarifera

Dendrobium lancifolium A. Rich., in Sert. Astrol. (1832), 20; etc.
D. lancifolium A. Rich. var. papuanum J.J. Sm., in Nova Guinea XII,
Livr. 4 (1916), 325.
Waigeoe [I] : Lamlam, alt. c. 200m - G. Stein no. 183, 31st
May 1931.

)

Section : Trachyrhizum

Dendrobium Zippelii J.J.Sm., in Rec. Trav. Bot. Néerl I (1904),
150, cum ic; etc.
Waigeoe [I.] : Alt. c. 250m - G. Stein no. 151, 26th May 1931;
Supentol - G. Stein no. 201, 7th June 1931.

Bulbophyllum Thou.

)

Section : Coelochilus

Bulbophyllum rectilabre J.J. Sm., in Fedde Rep. XI (1912), 277;
in Nova Guinea XII, Livr. 4 (1916), 367, t. CXXXIII, 247.
Japen [I,] : Summit, alt. c. 750m, dry forest - G. Stein no.
82, 17th Mar. 1931.

The plant agrees very well with B. rectilabre J.J.Sm. except
that the petals are narrower. It is especially noteworthy that the
column has a filiform appendage above the base, but perhaps this is
abnormal.

Bulbophyllum concolor J.J. Sm., in Bull. Jard. Bot. Buit. 2^e sér.
XIII (1914), 66; in Nōva Guinea XII (1916), 366, t. CXXXIII, 246.

Dutch New Guinea : Without location - E. Mayr no. 516, June -
Aug. 1928.

Bulbophyllum arfakense J.J. Sm., in Gibb's Contrib. Arfak Mts.
(1917), 122.

Dutch New Guinea : Cyclops Range, alt. c. 2000m, epiphytic -
E. Mayr no. 587, 1st Sept. 1928; flower dark red, white margin,
labellum orange with red dots.

Although small differences are present I do not doubt that the
determination is correct.

)

Section : Papulipetalum

Bulbophyllum acropogon Schltr., Orch. D.N. - Guinea (1913),
776; Fig. Atl. t. CCLIX, no. 989.

Northeast New Guinea : Sattelberg up to Junzaing, alt. c. 1400m -
E. Mayr no. 977, Jan. 1929; flower yellow-green.

The plant may be B. acropogon Schltr. ; however, it is smaller in
all its segments and the lip is missing.

)

Section : Polyblepharon

Bulbophyllum ignobile J.J.Sm., sp. nov.

Pusillum. Rhizoma dependens, apice incurvum, c. 0,5 cm longum,
vaginis majusculis apiculatis pallidis parce nigro-punctatis c. 0,65 cm longis
mox fatiscentibus tectum. Pseudobulbi quaquaversi, erecto-patentes,
cum rhizomate angulos acutos facientes, sicco valde rugosi, tenues, c. 0,6 cm
longi. Foliolum anguste lanceolatum, apice apiculato-contractum, apice
infra mucronem papilloso-serrulatum, basi petiolato-contractum, sicco rigide
coriaceum, parce nigro-punctatum, c. 1,7—2,7 cm longum, 0,26—0,36 cm
latum. Inflorescentiae e rhizomate, fasciculatae, 1-florae, pedunculo
brevi, c. 0,175 cm longo, vaginula majuscula concava c. 0,35 cm longa
donato. Bractea majuscula concava, c. 0,275 cm longa. Flos parvus,
0,25 cm longus, sepalis conniventibus (an semper?). Sepalum dorsale
oblongum, apicem versus angustatum, subacutum, basi latum, marginibus
a sepalis obtectum, 3-nervium, canaliculato-concavum, c. 0,275 cm longum,
0,1 cm latum. Sepala lateralia ultra apicem pedis gynostemii mar-
ginibus proximis medium usque connata, marginibus proximis inflexis,
oblique ovata, brevissime oblique acuminata, acuta, basi-lata, dorso longi-
tudinaliter sulcata, 3-nervia, c. 0,26 cm longa, 0,15 cm lata. Petala

linear-lanceolata, acuta, 1-nervia, 0,15 cm longa, 0,025 cm lata vel paululum latiora. Labellum apici pedis gynostemii insertum, gynostemium bene superans, sigmaeum, canaliculatum, subtus longitudinaliter sulcatum, 3-nervium, simplex, exauriculatum, supra basin angulato-dilatata spathulatum, ungue oblongo sensim utrinque rotundato-dilatato, apice breviter obtusangule acutato, basi excepta breviter papilloso-ciliolatum, bene 0,2 cm longum, basi dilatata 0,06 cm lata, ungue basi 0,04 cm lato, lamina fere 0,1 cm lata. Gynostemium breve, cum anthera 0,1 cm longum, apice bene producto, subincurvulo, acuto, concavo, auriculis subulatis falcato-incurvis, acutis, margine antico in flexu lobulo deorsum spectante obtuso auctis. Anthera cucullata, suborbicularis, apice in rostrum triangulum obtusum recurvulum producta, 0,05 cm longa. connectivo in-crassato. Pollinia anguste lateraliter compresso-pyriiformia, curvula, basi acuta, verisimiliter interiora tenuissima, 0,04 cm longa. Stigma suborbiculare, alte excavatum, margine elevatulo. Pes gynostemii brevissimus, cum ovario angulum obtusum faciens, bene 0,025 cm longus. Ovarium obconicum, 6-sulcatum, subfurfuraceo-punctatum, bene 0,1 cm longum; pedicellus tenuior, 0,16 cm longus.

Dutch New Guinea : Without location details - E. Mayr no. 652,
) 1928.

In the very interesting section Polyblepharon, this species belongs to those with a simple configuration. The shape of the lip has a faint resemblance to that of B. saccolabiooides J.J. Sm., but otherwise is very different, particularly in the very narrow petals, the lack of auricles and in the column..

The description is from a dried specimen.

Section : Fruticcola

Bulbophyllum dawongense J.J.Sm., sp. nov.

Rhizoma basi tantum ramosum et radices tenues flexuosa glabras ramosas ermittens, rhizomatis ramis erectis vel patentibus, ut videtur simplicibus, 8—9,5 cm longis, radicibus adpressis in parte inferiore, vaginis conspicuis acutis apiculato-acuminatis prominenter nervosis tenuiter marginatis pallide fuscescentibus usque ad 1,2—1,45 cm longis tectis. Pseudobulbi rhizomati adpressi, basi adnati, c. 0,9—1 cm longi, parte libera 0,4—0,5 cm longo subtus concava. Folium oblongum apice brevissime conduplicato-canaliculato-acutum, basi brevissime conduplicato-contractum, apice cartilagineo-crenulatum, costa media dorso prominente, sicco rigide coriaceum, c. 2,1—3,1 cm longum, 0,6—1 cm latum. Inflorescentiae abbreviatae, 1-florae, pedunculo c. 0,125 cm longo, nonnullis vaginulis ample tubulosis acuminatis usque c. 0,35 cm longis donato. Flos parvus, maceratus 0,6 cm longus, sepalis parallelis carnosulis. Sepalum dorsale horizontale, marginibus sepalis lateralibus obtectum, oblongo-ovatum, apice marginibus incurvis breviter acuminatum, marginibus tenuie, concavum, 3-nervium, c. 0,55 cm longum, 0,225 cm latum. Sepala lateralia cum pede gynostemii mentum breve cum ovario angulum rectum faciens a latere visum obtusangulum c. 0,1 cm longum formantia, oblique oblongo-ovato-triangula, leviter acute apiculato-acuminata, concava, 3-nervia, c. 0,6—0,625 cm

longa, supra basin 0,25 cm lata. Petala porrecta, oblique oblonga, obtusa, margine antico versus basin paululum dilatata, irregulariter marginata, ciliata, 1-nervia, c. 0,225 cm longa, cum ciliis fere 0,125—0,13 cm lata. Labellum carnosum, leviter curvulum, 3'-lobum, subtus convexum cum canalicula longitudinali et basi apiceque exceptis patentissime pilosum, lobis laterales in $\frac{2}{3}$ partibus inferioribus, erecti, rotundato-obtusangule triangulis, antice sensim in lobum medium decurrentibus, lobo intermedio porrecto, oblongo-ligulato, obtuso, supra praesertim versus apicem convexo, carnoso, totum 0,3 cm longum, lobo intermedio 0,18 cm longo, 0,08 cm lato. Gynostemium breve, rectum, dorso convexum, 0,175 cm longum, clinandrio concavo, pariete postico triangulo-producto concavo cum dente humili utrinque, ad basin, auriculis porrectis e basi oblique triangula subulatis vix curvulis antheram paululum superantibus. Antera cucullata, ambitu subovata, ante thecas in appendicem subquadratam rotundato-truncatam vix recurvulam celluloso-verruculosam paulo angustiorem producta, 0,08 cm longa, 0,06 cm lata. Stigma alte excavatum, longitudinaliter oblongum, basin gynostemii attingens. Pes gynostemii cum ovario angulum rectum faciens, crassus, rectus, oblongus, apice truncatus et utrinque in lobulum patentem rotundatum dilatatus, incrassatione inconspicua ad basin, 0,1 cm longus. Ovarium obconicum, 6-sulcatum, parvissime furfuraceo-punctatum, fere 0,2 cm longum; pedicellus 0,15 cm longus.

Northeast New Guinea : Herzog Range, Dawong alt. c. 1500m —

E. Mayr no. 915, May 1929.

Closely related to B. dendrobiooides J.J.Sm. but differing in the pseudobulbs being closer together, smaller flowers, narrower sepals, the petals linear and not constricted to form a lobe on the front margin, and a narrower lip with a relatively longer middle lobe. The ciliation of the petals is the same for both species.

The description is from herbarium material.

Section Peltopus

Bulbophyllum longipiliferum J.J. Sm., sp. nov.

Rhizoma repens, radicibus elongatis tenuibus. Pseudobulbi aggregati, sicco petioliformes, longitudinaliter sulcati, pallidi, 2—2,6 cm longi, 1-folii. Folium anguste lanceolatum, acutum, longius grossiusque apiculatum, basi sensim subpetiolato-angustatum conduplicatumque, costa media supra sulcata subtus prominente, sicco papyraceum, 7—9,5 cm longum, 0,7—1,13 cm latum. Inflorescentiae e rhizomate, fasciculatae, 1-florae, pedunculis filiformibus, 2,5—3,1 cm longis. Bractea oblique tubulosa, apice oblique truncata, 0,25 cm longa. Flos conspicuus. Sepalum dorsale e basi lanceolato-triangula longe filiformi-productum, 3-nervium, 3,3 cm longum, parte dilatata c. 0,9 cm longa, 0,23 cm lata. Sepala lateralia e basi oblique lanceolata longe filiformi-producta, 3-nervia, 3,65 cm longa, parte dilatata 1,3 cm longa, 0,25—0,3 cm lata. Petala? Labellum oblongo-triangulum, filiformi-acuminatissimum, basi truncatum, excavatione incrassatione hippocrepidiiformi limitata ad basin, 5-nervium, c. 0,5 cm longum, 0,15 cm latum. Gynostemium brevissimum, 0,125 cm longum. Pes gynostemii lineari-oblongus, apice lamella transversa satis conspicua erecta donatus, 0,17 cm longus. Ovarium pedicellatum 2—2,65 cm longum, 0,3 cm supra basin articulatum.

Dutch New Guinea : Without location details - E. Mayr no. 539,
June - Aug. 1928.

The material was not in very good condition hence the description is incomplete. Nevertheless, I do not believe that the species will be difficult to recognise again. It is distinguished from all the other species of the section known to me by the extended sepals forming longer filaments and in this regard it is strongly reminiscent of B. commissibulbum J.J. Sm. of the section Epibulbon. I would like to draw attention to the illustrations numbered 104 and 105 in 'Nova Guinea' Vol. XIV (1929) which have been interposed; hence T.LXXIV 104 is B. commissibulbum J.J.Sm. and T.LXXV, 105 is B. Lamii J.J. Sm.

The description is from herbarium material.

Section : Ischnopus, incl. Hedyothrysus
Bulbophyllum calothyrsus Schltr., Orch. D.N. - Guinea (1913),
886; Fig. Atl. t. CCCX, no. 1193.

Dutch New Guinea : Without location - E. Mayr no. 468, June -
Aug. 1928; Cyclops Range, alt. c. 1200m - E. Mayr no. 602, 8th Sept.
1928; flower dark red and yellowish.

Mansfeld determined this species as B. calothyrsus Schltr. but in the oval petals it corresponds more to B. hedyothrysus Schltr. The colour given for the flowers agrees better with that of B. hedyothrysus Schltr., however, in the size of the flowers it has a stronger resemblance to B. calothyrsus Schltr.

Section : Ischnopus

Bulbophyllum olivinum J.J. Sm., sp. nov.

Rhizoma repens. Pseudobulbi remoti, sicco depresso-conici, apice contracti, valde rugosi, 0,9—1,35 cm alti, 1,13—1,5 cm diam. Folium erectum, petiolatum, oblongum, apice angustatum breviter obtusum canaliculatumque, basi in petiolum contractum, costa media supra sulcata subtus convexo-prominente, rigide coriaceum, bene 10 cm longum, 3,1—3,4 cm

latum; petiolus 3—4 cm longus. Inflorescentia elongata, laxe multiflora, quaquaversae, pedunculo c. 35 cm longo, vaginulis c. 6 brevibus tubulosis donato, rachide 3—16 cm longa. Bracteae patentes, triangulae, subulato-acuminatae, concavae, sicco ad c. 0,35 cm longae. Flores c. 15—25, patentes, c. 1,65 cm longi. Sepalum dorsale erectum, cum ovario angulum obtusum, cum sepalis lateralibus angulum subrectum faciens, oblongo-ovale, vix ovatum, obtusum, breviter obtuse apiculatum, concavum, 3-nervium, bene 1 cm longum, bene 0,5 cm latum. Sepala lateralia libera, porrecta, oblique subelliptica, obtusa, conspicue laterali compresse canaliculato-apiculata, 3-nervia, costa media curvata, dorso carinata, 1,1 cm longa, 0,475 cm lata. Petala parva, verticalia, oblique obovata, rotundata, minute triangulo-apiculata vel obtusissima exapiculataque, basi leviter contracta, vix concava, 1-nervia, 0,425 cm longa, fere 0,3 cm lata. Labellum mobile, supra basin unguiculato-contractam ima basi dilatatum et reverse rotundato-bilobulam abrupte recurvum, parte antica planum e basi truncata subovale, subovatum, obtusissimum, costis 2 supra basin ex angulis ortis tenuibus ultra medium A-formiter confluentibus, costa crassiore interposita, costula brevi in utraque costae mediae parte addita, carnosum, subtus longitudinaliter sulcatum, inexplanatum fere 0,4 cm longum, fere 0,25 cm latum, ungue 0,125 cm longo, 0,13 cm lato. Gynostemium crassum, cum anthera 0,25 cm longum. Anthera cucullata, lateraliter compressa, suborbicularis, connectivo costato-incrassata. Stigma alte excavatum, margine inferiore in lamellam transversam productum. Pes gynostemii cum ovario angulum obtusum faciens, apice a sepalis lateralibus libero incurvus, 0,3 cm longus. Ovarium cum pedicello angulum obtusum faciens, 6-sulcatum, 0,3 cm longum; pedicellus c. 0,9 cm longus, 0,2 cm supra basin articulatus.

Dutch New Guinea : Weijland Range, alt. c. 2100m — G. Stein no.

432, 10th Oct. 1931; flowers dusky olive-green.

Differs from the relatives in its olive-green flowers, obovate petals, the bi-lobed lip, contracted at the base etc.

The column had been pressed too strongly to enable the recognition of its true shape.

The description is from herbarium material.

Section : Dialeipanthe

Bulbophyllum Mayrii J.J. Sm., sp. nov.

Rhizoma elongatum, repens. Pseudobulbi sicco tenui, c. 2,7—3 cm longi, fibris vaginarum ultimarum 4—4,5 cm longis cincti. Folium petiolatum, lanceolatum, apice angustatum conduplicatum supra visum subacutum, basi acuta in petiolum angustatum, costa media supra sulcata subtus carinata, sicco coriaceum, utrinque sparse nigro-puncticulatum, 9,5—bene 10 cm longum, 2,1 cm latum; petiolus canaliculatus, 2,1 cm longus. Inflorescentiae e basi pseudobulborum, folia multo superantes, pedunculo tenui, 31,5—38 cm longo, vaginulis c. 5 tubulosis superne laxioribus donato, rachide 4,5 cm superante, flexuosa, internodiis 0,35—0,4 cm longis. Bracteae alternatim bifariae, erecto-patentes, incurvae, basi tubulosae, angustato-acuminatae, concavae, carinatae, sicco prominenter nervosae, minute puncticulatae, 0,9—1,1 cm longae. Flores 12 vel plures, singuli florentes. Sepalum dorsale elliptico-lanceolatum, versus apicem valde

angustatum, subacuminatum, acutum, 5(—7)-nervium, dorso laxe minute punctatum, bene 2,5 cm longum, fere 0,7 cm latum. Sepala lateralia oblique lanceolata, apice angustato-acuminata, acuta, carinata, 7-nervia, dorso parce minute punctata, c. 2,8 cm longa, 0,85 cm lata. Petala parva, oblique anguste oblonga, apicem versus paululum dilatata, apice truncato vel plus minusve lobulato irregulariter lacinulata denticulataque, costa media in mucronem longiore filiformem producta, 1-nervia, 0,5—0,525 cm longa, basi 0,075—0,08 cm, apice 0,16—0,17 cm lata, mucrone 0,06 cm longo. Labellum oblongo-ellipticum, apice obtuse acutatum, basi leviter subspathulato-contractum et excavatum, excavatione costis 2 obliquis in $\frac{1}{4}$ parte supra basin occurrentibus sed non confluentibus carnosis irregulatim marginatis superne decrescentibus limitata, costulis 2 humilibus longitudinalibus approximatis utrinque supra basin in lamellam bene altiore erectam brevem dilatatis superne paulo divergentibus deinde approximatis e basi usque ultra medium productis, 1,75 cm longum, in $\frac{3}{5}$ partibus supra basin 0,675 cm latum. Gynostemium 0,5 cm longum, marginibus infra medium abrupte rotundato- vel angulato-dilatatis. Pes gynostemii brevis, latus, c. 0,2 cm longus. Ovarium pedicellatum c. 1 cm longum.

Dutch New Guinea : Arfak Range,

no. 211, 8th June 1928; flower yellow. [Mt.] Ditschi, alt. c. 1200m - E. Mayr

The species is very similar to B. acuminatum Schltr. in the shape of the petals, but differs in the larger flowers and quite a different non-pointed lip.

The description is from herbarium material. The flowers were so strongly pressed that the description, particularly that of the lip and column, will need to be supplemented from better material.

Bulbophyllum semiasperum J.J. Sm., sp. nov.

Rhizoma repens, initio vaginis tubulosis fusco-punctatis tectum, vagina ultima sub pseudobulbo longe lateraliter compresso-acuminata, prominenter nervosa, 3,25 cm longa. Pseudobulbi 1,6—1,7 cm dissiti, cum rhizomate angulos acutos facientes, sicco elongato-conici, longitudinaliter rugosi, c. 3—3,2 cm longi. Foliolum sublanceolato-lineare, apicem versus sensim angustatum, acutum, basi sensim angustatum conduplicatumque, costa media supra sulcata subtus carinata, margine sicco revoluto, utrinque densius minute fusco-punctatum, subcoriaceum, rigidulum, c. 25 cm longum, sicco 0,8—bene 1 cm latum. Inflorescentiae e basi pseudobulborum, foliis multo breviore, intervallis flores 5—6 (?) lignentes, pedunculo filiformi, c. 12 cm longo, vaginulis c. 4 sursum laxioribus tubulosis donato, rachide incrassata, flexuosa, c. 0,9 cm longa. Bracteae alternatim bifariae, erecto-patentes, e basi oblique infundibuliformi concavae, acuminatae, punctatae, 0,625 cm longae. Flores in sectione mediocres, sepalis dorso minute nigro-punctatis. Sepalum dorsale lineare, apicem versus sensim longe angustatum, acutum, apice conduplicatum, supra basin utrinque dente patentissimo acuto donatum, canaliculatum, 7-nervium, 1,8 cm longum, fere 0,3 cm latum. Sepala lateralia a sepallo intermedio remote inserta, oblique oblongo-lanceolata, supra basin

falcata, versus apicem angustata, apice conduplicata, acuta, basi leviter contracta, carinata, c. 9-nervia, c. 2 cm longa, supra basin fere 0,6 cm lata. Petala oblique lanceolato-triangula, sensim angustissima, accutissima, basi margine antico paulum oblique dilatata ad pedem gynostemii breviter decurrentia, c. 0,87 cm longa, basi 0,2 cm, supra basin 0,25 cm lata. Labellum (valde compressum) supra basin recurvum, carnosum, ambitu subovato-oblongum, in bene $\frac{1}{4}$ parte supra basin leviter constrictum, 5-nervium, nervis ramosis, totum 1,4 cm longum, constrictione 0,4 cm latum, hypochylo serrato et intus fere usque ad medium labelli muricibus conicis vestito, 0,47 cm lato, epichylo oblongo-ovato, apicem versus sensim angustato, obtuso, subintegerrimo, leviter crenulato, 1 cm longo, 0,45 cm lato. Gynostemium longiusculum, subrectum, dorso convexum, cum anthera 0,6 cm, absque anthera 0,45 cm longum, clinandrio excavato, pariete postico truncato, filamento linearis. Stigma alte excavatum. Pes gynostemii cum ovario angulum acutum, cum gynostemio angulum obtusum faciens, rectus, truncatus, 0,37 cm longus. Ovarium 6-sulcatum, nigro-furfuraceo-punctatum, 0,67 cm longum; pedicellus minus dense punctatus, 0,46 cm longus.

Dutch New Guinea : Cyclops Range, alt. c. 1100m - E. Mayr no.

) 617, 8th Sept. 1928; flower yellowish pink.

Distinguished from B. ligulifolium J.J. Sm. ined. u.m., by the much narrower dorsal sepal and the lip narrower towards the apex, serrated and with soft bristles in the lower part.

Description is from a dried specimen.

Section : Hyalosema

Bulbophyllum elephantinum J.J. Sm., in Fedde Rep. XII (1913), 398; in Nova Guinea XII, Livr. 4 (1916), 427, t. CLXI, 303.

Dutch New Guinea : Weijland Range, alt.c. 1800m - G. Stein no. 465, 10th Oct. 1931.

In exact agreement with the Type.

Section : Aphanobulbum

Bulbophyllum ebulbe Schltr., in K. Schum. et Laut. Nachtr. Fl.D. Schutzgeb. Südsee (1905), 200; Orch. D.N. - Guinea (1913), 874; Fig. Atl. t. CCCVI, no. 1174.

Bulbophyllum unguiculatum J.J. Sm. (non Rchb.f.) in Nova Guinea VIII (1909), 102.

Dutch New Guinea : Cyclops Range, alt. c. 1100 - 1900m - E. Mayr nos 585, 607 and 610, 7th - 8th Sept. 1928; Weijland Range, alt. c. 2100m - G. Stein no. 423, 10th Oct. 1931.

Eulophia R. Br.

Eulophia macrostachya Lindl., Gen. et sp. Orch. (1833), 183;
etc.

Dutch New Guinea : Wasior, alt. c. 9 - 100m - E. Mayr no. 419,
20th July 1928.

Japen [I .] : Alt. c. 100m - G. Stein no. 109a, 26th Mar. 1931.

Chitonanthera Schltr.

Chitonanthera vinosa J.J. Sm., sp. nov.

Caules elongati, tenues, flexuosi, c. 20 cm longi, internodiis
c. 0,5—0,8 cm longis. Folia patentia, internodia continua, equitantia,
lateraliter compressa, linearia, saepe plus minusve falcato-incurva, acutius-
cula, basi cum vagina articulata leviterque constricta, c. 0,8—1,6 cm longa,
0,125—0,16 cm lata; vaginæ tubulosae, internodia superantes, laminam
continuae, lateraliter compressae, carnosae. Inflorescentiae axillares,
brevissimae, 3-florae, pedunculo cum rachide flexuosa 0,2 cm longo, tenui.
Bracteæ aequilateraliter trapeziformes cum acumine abrupto triangulo
acuto, 0,08 cm longo. Flores, 0,35 cm lati, sepalis patentissimis, basi
brevissime connatis, convexis, dorso praesertim in sepalis lateralibus versus
apicem carinatis, basi latis. Sepalum dorsale ovatum, obtusiuscule
acutatum, intus versus apicem sulcatum, 1-nervium, c. 0,18 cm longum,
fere 0,15 cm latum. Sepala lateralia oblique abbreviato-ovata, acu-
minata, acutiuscula, nervo 1 intus sulcato, c. 0,15 cm longa, 0,16 cm lata,
Petala minima, elliptica, obtusa, basi subspathulato-contracta, 1-nervia,
omnino patentissime puberula, c. 0,06 cm longa, 0,03 cm lata. Labellum
ad basin gynostemii insertum, porrectum, cum gynostemio angulum acutum
faciens, concavum, vix sigmoideum, simplex, oblongum, obtusum, basi trun-
catum, margine papillosum, maculis longitudinalibus oblongis contiguis in
 $\frac{2}{5}$ partibus inferioribus, c. 0,15 cm longum, 0,08 cm latum. Gynostemium
porrectum, medio fere subrectangule recurvum, dorso convexum, parte
inferiore etiam antice convexum, latum, dorso visum ambitu oblongo-
quadrangulum, dorso papilloso-puberulum, antice papillosum, c. 0,15 cm
longum, fere 0,1 cm latum, clinandrio concavo, transverse oblongo, pariete
postico erecto, truncato-bilobulato. Anthera cucullata, vix clinandrium
superans, transversa, reniformis, basi bilobula, lobulis retusis, tenerima.
Faux stigmatis transverse fissuriformis. Ovarium pedicellatum
0,16 cm longum. Capsula flore coronata, breviter obovoidea, c. 0,2 cm
longa, pedicello 0,05 cm longo.

Dutch New Guinea : Wandaman, Mt. Wondiwoi, alt. c. 1850m,
epiphytic - E. Mayr no. 380, 16th July 1928; flower wine-red.

Very similar in leaf shape to that of C. reflexa J.J. Sm., but
with shorter more floriferous inflorescences, the sepals not retrorse,
the petals different and the lip broader.

The description is from herbarium and alcohol preserved material.

Phreatia Lindl.

Section : Caulophreatia

Phreatia semiorbicularis J.J. Sm., in Bull. Dép. Agr. Ind. Néerl.

XXXII (1909), 19; in Nova Guinea VIII (1911), 599, t. CIX, A.

var. angiensis J.J. Sm., in Nova Guinea XII, Livr. 4 (1916),
440.

Dutch New Guinea : Weijland Range, alt.c. 1600 - 2000m - G. Stein
nos 330, 379 and 514, Oct. 1931.

)

Section Rhizophyllum

Phreatia goliathensis J.J. Sm., in Bull. Jard. Bot. Buit. 2^e ser.
XIII (1914), 73; in Nova Guinea XII (1916), 437, t. CLXVII, 313.

Dutch New Guinea : Cyclops Range, alt.c. 1600m - E. Mayr no. 598,
8th Sept. 1928; flower white-greenish; Weijland Range, alt.c. 1300m -
G. Stein nos 579 and 589., Oct. 1931.

)

Phreatia iridifolia Schltr., Orch. D.N.-Guinea (1913), 930;

Fig. Atl. t. CCCXXVII, no. 1260.

Waigeoe [I .] : Alt. c. 250m - G. Stein no. 115, 20th May 1931;
flowers white; Majalibit Bay, Kampong Lupintol - G. Stein no. 247,

Section : Bulbophreatia

Phreatia bulbophylloides Schltr., Orch. D.N.- Guinea (1913),
939; Fig. Atl. t. CCCXXXI, no. 1277.

Northeast New Guinea : Sattelberg up to Junzaing, alt. c. 800 -
1500m, epiphytic - E. Mayr nos 746, 750 and 767, Jan. 1929, flower
white.

Section: Saccophreatia

Phreatia deltoides J.J. Sm., sp. nov.

Pseudobulbi ut videtur apice unifoliati, vaginis basilaribus etiam laminam gerentibus. Foliū articulatum, linear-lanceolatum, apice probabiliter breviter bidentatum vel bilobulatum, basi angustata conduplicatum, tenuiter coriaceum, 15,5—22,5 cm longum, 1,35—1,55 cm latum; vagina basi tubulosa, superne conduplicata, prominenter nervosa, 3—8 cm longa. Inflorescentia densius multiflora, pedunculo 23,5—31 cm longo, vaginulis 8—9 tubulosis superioribus laxioribus et in bracteas transientibus usque ad 2,2—3,4 cm longis donato, rachide sicco angulata, 11—15 cm longa. Bracteae pedicellum amplectentes, quinquangulares, acutiusculae, 0,35—0,5 cm longae. Flores mediocres. Sepalum dorsale subsemiellipticum, subquinquangulare e basi lata fere a medio angustatum, obtusum, concavum, 1-nervium, bene 0,225 cm longum, 0,2 cm latum. Sepala lateralia, oblique triangula, margine antico basi dilatata, obtusa, leviter concava, 1-nervia, 0,27 cm, margine antico 0,36 cm longa, basi 0,275 cm lata. Petala oblique ovata vel rhombo-ovata, obtusa, leviter concava, 1-nervia, 0,22 cm longa, 0,14 cm lata. Labellum apici pedis gynostemii insertum, gynostemium superans, 3-nervium, breviter unguiculatum, ungue concavo, supra basin in calcar conspicuum incurvum porrectum rectum oblongum apice rotundatum medium laminae attingens 0,11 cm longum ampliato, lamina porrecta, canaliculato-conduplicata cum lateribus convexis, explanata e basi breviter lateque cuneata triangula, apice breviter obtusangule angustata, subirregulariter marginata, intus puberula, fere 0,3 cm longa, 0,225 cm lata. Gynostemium dorso convexum, cum anthera 0,15 cm longum, clinandrio alte excavato truncato, pede cum ovario angulum acutum faciente, oblongo, fere 0,1 cm longo. Anthera cucullata, triangula, basi biloba, lobis bilobulatis. Rostellum porrectum, alte in lacinias 2 subulatas parallelas partitum. Stigma conspicuum, semiorbiculare Ovarium (foecundatum) obconicum, 0,36 cm longum; pedicellus tenuior, 0,14 cm longum.

Dutch New Guinea : Weijland Range, alt. c. 1300m — G. Stein no.

581, 15th Oct. 1931.

In floral characters this species is very similar to P. resiana J.J. Sm., but differing in much larger dimensions, much broader five cornered bracts, ovate petals and a non-truncated but broadly keeled lamina. In dimensions it resembles P. cylindrostachya Schltr. more closely, but is distinguished by a sheath provided with a lamina at the base of the pseudobulbs, less pointed and much less terete narrowed leaves, non-pointed bracts and clawed lip-lamina keel-shaped at the base.

The glands usually found at the base of the lip with Phreatia in section Saccophreatia are probably found in the spur.

The description is from herbarium material.

Ridleyella Schltr.

Ridleyella paniculata Schltr., Orch. D.N. -Guinea (1913), 949;
 Fig. Atl. t. CCCXXXV, no. 1292; J.J. Sm., in Nova Guinea XII, Livr. 4
 (1916), 446, t. CLXXIII, 322.

Bulbophyllum paniculatum Ridl., in Journ. Bot. XXIV (1889), 326.

Dutch New Guinea : Weijland Range, alt. c. 1800m - G. Stein no.
 441, 10th Oct. 1931.

Acriopsis Reinw.

) Acriopsis javanica Reinw., in Fl. Lit. II, 4 etc.
 var. Nelsoniana J.J. Sm., in Nova Guinea XIV, Livr. 3 (1929),
 492.

Acriopsis Nelsoniana Bail., in Queensl. Agr. Journ. III (1898), 160
 etc.

Waigeoe [I.] : Supintol - G. Stein, no. 217, 10th June 1931.
 The plant cannot be separated specifically from A. javanica Reinw.
 Perhaps it might be better to delete it as a variety.

) Vandopsis Pfitz.

Vandopsis lissochilooides Pfitz., in Eng. u. Prantl. Nat.
 Pflanzenfam. II, 6 (1889), 210, fig. 229 etc.
 Waigeoe [I.] : Majalibit Bay, on rocks over water - G. Stein no.
 236, 11th June 1931.

This is the most eastern location of this species.

Microtatorchis Schltr.

Section : Geissanthera

Microtatorchis erosula J.J. Sm., sp. nov.

Planta pusilla. Caulis 0,2—0,4 cm longus, 4—5-folius, radicibus elongatis flexuosis. Folia anguste lanceolata, basin versus angustata, apiculata, costa media supra sulcata subtus carinata, ut videtur inarticulata, 0,9—1,9 cm longa, 0,125—0,28 cm lata; vaginæ tubulosae, apice canaliculatae, sicco membranaceæ, prominenter nervosæ. Inflorescentiae paucifloræ (?), pedunculo tenui, angulato, 0,85—1,4 cm longo, rachide anguste erosulo- vel irregulariter denticulato-alata, 0,45—0,6 cm longa (vel plus?), internodus c. 0,2 cm longis. Bracteæ patentissimæ, triangulæ, acutæ, concavæ, carinatae, carinis margineque erosulae, carina in rachidem alato-decurrentes, ovario pedicellato bene breviores, basi utrinque stipula erecta subulata dorso carinata breviore donatae. Flores c. 5 (vel plures?), parvi, c 0,32 cm longi, sepalis petalisque canaliculatis 1-nerviis inferne in tubo subtus fiso connatis, explanatis una 0,24 cm longis, 0,2 cm latis Sepalum dorsale 0,24 cm longum, parte libera linearisubulata, apice conduplicata, anguste obtusa, 0,15 cm longa, fere 0,05 cm lata. Sepala lateralia 0,225 cm longa, parte libera sepalodorsali simili sed paulo obliqua. Petala bene 0,2 cm longa, parte libera e basi subovato-triangula linearisangustata, apice conduplicato anguste obtusa, 0,125 cm longa, 0,04 cm lata. Labellum saccatum, porrectum, concavum, subtus convexum, apice brevissime recurvulo, esetigerum, totum 0,25 cm, usque ad apicem ovarii 0,2 cm longum, explanatum e basi suborbiculari costulis 2 transversis curvulis bilobato-excavata in $\frac{1}{3}$, supra basin contracta triangulo-subulato-producta acuminata; calcar saccatum, breve, reversum, oblique subglobosum, basi constrictum, antice oblique inflatum, c. 0,06 cm longum, 0,07 cm diam. Gynostemium breve, brachiis in excavatione labelli quadrantibus, rectis. oblongis, concavis. Anthera cucullata, in rostrum breve obtusum producta. Pollinia 2, ovalia, compressa, stipite e basi linearis, cuneato-triangulo dilatato, glandula conspicua lanceolata. Ovarium 6-costatum pedicellatum 0,175 cm longum. Capsula flore sicco coronata, curvata, subcylindrica, 6-costata, 0,675 cm longa, 0,18 cm diam., pedicello 0,08 cm longo.

Northeast New Guinea : Sattelberg up to Junzaing, alt. c. 800 — 1500m — E. Mayr no. 750x, Jan. 1929.

The species most similar to M. acuminata Schltr., but differs, however in the narrower leaves, a small incised winged rachis, much shorter triangular bracts (approximately half that of the ovary) and in the shape of the lip.

A few specimens of this plant were glued to a sheet together with Phreatia bulbophylloides Schltr. (No. 750). Included also was a specimen of a Microtatorchis (No. 750y), unfortunately without flowers, which was characterised by an extended much broader winged rachis. It is at any rate possible that the rachis is narrowly winged only at the lower internodes whilst the wings become broader at the upper nodes.

Description from herbarium material.



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