

# ***The Orchids of Dutch New Guinea***

**Johannes Jacobus Smith**

**Book 3 of 3:**

**A translation into English of**

***Die Orchideen von Niederlandisch-Neu-Guinea***

**as published in**

***Nova Guinea*, Vol XII, part IV, pp 272-469 (1916)**

**(pagination continues from part III)**

**with index for Vol XII, parts III and IV; and**

**gazetteer for the complete series**

**to Vol XVIII, part I (1935) with map.**

**D F Blaxell, H J Katz & J T Simmons**



**Johannes Jacobus Smith  
(1867-1947)**



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





# ***The Orchids of Dutch New Guinea***

Book 3 of 3

A translation into English of

## ***Die Orchideen von Niederlandisch-Neu-Guinea***

by

**Johannes Jacobus Smith**

as published in

***Nova Guinea*, Vol XII, part IV, pp 272-469 (1916)**

(pagination continues from part III)

with index for Vol XII, parts III and IV; and

gazetteer for the complete series to Vol XVIII, part I (1935) with map.

Editor: D F Blaxell, D.D.A., B.Sc., F.L.S.

Assistant Director, Royal Botanic Gardens, Sydney

Translation and Editorial Associates:

H.J. Katz, B.Sc., Dr. rer. nat. & J. T. Simmons

Manuscript completed: 1986

First published: 1990 (hardcopy)

with the approval of the publishers of *Nova Guinea*, E. J. Brill, Leiden, The Netherlands.

Digital version: 2021

Publisher: The Australian Orchid Foundation

[www.australianorchidfoundation.org.au](http://www.australianorchidfoundation.org.au)

Copyright: any part of this document can be reproduced without the permission of the copyright owner – The Australian Orchid Foundation – on the basis that it is used in a manner that is ‘not for profit or gain’ and that the copyright owner is clearly identified. Reproduction that is intended ‘for profit or gain’ requires the copyright owner’s permission.



'THE ORCHIDS  
OF  
DUTCH NEW GUINEA  
BY  
J.J. SMITH  
BEING A TRANSLATION OF  
'DIE ORCHIDEEN  
VON  
NIEDERLÄNDISCH - NEU-GUINEA'  
FROM

'NOVA GUINEA' VOL. XII, PART IV (1916).



as being white or pale pink with violet dots. From the preserved material it cannot be decided whether a variety could be separated off here.

Dendrobium Sw.

Section : Cadetia

Dendrobium ordinatum J.J. Sm., in Fedde Rep. XII (1913), 27.

Tab. XCVIII, 170.

(latin diagnosis)

[Ed. For possible priority considerations, it should be noted that genera and species described in Vol. XII, Part III, which terminates at this point, were published in 1915. The text in Vol. XII, Part IV, published in 1916, now continues from this point].

Dutch New Guinea : Hollandia, on the east side of Kajo Bay, epiphytic in forest on marine rocks (K. Gjellerup no. 973, flowering in Jan. 1912).

This plant I initially considered as D. funiforme Bl., but from which it differs, according to the description and illustration, in the tri-lobed labellum. In Leiden I have been able to establish that the lip of D. funiforme Bl. is actually undivided. D. ordinatum J.J.Sm., furthermore, has narrower leaves.

D. warianum (Schltr.) J.J.Sm., according to the description, can hardly be separated from D. funiforme Bl.

Dendrobium subradiatum J.J.Sm., in Fedde Rep. XII (1913), 27.

Tab. C, 171.

(latin diagnosis)

Dutch New Guinea : Arfak Range, at Angi Lake on bare rock walls, alt. c. 1900m (K. Gjellerup no. 1109, flowering in Apr. 1912).

This species also belongs to the relationship of D. funiforme Bl., but differs from it and its relatives in all segments.

The flowers are white.

Dendrobium aprinum J.J. Sm., in Bull. Jard. Bot. Buit. 2<sup>e</sup> sér. II (1911),  
7; etc.

Dutch New Guinea : Treub Range, on the steep south slope, alt. c.

2400m, growing on schist (A. Pulle no. 1092, flowering in Feb. 1913).

Dendrobium legareiense J.J. Sm., in Fedde Rep. XII (1913), 28.

Tab. C, 172.

(latin diagnosis)

Dutch New Guinea : Legarei [River], alt. c. 600m (R.F. Janowsky no.  
87, flowering in June 1912).

The closest relatives of this species are, for example, D. aprinum  
J.J. Sm., D. macrolobum J.J. Sm., D. goliathense J.J. Sm., D. cyclopense  
J.J. Sm., D. subhastatum J.J. Sm., and probably also D. funiforme Bl.,  
D. bialatum J.J. Sm., D. crassula (Schltr.) J.J. Sm. and D. warianum  
(Schltr.) J.J. Sm. All these species are, apart from other aspects,  
characterized by the inflorescences emerging from the front, as well as  
the rear of the leaf. Schlechter places these species partly in his  
section Sarco-Cadetia and partly in Ptero-Cadetia, which is really a  
very natural way.

In Orch. Deutsch-Neu-Guinea, 424, Schlechter states that in his  
section Sarco-Cadetia the flowers appear directly behind the leaf by  
the rotation of the pseudobulb axis. I must admit that I do not under-  
stand that statement, since in my opinion the inflorescence appears  
from behind the leaf, simply from a lower node, rather than in front  
of the leaf, as occurs, for example, in section Desmotrichum.

According to Janowsky the flowers are white.

Dendrobium potamophilum J.J. Sm., in Bull. Jard. Bot. Buit. 2<sup>e</sup> sér.  
VIII (1912), 18.

Cadetia potamophila Schltr., Orch. Deutsch-Neu-Guinea (1912), 438.

Dutch New Guinea : Kurudu Island between Japen Island and the  
north coast, epiphytic at the beach (R.F. Janowsky no. 475,

flowering in Oct. 1913).

I am fairly certain that this plant is the Schlechter species.

Dendrobium apiculiferum J.J. Sm., in Fedde Rep. XII (1913), 396.

Tab. CI, 173.

(latin diagnosis)

Dutch New Guinea : Humboldt Bay (K. Gjellerup no. 449, living plant in cultivation at Hort. Bog. under no. 120).

Amongst the related species, only D. ceratostyloides J.J. Sm. appears to have such a narrow middle lobe so spread apart to overtop the lateral lobes. D. apiculiferum J.J. Sm. differs from this species in somewhat larger flowers of a different colour, relatively narrower petals, blunt lateral lobes and the middle lobe with a short apex.

In habit the plant is similar to D. Micronephelium J.J.Sm., but is most recognisable, apart from its flowers, by the broader leaves.

Dendrobium Micronephelium J.J. Sm., in Fedde Rep. XII (1913), 28.

Tab. CI, 174.

(latin diagnosis)

Dutch New Guinea : Humboldt Bay, on Misati Hill, alt. c. 300m, in a tree (K. Gjellerup no. 996, flowering and fruiting in Feb. 1912); Hollandia, alt. c. 40m, on rocks at the bank of a stream (K. Gjellerup no. 288, flowering in July 1910; living plant in cultivation at Hort. Bog.).

This species is easily recognised, especially by the ovary, which is covered with short appendages and is therefore warty and without soft bristles.

The plant, at the apex of the peduncles, (or also at their bases?) appears to form dense clusters of very small branches. Such clusters were found, not only on a plant in cultivation at Buitenzorg, but

also on Gjellerup's specimen, preserved in alcohol.

Description, apart from that of the ovary, was made from a living plant.

Dendrobium homochromum J.J. Sm., in Fedde Rep. XII (1913), 29.

Tab. CI, 175.

(latin diagnosis)

Dutch New Guinea : Tanah Merah Bay, alt. c. 75m, epiphytic in forest on a hill (K. Gjellerup no. 409, flowering in Dec. 1910); Sawia, alt. c. 100m, epiphytic in forest (K. Gjellerup no. 616, flowering in Aug. 1911); Hinterland of Hollandia, alt. c. 50m, epiphytic in forest on a hill (K. Gjellerup no. 1012, flowering in Feb. 1912; also cultivated in the Botanical Garden at Buitenzorg under no. 370).

Amongst those species with a soft bristly apex and a broad middle lobe, this one is characterized by uniformly shaped yellowish white flowers, a compressed mentum, labellum equal to column [in length] and with very long soft bristles right down to the pedicels.

Dendrobium opacifolium J.J. Sm., sp. nov.

Tab. CII, 176.

(latin diagnosis)

Dutch New Guinea : On the upper Digul [River] (B. Branderhorst, living plant in cultivation at Hort. Bog. under no. 58B).

According to the description, this species has much similarity with D. echinocarpum (Schltr.) J.J. Sm. It differs in smaller flowers, much shorter petals, and a pointed dorsal sepal, a lip with a glabrous middle lobe and a non-glabrous anther. Furthermore, the stemmed ovary of D. echinocarpum (Schltr.) J.J. Sm. is much longer (1.5 cm). Only a comparison of further specimens can show whether the differences are significant.

The plant in cultivation at Buitenzorg does not only produce an inflorescence in the leaf axil, but also new shoots with roots.

Dendrobium arfakense J.J. Sm., in Fedde Rep. XII (1913), 29.

Tab. CII, 177.

(latin diagnosis)

Dutch New Guinea : Arfak Range, alt. c. 1900m, epiphytic in forest (K. Gjellerup no. 1042, flowering in Apr. 1912).

A species from the affinity of D. Rumphiae Rchb.f., D. Versteegii J.J. Sm., D. stenocentrum Schltr., D. obliquum (Schltr.) J. J. Sm., etc., but is well characterized, amongst other aspects, by the peculiar middle lobe of the lip and by the anther.

The flowers are white, the middle part of the lip with small violet-red dots.

Dendrobium subfalcatum J.J. Sm., in Fedde Rep. XII (1913), 30.

Tab. CII, 178.

(latin diagnosis)

Dutch New Guinea : Hinterland of Hollandia, epiphytic in a forest, on a hill, alt. c. 50m (K. Gjellerup no. 944, flowering in Sept. 1911).

The plant clearly is closely related to D. lucidum (Schltr.) J.J. Sm.; according to Schlechter's sketch the lips of both plants are very similar. However, according to the description there are so many differences, that without doubt they must be specifically different.

However, D. subfalcatum J.J. Sm. differs from D. lucidum (Schltr.) J.J. Sm. in markedly square peduncles, somewhat falcate, matt green leaves, a non-conical mentum compressed in front; pointed petals, markedly concave, more-or-less spathulate, serrated above; the lip with five thick longitudinal ridges on the middle lobe, and in a markedly triangular ovary with a much weaker rib on each of the sides.

Description from alcohol-preserved material, as well as from a

living plant at the Botanical Garden.

On account of the lip beset with fine, thick ridges, the species is reminiscent of D. Versteegii J.J. Sm.

Dendrobium Rumphiae Rchb.f., in Walp. Ann. VI (1861), 303; J.J. Sm., in Nova Guinea VIII (1909), 52, t. XIX, 59; etc.

Dutch New Guinea : On the middle Legaree River, alt. c. 50m, epiphytic in forest (R.F. Janowsky no. 51, flowering in June 1912).

The specimen agrees very well with that collected earlier by Versteeg. According to Janowsky, the flowers are white with a yellow lip.

Schlechter ( Orch. Deutsch-Neu-Guinea, 430) doubts the correctness of my determination. I can only say that the plants agree so well with Blume's illustration that, without having seen the Type, I cannot consider it different.

Blume's illustrations are beautiful and generally good, but frequently only approximately correct in details.

I suspect that D. dubium J.J. Sm. (Cadetia crenulata Schltr.) is identical with this species. The only partially copied sketch of Schlechter's also agrees with those of Blume.

Since the above remarks were written, I have seen Blume's original at Leiden. It is smaller than the illustration, and in the narrower leaves has a closer resemblance to D. Versteegii J.J. Sm. However, since it is without flowers we are probably dependent on Blume's illustration and description.

Dendrobium Versteegii J.J. Sm., in Bull. Jard. Bot. Buit. 2<sup>e</sup> sér. VIII (1912), 17.

D. Rumphiae Rchb.f. var. quinquecostatum J.J. Sm., in Nova Guinea VIII (1909), 53, t. XIX, 60.

D. Rumphiae Rchb.f. var. quinquenervium Krzl. (sphalm.) in Pflanzenr. Heft 45 (1910), 285.



Cadetia quinquecostata Schltr., Orch. Deutsch-Neu-Guinea (1912), 424.

Dutch New Guinea : On the Giriwo River (R.F. Janowsky no. 146, flowering in July 1912); Lorentz River, Kloof Bivouac, epiphytic in primary forest (J.B. Sitanala nos 11239 and 11249, flowering in Feb. 1913).

Dendrobium toadjanum J.J. Sm., in Fedde Rep. XII (1913), 30.

Tab. CIII, 179.

(latin diagnosis)

Dutch New Guinea : Cape Tùadja (Cape Caillié), alt. c. 50m, epiphytic in forest (K. Gjellerup no. 995, flowering in Feb. 1912); Berkombor on the Tor River, alt. c. 25m, epiphytic in forest (K. Gjellerup no. 783, flowering and fruiting in Oct. 1911); Hollandia, alt. c. 0.5m, on a tree, at the rocky coast (K. Gjellerup no. 104, flowering in Apr. 1910; also a living plant in cultivation at Hort. Bog.).

This plant is extremely closely related to D. Versteegii J.J. Sm., D. obliqua (Schltr.) J.J. Sm. and D. collinum (Schltr.) J.J. Sm., all of which differ only to minor degrees, have nearly the same colour, as well as having five longitudinal ribs on the middle lobe of the lip.

D. Versteegii J.J. Sm. can be recognised at once by the narrow leaves. D. obliqua (Schltr.) J.J. Sm. has a double callus at the base of the lip-lamina, whilst D. collinum (Schltr.) J.J. Sm. and D. toadjanum J.J. Sm. have similar swellings at the base of the middle lobe. D. collinum (Schltr.) J.J. Sm. is distinguished from D. toadjanum J.J. Sm. by a smaller lip, relatively important smaller lateral lobes, and a distinctly margined middle lobe.

According to Gjellerup, the flowers are white, the labellum with violet-pink markings.

Number 995 was used for the description, that of the fruit was taken from no. 973.

Dendrobium transversilobum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910), 11; in Nova Guinea VIII (1911), 547, t. LXXXVIIC; Krzl., in Pflanzenr. Heft 45 (1910), 361.

Cadetia transversiloba Schltr., Orch. Deutsch-Neu-Guinea (1912), 424.

Dutch New Guinea : Sawia, alt. c. 100m, epiphytic in forest (K. Gjellerup no. 605, flowering in Aug. 1911; also a living plant in cultivation at Hort. Bog. under no. 191); Giriwo River, epiphytic in forest (R.F. Janowsky no. 181, flowering in July 1912); Lorentz River, Kloof Bivouac, epiphytic in primary forest (J.B. Sitanala nos 11219 and 11234, flowering in Jan. 1913).

A species clearly widely distributed in New Guinea, which has been introduced living, repeatedly to Buitenzorg.

D. heterochromum (Schltr.) J.J. Sm. is probably closely related to this species.

Section : Diplocaulobium

Dendrobium cyclobulbon Schltr., Orch. Deutsch-Neu-Guinea (1912), 461.

Tab. CIV, 180.

Dutch New Guinea : Kajó Entsáu Island in Kajó Bay, alt. c. 30m, epiphytic in forest (K. Gjellerup no. 967, flowering in Jan. 1912; also living plant in cultivation at Hort. Bog.); Tarvia (Bonggo), epiphytic on the coast (R.F. Janowsky no. 619, flowering in Jan. 1914). Geographic distribution : German New Guinea.

Although my findings differ in some details from Schlechter's description, I do not doubt that the determination is correct. The plant is clearly widely distributed in German New Guinea, both in the plains and low hills.

According to a specimen in cultivation at Buitenzorg, the sepals and petals were a pale ochre-yellow, more pallid at the base, the mentum a pallid greenish colour, the lip yellowish white with purple-

veined lateral lobes and pallid yellow ribs, the column pallid green with pale yellow-green anther.

Dendrobium sublobatum J.J. Sm., in Fedde Rep. XII (1913), 31.

Tab. CIV, 181.

(latin diagnosis)

German New Guinea : On the Kaiserin-Augusta [Sepik] River, alt. c. 60m, epiphytic in forest (K. Gjellerup no. 367, flowering in Oct. 1910; living plant in cultivation at Hort. Bog. under no. 102).

According to the description the species is like D. tropidophorum Schltr., especially in the very weakly developed lateral lobe of the lip, but differing in longer sepals and petals, and especially in the much longer ribs of the lip, which for D. tropidophorum Schltr. do not reach to the middle of the lip. Later on it may be established that the plants had better be considered as varieties.

According to Gjellerup's notes, the flowers are yellowish white, with pale yellow tips, the lip yellow with the lower half margined in deep violet, the column-apex yellow, the column-foot with violet spots.

Dendrobium tuberculatum J.J. Sm., in Fedde Rep. XII (1913), 31.

Tab. CIV, 182.

(latin diagnosis)

Dutch New Guinea : At the Noord River (Second Lorentz Expedition 1909, Rachmat, living plant in cultivation at Hort. Bog. under no. 59R).

This species can be distinguished immediately from the most closely related ones by the flowers which are warty on the outside. In habit it is very similar to D. chrysotropis Schltr., D. tropidophorum Schltr., D. dichrotropis Schltr., D. Jadunae Schltr., and D. crenulatum J.J. Sm. in having angular pseudobulbs; it is not stated whether they are angular for D. Ridleyana Schltr.

D. chrysotropis Schltr., furthermore, differs, apart from other aspects, in an undivided labellum; D. tropidophorum Schltr. in much shorter ribs which do not extend to the middle of the lip; D. dichrotropis Schltr. in the petals broadened at the base, and in the colour; D. Jadunae Schltr. in differently shaped ribs of the lip; whilst D. crenulatum J.J. Sm. has much more extended floral segments. It is noteworthy that all, or several, of the inflorescences of one pseudobulb flowered at the same time.

Dendrobium bulbophylloides J.J. Sm., in Fedde Rep. XII (1913), 31.

Tab. CV, 183.

(latin diagnosis)

Dutch New Guinea : In the southern parts (Second Lorentz Expedition 1909, Djibdja, living plant in cultivation at Hort. Bog.).

This species is reminiscent of D. chrysotropis Schltr. in the winged raised ribs of the ovary, but from which it is immediately distinguished by the tri-lobed labellum.

Dendrobium platyclinoides J.J. Sm., in Fedde Rep. XII (1913), 32.

Tab. CV, 184.

(latin diagnosis)

Dutch New Guinea : On the middle Legarei River, alt. c. 500m (R. F. Janowsky no. 70, flowering and fruiting in June 1912).

In habit this species is reminiscent of several Dendrochilum species of the section Platyclinis, viz. D. cornutum Bl. and D. simile Bl.; likewise of D. Phalangillum J.J. Sm.

The shape of the lip is somewhat reminiscent of Dendrobium hydrophilum J.J.Sm.

I have not been able to identify any hairiness,; it must, however, be stressed that the specimens were preserved in much-diluted alcohol, so that it is possible that the delicate hairs could, for that reason, not be found.

According to the collector, the flowers were red, the lip white.

Dendrobium Phalangillum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 19; in Nova Guinea VIII (1909), 58, t. XXI 67; [l.c.] (1911), 549.

Diplocaulobium Phalangillum Krzl., in Pflanzenr. Heft 45 (1910), 336.

Dutch New Guinea : At the foot of Mount Goliath, alt. c. 150m, on a smooth tree trunk (A.C. De Kock. no. 178, flowering in Apr. 1911).

Dendrobium vanilliodorum J.J. Sm., in Fedde Rep. XII (1913), 396.

Tab. CV, 185.

(latin diagnosis)

Dutch New Guinea : On the Lorentz River near Alkmaar (Second Lorentz Expedition 1909, Rachmat, living plant in cultivation at Hort. Bog. under 443R); at the same place near the Kloof Bivouac, epiphytic in primary forest (J.B. Sitanala no. 11244, flowering in Feb. 1913).

Distinguished amongst the related species by the pseudobulbs being fairly widely separated, the flowers with the odour of vanilla, the lip not beset with a cushion of hairs, and the anther five-cornered in front.

Dendrobium Franssenianum J.J. Sm., in Mededeel Herb. Leid. no. 23 (1915) 8.

Tab. CVI, 186.

(latin diagnosis)

Dutch New Guinea : Lorentz River near the Kloof Bivouac, epiphytic in primary forest on the river bank (A. Pulle no. 129, flowering in Oct. 1912).

In habit this species is very similar to D. vanilliodorum J.J. Sm., but readily distinguished by the lip having a cushion of hairs.

I have dedicated this species to Captain A. Franssen Herderschee, the leader of the Third Dutch New Guinea Expedition.

According to the collector, the flowers are white; the lip white and yellow, purple at the base, the column yellow, and the column-foot yellow with small purple spots.

Description from herbarium and alcohol-preserved material.

var. latilobum J.J. Sm., nov. var.

(latin diagnosis)

Dutch New Guinea : Slope of the Resi-Rücken [ridge] near the Kloof Bivouac, alt. c. 100m, epiphytic in primary forest (A. Pulle no. 145, flowering in Oct. 1912).

I consider this plant as a variety of D. Franssenianum J.J. Sm., from which it differs mainly in the shape of the lip.

According to Pulle, the flowers are violet-red with an orange-coloured spot at the apex of the lip. I suspect that the flowers were already a day old when collected.

Description from herbarium and alcohol-preserved material.

Dendrobium scotiiforme J.J. Sm., in Fedde Rep. XII (1913), 32.

Tab. CVI, 187.

(latin diagnosis)

Dutch New Guinea : In the northern region, without exact locality details (K. Gjellerup, living plant in cultivation at Hort. Bog. under no. 442).

The plant probably stands closest to D. araneola Schltr., but differs from it, according to the description and illustration, in having flowers of a different colour, and in the shape of the lip. For D. araneola Schltr. the middle lobe is double the length of the hypochile, and the ridges are straight, whilst for D. scotiiforme J.J. Sm. the middle lobe has the same length as the hypochile and three ridges are present, of which the lateral ones are slightly wavy in front; the middle one, although much less, is still quite distinctly wavy in the front and hirsute. This can hardly be

described as a cushion of hairs.

Dendrobium hydrophilum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 17, t. XXI, 65; etc.

Dutch New Guinea : Humboldt Bay, hinterland of Hollandia, alt. c. 75m, epiphytic in forest on laterite covered with humus, on a hill (K. Gjellerup no. 939, flowering in Nov. 1911; also living plant in cultivation at Hort. Bog.); Gautier Range on the north slope, alt. c. 300m, epiphytic in forest on limestone and basalt (K. Gjellerup no. 904, flowering in Nov. 1911).

The length of the sepals is somewhat variable. I recorded 1.45 - 2.6 cm for the dorsal sepal. Several specimens are in cultivation at Buitenzorg.

Dendrobium Janowskyi J. J. Sm., in Fedde Rep. XII (1913), 33.

Tab. CVII, 188.

(latin diagnosis)

Dutch New Guinea : On the middle Legarei River, alt. c. 80m (R.F. Janowsky no. 73, flowering in June 1912).

The species is very similar to D. hydrophilum J.J. Sm. in habit, however, the flowers are quite different.

The front part of the ridges, and that part at the base of the middle lobe between the ridges, is actually papillose, but not thickened to a cushion.

According to Janowsky, the flowers are red with a yellow lip. I must, however, draw attention to the fact that the flowers of all, or most of the species of the section Diplocaulobium take on a different colour on withering, usually a paler or darker purple, or red-brown to orange. In such cases the shape of the flowers also changes, the sepals and petals inclining towards each other. Anyone who has been able to study the plants in their living state will never make a mistake as to whether he is dealing with a fresh or withered flower, even

though the same shades of colour occur with fresh flowers. The colour of the flowers as stated by the collector, therefore, should be treated with caution as a characteristic.

The flowers of D. Janowskyi J.J. Sm. appear to me to have been collected in a half-withered state. However, since dilute alcohol was used in preservation, this cannot be stated with certainty.

Dendrobium Sitanalae J.J. Sm., in Mededeel. Herb. Leid. no. 23  
(1915), 7.

Tab. CVII, 189.

(latin diagnosis)

Dutch New Guinea : Lorentz River, near the Kloof Bivouac,  
epiphytic in primary forest (J.B. Sitanala no. 11218, flowering  
in Jan. 1913).

This species is represented by several almost mature buds and an open flower from which, however, the tips of the sepals and petals are missing. The sepals of the buds are approximately 4.3 cm long.

It is related to D. Janowskyi J.J. Sm. in the shape of the lip, but differs in the much broader leaves, and in other respects.

I have dedicated the plant to J.B. Sitanala who accompanied the large Third Dutch-Neu-Guinea Expedition as a native doctor.

The colour of the flowers is reported to be yellow.

Description from alcohol-preserved material.

Dendrobium pililobum J.J. Sm., in Fedde Rep. XII (1913), 34.

Tab. CVII, 190.

(latin diagnosis)

Dutch New Guinea : Hollandia Bivouac, on Humboldt Bay (K. Gjellerup,  
living plant in cultivation at Hort. Bog. under no. 312).

In habit, this species is reminiscent of D. aratiferum J.J. Sm. and easily recognised by the labellum. The flowers are at times smaller, with the sepals only 3.3 cm long.



Dendrobium Ajoebii J.J. Sm., in Fedde Rep. XII (1913), 33.

Tab. CVIII, 191.

(latin diagnosis)

Dutch New Guinea : Gautier Range on the north slope, alt. c. 400m, epiphytic in forest on limestone and basalt (K. Gjellerup no. 986, flowering in Nov. 1911).

The closest relatives are D. phalangium Schltr., D. pulvilliferum Schltr. and D. aratriferum J.J. Sm.

D. phalangium Schltr., according to the description, differs in having thinner pseudobulbs, narrow, un-equal, two-toothed leaves, appreciably shorter sepals, and a differently shaped middle lobe; D. pulvilliferum Schltr. and D. aratriferum J.J. Sm. in a differently shaped middle lobe.

The species is very similar in the shape of the lip to D. araneola Schltr., but easily recognised by the narrow, linear leaves.

According to Gjellerup, the flowers are a pale violet-pink.

The species is named after Ajub the [native] Sundanese 'mantri' of the Botanical Garden, who accompanied Gjellerup for a lengthy period.

Dendrobium cervicaliferum J.J. Sm., in Fedde Rep. XII (1913), 33.

Tab. CVIII, 192.

(latin diagnosis)

Dutch New Guinea : Gautier Range, on the north slope, alt. c. 400m, epiphytic in forest, on limestone and basalt (K. Gjellerup no. 911, flowering in Nov. 1911).

In appearance the plant is very similar to D. Ajoebii J.J. Sm., but differs in the somewhat broader leaves, and especially in the shape of the lip.

According to Gjellerup, the flowers are white, green-yellow at the base, pale red-brown at the tips, the lip with a violet laterally striped hypochile and yellow middle lobe, the column is yellow.

Only dried material was to hand.

Dendrobium lageniforme J.J. Sm., in Ic. Bog. II (1903), 86, t. CXVIB.

Dutch New Guinea : On the upper Eilanden River (B. Branderhorst  
1910, living plant in cultivation at Hort. Bog. under no. 237).

Dendrobium aratriferum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX

(1908)[13]; Nova Guinea VIII (1909), 54. t. XIX, 61; (1909), [1911],  
548.

Dutch New Guinea : Gautier Range, on the north slope, alt. c. 500m,  
epiphytic in forest on limestone and basalt (K.Gjellerup no. 847,  
flowering in Nov. 1911).

Dendrobium Tipula J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908),

20; etc.

Dutch New Guinea : Lorentz River, near the Kloof Bivouac (J.B.

Sitanala nos 11202, 11222 and 11236, flowering in Jan. 1913).

Dendrobium auricolor J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XLV

(1911), 3; in Nova Guinea VIII [1911], 549, t. LXXXVIID.

var. cyclopense J. J. Sm., nov. var.

(latin diagnosis)

Dutch New Guinea : Cyclops Range, east slope, alt. c. 1700m,

epiphytic in forest (K. Gjellerup no. 513, flowering in June 1911).

This variety differs from the Type in larger flowers, narrower  
pointed lateral lobes and a non-papillose middle lobe. It must, however,  
be stressed that the solitary flower of the Type developed on a weak,  
recently imported plant, and that the specimen of var. cyclopense J.J.  
Sm. was preserved in very dilute alcohol.

Differences seem also to exist in the colour. Gjellerup  
describes it as chrome-yellow, with the lip and base of the column  
(column-foot) a deep brown-red. This differs from var. majus Schltr.,  
established in the meantime by Schlechter, which, in common with var.  
cyclopense J. J. Sm., has a more pointed middle lobe, but which differs

in the extended lateral lobes and glabrous middle lobe.

I do not consider the plants to be specifically different.

Dendrobium regale Schltr., Orch. Deutsch-Neu-Guinea (1912), 476.

Dutch New Guinea : Arfak Range, at Angi Lake, alt. c. 1900 and 1500m, growing between moss-covered shrubs, on granite ground, covered with swampy humus, common (K. Gjellerup nos 1117 and 1185, flowering in Apr. 1912); Geographic distribution : German New Guinea.

I do not doubt that this plant is D. regale Schltr., even though the flowers indicate certain differences. The species appears to be somewhat variable, in particular regarding the dimensions.

The specimen was rather poorly maintained.

Section : Desmotrichum

Dendrobium comatum Lindl., Gen. et. Sp. Orch. 76; etc.

var. papuanum J.J. Sm., in Nova Guinea VIII (1911), 551.

Dutch New Guinea : Mouth of the Mamberamo River, epiphytic on the river bank (R.F. Janowsky no. 472, flowering in Sept. 1913).

Dendrobium flabellum Rchb.f., in Bonpl. V(1857), 56; etc.

Dutch New Guinea : Between the MacCluer Gulf and Geelvink Bay (W. Den Berger, living plant in cultivation at Hort. Bog.).

According to the records of the Botanic Garden, this plant is reported to come from New Guinea, but I am not completely convinced of their accuracy. Both specimens agree completely with those from Java, the front lobe of the lip being pallid yellow in one case, pallid orange in the other.

## Section : Aporum

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

Dutch New Guinea : Manokwari, epiphytic in forest (R.F. Janowsky  
nos 530 and 637, flowering in Sept. 1913).

## Section: Rhopalanthe

Dendrobium humboldtense J.J. Sm., in Fedde Rep. XI (1912), 131.

Tab. CVIII, 193.

(latin diagnosis)

Dutch New Guinea : Hollandia on Humboldt Bay, alt. c. 50m,  
epiphytic in forest on the coastal hills (K. Gjellerup no. 574,  
flowering in July 1911; also living plant in cultivation at Hort.  
Bog.).

The flowers are fairly similar to those of D. MacFarlanei F.v.M.,  
but easily recognised by the margins of the sepals and petals being  
markedly curled back.

## Section : Strongyle

Dendrobium confusum Schltr., in Fedde Rep. X (1911), 72.

D. salicornioides J.J. Sm., Orch. Amb. (1905), 52 (nec T. et B.)

D. parciflorum Krzl. in Pflanzenr. IV, 50, 2B, 21 (1910), 222  
(nec Rchb. f.).

Dutch New Guinea : Manokwari, epiphytic in forest (R.F. Janowsky  
no. 20, flowering in Aug. 1912; no. 529 flowering in Sept. 1913).

Geographic distribution : Ambon, Celebes.

The flowers agree very well with those originating from the Celebes  
now being cultivated at Buitenzorg, except that in the Celebes they  
usually appear to be larger. However, in Menado I also saw flowers of  
this species which were not larger than the Papuasian ones. The  
breadth of the lip in the front is also somewhat variable. The  
material to hand, preserved in alcohol, gives no cause to separate

off a variety.

Schlechter has withdrawn section Strongyle and distributed the species belonging to it between Aporum and Rhopalanthé. I am completely in accord with him for those species which have thickened stems above the base. However, for those species without a swelling above the base of the stems, with thick terete or more-or-less laterally compressed leaves and thin flowers, I retain the name Strongyle.

Section : Oxystophyllum

Dendrobium araneum J.J.Sm., in Fedde Rep. XII (1913), 397.

Tab. CIX, 194.

(latin diagnosis)

Dutch New Guinea : Giriwo River, epiphytic in forest (J.F.

Janowsky no. 178, flowering in July 1912).

In habit this species agrees well with D. atropurpureum Miq., but differs in having smaller leaves, in the colour of the flowers, and in a differently shaped lip.

According to Janowsky, the flowers are white with a green lip.

Dendrobium nitidiflorum J.J. Sm., in Fedde Rep. XII (1913), 396.

Tab. CX, 195.

(latin diagnosis)

Dutch New Guinea : In the southern region (A.C. De Kock, living plant in cultivation at Hort. Bog. under no. 179).

The species is closely related to D. bipulvinatum J.J. Sm. and D. acianthum Schltr. It differs from the former in smaller leaves, smaller flowers, a column-foot less bent, a narrower lip with a much smaller hypochile, and a differently shaped callus, the lack of a hirsute callus at the base, and a shorter anther; and from D. acianthum Schltr. in appreciably smaller flowers, the lip constricted for two-thirds of the way above the base, and it is differently coloured.

Dendrobium bipulvinatum J.J. Sm., in Fedde Rep. XII (1913), 397.

Tab. CX, 196.

(latin diagnosis)

Dutch New Guinea : Hinterland of Hollandia, at Humboldt Bay, alt. c. 50m, epiphytic at the border of a forest and Imperata-covered hill (K. Gjellerup no. 950, flowering in Jan. 1912).

I considered for a long time whether to regard this plant as D. acianthum Schltr. or not. Since, however, the species of this affinity are somewhat similar and, in grouping them together, I would have had to make several concessions and since, furthermore, important characters were missing in Schlechter's description, I did finally decide to consider the Gjellerup plant as a new species.

D. bipulvinatum J.J.Sm. differs from D. acianthum Schltr., according to the description and sketch, in longer stems, longer leaves, non-falcate petals, a labellum somewhat constricted at the middle, grooved and beset with two hirsute calli at the base. The calli are differently shaped in the front part and are very distinct, whilst the non-papillose anther has a tall plicate shape. The very short ovary is reverse-conical, quite inclined and markedly hollowed-out underneath.

According to Gjellerup, the flowers are yellow-green, the lateral sepals on the outside partly brown-red; the lip a deep brown-red, metallic-green in the middle, the column a pale brown-red.

Section : Monanthos

Dendrobium poneroides Schltr., in Fedde Rep. X (1911), 251.

D. isochiloides Krzl. var. pumilum J.J. Sm., in Nova Guinea (VIII (1909), 77, t. XXVI, 85; Krzl., in Pflanzenr. Heft 45 (1910), 163.  
Dutch New Guinea : Temenimbor on the Tor River, alt. c. 75m, epiphytic in the forest (K. Gjellerup no. 786, flowering in Oct. 1911); Gautier Range, on the north slope, alt. c. 900m, epiphytic in the forest on limestone and basalt (K. Gjellerup no. 869, flowering in Nov. 1911); Giriwo River, epiphytic in forest

(R.F. Janowsky no. 143, flowering in July 1912); Lorentz River, near the Kloof Bivouac (J.B. Sitanala nos 11214, 11245 and 11251, flowering in Jan. and Feb. 1913).

The flowers of no. 869 had already set fruit; the [species] probably belongs here.

Dendrobium crassinervium J.J. Sm., in Fedde Rep. XII (1913), 114.

Tab. CX, 197.

(latin diagnosis)

Dutch New Guinea : Gautier Range, on the north slope, alt. c. 500m

(K. Gjellerup, mixed with no. 843, flowering in Nov. 1911).

) I should like to place this species next to D. agrostophylloides Schltr. It has broader leaves which, however, are only about half the length, which gives the plant a quite special appearance. Furthermore the [two] species differ in their flowers. The sepals are about the same length, but with Schlechter's species the mentum is much shorter. According to the description and sketch, the lip of D. agrostophylloides Schltr. is relatively much narrower, and the middle lobe longer.

) A few small branches were mixed up with no. 843 and preserved in alcohol.

The flowers were far too compressed to enable a sketch to be prepared.

Section : Grastidium

Dendrobium acuminatissimum Lindl., Gen. et Sp. Orch. 86; etc.

var. papuanum J.J. Sm., nov. var.

(latin diagnosis)

Dutch New Guinea : Gautier Range on the north face, alt. c. 800m

(K. Gjellerup no. 871, flowering in Nov. 1911); Lorentz River near the Kloof Bivouac (J.B. Sitanala no. 11203, flowering in Jan. 1913).

Geographic distribution : Aru Is.

In habit this plant is completely similar to the Type from Java, and of equal size; however, the flowers are somewhat larger, and on the outside at the base are dotted faintly in purple. I have separated it as a variety to keep the forms separate. The specimens collected by Sitanala have a much longer mentum and accordingly a much longer lip than that of the others.

The plant described earlier as D. acuminatissimum Lindl. var. latifolium J.J. Sm. (in Nova Guinea VIII (1911), 553) may perhaps agree with D. vernicosum Schltr.

The specimen collected under no. 87 by J.W.R.Koch may also belong here.

Dendrobium dionaeoides J.J. Sm., in Mededeel. Herb. Leid. no. 23 (1915),

9.

Tab. CXI, 198.

(latin diagnosis)

Dutch New Guinea : South coast of Geelvink Bay, Jabi Range near Wape, epiphytic in forest (R.F. Janowsky no. 406, flowering in June 1913).

A species of the D. acuminatissimum Lind. affinity. The name was chosen from the soft bristles on the inside of the lateral lobes of the lip. The column-foot is also noteworthy.

Janowsky describes the colour as follows : corolla red, tip yellow, lip white. For the formalin-preserved material I recorded : sepals and petals violet at the base; lip with a black-violet margin at the base; column black-violet below the stigma; the auricles with a delicate black-violet margin above; the column-foot with a black-violet transverse band at the middle.

Description from herbarium and formalin-preserved material. Only pieces of the stem were to hand. According to Janowsky, the stems reached a length of 1.5 cm [ sic ].



Dendrobium fissum Schltr., Orch. Deutsch-Neu-Guinea (1912), 601.

Dutch New Guinea : Hinterland of Hollandia, on Humboldt Bay, on spurs of the Cyclops Range, alt. c. 300m, epiphytic in forest on a serpentine hill (K. Gjellerup no. 1010, flowering in Jan. 1912).

I believe that this species is D. fissum Schltr., having been able to compare a copy of a sketch of the latter with it.

Dendrobium planum J.J. Sm., in Fl. Buit. VI, Orch. (1905), 352; etc.

var. collinum J.J. Sm., in Nova Guinea VIII (1911), 556, t. XLB; etc.

Dutch New Guinea : Lorentz River near the Kloof Bivouac, epiphytic (J.B. Sitanala nos 11243 and 11247, flowering in Feb. 1913).

Dendrobium pruinatum T. et B., in Nat. Tijdschr. Ned. Ind. XXIV (1862), 314; J.J. Sm., Orch. Ambon (1905), 57; in Nova Guinea VIII (1909), 75, t. XXVI, 82; Krnzl., in Pflanzenr. Heft 45 (1910), 197.

D. crispilobum J.J. Sm., in Fedde Rep. XI (1912), 136.

Dutch New Guinea : Without precise locality, cultivated at Buitenzorg Garden.

D. crispilobum J.J. Sm. was established from a very robust plant which started to flower soon after reaching Buitenzorg. Although the flowers were hardly different from those of D. pruinatum T. et B., I considered it necessary to regard it as a different species, on account of the very different habit.

The long rigid stems all stood erect and had widely protruding , ovate leaves. However, when the plant started to sprout, the situation changed completely. The newly formed shoots, as well as the tip of the half-grown stems, no longer grew straight upwards, but more-or-less bent over; the new leaves were no longer ovate, but longish and rotated at the base to achieve an approximately horizontal position. In habit, the plant now could not be distinguished from the other specimens of D. pruinatum T. et B., cultivated at Buitenzorg.

Schlechter (Orch. Deutsch-Neu-Guinea, 597) noted that it appeared

to him that D. densifolium Schltr., illustrated by me as a species in Nova Guinea VIII, t. XXVI, 82, was identical with it. However, my illustrations were made from specimens originating from Ambon, so that one was tempted to unite D. densifolium Schltr. and D. pruinatum T. et B. I am not carrying out such a union, since this appears a little risky, not having seen the material.

D. microglossum Schltr., likewise, is extremely closely related to D. pruinatum T. et B., as can be seen from Schlechter's sketches.

Dendrobium falcatum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX

(1908), 17; in Nova Guinea VIII (1909), 72, t. XXV, 78; [l.c.]

(1911), 558, t. XCD; Krzl., in Pflanzenr. Heft 45 (1910), 193.

Dutch New Guinea : On the upper Tor River, between Berkombor and Gwistera, alt. c. 50m (K. Gjellerup no. 810, flowering in Oct. 1911).

Dendrobium coloratum J.J. Sm., in Fedde Rep. XII (1913), 113.

Tab. CXI, 199.

(latin diagnosis)

Dutch New Guinea : On Mt. Goliath, alt. c. 150m, [sic] rare, isolated on a smooth tree trunk (A.C. De Kock no. 183, flowering in Apr. 1911).

A species from the closer affinity of D. multistriatum J.J. Sm.

The flowers, according to A.C. De Kock, are crimson-red.

Dendrobium aromaticum J.J. Sm., in Mededeel. Herb. Leid. no. 23 (1915), 10.

Tab. CXI, 200.

(latin diagnosis)

Dutch New Guinea : Hinterland of Hollandia, on Humboldt Bay, epiphytic in forest on a hill by the sea, alt. c. 100m (K. Gjellerup no. 967, flowering in Jan. 1912).

The species belongs to the affinity of D. coloratum J.J. Sm.,

D. sarcodes Schltr. and especially, D. longicaule J.J. Sm.

According to Gjellerup, the stems reach up to 1.0m in length, the leaves are a matt pale green, the flowers a creamy yellow with numerous delicate brown dots and a faintly aromatic odour.

Description from herbarium and alcohol-preserved material.

Dendrobium Pulleanum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XLV (1911), 4; etc.

Dutch New Guinea : Lorentz River, near the Kloof Bivouac, epiphytic in primary forest (J.B. Sitanala nos 11025, 11206 and 11223, flowering in Jan. 1913).

Dendrobium crassiflorum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XLV (1911), 4; etc.

Dutch New Guinea : Lorentz River near the Kloof Bivouac, epiphytic in primary forest (J.B. Sitanala no. 11241, flowering in Feb. 1913).

Dendrobium recurvilabre J.J. Sm., in Mededeel. Herb. Leid. no. 23 (1915), 9.

Tab. CXII, 201.

(latin diagnosis)

Dutch New Guinea : Lorentz River near the Kloof Bivouac, epiphytic in forest (J.B. Sitanala no. 11217, flowering in Jan. 1913).

This species is distinguished from the clearly related D. perlongum Schltr. by shorter sepals, warty on the outside; a shorter, broader lip, five-sided in plan; and with a non-undulate middle lobe, a half-oval anther, blunt at the apex and papillose, and a much shorter ovary.

The flowers are stated to be yellow with an orange labellum.

Description from alcohol-preserved material.

Dendrobium pictum Schltr., Orch. Deutsch-Neu-Guinea (1912), 595.

var. muriciferum J.J. Sm., nov. var.

Tab. CXII, 202.

(latin diagnosis)

Dutch New Guinea : On the Lorentz River, near Alkmaar Bivouac

(First Lorentz Expedition 1909, Djibdja, living plant in cultivation in Hort. Bog. under no. 529Dj).

The description of D. pictum Schltr. agrees, also in colour of flowers, so well with this plant; that it cannot be specifically separated. The only real difference that I have been able to ascertain is the thickened middle rib of the lip, where in the case of the variety the warts on the middle lobe are extended in part to soft bristles. Actually, Schlechter's sketch shows the spread-out labellum to be appreciably narrower than for the variety, but according to Schlechter's description the illustration does not appear to be completely correct.

Dendrobium angraecifolium Schltr., in Schum. et Laut., Nachtr. Fl. Deutsch.

Schutzgeb. Südsee (1905), 169.

D. Branderhorstii J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910), 8; etc.

Dutch New Guinea : Lorentz River, near the Kloof Bivouac, alt. c. 30m, epiphytic in primary forest (A. Pulle no. 150, flowering in Oct. 1912).

Dendrobium insigne Rchb. f. ex Miq., Fl. Ind. Bat. III, 640; etc.

Dutch New Guinea : Hollandia, on Humboldt Bay, epiphytic in forest on a rocky hill at the coast, alt. c. 20m (K. Gjellerup no. 591, flowering in Aug. 1911).

Dendrobium patentissimum J.J. Sm., in Fedde Rep. XII (1913), 112.

Tab. CXII, 203.

(latin diagnosis)

Dutch New Guinea : Gautier Range, on the north slope, alt. c. 900m, epiphytic in forest on limestone and basalt (K. Gjellerup no. 855, flowering in Nov. 1911).

This plant is in habit completely similar to D. igneum J.J. Sm., but differs in smaller flowers of a differently stated colour, with a much

broader lip, having shorter lateral lobes, and broader, very blunt petals. However, until more material becomes available, it cannot be decided whether these plants should perhaps better be considered as varieties.

Dendrobium giriwoense J.J. Sm., in Fedde Rep. XII (1913), 112.

Tab. CXIII, 204.

(latin diagnosis)

Dutch New Guinea : On the Giriwo River, epiphytic in forest (R.F. Janowsky no. 141, flowering in July 1912).

In habit it is so similar to D. igneum J.J. Sm. and D. patentissimum J.J. Sm. that these three species can hardly be distinguished in the sterile state. D. giriwoense J.J. Sm. is recognised by the smaller flowers, and mainly by the quite differently shaped, very broad lip with large lateral lobes.

The flowers are stated to be white.

Dendrobium hollandianum J.J. Sm., in Fedde Rep. XII (1913), 112.

Tab. CXIII, 205.

(latin diagnosis)

Dutch New Guinea : Humboldt Bay near Hollandia, epiphytic in forest on rocky slopes at the sea, alt. c. 5 - 10m (K. Gjellerup no. 443, flowering in Mar. 1911).

The species belongs to the affinity of D. igneum J.J. Sm., etc. Amongst Schlechter's species, D. podochiloides Schltr. would appear to stand closest in floral characteristics. This species, however, is distinguished by the not-widely protruding, much smaller leaves, as well as smaller and differently coloured flowers.

According to Gjellerup, the sweetly aromatic smelling flowers are yellowish white to creamy yellow, the lip at the base with a 'V'-shaped yellow spot, the column-foot decorated with a 'W'-shaped blue-violet marking, the anther pale yellow.

Description from alcohol-preserved material.

Dendrobium papyraceum J.J. Sm., in Fedde Rep. XII (1913), 113.

Tab. CXIII, 206.

(latin diagnosis)

Dutch New Guinea : On the upper Eilanden River (B. Branderhorst, living plant in cultivation at Hort. Bog. under no. 257B).

According to the description, this species appears to stand close to D. ochranthum Schltr, but to be smaller in all segments. Furthermore, the petals are not longish, but elliptical, and the shape of the lip, column and column-foot also is different.

) Dendrobium erectopatens J.J. Sm., in Bull. Jard. Bot. Buit. 2<sup>e</sup> sér. II (1911), 10; in Nova Guinea XII (1913), 52, t. XV, 41.

Dutch New Guinea : On the upper Mbái River, alt. c. 40m (K.Gjellerup no. 430, flowering in Mar. 1911); On the middle Tor River, alt. c. 20m, epiphytic in forest (K. Gjellerup no. 733, flowering in Oct. 1911); Gautier Range on the north slope, alt. c. 900m, epiphytic in forest on limestone and basalt (K. Gjellerup no. 856, flowering in Nov. 1911); Giriwo River, epiphytic in forest (R.F. Janowsky no. 177, flowering in July 1912).

) Dendrobium triangulum J.J. Sm., in Bull. Jard. Bot. Buit. 2<sup>e</sup> sér. XIII (1914), 65.

Tab. CXIII, 207.

(latin diagnosis)

Dutch New Guinea : East coast of Geelvink Bay, on the Giriwo River, epiphytic in forest (R.F. Janowsky no. 107, flowering in July 1912).

This species, together with D. ingratum J.J. Sm., D. erubescens Schltr., D. kenejianum Schltr. and D. setosum Schltr. form a well defined sub-group. Of all these, it would appear to be most similar to D. kenejianum Schltr., but differs, according to the description and sketch, in smaller leaves, a strong, thick longitudinal, not-pointed

ridge on the lip, lateral lobes with transverse growths on the inside, and a triangular pointed central segment on the middle lobe.

It appears very probable that the solitary small specimen to hand was not yet mature.

The flowers are stated to be yellow.

Dendrobium acanthophippiiflorum J.J. Sm., in Mededeel. Herb. Leid. 23 (1915), 10.

Tab. CXIV, 208.

(latin diagnosis)

Dutch New Guinea : Geelvink Bay, Jabi Range, near Wape, epiphytic in forest (R.F. Janowsky no. 401, flowering in June 1913).

The species appears probably to stand closest to D. quinquelobatum Schltr., but differs considerably in the lip.

The flowers are described as being white, with a red margin to the labellum.

Herbarium and alcohol-preserved material was to hand.

I do not see the necessity, as stated by Schlechter, to separate a section Eriopexis from Grastidium. The characteristics common to those species placed in Eriopexis should, according to my opinion, be used only for a sub-division of the section of sub-genus Grastidium.

Dendrobium Vonroemeri J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910), 2 [12]; etc.

Dutch New Guinea : Ridge of the Hellwig Range, alt. c. 2600m (A. Pulle no. 904, flowering in Jan. 1913).

Section : Euphlebia

Dendrobium coeloglossum Schltr., Orch. Deutsch-Neu-Guinea (1912), 479.

Dutch New Guinea : Hollandia on Humboldt Bay, alt. c. 10m

(K. Gjellerup no. 445, flowering in Mar. 1911); Hinterland of

Hollandia, alt. c. 200m, on a tree on a bare mountain peak

(K. Gjellerup nos 958 and 959, flowering in Jan. 1912, also living

plant in cultivation at Hort. Bog.).

I consider these little plants, according to the description, to be D. coeloglossum Schltr., even though the author states that the stems are single-leaved. However, it is possible that Schlechter saw only a weak specimen, since he recorded only single-flowered inflorescences. The description of the lip agrees fairly well, but it is not very distinct. The dimensions given do not agree completely, but the species appears to be somewhat variable in this regard from the *Hollandia* specimens.

The colour of the flowers is a very constant pallid yellowish, with a lemon-yellow-brown-marked labellum.

Section : *Dendrocoryne*

Dendrobium remiforme J.J. Sm., in Fedde Rep. XII (1913), 111.

Tab. CXIV, 209.

(latin diagnosis)

Dutch New Guinea : Arfak Range, alt. c. 600m, epiphytic in forest (K. Gjellerup no. 1025, flowering in Apr. 1912.)

The closest relative of this species is D. Treubii J.J. Sm., which has in common the shape of the flower and ridges on the lip. It differs in much smaller, apparently differently coloured flowers, a mentum margined at the apex, a relatively broader middle lobe and differently shaped anther.

Those related species, so far described from New Guinea, differ very much, according to the description, in the shape of the ridges of the lip.

According to Gjellerup, the flowers are yellowish white, the labellum with brown longitudinal stripes.

Description from herbarium and alcohol-preserved material.

Section : *Latouria*

Dendrobium sarcopodioides J.J. Sm., in Mededeel. Herb. Leid. no. 23



(1915), 8.

Tab. CXV, 210.

(latin diagnosis)

Dutch New Guinea : Ridge of the Hellwig Range, alt. c. 2600m,  
epiphytic in primary forest (A. Pulle no. 963, flowering in Jan.  
1913).

Only very few small plants of this species are to hand, only one  
of which has flowers, which are unfortunately peloric. They belong  
to the smallest species in the section.

The flowers outside are red-brown, green inside, the pseudobulbs  
a shiny red-brown.

Dendrobium simplex J.J. Sm., in Bull. Jard. Bot. Buit. 2<sup>e</sup> ser. II (1911),  
8; in Nova Guinea XII (1913), 40, T. XI, 30.

Dutch New Guinea : Arfak Range, between the Angi Lakes, alt. c.  
2500m, on trees on a heath-like shrub-covered mountain ridge (K.  
Gjellerup no. 1211, flowering in Apr. 1912).

The specimen agrees excellently with the plants collected by A.C.  
De Kock on Mt. Goliath, except that the flowers are slightly smaller.

This specimen, however, shows that I previously considered the  
species incorrectly as belonging to the section Sarcopodium; it belongs  
to Latouria. The pseudobulbs actually are suddenly compressed at the  
base into a c. 1.0 cm long stem and are not single-sectioned. They  
carry 2 - 3 leaves, and 2 - 3 inflorescences located between the leaves.

Dendrobium macrophyllum A. Rich., Sert. Astrol. 22, t. 9; etc.

Dutch New Guinea : Sawia, alt. c. 100m (K. Gjellerup no. 609,  
flowering in Aug. 1911).

Dendrobium bifalce Lindl., in Lond. Journ. Bot. II (1843), 237; Bot.

Sulph. 180, t. 58; Miq., Fl. Ind. Bat. III (1855), 632; Krzl., in  
Pflanzenr. Heft 45 (1910), 252; Schltr., Orch. Deutsch-Neu-Guinea  
(1912), 488.

D. chloropteron Rchb.f. et S. Moore var. striatum J.J. Sm., in  
Nova Guinea VIII (1909), 64.

D. breviracemosum Bail., in Queensl. Agric. Journ. III (1898), 158.

Doritis bifalcis Rchb.f., Xen. Orch. II (1862), 7.

Bulbophyllum oncidiochilum Krzl., in Engl. Bot. Jahrb. XVIII  
(1894), 485.

Latouria oncidiochila Krzl., in Österr. Bot. Zeitschr. XLIV (1894), 336.

Dutch New Guinea : Kurudu (Aberé) Island, on the coast (R.F.

Janowsky no. 474, flowering in Sept. 1913).

var. chloropteron J.J. Sm.

D. chloropteron Rchb.f. et S. Moore, in Journ. Bot. XVI (1878), 137.

(latin diagnosis)

Dutch New Guinea : East coast of Geelvink Bay, Musairo, on the coast

(J.F. Janowsky no. 21, flowering in June 1912); Geographic

distribution : Kei Islands.

I am not sure whether this plant from Musairo really belongs to  
the variety, but I do so on account of Janowsky's statement that the  
flowers are 'white'.

For a long time already, I was convinced by the literature available  
that D. bifalce Lindl. and D. chloropteron Rchb.f. were not specifically  
different, but then (in Nova Guinea VIII (1909), 64) I discarded Lindley's  
name with some doubt, on receiving the news from Kew that the two plants  
were different.

Dendrobium spectabile Miq., Fl. Ind. Bat. III (1855), 645; etc.

Dutch New Guinea : On the Noordwest River, on the plain (J.A.W.

Coenen no. 39; also living plant in cultivation at Hort. Bog.)

Dendrobium acutisepalum J.J. Sm., in Bull. Jard. Bot. Buit. 2<sup>e</sup> sér. II  
(1911), 8; etc.

Dutch New Guinea : Summit of the Wichmann Range , alt. c. 3000m,

in a swamp (A. Pulle no. 995, flowering in Feb. 1913); Ridge of the

Kajan Range, growing terrestrially (A. Pulle no. 2471, leg.

G.M. Versteeg, flowering in Feb. 1913).

Dendrobium terrestre J.J. Sm., in Bull. Jard. Bot. Buit. 2<sup>e</sup> sér. II

(1911), 10; in Nova Guinea XII (1913), 45, t. XIII, 35.

Dutch New Guinea : Arfak Range, at Angi Lake, alt. c. 1900m,

growing on trees (K. Gjellerup no. 1064, flowering in Apr. 1912).

This plant is barely different from the Type. According to the collector's notes, the flowers are supposed to be coloured, but it must be stressed that the flower collected by A.C. De Kock at the Goliath Mountain had already set fruit, which could very well account for the ochre-yellow colour being ascribed to them.

According to Gjellerup, the flowers are white, the lip yellow-green with longitudinal brown stripes at the base, and as likewise, the base of the column violet-flushed.

var. sublobatum J.J. Sm., nov. var.

(latin diagnosis)

Dutch New Guinea : Arfak Range, at Angi Lake, alt. c. 1900m, on

a bare mountain ridge (K. Gjellerup no. 1157, flowering in Apr.

1912).

This specimen is very robust with somewhat larger flowers, otherwise very similar to no. 1064. Only the lip at first sight makes a somewhat divergent appearance with the weak troughs which separate the dorsal and lateral sepals.

The colouring of the flowers is similar to that of no. 1064.

Dendrobium rhomboglossum J.J. Sm., in Bull. Jard. Bot. Buit. 2<sup>e</sup> ser. II

(1911), 9; in Nova Guinea XII (1913), 44, t. XIII, 34.

Dutch New Guinea : Ridge of the Treub Range, alt. c. 2400m, growing

on loam (A. Pulle no. 1067, flowering in Feb. 1913).

var. latipetalum J.J. Sm., nov. var.

(latin diagnosis)

Dutch New Guinea : Arfak Range, at Angi Lake, alt. c. 1900m, epiphytic?, on swampy, heath-like, granitic ground, with shrubs covering the lake bank (K. Gjellerup no. 1113, flowering in Apr. 1912.)

I have assessed this plant for the time being as a variety of D. rhomboglossum J.J. Sm., since it shows most similarity with this one. In petal-shape it is more similar to D. guttatum J.J. Sm., but differs in the much less distinct tri-lobed lip, the longer, bent column-foot and colour.

According to Gjellerup, the flowers of no. 1113 are pale violet, white inside, the lip with dark violet longitudinal stripes.

The four species of the section Latouria, described in Bull. Jard. Bot. Buit. 2<sup>e</sup> sér. II, although closely related, are well separated and easily recognised. The numbers [specimens] collected by Gjellerup in the Arfak Range belonging to the section Latouria more-or-less eliminate the sharp differences between these species. No. 1064 differs very little from the Type, but has relatively longer sepals. No. 1157 has equally large flowers, but resembles D. guttatum J.J. Sm. in the shape of the lip. Finally, no. 1113 is most similar to D. rhomboglossum J.J. Sm., but has a shorter column-foot and the petals of D. guttatum J.J. Sm. It seems to me quite possible that all or several of these species must later be united.

Dendrobium dendrocolloides J.J. Sm., in Fedde Rep. XII (1913), 110.

Tab. CXVI, 211.

(latin diagnosis)

Dutch New Guinea : Between the Arfak Range and Angi Lake, alt. c. 2500m, epiphytic in open forest on a heath-like mountain ridge (K. Gjellerup no. 1193, flowering and fruiting in Apr. 1912).

An aberrant species of the section Latouria which is best placed close to D. aberrans Schltr. and D. pleurodes Schltr. With D. pleurodes

Schltr. it is more-or-less related. It has still smaller flowers, reminiscent of Thrixspermum Hystrix Rchb.f. in the labellum with its large, erect, lateral lobes and the much-shortened, callus-like middle lobe.

The rostellum is missing, so that self-pollination occurs, and the flowers do not open well, as is also the case, for example, with D. informe J.J. Sm.

According to the collector's notes, the stems are red-brown, the flowers in bud brown-red, the inside of the sepals and that of the petals a muddy yellow, the petals furthermore dotted violet, the labellum pale violet-red, and the column-apex green-yellow.

Dendrobium informe J.J. Sm., in Fedde Rep. XII (1913), 110.

Tab. CXVI, 212.

(latin diagnosis)

Dutch New Guinea : Gautier Range, on the north slope, alt. c. 300m, epiphytic in forest on limestone and basalt (K. Gjellerup no. 825, flowering in Nov. 1911; also living plant in cultivation at Hort. Bog.).

According to the description and sketch by the author, this plant is very similar to D. pachystele Schltr., but divergent in so many ways, so that without having seen any material, I cannot consider it as a variety of this species. The stems are stronger, the leaves broader, the inflorescences multi-flowered, the bracts approximately semi-circular, the flowers smaller; the mentum not obtuse, but very broadly truncate; the petals ovate; the flattened-out lip, not obovate, not compressed, without a callus, and only slightly tri-lobed at the apex; the anther not in the least tri-dentate at the apex. Neither does the author mention the dense dotting on the flowers, which was black for alcohol-preserved material.

Description of the flower was from alcohol-preserved material, and

the colour of the flower from a specimen that flowered at Buitenzorg.

Section : Ceratobium

Dendrobium Mirbelianum Gaud., in Voy. Freyc. 423, t. XXXVIII; etc.

Dutch New Guinea : Humboldt Bay (K. Gjellerup, living plant in cultivation at Hort. Bog. under no. 30); Masapawei, east coast of Geelvink Bay, epiphytic in forest on the coast (R.F. Janowsky no. 18, flowering in June 1912).

Dendrobium Schulleri J.J. Sm., in Bull. Jard. Bot. Buit. 2<sup>e</sup> sér. no. XIII (1914), 63.

Tab. CXVII, 213.

(latin diagnosis)

Habitat? : In cultivation at Hort. Schuller tot Peursum, Batavia.

The species belongs to the close affinity of D. Mirbelianum Gaud., but is distinguished by colour, broad petals, and the characters of the lip.

The plant is in cultivation in the garden of Mr. J. Schuller tot Peursum at Weltevreden, Batavia, whom I wish to thank for the specimen used in the description.

The origin, unfortunately, is unknown, the specimen being bought at auction. It is a splendid species with the habit of D. undulatum R. Br. and, despite its green flowers, is well worth cultivating.

Dendrobium Aries J.J. Sm., in Bull. Jard. Bot. Buit 2<sup>e</sup> sér. no. XIII (1914), 64.

Tab. CXVII, 214.

(latin diagnosis)

New Guinea : In cultivation at Hort. Odenthal, Buitenzorg.

The species is perhaps best placed beside D. conanthum Schltr., and the description of D. Odoardii Krzl. is reminiscent of it in certain respects.

I received a fresh inflorescence from Mr. Odenthal at Buitenzorg.

Dendrobium veratrifolium Lindl., in Hook. Lond. Journ. Bot. II, 236; etc.

Dutch New Guinea : Hollandia, alt. c. 100m (K. Gjellerup, living plant in cultivation at Hort. Bog. under no. 179); Tarvia (Bonggo), epiphytic in forest (R.F. Janowsky no. 622, flowering in Jan. 1914).

Dendrobium d'Albertisii Rchb.f., in Gard. Chron. 1874, 366, t. 91; 1875, 217.

Dutch New Guinea : On the north coast near Armopa (Bonggo), epiphytic (R.F. Janowsky no. 618, flowering in Jan. 1914); At the mouth of the Mamberamo River, epiphytic in forest (R.F. Janowsky no. 634, flowering in Oct. 1913).

The description is not completely definite, since the specimen was inadequate.

Section : Calcarifera

Dendrobium lancifolium A. Rich., Sert. Astrol. (1832), 20, t. 8; in Bot.

Reg. (1844), misc. 59; Rchb.f., in Walp. Ann. VI (1861), 289, Krzl., in Pflanzenr., Heft 45 (1910), 130, 177, Fig. 4, A - D.

D. lilacinum T. et B., in Nat. Tijdschr. Ned. Ind. XXVII (1864), 18.

D. vulcanicum Schltr., in Bull. [Mém.] Herb. Boiss. VI (1906), 459.

var. papuanum J.J. Sm., nov. var.

(latin diagnosis)

Dutch New Guinea : Arfak Range, alt. c. 1900m, epiphytic in forest (K. Gjellerup no. 1065, flowering in Apr. 1912); Geographic distribution : This species was collected in Ambon, Banda, Buru and the Celebes.

The variety differs in the almost circular middle lobe, which was nearly semi-circular in the specimens from the Moluccas. In this respect the species appears to be somewhat variable. With those specimens originating from Celebes and in cultivation at Buitenzorg, some look similar to Richard's illustration, whilst others have a more extended middle lobe. The purple marking on the lip, also, is somewhat

different, and as I have been able to establish on numerous cultivated specimens coming from the Celebes, is also variable.

Gjellerup describes the colour of the flower as violet-pink.

Section : *Trachyrhizum*

*Dendrobium Zippelii* J.J.Sm., in *Rec. Trav. Bot. Néerl.* I (1904), 150.

*D. ansusanum* Schltr., in *Fedde. Rep.* IX (1911), 285.

*Appendicula* sp. Krzl., in *Pflanzenr. Heft* 45 (1910), 404.

Dutch New Guinea : Mount Misate, alt. c. 100m, on a rocky hill covered with forest (K. Gjellerup no. 592, flowering in Sept. 1911); Hinterland of Hollandia at Humbolt Bay, alt. c. 200m, epiphytic, on the border of a forest towards a fern-covered mountain peak (K. Gjellerup no. 961, flowering in Jan. 1912); East coast of Geelvink Bay, on the coast (R.F. Janowsky no. 19, flowering in June 1912); Kurudu Island, on the coast (R.F. Janowsky no. 483, flowering in Oct. 1913).

*Dendrobium appendiculoides* J.J.Sm., in *Fedde Rep.* XII (1913), 114.

Tab. CXVIII, 215.

(latin diagnosis)

Dutch New Guinea : Hinterland of Hollandia, spurs of the Cyclops Range, alt. c. 200m, on trees, on a serpentine hill, covered with forest (K. Gjellerup no. 1003, flowering in Feb. 1912; living plant in cultivation at Hort. Bog. under no 257).

Amongst the species of Schlechter's section *Trachyrhizum* this species is most similar to *D. cyrtolobum* Schltr. in the shape of the lip, but easy to distinguish by the three identical longitudinal ribs, each of which, starting at the base of the middle lobe as a forward-bent vertical tooth, fits into the spur below and ends as a longish, compressed carnose appendage; by the doubly incised middle lobe, and the much longer mentum. *D. appendiculoides* J.J.Sm. differs from *D. prostheciglossum* Schltr., which likewise has a bi-lobed middle lobe,



in the longer lateral lobes, and quite differently-shaped ribs, as well as in other respects.

The middle lobe is noteworthy with the margins of the lobes bent sharply downwards, and laying with their upper side on top of each other in such a manner that the middle lobe appears to be keeled below; at a later stage the little lobes are separated from each other, but only slightly. The stigma also is very peculiar.

Description and sketch from alcohol-preserved and from dried material, the former augmented by a plant flowering at Buitenzorg.

Dendrobium villosipes J.J. Sm., in Bull. Jard. Bot. Buit. 2<sup>e</sup> sér. XIII (1914), 64.

Tab. XCIX, 216.

(latin diagnosis)

Dutch New Guinea : Treub Range, on the steep south face, alt. c.

2000m, growing in schist (A. Pulle no. 1097, flowering in Feb. 1913).

I suspect that this plant could be D. prostheciglossum Schltr. var. obtusilobum Schltr. (Orch. Deutsch-Neu-Guinea (1912), 556), but since I have not seen a specimen, and the description is very short, I am not completely convinced of the identity of the two plants.

The flower of D. villosipes J.J. Sm. is more similar to the sketch of D. prostheciglossum Schltr. than that of the var. obtusilobum Schltr.; Schlechter's sketch of the lip of the variety, however, agrees with most of the detail of my own drawing. Mine does not have a four-toothed lamella at the base of the middle lobe, but the growths on both sides of the two-part, free tip of the longitudinal ridge are more-or-less divided by warts.

The description of the keel on the lip of D. prostheciglossum Schltr. does not agree with my findings for D. villosipes J.J. Sm. This keel certainly is not 'hippocrepiformis', but broad and flatly compressed, somewhat concave towards the base, is attached to the lip with

only a very narrow base and therefore 'T'-shaped in cross-section. Since the flowers show many differences both in description and sketch, I barely think that I can consider D. villosipes J.J. Sm. as a variety of D. prostheciglossum Schltr.

Description from herbarium and alcohol-preserved material.

According to Pulle, the sepals and petals are pale green and red, the lip yellow with the base violet.

Section: Distichophyllum

Dendrobium striatiflorum J.J. Sm., in Fedde Rep. XII (1913), 114.

Tab. CXVIII, 217.

(latin diagnosis)

Dutch New Guinea : Hinterland at Hollandia, at Humboldt Bay, alt. c. 300m, epiphytic in forest (K. Gjellerup no. 662, flowering in Sept. 1911).

This discovery represents a plant very similar to D. melanotrichum Schltr., but according to the description and a copy of Schlechter's illustration, it cannot be identical. For D. striatiflorum J.J. Sm. the leaves are not glabrous, the inflorescences two-flowered, and the flowers have appreciably longer stems. The main differences, however, lie in the labellum which is adnate to the base of the column-foot for a considerable length. On the inside it has a concave longitudinal band, serrated at the margin, which changes only above into three thick, longitudinal ribs, each terminating in a tooth. The lateral lobes are appreciably larger than for D. melanotrichum Schltr., so that the lip is just as broad across the lateral lobes as across the middle lobe. Furthermore, the middle lobe, in the case of D. melanotrichum Schltr., according to the sketch, is separated from the lateral ones by round excavations and in D. striatiflorum J.J. Sm. by very narrow acute angles. In addition, the column-auricles (clinandrii lobi laterales) for D. striatiflorum J.J. Sm. are not rounded-off, but triangular.

## Section : Amblyanthus

Dendrobium furfuriferum J.J. Sm., in Fedde Rep. XII (1913), 115.

Tab. CXVIII, 218.

(latin diagnosis)

Dutch New Guinea : Cyclops Range, on the east slope, alt. c. 1000m,  
epiphytic in forest (K. Gjellerup no. 565, flowering in June 1911).

I initially thought that this plant could perhaps be

D. xanthomeson Schltr., since the description agrees in several respects.

The differences, however, are so appreciable, that there is no question of the two plants being identical. Apart from the size, D. furfuriferum J.J. Sm. has broad, ovate, definitely non-lanceolate bracts; and a labellum of a far more complex structure, clearly tri-lobed, clawed, with a peculiar, strong transverse fold between the dorsal and lateral lobes, and with its front margins truly short fimbriate, not just dentate.

According to Gjellerup, the sepals are white with delicate brown dots, the parts of the inner circle pure white, the hypochile pale yellow, and the anther pale violet-pink.

Description from a dried specimen and flowers preserved in alcohol.

## Section : Oxyglossum

Dendrobium frigidum Schltr., Orch. Deutsch-Neu-Guinea (1912), 534.

Dutch New Guinea : Peaks of the Hellwig Range, alt. c. 2600m,  
epiphytic in primary forest (A. Pulle no. 886, flowering in Jan. 1913).

Schlechter's description of the species and the sketch, which the author graciously allowed me to copy, agree very well with the specimens collected by Pulle.

Similarly to other species of the section this one is fairly variable, particularly in size. The flowers are only 1.0 - 1.5 cm long, the leaves varying from ovate (the smallest ones) to longish, lanceolate and linear.

The ovary has three ribs on its back, but in some of our other

specimens there is also one on each side, making it five-ribbed.

According to Pulle, the flowers are pale green, the column and lip deep green, the latter with a red apex.

Herbarium as well as alcohol-preserved specimens were to hand.

Dendrobium subuliferum J.J. Sm., in Bull. Jard. Bot. Buit. 2<sup>e</sup> sér. II (1911), 15; in Nova Guinea XII (1913), 63, t. XVII, 51.

var. gautierense J.J. Sm., nov. var.

(latin diagnosis)

Dutch New Guinea : Gautier Range, on the north slope, alt. c. 300m, epiphytic in forest on limestone rocks (K. Gjellerup no. 827, flowering in Nov. 1911).

The characteristics of the variety agree almost completely with those of the species, except that the labellum gradually becomes very pointed, whilst the Type has an attached tip. I did not consider this character sufficient for setting up a new species.

The colour of the flowers, as described by the collector, was white with a pale violet column-apex. It would appear to me that the apex of the lip was probably meant.

Dendrobium flavispiculum J.J. Sm., in Fedde Rep. XII (1913), 120.

Tab. CXX, 219.

(latin diagnosis)

Dutch New Guinea : On the middle Legarei River, alt. c. 100m, epiphytic in forest (R.F. Janowsky no. 88, flowering in June 1912).

The closest relatives of this species are : D. cyanocentrum Schltr. and D. subuliferum J.J. Sm., from both of which it differs in smaller flowers of a different colour, and with differently shaped petals and lip; in particular the transverse thickness of the latter.

According to the collector, the flowers are white, with a yellow lip.

Dendrobium rupestre J.J. Sm., in Bull. Jard. Bot. Buit. 2<sup>e</sup> sér. II (1911), 15; etc.

Dutch New Guinea : Treub Range, on the south slope and on the ridge, alt. c. 2400m, growing on schist (A. Pulle nos 968 and 1066, flowering in Jan. and Feb. 1913).

Dendrobium calcarium J.J. Sm., in Bull. Jard. Bot. Buit. 2<sup>e</sup> sér. II (1911), 13; etc.

Dutch New Guinea : Summit of the Wichmann Range, alt. c. 3000m, epiphytic (A. Pulle no. 1039, flowering in Feb. 1913); Hubrecht Range, alt. c. 3100m, epiphytic (A. Pulle no. 2408, leg. G.M. Versteeg, flowering in Feb. 1913).

Dendrobium discrepans J.J. Sm., in Fedde Rep. XII (1913), 120.

Tab. CXX, 220.

(latin diagnosis)

Dutch New Guinea : Gautier Range, on the north slope, alt. c. 900m, epiphytic in open moss-covered forest (K. Gjellerup no. 870, flowering in Nov. 1911).

D. discrepans J.J. Sm. differs from D. scarlatinum Schltr., with which it is probably most closely related, in somewhat larger flowers of a different colour, a recurved mentum, pointed petals, a labellum beset with a 'V'-shaped thickening, non two-lobed column auricles, and an anther obtuse on the back.

According to Gjellerup, the colour of the flowers is carmine-red, with a sulphur-yellow labellum.

Dendrobium Agathodaemonis J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. .

XXXIX (1910) 7; in Nova Guinea VIII (1911), 576, t. XCVI B; [l.c.]

XIII [XII] (1913), 73; Krzl. in Pflanzenr. Heft 45 (1910), 360.

Dutch New Guinea : In the southern district, alt. c. 2400m, on moss-covered limestone (J.A.W. Coenen no. 25, 1912); Arfak Range, alt. c. 1900m, epiphytic in open forest on a mountain peak (K. Gjellerup no. 1104, flowering in Apr. 1912); Summit of [Mount] Erica, alt. c. 1520m, epiphytic in primary forest (A. Pulle no.

806, flowering in Dec. 1912); Ridge of the Hellwig Range, alt. c. 2600m, epiphytic in primary forest (A. Pulle no. 880, flowering in Jan. 1913 ; no. 570, flowering in Dec. 1912, leg. Franssen Herderschee); Summit of the Perameles Mountain alt. c. 1100m (A. Pulle no. 490, flowering in Nov. 1912).

The plant collected by Coenen is very similar to the Type; the flowers are described as pale red to orange.

The specimens from the Arfak Range agree in habit fairly well with those collected by A.C. De Kock under no. V on Mt. Goliath, but have smaller flowers; in this regard they are similar to Gjellerup's no. 565, from the Cyclops Range.

According to Gjellerup, the flowers are carmine-red.

The specimen from the summit of Mt. Erica has more-or-less ovate pseudobulbs, strongly warty leaves, and a densely papillose ovary and peduncles.

Section : Pedilonum

Dendrobium crenatifolium J.J. Sm., in Bull. Jard. Bot. Buit. 2<sup>e</sup> sér. II (1911), 11; etc.

Dutch New Guinea : Summit of the Wichmann Mountain, alt. c. 3050m, growing terrestrially (A. Pulle no. 986, flowering in Feb. 1913); Hubrecht Range, alt. c. 3100m, on heath-like terrain (A. Pulle no. 2437, leg. G.M. Versteeg, flowering in Feb. 1913).

Dendrobium bracteosum Rchb.f., in Gard. Chr. 1886, II, 809; in Lindenia II (1886), t. 71? (according to Schlechter); Krzl., in Pflanzenr. Heft 45 (1910), 131; Schltr., Orch. Deutsch-Neu-Guinea (1912), 503.

D. chrysolabium Rolfe, in Gard. Chr. (1889), I, 770

D. Novae-Hiberniae Krzl., in Österr. Bot. Zeitschr. XLIV (1894), 301; in Pflanzenr. l.c. 135, Fig. 9, A - D; J.J. Sm., in Nova Guinea VIII (1911), 567, t. XCIII C.

D. Dixsonii Bail., in Queensl. Bot. Bull. Dep. Agric. XIII (1896), 33.

D. trisaccatum Krzl. in Pflanzenr. l.c. 107.

Dutch New Guinea : Gautier Range, on the north slope, alt. c. 300m, epiphytic in forest on limestone and basalt (K. Gjellerup no. 906, flowering in Nov. 1911); Hinterland of Hollandia at Humboldt Bay, alt. c. 200m, epiphytic at forest border, towards a fern-covered mountain peak (K. Gjellerup no. 960, flowering in Jan. 1912).

Geographic distribution : German and Dutch New Guinea.

This very common and fairly variable species has the above name as established by Schlechter.

The flowers last longer than two months, as I was able to observe from specimens cultivated at Buitenzorg.

Schlechter also mentions a rose-red form, but that has not yet been found in our Territory.

Dendrobium molle J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908).

8 [18]; etc.

Dutch New Guinea : Gautier Range on the north slope, alt.c. 500m, epiphytic in forest (K. Gjellerup no. 831, flowering in Nov. 1911; also living plant in cultivation at Hort. Bog. under no. 432); On the Noordwest River, on the plains, alt. c. 25m - (J.A.W. Coenen no. 33, 1912; also living plant in cultivation at Hort. Bog. under no. V).

Dendrobium angustiflorum J.J. Sm., in Fedde Rep. XI (1912), 132.

Tab. CXX, 221.

(latin diagnosis)

Dutch New Guinea : Gautier Range, on the north face, alt. c. 400m, epiphytic in forest on limestone and basalt (K. Gjellerup no. 907, flowering in Aug. 1911); On the upper Tor River, between Berkombor and Gwisterna, alt. c. 50m (K. Gjellerup no. 809, flowering in Oct. alt. c. 50m (K. Gjellerup no. 809, flowering in Oct. 1911).

A relative of D. capituliflorum Rolfe, D. constrictum J.J. Sm.,

D. molle J.J. Sm., etc., but with much larger flowers and more robust inflorescences.

According to Gjellerup, the flowers are yellowish white with a slightly greenish hue, the base of the lip is pale green, the leaves dark green, and the stems grey-green.

Dendrobium dichaeiodes Schltr., Orch. Deutsch-Neu-Guinea (1912), 507.

Dutch New Guinea : Arfak Range, at Angi Lake, alt. c. 1900m, epiphytic in forest (K. Gjellerup nos 1102 and 1240, flowering in Apr. and May 1912); South coast of Geelvink Bay, Jabi Range near Wape, epiphytic in forest (R.F. Janowsky nos 346 and 423, flowering in May 1913).

No. 1102 has broader, no. 1240 narrower leaves than stated by Schlechter, furthermore, the leaves of no. 1240 are drawn out to a point. Only when more abundant material is available will it be possible to decide whether there are different varieties.

Dendrobium fulgidum Schltr., Orch. Deutsch-Neu-Guinea (1912), 505.

Dutch New Guinea : Gautier Range, on the north slope, alt. c. 900m, epiphytic in forest on limestone and basalt (K. Gjellerup no. 863, flowering in Nov. 1911).

Schlechter's description and sketch fit this plant very well, except that the petals are narrowed to a short tip.

According to Gjellerup, the colour of the flowers is orange.

var. angustilabre J.J. Sm., nov. var.

Tab. GXXI, 222.

(latin diagnosis)

Dutch New Guinea : Gautier Range, on the north slope, alt. c. 900m, epiphytic in forest (K. Gjellerup, mixed with no. 863, flowering in Nov. 1911).

The variety differs from the Type in the petals gradually narrowing towards the apex, in pointed petals and an appreciably much narrower



labellum.

Dendrobium Smilliae F.v.M., Fragm. VI (1867 - 68), 94; etc.

var. Hollrungii J.J. Sm.

D. Hollrungii Krzl., in Schum. et Hollr., Fl. Kais. Wilh. Land (1889), 32; in Pflanzenr. Heft 45 (1910), 134.

D. Kaernbachii Krzl., in Österr. Bot. Zeitschr. XLIV (1894), 163; in Pflanzenr. l.c. 135.

D. pachyceras F.v.M. et Krzl., in Österr. Bot. Zeitschr. l.c. 164; in Pflanzenr. l.c. 98 (excl. Fig. 9 H - K.).

Dutch New Guinea : Hollandia on Humboldt Bay (K. Gjellerup, living plant in cultivation in Hort. Bog. under nos 276 and 352); on the middle Waipoga River (Ten Klooster, flowering in Apr. 1912); Musairo, east coast of Geelvink Bay, on trees at the coast (R.F. Janowsky no. 22, flowering in June 1912); at the mouth of the Mamberamo River (R.F. Janowsky no. 457, flowering in Sept. 1913); Kurudu Island at the beach (R.F. Janowsky no. 493, flowering in Oct. 1913). Geographic distribution : German New Guinea.

Contrary to Kränzlin and Schlechter, it is not possible for me to consider this plant as specifically different from D. Smilliae F.v.M., of which I have not seen the Type. The flowers of the specimens from north and south New Guinea, as well as those from the Aru Is., are all completely alike, but those from the north coast are generally slightly larger and the flowers are purple-flushed.

Section : Calypetrochilus

Dendrobium quadriquetrum J.J. Sm., in Fedde Rep. XII (1913), 119.

Tab. CXXII, 223.

(latin diagnosis)

Dutch New Guinea : On the Zuidwest River, alt. c. 300 - 800m, on a moss-covered tree (J.A. W. Coenen no. 45, 1912).

The plant is most closely related to D. trichostomum Rchb.f. and

D. oreogenum Schltr. It differs from these species in a distinctly square stem (likewise for D. trichostomum Rchb.f.), in the colour of the flowers, and a lip with a long cilium; furthermore from D. trichostomum Rchb.f. in the leaves not being rounded-off at the base; and from D. oreogenum Schltr., in somewhat smaller flowers, an appreciably shorter lip with the margin less bent-inwards, and in a shorter anther.

The flowers were yellow.

Only a solitary formalin-preserved little flowering branch with half a leaf was to hand.

Dendrobium Baeuerlenii F.v.M. et Krzl., in Österr. Bot. Zeitschr. XLIV (1894), 163; in Pflanzenr. Heft 45 (1911) [1910], 123, Fig. 7D - F. Dutch New Guinea : On the Noordwest River (JiA.W. Coenen no. 24, flowering in June 1912, living plant in cultivation at Hort. Bog. under no. 7); On the middle Legarei River, alt. c. 80m, epiphytic in forest (R.F. Janowsky no. 81, flowering in June 1912).

Geographic distribution: British New Guinea.

A plant clearly not uncommon in New Guinea.

Dendrobium purpureiflorum J.J. Sm., in Fedde Rep. XII (1913), 118.

Tab. CXXII, 224.

(latin diagnosis)

Dutch New Guinea : Cyclops Range, east slope, alt. c. 700m, epiphytic in forest (K. Gjellerup no. 520, flowering in June 1911).

According to the description and sketch, this species should be placed in the affinity of D. apertum Schltr. However, it has smaller leaves, smaller not-recurved flowers, the anther clearly tri-lobed on the back, the column-auricles beset with teeth, etc. D. neoebudanum Schltr. also appears to be closely related.

The collector described the flowers as violet-red, with a paler

coloured labellum, and an orange-red column.

Dendrobium infractum J.J. Sm., in Fedde Rep. XII (1913), 118.

Tab. CXXIII, 225.

(latin diagnosis)

Dutch New Guinea : Arfak Range, Angi Lake, alt. c. 1900m, at the west bank on a tree (K. Gjellerup no. 1155, flowering in Apr. 1912).

Amongst the large-flowered species without a transverse thickening of the lip, this plant does not appear to have any very close relatives.

D. Lawesii F.v.M. and D. macrogenium Schltr. have a transverse lamina on the lip. D. phlox Schltr. has multi-flowered inflorescences, flowers of a different colour, and a non-dentate clinandrium lobe. D. fruticicola J.J. Sm. and D. conicum J.J. Sm. have flowers of a different colour, with the lateral lobes connate upwards for a fair length, whilst D. navicula Krzl. and D. cuculiferum J.J. Sm. are distinguished by the lip being shorter than the column.

According to the collector, the flowers are violet-red.

Dendrobium cylindricum J.J. Sm., in Fedde Rep. XII (1913), 117.

Tab. CXXIII, 226.

(latin diagnosis)

Dutch New Guinea : Arfak Range, alt. c. 1900m, epiphytic in open moss-covered forest on a mountain peak (K. Gjellerup no. 1082, flowering in Apr. 1912).

Amongst its relatives, this species is distinguished by the labellum being only slightly broadened in the upwards direction, hence non-spathulate.

The flowers are stated to be orange-coloured, the leaves pale green.

Dendrobium mitriferum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910), 10; etc.

Dutch New Guinea : Ridge of the Hellwig Range, alt. c. 2500 - 2600m,

epiphytic in primary forest (A. Pulle nos 569 and 864, flowering in Dec. 1912); south face of the Hellwig Range, alt. c. 1700m, (A. Pulle no. 691, flowering in Dec. 1912, alt. c. 1900m, A Pulle no. 848, flowering in Dec. 1912); ridge of the Treub Range, alt. c. 2400m (A. Pulle no. 1063, flowering in Feb. 1913).

forma alpinum

(latin diagnosis)

Dutch New Guinea : Peaks of the Wichmann Range, alt. c. 3000m, growing terrestrially (A. Pulle no. 992, flowering in Feb. 1913); Ridge of the Kajan Range, alt. c. 3200m, growing terrestrial in more open places (A. Pulle no. 2469, leg. G.M. Versteeg, flowering in Feb. 1913).

Dendrobium phlox Schltr., Orch. Deutsch-Neu-Guinea (1912), 515.

Dutch New Guinea : Valley of the Oroh River, alt. c. 1400m, epiphytic in primary forest (A. Pulle no. 1142, flowering in Feb. 1913).

According to Schlechter's description and sketch, this plant belongs to D. phlox Schltr.

The flowers are orange-red, with red tips.

Dendrobium riparium J.J. Sm., in Fedde Rep. XII (1913), 117.

Tab. CXXIV, 227.

(latin diagnosis)

Dutch New Guinea : Arafak Range, at Angi Lake, alt. c. 1900m epiphytic on shrubs on granite shingle (K. Gjellerup no. 1085, flowering in Apr. 1912); at the same place in forest, on a tree (K. Gjellerup no. 1099, flowering in Apr. 1912).

The closest relative of this very floriferous species appears to be D. phlox Schltr. It differs, apart from other respects, in the more cylindrical mentum, the margin of the lip bent-in at the top to a more marked degree, and in the bi-lobed column-auricles.

According to the collector, the flowers are coloured intensely orange.

Dendrobium jabiense J.J. Sm., in Mededeel. Herb. Leid. 23 (1915), 11.

Tab. CXXV, 228.

(latin diagnosis)

Dutch New Guinea : South coast of Geelvink Bay, Jabi Range, near Wape, epiphytic in forest (R.F. Janowsky no. 314, flowering in May 1913).

This species resembles D. conicum J.J. Sm. in the shape of the flower, but otherwise is very different.

To hand was only a suspected weak, dried specimen, so that the description will need to be augmented. I have not been able to verify any cavity at the base of the column-foot.

According to Janowsky, the flowers are orange-yellow with orange margins.

Dendrobium fruticicola J.J. Sm., in Fedde Rep. XII (1913), 116.

Tab. CXXV, 229.

(latin diagnosis)

Dutch New Guinea : Arfak Range, at Angi Lake, alt. c. 1900m, epiphytic on low moss-covered shrubs, on decomposed granite covered with swampy humus, common (K. Gjellerup no. 1111, flowering in Apr. 1912).

The fairly copious material available is partly alcohol-preserved, partly dried. The flowers of the different small branches are not quite alike, I believe, however, that they all belong to the species (with the exception of a branchlet of D. angiense J.J. Sm.). Since the little branches are partly leafless, or partly shed their leaves on drying, or by using strongly-diluted alcohol, I have considered it appropriate to prepare the description from a branchlet still with leaves and with the largest flowers.

Quite similar flowers are among the dried specimens. The other flowers, mostly are somewhat smaller and frequently have a bi-lobed mentum at the apex. On another branch I found flowers with a blunt, or more-or-less compressed mentum.

This species is very similar to D. macrogenium Schltr. in the shape and size of the flowers, but differs, apart from other respects, in the branched stem, smaller leaves, flowers of a different colour, and the lip lacking a transverse lamella.

D. fruticicola J.J. Sm., which probably is closely related to D. phlox Schltr., differs from it, according to the description and sketch, in the apparently more-branched stems, smaller, non-elliptical leaves, fewer-flowered inflorescences, more-pointed sepals and petals, and the lip more constricted in front.

According to the collector, the leaves are a shiny, dark green, the flowers orange with white cilia on the margin of the lip, and the column apex grey-violet.

Dendrobium angiense J.J. Sm., in Fedde Rep. XII (1913), 116.

Tab. CXXVI, 230.

(latin diagnosis)

Dutch New Guinea : Arfak Range, at Angi Lake, alt. c. 1900m, on moss-covered shrubs, on decomposed granite, covered with swampy humus (K. Gjellerup no. 1112, flowering in Apr. 1912); At the same place in open forest on a mountain peak, in a tree (K. Gjellerup no. 1100, flowering in Apr. 1912).

The plant, clearly is closely related to D. phlox Schltr. I have kept it separate since the flowers are appreciably smaller, and the column-auricles not obtuse. It differs from the likewise related D. melinanthum Schltr. in small, non-pointed leaves, the shape of the bracts and colour; but apart from that, several important characters are missing in Schlechter's description.

The species differs from D. oreodoxa Schltr., which probably also counts as one of the closest relatives, in multi-flowered inflorescences, shorter sepals and petals and a not-flattened, much narrower lip than stated by Schlechter.

The flowers of no. 1112, from which the description was made, are, according to Gjellerup, pale brown-red, the distal half yellow, the lip orange and column yellow.

Dendrobium keytsianum J.J. Sm., in Fedde Rep. XII (1913), 115.

Tab. CXXVI, 231.

(latin diagnosis)

Dutch New Guinea : Johannes Keyts Range, alt. c. 1900m, epiphytic, common (J.H.I. le Cocq d'Armandville no. 246, flowering in Dec. 1911).

The plant belongs to the few species in the section, within our Territory, with a transverse thickening on the lip.

The flowers are yellow and orange-coloured; in this respect therefore similar to D. phlox Schltr., but otherwise quite different.

To hand were only fragments preserved in formalin.

Dendrobium Wentianum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XLV (1911), 6.

Dutch New Guinea : Gorge between the Wichmann and Hubrecht Ranges, alt. c. 2800 - 3000m, epiphytic in primary forest (A. Pulle no. 2403, leg. G.M. Versteeg flowering in Feb. 1913).

The stems are extended, strongly branched, forming roots only at the base, and grow up to 65 cm long. The leaves are 3.4 cm long, 1.25 cm broad, or also 2.5 cm long and 1.8 cm broad. The mentum usually is far less bent than that of the Type (dried).

Dendrobium tubiflorum J.J. Sm., in Bull. Jard. Bot. Buit. 2<sup>e</sup> sér. XIII (1914), 66.

Tab. CXXVII, 232.

(latin diagnosis)

Dutch New Guinea : In the eastern part of the Oroh Valley, alt. c. 1300m, epiphytic in secondary forest (A. Pulle no. 1118, flowering in Feb. 1913).

In the long, narrow flowers with relatively short sepals and petals, as in the colour of the flowers, this species is reminiscent of D. Baeuerlenii F.v.M. et Krzl., at least in regards to the plant which I consider to be this species. However, it belongs to the fairly few species of the section with a shortened labellum, and is recognised externally by the much broader leaves.

It is noteworthy that the inflorescences also appear from the lower internodes of the stem.

According to Pulle, the flowers are pale pink-violet with an almost white labellum.

Description from herbarium and alcohol-preserved flowers.

forma albidiflorum

(latin diagnosis)

Dutch New Guinea : Oroh Valley, alt. c. 1200m, epiphytic in primary forest (A. Pulle no. 1189, flowering in Feb. 1913).

Differs only in the colour of the flowers.

Dendrobium cuculliferum J.J. Sm., in Fedde Rep. XII (1913), 118.

Tab. CXXVII, 233.

(latin diagnosis)

Dutch New Guinea : Arfak Range, alt. c. 1400 - 1800m, on trees on granite and decomposed granite, common (K. Gjellerup no. 1045, flowering in Apr. 1912).

The plant belongs to the relatively uncommon species of the section Calypstrochilus, where the labellum is not as long as the column. It appears to be similar to D. navicula Krzl. in the relatively large flowers, but differs from it in a relatively much longer labellum which



is not extended at the apex to a subulate apex and long filament. From the description, I cannot gain a correct impression of the shape of the lip for D. navicula Krzl. The lip of D. cuculliferum J.J. Sm. has the shape usual in the section.

According to the collector, the flowers are pink varying to violet-red, the leaves often of a violet colour.

Dendrobium glaucoviride J.J. Sm., in Fedde Rep. XII (1913), 119.

Tab. CXXVIII, 234.

(latin diagnosis)

Dutch New Guinea : Arfak Range, at Angi Lake, alt. c. 1900m,

epiphytic in forest (K. Gjellerup no. 1052, flowering in Apr. 1912).

Amongst the related species with a short lip, this one most resembles D. verruculosum Schltr. in the shape of the flowers. However, apart from other respects, it differs in the shape of the leaves, multi-flowered inflorescences, colour, and the labellum adnate only to the base of the column-foot.

According to Gjellerup, the leaves are matt, blueish dark green, the flowers violet with a white lip.

Dendrobium Vannouhuysii J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XLV (1911), 6; etc.

Dutch New Guinea : Ridge of the Hellwig Range, alt. c. 2500 - 2600m, epiphytic and on bare rocks (A. Pulle nos 572 and 891, flowering in Dec. 1912 and in Jan. 1913).

Section : Eudendrobium

Dendrobium anosmum Lindl., in Bot. Reg. XXI (1884), misc. 41; in

Lindenia VI, t. 264; Gard. Chr. 1891, I, 137.

D. superbum Rchb.f. var. anosmum Rchb.f., in Walp. Ann. VI (1861), 283; Krzl., in Pflanzenr. Heft 45 (1910), 33.

D. superbum Rchb.f., in Walp. Ann. l.c. 282; in Gard. Chr. n.s. XVII (1882), I, 776; Vidal, Phan. Cum. Phil. 149; Warner et

Williams, Orch. Atl. I, t. 42; Veitch, Man. Orch. Pl. Dendrob. 77; Dict. Icon. Orch. Dendr. t. 20; Ames, Orch. I (1905), 90; II (1908), 186; J.J. Sm., Orch. Amb. (1905), 67; Ridl., Mat. Fl. Mal. Pen. I (1907) 56; Krzl. in Pflanzenr. l.c.

D. macrophyllum Lindl., Bot. Reg. XXV (1839), misc. 36; XXI (1844), misc. 47; Sert. Orch. t. 35; Paxt., Mag. Bot. VIII, 97 cum ic.; Lindl., Pescat., t. 40; Warner, Sel. Orch. pl. sér. I, t. 26; Hook. f., in Ann. Bot. Gard. Calc. V(1895), t. 12; De Puydt, Orch. 273, t. 17; Planchon, Atl. Pl. Demidoff, t. I.

D. macranthum Hook., in Bot. Mag. LXIX (1843) t. 3870; Paxt., l.c. 328; Fl. d. serres VIII (1852), 21, t. 757; Miq., Fl. Ind. Bat. III (1855), 642; Naves ex Blanco, Fl. Fil. ed 3, III, t. 433.

D. Scortechinii Hook.f., Fl. Br. Ind. V, (1890), 741.

D. leucorhodum Schltr., Orch. Deutsch-Neu-Guinea (1913), [1912], 499.

Dutch New Guinea : Humboldt Bay, near Hollandia, alt. c. 5 - 25m; epiphytic in forest on rocky slopes at the sea (K.

Gjellerup no. 447, flowering in Mar. 1911; also a living plant in cultivation at Hort. Bog.). Geographic distribution : German New Guinea, Ambon, Buru, Ceram, Celebes, Borneo, Malay Peninsula, Philippines.

One of the most widely distributed species which varies considerably in size and colour of the flowers, pilosity of the lip, etc.

I have not seen authentic specimens of D. anosmum Lindl., however, the authors are in fairly general agreement that D. superbum Rchb.f. and D. anosmum Lindl. should not be considered as specifically different, but surprisingly they prefer Reichenbach's more recent name.

I have not distinguished between any varieties or forms, since the existing descriptions cannot be regarded as adequate for this purpose. If D. anosmum Lindl. and D. superbum Rchb.f. are to be considered as

varieties, then the plant known usually as D. superbum Rchb.f. should carry the name D. anosmum Lindl. var. superbum Rchb.f.

The above listed numbers from Dutch New Guinea belong, without doubt, to D. anosmum Lindl. I have been able to compare not only specimens pressed at the locality, but also living plants with several flowering forms from other regions. The Papuan flowers I have seen have relatively, somewhat shorter or broader floral segments than is generally the case.

I do not for a moment doubt that D. leucorhodum Schltr. also belongs here, it seems even to be fairly similar to the plant from Dutch New Guinea, only in this case the lip, even though not very robust, is still quite distinctly hirsute below.

According to Gjellerup, the flowers are supposed to be odourless, but as I have been able to establish on living specimens, they have the peculiar odour of rhubarb, reminiscent of that of the species or varieties.

On the Lesser Sunda Islands, Java and Sumatra, the species has not yet been met with.

#### Eria Lindl.

Section : Goniorhabdos

Eria javanica Bl., Rumphia II (1836), 23; etc.

Dutch New Guinea : Hollandia, on Mount Misiata, alt. c. 100m, epiphytic in forest, on serpentine rocks covered with sparse humus (K. Gjellerup no. 593, flowering in Sept. 1911); Hinterland of Hollandia at Humboldt Bay, alt. c. 50m, epiphytic in forest on laterite covered with humus on a hill (K. Gjellerup no. 709, flowering in Nov. 1911).

Eria imbricata J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 22.

Dutch New Guinea : Lorentz River near the Kloof Bivouac, alt. c. 40m, epiphytic in primary forest (A. Pulle no. 1231, flowering in

Mar. 1913).

Eria peraffinis J.J. Sm., in Fedde Rep. XI (1912), 137.

Tab. CXXVIII, 235.

(latin diagnosis)

Dutch New Guinea : On the middle Tor River, alt. c. 25m, epiphytic in forest (K. Gjellerup no.737, flowering in Oct. 1911); Gautier Range on the north slope, alt. c. 350m, epiphytic in forest on limestone and basalt (K. Gjellerup no. 884, flowering in Nov. 1911); Giriwo River (R.F. Janowsky no. 184, flowering in July 1912; also in cultivation at Hort. Bot.).

) The species is remarkably similar to E. imbricata J.J. Sm. in habit, however, different in the very divergent-shaped lip with extended lateral lobes, and a much larger, very distinctly clawed middle lobe, an appreciably shorter column and column-foot less bent, with a much smaller callus.

The colouring of the flowers also appears very similar to that of E. imbricata J.J. Sm. Gjellerup describes it as follows : Flowers yellow-white, lip a more intense yellow, brown-yellow at the centre, the hypochile brown; the column yellow with yellow longitudinal stripes.

) For those specimens which flowered at Buitenzorg I noted : Sepals and petals pallid yellowish; on the sepals, externally and on the ovary, patchy appressed black-brown hairs. The lip whitish at the base, and at the front, as for the lateral sepals, pale violet-brown, with a dark violet margin; three ridges, dark violet-brown, merging in front of the base of the middle lobe into two ochre-yellow ridges, each with a longitudinal groove, yellow-brown and dark violet margin. The lamina of the middle lobe is pallid yellowish, the claw dark violet-brown. The colour is a glossy pallid-yellow, with brown-violet margin, as is the stigma, and with brown-violet longitudinal stripes underneath; the column-foot below the apex has a 'W'-shaped, orange-yellow-brown

swelling, bordered dark-violet-brown.

Schlechter considers that E. imbricata J.J. Sm. could perhaps be united with his E. ramuana Schltr. However, the description is so very different, and even if it were precise, I would still doubt that they were identical. At any rate, the two species, also E. peraffinis J.J.Sm., and probably also E. imitans Schltr., should be compared more closely.

Section : Hymeneria

Eria oligotricha Schltr., in Schum. et Laut., Nachtr. Fl. Deutsch.

Schutzgeb. Südsee (1905), 181; Krzl., in Pflanzenr. Heft 50 (1911), 75.

E. papuana J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 23; in Nova Guinea VIII (1909), 87, t. XXIX, 94.

Dutch New Guinea : Gautier Range on the north slope, alt. c. 900m, epiphytic in forest on limestone and basalt (K. Gjellerup no. 854, flowering in Nov. 1911); Lorentz River, near the Kloof Bivouac, epiphytic in primary forest (A. Pulle no. 141, flowering in Oct. 1912); (J.B. Sitanala no. 11213, flowering in Jan. 1913); Kuria (Bonggo), epiphytic in forest (R.F. Janowsky no. 604, flowering in Jan. 1914).

According to Schlechter, E. papuana J.J. Sm. is identical with his E. oligotricha Schltr., but from the initial description, the plants should be considered specifically different.

Eria moluccana Schltr. et J. J. Sm., Orch. Ambon (1905), 74.

Dutch New Guinea : Mouth of the Mamberamo River, epiphytic on the river bank (R.F. Janowsky no. 458, flowering in Sept. 1913),

Geographic distribution : Kei [Is.], Gera, Ambon, Celebes.

The specimens from the localities above are not all in very good condition, so that it is possible that at a later date, one or more varieties or species will have to be distinguished. The plant from New Guinea agrees well with my sketches of the Ambon specimens.

Section : *Trichotosia*

*Eria gautierensis* J.J. Sm., in Fedde Rep. XI (1912), 137.

Tab. CXXVIII, 236.

(latin diagnosis)

Dutch New Guinea : Gautier Range, on the north slope, alt. c. 500m, epiphytic in forest on limestone and basalt (K. Gjellerup no. 845, flowering in Nov. 1911).

Amongst the species of the section *Trichotosia* so far known from New Guinea, this one is most similar to *E. paludosa* J.J. Sm. in the hairiness of the flowers, but is distinguished by the short inflorescences and by the labellum. It differs from the likewise probably closely related *E. phaeotricha* Schltr., in the ridges of the lip.

The flowers are greenish white, with brown hairs on the outside.

*Eria brachiata* J.J. Sm., in Fedde. Rep. XII (1913), 122.

Tab. CXXIX, 237.

(latin diagnosis)

Dutch New Guinea : Giriwo River, epiphytic in forest (R.F. Janowsky no. 196, flowering in July 1912).

A species excellently characterized by the shape of the lip.

The flowers are stated to be yellow, with red lines.

Description from herbarium and alcohol-preserved material.

*Pedilochilus* Schltr.

*Pedilochilus coiloglossum* Schltr., Orch. Deutsch-Neu-Guinea (1912), 685.

*Bulbophyllum coiloglossum* Schltr., in Schum. et Laut., Nachtr. Fl.

Deutsch. Schutzgeb. Südsee (1905), 199.

Tab. CXXX, 238.

Dutch New Guinea : On the middle Legarei River, alt. c. 600m, epiphytic in forest (R.F. Janowsky no. 85, flowering in June 1912);  
Geographic distribution : German New Guinea.

The flowers of this plant agree well with Schlechter's sketch, so I do not doubt that the determination is correct.

For the present I am maintaining the genus Pedilochilus Schltr., but am not yet fully convinced it might be better to include it in Bulbophyllum.

According to Janowsky, the flowers are white with red stripes. Pedilochilus sulphureum J.J. Sm., in Bull. Jard. Bot. Buit., 2<sup>e</sup> sér. XIII (1914), 72.

Tab. CXXX, 239.

(latin diagnosis)

Dutch New Guinea : Treub Range, on the steep south slope, alt. c. 2400m, growing terrestrially on schist (A. Pulle no. 1090, flowering in Feb. 1913).

This species differs totally from the sole Schlechter species with single-colour yellow flowers, P. angustifolium Schltr., in the shape of the floral segments.

P. brachypus Schltr. appears to be closest to it in the broad petals and labellum, but is easily distinguished immediately by the inflorescences.

The species differs from P. stictanthum Schltr., which also has flowers of about the same size, in the ciliate and papillose sepals, and the shape of the petals.

forma coloratum

Dutch New Guinea : Treub Range, on the steep south slope, alt. c. 2400m, growing terrestrially on schist (A. Pulle no. 1093, flowering in Feb. 1913).

This differs in colour only. According to Pulle, the sepals are violet on the outside, inside yellow-green with purple spots, the lip yellowish with purple dots, the petals violet.

Pedilochilus majus J.J. Sm., sp. nov.

## Tab. CXXXI, 240.

(latin diagnosis)

Dutch New Guinea : Gorge between the Hubrecht and the Wichmann Ranges, alt. c. 2800 - 3000m, epiphytic in primary forest (A. Pulle nos 2406 and 2426, leg. G.M. Versteeg, flowering in Feb. 1913).

This plant differs from P. stictanthum Schltr. in size, larger flowers, ciliate and short-haired sepals, pointed, not-blunt petals; and from P. sulphureum J.J. Sm. in size, pointed leaves, longer-stemmed larger flowers, and in a differently shaped dorsal sepal.

According to the collector, the flowers are dotted red-brown, the lip dark brown at the base and tip.

Herbarium material only was available.

Pedilochilus kermesinostriatum J.J. Sm., in Mededeel. Herb. Leid. 23 (1915), 16.

## Tab. CXXXI, 241.

(latin diagnosis)

Dutch New Guinea : Geelvink Bay, Jabi Range near Wape, epiphytic in forest (R.F. Janowsky no. 313, flowering in May 1913).

The flowers are still larger than for P. stictanthum Schltr., from which this species differs quite considerably.

The flowers are green with carmine-red stripes.

Only a single alcohol-preserved specimen was to hand.

Bulbophyllum Thou.

Schlechter's treatment of the Papuasian Bulbophyllum species has decidedly brought us a great step forward. Of the numerous sections established, many will without doubt be maintained in the given delimitation. It was not an easy task to divide the genus, and although several groups are quite naturally easy to distinguish, there is on the other hand a whole series of species which appear to resist a



satisfactory grouping.

It is regrettable that Schlechter has not critically compared the characteristics of the sections, only carrying out their description, whereby the actual characteristics frequently are given only a subordinate position. For anyone who has not got to know a large number of species, for his own investigation, it will frequently be impossible to accommodate a species in the correct section.

Although the division into sections, whilst still not definitive, is in many ways satisfactory, the breaking-up of the genus into subgenera appears to be rather unfortunate. I should just like to point out that in my opinion Harpobrachium, Antennisepalum and Epicrianthes should not be treated as subgenera of Eubulbophyllum; several sections of Eubulbophyllum are just as sharply delimited as these subgenera.

I have chosen to leave under Bulbophyllum those species which Schlechter separated as genera on account of the different connate nature of the sepals. There are many indications that this characteristic should not be over-rated. Thus Schlechter, under Hapalochilus, mentions a section Trachychilus with connate lateral sepals and sets up a sub-genus Bisepalum with two sections, where the species likewise have connate lateral sepals.

In the following compilation, I have followed Schlechter's classification as far as possible. I attach no importance to the sequence of the sections. At present a satisfactory sequence can probably not be given.

#### Section : Coelochilus

In my opinion the shape of the lip does not suffice to maintain Schlechter's section Scaphochilus separate from the large section Coelochilus. Furthermore, I do not consider that B. scyphochilus Schltr. and B. cucullatum Schltr. have been brought together in a very natural manner.

B. cuniculiforme J.J. Sm., with which B. cucullatum Schltr. is very closely related, has no labellum overtopping the column, nor has B. holochilum J.J. Sm., which stands close to B. scyphochilus Schltr. This characteristic of the section Scaphochilus given by Schlechter therefore does not apply.

Bulbophyllum holochilum J.J. Sm., in Fedde Rep. XI (1912), 139.

Tab. CXXXI, 242.

(latin diagnosis)

Dutch New Guinea : On the middle Tor River, alt. c. 25m, epiphytic in forest (K. Gjellerup no, 752, flowering in Oct. 1911).

The species is distinguished amongst the affinity of B. callipes J.J. Sm. by the concave labellum. The closest relative probably is B. scyphochilus Schltr.

According to Gjellerup, the leaves are matt-green, the flowers brown-violet.

Only a very small amount of alcohol-preserved material was available.

var. pubescens J.J. Sm., nov. var.

(latin diagnosis)

Dutch New Guinea : Gautier Range on the north slope, alt. c. 800m, epiphytic in forest on limestone and basalt (K. Gjellerup no. 861, flowering in Nov. 1911).

The variety differs from the Type in larger dimensions, sepals with hairiness on the inside, and in a broader labellum.

Gjellerup describes the colour as brown-red with the lip yellow in front.

From this number, likewise, only very sparse material is to hand.

var. aurantiacum J.J. Sm., nov. var.

(latin diagnosis)

Dutch New Guinea : Lorentz River, near the Kloof Bivouac, alt. c. 50m, epiphytic in forest (A. Pulle no. 246, flowering in Oct. 1912).

This variety stands closer to var. pubescens J.J. Sm. than to the Type, but differs, however, in less hirsute flowers, the lip bent back further at the apex with the lateral margins touching for a longer distance. It is distinguished from the two forms described above by the colour of the flowers, longer teeth both sides of the filament, and by broader leaves.

Clearly, B. holochilum J.J. Sm. is a somewhat variable species which eventually could perhaps be united with B. scyphochilus Schltr. According to my copy of Schlechter's sketch, the lip of B. scyphochilus Schltr. appears to have three raised ridges, whilst for B. holochilum J.J. Sm. only two very short little ribs, that join towards the front, are present. Without seeing any specimens, I would not like to unite them.

According to Pulle, the flowers of var. aurantiacum J.J. Sm. are yellow-orange.

Description from herbarium and alcohol-preserved material.

Bulbophyllum fibrinum J.J. Sm., in Fedde Rep. XII (1913), 402.

Tab. CXXXII, 243.

(latin diagnosis)

Dutch New Guinea : East coast of Geelvink Bay, on the Giriwo River (R.F. Janowsky no. 104, flowering in July 1912).

Amongst the affinity of B. callipes J.J. Sm., this species is distinguished by the flat lip.

According to the collector, the flowers are violet with white margins, the lip orange.

Description from alcohol-preserved material.

[Last sentence repeated.]

Amongst the material to hand I came across a monstrous [sic] flower, where the petals were largely adnate to the back of the column in a winged manner. Furthermore, their shape was fairly strongly modified, in not

being narrowed towards the apex, but rather expanded, the upper free part being oblique quadrate, almost blunt, and in the furthest corner formed a pointed tooth with a shorter, blunt little lobe at the inner corner.

Bulbophyllum quadricaudatum J.J. Sm., in Bull. Dép. Agr. Ind. Néerl. XLV (1911), 10; in Nova Guinea VIII (1911), 591, t. CIV, A.

(latin diagnosis)

Dutch New Guinea : Temenimbor, on the Tor River, alt. c. 75m, epiphytic in forest (K. Gjellerup no. 789, flowering in Oct. 1911).

Since complete plants are now available, I am able to augment my previous description.

According to Gjellerup, the sepals are white with blue-violet markings, the lip pallid yellow and brown-red towards the base.

Bulbophyllum aristilabre J.J. Sm., in Fedde Rep. XI (1912), 278.

Tab. CXXXII, 244.

(latin diagnosis)

Dutch New Guinea : Gautier Range, on the north slope, alt. c. 300m, epiphytic in forest on limestone and basalt (K. Gjellerup no. 826, flowering in Nov. 1911).

The species is very similar to B. quadricaudatum J.J. Sm., but differs in narrower sepals, and the completely different shape of the petals.

The specimens collected by Gjellerup at the same locality varied considerably in size, also in the shape of the petals.

I have been able to establish repeatedly that the individual differences of orchids in New Guinea are no less than occurring in other regions of the archipelago.

According to Gjellerup, the flowers are white with longitudinal violet-red stripes, the lip white in the lower half, sulphur-yellow in the upper half.

Bulbophyllum caudipetalum J.J. Sm., in Fedde Rep. XII, (1913), 401.

Tab. CXXXIII, 245.

(latin diagnosis)

Dutch New Guinea : Giriwo River, epiphytic in forest (R.F. Janowsky nos 207 and 208, flowering in July 1912).

Amongst the closer relatives of B. callipes J.J. Sm., this species is distinguished by the long extended petals. Particularly noteworthy is the column-foot extended to a thin appendage, which is actually the same connection between the lip and column-foot as for other Bulbophyllum species. I have already mentioned earlier that the lip of B. xanthoacron J.J. Sm. is movable, as for most Bulbophyllum species.

For no. 207 Janowsky notes : flowers red, and for no. 208 : flowers red, lip yellow.

Description from material preserved in alcohol.

Bulbophyllum concolor J.J. Sm., in Bull. Jard. Bot. Buit. 2<sup>e</sup> sér. XIII (1914), 66.

Tab. CXXXIII, 246.

(latin diagnosis)

Dutch New Guinea : Gautier Range, on the north slope, alt. c. 500m, epiphytic in forest on limestone and basalt (K. Gjellerup no. 842, flowering in Nov. 1911).

Closely related to B. trachyglossum Schltr., but differs in thicker pseudobulbs, shorter leaves, differently-shaped petals, much shorter clawed lip (claw barely one third the total length), bi-dentate column-auricles, etc.

Amongst the closest relatives of B. callipes J.J. Sm., B. trachyglossum Schltr., etc. there are several that are very similar and need a closer comparison.

The flowers, according to Gjellerup are purple-violet.

Bulbophyllum stabile J.J. Sm., in Nova Guinea VIII (1911), 585, t. CI, B.

Dutch New Guinea : Lorentz River, near the Kloof Bivouac, epiphytic in primary forest (J.B. Sitanala nos 11209 and 11224, flowering in Jan. 1913).

Bulbophyllum rectilabre J.J. Sm., in Fedde Rep. XI (1912), 277.

Tab. CXXXIII, 247.

(latin diagnosis)

Dutch New Guinea : Gautier Range, on the north slope, alt. c. 300m, epiphytic in forest on limestone and basalt, on the bank of a stream. (K. Gjellerup no. 889, flowering in Nov. 1911).

) Differs from the closest relative, B. coloratum J.J. Sm., in separated pseudobulbs, narrower leaves, a differently shaped lip, and a less slim column.

The flowers are violet with white longitudinal stripes, the lip red-brown.

Bulbophyllum cruciatum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XLV (1911), 8; in Nova Guinea VIII (1911), 588, t. CII, C.

It is clear from the description and illustrations that B. immobile Schltr. and B. cruciatum J.J. Sm. are identical, whilst B. cruciatum Schltr. (nec J.J. Sm.) is a separate species for which I suggest the name B. mutatum J.J. Sm.

) Bulbophyllum frustrans J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XLV (1911), 8; etc.

Dutch New Guinea : Lorentz River, near Kloof Bivouac, epiphytic in primary forest (J.B. Sitanala no. 11246, flowering in Feb. 1913).

Bulbophyllum geniculiferum J.J. Sm., in Fedde Rep. XI (1912), 276.

Tab. CXXXIV, 248.

(latin diagnosis)

Dutch New Guinea : Gautier Range, on the north slope, alt. c. 300m, epiphytic in forest on limestone and basalt (K. Gjellerup no. 822, flowering in Nov. 1911).

A small-flowered species from the affinity of B. callipes J.J. Sm., distinguished by the labellum.

The solitary flower was damaged; the dorsal sepal was missing and perhaps the column-auricles were somewhat mutilated.

The flowers are red-brown.

Bulbophyllum olorinum J.J. Sm., in Fedde Rep. XI (1912), 277.

Tab. CXXXIV, 249.

(latin diagnosis)

Dutch New Guinea : Berkombor, on the Tor River, alt. c. 25m, epiphytic in forest, at swampy locations (K. Gjellerup no. 782, flowering in Oct. 1911).

A species of the B. callipes J.J. Sm. affinity. The shape of the lip has much similarity with that of B. codonanthum Schltr. from Celebes.

According to Gjellerup, the leaves are matt green; the flowers pale brown-red, the lip yellow-brown with a yellow apex, and the column an intense yellow.

Section : Polyblepharon

A very natural section, to be considered equivalent to Hapalochilus.  
Bulbophyllum linearilabium J.J. Sm., in Fedde Rep. XI (1912), 140.

Tab. CXXXIV, 250.

(latin diagnosis)

Dutch New Guinea : Temenimbor, on the Tor River, alt. c. 75m, epiphytic in forest (K. Gjellerup no. 798, flowering in Sept. 1911).

A species of Schlechter's Polyblepharon section with a long, extended labellum having a very long cilia, particularly towards the front.

According to Gjellerup, the flowers are a deep brown-violet (almost black-violet), the lip and base of the sepals and petals metallic-green.

Description from alcohol preserved material.

Bulbophyllum pseudoserrulatum J.J. Sm., in Fedde Rep. XI (1912), 279; in Nova Guinea XII (1913), 91, t XXV, 75.

Dutch New Guinea : Hinterland of Hollandia, at Humboldt Bay, alt.

c. 300m, on trees at the forest border on a hill covered with

Imperata (K. Gjellerup no. 970, flowering in Jan. 1912; living plant in cultivation at Hort. Bog. under no. 287).

The flowers of the cultivated species are pale orange.

Bulbophyllum gautierense J.J. Sm., in Fedde Rep. XI (1912), 133.

Tab. CXXXV, 251.

(latin diagnosis)

Dutch New Guinea : Gautier Range, on the north side, alt. c. 700m, epiphytic in forest on limestone and basalt (K. Gjellerup no. 868, flowering in Nov. 1911).

A small species of the B. tortuosum Lindl., etc. affinity.

The flowers preserved in alcohol had become, as usual, translucent, apart from the tips of the sepals which were pallid-yellow and non-transparent.

Description from alcohol-preserved material.

According to Gjellerup, the flowers were pale orange, the leaves pale green.

Bulbophyllum orohense J.J. Sm., in Mededeel. Herb. Leid. 23 (1915), 11.

Tab. CXXXV, 252.

(latin diagnosis)

Dutch New Guinea : Gorge of the Oroh River, east side, alt. c.

1400m, epiphytic in primary forest (A. Pulle no. 1139, flowering in Feb. 1913).

Amongst the species of the section with a glabrous labellum, this one stands probably closest to B. glabrum Schltr. According to the description, it differs from Schlechter's species in somewhat larger flowers, pointed petals and in the shape of the lip.

The flowers, according to Pulle are yellow-green.

Only a solitary dried specimen was to hand.



Bulbophyllum palilabre J.J. Sm., in Bull. Jard. Bot. Buit. 2<sup>e</sup> ser. XIII  
(1914), 67.

Tab. CXXXV, 253.

(latin diagnosis)

Dutch New Guinea : Arfak Range at Angi Lake, alt. c. 1900m, epiphytic  
in forest, on the rocky lake bank (K. Gjellerup no. 1116, flowering  
in Apr. 1912).

Among the species of the section Polyblepharon this one stands  
closest to B. blepharicardium Schltr. on account of the shape of the lip,  
but differing, apart from in other respects, in the petals drawn out  
like antennae, the non-pointed lip bent markedly in an 'S' shape, tri-  
dentate column-auricles, and in a thicker column-foot.

According to Gjellerup, the leaves are slightly shining and flushed  
yellow-violet, the flowers are brown-red.

Description from herbarium and alcohol-preserved material.

Bulbophyllum Cerambyx J.J. Sm., in Mededeel. Herb. Leid. 23 (1915), 12.

Tab. CXXXVI, 254.

(latin diagnosis)

Dutch New Guinea : Geelvink Bay, Jabi Range, near Wape, epiphytic  
in forest (R.F. Janowsky no. 419, flowering in June 1913).

The closest relatives of this species are probably B. bicaudatum  
Schltr. and B. inauditum Schltr.

Judging by the formalin-preserved material, the dorsal sepal is  
purple on the outside and whitish inside, the lateral sepals purple  
on the outside, white on the inside with two broad longitudinal purple  
stripes and upper margin, and pallid purple antennae pale yellow at the  
tip; the petals white, the lip pale yellow with a lead-coloured margin,  
the column white, and the column-foot white with black marking.

Description from a single herbarium specimen, and two inflorescences  
with a pseudobulb stored in formalin.

## Section : Monosepalum

Bulbophyllum muricatum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XLV

(1911), 9; in Nova Guinea VIII (1911), [583], t. C, B.

Monosepalum muricatum Schltr., Orch. Deutsch-Neu-Guinea (1912), 682.

(latin diagnosis)

Dutch New Guinea : Ridge of the Treub Range, on the west side, alt. c. 2300m, between shrubs growing terrestrially on loam (A. Pulle no. 967 leg. Snell, flowering in Jan. 1913); peak of the Wichmann Range, alt. c. 3000m (A. Pulle nos 989 and 1051, flowering in Feb. 1913); ridge of the Hubrecht Range, alt. c. 3100m, growing terrestrially (A. Pulle no. 2446 leg. G.M. Versteeg, flowering in Feb. 1913); Arfak Range, alt. c. 1900m, in forest on swampy humus with decomposed granite (K. Gjellerup no. 1047, flowering in Apr. 1912).

A species clearly not uncommon in the higher mountain regions of our Territory. I have now augmented my earlier description from the specimen collected as no. 967 and stored in alcohol.

It is noteworthy that the sepals were completely free in the flowers collected by Gjellerup in the Arfak Range. I am definitely not of the opinion that they were free on the fresh flower, but more willing to accept that they were cohesive and became free after preserving in strongly diluted alcohol. At any rate they were not adnate, as I considered earlier, after examining a single dried, strongly pressed flower.

Gjellerup's plant, with the appendages to the petals, shows a few small differences from the Type. Later on, perhaps when more material is available, it may be separated as a variety.

## Section : Ehippium

Section Ehippium as arranged by Schlechter includes so many, in part only little - interrelated species and is so indistinctly separated from other sections set up by him, that one is compelled either to expand the section considerably or to eliminate the divergent species.

So as to retain Schlechter's classification I have taken the last choice.

The species which I include have more-or-less ovate, often angular or furrowed pseudobulbs, thin single-flowered stems, small, usually more-or-less serrated petals, a lip linguiforme or narrow-linguiforme at the front and very movable, subulate column-auricles, and with a column-foot free at the front, and considerably broadened.

Apart from the species following, others belonging here are, for example: B. Blumei J.J. Sm., B. nasica Schltr., B. longirostre Schltr., B. quadrangulare J.J. Sm., B. zebrinum J.J. Sm. (with which B. ornithoglossum Schltr. is very closely related), B. adenambon Schltr., B. trichambon Schltr., B. neo-guineense J.J. Sm., B. violaceum Lindl., B. hydrophilum J.J. Sm., B. angulatum J.J. Sm., B. crassinervium J.J. Sm., B. tenuifolium Lindl. and B. luteopurpureum J.J. Sm. Apart from these, there are definitely several other related species, but these could not be established without having investigated specimens, since the descriptions frequently were lacking in just the more important details.

Bulbophyllum ? masdevalliaceum Krzl., in Engl. Bot. Jahrb. XXXIV (1904), 251.

B. Blumei J.J. Sm. (p.p.?) in Nova Guinea VIII (1911), 583.

Dutch New Guinea : At the Noord River (Lorentz Expedition 1907, Djibdja, living plant in cultivation at Hort. Bog. under 199 Dj.); at the mouth of the Mamberamo River epiphytic (R.F. Janowsky no. 447, flowering in Sept. 1913); Kurudu Island, epiphytic at the coast (R.F. Janowsky no. 482, flowering in Oct. 1913).

I suspect that those plants I listed earlier under B. Blumei J.J. Sm. belong to B. masdevalliaceum Krzl. I am not at all certain whether there are actually two species here.

Bulbophyllum longicaudatum J.J. Sm., in Bull. Jard. Bot. Buit. 2<sup>e</sup> sér. XIII (1914), 67.

B. Blumei J.J. Sm. var. longicaudatum J.J. Sm., in Nova Guinea VIII

(1911), 583, t. C.A.

(latin diagnosis)

Dutch New Guinea : Humboldt Bay, Cape Tuatja (Caillié), alt. c. 50m,  
epiphytic in forest (K. Gjellerup no. 994, flowering in Feb. 1912).

If B. nasica Schltr., B. longirostre Schltr. and B. falcatoaudatum  
J.J. Sm. are to be considered as separate species, then this plant also  
is specifically different.

Description from alcohol-preserved material, as well as from plants  
in cultivation at Buitenzorg.

Bulbophyllum falcatoaudatum J.J. Sm., in Bull. Jard. Bot. Buit. 2<sup>e</sup> sér.

XIII (1914), 68,

Tab.CXXXVI, 255.

(latin diagnosis)

Dutch New Guinea : East coast of Geelvink Bay at the Giriwo River,  
epiphytic in forest (R.F. Janowsky no. 105, flowering in July 1912).

A close relative of B. nasica Schltr., from which the specimens to  
hand are distinguished by narrower leaves, shorter inflorescences,  
smaller flowers, falcate, non-clavate thickened sepals, and differently  
shaped petals.

According to Janowsky, the flowers are yellow with a pale violet lip.

Description from alcohol-preserved material.

Bulbophyllum zebrinum J.J. Sm., in Bull. Jard. Bot. Buit. 2<sup>e</sup> sér. II

(1911), 16 [17].

Dutch New Guinea : Without locality details, epiphytic in primary  
forest (A. Pulle no. 2008, flowering in Jan. 1913).

Bulbophyllum quadrangulare J.J. Sm., in Bull. Jard. Bot. Buit. 2<sup>e</sup> sér.

II (1911), 16; in Nova Guinea XII (1913), 97, t. XX, 60.

var. latisepalum J.J. Sm., nov. var.

(latin diagnosis)

Dutch New Guinea : Arso, alt. c. 60m, epiphytic in forest

(K. Gjellerup no. 641, flowering in Aug. 1911).

This plant differs from the Type, especially in the broader sepals.

According to the collector, the flowers are green-yellow, the pseudobulbs dark green.

Bulbophyllum undatilabre J.J. Sm., in Fedde Rep. XI (1912), 276.

Tab. CXXXVI, 256.

(latin diagnosis)

Dutch New Guinea : Hinterland of Hollandia at Humboldt Bay, epiphytic in forest on a hill, alt. c. 75m, (K. Gjellerup no. 943, flowering in Jan. 1912).

This species belongs to the closest relatives of B. violaceum Lindl., B. tenuifolium Lindl., B. hydrophilum J.J. Sm., B. crassinervium J.J. Sm., etc., and is distinguished by a warty lip.

According to the collector, the flowers are pale brown-yellow, the lip brown-red.

The specimens had suffered too much to be able to make a sketch of the complete flower.

Bulbophyllum lamelluliferum J.J. Sm., in Fedde Rep. XII (1913), 400.

Tab. CXXXVII, 257.

(latin diagnosis)

Dutch New Guinea : Giriwo River, epiphytic in forest (R.F. Janowsky no. 144, flowering in July 1912).

The closest relative of this plant is probably B. trichambon Schltr., which differs in shorter leaves, much shorter inflorescences, shorter sepals beset on the inside with numerous small ciliated lamellae; broader petals with short cilia, and a significant, appreciably longer lip. The lip furthermore, is of a much more complicated structure at the base than is apparent from Schlechter's description.

According to the collector, the flowers are violet.

Description from alcohol-preserved material.

## Section : Micromonanthe

Into this section I place all those species with single-flowered inflorescences that I cannot accommodate elsewhere. With Schlechter too, this is a polymorphic group.

I consider it quite possible that one may eventually be compelled to make this section much broader than intended by Schlechter, to achieve a clearly delimited group.

Bulbophyllum contortisepalum J.J. Sm., in Bull. Jard. Bot. Buit. 2<sup>e</sup> sér.

III (1912), 23; in Nova Guinea XII (1913), 80, t. XXI, 64.

Dutch New Guinea : Hinterland of Hollandia, at Humboldt Bay, alt. c. 50m, on the border of a forest, towards an Imperata-covered hill (K. Gjellerup no. 951, flowering in Jan. 1912; living plant in cultivation at Hort. Bog. under no. 142.).

The flowers have a peculiar odour, somewhat reminiscent of chlorine. The colour agrees with Gjellerup's description, except that the apex of the lip is green-yellow, not white.

Bulbophyllum obovatifolium J.J. Sm., in Bull. Jard. Bot. Buit. 2<sup>e</sup> sér.

III (1912), 24 [76]; in Nova Guinea XII (1913), 80, t. XXI, 63.

Dutch New Guinea : Hinterland of Hollandia, alt. c. 50m, on trees on a forest-covered hill (K. Gjellerup no. 1011, flowering in Feb. 1912).

Bulbophyllum rupestre J.J. Sm., in Mededeel. Herb. Leid. 23 (1915), 12.

Tab. CXXXVII, 258.

(latin diagnosis)

Dutch New Guinea : Treub Range, on the steep south slope, alt. c. 2400m, growing on schist (A. Pulle no. 1091, flowering in Feb. 1913).

The species is probably most closely related to B. rivulare Schltr., but, according to the description, differing in larger dimensions, larger, much longer-stemmed flowers, differently marked, differently shaped petals, a much-more bent lip (according to Schlechter's sketch), auricles

divided at the apex into two divergent teeth, and a differently shaped anther.

On account of the large sheaths which also cover the pseudobulbs for the most part, the rhizome appears much thicker than it actually is.

According to the collector, the flowers are purple-striped and blotched on a white or yellowish base, the petals with black dots at the apex, the apex of the lip purple.

Description from herbarium material and several alcohol-preserved flowers.

Bulbophyllum pisibulbum J.J. Sm., in Bull. Jard. Bot. Buit. 2<sup>e</sup> sér. XIII (1914), 68.

Tab. CXXXVIII, 259.

(latin diagnosis)

Dutch New Guinea : Treub Range, on the steep south slope, alt. c. 2400m, growing terrestrially on schist (A. Pulle no. 1094, flowering in Feb. 1913).

This species is reminiscent in several regards of B. rivulare Schltr., judging by the description, but the former differs in smaller flowers of a different colour, the petals pointed, ciliated and without a little lobe.

According to Pulle, the flowers are yellow-green, with dense violet lines.

Description from alcohol-preserved material.

Bulbophyllum bigibbosum J.J. Sm., in Fedde Rep. XII (1913), 401.

Tab. CXXXVIII, 260.

(latin diagnosis)

Dutch New Guinea : Arfak Range, alt. c. 1900m, on a tree (K. Gjellerup no. 1106, flowering in Apr. 1912).

The species is definitely closely related to B. odontopetalum

Schltr. However, according to the description and sketch, it has longer pseudobulbs, broader leaves, longer flower stems, longer sepals, petals stronger constricted below and deeper serrated above, a much longer lip stronger constricted at the base, and with a double callus, also differently shaped column-auricles.

According to a note of the collector, the flowers are brown-red, with white longitudinal stripes.

Description from alcohol-preserved material.

Bulbophyllum futile J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX

(1908), 6; in Nova Guinea VIII (1909), 94, t. XXXI, 103.

Dutch New Guinea : At the middle Legarei River, alt. c. 650m, epiphytic in forest (R.F. Janowsky no. 80, flowering in June 1912).

In complete agreement with the Type.

Bulbophyllum paucisetum J.J. Sm., in Mededeel. Herb. Leid. 23 (1915), 13.

Tab.CXXXVIII, 261.

(latin diagnosis)

Dutch New Guinea : South coast of Geelvink Bay, Jabi Range near Wape, epiphytic in forest (R.F. Janowsky no. 318, flowering in May 1913).

An easily recognized species but which, however, is not easy to place in any of the sections so far set up, and which I therefore place in section Micromonanthæ, for the time being.

According to Janowsky's statements, the flowers are green, with many carmine-red little dots and lines.

The herbarium and alcohol-preserved material is very sparse.

Section : Brachypus

The species belonging here do not all have compact pseudobulbs as Schlechter accepts in the case of B. floribundum J.J. Sm., which definitely is related to B. Versteegii J.J. Sm.; they are far apart as I stated already earlier.



Bulbophyllum floribundum J.J. Sm., in Fedde Rep. XI (1912), 113.

Tab. CXXXIX, 262.

(latin diagnosis)

Dutch New Guinea : Gautier Range, on the north side, alt. c. 300m, epiphytic in forest on limestone and basalt (K. Gjellerup no. 815, flowering in Nov. 1911).

The species is a relative of B. Versteegii J.J. Sm., but very different in habit and colour of the flowers.

Gjellerup describes the plant as creeping. The spirally arranged pseudobulbs, as well as the roots appressed to the rhizome indicate, however, that it hangs down from the branches.

The rhizomes grow up to a length of 1 - 2m. The flowers are lilac with white tips.

Section: Papulipetalum

This section comprises a number of inter-related species, whose characteristics include also the long flower stem, and the relatively slender column.

B. aspersum J.J. Sm., B. longipedicellatum J.J. Sm. and B. spathipetalum J.J. Sm. belong here.

Some of the species placed here by Schlechter efface the limits of the group, as already mentioned by the author. B. Lorentzianum J.J. Sm. probably does not belong here.

Bulbophyllum arsoanum J.J. Sm., in Fedde Rep. XI (1912), 276.

Tab. CXL, 263.

(latin diagnosis)

Dutch New Guinea : At the Arso [River], alt. c. 60m, epiphytic in forest (K. Gjellerup no. 640, flowering in Aug. 1911).

The plant is closely related to B. spathipetalum J.J. Sm. and B. aspersum J.J. Sm., but is readily distinguished from both by larger flowers, petals papillose above, and by the long pedicels.

Gjellerup describes the colour of the flowers as yellowish white with pale violet dots.

Only a single specimen, preserved partly in alcohol, was collected. Bulbophyllum longipedicellatum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl.

XXXIX (1910), 3; etc.

Dutch New Guinea : Lorentz River, near the Kloof Bivouac, epiphytic in primary forest (J.B. Sitanala nos 11231 and 11235, flowering in Jan. 1913; also living plant in cultivation at Hort. Bog.).

A plant which flowered at Buitenzorg had closely compacted, c. 2 cm long pseudobulbs with a thickened base and extending into a fairly long neck. The leaves are up to c. 19.5 cm long and 1.6 cm broad. The sepals are green-yellow, more-or-less hirsute on the inside and the lateral sepals cohesive to the neighbouring margins, except at the apex; the petals are green-spotted, dark brown-violet at the base and apex; the lip pale green-yellow with warty brown spots, the column green, the column-foot with longitudinal black-red stripes, the anther green.

Bulbophyllum conspersum J.J. Sm., in Fedde Rep. XII (1913), 400.

Tab. CXL, 264.

(latin diagnosis)

Dutch New Guinea : Gautier Range, on the north slope, alt. c. 400m, epiphytic in forest on limestone and basalt (K. Gjellerup no. 886, flowering in Nov. 1911).

This species differs from B. longipedicellatum J.J. Sm., apart from in other respects, in much smaller flowers; from B. brevilabium Schltr. in shorter pseudobulbs; shorter, broader, blunter leaves; shorter peduncles; the elliptical dorsal sepal, inside with short hairs; and the petals papillose inside; and from B. hians Schltr. in pseudobulbs standing close together, shorter leaves, shorter-stemmed, much shorter peduncles, and smaller flowers of a different colour.

According to Gjellerup, the flowers are greenish Isabel [buff]-

yellow, with small brown-red dots, the lip with intense violet dots.

Section : Vesicisepalum

Rhizome pendulous, extended. Pseudobulbs attached at the base to the rhizome; inflorescences bunched, short, single-flowered; flowers medium large. Lateral sepals connate to dorsal sepal at the base, further with one species an open vesicle attached between the lateral sepals. Petals smaller; lip movable, small, carnose. Column with subulate auricles and distinct foot.

Bulbophyllum folliculiferum J.J.Sm., in Bull. Jard. Bot. Buit. 2<sup>e</sup>sér.

XIII (1914), 69.

Tab. CXLI, 265.

(latin diagnosis)

Dutch New Guinea : Giriwo River, epiphytic in forest (R.F. Janowsky no. 155, flowering in July 1912).

A very characteristic species with the lateral sepals connate at the base to the dorsal sepal.

Schlechter places the Bulbophyllinae with connate sepals partly as sections to Bulbophyllum, although according to the key of the genera of this group (Orch. Deutsch-Neu-Guinea, 680), the genus is supposed to have free sepals, and on them, in part, new genera are based. These new genera Tapeinoglottis [Tapeinoglossum], Codonosiphon and Monosepalum agree with Bulbophyllum completely in their characters as far as I know them or can see from their description. Amongst themselves they are no more different than the sections of Bulbophyllum. Therefore, it is not really understandable, how, firstly the species with connate sepals are left partly with Bulbophyllum and placed partly with new genera, and secondly how the same differences with species having connate sepals are used as genus characteristics, whilst for those with free sepals, the section characteristics are used. At any rate the sub-genus Bisepalum appears to have been placed only

provisionally under Bulbophyllum.

Under B. muricatum J.J.Sm. the reason is given why Monosepalum, in my opinion, is not treated as a genus.

Codonosiphon together with Scaphochilus [Scyphochilus] should probably be placed in the sub-genus Hapalochilus.

For the present I should like to consider Tapeinochilus [Tapeinoglossum] Schltr. as a section of Bulbophyllum and also I consider it equally desirable provisionally to base a new section on B. folliculiferum J.J.Sm., as defined in detail above.

[Ed. J.J. Smith refers here to Tapeinoglottis, as a Schlechter genus. Schlechter described a genus Tapeinoglossum but Tapeinoglottis or Tapeinochilus do not appear in Orch. Deutsch-Neu-Guinea].

The flowers, according to the collector are dark green with red dots.

Description from herbarium and alcohol-preserved material.

Section : Fruticicola

The species placed here by Schlechter are, at least for the greater part, related. However, I did not consider it correct to exclude species such as B. elodeiflorum J.J.Sm. and B. ischnopus Schltr., although they agree in habit with Micromonanthe.

In floral structure they are completely similar to the Fruticicola species, but one surely needs to be somewhat careful in using characters of habit, as shown by certain groups, where the delimitation is not in doubt.

Whether Epibulbon, and perhaps also several groups can, in the long run, be maintained separate is not quite sure to me.

B. acutilingue J.J.Sm. has the habit of Fruticicola; the rhizome has sheaths and appressed roots.

B. cyclopense J.J. Sm. has a rhizome covered with sheaths, only branched and rooting at the base.

Bulbophyllum elodeiflorum J.J. Sm., in Fedde Rep. XI (1912), 278.

Tab. CXLII, 266.

(latin diagnosis)

Dutch New Guinea : Gautier Range, on the north slope, epiphytic in forest on limestone and basalt (K. Gjellerup no. 909, flowering in Nov. 1911).

According to the description, this species is reminiscent of B. ischnopus Schltr., but has longer pseudobulbs, shorter broader leaves, smaller flowers and a very different labellum.

The flowers are pale Isabel [buff]-coloured, with brown-red longitudinal stripes, the labellum pale brown-red, the column yellow.

Only a solitary specimen was found and preserved in alcohol.

The piece of rhizome to hand is 5 cm long.

Bulbophyllum sawiense J.J. Sm., in Fedde Rep. XI (1912), 279.

Tab. CXLII, 267.

(latin diagnosis)

Dutch New Guinea : Sawia, alt. c.100m, epiphytic in forest (K. Gjellerup no. 614, flowering in Aug. 1911).

Differs from B. Planitiae J.J. Sm. in lesser size, leaves not keeled below, and smaller flowers of a different colour.

According to Gjellerup, the flowers are brown-red, with white longitudinal lines.

Description from fragments preserved in alcohol.

Bulbophyllum dendrobioides J.J. Sm., in Fedde Rep. XII (1913), 402.

Tab. CXLIII, 268.

(latin diagnosis)

Dutch New Guinea : Arfak Range, at Angi Lake, alt. c. 1900m, epiphytic in forest (K. Gjellerup no. 1076, flowering in Aug. 1912).

This species has ciliate petals in common with B. hystricinum Schltr., but differs from it in longer pseudobulbs, larger flowers of a different colour, and differently shaped floral segments.

In habit the plant appears similar to an Appendicula or Dendrobium species.

The flowers are yellowish white with longitudinal stripes, the lip is orange.

Description from herbarium and alcohol-preserved material.

Bulbophyllum acutilingue J.J. Sm., in Bull. Dép. Agric. Néerl. XIX (1908), 4; in Nova Guinea VIII (1909), 89, t. XXIX, 96.

Dutch New Guinea : Giriwo River, epiphytic in forest (R.F. Janowsky no. 137, flowering in July 1912); at the middle Tor River on trees in forest (K. Gjellerup no. 751, flowering in Sept. 1911).

The plant from the Tor River differs, in the less pointed petals and in the lip, from other specimens of the species, which is somewhat variable in size of the flowers. At present I see no reasons for separating it as a variety.

Bulbophyllum imbricans J.J. Sm., in Fedde Rep. XI (1912), 278.

Tab. CXLIII, 269.

(latin diagnosis)

Dutch New Guinea : Gautier Range, on the north slope, alt. c. 400m, epiphytic in forest on limestone and basalt (K. Gjellerup no. 882, flowering in Nov. 1911).

A species of the B. perductum J.J. Sm. affinity, recognised by the closely adjacent two-ranked, four-cornered pseudobulbs, which are strongly excavated on the side directed towards the rhizome, and on the opposite side. In this regard it resembles B. sawiense J.J. Sm., which, however, has spirally arranged pseudobulbs.

According to Gjellerup, the flowers are brown-violet, with pale yellow longitudinal stripes, the labellum is yellow-brown.

The leaves usually are flushed violet-red.

The material was too badly damaged to be able to prepare a sketch of the flowers.

Section : Sphaeracron

Bulbophyllum pachyacris J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 7; in Nova Guinea VIII (1909), 97, t. XXXII, 106.

Dutch New Guinea : On the upper Tor River, between Berkombor and Gwistèra, alt. c. 50m, epiphytic in forest (K. Gjellerup no. 811, flowering in Oct. 1911).

Bulbophyllum triclavigerum J.J. Sm., in Fedde Rep. XII (1913), 402.

Tab. CXLIII, 270.

(latin diagnosis)

Dutch New Guinea : Arfak Range, at Angi Lake, alt. c. 1900m, epiphytic in forest (K. Gjellerup no. 1238, flowering in May 1912).

Amongst the species of Schlechter's small section Sphaeracron this one, together with B. rhopalophorum Schltr., has the largest flowers. It differs from the latter in larger pseudobulbs, smaller leaves, and a differently shaped, markedly bent labellum which is wavy in front.

The leaves and flowers, according to the collector, are brown-red.

Section : Epicrianthes

Bulbophyllum conchophyllum J.J. Sm., in Fedde Rep. XI (1912), 133.

Tab. CXLIV, 271.

(latin diagnosis)

Dutch New Guinea : Hinterland of Hollandia, at Humboldt Bay, alt. c. 150m, in forest on hills (K. Gjellerup no. 594, flowering in Aug. 1911).

A very interesting species of the section Epicrianthes. The inflorescences are hidden beneath the thick, rigid leaves, which are strongly concave below.

I take these details from the collector's notes :

Leaves thick, carnose, rigid, fragile, matt blueish dark green with a blue-green and violet metallic sheen, below deep violet-red and likewise with metallic sheen. The sepals brown-red with brown-violet dots, petals with a white base and violet appendages; the lip yellow at the base, the upper half and central ridge a dark red-brown; the apex of the column dotted pale violet.

Section : Oxysepalum

Bulbophyllum hollandianum J.J. Sm., in Fedde Rep. XII (1913), 403.

Tab. CXLIV, 272.

(latin diagnosis)

Dutch New Guinea : Hollandia at Humboldt Bay (K, Gjellerup, living plant in cultivation at Hort. Bog. under no. 255).

Amongst the related species, this one is recognised by the relatively large pseudobulbs.

Orange-coloured flowers appear to be rare in this section, otherwise they are mentioned only for B. tenue Schltr.

Bulbophyllum filicaule J.J. Sm., in Fedde Rep. XII (1913), 404.

Tab. CXLV, 273.

(latin diagnosis)

forma flavescens J.J. Sm.

Dutch New Guinea : On the Lorentz River, near Alkmaar (Lorentz Expedition 1907, Djibdja, living plant in cultivation at Hort. Bog. under no. 589Dj); (Lorentz Expedition 1909, Rachmat, living plant in cultivation at Hort. Bog. under no. 481R).

I place the species in the section Oxysepalum, since it does not differ in even a single character. However, the colouring, especially the red labellum, is unusual for the section.

However, the species is variable in this regard, since of three living specimens I have examined, no two were similar.

Bulbophyllum citrinilabre J.J. Sm., in Fedde Rep. XII (1913), 403.



(latin diagnosis)

Dutch New Guinea : On the Lorentz River near Alkmaar (Lorentz Expedition 1907, Djibdja, living plant in cultivation at Hort. Bog. under no. 530).

Probably most closely related to B. pungens Schltr., however, the pseudobulbs have longitudinal ribs, the leaves are not narrowed in a terete manner at the base, but are short cuneate and blunt, and according to the description, the petals have a different shape.

Bulbophyllum piliferum J.J. Sm., in Bull. Dép. Agr. Ind. Néerl. XIX (1908), 8; in Nova Guinea VIII (1909), 98, t. XXXII, 107.

Dutch New Guinea : Hinterland of Hollandia at Humboldt Bay, epiphytic in the forest border towards an Imperata-covered hill (K. Gjellerup no. 957, flowering in Jan. 1912); Arfak Range, alt. c. 1800m, epiphytic in forest (K. Gjellerup no. 1068, flowering in Apr. 1912).

Even though no. 1068 was collected at a much higher altitude than the previous specimens, I have not been able to establish any difference.

Section : Pelma

Schlechter's statement, that I wanted to accommodate only single-flowered inflorescences here, is incorrect. In fact the section was suggested at the same time as B. subcubicum J.J. Sm., with racemose inflorescences, was described.

Perhaps it is correct if also B. fractiflexum J.J. Sm. and B. colliferum J.J. Sm., etc. are placed here. However, they are lacking the characteristic column-foot thickened at the apex, which fits into an excavation at the base of the lip.

Bulbophyllum Pelma J.J. Sm., in Bull. Jard. Bot. Buit. 2<sup>e</sup> sér. III (1912), 14.[66].

B. absconditum J.J. Sm. var. neo-guineense J.J. Sm., in Nova

Guinea VIII (1909), 88, t. XXIX, 95.

Pelma abscondita Finet, in Not. Syst. I (1909), 112, fig. 6, 1 - 7.

var. gautierense J.J. Sm., nov. var.

(latin diagnosis)

Dutch New Guinea : Gautier Range on the north slope, alt. c. 350m, epiphytic in forest on limestone and basalt, at the bank of a stream (K. Gjellerup no. 883, flowering in Nov. 1911).

The variety differs slightly from the Type in the shape of the lip.

According to Gjellerup the flowers are Isabel [buff]-coloured.

Bulbophyllum subcubicum J.J. Sm., in Fedde Rep. X [XI] (1912), 487; in

Nova Guinea XII (1913), 86, t. XXIII, 69.

Dutch New Guinea : On the route to Mount Goliath (A.C. De Kock, living plants in cultivation at Hort. Bog. under nos 130 and 142)..

var. coccineum J.J. Sm., nov. var.

(latin diagnosis)

Dutch New Guinea : Humboldt Bay, near Hollandia (K. Gjellerup, living plant in cultivation at Hort. Bog. under no. 264).

At first sight this plant differs somewhat in the colour of the lip. Provisionally, I have set up a variety.

Bulbophyllum unigibbum J.J. Sm., in Fedde Rep. XII (1913), 404.

Tab. CXLVI, 275.

(latin diagnosis)

Dutch New Guinea : Arfak Range, at Angi Lake, alt. c. 1900m, between moss-covered shrubs on swampy moss-covered humus on granite and and decomposed rocks (K. Gjellerup no. 1114, flowering in Apr. 1912).

Amongst the species described by Schlechter in respect of the number of flowers, only B. gorumense Schltr. and B. xanthochlamys Schltr. can be compared with this new species : B. leucothyrsus Schltr. has multi-flowered inflorescences, all others are 1 - 4 flowered.

B. gorumense Schltr. is very different in the long, extended

sepals and short lip, whilst B. xanthochlamys Schltr., probably the closest related species, differs in the only 4-to 6-flowered inflorescences, shorter bracts, shorter lateral sepals, and especially in the blunt lip with only two tubercles.

According to the collector, the stems are pale brown-grey, a weak pale shiny green, the flowers aromatic, fragrant and green-yellow with an orange-coloured lip.

Description from herbarium and alcohol-preserved material.

Bulbophyllum ? lamprobulbon Schltr., Orch. Deutsch-Neu-Guinea (1913), 863.

Dutch New Guinea : On the upper Digul [River] (B. Branderhorst, living plant in cultivation at Hort. Bog. under no.4); (Second Lorentz Expedition 1909, Rachmat, living plant in cultivation at Hort. Bog. under no. 453 R).

The flowers of the specimen cultivated at Buitenzorg agree excellently with Schlechter's sketch of B. lamprobulbon Schltr., however, the plants are more robust than the Schlechter ones.

The flowers are yellowish white.

Section : Peltopus

Bulbophyllum subapetalum J.J. Sm., in Mededeel. Herb. Leid. 23 (1915), 13.

Tab. CXLVII, 276.

(latin diagnosis)

Dutch New Guinea : South coast of Geelvink Bay, Jabi Range, near Wape, epiphytic in forest (R.F. Janowsky nos 312 and 411 (Type), flowering in May and June 1913).

An easily recognised species of the section Peltopus,

No. 312 has slightly broader leaves (up to 1.35 cm broad), and somewhat smaller flowers.

According to Janowsky the rhizomes reach a length of 0.5m; and the flowers are yellow with the lip carmine-red behind the margin, and blue

at the apex.

Description from herbarium and formalin-preserved material.

Bulbophyllum octarrhenipetalum J.J. Sm., in Fedde Rep. XII (1913), 400.

Tab. CXLVIII, 277.

(latin diagnosis)

Dutch New Guinea : Arfak Range, alt. c. 1600m, epiphytic in forest  
(K. Gjellerup no. 1090, flowering in Apr. 1912).

This species belongs to Schlechter's section Peltopus and appears to be most closely related to B. brachypetalum Schltr., but has appreciably smaller flowers. Furthermore, the leaves are broader, the inflorescences shorter, the flowers of a different colour, and the shape of the lip and column different.

The large appendage of the column-foot fits into the excavation at the base of the lip, exactly as for the true Pelma species.

According to Gjellerup, the pseudobulbs are pale green, the leaves a shiny dark green, and the flowers a pale creamy yellow.

Description from alcohol-preserved material.

It appears to me that, perhaps, it may be better to place B. discolor Schltr. here.

Bulbophyllum quadrans J.J. Sm., in Mededeel. Herb. Leid. 23 (1915), 13.

Tab. CXLVIII, 278.

(latin diagnosis)

Dutch New Guinea : Geelvink Bay, Jabi Range, near Wape, epiphytic in forest (R.F. Janowsky nos 368 and 418, flowering in May and June 1913).

Of the previously described species of the section Peltopus, this one is distinguished by the relatively shorter sepals.

According to the collector, the flowers are white, with a purple-red lip.

Description from sparse dried and formalin-preserved material.

## Section : Uncifera

I do not share Schlechter's opinion to have Manobulbon as a section apart from Uncifera. The species seem to me to belong together naturally.

Bulbophyllum adpressiscapum J.J.Sm., in Mededeel. Herb. Leid. 23 (1915), 14.

Tab. CXLIX, 279.

(latin diagnosis)

Dutch New Guinea : Ridge of the Hellwig Mountain [Range], alt. c. 2600m, epiphytic in primary forest (A. Pulle no. 962, flowering in Jan. 1913).

B. manobulbum Schltr. can probably be considered as the closest relative. The new species differs from it in shorter pseudobulbs, non bi-lobed leaves, very short inflorescences, oval, blunt petals, and the anther not incised at the apex. The description of the more important floral segments, i.e., the lip and column of B. manobulbum Schltr., has been treated so superficially, that it is useless for comparison.

According to Pulle, the flowers are yellow.

Description from alcohol-preserved material.

Bulbophyllum angiense J.J.Sm., sp. nov.

Tab. CXLIX, 280.

(latin diagnosis)

Dutch New Guinea : Arfak Range, at Angi Lake, alt. c. 1900m, epiphytic in forest on the bank of the lake (K. Gjellerup no. 1119, flowering in Apr. 1912).

Without doubt, the species is closely related to B. cylindrobulbon Schltr., where the flowers are coloured similarly. According to Schlechter's description, B. angiense J.J.Sm. differs in smaller dimensions, shorter, thicker pseudobulbs, pointed leaves, triangular, not-pointed bracts, shorter sepals and lip and a short rostrate

anther not inclined at the apex.

Only a single small specimen exists, preserved in alcohol and consisting of one pseudobulb, with one leaf and one inflorescence.

According to Gjellerup, the flowers are violet-red.

Bulbophyllum furciferum J.J. Sm., in Bull. Jard. Bot. Buit. 2<sup>e</sup> sér. XIII (1914), 69.

Tab. CL, 281.

(latin diagnosis)

Dutch New Guinea : Arfak Range, alt.c. 1800m, epiphytic in forest (K. Gjellerup no. 1069, flowering in Apr. 1912).

The species differs from B. imitans Schltr., which it appears to resemble, especially in the shape of the lip, in the repeatedly furcate rhizome, pseudobulbs standing closer together, larger leaves, much shorter inflorescences, smaller flowers, and different shaped stelidia.

According to Gjellerup, the flowers are a pale creamy yellow.

Bulbophyllum constrictilabre J.J. Sm., in Mededeel. Herb. Leid. 23 (1915), 14.

Tab. CLI, 282.

(latin diagnosis)

Dutch New Guinea : Ridge of the Hellwig Range, alt. c. 2600m, epiphytic in primary forest (A. Pulle nos 887, 940 and 940a, flowering in Jan. 1913).

The species appears to stand closest to B. imitans Schltr., but differs from all others, in that the lip is markedly constricted at the centre.

The illustrations were made from no. 887, where the flowers are only just beginning to open; for this reason the sepals, in particular, are drawn as somewhat shorter than for a well-developed flower. Likewise the lip bends back further at a later stage.

The flowers of nos 887 and 940 are, according to the collector,

green-yellow, that of no. 940a, which grew together with no. 940, dark red with a yellow spot on the lip.

Description from herbarium and alcohol-preserved material.

Section : *Diceras*

Bulbophyllum posticum J.J. Sm., in Bull. Jard. Bot. Buit. 2<sup>e</sup> sér. II (1911), 19; in Nova Guinea XII (1913), 90, t. XXV, 74.

Dutch New Guinea : Arfak Range, alt. c. 1800m, epiphytic in forest (K. Gjellerup no. 1070, flowering in Apr. 1912).

Hardly differs from the Type, except that the lateral sepals are somewhat narrower. Closely related to B. diceras Schltr.

Section : *Tapeinoglossum*

Bulbophyllum centrosemiflorum J.J. Sm., in Fedde Rep. XI (1912), 139.

Tapeinoglossum centrosemiflorum Schltr., Orch. Deutsch-Neu-Guinea (1913), 892.

Tab. CLII, 283.

(latin diagnosis)

Dutch New Guinea : Gautier Range on the north slope, alt. c. 400m, epiphytic in forest on limestone and basalt (K. Gjellerup no. 897, flowering in Nov. 1911).

An extremely interesting species whose flowers are reminiscent of a Papilionaceae. The sepals are all connate, the dorsal with the lateral ones, only for a short length, the lateral ones between themselves up to the apex. The markedly excavated column-foot is noteworthy.

According to Gjellerup, the flowers are yellowish white, dotted overall, but especially on the dorsal sepal, in brown-violet; the column is yellow.

Only a solitary specimen was found and partly preserved in alcohol, partly dried.

Section : *Macrouris*

Bulbophyllum cavistigma J.J. Sm., in Fedde Rep. XI (1912), 279.

Tab. CLII, 284.

(latin diagnosis)

Dutch New Guinea : Gautier Range on the north slope, alt. c. 300m, epiphytic in forest on limestone and basalt (K. Gjellerup no. 828, flowering in Nov. 1911).

Related to B. trifilum J.J. Sm., but differing in much smaller dimensions, linear leaves, very short, few-flowered inflorescences and smaller flowers.

It appears that the section Macrouris is fairly closely related to Uncifera.

According to Gjellerup the flowers are yellowish white, flushed with violet at the base.

Only a very small amount of alcohol-preserved material was available.

Bulbophyllum filisepalum J.J. Sm., in Mededeel. Herb. Leid. 23 ( 1915), 15.

Tab. CLIII, 285.

(latin diagnosis)

Dutch New Guinea : Geelvink Bay, Jabi Range, near Wape, epiphytic in forest (R.F. Janowsky no. 412, flowering in June 1913).

Closely related to B. cavistigma J.J. Sm., but easily recognised by longer leaves, long extended sepals, and a more bent lip.

The flowers are stated to be white.

Description from herbarium and formalin-preserved material.

Bulbophyllum fatuum J.J. Sm., in Fedde Rep. XI (1912), 280.

Tab. CLIV, 286.

(latin diagnosis)

Dutch New Guinea : Gautier Range, on the north slope, alt. c. 500m, epiphytic in forest on limestone and basalt (K. Gjellerup no. 844,



flowering in Nov. 1911).

This plant is very closely related to B. trifilum J.J. Sm. and also in respect of dimensions is very similar. However, the inflorescences, even though multi-flowered, are much shorter; the flowers, with shorter stems of a different colour, and having shorter sepals and a thicker lip.

The available alcohol-preserved material is, however, very sparse and consists of a single pseudobulb, one leaf and one inflorescence, so that perhaps later on more material may show that this plant could be treated as a variety of B. trifilum J.J. Sm.

The flowers, according to Gjellerup, are pale yellow with the base coloured brown.

Section : Trachyrhachis

Bulbophyllum toranum J.J. Sm., in Fedde Rep. XI (1912), 137.

Tab. CLIV, 287.

(latin diagnosis)

Dutch New Guinea : Temenimbor on the Tor River, alt. c. 75m, epiphytic in forest (K. Gjellerup no. 797, flowering in Oct. 1911).

Most closely related to B. bulliferum J.J. Sm., but differing in sepals with longer cilia, broader longer ciliated petals with two teeth at the apex, as well as the character of the lip.

B. antennatum Schltr. belongs also to this affinity, but it still shows greater differences in the floral segments.

According to Gjellerup, the flowers and the rachis are violet-brown-red.

Bulbophyllum verrucibracteum J.J. Sm., in Fedde Rep. XII (1913), 405.

Tab. CLV, 288.

(latin diagnosis)

Dutch New Guinea : At the middle Tor River, alt. c. 25m, epiphytic in forest (K. Gjellerup no. 745, without date).

Closely related to B. bulliferum J.J. Sm., but differing in smaller dimensions, elliptical leaves, sepals with longer cilia, a longer lip, etc.

Differs from the recently described, apparently very similar B. barbilabium Schltr., in the inflorescences (wartly almost only on the bracts) which far overtop the leaves; the lateral sepals with long cilia on the lower margin; blunt, pointed petals; a very blunt ciliated labellum; a very divergently-shaped column and column-foot, and non-pointed anther. Furthermore, the colouring is stated to be different.

The flowers are pale brown-red.

Description from alcohol-preserved material.

Section : Ischnopus

Bulbophyllum cassideum J.J. Sm., in Fedde Rep. XI (1912), 138.

Tab. CLV, 289.

(latin diagnosis)

Dutch New Guinea : Gautier Range on the north slope, alt. c. 500m, epiphytic on limestone and basalt (K. Gjellerup no. 849, flowering in Nov. 1911); at the same place, alt. c. 300m (K. Gjellerup, mixed with no. 830).

The species is closely related to B. orbiculare J.J. Sm., but differs in the smaller pseudobulbs, leaves and flowers, peduncles wartly to the base, dorsal sepals compressed at the apex, etc.

The flowers are red-brown.

Bulbophyllum glabrilabre J.J. Sm., in Fedde Rep. XII (1913), 404.

Tab. CLVI, 290.

(latin diagnosis)

Dutch New Guinea : Gautier Range, on the north slope, alt. c. 300m, epiphytic in forest on limestone and basalt (K. Gjellerup no. 830, flowering in Nov. 1911).

This, clearly, is closely related to B. graciliscapum Schltr., but

according to the description, differing from it in broader leaves, warty rachis, larger flowers, broad non-pointed sepals, apparently much broader petals, and relatively shorter lip. Whether these differences suffice to keep the plant separate, in the long run, will be shown only by comparison of the specimens.

The flowers, according to Gjellerup, are red-brown, the pseudo-bulbs yellow-green.

Section : Hymenobractea

Bulbophyllum infundibuliforme J.J. Sm., in Ic. Bog. II (1903), 103, t. CXX, A.

Dutch New Guinea : Sawia, alt. c. 100m, epiphytic in forest (K. Gjellerup no. 638, flowering in Aug. 1911); Segar, on the upper Tor River, alt. c. 350m, epiphytic in forest (K. Gjellerup no. 964, flowering in Jan. 1912).

Schlechter considers it very likely that the specimens from New Guinea listed by me as B. infundibuliforme J.J. Sm. do not belong to this species, but rather to his B. garupinum Schltr. I can only counter that by saying that the species collected by Versteeg and others in New Guinea, without any doubt, is B. infundibuliforme J.J. Sm. It is, however, very probable that the plant brought back from my journey to the Moluccas and described as B. infundibuliforme J.J. Sm. did not really come from Ambon, but rather from New Guinea. The plants sent in advance from Ambon were treated rather haphazardly in Buitenzorg in my absence, and those collected later, as well as the many species received as gifts, and originating in New Guinea or Celebes had to survive a shipwreck. The numbers therefore, were partly lost. At the time (1900), I recorded for the plant : probably New Guinea, 292m, Dr. Horst, but I believe that after finding a plant at Herb. Bog., similar to the one collected by Teysmann, and originating from Ambon, according to the label, I had cause to doubt the label. However, after

I was able to examine numerous specimens from New Guinea, which were identical with the one described previously, I became convinced that my first record was correct.

It therefore is highly probable that B. garupinum Schltr. should be classed as a synonym of B. infundibuliforme J.J. Sm.

Bulbophyllum hymenobracteum Schltr., in Schum. et Laut., Nachtr. Fl.

Deutsch. Schutzgeb. Südsee (1905), 204.

var. giriwoense J.J. Sm., nov. var.

(latin diagnosis)

Dutch New Guinea : Giriwo River, epiphytic in forest (R.F. Janowsky no. 180, flowering in July 1912).

Since the description of B. hymenobracteum Schltr. is not very precise in certain aspects, and some differences can be shown, I have considered it desirable to set up a variety.

The flowers, according to Janowsky, are white.

Description from alcohol-preserved material.

Bulbophyllum dubium J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX [XXII]

(1908), 36; etc.

Dutch New Guinea : Lorentz River, near the Kloof Bivouac (J.B.

Sitanala no. 11242, flowering in Feb. 1913).

Section : Dialeipanthae

A very delimited section, but with which Schlechter's Lepidorhiza should be united.

Bulbophyllum thrixspermoides J.J. Sm., in Fedde Rep. XI (1912), 132.

Tab. CLVI, 291.

(latin diagnosis)

Dutch New Guinea : Gautier Range, on the north slope, alt. c.

300m, epiphytic in forest on limestone and basalt. (K. Gjellerup nos 814 and 851, flowering in Nov. 1911).

The closest relative of this species is B. thrixspermiflorum J.J. Sm.,

from which it differs in much smaller flowers, narrower petals, the lip warty at the base, more slender column, and the colouring.

According to Gjellerup, the leaves are matt dark green, the sepals white with longitudinal violet-red stripes, the lip brown-red, and the column yellow with brown dots.

Bulbophyllum serra Schltr., Orch. Deutsch-Neu-Guinea (1913), 759.

Tab. CLVI, 292.

Dutch New Guinea : On the middle Legarei River, alt. c. 80m, epiphytic in forest (R.F. Janowsky no. 74, flowering in June 1912); east coast of Geelvink Bay, on the Giriwo River, epiphytic in forest (R.F. Janowsky no. 101, flowering in July 1912). Geographic distribution : German New Guinea.

A very distinctive species.

Bulbophyllum scrobiculilabre J.J. Sm., in Bull. Jard. Bot. Buit. 2<sup>e</sup> sér.

XIII (1914), 70.

Tab. CLVII, 293.

(latin diagnosis)

Dutch New Guinea : On the upper Eilanden River (B. Branderhorst, living plant in cultivation at Hort. Bog. under no. 251).

The species is closely related to B. pugioniforme J.J. Sm., from Borneo, it has, however, pointed petals.

The rostellum is missing. The flowers open only partially, or remain closed.

Bulbophyllum acuminatum Schltr., Orch. Deutsch-Neu-Guinea (1913), 756.

Tab. CLVII, 294.

Dutch New Guinea : Arfak Range, alt. c. 1900m, epiphytic in forest (K. Gjellerup no. 1107, flowering in Apr. 1912); at Angi Lake, alt. c. 1900m, epiphytic in forest (K. Gjellerup no. 1211, flowering in May 1912); Geographic distribution : German New Guinea.

Bulbophyllum mamberamense J.J. Sm., in Mededeel. Herb. Leid. 23 (1915),

15.

Tab. CLVII, 295.

(latin diagnosis)

Dutch New Guinea : Mouth of the Mamberamo River, epiphytic on the river bank (R.F. Janowsky no. 459, flowering in Sept. 1913).

With the broad labellum, this species is reminiscent of B. Papilio J.J. Sm. and B. caloglossum Schltr., but it belongs to the affinity of B. digoelense J.J. Sm.

The flowers are brown with white stripes.

Description is from a dried specimen without flowers; also from a bulb with leaf, and tip of an inflorescence in alcohol.

Bulbophyllum Pristis J.J. Sm., in Fedde Rep. XII (1913), 399.

Tab. CLVIII, 296.

(latin diagnosis)

Dutch New Guinea : Arfak Range, alt. c. 1900m, epiphytic in forest (K. Gjellerup no. 1048 (Type), flowering in Apr. 1912); at Angi Lake, alt. c. 2100m, epiphytic in forest (K. Gjellerup no. 1179, flowering in Apr. 1912).

Among the closest relatives of B. digoelense J.J.Sm., this species, in respect of flower size, about equals that of B. distichum Schltr., however, it has a quite differently shaped labellum, not pointed and more delicately serrated up to the tip, and with blunt, small basal lobes, etc.

The flowers, according to Gjellerup, are Isabel [ buff ] - yellow, with red-brown longitudinal stripes connected by transverse veins, the column is green-yellow, the peduncle brown-red, and the leaves dark green.

Description of the vegetative segments from herbarium material, that of the inflorescences and flowers from alcohol-preserved material.

Bulbophyllum Crocodilus J.J. Sm., in Fedde Rep. XI (1912), 138.

(latin diagnosis)

Dutch New Guinea : Hinterland of Hollandia at Humboldt Bay on spurs of the Cyclops Range, alt. c. 300m, decumbent on rocks and trees, abundant at each locality (K. Gjellerup no. 999, flowering in Feb. 1912).

A species of the section Dialeipanthé, noteworthy on account of the flowers standing at a fixed angle, as seen amongst orchids, for instance, also in the case of Dendrobium antennatum Lindl. and the related species. The pollinia are exceptionally long and narrow.

According to Gjellerup, the leaves are matt green, the flowers pale green (the older ones green-yellow), and with broad violet-brown stripes, except at the tips; the column green-yellow, with a yellow tip.

The flowers preserved in diluted alcohol were unsuitable for an illustration of its habit.

Bublophyllum teretilabre J.J. Sm., in Fedde Rep. XII (1913), 399.

(latin diagnosis)

Dutch New Guinea : Giriwo River, epiphytic in forest (R.F. Janowsky no. 198, flowering in July 1912).

This plant differs from the very closely related B. Crocodilus J.J. Sm. in longer pseudobulbs, larger ovate leaves; a less-bent, narrower lip, in the front almost cylindrical with conical appendages, above, towards the base with a hardly detectable longitudinal groove, and with more pronounced ridges.

Furthermore, differences are noticeable in other floral segments, and the column-foot of B. Crocodilus J.J. Sm. is directed forward, whilst for B. teretilabre J.J. Sm. it forms a right-angle with the ovary.

More material is essential for a decision as to whether the species is sustainable. With the material to hand, partly alcohol-preserved and partly dried, there was only a solitary flower.

According to Janowsky, the flowers have red stripes, the lip is yellow.

Section : *Stenochilus*

Bulbophyllum Hahliianum Schltr., in Schum. et Laut., Nachtr. Fl. Deutsch.

Schutzgeb. Südsee (1905), 204.

B. macranthum Lindl. var. albescens J.J. Sm., Orch. Ambon (1905), 81.

Dutch New Guinea : At the Lorentz River on the Nepenthes Hills (First Lorentz Expedition 1907, Djibdja, living plant in cultivation at Hort. Bog.); Humboldt Bay (K. Gjellerup, living plant in cultivation at Hort. Bog.). Geographic distribution : German New Guinea, Ambon.

The specimens from New Guinea and Ambon are not different, as I have been able to establish on living specimens in cultivation at Buitenzorg. The flowers are carnose, wax-like pallid yellow, the lateral sepals with dark brown-purple spots coalescing at the inner margin, and petals with more-or-less, but never closely, dark violet-spotted. They have a peculiar odour.

The species is closely related to B. macranthum Lindl. and is very similar to it.

Bulbophyllum Caryophyllum J.J. Sm., in Bull. Jard. Bot. Buit. 2<sup>e</sup> sér.

XIII (1914), 71.

Tab. CLIX, 299.

(latin diagnosis)

Dutch New Guinea : On the upper Digul [River] (B. Branderhorst, living plant in cultivation at Hort. Bog. under no. 2).

Schlechter described several species of the section Sestochilus, that although clearly different from each other, nevertheless stand



fairly close together. This plant also belongs to the affinity. With its distinct stelidia it appears to resemble B. Wernerii Schltr., but that is a larger plant with flowers of equal size and with a larger labellum.

In the description of Section Stenochilus (l.c. 33) it should read : Column with or without stelidia.

The flowers have the odour of cloves.

Bulbophyllum tollenoniferum J.J.Sm., in Fedde Rep. XI (1912), 139.

Tab. CLIX, 300.

(latin diagnosis)

Dutch New Guinea : Kajó Bay, on the Mbai River, alt. c. 10m, in a tall tree (K. Gjellerup no. 997, flowering in Feb. 1912).

The species is closely related to B. macranthum Lindl. The lip is very peculiar being inserted not at one end, but in the middle, by means of a conical claw, and since the flowers are not resupinate, it hangs down from the apex of the column-foot. Concerning the shape, it is best compared to a pointed hat.

According to Gjellerup, the decumbent rhizomes attain a length of 2 - 3m, the pseudobulbs are pale green; the leaves carnose and yellow-green, the flowers in bud yellow-green, but muddy-yellow on opening, later yellow-orange, and have a peculiar sour-sweet aromatic odour.

Description of the flower and part of the rhizome from alcohol-preserved material, the remainder from herbarium specimens.

Section : Gibberanthera

Bulbophyllum giriwoense J.J.Sm., in Bull. Jard. Bot. Buit. 2<sup>e</sup> sér. XIII (1914), 71.

Tab. CLX, 301.

(latin diagnosis)

Dutch New Guinea : Giriwo River, epiphytic in forest (R.F. Janowsky no. 139, flowering in July 1912).

Closely related to B. Lorentzianum J.J. Sm., but differing in narrower pseudobulbs and leaves, much larger peduncles, flowers of a different colour, narrower sepals, all of the same length, a thinner lip, and shorter stelidia.

According to Janowsky, the flowers are violet.

Description from alcohol-preserved material.

Section : Hyalosema

Bulbophyllum fritillariiflorum J.J. Sm., in Bull. Jard. Bot. Buit 2<sup>e</sup> sér.[III](1912), 24[76]; Nova Guinea XII (1913), 84, t. XXII, 67.

After the plant had developed completely, I recorded the following measurements:

Pseudobulbs c. 2.6 cm apart, 3.5 cm long, 1.6 cm thick. Leaf 13.25 cm long, 5.0 cm broad, stem 2.3 cm long. Peduncle 14.5 cm long. Flower 9.0 cm long, 5.0 cm broad. Ovary with stemlet [pedicel] 3.6 cm long.

The scales on the rhizome are of a pale hazel-nut colour.

The plant flowers readily and the flowers keep for more than a week.

Schlechter believes this plant may be identical with B. trachyanthum Krzl. However, already from the breadth of the dorsal sepals of both species, it is apparent that the two species must be different.

Bulbophyllum ? trachyanthum Krzl., in Österr. Bot. Zeitschr. (1894), 336;

J.J. Sm., in Nova Guinea XII (1913), 83, t. XXII, 66.

Dutch New Guinea : Arfak Range, at Angi Lake, alt. c. 1900m, growing at the lake bank on decomposed granite (K. Gjellerup no. 1030, flowering in Apr. 1912).

The material to hand does not appear to be specifically separable

from earlier specimens collected on Mt. Goliath by A.C. De Kock.

According to Gjellerup, the pseudobulbs and peduncles are pale green, the leaves dark green, the flowers fragrant, yellow or green-yellow with tessellated veins of brown lines and spots.

Bulbophyllum tricanaliferum J.J. Sm., in Fedde Rep. XII (1913), 398.

Tab. CLX, 302.

(latin diagnosis)

Dutch New Guinea : Arfak Range, at Angi Lake, alt. c. 1900m, growing in decomposed granite at the lake bank (K. Gjellerup no. 1029, flowering in Apr. 1912).

The plant is closely related to the species which I established, as B. trachyanthum Krzl. Initially, I believed I was considering only a variety, but then considered it more correct to set up a new species.

It differs from the above-mentioned species in having thinner pseudobulbs, narrower leaves, much longer sepals with the dorsal and lateral ones being of equal length and slightly arched, and with longer petals having thinner filiform appendages.

The pseudobulbs and leaves, according to Gjellerup, usually are brown-red, the flower stems and flowers yellow, with numerous brown-red dots and spots.

Description made from an alcohol-preserved pseudobulb with leaf base and several flowers, also from a dried plant without flowers.

Bulbophyllum elephantinum J.J. Sm., in Fedde Rep. XII (1913), 398.

Tab. CLXI, 303.

(latin diagnosis)

Dutch New Guinea : Arfak Range, at Angi Lake, alt. c. 1900m, epiphytic in forest on a rocky outcrop on the eastern lake bank (K. Gjellerup no. 1158, flowering in Apr. 1912).

A very peculiar species which is related mainly to B. trachyanthum Krzl. and B. tricanaliferum J.J. Sm. and is not inferior in flower

size to B. singulare Schltr. The flowers are reminiscent of an elephant's head.

According to Gjellerup, the flowers are red with irregular brown-red spots.

Description from an alcohol-preserved pseudobulb, together with leaf and inflorescence.

Section: Cirrhopetalum

Bulbophyllum psittacoides J.J. Sm., Orch. Amb. (1905), 84.

B. psittacoides Ridl., Mat. Fl. Mal. Penins. (1907), 80.

B. gracillimum Rolfe, in Kew Bull. (1907), 412.

Cirrhopetalum psittacoides Ridl., in Journ. Linn. Soc. XXXII (1896), 280.

C. gracillimum Rolfe, in Kew Bull. (1895), 34.

Dutch New Guinea : Humboldt Bay, Cape Tuadja, alt. c. 50m, epiphytic in forest (K. Gjellerup no. 993, flowering in Feb. 1912; living plant in cultivation at Hort. Bog.) Geographic distribution : Ambon, Billiton, Malay Peninsula, Siam.

This widely distributed species is peculiarly constant in its characters.

The specimen from New Guinea has somewhat less lively coloured sepals and a more pallid lip.

It is possible that Cirropetalum warianum Schltr., (Orch. Deutsch-Neu-Guinea (1913), 890) also belongs here.

#### Grammatophyllum Bl.

Grammatophyllum scriptum Bl., Mus. I, 47; Rumphia IV, 48; etc.

Dutch New Guinea : Mambor Island, near Musairo, in a tree on the coast (R.F. Janowsky no. 16, flowering in June 1912).

Dipodium R. Br.

Dipodium pandanum Bail. in Queensl. Agric. Journ. VI (1900), 287m pl.

CLXXXVII, CLXXXVIII.

Dutch New Guinea : Humboldt Bay (K. Gjellerup, living plant in cultivation at Hort. Bog. under no. 96). Geographic distribution : Ambon.

The plant agrees completely with the previously mentioned specimens (Orch. Ambon, 86) collected on Ambon.

Thelasis Bl.

The most recent treatment of the group Thelasinae by Schlechter (Orch. Deutsch-Neu-Guinea, 897) has not, as I had hoped, resolved the difficulties in the classification of this group. It is absolutely essential to study exactly the flowers of many living species or alcohol-preserved material, before a more satisfying grouping can be given. At the present time I do not have adequate material at my disposal, but later on I hope to have the opportunity of investigating this problem closer.

At this stage I would only like to indicate that Thelasis phreatioides J.J. Sm. is definitely more closely related to Thelasis Bl., section Oxyanthera, than to Phreatia Lindl., whence Schlechter transferred it. For the present, I therefore leave it in this genus, but place it in a new section which I shall define in more detail below.

In this section I should also like to place Phreatia thelasiflora J.J. Sm. and several related species.

Section : Euproboscis

Thelasis globiceps J.J. Sm., in Fedde Rep. XII (1913), 24.

Tab. CLXII, 304.

(latin diagnosis)

Dutch New Guinea : Gautier Range, on the north slope, alt. c. 300m,

epiphytic in forest on limestone and basalt (K. Gjellerup no. 905, flowering in Nov. 1911).

The species is closely related to T. capitata Bl., but smaller in all segments. The appreciably smaller flowers, furthermore, have differently shaped petals and lip. The small callus close to the apex of the lip, occurring with several species, was not to be seen here, but it is possible that it is difficult to find with dried specimens.

Only herbarium material was collected.

The flowers are greenish white.

Section : Hemithelasis

Has the habit of Phreatia Lindl., section Rhizophyllum. Stems short, continuing to grow for a long time at the apex, not thickened to form pseudobulbs. Inflorescences axillary, flowers small, similar to those of Thelasis Bl., section Oxyanthera. Sepals and petals inclined towards each other. The lip at the base with a definite longitudinal thickness, and on each side of it a nectar-secreting depression. Column very short with protruding rostellum and very short foot. Anther extended in front. Pollinia 8, on a thin caudicle.

Thelasis sphaerocarpa J.J. Sm., [comb. nov.]

Phreatia sphaerocarpa Schltr., in Schum. et Laut., Nachtr. Fl. Deutsch. Schutzgeb. Südsee (1905), 192; Krzl., in Pflanzenr. IV. 50, II. B. 23 (1911), 27.

P. thelasiflora J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 32; in Nova Guinea VIII (1909), 107, t. XXXVI, 120; Krzl. l.c. 14.

Tab. CLXII, 305.

Dutch New Guinea : At the middle Legarei River, alt. c. 25m, epiphytic in forest (R.F. Janowsky no. 82, flowering in June 1912).

Geographic distribution : German New Guinea.

Since the above cited illustration is poor, I add a further one

prepared from a specimen collected by Branderhorst and growing in the Buitenzorg Garden.

At first sight the species looks very similar to Thelasis micrantha (Brongn.) J.J. Sm., the flowers also have the same colouring. The lip, especially, is very variable in width and shape.

Schlechter, who was able to investigate the Type of Phreatia thelasiflora J.J. Sm., united it with P. sphaerocarpa Schltr. However, Schlechter's description fits P. thelasiflora J.J. Sm. so poorly, that its identity could not be deduced from the diagnosis.

Thelasis mamberamensis J.J. Sm., in Mededeel. Herb. Leid. 23 (1915), 18.

Tab. CLXIII, 306.

(latin diagnosis)

Dutch New Guinea : Mouth of the Mamberamo River (R.F. Janowsky no. 466, flowering in Sept. 1913).

This is probably most closely related to T. sphaerocarpa (Schltr.) J.J. Sm., even though it differs considerably. The leaves are longer and with marked grooves, the flowers larger, the lip with a distinct blunt claw, the rostellum as well as the anther appreciably extended.

Both dried and alcohol-preserved material was to hand.

In habit it is hardly any smaller.

Thelasis gautierensis J.J. Sm., sp. nov.

Tab. CLXIV, 307.

(latin diagnosis)

Dutch New Guinea : Gautier Range, on the north slope, alt. c. 800m, epiphytic in forest on limestone and basalt (K. Gjellerup mixed up with no. 876, flowering in Nov. 1911).

Distinguished from T. sphaerocarpa (Schltr.) J.J. Sm. by more robust growth, appreciably thicker peduncle and rachis, and a shorter mentum.

Thelasis angustifolia J.J. Sm., sp. nov.

Tab. CLXIV, 308.

(latin diagnosis)

Dutch New Guinea : Gautier Range, on the north slope, alt. c. 400 and 600m, epiphytic in forest (K. Gjellerup nos 885 (Type) and 857, flowering in Nov. 1911).

In floral characters fairly similar to T. sphaerocarpa (Schltr.) J.J. Sm., but the leaves are smaller and grooved.

Description from alcohol-preserved material, the flowers had all set in fruit.

According to Gjellerup, the flowers were pale brown-yellow.

Phreatia Lindl.

Section: Bulbophreatia

Phreatia caespitosa J.J. Sm., in Mededeel. Herb. Leid. 23 (1915), 18.

Tab. CLXV, 309.

(latin diagnosis)

Dutch New Guinea : Treub Range, on the steep south slope, alt. c. 2400m, growing on the schist (A. Pulle no. 1095, flowering in Feb. 1913).

According to the description, P. angustifolia Schltr. appears to be closely related. The new species differs in much longer bracts, smaller, appreciably, shorter-stemmed flowers, the lip with a short basal pouch, and cordate-ovate anther.

The flowers are stated to be white.

Description from herbarium specimens.

Phreatia bicostata J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 31; in Nova Guinea VIII (1909), 105, t. XXXV, 116; l.c. XII (1913), 97.

Dutch New Guinea : South slope of Hellwig Range, alt. c. 1700m, epiphytic in primary forest, alt. c. 1750m [sic] (A. Pulle no. 695,



flowering in Dec. 1912).

For the first time, a complete, even though small specimen is now to hand. It shows that the species belongs to section Bulbophreatia and has compressed pseudobulbs with two very unequally large leaves. Phreatia alpina J.J. Sm., in Mededeel. Herb. Leid. 23 (1915), 19.

Tab. CLXVI, 310.

(latin diagnosis)

Dutch New Guinea : Gorge between the Wichmann and the Hubrecht Ranges, alt. c. 2800 - 2900m, many specimens epiphytic in primary forest (A. Pulle no. 2402 leg. G.M. Versteeg, flowering in Feb. 1913).

According to the description, P. chionantha Schltr. appears to be fairly similar. The new species differs in a longer rhizome, shorter peduncle, differently shaped bracts, somewhat larger flowers, a hirsute lip; furthermore it grows at a higher altitude in the mountains.

The flowers are stated to be white.

Only dried material was to hand.

Phreatia pisifera J.J. Sm., in Fedde Rep. XII (1913), 26.

Tab. CLXVI, 311.

(latin diagnosis)

Dutch New Guinea : On the middle Legarei River, alt. c. 500m, epiphytic in forest (R.F. Janowsky no. 79, flowering in June 1912); Lorentz River near the Kloof Bivouac, epiphytic in primary forest (J.B. Sitanala no. 11254, flowering in Feb. 1913).

The closest relative of this species appears to be P. Habbemae J.J. Sm., from which it is immediately distinguished by the non-compressed pseudobulbs.

The flowers are white.

Phreatia saccifera Schltr., in Schum. et Laut., Nachtr. Fl. Deutsch.

Schutzgeb. Südsee (1905), 191.

P. calcarata J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 34; in Nova Guinea VIII (1910) [1909], 108, t. XXXVI, 121. Dutch New Guinea : Gautier Range, on the north slope, alt. c. 300m, epiphytic in forest on limestone and basalt (K. Gjellerup no. 823, flowering in Nov. 1911); Giriwo River, epiphytic in forest (R.F. Janowsky nos 146 and 157, flowering in July 1912).

According to Schlechter, P. calcarata J.J. Sm. and P. saccifera Schltr. are identical; however, Schlechter's description indicates fairly large differences.

Phreatia grandiflora J.J. Sm., in Fedde Rep. XII (1913), 26.

Tab. CLXVII, 312.

(latin diagnosis)

Dutch New Guinea : Arfak Range, alt. c. 1800 and 1900m, in forest on moss-covered trees (K. Gjellerup nos 1030 Type and 1051, flowering in Apr. 1912).

A very peculiar species which I considered I would have to place in Phreatia. Even though the rostellum and anther are somewhat more extended than is usual in the genus, the species shows no closer relationship to Thelasis. The stigma is exactly similar to that of Phreatia, as is the lip. Very noticeable are the size of the flowers and the very long mentum.

According to Gjellerup, the bracts are brown, the flowers white, with a green column-base; however, under no. 1051 the colour of the flowers is stated to be green-yellow.

Description from herbarium and alcohol-preserved material.

Section : Rhizophyllum

Phreatia goliathensis J.J. Sm., in Bull. Jard. Bot. Buit. 2<sup>e</sup> sér. XIII (1914), 73.

Tab. CLXVII, 313.

(latin diagnosis)

Dutch New Guinea : On Mount Goliath, alt. c. 900m, on a moss-covered tree in the shade, rare (A.C. De Kock no. 13, flowering in Mar. 1911).

Schlechter describes a number of species which are closely related to this one. Since I have not seen any specimens and none of the descriptions appear to match it, I must regard this temporarily as a new species.

The description of P. Loriae Schltr., in particular, fits P. goliathensis J.J.Sm. very well, but the colour of the flowers is given as white, not green as for Schlechter's species. Furthermore, it is stated (Orch. Deutsch-Neu-Guinea, 917) that the flower stalks of P. Loriae Schltr. and P. kaniensis Schltr. have only very short sheaths. Although the size of the sheaths is not given for this species, nor for the related species with large sheaths, the upper sheath for P. goliathensis J.J.Sm. surely cannot be classed as small.

The new species differs from P. kaniensis Schltr. in smaller leaves, with the inflorescence almost equal in length to the leaves; from P. polyantha Schltr. in a shorter peduncle, and a distinctly stemmed ovary; from P. vaginata Schltr. in a shorter peduncle, non-conical lip-base, not very broad lip-lamina, and a stemmed ovary; and from P. myriantha Schltr. in much shorter inflorescences and peduncles, and stemmed ovary. Furthermore, the last mentioned four species all have pointed bracts.

According to A.C. De Kock, the flowers are white.

Description from formalin-preserved material.

Phreatia densissima J.J.Sm., in Fedde Rep. XII (1913), 26.

Tab. CLXVIII, 314.

(latin diagnosis)

Dutch New Guinea : Arfak Range, at Angi Lake, alt. c. 1900m, epiphytic in forest (K. Gjellerup no. 1075, flowering and fruiting

in Apr. 1912).

Distinguished by the short, dense, inflorescence.

The flowers were greenish white.

Description from alcohol-preserved material.

Phreatia breviscapa J.J.Sm., in Bull. Dép. Agr. Ind. Néerl. XIX (1908), 31; in Nova Guinea VIII (1909), 106, t. XXXV, 118; Krzl., in Pflanzenr. IV, 50, II B. 23 (1911), 21.

Dutch New Guinea : Giriwo River, epiphytic in forest (R.F. Janowsky no. 202, flowering in July 1912).

Phreatia petiolata Schltr., in Schum. et Laut., Nachtr. Fl. Deutsch.

Schutzgeb. Südsee [1905], 190.

Tab. CLXVIII, 315.

(latin diagnosis)

Dutch New Guinea : At the middle Tor River, on an isolated hill, alt. c. 50m, epiphytic (K. Gjellerup no. 747, flowering in Oct. 1911); Temenimbor on the Tor River, alt. c. 75m, epiphytic in forest (K. Gjellerup no. 799, flowering in Oct. 1911); on the middle Legarei River, alt. c. 650m (R.F. Janowsky no. 83, flowering in June 1912); Giriwo River, epiphytic in forest (R.F. Janowsky nos 204 and 205, flowering in July 1912): Geographic distribution :

German New Guinea.

Initially, when I had investigated alcohol-preserved material only, I believed I was dealing with a plant different from P. petiolata Schltr. The dried material, however, was so surprisingly similar to the sterile Type of Schlechter's species at the Buitenzorg Herbarium, that I suspect Schlechter took the measurements from the herbarium material.

The flowers are white.

Phreatia hollandiana J.J. Sm. in Fedde Rep. XII (1913), 122.

Tab. CLXIX, 316.

(latin diagnosis)

Dutch New Guinea : Hollandia on Humboldt Bay (K. Gjellerup, living

plant in cultivation at Hort. Bog. under no. 249).

The species is most probably closely related to P. inversa Schltr., from which it differs in the shape of the lip which Schlechter described very well, and from the leaf sheaths, which in the case of P. inversa Schltr. merge very gradually into the leaf stem, but on the other hand for P. hollandiana J.J. Sm. are suddenly broadened.

Outwardly, the plant is very similar to P. breviscapa J.J. Sm.

Section : Caulophreatia

Phreatia semiorbicularis J.J. Sm., in Bull. Dép. Agric. Ind. Néerl.[XIXXX]  
[1910], 19; in Nova Guinea VIII [1911], 599, t. CIX, A.

var. angiensis J.J. Sm., nov. var.

(latin diagnosis)

Dutch New Guinea : Arfak Range, at Angi Lake, alt. c. 1900m,  
epiphytic in forest (K. Gjellerup no. 1081, flowering in Apr. 1912).

Initially I have set up a variety, since too little material is available from the Type to decide whether the plant should be considered as a species. The same can be said for the branchlet collected by A.C. De Kock.

The flowers are greenish white.

#### Octarrhena Thw.

Octarrhena Lorentzii J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX  
(1910), 18.

Dutch New Guinea : Summit of the Wichmann Range, alt. c. 3000m,  
epiphytic (A. Pulle no. 971, flowering in Feb. 1913); Hubrecht  
Valley, alt. c. 3000m (A. Pulle no. 2454, leg. G.M. Versteeg,  
flowering in Feb. 1913).

The leaves have a deep longitudinal groove on each side.

Octarrhena arfakensis J.J. Sm., in Fedde Rep. XII (1913), 25.

Tab. CLXIX, 317.

(latin diagnosis)

Dutch New Guinea : Arfak Range, at Angi Lake, alt. c. 1900m, epiphytic?, between moss-covered shrubs on swampy humus on granite rock (K. Gjellerup no. 1118, flowering in Apr. 1912); at the same place between the mountain lakes, alt. c. 2500m, on trees and between moss on a heath-like mountain ridge, covered with shrubs (K. Gjellerup no. 1210, flowering in Apr. 1912).

Differs from O. Lorentzii J.J. Sm., which likewise has extended inflorescences, in broader leaves, flowers placed closer together, and the shape of the flower segments. The shape of the petals and lip is reminiscent mainly of the otherwise very different O. tenuis J.J. Sm.

Gjellerup states that the stalks are brown-grey, the leaves matt pale green or green-yellow, the flowers pale brown-yellow.

Octarrhena gibbosa J.J. Sm., in Fedde Rep. XII (1913), 24.

Tab. CLXX, 318.

(latin diagnosis)

Dutch New Guinea : Arfak Range, alt. c. 1900m, on a tree (K. Gjellerup no. 1046, flowering in Apr. 1912).

A species distinguished by relatively long leaves, short inflorescences, a very small lip with two large compressed calli, and almost circular leaves.

According to Gjellerup, the flowers are pale green-yellow, the column apex white, with dark brown dots.

Description from herbarium and alcohol-preserved material.

Octarrhena cucullifera J.J. Sm., in Mededeel. Herb. Leid. 23 (1913), [1915], 17.

Tab. CLXXI, 319.

(latin diagnosis)

Dutch New Guinea : Hubrecht Range, alt. c. 3100m, epiphytic in primary forest (A. Pulle no. 2410, leg. G.M. Versteeg, flowering in Feb.

1913).

This very peculiar species I initially regarded as a Chitonanthera, since the four small pollinia were discovered only after a more precise examination. It probably would be desirable to re-check those previously published Chitonanthera species in this regard. With the previously known Octarrhena species, as far as data is available, the pollinia appear to be about the same size.

Very noteworthy is the structure below the column containing the stigma, which perhaps is best described as a column-foot. It represents a cup protruding downwards, which is open towards the top, overtops the column, is excised on the side directed towards the column, is truncate, and is densely short-haired. The lip adnate to its base, at the rear of this structure.

The leaves are relatively broad.

Only herbarium material was available.

According to the collector, the flowers are red-brown.

Octarrhena tenuis J.J. Sm., in Fedde Rep. XII (1913), 25.

Vonroemeria tenuis J.J. Sm., in Bull. Dép. Agric. Ind. Néerl.

XXXIX (1910), 22; in Nova Guinea VIII (1911), 598, t. CVIII, B.

Dutch New Guinea : Kajan Range, alt. c. 3200m, growing terrestrially (A. Pulle no. 2465, leg. G.M. Versteeg, flowering in Feb. 1913).

Chitonanthera Schltr.

Chitonanthera reflexa J.J. Sm., in Mededeel. Herb. Leid. 23 (1915), 16.

Tab. CLXXII, 320.

(latin diagnosis)

Dutch New Guinea : South coast of Geelvink Bay, Jabi Range, near Wape, epiphytic in forest (R.F. Janowsky no. 319, flowering in May 1913).

Even though the pollinia are missing, I still believe that the plant

should be placed in Chitonanthera.

It is easily recognised by the single-flowered inflorescences and the floral characters.

Description from herbarium and alcohol-preserved material.

According to the collector, the flowers are brick-red.

Chitonanthera latipetala J.J. Sm., in Mededeel. Herb. Leid. 23 (1915), 17.

Tab. CLXXII, 321.

(latin diagnosis)

Dutch New Guinea : Geelvink Bay, Jabi Range, near Wape, epiphytic in forest (R.F. Janowsky no. 311, flowering in May 1913).

The species appears to be related mainly to C. angustifolia Schltr., but is immediately recognised by the differently shaped petals.

According to Janowsky, the flowers are orange-yellow.

Description from herbarium and alcohol-preserved material.

Ridleyella Schltr.

Ridleyella paniculata Schltr., Orch. Deutsch-Neu-Guinea (1913), 949.

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

Tab. CLXXIII, 322.

(latin diagnosis)

Dutch New Guinea : Lorentz River, near the Kloof Bivouac, epiphytic in primary forest (J.B. Sitanala no. 11207, flowering in Jan. 1913).

Geographic distribution : British and German New Guinea.

A plant, clearly widely distributed in New Guinea.

According to the data from the collector, the flowers are dark violet.

Description from alcohol-preserved material.

Podochilus Bl.

Podochilus scalpelliiformis Bl., Rumphia IV (1848), 45; etc.



P. scalpellifolius Bl., l.c. t. 194, f. 4; t. 200 C.

Dutch New Guinea : East coast of Geelvink Bay, on the Giriwo River, epiphytic in forest (R.F. Janowsky nos 103 and 157, flowering in July 1912); Kuria (Bonggo), epiphytic in forest (R.F. Janowsky no. 627, flowering in Jan. 1914).

Podochilus imitans Schltr., in Schum. et Laut., Nachtr. Fl. Deutsch.

Schutzgeb. Südsee (1905), 118; etc.

Dutch New Guinea : Temenimbor, on the Tor River, alt. c. 75m, epiphytic in forest (K. Gjellerup no. 700, flowering in Oct. 1911); Gautier Range, on the north slope, alt. c. 700m, epiphytic in forest on limestone and basalt (K. Gjellerup nos 813 and 859, flowering in Nov. 1911); Lorentz River, near the Kloof Bivouac, epiphytic in primary forest (J.B. Sitanala no. 11255, flowering in Feb. 1913).

Podochilus longipes J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX

(1908), 34; in Nova Guinea VIII (1909), III, t. XXXXVII, 124.

Dutch New Guinea : Lorentz River, near the Kloof Bivouac, alt. c. 30m, epiphytic in primary forest (A. Pulle no. 154, flowering in Oct. 1912).

var. brevicalcaratus J.J. Sm., l.c. 112, t. XXXVII, 125.

Dutch New Guinea : On the middle Legarei River, alt. c. 650m, epiphytic in forest (R.F. Janowsky no. 84, flowering in June 1912).

#### Appendicula Bl.

Appendicula reflexa Bl., Bijdr. (1825), 301; etc.

var. neo-pommeranica Schltr., Orch. Deutsch-Neu-Guinea (1912), 338.

Podochilus neo-pommeranicus Schltr., Schum. et Laut., Nachtr. Fl.

Deutsch. Schutzgeb. Südsee (1905), 119; J.J. Sm. sub A. reflexa

Bl. in Nova Guinea VIII (1909), 118. t. XL, 133.

Dutch New Guinea : Hollandia on Humboldt Bay, alt. c. 40 - 50m, on

rocks on forest-covered hills (K. Gjellerup nos 287 and 581, flowering in July 1910 and 1911); Lorentz River, near Alkmaar (Second Lorentz Expedition (1909), Djibdja, living plant in cultivation at Hort. Bog. under 842, f. cleistogama); Lorentz River, near the Kloof Bivouac (J.B. Sitanala nos 11208 and 11237, f. cleistogama, flowering in Jan. 1913); Geographic distribution: German New Guinea.

The plants agree too well with Schlechter's description to consider them as being different.

Schlechter's sketch shows the lip to be tightly constricted at the base, but I suspect that it was not completely spread out.

I believe that the cleistogamic form I described belongs to var. neo-pommeranica Schltr.

Appendicula grandifolia Schltr., Orch. Deutsch-Neu-Guinea (1912), 339.

Dutch New Guinea : On the middle Tor River, alt. c. 25m, epiphytic in forest (K. Gjellerup no. 746, flowering in Oct. 1911); Kuria (Bonggo), epiphytic in forest (R.F. Janowsky no. 611, flowering in Jan. 1914).

Although I have not seen an authentic specimen of the species, the determination appears to be doubtless.

Appendicula fasciculata J.J. Sm., in Fedde Rep. XII (1913), 405.

Tab. CLXXIV, 323.

(latin diagnosis)

Dutch New Guinea : Gautier Range, on the north slope, alt. c. 300m, epiphytic in forest on limestone and basalt (K. Gjellerup no. 903, flowering in Nov. 1911).

The species is closely related to A. grandifolia Schltr. and A. furfuracea J.J. Sm., differing from the first in smaller leaves, a longer mentum, labellum and anther. The inflorescences of both species look alike, but appear to be more branched with A. fasciculata J.J. Sm.

A. furfuracea J.J. Sm. has narrower leaves, much longer, protruding, somewhat denser inflorescences, a longer mentum and larger fruits.

The flowers, according to Gjellerup, are a translucent white, with a yellow column.

Description from herbarium material.

Appendicula furfuracea J.J. Sm., in Fedde Rep. XII (1913), 123.

Tab. CLXXIV, 324.

(latin diagnosis)

Dutch New Guinea : On the middle Legarei River, alt. c. 80m, epiphytic in forest (R.F. Janowsky no. 62, flowering in June 1912).

A species of the A. pendula Bl. affinity with very dense inflorescences, smaller flowers, which point also to a relationship with A. reflexa Bl.

According to the collector, the flowers are white, with a yellow lip.

Appendicula carinifera J.J. Sm., in Fedde Rep. XII (1913), 406.

Tab. CLXXIV, 325.

(latin diagnosis)

Dutch New Guinea : Gautier Range, on the north slope, alt. c. 350m, epiphytic in forest (K. Gjellerup no. 910, flowering in Nov. 1911).

The species is probably most closely related to A. callifera J.J.Sm., and likewise has a large callus above where the lip bends. Otherwise it is, however, smaller in all segments.

Only herbarium material was collected.

According to Gjellerup, the flowers are white, the lip pale violet-lilac.

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

A. pendula Bl. var. Chalmersiana J.J. Sm., in Nova Guinea VIII (1909), 117, t. XL, 132.

Podochilus pendulus Schltr. (p.p.) in Mém. Herb. Boiss, (1900), n. 21,

48.

Dutch New Guinea : Sawia, alt. c. 100m (K. Gjellerup no. 619, flowering in Aug. 1911); Gautier Range, on the north slope, alt. c. 700m (K. Gjellerup no. 866, flowering in Nov. 1911); east coast of Geelvink Bay, on the Giriwo River (R.F. Janowsky nos 102, 138 and 158, flowering in July 1912); on the way to Mount Goliath (A.C. De Kock, living plant in cultivation at Hort. Bog. under no. 174); Kuria (Bonggo), epiphytic in primary forest (R. F. Janowsky no. 629, flowering in Jan. 1914).

Appendicula palustris J.J. Sm.; in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 4; etc.

Dutch New Guinea : Beaufort River, alt. c. 80m, epiphytic in forest (A. Pulle no. 274, flowering in Nov. 1912).

Appendicula lutea Schltr., Orch. Deutsch-Neu-Guinea (1912), 350.

Tab. CLXXV, 326.

(latin diagnosis)

Dutch New Guinea : Cyclops Range on the east slope, alt. c. 1500 - 1600m, epiphytic in forest (K. Gjellerup nos 513 and 557, flowering in June 1911). Geographic distribution : German New Guinea.

Schlechter's fairly detailed description of A. lutea Schltr., as well as the flower colouring, suit this plant so well that I do not doubt we are dealing with this species. I have given a further description made from alcohol-stored flowers, so that there is now the possibility to check the finer differences. Thus, according to Schlechter, the front of the anther is supposed to have two little tips, which was not the case in the flower I examined. It is very peculiar that the column on the plants shows the same transformation; the rostellum is missing, hence one can assume that self-pollination occurs. Accordingly, the anther probably also is not normally developed, and the observed differences must be ascribed to this circumstance.

It is well known that many orchids exist where self-pollination occurs due to the rostellum not developing. As examples I mention only Phaius Tankervilleae Bl. and Spathoglottis plicata Bl.

For no. 513 Gjellerup recorded : Flowers pale brown-yellow, leaves blue-violet dark green; for no. 557; flowers pale yellow-brown, leaves dark green.

Appendicula ? neo-hibernica Schltr., Orch. Deutsch-Neu-Guinea (1912), 352.

Dutch New Guinea : Lorentz River, near the Kloof Bivouac, alt. c. 50m, epiphytic in primary forest (A. Pulle no 243, flowering in Oct. 1912). Geographic distribution : German New Guinea.

This plant agrees very well with the sketch and description I made of Podochilus flaccidus Schltr., sent to me at Leiden in 1904 by Schlechter. Unfortunately, at the time I omitted to note the number from which I removed a flower, so that it is possible it just happened to be no. 14706, which recently has been separated by Schlechter as A. neo-hibernica Schltr. The description of the lip at any rate, agrees somewhat better with this one, than that of A. flaccida Schltr.

The cuneate lip is tri-lobed in front, with lobes almost as large.

Appendicula rostrata J.J. Sm., sp. nov.

Tab. CLXXVI, 327.

(latin diagnosis)

Dutch New Guinea : Arfak Range, alt. c. 1800m, on a mountain ridge, on dead wood (K. Gjellerup no. 1040, flowering in Apr. 1912).

A species with the habit of A. pendula Bl., particularly noteworthy on account of the shape of the anther.

According to Gjellerup, the flowers are white with the column apex blue-violet.

Appendicula Steffensiana J.J. Sm., in Nova Guinea VIII (1909), 119, t.

XL, 134.

Podochilus Steffensianus Schltr., in Schum. et Laut., Nachtr. Fl.

Deutsch. Schutzgeb. Südsee [1905], 124.

Dutch New Guinea; On the middle Legarei River (R.F. Janowsky no. 64, flowering and fruiting in June 1912).

Appendicula disticha Ridl., in Journ. Bot. XXIV (1886), 354, t. 270.

Podochilus distichus Schltr., in Mém. Herb. Boiss. XXI (1900), 57.

Chilopogon distichum Schltr., Orch. Deutsch-Neu-Guinea (1912), 333.

Tab. CLXXVI, 328.

(latin diagnosis)

Dutch New Guinea : In the south-eastern district (B. Branderhorst, living plant in cultivation at Hort. Bog. under no. 207B).

Geographic distribution : German and British New Guinea.

Six pollinia are present.

This is very closely related to A. oxysepala J.J. Sm., but has very dense, completely green inflorescences, smaller flowers, a shorter anther, and the rostellum not so deeply incised.

Appendicula oxysepala J.J. Sm., in Nova Guinea VIII (1909), 114, t.

XXXVIII, 128.

? Chilopogon bracteatum Schltr. var. warianum Schltr., Orch. Deutsch-Neu-Guinea (1912), 334.

Dutch New Guinea : At the middle Tor River, alt. c. 25m, epiphytic in forest (K. Gjellerup no. 750, flowering in Oct. 1911),; at the middle Legarei River, alt. c. 80m, epiphytic in forest (R.F. Janowsky no. 67, flowering in June 1912).

Lectandra J.J. Sm.

Lectandra podochiloides Schltr., Orch. Deutsch-Neu-Guinea (1912), 364.

Eria podochiloides Schltr., in Schum. et Laut., Nachtr. Fl. Deutsch. Schutzgeb. Südsee (1905), 182.

Tab. CLXXVII, 329.

(latin diagnosis)

Dutch New Guinea : Gautier Range, alt. c. 300m, epiphytic in forest on limestone and basalt (K. Gjellerup no. 812, flowering in Nov. 1911).

Initially, since I had only compared Schlechter's descriptions, I regarded this as a new species, closely related to L. podochiloides Schltr. The fairly appreciable differences against the description (in Schum. et Laut., Nachtr. Fl. Deutsch. Schutzgeb. Südsee (1905), 182), are as follows :

The stem is markedly compressed, the flowers, according to Gjellerup, are pale green with a white labellum, the column pale violet at the apex, the sepals not pointed, the petals in the upper half are short but very distinctly serrate -fimbriate , the lip sharply bent back at the centre and pointed, or fairly pointed.

These differences would surely suffice to establish a new species. However, I have a copy of the drawing that Schlechter made of a specimen collected in the Torricelli Range in Sept. 1911 [Ed. - possibly 1909], and which through the kindness of the author, I have managed to copy. Here, the petals are clearly dentate above, the lip markedly bent back and pointed, and the colour given as greenish, with a white labellum, instead of snow-white. The plant in question is cited in 'Orchidaceen von Deutsch-Neu-Guinea' p. 365, under L. podochiloides Schltr. and without doubt is identical with Gjellerup's [specimen].

Acriopsis Reinw.

Acriopsis javanica Reinw., Fl. Lit. II, 4; Syllog. Ratisb.(1828), etc.

Dutch New Guinea : Mouth of the Mamberamo River, epiphytic on the [river] bank. (R.F. Janowsky no. 467, flowering in Sept. 1913).

Phalaenopsis Bl.

Phalaenopsis amabilis Bl., Bijdr. 294; Tab. f. 44; etc.

Dutch New Guinea : Gautier Range, alt. c. 300m, epiphytic in forest on limestone and basalt (K. Gjellerup no. 824, flowering in Nov. 1911).

Calymanthera Schltr.

Calymanthera filiformis Schltr., Orch. Deutsch-Neu-Guinea (1913), 956.

Chamaeanthus filiformis J.J. Sm., in Fedde Rep. XI (1912), 134.

Tab. CLXXVII, 330.

(latin diagnosis)

Dutch New Guinea : Berkombor, on the Tor River, alt. c. 25m, epiphytic in forest (K. Gjellerup no. 757 (Type), flowering in Oct. 1911); east coast of Geelvink Bay, on the Giriwo River, epiphytic (R.F. Janowsky no. 119, flowering in July 1912).

A close relative of C. paniculata (J.J. Sm.) Schltr. , but easily distinguished by the much thinner peduncle and rachis, smaller flowers, relatively appreciably larger, non-ciliate lateral lobes of the lip, and the lateral veins extended much further to the front.

Recently, Schlechter has placed this species, together with Chamaeanthus paniculatus J.J. Sm., into his new genus Calymanthera Schltr. This genus is extremely closely related to Chamaeanthus, still closer, in my opinion, than indicated from Schlechter's description. However, in the anther, it has such a peculiar character that the genus probably is sufficiently characterized by it.

In size, texture, colour and odour, the flowers are very similar to Chamaeanthus brachystachys Schltr. The sepals and petals show no differences and the lip likewise is constructed in exactly the same manner. The column-foot is relatively not much longer than for Chamaeanthus.



The anther, clearly, is very easily detached from the column, hence it is possible that I have described it incorrectly. Schlechter notes correctly that the pollinia are not formed in the lower, but in the front part. This front part is so similar in appearance to the anther of Chamaeanthus and is pointed like a small beak, covering the clinandrium in the usual manner. The base of the anther, however, is extended into a large, broad blunt appendage, which faces backwards, covering and appressed to the whole back of the column. The point of attachment of the anther to the column is directly behind the pollinia, so that the appendage protrudes freely towards the rear.

The pollinia are four in number, but not of equal size, as stated by Schlechter, and separated as for Taeniophyllum, but, at least for C. paniculata (J.J. Sm.) Schltr. and C. filiformis (J.J. Sm.) Schltr. unequal in size, for C. filiformis (J.J. Sm.) Schltr. even very unequally larger and adjacent, as two more-or-less globular little particles.

The flowers were white with pale yellow tips.

The specimens are stored, in part, in alcohol.

Sarcochilus R. Br.

Sarcochilus singularis J.J. Sm., in Fedde Rep. XII (1913), 27.

Chamaeanthus singularis J.J. Sm., in Bull. Jard. Bot. Buit. 2<sup>e</sup> sér. III (1912), 25. [77].

Tab. CLXXVIII, 331.

(latin diagnosis)

Dutch New Guinea : Hollandia Bivouac, on Humboldt Bay, in forest on hills, alt. c. 50m (K. Gjellerup no. 451, flowering in Mar. 1911; living plant in cultivation at Hort. Bog. under no. 84).

After having been able to investigate a living plant in flower, I believe that I must place this species, although slightly aberrant, into the genus Sarcochilus. In habit, and also in regard to the sepals,

petals and column, the plant does not differ from a Sarcochilus. If the lip is compared with that of the more complex-structured species of the genus, e.g. S. Burchardianus Schltr., then a big similarity cannot be denied, but the spur-shaped hollow is very short, and can hardly be classed as a spur, whilst the carnose part is markedly extended. Outwardly, the lip has much similarity with that of Sarcochilus teres Rchb.f., but in this case, the whole front part is hollow. However, the comparison with S. emarginatus Rchb.f. is important, where there are two distinct, carnose, conical appendages, which are probably identical with the two carnose lobes of S. singularis J.J.Sm. For S. emarginatus Rchb.f. the spur consists of only a thin canal which does not reach to the apex of the spur-shaped appendage. I do not consider it desirable to create a new genus just for the sake of a single species, which externally is so closely related to Sarcochilus. Should several related species be found, the necessity could then arise.

The lip is not easy to describe. It is very carnose, longish in plan, has no spur; instead a relatively fairly deep excavation at the base. The thick protruding part is reminiscent of S. pallidus Rchb.f., S. teres Rchb.f., etc., but is not hollow. At the base there are erect, triangular lateral lobes. In front of the excavation and partly between the front margins of the lateral lobes is an appendage, fleshy at the base, angular, cup-shaped above, crenate and with two narrow lazines on the back margins, and which is connected to the lateral lobes by means of four longitudinal membranes. It is possible that this structure could be considered as the middle lobe. Finally, the large, carnose, concave front part of the lip is provided on each side, approximately in the middle, with a carnose, vertical, triangular lobe.

Sarcochilus Moorei Schltr., Orch. Deutsch-Neu-Guinea [1913], 967.

S. Beccarii F.v.M., Descr. Not. Pap. Pl. IX(1890), 66.

S. papuanum Krzl. in Schum. et Hollr., Fl. Kais. Wilhelm. Land (1889), 34.

S. Englerianum Krzl., in Schum. et Laut., Fl. Deutsch. Schutzgeb. Südsee (1901), 252.[232]

S. ramuanum Schltr., in Schum. et Laut., Nachtr. Fl. Deutsch. Schutzgeb. Südsee (1905), 232; J.J.Sm. in Nova Guinea VIII (1909), 120, t. XLI, 135.

S. salomonensis Rolfe, in Kew Bull. (1908), 72.

Thrixspermum Moorei Rchb.f., in Gard. Chr. (1880), I, 104.

T. Beccarii Rchb.f., in Bot. Centralbl. XXVIII (1886), 343.

Renanthera ramuana Krzl., in Schum. et Laut., Fl. Deutsch. Schutzgeb. Südsee (1901), 252.[232].

Dutch New Guinea : On the middle Tor River, alt. c. 25m, (K.

Gjellerup nos 740 and 741, flowering in Oct. 1911).

The synonyms are according to Schlechter.

The species usually has intense purple-flushed leaves and inflorescences. With some of the specimens in cultivation at Buitenzorg the leaves and inflorescences are, however, completely green.

#### Thrixspermum Lour.

Thrixspermum validum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 37; in Nova Guinea VIII (1909), 120, t. XLI, 136.

Dutch New Guinea : Hinterland of Hollandia at Humboldt Bay alt. c. 75m, epiphytic in forest on a hill (K. Gjellerup no. 944, flowering in Jan. 1912; also living plant in cultivation at Hort. Bog. under no. 150); Gautier Range (K. Gjellerup, living plant in cultivation at Hort. Bog. under no. 420).

The flowers have a fairly strong odour; they are pallid yellow, the lip largely with large brown-violet spots and a white middle lobe, pale yellow at the base.

A form of this species was collected by Jhr. C. de Savornin Lohman on Halmahera and flowered several times one and the same day, together with several specimens originating from New Guinea.

Luisia Gaud.

Luisia? Beccarii Rchb. f., in Bot. Centralbl. XXVIII (1886), 334.

Dutch New Guinea : Hinterland of Hollandia, at Humboldt Bay, alt. c. 100m, epiphytic in forest on a hill (K. Gjellerup no. 595, flowering in Aug. 1911; also living plant in cultivation at Hort. Bög.); at the mouth of the Mamberamo River (R.F. Janowsky no. 456, flowering in Sept. 1913).

Only with much doubt do I list the species under the above name. Reichenbach's description is insufficient for recognising the plant again. Schlechter, who lists the species also for German New Guinea, does not provide a description.

Reichenbach's description does not match the sketch of the flower which Schlechter kindly allowed me to copy, but fits the material collected by Gjellerup better.

Vandopsis Pfitz.

Vandopsis curvata J.J. Sm., in Bull. Jard. Bot. Buit. 2<sup>e</sup> sér. XIII (1914), 73.

Tab. CLXXIX, 332.

(latin diagnosis)

New Guinea :

For material of this plant, which is said to come from New Guinea, I am indebted to L. Schmid of Surabaja.

It is closely related to V. praealta (Rchb.f.) J.J. Sm., and V. Warocqueana (Rolfe) Schltr.

Of those two species only V. Warocqueana (Rolfe) Schltr. is known sufficiently. Although the illustration in 'Lindenia' is not

exactly beautiful and details are lacking completely, I am fairly sure that the plant I described and illustrated in 'Nova Guinea' is really identical with Rolfe's species. The colouring of the flowers is completely similar for both. V. curvata J.J. Sm. is well distinguished from this species, mainly in less carnose flowers, the bent lip, and the colouring.

Schlechter, who examined a flower of the Type of Cleisostoma Hansemannii Krzl., assures explicitly (Orch. Deutsch-Neu-Guinea, 973) that this plant is identical with V. Warocqueana (Rolfe) Schltr. Kränzlin's description does not agree completely with V. Warocqueana (Rolfe) Schltr., as I stressed earlier (in Nat. Tijdschr. Ned. Ind. LXXII (1912), 8), but in some aspects agrees better with the plant described here, but which, after Schlechter's assurances, I must consider as new.

The description of V. praealta (Rchb.f.) J.J. Sm. is not adequate to gain an exact picture of the plant; V. Chalmersiana F.v.M. I do not know at all.

Janowsky collected a Vandopsis at the north coast near Tarfia, which probably belongs here. However, the leaves are appreciably smaller than those of the cultivated specimen, they are 13 cm long and 3.0 cm broad.

#### Renanthera Lour.

Renanthera Edelfeldtii F.v.M. et Krzl., in <sup>II</sup>Österr. Bot. Zeitschr. XLIV (1894), 460.

Tab. CLXXIX, 333.

Dutch New Guinea : Hollandia on Humboldt Bay (K. Gjellerup 1911, living plant in cultivation at Hort. Bog. under no. 400); on the upper Digul [River] (B. Branderhorst 1910, living plant in cultivation at Hort. Bog. under no. 301). Geographic distribution: German and British New Guinea.

The flowers of this species are about intermediate between  
R. elongata Lindl. and R. moluccana Bl.

Trichoglottis Bl.

Trichoglottis celebica Rolfe, in Kew Bull. (1899), 130; etc.

Dutch New Guinea : Sawia, alt. c. 100m, epiphytic in forest (K.  
 Gjellerup no. 639, flowering in Aug. 1911).

The plant from Sawia has relatively small leaves.

I suspect that T. sororia Schltr. belongs here.

Trichoglottis papuana Schltr., Orch. Deutsch-Neu-Guinea (1913), 993.

T. flexuosa J.J. Sm. (nec Rolfe), in Nova Guinea VIII (1909), 125,  
 t. XLII, 140.

Dutch New Guinea : Lorentz River, near the Kloof Bivouac, epiphytic  
 in primary forest (J.B. Sitanala no. 11204, flowering in Jan. 1913).

Pomatocalpa Breda

Pomatocalpa orientale J.J. Sm., in Nova Guinea XII (1913), 101, t. XXVIII,  
 85; etc.

Dutch New Guinea : Manokwari, epiphytic in forest (R.F. Janowsky  
 no. 542, flowering in Oct. 1913).

Pomatocalpa incurvum J.J. Sm., in Nat. Tijdschr. Ned. Ind. LXXII (1912),  
 34; in Nova Guinea XII (1913), 101, t. XXVIII, 86.

Cleisostoma incurvum J.J. Sm., in Bull. Jard. Bot. Buit. 2<sup>e</sup> sér.  
 II (1911), 20.

Dutch New Guinea : Manokwari, epiphytic in forest (R.F. Janowsky  
 no. 555, flowering in Nov. 1913).

Perhaps P. potamophilum Schltr. is identical with this species.

Sarcanthus Lindl.

Sarcanthus bicornis J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX

(1908), 35; in Nova Guinea VIII (1909), 35, t. XLII, 139.

Dutch New Guinea : Temenimbor, on the Tor River, alt. c. 75m,  
(K. Gjellerup no. 800, flowering in Oct. 1911); Tarvia (Bonggo),  
epiphytic at the coast (R.F. Janowsky no. 620, flowering in Jan.  
1914).

The plant is weaker than the Type, and the callus on the lip is  
somewhat different.

Schoenorchis Bl.

Schoenorchis plebeja J.J. Sm., in Nat. Tijdschr. Ned. Ind. LXXII (1912), 31.

Saccolabium plebejum J.J. Sm., in Bull. Jard. Bot. Buit. 2<sup>e</sup> sér.

III (1912), 25; in Nova Guinea XII (1913), 102, t. XXVIII, 88.

Dutch New Guinea : Giriwo River, epiphytic in forest (R.F. Janowsky  
nos 201 and 212, flowering in July 1912).

The plant which flowered in the Botanic Garden, clearly, was a fairly  
weak one. The specimens collected by Janowsky have leaves 2.5 - 7.0  
cm long and inflorescences 1.3 - 2.8 cm long.

The colouring clearly is not always the same. For no. 202 they  
are described as being pink, for no. 212, violet.

Robiquetia Gaud.

Robiquetia ? Mooreana J.J. Sm., in Nat. Tijdschr. Ned. Ind. LXXII  
(1912), 43.

Saccolabium Mooreanum Rolfe, in Kew Bull. (1893), 64; Bot. Mag.

III d ser. LI, t. 7428.

S. Sayerianum F.v.M. et Krzl., in Österr. Bot. Zeitschr. XLIV (1894)  
253.

S. Sanderianum Krzl., Xen. Orch. III (1894), 134, t. 276, II.

S. Kerstingianum Krzl., in Schum. et Laut., Fl. Deutsch. Schutzgeb.  
Südsee (1901), 251.

Dutch New Guinea : Berkombor, on the upper Tor River, alt. c. 50m, epiphytic in forest (K. Gjellerup no. 908, flowering in Nov. 1911); at the Giriwo River, epiphytic in forest (R.F. Janowsky no. 153, flowering in July 1912).

I suspect that this plant is Saccolabium Mooreanum Rolfe, even though in this case, the illustration in Bot. Mag. cited above, as well as that of S. Sanderianum Krzl. in Xenia Orch. III do not give a good picture of the details. On the other hand, the analytical illustrations of Robiquetia ascendens Gaud. nearly all agree perfectly with it, so that I consider it possible that the Gaudichaud species is present in this case. The only difference is to be found in the inflorescence which Gaudichaud represents as erect and laxer. However, I should like to point out that the leaved stalk is in a very unnatural setting in Gaudichaud's illustration. Apparently in the living state it was pendulous with the tip bent upwards, if the parts had not been twisted on pressing. The flowers, at any rate, are illustrated in the correct position, so that one must conclude that the inflorescence, in fact, grew upwards. Since I have no material of either Robiquetia ascendens Gaud., or Saccolabium Mooreanum Rolfe, I cannot answer the question. So much is certain, however, that both species are closely related, so also is the plant listed as R.? Mooreana which, if the illustrations are correct, must be new.

Saccolabium Bagnolianum Bail. probably is also closely related.

Schlechter (Orch. Deutsch-Neu-Guinea, 984) states that R. Mooreana J.J. Sm. was described three times by Kränzlin, without realizing their [true] identity. That is not quite correct since Kränzlin in the Berichtigungen [corrections] to Xenia III, 174, unites Saccolabium Sanderianum Krzl. with S. Mooreanum Rolfe.

According to the notes for Gjellerup's plants, the leaves are matt dark green, the peduncle brown-violet, and the flowers carmine-red,



whilst, according to Janowsky the flowers are white-red, the lip white.

Robiquetia gracilistipes J.J. Sm., in Nat. Tijdschr. Ned. Ind. LXXII (1912), 43.

R. squamulosa J.J. Sm., l.c. 45.

Saccolabium gracilistipes Schltr., in Schum. et Laut., Nachtr. Fl. Deutsch. Schutzgeb. Südsee (1905), 227.

S. squamulosum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 35; in Nova Guinea VIII (1909), 131, t. XLIV, 148.

Dutch New Guinea : Berkombor, on the Tor River, alt. c. 25m, epiphytic in forest (K. Gjellerup no. 775, flowering in Oct. 1911); Temenimbor, on the Tor River, alt. c. 75m (K. Gjellerup no. 801, flowering in Oct. 1911).

According to Schlechter, R. squamulosa J.J. Sm. is identical with R. gracilistipes J.J. Sm.

#### Malleola J.J. Sm. et Schltr.

Malleola gautierensis J.J. Sm., in Bull. Jard. Bot. Buit. 2<sup>e</sup> sér. XIII (1914), 74. Tab. CLXXIX, 334.

(latin diagnosis)

Dutch New Guinea : Gautier Range on the north slope, alt. c. 400m, epiphytic in forest on limestone and basalt (K. Gjellerup no. 900, flowering in Nov. 1911).

Differs from M. palustris J.J. Sm. et Schltr. in a less markedly rolled-back middle lobe, and a shorter spur, bent back at the apex; from M. cladophylax J.J. Sm. et Schltr. in the forward-directed inflorescences, a broader dorsal sepal, non-pointed lateral sepals and the colouring; from M. wariana Schltr. in shorter stems, much shorter bi-lobed leaves, and shorter inflorescences; and from M. Steffensii J.J. Sm. et Schltr., from Celebes, in shorter denser inflorescences and larger flowers, and a lip without two swellings at the base.

Taeniophyllum Bl.

Taeniophyllum tamianum J.J. Sm., in Bull. Jard. Bot. Buit. 2<sup>e</sup> sér. XIII  
(1914), 74.

Tab. CLXXX, 335.

(latin diagnosis)

Dutch New Guinea : On the lower Tami River, alt. c. 40m, epiphytic  
in forest (K. Gjellerup no. 652, flowering in Sept. 1911).

The species is closely related to T. arachnites J.J. Sm., but has  
a longer spur compressed on the side, and a hardly noticeable tri-lobed  
lip.

Description from a dried specimen and a flower preserved in  
alcohol.

As noted by the collector, the flowers are yellow.

I have already often stressed that many species can be accepted  
as definitive only when an adequate number of specimens has been  
presented. Frequently, a species is based on only a single flower, yet  
it is accepted that orchids vary just as much in their characters as do  
other plants.

I must now make a correction to T. arachnites J.J.Sm. which has  
petals with very short cilia, a fact that I previously overlooked.  
With alcohol-preserved flowers, softened in water, the little hairs  
are liable to collect at the margins of the tepals.

Taeniophyllum toranum J.J. Sm., sp. nov.

Tab. CLXXX, 336.

(latin diagnosis)

Dutch New Guinea : Berkombor, on the Tor River, alt. c. 25m,  
epiphytic in forest (K. Gjellerup no. 761, flowering in Oct. 1911).

The species is distinguished from the related T. arachnites J.J. Sm.,

by thicker peduncles and rachis, larger bracts, the lip without calli at the base, the spur hollowed out at the sides, and a broader middle lobe.

The roots were matt dark green, the flowers pale yellow.

Description from a solitary specimen preserved in alcohol.

Taeniophyllum giriwoense J.J. Sm., in Bull. Jard. Bot. Buit 2<sup>e</sup> sér.

XIII (1914), 74.

Tab. CLXXX, 337.

(latin diagnosis)

Dutch New Guinea : Giriwo River, epiphytic in forest (R.F. Janowsky no. 147, flowering in July 1912).

The plant looks very similar to one of Schlechter's sketches, which I have not been able to qualify; the spur, however, in Janowsky's plant is far more constricted.

Description from alcohol-preserved material.

Taeniophyllum excavatum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 36; in Nova Guinea VIII (1909), 127, t. XLXXX, 143.

Dutch New Guinea : Gautier Range, on the north slope, alt. c. 300m, epiphytic in forest on limestone and basalt (K. Gjellerup no. 902, flowering in Nov. 1911).

Taeniophyllum singulare J.J. Sm., in Mededeel. Herb. Leid. 23 (1915), 19.

Tab. CLXXXI, 338.

(latin diagnosis)

Dutch New Guinea : On the middle Legarei River (R.F. Janowsky no. 91, flowering in June 1912).

According to Schlechter's classification of the genus, this species would belong to the section Trachylepus. It is quite noteworthy that the viscid mass of the very long caudicle of the pollina is hidden in the excavated apex of the lip.

According to Janowsky, the flowers are yellow.

Description from alcohol-preserved material.

Taeniophyllum clavicalcar J.J. Sm., in Mededeel. Herb. Leid. 23 (1915),  
20.

Tab. CLXXXI, 339.

(latin diagnosis)

Dutch New Guinea : South coast of Geelvink Bay, Jabi Range, near  
Wape, epiphytic in forest (R.F. Janowsky no. 310, flowering in May  
1913).

Without having seen any material, I do not risk uniting this plant  
with T. latipetalum Schltr., with which it definitely is very similar.  
The sepals are longer with a few warts and soft bristles on the outside,  
the lateral sepals are pointed, the spur shorter, and thickened in a  
clavate manner in the upper half, the lip-lamina is broader and has two  
excavations, the caudicles more than double the length of the pollinia,  
and the soft prickles on the ovary are much longer.

The flowers are stated to be yellow.

Description from herbarium and alcohol-preserved material.

## Nova Guinea XII, Parts III and IV

## Scientific Index

Acanthophippium Bl.

splendidum J.J.Sm.

Acriopsis Reinw.

javanica Reinw.

Aglossorhyncha Schltr.

biflora J.J.Sm.

fruticicola J.J.Sm. LXXXII, 142.

jabiensis J.J.Sm. LXXXII, 141.

lucida Schltr.

viridis Schltr. LXXXI, 140.

Agrostophyllum Bl.

brachiatum J.J.Sm.

var. latibrachiatum J.J.Sm.

compressum Schltr.

costatum J.J.Sm.

curvilabre J.J.Sm. LXXIX, 137.

cyclopense J.J.Sm. LXXVIII, 136.

fragrans Schltr.

lamellatum J.J.Sm.

mucronatum J.J.Sm.

patentissimum J.J.Sm. LXXX, 138.

superpositum Schltr. LXXXI, 139.

uniflorum Schltr.

verruciferum Schltr.

§ Amblyanthus

Antennisepalum

Aphyllorchis Bl.

arfakensis J.J.Sm. LXIII, 102.

Aphyllorchis Bl.

elata Schltr.

pallida Bl.

torricellensis Schltr.

§ Aporum

Apostasia Bl.

papuana Schltr. LV, 89.

Apostasiaceae

Appendicula Bl.

callifera J.J.Sm.

carinifera J.J.Sm. CLXXIV, 325.

Chalmersiana F.v.M.

disticha Ridl. CLXXVI, 328.

fasciculata J.J.Sm. CLXXIV, 323.

flaccida Schltr.

furfuracea J.J.Sm. CLXXIV, 324.

grandifolia Schltr.

lutea Schltr. CLXXV, 326.

neo-hibernica Schltr.

oxysepala J.J.Sm.

palustris J.J.Sm.

pendula Bl.

var. Chalmersiana J.J.Sm.

reflexa Bl.

var. neo-pommeranica Schltr.

rostrata J.J.Sm. CLXXVI, 327.

Steffensiana J.J.Sm.

§ Appendiculopsis

III.

§ Batiola

Bisepalum

§ Blepharoglossum

Bletia R. et P. [Ruiz et Pavon]

Tankervilliae R.Br.

§ Brachypus

Bromheadia Lindl.

Finlaysoniana (Lindl.) Rchb.f.

palustris Lindl.

var. papuana J.J.Sm.

pulchra Schltr.

§ Bulbophaius

§ Bulbophreatia

Bulbophyllum Thou.

absconditum J.J.Sm.

var. neo-guineense J.J.Sm.

acuminatum Schltr. CLVII, 294.

acutilingue J.J.Sm.

adenambon Schltr.

adpressiscapum J.J.Sm. CLXIX, 279

angiense J.J.Sm. CXLIX, 280.

angulatum J.J.Sm.

antennatum Schltr.

aristilabre J.J.Sm. CXXXII, 244.

arsoanum J.J.Sm. CXL, 263.

aspersum J.J.Sm.

barbilabium Schltr.

bicaudatum Schltr.

bigibbosum J.J.Sm. CXXXVIII, 260.

blepharicardium Schltr.

IV.

Bulbophyllum Thou.

Blumei J.J.Sm.

var. longicaudatum J.J.Sm.

brachypetalum Schltr.

brevilabium Schltr.

bulliferum J.J.Sm.

callipes J.J.Sm.

caloglossum Schltr.

Caryophyllum J.J.Sm. CLIX, 299.

cassideum J.J.Sm. CLV, 289.

caudipetalum J.J.Sm. CXXXIII, 245.

cavistigma J.J.Sm. CLII, 284.

centrosemiflorum J.J.Sm. CLII, 283.

Gerambyx J.J.Sm. CXXXVI, 254.

citrinilabre J.J.Sm. CXLV, 274.

codonanthum Schltr.

coiloglossum Schltr.

colliferum J.J.Sm.

coloratum J.J.Sm.

conchophyllum J.J.Sm. CXLIV, 271

concolor J.J.Sm. CXXXIII, 246.

conspersum J.J.Sm. CXL, 264.

constrictilabre J.J.Sm. CLI, 282.

contortisepalum J.J.Sm.

crassinervium J.J.Sm.

Grocodilus J.J.Sm. CLVIII, 297.

cruciatum J.J.Sm.

cruciatum Schltr. [see B. mutatum J.J.Sm.]

cucullatum Schltr.

cuniculiforme J.J.Sm.



## Bulbophyllum Thou.

- cyclopense J.J.Sm.
- cyllindrobulbon Schltr.
- dendrobioides J.J.Sm. CXLIII, 268.
- diceras Schltr.
- digoélense J.J.Sm.
- discolor Schltr.
- distichum Schltr.
- dubium J.J.Sm.
- elephantinum J.J.Sm. CLXI, 303.
- elodeiflorum J.J.Sm. CXLII, 266.
- falcatocaudatum J.J.Sm. CXXXVI, 255.
- fatuum J.J.Sm. CLIV, 286.
- fibrinum J.J.Sm. CXXXII, 243.
- filicaule J.J.Sm. CXLV, 273.
  - forma flavescens J.J.Sm.
- filisepalum J.J.Sm. CLIII, 285.
- floribundum J.J.Sm. CXXXIX, 262.
- folliculiferum J.J.Sm. CXLI, 265.
- fractiflexum J.J.Sm.
- fritillariiflorum J.J.Sm.
- frustrans J.J.Sm.
- furciferum J.J.Sm. CL, 281
- futile J.J.Sm.
- garupinum Schltr.
- gautierense J.J.Sm. CXXXV, 251.
- geniculiferum J.J.Sm. CXXXIV, 248.
- giriwoense J.J.Sm. CLX, 301.
- glabrilabre J.J.Sm. CLVI, 290.
- glabrum Schltr.

## Bulbophyllum Thou.

gorumense Schltr.

graciliscapum Schltr.

gracillimum Rolfe

Hahlianum Schltr.

hians Schltr.

hollandianum J.J.Sm. CXLIV, 272.

holochilum J.J.Sm. CXXXI, 242.

var. aurantiacum J.J.Sm.

var. pubescens J.J.Sm.

hydrophilum J.J.Sm.

hymenobracteum Schltr.

var. gitiwoense J.J.Sm.

hystricinum Schltr.

imbricans J.J.Sm. CXLIII, 269.

imitans Schltr.

immobile Schltr.

inauditum Schltr.

infundibuliforme J.J.Sm.

ischnopus Schltr.

lamelluliferum J.J.Sm. CXXXVII, 257.

lamprobulbon Schltr.

leucothyrsus Schltr.

linearilabium J.J.Sm. CXXXIV, 250.

longicaudatum J.J.Sm.

longipedicellatum J.J.Sm.

longirostre Schltr.

Lorentzianum J.J.Sm.

luteopurpureum J.J.Sm.

macranthum Lindl.

## Bulbophyllum Thou.

var. albescens J.J.Sm.

mamberamense J.J.Sm. CLVII, 295.

manobulbum Schltr.

masdevalliaceum Krzl.

muricatum J.J.Sm.

mutatum J.J.Sm. [see B. cruciatum Schltr.]

nasica Schltr.

neo-guineense J.J.Sm.

obovatifolium J.J.Sm.

odontopetalum Schltr.

octarrhenipetalum J.J.Sm. CXLVIII, 277.

olorinum J.J.Sm. CXXXIV, 249.

oncidiochilum Krzl.

orbiculare J.J.Sm.

ornithoglossum Schltr.

orohense J.J.Sm. CXXXV, 252.

pachyacris J.J.Sm.

palilabre J.J.Sm. CXXXV, 253.

paniculatum Ridl.

Papilio J.J.Sm.

paucisetum J.J.Sm. CXXXVIII, 261.

Pelma J.J.Sm.

var. gautierense J.J.Sm.

perductum J.J.Sm.

piliiferum J.J.Sm.

pisibulbum J.J.Sm. CXXXVIII, 259.

Planitiae J.J.Sm.

posticum J.J.Sm.

Pristis J.J.Sm. CLVIII, 296.

## Bulbophyllum Thou.

pseudoserrulatum J.J.Sm.

psittacoides J.J.Sm.

psittacoides Ridl.

pugioniforme J.J.Sm.

pungens Schltr.

quadrangulare J.J.Sm.

var. latisepalum J.J.Sm.

quadrans J.J.Sm. CXLVIII, 278.

quadricaudatum J.J.Sm.

rectilabre J.J.Sm. CXXXIII, 247.

rhopalophorum Schltr.

rivulare Schltr.

rupestre J.J.Sm. CXXXVII, 258.

sawiense J.J.Sm. CXLII, 267.

scrobiculilabre J.J.Sm. CLVII, 293.

scyphochilus Schltr.

serra Schltr. CLVI, 292.

singulare Schltr.

spathipetalum J.J.Sm.

stabile J.J.Sm.

subapetalum J.J.Sm. CXLVII, 276.

subcubicum J.J.Sm.

var. coccineum J.J.Sm.

tenue Schltr.

tenuifolium Lindl.

teretilabre J.J.Sm. CLVIII, 298.

thrixspermiflorum J.J.Sm.

thrixspermoides J.J.Sm. CLVI, 291.

tollenoniferum J.J.Sm. CLIX, 300.

## Bulbophyllum Thou.

- toranum J.J.Sm. CLIV, 287.
- tortuosum Lindl.
- trachyanthum Krzl.
- trachyglossum Schltr.
- tricanaliferum J.J.Sm. CLX, 302.
- trichambon Schltr.
- triclavigerum J.J.Sm. CXLIII, 270.
- trifilum J.J.Sm.
- undatilabre J.J.Sm. CXXVI, 256.
- unigibbum J.J.Sm. CXLVI, 275.
- verrucibracteum J.J.Sm. CLV, 288.
- Versteegii J.J.Sm.
- violaceum Lindl.
- Weneri Schltr.
- xanthoacron J.J.Sm.
- xanthochlamys Schltr.
- zebrinum J.J.Sm.

## § Cadetia

## Cadetia Bl. [Gaud.]

- crenulata Schltr.
- potamophila Schltr.
- quinquecostata Schltr.
- transversiloba Schltr.

## Calanthe R.Br.

- arfakana J.J.Sm. LXIX, 118.
- bicalcarata J.J.Sm.
- brevicalcarata Schltr.
- breviscape J.J.Sm.

## Calanthe R.Br.

camptoceras Schltr.

chrysantha Schltr.

coiloglossa Schltr.

crenulata J.J.Sm.

Engleriana Krzl.

flava Hassk.

geelvinkensis J.J.Sm. LXVIII, 117.

kaniensis Schltr.

Preptanthe J.J.Sm.

Pullei J.J.Sm. LXVII, 113.

reflexilabris J.J.Sm. LXVIII, 114.

rhodochila Schltr.

torricellensis Schltr.

triplicata Ames

truncata J.J.Sm. LXVIII, 115.

tunensis J.J.Sm.

veratrifolia Schltr.

Versteegii J.J.Sm. LXVII, 112.

villosa J.J.Sm. LXVIII, 116.

Wernerii Schltr.

## § Calcarifera

## § Calothyrsus

## Calymmanthera Schltr.

filiformis Schltr. CLXXVII, 330.

paniculata (J.J.Sm.) Schltr.

## § Calypetrochilus

## § Caulodes

## § Caulophreatia

## § Ceratobium

*Ceratostylis* Bl.

- acutifolia* Schltr.
- acutilabris* J.J.Sm. XCVII, 166
- albiflora* J.J.Sm.
- alpina* J.J.Sm. XCVI, 164.
- arfakensis* J.J.Sm. XCV, 162.
- ciliolata* J.J.Sm. XCV, 163.
- formicifera* J.J.Sm.
- var. *giriwoensis* J.J.Sm.
- humilis* J.J.Sm.
- indifferens* J.J.Sm.
- leucantha* Schltr.
- longicaulis* J.J.Sm. XCVII, 167.
- longifolia* J.J.Sm.
- nivea* Schltr.
- parciflora* J.J.Sm. XCVII, 165.
- phaeochlamys* Schltr.
- platychila* Schltr.
- recurva* J.J.Sm.
- resiana* J.J.Sm.

*Chamaeanthus* Schltr.

- brachystachys* Schltr.
- filiformis* J.J.Sm.
- paniculatus* J.J.Sm.
- singularis* J.J.Sm.

*Chilopogon* Schltr.

- bracteatum* Schltr.
- var. *warianum* Schltr.
- distichum* Schltr.

Chitonanthera Schltr.

angustifolia Schltr.

latipetala J.J.Sm. CLXXII, 321.

reflexa J.J.Sm. CLXXII, 320.

Chrysoglossum Bl.

papuanum J.J.Sm.

villosum Bl.

§ Cirrhopetalum

Cirrhopetalum Lindl.

gracillimum Rolfe

psittacoides Ridl.

warianum Schltr.

Cleisostoma Bl.

Hansemannii Krzl.

incurvum J.J.Sm.

Codonosiphon Schltr.

§ Coelochilus

Coelogyne Lindl.

asperata Lindl.

Beccarii Rchb.f.

Micholitziana Krzl.

Rumphii Schltr.

Collabium Bl.

papuanum Schltr.

Corysanthes R.Br.

arfakensis J.J.Sm. LVIII, 93.

gibbifera Schltr.

paelearifera J.J.Sm. LVIII, 94.

§ Crepidium



## Cryptostylis Bl. [R. Br.]

apiculata J.J.Sm. LVIII, 95.

arachnites Bl.

arfakensis J.J.Sm. LIX, 97.

carinata J.J.Sm. LX, 98.

fluva Schltr.

papuana Schltr.

sigmoidea J.J.Sm. LIX, 96.

## Cypripediaceae

## Cypripediinae

## Cystopus Bl.

fimbriatus J.J.Sm.

## Dendrobium Sw.

aberrans Schltr.

acanthophippiiflorum J.J.Sm. CXIV, 208.

acianthum Schltr.

acuminatissimum Lindl.

var. latifolium J.J.Sm.

var. papuanum J.J.Sm.

acutisepalum J.J.Sm.

Agathodaemonis J.J.Sm.

agrostophylloides Schltr.

Ajoebii J.J.Sm. CVIII, 191.

angiense J.J.Sm. CXXVI, 230.

angraecifolium Schltr.

angustiflorum J.J.Sm. CXX, 221.

anosmum Lindl.

var. superbum Rchb.f.

ansusanum Schltr.

## Dendrobium Sw.

antennatum Lindl.

apertum Schltr.

apiculiferum J.J.Sm. CI, 173.

appendiculoides J.J.Sm. CXVIII, 215.

aprinum J.J.Sm.

araneola Schltr.

araneum J.J.Sm. CIX, 194.

aratriferum J.J.Sm.

arfakense J.J.Sm. CII, 177.

Aries J.J.Sm. CXVII, 214.

aromaticum J.J.Sm. CXI, 200.

atropurpureum Miq.

auricolor J.J.Sm.

var. cyclopense J.J.Sm.

var. majus Schltr.

Baeuerlenii F.v.M. et Krzl.

bialatum J.J.Sm.

bifalce Lindl.

var. chloropteron J.J.Sm.

bipulvinatum J.J.Sm. CX, 196.

bracteosum Rchb. f.

Branderhorstii J.J.Sm.

breviracemosum Bail.

bulbophylloides J.J.Sm. CV, 183.

calcarium J.J.Sm.

capituliflorum Rolfe.

ceratostyloides J.J.Sm.

cervicaliferum J.J.Sm. CVIII, 192.

chloropteron Rchb.f. et S.Moore

## Dendrobium Sw.

var. striatum J.J.Sm.

chrysolabium Rolfe

chrysotropis Schltr.

coeloglossum Schltr.

collinum (Schltr.) J.J.Sm.

coloratum J.J.Sm. CXI, 199.

comatum Lindl.

var. papuana J.J.Sm.

conanthum Schltr.

confusum Schltr.

conicum J.J.Sm.

constrictum J.J.Sm.

crassiflorum J.J.Sm.

crassinervium J.J.Sm. CX, 197.

crassula (Schltr.) J.J.Sm.

crenatifolium J.J.Sm.

crenulatum J.J.Sm.

crispilobum J.J.Sm.

cuculliferum J.J.Sm. CXXVII, 233.

cyanocentrum Schltr.

cyclobulbon Schltr. CIV, 180.

cyclopense J.J.Sm.

cylindricum J.J.Sm. CXXIII, 226.

cyrtolobum Schltr.

d'Albertisii Rchb.f.

dendrocolloides J.J.Sm. CXVI, 211.

densifolium Schltr.

dichaeoides Schltr.

dichromum Schltr.

## Dendrobium Sw.

- dichrotropis Schltr.
- dionaeoides J.J.Sm. CXI, 198.
- discrepans J.J.Sm. CXX, 220.
- Dixsonii Bail.
- dubium J.J.Sm.
- echinocarpum (Schltr.) J.J.Sm.
- erectopatens J.J.Sm.
- erubescens Schltr.
- falcatum J.J.Sm.
- fissum Schltr.
- flabellum Rchb.f.
- flavispiculum J.J.Sm. CXX, 219.
- foliosum Brogn.
- Franssenianum J.J.Sm. CVI, 186
  - var. latilobum J.J.Sm.
- frigidum Schltr.
- frutex Schltr.
- fruticicola J.J.Sm. CXXV, 229.
- fulgidum Schltr.
  - var. angustilabre J.J.Sm. CXXI, 222.
- funiforme Bl.
- furfuriferum J.J.Sm. CXVIII, 218.
- giriwoense J.J.Sm. CXIII, 204.
- glaucoviride J.J.Sm. CXXVIII, 234.
- goliathense J.J.Sm.
- guttatum J.J.Sm.
- heterochromum (Schltr.) J.J.Sm.
- hollandianum J.J.Sm. CXIII, 205.
- Hollrungii Krzl.

## Dendrobium Sw.

- homochromum J.J.Sm. CI, 175.  
humboldtense J.J.Sm. CVIII, 193.  
hydrophilum J.J.Sm.  
igneum J.J.Sm.  
informe J.J.Sm. CXVI, 212.  
infractum J.J.Sm. CXXIII, 225.  
ingratum J.J.Sm.  
insigne Rchb.f.  
isochiloides Krzl.  
    var. pumilum J.J.Sm.  
jabiense J.J.Sm. CXXV, 228.  
Jadunae Schltr.  
Janowskyi J.J.Sm. CVII, 188.  
Kaernbachii Krzl.  
kenejianum Schltr.  
keytsianum J.J.Sm. CXXVI, 231.  
lageniforme J.J.Sm.  
lancifolium A. Rich.  
    var. papuanum J.J.Sm.  
Lawesii F.v.M.  
legareense J.J.Sm. C, 172.  
leucorhodum Schltr.  
lilacinum T. et B.  
longicaule J.J.Sm.  
lucidum (Schltr.) J.J.Sm.  
MacFarlanei F.v.M.  
macranthum Hook.  
macrogenium Schltr.  
macrolobum J.J.Sm.

## Dendrobium Sw.

macrophyllum A. Rich.

macrophyllum Lindl.

melanotrichum Schltr.

melinanthum Schltr.

microglossum Schltr.

Micronophelium J.J.Sm. CI, 174.

Mirbelianum Gaud.

mitriferum J.J.Sm.

f. alpinum J.J.Sm.

molle J.J.Sm.

multistriatum J.J.Sm.

navicula Krzl.

neo-ebundatum Schltr.

nitidiflorum J.J.Sm. CX, 195.

Novae-Hiberniae Krzl.

obliqua (Schltr.) J.J.Sm.

ochranthum Schltr.

Odoardii Krzl.

opacifolium J.J.Sm. CII, 176.

ordinatum J.J.Sm. XCVIII, 170.

oreodoxa Schltr.

oreogenum Schltr.

pachyceras F.v.M. et Krzl.

pachystele Schltr.

papyraceum J.J.Sm. CXIII, 206.

parciflorum Krzl.

patentissimum J.J.Sm. CXII, 203.

perlongum Schltr.

Phalangillum J.J.Sm.

## Dendrobium Sw.

phalangium Schltr.

phlox Schltr.

pictum Schltr.

var. muriciferum J.J.Sm. CXII, 202.

pililobum J.J.Sm. CVII, 190

planum J.J.Sm.

var. collinum J.J.Sm.

platycliniodes J.J.Sm. CV, 184.

pleurodes Schltr.

podochiloides Schltr.

poneroides Schltr.

potamophilum J.J.Sm.

prosthecglossum

var. obtusilobum Schltr.

pruinatum T. et B.

pseudocalceolum J.J.Sm.

Pulleanum J.J.Sm.

pulvilliferum Schltr.

purpureiflorum J.J.Sm. CXXII, 224.

quadriquetrum J.J.Sm. CXXII, 223.

quinelobatum Schltr.

recurvilabre J.J.Sm. CXII, 201.

regale Schltr.

remiforme J.J.Sm. CXIV, 209.

rhomboglossum J.J.Sm.

var. latipetalum J.J.Sm.

Ridleyanum Schltr.

riparium J.J.Sm. CXXIV, 227.

## Dendrobium Sw.

Rumphiae Rchb.f.

var. quinquecostatum J.J.Sm.

var. quinquenervium Krzl.

rupestre J.J.Sm.

salicornioides J.J.Sm.

sarcodes Schltr.

sarcopodioides J.J.Sm. CXV, 210.

scarlatinum Schltr.

Schulleri J.J.Sm. CXVII, 213.

Scortechinii Hook.f.

scotiiforme J.J.Sm. CVI, 187.

setosum Schltr.

simile Schltr.

simplex J.J.Sm.

Sitanalae J.J.Sm. CVII, 189.

Smilliae F.v.M.

var. Hollrungii J.J.Sm.

spectabile Miq.

stenocentrum Schltr.

striatiflorum J.J.Sm. CXVIII, 217.

subfalcatum J.J.Sm. CII, 178.

subhastatum J.J.Sm.

sublobatum J.J.Sm. CIV, 181.

subradiatum J.J.Sm. C, 171.

subuliferum J.J.Sm.

var. gautierense J.J.Sm.

superbum Rchb.f.

var. anosmum Rchb.f.



## Dendrobium Sw.

terrestre J.J.Sm.

var. sublobatum J.J.Sm.

Tipula J.J.Sm.

toadjanum J.J.Sm. CIII, 179.

transversilobum J.J.Sm.

Treubii J.J.Sm.

triangulum J.J.Sm. CXIII, 207.

trichostomum Rchb.f.

trisaccatum Krzl.

tropidophorum Schltr.

tuberculatum J.J.Sm. CIV, 182.

tubiflorum J.J.Sm. CXXVII, 232.

forma albidiflorum

undulatum R.Br.

vanilliiodorum J.J.Sm. CV, 185.

Vannouhuysii J.J.Sm.

veratrifolium Lindl.

vernicosum Schltr.

verruculosum Schltr.

Versteegii J.J.Sm.

villosipes J.J.Sm. CXIX, 216.

Vonroemeri J.J.Sm.

vulcanicum Schltr.

warianum (Schltr.) J.J.Sm.

Wentianum J.J.Sm.

xanthomeson Schltr.

Zippelii J.J.Sm.

## Dendrochilum Bl.

Bartonii (Ridl.) Schltr.

Dendrochilum Bl.

cornutum Bl.

longifolium Rchb.f.

var. papuanum J.J.Sm.

simile Bl.

§ Dendrocoryne

§ Desmotrichum

§ Dialeipanthè

§ Diceras

§ Diplocaulobium

Diplocaulobium Krzl. [(Rchb.f.) Krzl.]

Phalangillum Krzl.

Dipodium R.Br.

pandanum Bail.

§ Distichon

§ Distichophyllum

§ Dolichodesme

Doritis Lindl.

bifalcis Rchb.f.

§ Ehippium

Epiblastus Schltr.

auriculatus Schltr.

basalis Schltr.

cuneatus J.J.Sm.

var. unguiculatus J.J.Sm.

lancipetalus Schltr.

Pullei J.J.Sm. XCV, 161.

§ Epibulbon

§ Epicrianthes

*Epipogum* Gmel.

*nutans* Rchb.f.

*Eria* Lindl.

*brachiata* J.J.Sm. CXXIX, 237.

*gautierensis* J.J.Sm. CXXVIII, 236.

*imbricata* J.J.Sm.

*imitans* Schltr.

*javanica* Bl.

*moluccana* Schltr. et J.J.Sm.

*oligotricha* Schltr.

*paludosa* J.J.Sm.

*papuana* J.J.Sm.

*peraffinis* J.J.Sm. CXXVIII, 235.

*phaeotricha* Schltr.

*podochiloides* Schltr.

*ramuana* Schltr.

§ *Eriopexis*

§ *Euagrostophyllum*

*Eubulbophyllum*

§ *Eu-Calanthe*

§ *Euceratostylis*

§ *Eudendrobium*

§ *Euglomera*

*Eulophia* R.Br.

*Dahlia* Krzl.

*emarginata* Bl.

*imperatifolia* Schltr.

*macrostachya* Lindl.

§ *Eu-Mediocalcar*

§ *Euphais*

§ Euphlebiium

§ Euplocoglottis

§ Euproboscis

§ Fruticicola

Galeola Lour.

Hydra Rchb.f.

pterosperma Schltr.

torana J.J.Sm. LXIII, 101.

Geodorum Jacks.

pictum Lindl.

§ Gibberanthera

§ Giulianettia

Glomera Bl.

adenocarpa (Schltr.) J.J.Sm.

carnea J.J.Sm.

compressa J.J.Sm.

conglutinata J.J.Sm.

Dekockii J.J.Sm.

dubia J.J.Sm. LXXXVI, 149.

fimbriata J.J.Sm.

var. gracilis J.J.Sm.

Fransseniana J.J.Sm. XC, 154.

fruticula J.J.Sm.

fruticulosa Schltr.

geelvinkensis J.J.Sm. LXXXVI, 150.

grandiflora J.J.Sm.

hamadryas (Schltr.) J.J.Sm.

jabiensis J.J.Sm. LXXXIV, 144.

## Glomera Bl.

- keytsiana J.J.Sm. LXXXV, 146.  
 latilinguis J.J.Sm.  
 longicaulis J.J.Sm. LXXXIII, 145.  
 manicata J.J.Sm.  
 microphylla J.J.Sm. XCII, 156.  
 Pullei J.J.Sm. LXXXVII, 151.  
 rhombea J.J.Sm.  
 rubroviridis J.J.Sm. LXXXV, 147.  
 rugulosa Schltr.  
 sarcosepala J.J.Sm.  
 salicornioides J.J.Sm. LXXXVIII, 152.  
 salmonea J.J.Sm. CXI, 155.  
 scandens J.J.Sm.  
 subracemosa J.J.Sm.  
 sublaevis J.J.Sm. LXXXIII, 143.  
 transitoria J.J.Sm. LXXXV, 148.  
 uniflora J.J.Sm.  
 Versteegii J.J.Sm. LXXXIX, 153.

## § Glossorhyncha

## Glossorhyncha Ridl.

- compressa Schltr.  
 conglutinata Schltr.  
 fimbriata Schltr.  
 uniflora Schltr.

## § Goniorhabdos

## Goodyera R.Br.

- arfakensis J.J.Sm. LXIV, 106.  
 brachiorhynchos Schltr.  
 confundens J.J.Sm. LXIV, 105.

Goodyera R.Br.

    glauca J.J.Sm.

    rubicunda Lindl.

    Waitziana J.J.Sm.

Grammatophyllum Bl.

    scriptum Bl.

§ Grastidium

Habenaria Willd.

    angustata (Bl.) O.K.

    pachyneura Schltr.

    paucipartita J.J.Sm.    LVII, 92.

§ Hapalochilus

Harpobrachium

§ Hemithelasis

§ Herpethophytum

Hetaeria Bl.

    elongata Miq.

    Erimae Schltr.

    falcatula J.J.Sm.

    gautierensis J.J.Sm.

    latipetala Schltr.

    oblongifolia Bl.

        var. papuana J.J.Sm.

    pauciseta J.J.Sm.    LXIV, 104.

Hippeophyllum Schltr.

    alboviride J.J.Sm.    LXXI, 123.

    hamadryas (Ridl.) Schltr.

    micranthum Schltr.

    papillosum Schltr.

§ Hologlossum

§ Hololobos

§ Hyalosema

§ Hymeneria

§ Hymenobractea

§ Ischnopus

§ Latouria

Latouria Bl.

    occiduiochila Kretz.

Lecanorchis Bl.

    javanica Bl.

    papuana Schltr.

    triloba J.J.Sm.

Lectandra J.J.Sm.

    podochiloides Schltr. CLXXVII, 329.

§ Lepidorrhiza

Limodorum L.C. Rich.

    Incarvillei Pers.

    Tankervilleae Ait. [Banks]

Liparis L.C. Rich.

    caespitosa (Thou.) Lindl.

    cinnabarina J.J.Sm.

    clavigera Ridl.

    confusa J.J.Sm.

        var. bifolia J.J.Sm.

        var. latifolia J.J.Sm.

        var. papuana J.J.Sm.

    gautierensis J.J.Sm. LXXVI, 134.

## Liparis L.C. Rich.

geelvinkensis J.J.Sm. LXXV, 133.

Gjellerupii J.J.Sm. LXXIV, 132.

Govidjoae Schltr.

indifferens J.J.Sm. LXXIV, 130.

Janowskyi J.J.Sm. LXXVII, 135.

latibasis J.J.Sm. LXXIII, 127.

latifolia J.J.Sm.

microblepharon Schltr.

miniata Schltr.

minima (Bl.) Lindl.

neo-guineensis Schltr.

pallida Lindl.

parviflora J.J.Sm.

parviflora Lindl.

persimilis Schltr.

pseudo-disticha Schltr.

Pullei J.J.Sm. LXXIII, 128.

riparia J.J.Sm. LXXIV, 131.

spectabilis Schltr. LXXIII, 129.

sympodialis Schltr.

trachyglossa Schltr.

vestita Rchb.f.

## Luisia Gaud.

Beccarii Rchb.f.

## Macodes Lindl.

Sanderiana Rolfe

## § Macrouris



Malleola J.J.Sm. et Schltr.

cladophylax J.J.Sm. et Schltr.

gautierensis J.J.Sm. CLXXIX, 334.

palustris J.J.Sm.

Steffensii J.J.Sm. et Schltr.

wariana Schltr.

§ Manobulbon

Mediocalcar J.J.Sm.

alpinum J.J.Sm.

var. spathipetalum J.J.Sm.

angustifolium Schltr.

arfakense J.J.Sm. XCIII, 147.

bifolium J.J.Sm.

var. validum J.J.Sm.

bulbophylloides J.J.Sm. XCIII, 159.

cluniforme J.J.Sm. XCIII, 147.

crassifolium J.J.Sm. XCIV, 160.

dependens J.J.Sm.

geniculatum J.J.Sm.

kaniense Schltr.

latifolium Schltr.

robustum Schltr.

stenopetalum Schltr.

§ Microcalcar

§ Micromonanthe

Microstylis Nutt.

arachnoidea Schltr.

caricifolia Schltr.

carinatifolia J.J.Sm. LXXII, 126.

epiphytica Schltr.

## Microstylis Nutt.

fasciata Schltr.

graminifolia Schltr.

heliophoba J.J.Sm. LXXI, 125.

latipetala J.J.Sm.

moluccana J.J.Sm.

var. sagittata J.J.Sm.

moluccana Schltr.

retusa J.J.Sm.

Rhinoceros J.J.Sm.

stenophylla Schltr.

tubulosa J.J.Sm.

undulata Schltr.

Wallichii Lindl.

wappeana J.J.Sm. LXXI, 124.

Zippelii J.J.Sm.

## § Monanthos

## § Monosepalum

Monosepalum Schltr.

muricatum Schltr.

## Nephelaphyllum Bl.

papuanum Schltr.

## Nervilia Gaud. [Commers. ex Gaud.]

Aragoana Gaud.

macrophylla Schltr.

## Neuwiedia

## Oberonia Lindl.

alipetala J.J.Sm. LXIX, 119.

*Oberonia* Lindl.

- asperula* J.J.Sm.
- diura* Schltr. LXX, 120.
- forcipera* Schltr. LXX, 121.
- inversiflora* J.J.Sm.
- repens* Schltr.
- torana* J.J.Sm. LXX, 122.

*Octarrhena* Thw.

- arfakensis* J.J.Sm. CLXIX, 317.
- cucullifera* J.J.Sm. CLXXI, 319.
- gibbosa* J.J.Sm. CLXX, 318.
- Lorentzii* J.J.Sm.
- tenuis* J.J.Sm.

§ *Oliganthe*§ *Otoglossum*§ *Otosepalum*§ *Oxyanthera*§ *Oxyglossum*§ *Oxysepalum*§ *Oxystophyllum**Pachyne* Salisb.

- spectabilis* Salisb.

*Paphiopedilum* Pfitz.

- violacens* Schltr.
- var. *gautierense* J.J.Sm.

§ *Papulipetalum**Pedilochilus* Schltr.

- angustifolium* Schltr.
- brachypus* Schltr.

## Pedilochilus Schltr.

coiloglossum Schltr. CXXX, 238.

kermesinostriatum J.J.Sm. CXXXI, 241.

majus J.J.Sm. CXXXI, 240.

stictanthum Schltr.

sulphureum J.J.Sm. CXXX, 239.

f. coloratum J.J.Sm.

## § Pedilonum

## § Pelma

Pelma Finet

abscondita Finet

## § Peltopus

## § Peristylis

Peristylus Bl.

ciliolatus J.J.Sm. LVI, 91.

goodyeroides Lindl.

grandis Bl.

var. papuanus J.J.Sm.

## § Pesomeria

## § Petro-Cadetia

Phaius Lour.

amboinensis Bl.

Blumei Lindl.

flavus Lindl.

var. papuanus J.J.Sm.

grandifolius Lindl.

var. superbus Van Houtte

Incarvillei O.K.

montanus Schltr.

Tankervilliae Bl. [tancarvilliae (Banks) Bl.]

Phaius Lour.

var. papuanus J.J.Sm.

Wallichii Hook.f.

Zollingeri Rchb.f.

Phalaenopsis Bl.

amabilis Bl.

Phreatia Lindl.

alpina J.J.Sm. CLXVI, 310.

angustifolia Schltr.

bicostata J.J.Sm.

breviscapa J.J.Sm.

caespitosa J.J.Sm. CLXV, 309.

calcarata J.J.Sm.

chionantha Schltr.

densissima J.J.Sm. CLXVIII, 314.

goliathensis J.J.Sm. CLXVII, 313.

grandiflora J.J.Sm. CLXVII, 312.

Habbemae J.J.Sm.

hollandiana J.J.Sm. CLXIX, 315.

inversa Schltr.

kaniensis Schltr.

Loriae Schltr.

micrantha (Brongn.) J.J.Sm.

myriantha Schltr.

petiolata Schltr. CLXVIII, 315.

pisifera J.J.Sm. CLXVI, 311.

polyantha Schltr.

saccifera Schltr.

semiorbicularis J.J.Sm.

var. angiensis J.J.Sm.

*Phreatia* Lindl.*sphaerocarpa* Schltr.*thelasiflora* J.J.Sm.*vaginata* Schltr.§ *Phyllocaulos**Platanthera* L.C. Rich.*elliptica* J.J.Sm. LV, 90.*papuana* Schltr.§ *Platychilus*§ *Platyclinis**Plocoglottis* Bl.*acuminata* Bl.*atroviridis* Schltr.*Janowskyi* J.J.Sm. LXVI, 110.*kaniensis* Schltr.*latifrons* J.J.Sm. LXVI, III.*Lowii* Rchb.f.var. *papuana* J.J.Sm.*maculata* Schltr.*moluccana* Bl.*porphrophylla* Ridl.*pseudo-moluccana* Schltr.*pubiflora* Schltr.*sphingoides* J.J.Sm. LXV, 108.*torana* J.J.Sm. LXV, 109.*Podochilus* Bl.*distichus* Schltr.*flaccidus* Schltr.*imitans* Schltr.

## Podochilus Bl.

longipes J.J.Sm.

var. brevicalcaratus J.J.Sm.

neo-pommeranicus Schltr.

pendulus Schltr.

scalpellifolius Bl.

scalpelliformis Bl.

Steffensianus Schltr.

## § Polyblepharon

## Pomatocalpa Breda

incurvum J.J.Sm.

orientale J.J.Sm.

potamophilum Schltr.

## § Preptanthe

## Pseuderia Schltr.

brevifolia J.J.Sm. XCVIII, 168.

diversifolia J.J.Sm. XCIX, 169.

floribunda Schltr.

foliosa Schltr.

frutex Schltr.

pauciflora Schltr.

similis Schltr.

trachychila (Krzl.) Schltr.

wariana Schltr.

## § Pseudoliparis

## Pseudoliparis Finet

epiphytica Finet

## Pterostylis R.Br.

papuana Rolfe LXI, 99.

## Renanthera Lour.

Edelfeldtii F.v.M. et Krzl. CLXXIX, 333.

elongata Lindl.

moluccana Bl.

ramuana Krzl.

§ Rhizophyllum

§ Rhodochilus

§ Rhopalanthe

## Ridleyella Schltr.

paniculata Schltr. CLXXIII, 322.

## Robiquetia Gaud.

ascendens Gaud.

gracilistipes J.J.Sm.

Mooreana J.J.Sm.

squamulosa J.J.Sm.

## Saccolabium Bl.

Bagnolianum Bail.

gracilistipes Schltr.

Kerstingianum Krzl.

Mooreanum Rolfe

plebejum J.J. Sm.

Sanderianum Krzl.

Sayerianum F.v.M. et Krzl.

squamulosum J.J.Sm.

§ Salaccenses

## Sarcanthus Lindl.

bicornis J.J.Sm.

§ Sarco-Cadetia



## Sarcochilus R.Br.

Beccarii F.v.M.

Burchardianus Schltr.

emarginatus Rchb.f.

Englerianum Krzl.

Moorei Schltr.

pallidus Rchb.f.

papuanum Krzl.

plebejum J.J.Sm.

ramuanus Schltr.

salomonensis Rolfe

singularis J.J.Sm. CLXXVIII, 331.

teres Rchb.f.

§ Sarcopodium

§ Scaphochilus

Schoenorchis Bl.

plebeja J.J.Sm.

Spathoglottis Bl.

plicata Bl.

§ Sphaeracron

Spiranthes L.C. Rich.

angustilabris J.J.Sm. LXIII, 103.

§ Stenochilus

§ Strongyle

§ Styloglossum

§ Syndactylus

Taeniophyllum Bl.

arachnites J.J.Sm.

clavicalcar J.J.Sm. CLXXXI, 339.

## Taeniophyllum Bl.

excavatum J.J.Sm.

giriwoense J.J.Sm. CLXXX, 337.

latipetalum Schltr.

singulare J.J.Sm. CLXXXI, 338.

tanianum J.J.Sm. CLXXX, 335.

toranum J.J.Sm. CLXXX, 336.

## Tainia Bl.

parviflora Schltr.

trinervis Rchb.f.

## Tapeinoglossum Schltr.

centrosemiflorum (J.J.Sm.) Schltr.

## Thelasinae

## Thelasis Bl.

angustifolia J.J.Sm. CLXIV, 308.

capitata Bl.

gautierensis J.J.Sm. CLXIV, 307.

globiceps J.J.Sm. CLXII, 304.

mamberamensis J.J.Sm. CLXIII, 306.

micrantha (Brongn.) J.J.Sm.

phreatioides J.J.Sm.

sphaerocarpa (Schltr.) J.J.Sm. CLXII, 305.

## Thrixspermum Lour.

Beccarii Rchb.f.

Hystrix Rchb.f.

Moorei Rchb.f.

validum J.J.Sm.

§ Trachychilus

§ Trachylepus

§ Trachyrhachis

## § Trachyrhizum

Trichoglottis Bl.

celebica Rolfe

flexuosa J.J.Sm.

papuana Schltr.

sororia Schltr.

## § Trichotosia

Tropidia Lindl.

disticha Schltr.

Janowskyi J.J.Sm. LXV, 107.

triloba J.J.Sm.

## § Uncifera

Vandopsis Pfitz.

Chalmersiana F.v.M.

curvata J.J.Sm. CLXXIX, 332.

praealta (Rchb.f.) J.J.Sm.

Warocqueana (Rolfe) Schltr.

Vanilla Sw.

ramosa J.J.Sm. LXII, 100.

## § Vesicisepalum

Vonroemeria J.J.Sm.

tenuis J.J.Sm.

Vrydagzynea Bl.

elongata Bl.

pachyceras Schltr.

paludosa J.J.Sm.

rectangulata J.J.Sm.

Schumanniana Krzl.

XL.

Vrydagzynea Bl.

triloba J.J.Sm.

Zeuxine Lindl.

amboinensis J.J.Sm.

falcatula Schltr.

## Gazetteer - Appendix I

## Composite Locality Listing within Dutch New Guinea.

From Nova Guinea VIII, Part I (1908), Part III (1911)

" " XII, Part I (1913), Part III (1915), Part IV (1916)

" " XIV, Part III(1929) - English text

" " XVIII, Part I (1935) - English text

Engler Bot. Jahrb. Vol. 66 (1934)

Note - Co-ordinates should be considered only as an approximate guide to location. Bracketed grid references indicate approximate area of location. Various spellings occur in the texts.

Locality	Grid Ref.	Co-ordinates	
		S <sup>o</sup>	E <sup>o</sup>
Aberé Island	G2	1.51	137.01
Agathodämons Mountain - Hellwig Ra.area	(I5)	-	-
Albatros Bivouac - On Mamberamo R.	(I3)	-	-
Alkmaar, Hills and village	I5	1.23	133.58
Angi Lake(s) - Now Anggi	D2	1.25	133.58
Arfak Mountain(s), Range	D/E2	1.05	133.58
Armopa, village	J3	2.17	139.36
Arso, village - Also Arzo	K3	2.56	140.47
" , Arsom River confluence with Tami R.	K3	2.50	140.51
Asan River - Near Humboldt Bay	(K3)	-	-
Ati-Ati-Onin	C3	2.56	132.09
Baik, Cape	C4	3.41	132.46
Batanta Island	A1	0.53	130.40
Batavia Bivouac	I3	2.45	138.25
Beaufort River - Near Batavia Bivouac	(I3)	-	-

# II.

Beguwri, Bigowri River,	K3	2.32	140.56
confluence with Bewani R.			
Berkombor, village - Upper Tor R.	I3	-	-
Biak Island	F2	1.00	136.00
Bijenkorf Bivouac - Hellwig Ra. area	(I5)	-	-
Bivak Island - On Noord R.	I5	5.01	138.39
Bivouac C - Carstensz Mts. area	(H5)	-	-
Bonggo, village, region, range	J3	2.48	139.40
Bosnek, Bosnik	G2	1.13	136.13
Caillié, Cape - Humboldt Bay area, identical	(K3)	-	-
with Cape Tuadje			
Carstensz Mountains, Range, Top	H5	4.09	137.08
Casuaris Hill- near Prauwen Bivouac	(I3)	-	-
Confluent C (of Rouffaer R.)	H4	3.22	137.17
Cyclops Range	K3	2.32	140.36
Daram Island	A3	2.10	130.55
Digoel, Digul, Digul River, mouth of	I8	7.17	138.42
Ditschi Mountain - Arfak Range area	(E2)	-	-
Dom Island - Now Doom I.	B1	0.55	131.14
Doorman Top	I4	3.20	138.30
" River	?	-	-
Doré Bay	E1	0.54	134.09
Dromedaris Range	I5	4.37	138.40
Dumas River, confluence with Noord River	I6	5.00	138.42
Edi Falls	I3	2.25	138.11
Eilanden River, mouth of - now Pulau R.	I6	5.50	138.15
Erica Mountain - Hellwig Ra. area	(I5)	-	-
Etna Bay	E4	2.56	134.45
Exploration, Exploratie Bivouac	H/15	-	-
Explorateurs. Exploration Range	H/15	4.25	137.50

### III.

Fak-Fak, town	C3	2.55	132.18
Fam Island	A1	0.41	130.17
Frederik-Hendrik Island - now P. Dolak	I8	7.50	138.30
Galewo Strait - Also Sélé Strait	A2	1.10	131.05
Gautier Range - Now Gauttier Ra..	I3	2.30	138.45
Geelvink Bay - Now T. Cendrawasih	F3	2.30	135.30
Gelieb, village - Now Gelib	J9	8.06	139.08
Geluksheuvel, Geluks Hill - Near Bivak I., (I5)		(5.01)	(138.39)
Noord R.			
Gine - Probably southern region	?	-	-
Giriwo River mouth of - now Siriwo R.	F3	3.04	135.54
Goliath Mountain	J5	4.40	139.52
Gwistèra, Gwisterna, village - Upper Tor (I3)		-	-
R. area			
Hellwig Mountain, Range	I5	4.33	138.40
Hiri, village - Later Tiri	D2	1.44	133.44
Hollandia, town and bivouac - Now Djayapura	K3	2.30	140.45
Hoofd Bivouac - On Rouffaer R. (H4)		-	-
Horna, Horni, village	D2	1.37	133.44
Hubrecht Range	I5	4.27	138.40
" Valley - ?	?	-	-
Humboldt Bay	K3	2.30	140.50
" Range	?	-	-
Idenburg River, confluence with v.d.	I4	2.53	138.27
Willigen R. - now Turitotose R.			
Inggarorumi Island - Near Wendesi (E3)		-	-
Jabi Mountains, Range - Near Wape (E4)		-	-
Japen Island	G2	1.45	136.00
Johannes Keyts Range	J5	4.35	139.23
Jotéfa Bay - Humboldt Bay area (K3)		-	-

## IV.

Kajan Range, Gorge - Sneeuw Ra. area	?	-	-
Kajo Bay - Hollandia area	K3	2.32	140.44
Kajo Entsau Island - In Kajo Bay	(K3)	-	-
Karas Islands	C4	3.27	132.40
Kloof Bivouac - Near Resi Rucken, on	I5	4.41	135.41

## Noord R.

Koenoepe, village - Weijland Ra. area	(F4)	-	-
Koeroedoe, Kurudu Island - Also Abere I.	G2	1.51	137.01
Koeskoes, Kuskus Hill - Hellwig Ra. area	(I5)	-	-
Kofo-Anggi - See Angi Lakes	(D2)	-	-
Korim, Village	G1	0.50	136.00
Korna, Korn, village - Near Okaba	(J9)	-	-
Kuria, Koeria, village	J3	2.22	139.32
Kwalamul, village - Near Okabe	(J9)	-	-
Lamlam, Lam Lam, village	A1	0.07	130.42
Legarei River - Now Legare R.	F4	3.03	135.44
Lehuma Mountain	D2	1.37	133.57
Lorentz River, mouth of - Identical with	I6	3.08	135.48

## Noord R.

Lupintol, village (Supintol?) - Majalabit	(A1)	-	-
---	------	---	---

## Bay area

MacCluer Gulf - Now T. Berau	C3	2.30	132.30
Majalabit Bay	A1	0.15	130.49
Mamberamo River, mouth of	H2	1.25	137.53
Mambor Island - Now Mamboor I.	F4	3.05	135.35
Manikon, district - See Horna	(D2)	-	-
Mankeba, village - Sneeuw Ra. area	?	-	-
Manokaeri, town - Now Manokwari	E1	1.30	132.30
Marine Falls	I3	2.23	138.11
Masapawei, village	F4	3.01	135.44



Mbaai, Mbai River - Kajo Bay area	(K3)	-	-
Meervlakte (Lowland area) - c. 50m altitude	H3-J4	2.50	138.00
Merauke River, mouth of	K9	8.30	140.24
" , town	K9	8.23	140.20
Mino River, mouth of - Geelvink Bay S coast	(F4)	-	-
Misati, Misiati Mountain - Near Hollandia	(K3)	-	-
Misol, Misool Island	A2	1.55	130.05
Moendi Mountain	D2	1.31	134.00
Motor Bivouac	H4	3.03	137.30
Musairo, village - Now Moesairo	F4	3.05	135.42
Nafri, village - Now Waab	K3	2.38	140.44
Nassaü Range - Identical with Sneeuw Ra	G/J4	4.00	138.00
Naumoni, village - Near Mamberamo R.	H3	2.15	137.57
Nepentes Hill(s) - Noord R. area	(I5)	-	-
Noemfor Island	F2	1.05	134.50
Noord River, mouth of - Identical with Lorentz R.	I6	3.08	135.48
Noordwest River, mouth of	I6	5.27	138.02
Okaba, village	J9	8.06	139.42
Oranje Range	I/K5	4.20	139.30
Oroh River, Valley - Sneeuw Ra. area	?	-	-
Otken River, confluence with Mamberamo R.	I3	2.22	138.02
Papu Islands Group (Fam, Daram) - Now	A1-3	1.05	130.00
Radja Ampat Group			
Pandanus Creek - Noord R. area	(I5)	-	-
Perameles Range, Mountain - Sneeuw Ra.area	?	-	-
Pionier Bivouac	H3	2.18	138.01

## VI.

Pisero Mountain - Cyclops Ra. area	(K3)	-	-
Prauwen Bivouac	(I3)	-	-
Prinses Marianne Strait - Now Muli Str.	I8	7.48	139.00
Ransiki Valley, village	E2	1.30	134.10
Regen Island	I5	4.50	138.46
Reiger River, confluence with Noord R.	I5	4.54	138.45
Resi Rücken (ridge), Resirug	I5	4.40	138.40
Rouffaer River, confluence with v.d.	H4	2.59	138.04
Willigen R. - Also Tarikoe R.			
" " , Confluent C	H4	3.22	137.17
Ruimzicht Vivouac	J5	4.48	139.28
Sabang, village	I5	4.55	138.53
Salawati Island	A2	1.07	139.52
Sawia, village - Later Sawija	K3	3.01	140.46
Schnee Range - German name for Sneeuw Ra.	G-J4	4.00	138.00
Schouten Islands	G1	1.00	136.00
Segar - Upper Tor. R. area	(I3)	-	-
Seka - At mouth of Rami R.- At mouth of	(K3)	(2.13)	(140.58)
Rami R.			
Sekar Bay	C3	2.41	132.21
Sélé Strait - Identical with Galewo Str.	A2	1.10	131.05
Sentani Lake	K3	2.36	140.34
Sermowai River, mouth of	K3	2.22	140.00
Sijep Mountain	?	-	-
Sima Spitze (summit) - Cyclops Range	(K3)	-	-
Sinagai Mountain - Cyclops Range	(K3)	-	-
Sinai Merah [Mountain] - ?	?	-	-
Skroe - Now Sekru	C3	2.55	132.14
Sneeuw Range - Identical with Nassau Ra.	G/J4	4.00	138.00
Soepiori Island	F1	0.50	135.30

## VII.

Sorong, town	B1	0.55	131.15
Sowek, village - Now Sowik	F1	0.52	135.30
Splitsing Bivouac	H4	3.05	138.18
Steen Creek - Resi Rücken area	(I5)	-	-
Supintol Kampong, camp, (Lupintol?)	(A1)	-	-
Majalabit Bay area			
Tami River, mouth of	K3	2.13	140.58
Tanah Merah Bay	K3	2.30	140.24
Tarfia, Tarvia	K3	2.25	140.09
Temena River	?	-	-
Temenimbor, village - on upper Tor. R.	(I3)	-	-
Tjemara Bivouac	(H5)	-	-
" River, mouth of	H6	5.15	137.40
Tobadi Mountain, village	K3	2.37	140.47
Tor River, mouth of	I2	2.56	138.55
Treub Range	I5	4.32	138.40
Triton Bay	E4	3.50	134.04
Tuadjé, Tuatya, Cape - Humboldt Bay area	K3	-	-
Identical with Cape Caillié			
Utakwa River, mouth of	H5	4.50	137.13
Utanta River, mouth of	G5	(4.54)	(136.58)
Van der Sande River, confluence with	I6	5.04	138.34
Noord R. - Later Bibis R.			
Van der Willigen River, confluence with	I3	2.53	138.27
Mamberamo R. - Also Tarikoe R.			
Van Gelderen River, confluence with	H3	2.19	137.59
Mamberamo R.			
Van Rees Mountains, Range	H/I3	2.35	138.00
Waigen, Waigeoe, Waigeo Island	B1	0.20	131.00
Waipoga River, mouth of - Later Wapoga R.	G3	2.40	136.04

## VIII.

Wandamen Bay	E3	2.40	134.31
Wapé, Wappe, village - Later Waboe	E4	3.16	134.55
Wari, village	G1	0.52	136.05
Warsa, village	F1	0.47	135.52
Wasior, village	E3	2.42	134.35
Wasserfall, Waterval Bivouac	(I5)	-	-
Weijland Range - Now Weyland Ra.	F/G4	3.50	135.45
Wendesí, Wenduhsi, village - Later Windehsi	E3	2.25	134.13
Went Range - Hellwig Ra. area	(I5)	-	-
Wespen Creek	(I5)	-	-
Wichmann Range	I5	4.29	138.40
Wilhelmina Top (summit)	J5	4.17	138.37
Wondiwoi Range	E3	2.36	134.40
Zandvoort, camp - On Noord R.	(I5)	-	-
Zuidwest River - Noord R. area	(I5)	-	-

## Appendix II

## Composite Locality Listing Outside the Dutch New Guinea Region

Amahei, village	Seram Island
Ambon Island	Moluccas
Amdaman Islands	Bay of Bengal, India
Arkona, Cape, (Ancona)	Huon Peninsula, Papua New Guinea
Aru Islands	Arafura Sea
Band Islands	Banda Sea
Bandung	Java
Batavia	Now Djakarta, Java
Batjan Island	Moluccas
Batu Islands	Off W. coast Sumatra
Beining Range	New Britain, Papua New Guinea
Billiton Island	Now Belitung I., near Sumatra
Bismarck Range	Central Papua New Guinea
Borneo	Now Kalimantan
Bougainville Range	Near Vanimo. N.W. Papua New Guinea
Bourbon Island	Now Mauritius, Indian Ocean
Bubui River	Huon Peninsula, Papua New Guinea
Buitenzorg	Now Bogor, Java
Buru Island	Near Ambon
Celebes	Now Sulawesi
Ceram Island	Now Seram
Dawon, village	Herzog Range, eastern Papua New Guinea
Djavar, village	Minjem River area, Papua New Guinea
Erimahafen, (Port Erima)	Near Madang, Papua New Guinea
Finisterre Range	Near Madan, Papua New Guinea
Halmahera Island	Moluccas
Herzog Range	Near Lae, eastern Papua New Guinea
Huon Bay (Gulf)	Eastern Papua New Guinea

Jaduna	On Waria River, Morobe Prov., Papua New Guinea
Junjaing	Huon Peninsula, eastern Papua New Guinea
Kaiserin-Augusta River	Now Sepik River, Papua New Guinea
Kei Islands	East Indonesia
Komodo Island	West of Flores I., East Indonesia
Krakatau Mountain	Now Raketa I., between Java and Sumatra
Larat, island and village	Tanimbar Islands, East Indonesia
Malu Bivouac	Sepik R. area, Papua New Guinea
Mariana Islands	Pacific Ocean
Markham River	Eastern Papua New Guinea
Mojo Valley	Probably Moyo Valley near Madang, Papua New Guinea
Mongi-Busu, village	Saruwaged R., Eastern Papua New Guinea
Nusa Laut, island	Near Ambon I., East Indonesia
Obi Islands	Moluccas, Indonesia
Ogeramnong, village	Saruwaged Ra., Papua New Guinea
Riouw Islands	Off Sumatra
Saruwaged Range	Eastern Papua New Guinea
Sattelberg	Huon Peninsula, Papua New Guinea
Singapore Island	Singapore
Solomon Islands	Pacific Ocean
Sumatra Island	Indonesia
Sumba Island	East Indonesia
Sunda Islands, Lesser	Indonesian Archipelago
Surabaya, town	Java, Indonesia
Tanimbar Islands	East Indonesia
Tenasserim, town, region	Burma/Thailand border area
Ternate, island, town	Moluccas, Indonesia
Thursday Island	North Queensland, Australia
Tidore Island	Moluccas

XI.

Timor Island	East Indonesia
Timor Laut Island	Tanimbar Is., East Indonesia
Tjiapoes, village	Salek, Java, Indonesia
Tjibodas, village	Near Bogor, Java, Indonesia
Torricelli Range	Near Wewak, northern Papua New Guinea
Wobbi	Minjem River area, Papua New Guinea





