

The Orchids of Dutch New Guinea

Johannes Jacobus Smith

Book 1 of 3:

A translation into English of

Die Orchideen von Niederlandisch-Neu-Guinea

as published in

***Nova Guinea*, Vol VIII, part I, pp 1-142 (1909)**

with introduction, comments & notes and index; and

***Nova Guinea*, Vol VIII, part III, pp 522-608 (1911)**

with index.

D F Blaxell, H J Katz & J T Simmons



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



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

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Introduction: J. J. Smith and Nova Guinea

No serious study of the Orchidaceae of Papuasia nor indeed that of Malesia could be undertaken today without the author being familiar with the work of Rudolf Schlechter in German New Guinea, and his great contemporary, Johannes Jacobus Smith, who wrote extensively on genera and species from Dutch New Guinea.

It is paradoxical that Schlechter was the brilliant naturalist/botanist/collector who made two extensive trips to New Guinea, whilst Smith, the precise, methodical taxonomist/draftsman never visited New Guinea, and worked extensively from dried and preserved material sent to the herbarium at Buitenzorg (Bogor), although this was supplemented with some live material sent to, and grown in cultivation, at the Buitenzorg Gardens in Java.

New Guinea, at the turn of the [nineteenth] century, was relatively unexplored, and the orchid-rich flora unknown and unnamed. During the next two decades both Schlechter and Smith described and named more species of orchids than any person before or since, as Papuasia was found to be the endemic centre of many genera, including Dendrobium and Bulbophyllum, the two largest genera in the family Orchidaceae.

Both were prolific writers, and while Schlechter's early death in 1925, at the age of 53, terminated the flow of papers, articles and books from his pen, the publications of Smith started with a botanical paper in 1890 and were continuous up to 1952, some five years after his death at the age of 79.

The results of Smith's work were published in numerous journals and other serial publications including: Bulletin du Département de l'Agriculture aux Indes Néerlandaises, Buitenzorg; Annales du Jardin Botanique de Buitenzorg; Mededeelingen van's Rijks Herbarium, Leiden; Natuurkundig Tijdschrift voor Nederlandsch Indië; Fedde, Repertorium; Engler, Botanische Jahrbücher, etc. However, most of his work from Dutch New Guinea was then consolidated into six papers and republished in 'Nova Guinea'.

The publishing company, E. J. Brill, Leiden, had undertaken the production of a series of volumes on natural history based on the results of various expeditions to Dutch New Guinea between 1903 and 1920. These volumes were entitled 'Nova Guinea, Résultats de l'expédition' and appeared as 18 volumes, although, strangely, volumes 10 and 11 were never published. A second series of ten volumes was published between 1937 and 1959, and a third series started in 1961 and concluded in 1967.

However, the former series became the publication vehicle for the six papers written by Smith on Orchidaceae and entitled 'Die Orchideen von Niederländisch-Neu-Guinea. They were published as follows:-

Volume VIII, Part I (1909)

Volume VIII, Part III (1911)

Volume XII, Part I (1913)

Volume XII, Part III (1915)

Volume XII, Part IV (1916)

Volume XIV, Part III (1929)

Volume XVIII, Part I (1935)

Part IV of Volume XII is a continuation of Part III of the same volume and constitutes one paper. The final two parts were published in English, the earlier parts in German.

Collectively, the work is even larger than Schlechter's 'Die Orchidaceen von Deutsch-Neu-Guinea'. It contains over 900 pages of descriptive text, notes, collection details, synonyms and, where appropriate, the Latin diagnosis on over 1500 species or varieties of 106 genera. Smith makes constant comparative comment on the work of Kränzlin, Schlechter, Ames, Ridley, Finet and other contemporaries, and the text is complemented by nearly 300 double pages covering 789 of Smith's beautifully executed drawings.

What may be regarded as a supplement to Smith's work in 'Nova Guinea' was a paper he published in 1934 entitled 'Neue Orchidaceen Papuasien'. This was part of C. Lauterbach's 'Beiträge zur Flora von Papuasien' and was published in Engler's *Botanische Jahrbücher* LXVI, pp. 161 – 215.

The text reflects much of Smith's critical analysis of Schlechter's work. While they were correspondents, and carefully studied each other's published work, they appear to have met only once, in March 1910, at Buitenzorg, when Schlechter was returning home after his second visit to German New Guinea. During his stay in Buitenzorg, Schlechter allowed Smith to copy many of his field sketches of his New Guinea material; this unfortunately led, later on, to an accusation of plagiarism against Smith. Their respective outlooks and temperaments were hardly conducive to lasting friendship.

It has been said of Schlechter that while one may not always agree with him, he could not be ignored and this may equally be said of J. J. Smith.

J. T. Simmons

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December 1984

General Comments and Explanatory Notes

on J. J. Smith's Contributions in 'Nova Guinea'

As the six papers prepared and written by J. J. Smith were published over a time-span of 26 years (1909-1935) it was inevitable that some changes of 'style' occurred in both Smith's work and the publisher's treatment of the text. The translators and editors have attempted to adopt a general approach with a 'style and format' which does not compromise any of the original work.

At times Smith exhibited a rather quaint habit of describing details of taxa in a manner quite contrary to what one may expect. Thus we read 'beset less-densely with papillae', 'a column-foot less bent', 'strongly-diluted alcohol', 'non-blunt petals', etc. No attempt has been made to rephrase such expressions.

The original indices which contained little more than a list of fully described species from the text, and, according to Smith, their synonyms, were considered inadequate for current botanical or taxonomic use. These have been re-compiled as complete 'Scientific Indices' covering the names of all the Orchidaceae mentioned in the text.

In nearly 25 years since Dutch New Guinea became the Indonesian Territory of Irian Jaya, access to the Territory has been restricted and most difficult. The Indonesian authorities have undertaken a program of change of nomenclature of places and physical features where the names had any Dutch derivation, and lest the location of collection points shown by Smith be lost in future confusion, a Gazetteer with co-ordinates and a map of Dutch New Guinea are added to the text. The Editors acknowledge with thanks the assistance given by Dr. E. F. de Vogel of the Rijksherbarium, Leiden, in compiling this information.

General Comments:

- 1 Part I of Vol. VIII, page 3 commences using parentheses around the collector's name, dates and collection numbers, then changes to square brackets for the balance of the text in Part I. Part III of Vol. VIII and all subsequent parts use parentheses, so for uniformity these have been used throughout the translation.
- 2 As is normal, square brackets are used to enclose words or phrases inserted in the text by persons other than the author, e.g. editorial comment, spelling corrections, etc.
- 3 Proper names have been capitalised as is normal in English, thus néerl. and deutsch become Néerl. and Deutsch, etc.
- 4 To clarify the English meaning some slight variations to the literal translation have been used where appropriate and relevant e.g. 'am Boden im Urwald' is translated to 'terrestrial in the

primary forest'. Although 'primeval' is probably a more correct translation 'primary' is the preferred term in botanical usage.

- 5 In Vol. VIII, Part I the citation 'Bull. Dép. Agr. Ind. Néerl' is used where all subsequent parts use 'Agric.' in preference to 'Agr.'. For conformity 'Agric.' is used throughout the translation.
- 6 As is acceptable in English text, the names of months have been abbreviated except May, June and July.
- 7 Some author citations have been changed to those in common use in English botanical text when the work was originally published. Thus, J. J. S., Rxb., Lnd., F. v. Muel., etc. have become J. J. Sm., Roxb., Lindl., F. v. M., etc.
- 8 No serious attempt has been made to update the original text. However, where it appears relevant and appropriate a number of Editorial comments have been added to assist the reader. See comment under Corysanthes, in Vol. VIII, Part I.
- 9 As is the normal practice in botanical text, titles for people are not used so, Prof. Kränzlin, Dr. van Kampen, etc. have been reduced to Kränzlin, van Kampen, etc.
- 10 In preparing botanical text for the printer it is normal to underline only species and generic names indicating italics. However, on the assumption that the same typeface will be duplicated in future printing the section names in the body of the text have been underlined to indicate italics.
- 11 'Niederl. Neu-Guinea' has been translated to 'Dutch New Guinea' which is the format used in Volumes XIV and XVIII originally published in English.
- 12 As is normal practice in English we have standardised on 'no.' for 'number' and 'nos' for 'numbers'.
- 13 The original text is inclined to treat some names inconsistently, particularly in respect to von Römer and van Kampen. For standardisation we have used a lower case 'v' for both names. On the other hand we have retained 'De Kock' and 'Den Berger' in preference to 'de Kock' and 'den Berger'.
- 14 Minor errors in the original text, such as punctuation, are corrected without comment. Other detected errors including incorrect author citations, species and genera names, Tab. references etc. are generally supplemented by a correction in square brackets.

Some errors noted in Original Text.

Vol. VIII, Part I:

Page 10 of text and page 144 cite Blume as author of Cryptostylis. Correct author is R. Brown.

Page 13 of text mentions Vrydagzynea nova-guineensis and index reference is V. neo-guineensis. The former has been used.

Page 18 of text and page 147 cite Lindley as author of Tropidia. Correct author is believed to be Blume.

Page 18 of text cites Haller as author of Epipactis while page 145 cites Böhmer. Correct citation believed to be (Hall.) Böhm.

Page 64 of text and page 144 refer to Dendrobium chloropteron Rchb.f. The correct name is believed to be D. chloropterum.

Page 89 cites Schlechter as author of Bulbophyllum fruticula. Correct citation believed to be J. J. Smith.

Page 144 cites Blume as author of Cadetia. Correct author citation is Guadichaud-Beaupré.

Page 144 shows Corymbis and Corysanthes out of juxta position.

Vol. VIII, Part III:

Page 525 cites Haplochilus amboinenses. Correct name believed to be H. amboinensis.

Page 526 of text and page 611 cite Lindley as author of Tropidia. Correct author is believed to be Blume.

Page 561 of text cites Dendrobium connatum Lindl. Correct species name believed to be D. comatum, as shown in index.

Page 579 of text cites Section: Sestochilos. Correct citation believed to be Sestochilus.

Page 609 lists Bulbophyllum ulcerosum and B. Versteegii out of juxta position.

Page 609 cites Coelogyne Mickolicziana. Correct spelling believed to be C. Micholicziana.

Page 609 cites Blume as author of Cryptostylis. Correct author is R. Brown.

Page 610 cites Kränzlin as author of Diplocaulobium. Correct author citation is believed to be Reichenbach fil.

Page 611 lists Taeniophyllum and Tainia out of juxta position.

Vol. XII, Part I:

Page 5 of the text and page 107 of index cites author of Nervilia as Gaud. Correct citation believed to be Comm. ex Gaud.

Page 6 of the text indicates Neottinae Pfitz. as a name. Possibly Smith meant the Tribe: Neottieae.

Page 8 of the text and page 106 of the index cite J. J. Sm. as author of Eurycentrum obscurum. Correct citation believed to be (Bl.) Schltr.

Page 26 of text and page 106 of index cite Glomera sacrosepala. Correct species name believed to be G. sarcosepala.

Page 32 of text cites Epiblastus siandanthus and believed correct citation should be E. sciandanthus Schltr. The index appears to be correct.

Page 87 of text cites Bulbophyllum cylindrobulbum. Correct citation believed to be B. cylindrobulbon.

Page 89 of text and page 109 of index cite Tab. XXIII, 72 for Bulbophyllum golianthense J. J. Sm. Correct citation would appear to be Tab. XXIV, 72.

Page 102 of text and 108 of index cites the genus Schönorchis. To anglicise the proper noun, the 'umlaut' should be dropped and the 'ö' become 'oe', viz. 'Schoenorchis'.

Page 103 of text and 107 of index cites the illustration for Sarcanthus Gjellerupii as Tab. XXVIII, 89. Believed correct citation should be Tab. XXVIII, 87.

Page 105 of index cites Blume as author of Cadetia. Correct citation believed to be Gaud.

Vol XII, Parts III and IV:

Page 175 of text the variety of Paphiopedilum violascens is shown as guatierense J. J. Sm. Index page 475 shows it as gautierensis. Correct citation believed to be former.

Page 182 of text and page 472 of index cite author of Cryptostylis as Blume. Correct citation is R. Brown.

Page 182 of text and page 475 of index cite author of Nervilia as Gaud. Correct citation believed to be Comm. ex Gaud.

Page 284 of the text shows the spelling of Dendrobium cyclobulbon incorrectly as D. cyclobulbum. It is correct in index but illustration reference Tab. CIV, 180 is missing.

Page 309 of the text correctly lists Dendrobium angraecifolium. It would appear to be incorrectly spelled as D. angraeciflorum on index page 472.

Page 350 of the text incorrectly lists Dendrobium glaucoviride as D. glancoviride. The index and illustration are correct.

Page 469 of the text incorrectly lists Taeniophyllum latipetalum as T. latipetalam. It does not appear in the original index.

Page 471 of index cites Blume as author of Cadetia. Correct author is Gaud.

Page 474 of index cites Kränzlin as author of Diplocaulobium. Correct author is believed to be (Rchb.f.) Krzl.

On pages 372 and 329 D. prosthēciglossum Schltr. is spelled incorrectly as D. prosteciglossum Schltr.



'THE ORCHIDS
OF
DUTCH NEW GUINEA'
BY
J.J. SMITH
BEING A TRANSLATION OF
'DIE ORCHIDEEN
VON
NIEDERLÄNDISCH - NEU - GUINEA'
FROM
'NOVA GUINEA' VOL. VIII, PART I (1909)

The Orchids of Dutch New Guinea

by

J.J. Smith

Preface

As anticipated, the orchid family is very numerous in Dutch New Guinea. No less than 175 specimen numbers of the Versteeg collection are related to it, 88 of them being novelties. It is conspicuous that not a single new genus has emerged.

The collection does not raise any special issues, although it emphasizes that the area of distribution of several orchid species is greater than previously thought. The genera with the widest representation, and which are known also for German New Guinea from the travels of Schlechter, are Dendrobium and Bulbophyllum followed by Microstylis, Ceratostylis, Phreatia, Agrostophyllum, Liparis, Taeniophyllum, etc.

During the compilation it was considered desirable to make a list of all those species known in our Territory up to the present, especially since many small collections, particularly also of living plants, have arrived recently at Buitenzorg. It is inevitable that such a list can never be complete. Often species imported into Europe have been given nothing further than New Guinea as their origin and it is not always easy, sometimes even impossible, to discover from which region the plants originated.

Apart from species known previously in the literature this compilation includes the results of the following travels :

1. The Lorentz Expedition 1907. The collector was the military doctor G.M. Versteeg, whilst a local civil servant from the Botanical Gardens in Buitenzorg was also included to collect living plants but unfortunately the latter arrived in Buitenzorg in very poor condition. Of the many orchids, some have now flowered and,

in part, are not represented in Versteeg's Herbarium.

2. The Government Expedition led by Captain A.J. Gooszen 1907-08. Collectors were the medical officer R. Branderhorst and the local civil servant R.M. Pringgo Atmodjo from the Buitenzorg Herbarium. The number of orchids collected is not large.

3. In 1906, W. Den Berger visited Fak Fak and the area between Geelvink Bay and the MacCluer Gulf and returned with a collection of living orchids.

4. The Wichmann Expedition 1903. The civil servants Djibdja and Atasrip of the Botanical Gardens and Herbarium collected both living and herbarium material. Most of the orchids were published in the Bulletin du Département de l'Agriculture aux Indes Néerlandaises No. X (1907), pp. 3-4.

5. During the Posthumus Meijes Expedition 1903-04, J.W.R. Koch collected orchids which were also published. (see above.)

6. In 1901, Jaheri, a local civil servant at the Botanical Gardens, was sent to Merauke and returned with a collection of living plants.

7. During my journey to the Moluccas in 1900 I received from the late D.W. Horst, then resident at Ternate, and from C.W. Myer, a captain in the Government Navy, a number of living orchids which they had collected in New Guinea.

Finally, from time to time, I received flowers of Papuanian orchids from private gardens and also of those being cultivated at Buitenzorg Gardens, some I know, originated in New Guinea.

I have given new descriptions to several partly-described species, and to those where the description did not coincide with my own. The description of the colour of the living species which I observed has always been added to that of the original. Where the colour is mentioned at the end of the description it has been taken

iii.

from the notes of the collector.

Of the species which are either not, or only partially illustrated, I have included line drawings.

J.J. Smith
circa 1909.

Neuwiedia Bl.

Neuwiedia calanthoides Ridl., in Journ. Bot. (1886), 355, t. 271;

Rolfe, in Journ. Linn. Soc. XXV (1889), 233; Orch. Rev. IV (1896), 329; Krzl., Orch. I (1897), 2; Pfitz., in Engl. Pflanzenr. IV, 50, 4.

Dutch New Guinea : Mount Pisero, on the steep north slope of the Cyclops Range (Wichmann Expedition 1903, Atasrip no. 229).

Geographic distribution : English and German New Guinea, also probably Ambon.

Paphiopedilum Pfitz.

Paphiopedilum granduliferum Pfitz., in Engl. Pflanzenr. IV, 50, 59;

Cypripedium granduliferum Bl., Rumphia IV, 56, t. 195, f. 2; t. 198A; Miq., Fl. Ind. Bat. III, 739; Rchb.f., in Walp. Ann. III, 602; Pucci, Cyrip. 92; Dubois, Cyrip. 201; Krzl., Orch. I. 69.

Dutch New Guinea : On trees (Zippelius).

Peristylus Bl.

Peristylus grandis Bl. var. papuanus J.J. Sm., nov. var.

Tab. I. 1.

(latin diagnosis)

Dutch New Guinea : On the Noord River, south of Geluks Hill, in secondary forest, growing terrestrially in areas flooded at high water levels (G.M. Versteeg no. 1541, flowering in July 1907).

I consider it best to regard this plant as a variety of P. grandis Bl.; it differs from the Type in the distinctly ciliated bracts and sepals and especially in the longer spur. In other respects the flowers are similar.

Habenaria Willd.

Habenaria chloroleuca Schltr., in Schum. et Laut., Nachtr. Fl. Deutsch.
Schutzgeb. Südsee, 77.

Tab. I. 2.

(latin diagnosis)

Dutch New Guinea : Mount Sinagai, on the steep north slope of the
Cyclops Range (Wichmann Expedition 1903, Djibdja no. 121 h, living
plant.) Geographic distribution : German New Guinea.

There is certainly no doubt that the plant is H. chloroleuca
Schltr., it appears to be closely related to H. Bauerlenii; F.v.M. et
Krzl.

Habenaria cruciata J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX
(1908), 25.

Tab. I. 3.

(latin diagnosis)

Dutch New Guinea : On the Noord River, south of Geluks Hill in
primary forest (G.M. Versteeg no. 1535, flowering in July 1907).

A species clearly closely related to H. retroflexa F.v.M. et
Krzl., but differing in that the sepals are not or hardly at all
dentate at the margin, yet markedly hirsute on the rear three wing-
like ridges. Further, the petals are not narrowed linearly, the
lateral sections of the lip are not falcate, and, furthermore, are
shorter than the middle lobe.

The flowers are green.

Habenaria epiphylla Schltr., in Schum. et Laut., Nachtr. Fl. Deutsch.
Schutzgeb. Südsee, 78.

Tab. II. 4.

(latin diagnosis)

Dutch New Guinea : Resi-Rücken, terrestrial in the primary
forest, alt. c. 350 m (G.M. Versteeg no. 1678, flowering in

Aug. and Sept. 1907).

Schlechter's description of H. epiphylla matches this plant in most respects, but in Versteeg's plant the anther lobes are not short, and certainly not shorter than the stigmatic lobes. In this respect the plant still needs to be compared with Schlechter's Type.

The sepals are pale green, the petals and labellum yellow-green.

Corysanthes R. Br.

Corysanthes callifera J.J.Sm., in Bull. Dép. Agric. Ind. Néerl.

XIX (1908), 12.

Tab. II. 5.

(latin diagnosis)

Dutch New Guinea : Nepenthes Hill, in primary forest (G.M.

Versteeg no. 1328, flowering in June 1907).

This species is related to C. mucronata Bl., but differs in colour, the shorter sepals and petals, and the less curved fimbriate labellum with the back lobe antrorse.

The leaves were white-veined, the dorsal sepal white and the lip mostly purple-black with a white callus.

Corybas Salisb. is an older [genus] name than Corysanthes R.Br. and both genera agree completely, however, since the former has been used rarely it is best rejected under the Vienna Rules. The interpretation of Article 20 of these rules, in my opinion, is insufficient. It can hardly have been the author's intention of regarding the list of genus names to be retained as being complete; surely it was anticipated that further investigation would reveal other names whose rejection is just as well restricted as those already listed. I mention here that only recently for Goodyera R. Br., Eaton used the name Epipactis, while for Microstylis Nutt., Ames used Malaxis Sw. The change of these names can lead to great

confusion and in accord with the above article should be discarded.

[Ed. - Schlechter later published a paper entitled 'Corybas Salisb. or Corysanthes R. Br.' in Fedde's Repert. XIX (1923), pp. 18 - 24. This paper nominated the use of Corybas in preference to Corysanthes and this was later adopted by botanists and taxonomists including J.J. Smith].

Corysanthes ventricosa J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 13.

Tab. II. 6.

(latin diagnosis)

Dutch New Guinea : At the Noord River, south of Geluks Hill, in primary forest (G.M. Versteeg n. 1390, flowering in July 1907).

An interesting large-flowered new species which is easy to recognise from the lip-tube which is pouched in front. The base colour of the flower was white, the dorsal sepal with pale purple longitudinal lines, the lip purple inside, lower part of the lamina purple-striped and finely marked in front.

Unfortunately, only one specimen was collected.

Pogonia Juss.

Pogonia acuminata J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 34.

Tab. III. 7.

(latin diagnosis).

Dutch New Guinea : Terrestrial, in the forest bordering the Noord River, in the vicinity of the Nepenthes Hill (G.M. Versteeg no. 1364, flowering in July 1907).

This species belongs to the affinity of P. crispata Bl. and P. punctata Bl., however, it is very different from both.

It is remarkable that the stem-development here occurs rapidly

in sequence. In the Versteeg Herbarium collection there are specimens consisting of an old bulb with its leaf, a young bulb with an open flower, and a new not quite developed tuber. Runners which swell into a bulb at their extremities and, of which I observed only one on each stem, are only very short and form a sort of rhizome. Pogonia campestris J.J. Sm., in Bull. Dép. Agric. Ind. Néerl XIX

(1908), 34.

Tab. III. 8.

(latin diagnosis)

Dutch New Guinea : Merauke, at sunny spots in Imperata fields (G.M. Versteeg no. 1841, flowering in Oct. 1907) ; on garden-paths near Gine (B. Branderhorst no. 13, flowering in Aug. 1907).

This species is best included in the affinity of Pogonia Nervilia Bl., but differs in the smaller flowers, the colour, the blunter side lobes, shorter mid-lobe, etc.

I did not see any leaves. The sepals and petals were red-brown, the lip violet with a white patch.

Pogonia Nervilia Bl., Mus. Bot. Lug. Bat. I, 32; Fl. Jav. Orch. 130, t. 56, etc.

Dutch New Guinea : On the Noord River, at the foot of Nepenthes Hill, terrestrial in the primary forest (G.M. Versteeg no. 1751, flowering in Sept. 1907); south of Geluks Hill (Djibdja no. 810).

Geographic distribution : German New Guinea, Timor, Ambon, Batjan, Ternate, Java, Krakatau, Malay Peninsula, Siam, Mariana Islands, eastern India.

It still remains unproven that the Indian Pogonia species differ from the American ones in the flowers. Because I was unable to investigate the American species I use Pogonia also for the Indian ones, although they appear different in habit.

I find it very likely that P. carinata Lindl. (Epipactis carinata

Roxb.) is identical with P. Nervilia Bl. Should this be correct then P. carinata (Roxb.) Lindl. is the older name for the species.

Cryptostylis Bl. [R. Br.]

Cryptostylis arachnites Bl. var. maculata J.J. Sm., nov. var.

(latin diagnosis)

Dutch New Guinea : Resi-Rücken, terrestrial in primary forest, alt. c. 500m (G.M. Versteeg no. 1659, flowering in Aug. 1907).

The flowers are identical with the Type. However, according to Versteeg's notes, the leaves have whitish patches.

Lecanorchis Bl.

Lecanorchis triloba J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 26.

Tab. III. 9.

(latin diagnosis)

Dutch New Guinea : Resi-Rücken, at Steen Creek, terrestrial in the primary forest, alt. c. 300m (G.M. Versteeg no. 1676, flowering in Aug. 1907).

According to the description, this species is well distinguished from those known up to the present. Nevertheless, I am not convinced that Blume's description and illustration of L. javanica Bl. is completely correct. I have found that plant repeatedly in Java, but, unfortunately, always only in fruit.

Unfortunately, only a weak inflorescence with one flower was collected by Versteeg.

The sepals and petals were pale brown, the lip and column white, the ovary and the stem a muddy brown and violet.

[Ed. - On page 136, [Type setter please check and correct page number] in the Postscript of this volume, Smith, after examining further material, withdraws the name Lecanorchis triloba J.J. Sm. as being conspecific with L. javanica Bl.]

Aphyllorchis Bl.

Aphyllorchis Odoardi Rchb.f., in Bot. Centralbl. XXVIII, 345.

Dutch New Guinea : In the north-west region (Beccari).

Vrydagzynea Bl.

Vrydagzynea argyrotaenia Schltr., in Schum. et. Laut., Nachtr. Fl.

Deutsch. Schutzgeb. Südsee, 84.

Tab. IV. 10.

(latin diagnosis)

Dutch New Guinea : Summit of Resi-Rücken, terrestrial in primary forest, on a limestone outcrop, alt. c. 900m (G.M. Versteeg no.

1664, flowering in Aug. 1907). Geographic distribution :

German New Guinea.

I am certain that this easily recognizable species is

V. argyrotaenia Schltr. In the original description, however, several details are missing, so I consider it desirable to include an enhanced description.

Remarkable, are the two small erect lamellae at the base of the lip-lamina. These are appressed onto the rostellum, and thus form a kind of extension of the spur.

According to Versteeg's notes the flowers are a pale flesh colour, the sepals marked on the outside with a red-brown patch.

Vrydagzynea elongata Bl., Fl. Jav. I, 61, t. 28, f. I -

Hetaeria elongata Miq., Fl. Ind. Bat. III, 726.

Dutch New Guinea : At Triton Bay (Le Guillou, 1841).

Geographic distribution : German New Guinea.

Vrydagzynea paludosa J.J. Sm., in Bull. Dép. Agric. Ind. Néerl.

XIX (1908), 39.

Tab. IV. 11.

(latin diagnosis)

Dutch New Guinea : On the Noord River, south of Nepenthes Hill, terrestrial in Pandanus and Metroxylon swamps (G.M. Versteeg no. 1244, flowering in June 1907; Djibdja nos 101 and 104, living plants).

It appears to me that this species is most closely related to V. nova-guineensis J.J. Sm. (refer note for V. papuana Rchb.f.), however, it differs in the larger number of leaves, the tips of the petals and sepals being pure white and the spur compressed at the sides to form an almost globular appendage. Schlechter does not mention the length of the latter.

The description is made from an herbarium specimen and a few living plants introduced to Buitenzorg were examined. The former has significantly longer inflorescences, but in all other respects is identical with the living specimens.

Under this number further specimens were collected and most likely they are specifically different. However, the flowers were all damaged by insects, so I omit a description of these very similar plants.

Vrydagzynea papuana Rchb.f., in Bot. Centralbl. XXVIII (1886), 345.

Dutch New Guinea : In the north-west region (Beccari).

Because this name is older than V. papuana Schltr., I suggest V. nova-guineensis J.J. Sm. for the last species.

Vrydagzynea triloba J.J. Sm., in Bull. Dép. Agric. Ind. Néerl.

XIX (1908), 39.

Tab. IV. 12.

(latin diagnosis)

Dutch New Guinea : On the Noord River, south of Geluks Hill, terrestrial in primary forest (G.M. Versteeg no. 1590, flowering in Aug. 1907).

This species is different from the related species V. pachyceras Schltr. The spur is not flattened at the tip, nor compressed at the front and sides, and the lateral lobes are also probably different. It differs from V. nova-guineensis J.J. Sm. (refer note for V. papuana Rchb.f.) in the fewer number of leaves and probably also, does not possess enlarged lateral lobes.

Under no. 1244 some more Vrydagzynea species were collected by Versteeg, but they probably belong to different species. However, the flowers, especially the spur, had been damaged by insects, so that I omit their description.

Cystorchis Bl.

Cystorchis variegata Bl. var. purpurea Ridl., in Journ. Linn. Soc.

Bot. XXXII, 400; etc.

Dutch New Guinea : Resi-Rücken, terrestrial in the primary forest, alt. c. 300 - 800m (G.M. Versteeg nos 1632 A and 1726, flowering in Aug. and Sept. 1907). Geographic distribution : Java, Borneo, Sumatra, Malay Peninsula.

The New Guinea specimens are similar to the ones from Java.

Eurycentrum Schltr.

Eurycentrum obscurum Schltr., in Schum. et Laut., Nachtr. Fl. Deutsch.

Schutzgeb. Südsee, 89. - Cystorchis ? obscura Bl., Fl. Jav. I

Orch. 74, t. 37, fig. 2. - Hetaeria ? obscura Miq., Fl. Ind. Bat. III, 726.

Tab. V. 13.

(latin diagnosis)

Dutch New Guinea : In coastal forests (Zippelius), At the Noord River, in the vicinity of Geluks Hill, terrestrial in the primary forest, alt. c. 150 - 200m (G.M. Versteeg no. 1595, flowering in Aug. 1907).

My description, which is made from one living and several alcohol-preserved and dried specimens, differs in many respects from Schlechter's illustration and description. The hairs are much longer, the lateral sepals much broader and almost enclose the lower half of the spur, and are attached to its back. The spur can hardly be called conical. The middle lobe in its natural position is not ovate or rhombic as the illustration shows, it is cap-shaped [pileatus], very blunt with parallel sides, not constricted but straddled, very short and wide, in cross section, longish triangular. However, I believe we are dealing with the same species, but if this is not the case, Schlechter's plant has to be redesignated.

It is remarkable that the stigma strongly protruding from the base and penetrating the spur looks fairly similar to that of a Glomera.

Cystopus Bl.

Cystopus fimbriatus J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. X [1907],

3.

Tab. V. 14.

Dutch New Guinea : On the summit of Resi-Rücken, in the primary forest, alt. c. 900m (G.M. Versteeg no. 1641, flowering in Aug. 1907); [Mt.] Sinagai (A. Wichmann Expedition, 1903, Atasrip no. 207).

Versteeg found this species growing on a tree approximately half a metre above the ground.

Cheirostylis Bl.

Cheirostylis grandiflora Bl., Fl. Jav. I, 45, t. 13, f. 3; t. 17c;

Miq., Fl. Ind. Bat. III, 724.

Dutch New Guinea : No locality details (Zippelius).

Macodes Lindl.

Macodes Sanderiana Rolfe, in Kew Bull. 1896, 47.- Anoectochilus

Sanderianus Krzl., in Gard. Chr. 1895, II, 484.

Dutch New Guinea : Mount Sinagai (Wichmann Expedition 1903,
Djibdja, no. 127h, living plant) ; Mount Tobadi (Wichmann
Expedition 1903, Djibdja no. 148h, living plant).

Zeuxine Lindl.

Zeuxine amboinensis J.J. Sm., in Ic. Bog. II, 259. - Z. amboinensis

Schltr., in Bull. Herb. Boiss. 1906, 298. - Haplochilus amboinense
J.J. Sm., in l.c. II, 19, t. C.V.A.

Dutch New Guinea : At the Noord River south of Nepenthes Hill,
terrestrial in Metroxylon and Pandanus swamps (G.M. Versteeg no.
1374, flowering in July 1907; no. 1764, flowering in Sept. 1907).
Geographic distribution : Ambon.

Hetaeria Bl.

Hetaeria falculata J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX
(1908), 26.

Tab. V. 15.

(latin diagnosis)

Dutch New Guinea : At the Noord River, in the vicinity of Geluks
Hill, terrestrial in primary forest, alt. c. 150 - 200m (G.M.
Versteeg no. 1596 flowering in Aug. 1907); Resi-Rücken, alt. c.
600m (G.M. Versteeg no. 1632, flowering in Aug. 1907).

Most closely related to H. cristata Bl. from Java, but differing
from the latter species in the narrow leaves, the glabrous flowers, the
labellum with two extended small horns, and the large lamellae on the
base of the column.

The sepals are reddish, the petals and labellum white.

Hetaeria oblongifolia Bl., Bijdr. 410, f. 14; Fl. Jav. Orch. 85,
t. 32, f. 3; etc.

Dutch New Guinea : At the Noord River, in the vicinity of
Nepenthes Hill, terrestrial in the primary forest (G.M. Versteeg
no. 1756, flowering in Sept. 1907). Geographic distribution :
German New Guinea, the Moluccas, Java, the Philippines.

var. papuana J.J. Sm., nov. var.

Tab. VI. 16.

(latin diagnosis)

Dutch New Guinea : At the Noord River near Bivak Island
terrestrial in Metroxylon swamps (G.M. Versteeg no. 1783,
flowering in Oct. 1907).

The variety differs mainly in the very broad petals, the
narrower lip, with more-or-less attached comb-shaped appendages, and
the considerably extended anther.

Goodyera R. Br.

Goodyera Waitziana Bl., Fl. Jav. Orch. 35, t. 9d. f. 2; Miq., Fl. Ind.

Bat III, 728; J.J. Sm. in Fl. Buit. VI, Orch. 120. - Orchiodes
Waitziana O. Ktze., Rev. Gen. Pl. II, 675. - Epipactis Waitziana
Eaton, in Proc. Biol. Soc. Wash. XXI (1908), 66.

Dutch New Guinea : At the Noord River, terrestrial in Metroxylon
swamps (G.M. Versteeg no. 1071, flowering in May 1907).

Geographic distribution : Java.

The plant was almost withered, but nevertheless agreed well with
Blume's illustration and the specimens from Java.

The sepals were pale reddish brown, the lip yellow.

For priority reasons A.A. Eaton recently changed Goodyera R. Br.
to Epipactis Hall : refer my notes under Corysanthes callifera J.J. Sm.

Lepidogyne Bl.

Lepidogyne longifolia Bl., Fl. Jav. Orch. 78 t. 25; etc.

Tab. VI. 17.

Dutch New Guinea : South of Geluks Hill, terrestrial in primary forest (G.M. Versteeg no. 1687, flowering in Sept. 1907); Mount Sinagai (Wichmann Expedition 1903, Djibdja no. 193h, living plant).
Geographic distribution : Java.

It is interesting to find the existence of this plant in New Guinea since up to the present it was known only from Java.

The solitary specimen was very similar to the one from Java, however the column showed a remarkable transformation. The anther was normal, the clinandrium had two deeply separated lobes each of which carry (at least occasionally) one, incompletely developed anther. Furthermore, the bi-lobed lamella, which is situated usually underneath the stigma, was remarkably broad and was bi-lobed instead of tri-lobed. Without doubt these three small lobes are the rudiments of the three other stamens and hereby the morphological importance of the bi-lobed lamella in the normal Lepidogyne flower is shown.

Tropidia Lindl. [Bl.]

Tropidia pedunculata Bl., Fl. Jav. n. ser I, 103, t. 40; Miq., Fl. Ind.

Bat. III, 746.

Dutch New Guinea : On the hills, south of Geluks Hill, terrestrial in the primary forest (G.M. Versteeg no. 1466, flowering in July 1907). Geographic distribution : Sumba?, Sumatra.

Blume's description and illustration fit this plant perfectly.

Tropidia ramosa J.J. Sm., in Bull. Dép. Agr. Ind. Néerl. no. XIX (1908)

38.

Tab. VI. 18.

(latin insert)

Dutch New Guinea : Resi-Rücken, terrestrial in the primary forest,
alt. c. 300m (G.M. Versteeg no. 1679, flowering in Aug. 1907).

The Tropidia species are largely very similar to each other and require an exacting comparison; the main features to date being probably the inflorescence. I have considered this species as new, because it does not correspond to any of the other species; it is more-or-less intermediate between T. graminea Bl. and T. squamata Bl. With the former, it has the very long pointed leaves of Blume's illustration in common, with the latter, the lateral and usually branched terminal inflorescences.

Tropidia triloba J.J.Sm, in Bull. Dép. Agric. Ind. Néerl. no. XIX (1908), 38.

Tab. VIII. 19.

(latin diagnosis)

Dutch New Guinea : South of Geluks Hill, terrestrial in the primary forest (G.M. Versteeg no. 1433, flowering in July 1907).

This species differs from the related T. disticha Schltr. and T. Schlechteriana J.J. Sm. in the hairiness, the longer and narrower sepals and petals and the broad tri-lobed labellum surrounding the base of the column.

T. Schlechteriana J.J. Sm., is a more robust plant than T. triloba Schltr. The dimensions which I gave earlier are exceeded to a fair degree by the one in cultivation at Buitenzorg, the leaves in particular are broader and more-or-less lanceolate or longish ovate, the lip is indistinctly tri-lobed.

The only flower of T. triloba Schltr. which I saw was already half dried out and preserved in alcohol, so that it is desirable to investigate better material and compare these three related species with each other.

Corymbis Thou.

Corymbis veratrifolia (Reinw.) Rchb.f., in Flora XLVIII (1865), 184; etc.

Dutch New Guinea : Hiri (Wichmann Expedition 1903, Atasrip no. 10).

Doré (Teysm.). Geographic distribution: German New Guinea, the Moluccas, Java, Borneo, Sumatra, Batu Islands, Riouw [Is.], Malay Peninsula, eastern India.

Coelogyne Lindl.

Coelogyne asperata Lindl., in Journ. Hort. Soc. IV (1849) 221 ; Fol.

Orch. Coel. 3; Pescat. 6.8; Warner, Orch. Alb. VII, t. 311; Rchb.f., in Walp. Ann. VI, 224; Hook.f., Fl. Br. Ind. V, 835; Pfitz. et Krzl., in Engl. Pflanzenr. IV, 50, (II.B,7), 76; Ames, Orch. II, 68 -

C. Lowii Paxt., Mag. Bot. XVI (1850), 225; Lindenia XIII (1897),

t. 582. - Pleione asperata O.K., Rev. Gen. Pl. II, 680.

Dutch New Guinea : At the Noord River, from Bivak Island to the vicinity of Geluks Hill, epiphytic on trees in Pandanus and Metroxylon swamps (G.M. Versteeg nos 1078, 1345, 1507 and 1767, flowering in May, July and Sept. 1907); Merauke River (Jaheiri 1901, no. 58, living plant). Geographic distribution : Borneo, Sumatra, Malay Peninsula, the Philippines.

In the sago swamps of the Noord River this is one of the most common orchids and does not differ from species of other origin.

Coelogyne Beccarii Rehb.f., in Bot. Centralbl. XXVIII (1886), 344;

Pfitz. et Krzl., in Engl. Pflanzenr. IV, 50 (II.B.7), 32.

Dutch New Guinea : In the north-west region (Beccari).

Coelogyne Veitchii Rolfe, in Kew Bull. (1895) 282; Bot. Mag. t. 7764;

Pfitz. et Krzl., in Engl. Pflanzenr. IV, 50 (II.B. 7), 72, fig. 24A.

Dutch New Guinea : In the western region (Burke).

Pholidota Lindl.

Pholidota imbricata Lindl., in Hook., Fl. Exot. t. 138; Wall. Cat. 1991;

Bot. Reg. t. 1213 et 1777; Gen. et Sp. Orch. 37; etc.

Dutch New Guinea : At the Merauke River (Jaheiri 1901, living plant).

Geographic distribution : Kei Islands, Celebes, Java, Borneo, Sumatra, Malay Peninsula, the Philippines, Andaman Islands, eastern India.

Pachystoma Bl.

Pachystoma pubescens Bl., Bijdr. 376, f. 29; etc.

Tab. VII. 20.

(latin diagnosis)

Dutch New Guinea : Southern New Guinea, near Okaba (B. Branderhorst

no. 103, flowering in Sept. 1907). Geographic distribution :
Java.

I am convinced that P. pandatum (Bl.) Miq. is identical with this species.

Plocoglottis Bl.

Plocoglottis confertiflora J.J. Sm., in Bull. Dép. Agric. Buit. V
(1907), 34; in Ic. Bog. III (1907), 101, t. CCXLIII.

Dutch New Guinea : At the Sinai Merah (Wichmann Expedition 1903,
Djibdja no. 128h, living plant).

Plocoglottis lancifolia J.J. Sm., in Bull. Dép. Agric. Ind. Néerl.
XIX (1908), 33.

Tab. VII. 21.

(latin diagnosis)

Dutch New Guinea : Geluks Hill, terrestrial in the primary forest,
alt. c. 150m (G.M. Versteeg no. 1600, flowering in Aug. 1907).

This species is related closely to P. acuminata Bl., but differs
in the smaller pseudobulbs, narrower leaves, the inflorescence over-
topping the leaves, much smaller flowers with the lateral sepals
markedly falcate, and the petals much narrower at the base.

Only a solitary somewhat damaged flower was available. The
sepals and petals were green-yellow with red spots, the lip white, the
column yellow.

Plocoglottis moluccana Bl., in Mus. Bot. Lugd. Bat I, 47; Fl. Jav. Orch,
53, t. 16; Miq., Fl. Ind. Bat. III, 676; Schltr., in Schum. et Laut.,
Nachtr. Fl. Deutsch. Schutzgeb. Südsee, 145.

Dutch New Guinea : Geluks Hill, terrestrial in the primary forest,
alt. c. 150m (G.M. Versteeg no. 1599, flowering in Aug. 1907);
Resi-Rücken, alt. c. 250m (G.M. Versteeg no. 1628, flowering in
Aug. 1907).

The specimen collected on the Resi-Rücken differed from others in

the broader labellum, darker colouring and, furthermore, it was a more robust plant.

Plocoglottis parviflora J.J. Sm., in Bull. Dép. Agric. Ind. Néerl

XIX (1908), 33.

Tab. VIII. 22.

(latin diagnosis)

Dutch New Guinea : Geluks Hill, terrestrial in the primary forest, alt. c. 150 - 200m (G.M. Versteeg no. 1605, flowering in Aug. 1907; Djibdja no. 458, living plant).

Of the single-leaved species, this one is characterised by small flowers, the very short broad column and the diagonal, four-cornered middle lobe of the lip which is constricted in the middle.

The sepals and petals are yellow-green, densely marked with red-brown lines, the lip is whitish.

Calanthe R.Br.

Calanthe bicalcarata J.J. Sm., in Bull. Dép. Agric. Buit. v [1907], 31.

Tab. VIII. 23.

Dutch New Guinea : On the north coast (Wichmann Expedition 1903, Djibdja no. 217h, living plant).

var. depressa J.J. Sm., l.c.

Dutch New Guinea : Together with the species.

Calanthe? Engleriana Krzl., in Schum. et Laut. Nachtr. Fl. Deutsch.

Schutzgeb. Südsee, 142.

Tab. VIII. 24.

(latin diagnosis)

Dutch New Guinea : At the Noord River, Bivak Island at fairly swampy locations (G.M. Versteeg no. 1103, flowering in June 1907); south of Geluks Hill, in the river bank forest (G.M. Versteeg no. 1503, flowering in July 1907); at the base of Nepenthes Hill, in

Pandanus and Metroxylon swamps (G.M. Versteeg, no. 1775, flowering in Sept. 1907). Geographic distribution : German New Guinea.

This plant may be C. Engleriana Krzl., although that species differs from Versteeg's plant in the exceptionally narrow sepals, but it coincides at least in respect to the smallest flowers.

I would, however, like to separate it from C. triplicata (Willem.) Ames (C. veratrifolia R. Br.), which is very variable and, in the structure of the wart-like appendages, very similar also, according to Kränzlin's description. The flowers are not only much larger but the nature of the hairiness differs, and the large flat bracts, according to Versteeg's notes, are identical in colour to that of the flowers, which is not the case in the numerous forms of C. triplicata (Willem.) Ames I have seen.

F. von Mueller, in Descr. Notes Pap. Pl. IV, 73, mentions a large form of C. veratrifolia R. Br., which may belong here.

The flowers and bracts are yellowish white, the callus of the lip either yellow or orange.

Calanthe tunensis J.J. Sm., in Bull. Inst. Bot. Buit. nos 7,3; in Ic. Bog.

II, t. CXIIIA.

Dutch New Guinea : Nepenthes Hill, on the border of Metroxylon swamps, on trees (G.M. Versteeg no. 1343, flowering in July 1907).

Geographic distribution : Ambon.

The above plants are smaller than the larger specimens I collected on Ambon and have smaller leaves; apart from that they do not show any differences.

C. chrysantha Schltr. needs to be compared more closely with this species.

Acanthophippium Bl.

Acanthophippium splendidum J.J. Sm., in Nat. Tijdschr. Ned. Ind. LVIII

(1898), 360, t. V. fig. 1 - 4.

Dutch New Guinea : At the Noord River, south of Geluks Hill, in the primary forest (G.M. Versteeg no. 1540, flowering in July 1907). Geographic distribution : Celebes (S.H. Koorders), Ambon (J.J. Smith).

I suspect that the plants designated as A. javanicum Bl. from New Guinea belong to A. splendidum J.J. Sm.

Spathoglottis Bl.

Spathoglottis plicata Bl., Bijdr. 401, t. 76; etc.

Dutch New Guinea : Noord River, on Bivak Island (G.M. Versteeg no. 1031, flowering in May 1907); south of Geluks Hill, in the primary forest and on rubble banks of the watercourse (G.M. Versteeg nos 1461 and 1491, flowering in July 1907); north New Guinea, near Tobadi (Wichmann Expedition 1903, Atasrip no. 122; Djibdja no. 142h, living plant); in the surroundings of Geelvink Bay and the MacCluer Gulf (W. Den Berger 1906, living plant). Geographic distribution : German and British New Guinea, Solomon Islands, the Moluccas, Celebes, Borneo, Java, Sumatra, Malay Peninsula.

Eulophia R. Br.

Eulophia macrostachya Lindl., Gen. et Sp. Orch. 183; in Bot. Reg. t.

1972; in Bot. Mag. t. 6246; etc.

Dutch New Guinea : At the Noord River, south of Geluks Hill, growing on rubble banks (G.M. Versteeg no. 1494, flowering in July 1907). Geographic distribution : Ternate, Java, Sumatra, the Philippines, eastern India, Ceylon.

According to the description, E. Dahliana Krzl. would appear to be identical with this species.

Eulophia Versteegii J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908),

24.

Tab. IX. 25.

(latin diagnosis)

Dutch New Guinea : Merauke, in Imperata fields (G.M. Versteeg no. 1952, flowering in Nov. 1907); near Gelieb Village (B. Branderhorst no. 166, flowering in Oct. 1907).

A specimen in the herbarium at Buitenzorg of the Australian E. venosa Rchb.f. is very similar in its description and differs from the above species mainly in the ribs, as well as a much longer and narrower labellum, with lateral lobes far less developed, and a longer middle lobe with several rows of tubercles.

E. papuana Schltr., also, appears to be related to this species, but is distinguished by the much narrower sepals, pointed petals and the weak development of the lateral lobes of the lip.

It remains to be investigated whether this species is identical with E. bicarinata (Lindl.) Hook.f.

Leaves were not found. The sepals and petals are decorated with pale longitudinal brown-violet stripes; the labellum is green on the outside with pallid violet markings on the inside.

The epithet 'papuanus' appears to have found particular favour in this genus, viz:-

Cyrtopera papuana Ridl. (1886).

Eulophia papuana (Krzl.) Schltr. (1899).

Eulophia papuana Bail. (1907).

and should be altered to the following :

Eulophia papuana (Ridl.) J.J. Sm.

Eulophia neo-pommeranica J.J. Sm. (E. papuana (Krzl.) Schltr.).

Eulophia ambaxiana J.J. Sm. (E. papuana Bail.).

Bromheadia Lindl.

Bromheadia palustris Lindl. var. papuana J.J. Sm., nov. var.

Tab. IX. 26.

(latin diagnosis)

Dutch New Guinea : Nepenthes Hill, on sandstone (G.M. Versteeg no. 1296, flowering in June 1907).

Until now, this species has not been found east of Borneo.

The variety differs mainly in the short rounded-off lateral lobes and the circular middle lobe.

Oberonia Lindl.

Section : Acaules

Oberonia asperula J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 30.

Tab. IX. 27.

(latin diagnosis)

Dutch New Guinea : At the Noord River, at the foot of Nepenthes Hill, on trees in Metroxylon swamps (G.M. Versteeg no. 1322, flowering in June 1907).

Among the species of the section Acaules, this one is distinguished through the long pointed petals, the almost four-edged, short, bi-lobed labellum and the uneven fruit.

The flowers are green.

Section : Caulescentes

Oberonia microphylla (Bl.) Lindl., Gen. et Sp. Orch. 17; etc.

Dutch New Guinea : At the Noord River, at the foot of the Nepenthes Hill, on trees in the primary forest (G.M. Versteeg no. 1778, flowering in Oct. 1907).

Geographic distribution : Java.

The only plant collected agrees very well with the specimens from Java.

The flowers are red-brown.

Under no. 1398 Versteeg collected a very small Oberonia of the section Caulescentes, but it was far too withered to be given a description.

Oberonia spathipetala J.J. Sm., nov. sp.

Tab. IX. 28.

(latin diagnosis).

Dutch New Guinea : To the north of the Gelieb Village, on the south coast on trees (B. Branderhorst no. 191, flowering in Oct. 1907).

Among the species of the section Caulescentes, the current one is distinguished by the long fairly narrow leaves, the spathulate insect-damaged petals, and the almost square, regular four-lobed, damaged labellum is reminiscent of O. iridifolia Lindl.

Microstylis Nutt.

Microstylis epiphytica Schltr., in Schum. et Laut. Nachtr. Fl. Deutsch.

Schutzgeb. Südsee 99. - Pseudoliparis epiphytica Finet, in Bull. Soc. Bot. France, LIV (1907), 537.

(latin diagnosis)

Dutch New Guinea : At the Noord River, at the confluence with the Reiger River, epiphytic in Metroxylon swamps (G.M. Versteeg no. 1154 flowering in May 1907). Geographic distribution : German New Guinea.

This very interesting species was first collected by Schlechter and described in the above mentioned publication. This description could have been more detailed in some respects, particularly since several related species occur in New Guinea. It appears desirable to repeat the complete description, even though Finet's illustrations make this species perfectly clear.

Finet believed that with this plant he had to form a new genus, Pseudoliparis, but I do not share his opinion. The plant definitely

shows several deviations from the usual Type, yet it is substantially a Microstylis and possesses, in addition, some close relatives which show fewer deviations.

In the flowers I examined, the clinandrium is distinctly but not deeply concave, although more definite than in M. moluccana J.J. Sm., related to the genus Pseudoliparis.

The parts described as wings of the stigma are the little auricles of the stigma which are particularly strongly developed, but yet are not substantially different; the shape is almost the same as, e.g. M. Blumei Boerl. et J.J. Sm., M. Ridleyi J.J. Sm., etc. They are very large and more deviously shaped in M. moluccana J.J. Sm. and M. Schumanniana Schltr.

I cannot see any deviation in the position of the anther. The shape is peculiar, however, only as a specific characteristic to observe. The very closely related M. tubulosa J.J. Sm. and M. incurva J.J. Sm. possess a much shorter anther without a particularly strongly developed connective link. The fairly closely related M. moluccana J.J. Sm. also possesses a narrow anther.

The flowers which I examined had straight pollinia so that perhaps the bending was only accidental. In the closely related M. tubulosa J.J. Sm. they are much shorter. The lamella which connects the pollinia is certainly very peculiar, but it may perhaps be considered as more-or-less equivalent to the viscid substance of most of the section Sestochilus of Bulbophyllum, without considering it as a generic characteristic. Likewise, the appendages of the lip can be regarded only as a species characteristic. In the closely related M. tubulosa J.J. Sm. and M. incurva J.J. Sm., the labellum looks much different and, in the calli, shows more similarity with those of M. moluccana J.J. Sm., M. gibbosa J.J. Sm., M. retusa J.J. Sm., etc. Finet's illustrations, which are made from an authentic specimen, deviate from the flowers

which I have examined, in the appressed lateral sepals, the narrower petals, a fairly pointed labellum with much blunter, small auricles and broader lamellae; the column with a simple lamella, the anther with a horizontal lamella instead of an upright keel and straight pollinia. There is, however, no doubt we are dealing with the same species. The leaf sheaths which closely surround the whole stems are remarkable, however, only the upper ones are covered; they are very broad and spreading and retrorse to the margins. Schlechter does not in any way mention these peculiar sheaths which I have not observed in any other Microstylis.

Oakes Ames used again the name Malaxis Sw. for this genus, although there is no doubt that the first described Malaxis is a Microstylis, therefore the re-use of this epithet which was alternatively used for several other genera, causes so much confusion that surely under the rules of the Vienna Convention, Microstylis should be added to the list of generic names to be retained.

Microstylis gibbosa J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 28.

Tab. X. 29.

(latin diagnosis)

Dutch New Guinea : At the Noord River, at the foot of Nepenthes Hill, terrestrial in the primary forest (G.M. Versteeg no. 1352, flowering in July 1907); south of Geluks Hill, growing at the base of a tree (G.M. Versteeg, no. 1479, flowering in July 1907).

Among the species with an entirely margined labellum, this one is characterised by the antrorse petals and the two thick ribs of the lip. It appears to be closely related to M. dryadum Schltr.

The flowers are yellowish or greenish.

Microstylis hydrophila J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 28.

Tab. X. 30.

(latin diagnosis)

Dutch New Guinea : At the Noord River, south of Geluks Hill, terrestrial, in swampy locations in the primary forest (G.M. Versteeg, no. 1440, flowering in July 1907); at the foot of Nepenthes Hill (Djibdja no. 310, living plant).

This species is related to M. oculata Rchb.f., M. ventilabrum Rchb.f., M. amplexans J.J. Sm., M. obovata J.J. Sm., M. xanthochila Schltr., etc., and is distinguished by the narrow very wavy, dark coloured leaves, very convex sepals and petals, numerous short teeth on the lip (both sides of the middle lobe, three to four pointed and one blunt tooth), and short auricles.

According to Versteeg's statement the flowers are purple-red. On the living plant which I examined they only turn this colour on withering.

Microstylis incurva J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 29.

Tab. X.31.

(latin diagnosis)

Dutch New Guinea : At the Noord River, near Bivak Island, growing terrestrially in Metroxylon swamps (G.M. Versteeg no. 1070, flowering in May 1907).

This species is very closely related to M. tubulosa J.J. Sm. and I considered for a time whether it might not be better treated as a variety. However, I now believe it should be considered specifically different.

It is smaller than M. tubulosa J.J. Sm. and has fewer leaves, the petals are narrower, the lip possesses three distinct widely separated ridges, the column is bent strongly at right angles and on its back has a smaller tooth moved slightly more forwards; the pollinia are less

clearly contracted in a clavate manner.

The flowers are pale orange-yellow, the lip darker and the column black-brown.

Microstylis moluccana J.J. Sm. var. sagittata J.J. Sm., nov. var.

Tab. X. 32.

(latin diagnosis)

New Guinea : Without more detailed locality (Zippelius in Herb. Lugd. Bat. no. 904, 85 - 190); Mount Sijep (Wichmann Expedition 1903, Djibdja no. 140h, living plant); at the Noord River, near the confluence with the Reiger River, terrestrial in primary forest (G.M. Versteeg no. 1207, flowering in June 1907).

I believe it is best to consider this plant as a variety of M. moluccana J.J. Sm. From the Type it differs mainly in the triangular shaped, pointed auricles of the lip.

According to Versteeg's notes the sepals and petals are white, the lip pale brown and the column blue. The living examples from Mount Sijep which I saw had pallid brown-greenish sepals and petals and a more-or-less ochre-yellow lip, whereas the column auricles were dark green, similar to the Type.

[Ed. - In 'Nova Guinea' VIII (1911) p. 533 [Type setter please check and correct page number] Smith raised Microstylis moluccana J.J. Sm. var. sagittata Sm., to species status and renamed it M. Zippelii J.J. Sm.]

Microsytlis pectinata J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 29.

Tab. XI. 33.

(latin diagnosis)

Dutch New Guinea : At the Noord River, on the hills between Nepenthes Hill and Resi-Rücken, terrestrial in the primary forest (Lorentz Expedition 1907, Djibdja no. 434, living plant).

This is characterized by the black-purple leaves, with the lip divided into four long narrow tails on both sides of the middle lobe.

The plant is one of the live orchids imported to Buitenzorg from New Guinea. It is remarkable that this and other Microstylis species, Acanthophippium, Plocoglottis, etc. had on their stems, very irregular bunches of hairs, which are otherwise missing.

Microstylis pedicellaris Rchb.f., in Bot. Centralbl. XXVIII (1886), 345.

Dutch New Guinea : In the north-west region (Beccari).

Microstylis retusa J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 29.

Tab. XI. 34.

(latin diagnosis)

Dutch New Guinea : At the Noord River, south of Geluks Hill, growing terrestrially in the primary forest (G.M. Versteeg no. 1399B, flowering in July 1907).

This species is very closely related to M. oculata J.J. Sm. and M. amplexans J.J. Sm. It differs from M. oculata J.J. Sm. in the numerous smaller narrower leaves and from M. amplexans J.J. Sm. in the smaller leaves, extended peduncle and the labellum, which carries four instead of three tails on both sides of the middle lobe. M. ventilabrum Rchb.f., also, is very similar. From the plant which I described under this name, with doubts, in the 'Orch. Ambon', M. retusa J.J. Sm. differs in the smaller narrower leaves, and an extended peduncle.

It is desirable to examine each of these closely related species in the living state. The possibility cannot be over-ruled that M. retusa J.J. Sm. may be amongst the live introduced species so that, later on, the differences between it and the related species may be given more critically.

Microstylis segaarensis Krzl., in Engl. Bot. Jahrb. VIII, (1886), 435;

Ridl., in Journ. Linn. Soc. XXIV (1888), 341.

Dutch New Guinea : On Sekar Bay . (Naumann). Geographic distribution:
German New Guinea.

Microstylis sordida J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX
(1908), 30.

Tab. XI. 35.

(latin diagnosis)

Dutch New Guinea : At the Noord River, south of Geluks Hill,
terrestrial in the primary forest (G.M. Versteeg. no. 1399,
flowering in July 1907).

This plant is very closely related to M. xanthochila Schltr., but
since I did not see the latter and the description does not exactly
agree with that of my plant, I am keeping them apart at present.

M. sordida J.J. Sm. differs in the strongly convex dorsal sepal
which is not antrorse at the apex, and through the lip which possesses
four instead of three teeth on each side. The sepals appear to be
broader.

The flowers are muddy brown.

Microstylis tubulosa J.J. Sm., in Bull. Dép. Agric. Buit. V. [1907], 1.

Tab. XI, 36.

Dutch New Guinea : At the Noord River, south of Geluks Hill,
terrestrial in the primary forest (G.M. Versteeg no. 1399A,
flowering in July 1907); Mt. Sinagai (Wichmann Expedition, Djibdja
no. 133h, living plant).

Liparis L.C. Rich.

Liparis caespitosa (Thou.) Lindl., in Bot. Reg. sub. t. 882 ; Gen. et
Sp. Orch. 32; etc.

Dutch New Guinea : At the Noord River, south of Geluks Hill, at
the base of a tree . (G.M. Versteeg no. 1479A, flowering in July
1907). Geographic distribution : German New Guinea, Java, Borneo,

Sumatra, the Philippines, eastern India, Reunion [Island].

Liparis cinnabarina J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX
(1908), 26.

Tab. XII. 37.

(latin diagnosis)

Dutch New Guinea : At the Noord River, south of Geluks Hill,
terrestrial in the primary forest (G.M. Versteeg no. 1428,
flowering in June 1907).

This belongs to the 'form circle' of L. latifolia Lindl. and
L. pallida Lindl. The best features are the very small pseudobulbs,
the two to three-flowered inflorescence and the long-stemmed slim flowers.

The flower colouring was cinnabar-red.

Liparis cymbidiifolia J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX
(1908), 27.

Tab. XII. 38.

(latin diagnosis)

Dutch New Guinea : At the Noord River, south of Geluks Hill,
terrestrial in the primary forest (Lorentz Expedition 1907,
Djibdja no. 376, living plant).

The description was made at Buitenzorg from an imported living
plant.

In habit this specimen is not unlike a small example of
Cymbidium ensifolium Swartz. It is easily recognised by the
relatively short, very dense inflorescence of pale orange-coloured
flowers.

Liparis disticha (Thou.) Lindl., in Bot. Reg. sub. t. 882; etc.

Dutch New Guinea : Inggarorumi Island, near Wendesi

(Wichmann Expedition 1903, Atasrip no. 82). Geographic
distribution : Timor, Java, Sumatra, Malay Peninsula, the
Philippines, Tenasserim, Mascarene [Islands], Ceylon.

Liparis exilis J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908),
27.

Tab. XII. 39.

(latin diagnosis)

Dutch New Guinea : Summit of Resi-Rücken , terrestrial in the
primary forest alt. c. 900m (G.M. Versteeg no. 1665, flowering
in Aug. 1907).

A small-flowered species related to L. crenulata Lindl., with a
relatively very tall callus at the base of the lip. It is remarkable
that this species is terrestrial.

The flowers are greenish brown with a muddy red-brown labellum.

Liparis flabellata J.J.Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908),
27.

Tab. XII. 40.

(latin diagnosis)

Dutch New Guinea : Resi-Rücken, on trees in the primary forest,
alt. c. 800m (G.M. Versteeg no. 1690, flowering in Sept. 1907).

This species, like L. cinnabarina J.J. Sm., is a relative of
L. latifolia Lindl. Like L. cinnabarina J.J. Sm. it possesses very
slim, although larger, differently coloured and shorter-stemmed
flowers with a differently shaped lip and column. The habit is also
different.

The flowers lacked colour, but the lip had an orange longitudinal
line.

Only a solitary specimen of the species exists.

Liparis parviflora (Bl.) Lindl., Gen. et Sp. Orch. 31; etc.

Dutch New Guinea: At the Noord River, on Pandanus in
Metroxylon swamps (G.M. Versteeg no. 1089, flowering in May 1907);
at the foot of Nepenthes Hill, epiphytic in forest on the banks of

the watercourses (G.M. Versteeg no. 1348, flowering in July 1907);
at the mouth of the Reiger River (Djibdja no. 273, living plant).
Geographic distribution : German New Guinea, Borneo, Java, Sumatra,
Malay Peninsula, Siam.

The plants are generally smaller than the specimens from Java.

Liparis pseudo-disticha Schltr., in Schum. et Laut., Nachtr. Fl.

Deutsch. Schutzgeb. Südsee, 106.

Tab. XIII. 41.

Dutch New Guinea : At the Noord River, on Pandanus in Metroxylon
swamps (G.M. Versteeg no. 1743, flowering in Sept. 1907).

Geographic distribution : German New Guinea.

Agrostophyllum Bl.

Agrostophyllum brachiatum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl.

. XIX (1908), 1.

Tab. XIII. 42.

(latin diagnosis)

Dutch New Guinea : At the Noord River (G.M. Versteeg no. 1043A,
flowering in May 1907).

A species related to A. longifolium Rchb.f. from which it is
easily distinguished by the colour, lip and the column.

The description of the flower was made from a numberless live
plant, imported to Buitenzorg.

Agrostophyllum costatum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX

(1908), 1.

Tab. XIII. 43.

(latin diagnosis)

Dutch New Guinea : At the mouth of the Reiger River (Lorentz
Expedition 1907, Djibdja no. 205, living plant).

This species is a relative of A. callosum (Bl.) J.J. Sm. and

A. Hasseltii (Bl.) J.J. Sm., but is most closely related to A. sumatranum Schltr. et J.J. Sm. The Papuan species differs from it by not having a pouch on the base of the labellum, the lack of a callus on the thickening of the lateral lobes, the short column auricles, and the unequal pollinia.

The flowers may occur somewhat larger than indicated above.

Agrostophyllum mucronatum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX, (1908), 2.

Tab. XIV. 44.

(latin diagnosis)

Dutch New Guinea : At the Noord River, near Bivak Island, on trees in the primary forest (G.M. Versteeg no. 1315, flowering in June 1907).

This species is clearly very closely related to A. spicatum Schltr., although according to the description it cannot be identical with Schlechter's plant. A. mucronatum J.J. Sm. differs in the significantly longer leaves, the plain truncated lamella between the hypochile and epichile, the non-linear lateral and round middle lobe of the lip, and the column without the two calli, beneath the stigma. Comparison of the two species is nevertheless desirable.

The flowers are white with a red column.

Agrostophyllum paniculatum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 21.[2.]

Tab. XIV. 45.

(latin diagnosis)

Dutch New Guinea : At the Noord River, growing on Pandanus in Metroxylon swamps (G.M. Versteeg no. 1128, flowering in May 1907).

An interesting species which, on account of the extended inflorescence, affiliates best with A. spicatum Schltr. and A. mucronatum

J.J. Sm. It demonstrates in a very perceptive way, the structure of the bushy inflorescence of the Agrostophyllum species.

The sepals are yellowish green, the petals and lip white, the middle lobe marked with two red-brown spots, the column with a red-brown margin.

Agrostophyllum parviflorum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 3.

Tab. XIV. 46.

(latin diagnosis)

Dutch New Guinea : At the Noord River, epiphytic in Metroxylon swamps (G.M. Versteeg no. 1043, flowering in May 1907).

A species with the habit of A. longifolium Rchb.f. and perhaps more closely related to A. amboinense J.J. Sm. The flowers are amongst the smallest in the genus and are of a very simple structure.

The flowers are white.

Agrostophyllum uniflorum Schltr., in Schum. et Laut., Nachtr. Fl. Deutsch. Schutzgeb. Südsee, 129.

Tab. XV. 47.

Dutch New Guinea : Hellwig Range, alt. c. 2100m , on trees in the primary forest (G.M. Versteeg no. 1694, flowering in Sept. 1907).

I do not doubt that my definition of this very characteristic plant is correct. The plant I examined does not, however, have a single-flowered inflorescence, but is formed of three single-flowered heads which flower apparently in sequence. The petals are not contracted at the centre, but are lanceolate with very retrorse lateral margins. Schlechter does not mention the tri-lobed callus in the hypochile.

The flowers are somewhat larger than in the case of Schlechter's plant.

Glomera Bl.

Glomera dentifera J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908),
24.

Tab. XV. 48.

(latin diagnosis)

Dutch New Guinea : At the Noord River, south of Geluks Hill, on trees
in the primary forest (G.M. Versteeg no. 1573, flowering in Aug.
1907).

Due to its rather large leaves this species is similar to
G. erythrosma Bl., but easily distinguished from it even without flowers
by the large tooth located opposite the leaf lamina on the margin of the
leaf sheath.

Glomera uniflora J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 25.

Tab. XV. 49.

(latin diagnosis)

Dutch New Guinea : Nepenthes Hill, epiphytic in the primary forest
(G.M. Versteeg no. 1293, flowering in June 1907); epiphytic on
Pandanus in Metroxylon swamps (G.M. Versteeg, no. 1359,
flowering in July 1907); south of Geluks Hill, on trees in the
primary forest (G.M. Versteeg no. 1446, flowering in July 1907 and
no. 1512, flowering in Nov. 1907).

I have classed the species collected by Versteeg as new even though
I am convinced that it is identical with one, or perhaps several of
Schlechter's Glossorrhyncha. However, since none of these descriptions
agree with it completely and only flowerless specimens of G. hamadryas
(Schltr.) J.J. Sm. and G. squamulosa (Schltr.) J.J. Sm. are represented
at the Buitenzorg Herbarium, I have kept them separate for the time
being. It is most similar to the description of G. squamulosa (Schltr.)
J.J. Sm., but there the lateral sepals seem to be connate for a fair
distance. With G. uniflora J.J. Sm. that is not the case and here the

lateral sepals are so firmly appressed to the spur that one can be mistaken easily by only superficial observation; furthermore the front margins are occasionally more-or-less stuck together, but the apex of the spur always stays free.

On transferring the genus Glossorrhyncha Ridl., to Glomera Bl. in Bull. Dép. Agric. Buit. XV, 28, I overlooked Glossorrhyncha Macdonaldii Schltr. (in Fedde's Repert. III. 19.), so that this plant must be named Glomera Macdonaldii (Schltr.) J.J. Sm.

Mediocalcar J.J. Sm.

Mediocalcar Versteegii J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 28.

Tab. XVI. 50.

(latin diagnosis)

Dutch New Guinea : Summit of Resi-Rücken, on trees in the primary forest, alt. c. 900m (G.M. Versteeg no. 1640, flowering in Aug. 1907).

This interesting plant, the second species of the genus, differs from M. bicolor J.J. Sm. in being more extensively thickened at the base through the connate sepals forming a pitcher, the lip-claw with two small auricles (which I have not noticed on the only flower of M. bicolor J.J. Sm. that I saw), the spur which overtops the claw, and in the colour.

The habit is rather peculiar and similar to that of several Bulbophyllum species, e.g. B. perductum J.J. Sm., B. tortuosum (Bl.) Lindl., etc. The extended basal parts of the pseudobulbs are appressed to the rhizome more so to the upper than the lower ones. In contrast, the free tip of the pseudobulbs is significantly shorter for the upper than the lower ones; furthermore the lower bulbs are thicker than the upper ones.

The lower half of the flower was red-brown, the upper half orange-yellow.

Epiblastus Schltr.

Epiblastus cuneatus J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX
(1908), 22.

Tab. XVI. 51.

(latin diagnosis)

Dutch New Guinea : Hellwig Range, on trees in the primary forest,
alt. c. 2100m (G.M. Versteeg no. 1695, flowering in Sept. 1907).

This interesting species was collected by Lorentz, but unfortunately not as complete specimens, so that nothing can be stated with certainty about the structure of the vegetative parts. The flowers also, were in poor condition.

E. cuneatus J.J. Sm. is easily distinguished from E. ornithidioides Schltr. by the labellum which is wedge-shaped [cuneiformis] towards the base, clawed with three front lobes and inside with a marked transverse callus. The middle lobe of the labellum is somewhat retrorse and much narrower and shorter than the lower part. Furthermore, according to Schlechter's figure, the column-foot of the labellum of E. ornithidioides Schltr. is bent, whilst in contrast, that of E. cuneatus J.J. Sm. is straight with much longer ovaries. It did not appear that these were enlarged by the setting of fruit.

The flowers of E. cuneatus J.J. Sm. are carmine-red.

Ceratostylis Bl.

Section : Acaules

Ceratostylis albiflora J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX
(1908), 11.

Tab. XVI. 52.

(latin diagnosis)

Dutch New Guinea : At the Noord River, south of Geluks Hill, on trees in the primary forest (G.M. Versteeg no. 1525, flowering in July 1907).

A white-flowered species of the section Acaules which, in habit, is similar to C. capitata Z. et M. It is well characterized by the short mentum, and above all, by the short clawed labellum, which is rather broad and only slightly thickened at the apex.

The flowers are white.

Ceratostylis clavata J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 11.

Tab. XVII. 53.

(latin diagnosis)

Dutch New Guinea : Summit of Resi-Rücken, on trees in the primary forest, alt. c. 900m (G.M. Versteeg no. 1674, flowering in Aug. 1907).

This species belongs to the section Acaules and is probably most closely related to C. sima J.J. Sm. from the northern Celebes. It is remarkable on account of the extraordinary extended, thin mentum greatly enlarged at the apex, which reaches well beyond the ovary. It is in all parts slimmer than C. sima J.J. Sm.

The flowers are a muddy yellowish white, with a yellow lip.

Ceratostylis humilis J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 11.

Tab. XVII. 54.

(latin diagnosis)

Dutch New Guinea : At the Noord River, at the foot of Nepenthes Hill, on trees in Pandanus and Metroxylon swamps (G.M. Versteeg no. 1256, flowering in June 1907).

A small species of the section Acaules, with small white flowers,

and with broad obtuse furrowed [plicate] leaves. The flowers show a certain similarity to those of C. albiflora J.J. Sm., through the short mentum and the short clawed labellum with an ovate lamina, but the latter, however, has linear leaves.

Ceratostylis pugioniformis J.J. Sm., in Bull. Dép. Agric. Ind. Néerl.

XIX (1908), 12.

Tab. XVII. 55.

(latin diagnosis)

Dutch New Guinea : At the Noord River, at the foot of Nepenthes Hill, on trees in the Metroxylon swamps (G.M. Versteeg no. 1255, flowering in June 1907).

This species belongs to the affinity of C. subulata Bl., but differs, however, in the globular mentum and narrower lip.

The flowers are brownish red, the lip orange-yellow. Only two small plants were collected.

Ceratostylis resiana J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 12.

Tab. XVIII. 56.

(latin diagnosis)

Dutch New Guinea : Resi-Rücken, on trees in the primary forest, alt. c. 350m (G.M. Versteeg no. 1674A, flowering in Aug. 1907).

The few examples of this species were mixed up with C. clavata J.J.Sm. It probably also has white or whitish flowers.

It belongs, like all species of the genus to date from New Guinea, to the section Acaules and, together with C. albiflora J.J. Sm., is the first species originating from this area not having terete leaves.

Well opened flowers were not available, and I presume that at preservation they were already somewhat withered.

Dendrobium Sw.

Section : Cadetia

Dendrobium Cadetia J.J. Sm. - Cadetia biloba Bl., Mus. Bot. Lugd.

Bat. I, 30; Miq., Fl. Ind. Bat. III, 629.

Dutch New Guinea : Without specific locality details.

D. bilobum Lindl. is older than Cadetia biloba Bl., so that this species [name] has to be changed. The description is too incomplete to be able to recognise the plant.

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

XIX (1908), 14.

Tab. XVIII. 57.

(latin diagnosis)

Dutch New Guinea : In the region between Geelvink Bay and the MacCluer Gulf (W. Den Berger 1906, living plant).

Among the Papuasian species of the section Cadetia, this plant is most closely related to D. hispidum A. Rich., D. umbellatum Gaud. and D. karoense Schltr. It is distinguished (according to the plate) from D. hispidum A. Rich. by the thicker blunt mentum, the smaller lateral lobes, the very short middle lobe and the very different gynostemium; from D. umbellatum Gaud. by the convex dorsal sepal, the thicker non-crenate mentum, the obtuse petals, and the very short middle lobe. From D. karoense Schltr., finally, it differs in the undivided, relatively appreciably broader labellum as given in the description.

Dendrobium chamaephytum Schltr., in Nachtr. Fl. Deutsch. Schutzgeb.

Südsee, 156.

Tab. XVIII. 58.

(latin diagnosis)

Dutch New Guinea : Summit of Resi-Rücken, on trees in the primary forest, alt. c. 900m (G.M. Versteeg no. 1660, flowering in Aug. 1907). Geographic distribution : German New Guinea.

Since the small plants deviate somewhat from Schlechter's description, I have again given a detailed description.

The species belongs to the section Cadetia and has white flowers.
Dendrobium heteroideum Bl., Rumphia IV, 40, t. 193, f.6; Miq., Fl.

Ind. Bat. III, 632.

Dutch New Guinea : Without specific locality details.

Dendrobium recurvatum J.J. Sm. - Cadetia recurvata Bl., Mus. Bot.

Lugd. Bat. I, 30; Miq., Fl. Ind. Bat. III, 629.

Dutch New Guinea : Without specific locality details.

Blume's description is quite incomplete.

Dendrobium Rumphiae Rchb.f., in Walp. Ann. VI, 303. - Cadetia
angustifolia Bl., in Rumphia IV, 39, t. 192, f. 4; t. 198E., Miq.,
Fl. Ind. Bat. III, 628.

Tab. XIX. 59.

(latin diagnosis)

Dutch New Guinea : At the Noord River, south of Nepenthes Hill,
on trees in Metroxylon swamps (G.M. Versteeg no. 1368, flowering
in July 1907).

This plant agrees very well with Blume's Cadetia angustifolia Bl.
However, Blume states that the middle lobe of the lip is sulphur-yellow,
while Versteeg's notes claim it to be orange. It is possible that the
colour is somewhat variable or that the colour changes slightly as the
flowers age.

The spur is formed through the fusing of the broadened base of the
lateral sepals, the lip-claw and the column-foot.

var. quinquescostatum J.J. Sm., nov. var.

Tab. XIX. 60.

(latin diagnosis)

Dutch New Guinea : On the Noord River, south of Geluks Hill, on
trees in the primary forest (G.M. Versteeg no. 1427 and 1526,

flowering in July 1907).

I would like to regard this plant as only a variety of D. Rumphiae Rchb.f. It is distinguished from the Type by the narrower leaves, the spur less clavate, the lateral lobes of the lip which extend beyond the column and particularly by the broad five-ribbed middle lobe. The colouring of the flowers appears also to be different. Versteeg states for no. 1526 only 'flowers white' but for no. 1427 in addition 'lip below pale rose-red'.

D. stenocentrum Schltr. and D. trigonocarpum Schltr. are very closely related to D. Rumphiae Rchb.f. According to the, albeit very poor specimen in the Buitenzorg Herbarium, D. stenocentrum Schltr. is in habit very similar to var. quinquescostatum J.J. Sm. According to the description, however, this species differs in the middle part of the spur being broadened and the lip having only two pronounced ridges.

D. trigonocarpum Schltr. has significantly broader leaves and a completely glabrous labellum.

Dendrobium simile J.J. Sm. - Cadetia similis Bl., Rumphia IV 39 (in obs.); Mus. Bot. Lugd. Bat. I, 29; Miq., Fl. Ind. Bat. III, 628.

Dutch New Guinea : Without specific locality details.

Blume's description of this species is also very short.

Section : Longicollia (Mekynosepalum, Goniobulbon)

Dendrobium aratriferum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 13.

Tab. XIX. 61.

(latin diagnosis)

Dutch New Guinea : At the Noord River, south of Geluks Hill

(G.M. Versteeg no. 1454, flowering in July 1907); summit of

Resi-Rücken, alt. c. 900m (G.M. Versteeg no. 1637, flowering in

Aug. 1907); on trees in the primary forest.

This species, which belongs to the section Longicollia, is related closely to D. lageniforme J.J. Sm., but differs in the colour and shape of the middle lobe of the lip, which is broader not narrower towards the apex. In addition, the ridges of the lip continue far on to the middle lobe in D. lageniforme J.J. Sm., whilst in D. aratriferum J.J. Sm., they only reach to the base. The sepals and petals are occasionally shorter; approximately 4.5 cm long and the middle lobe of the lip can also be somewhat more compact. The keel, which extends to a tooth on the lower side of the middle lobe, seems to be a good characteristic.

The flowers are rose-red, the lip red-brown towards the margins. Dendrobium bidentiferum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl.

XIX (1908), 13.

Tab. XX. 62.

(latin diagnosis)

Dutch New Guinea : At the Noord River, south of Geluks Hill, on trees in the primary forest (G.M. Versteeg no. 1539, flowering in July 1907).

From all the previously known species of the section Longicollia this one is characterised by the shrub-like growth and the stem-shaped pseudobulbs. The flowers are well characterized by the falcate, antrorse, campylotropous teeth of the middle lobe of the lip. Unfortunately, only a single specimen of this species was collected.

The flowers are white, the lip purple-margined, the ovary yellow. Dendrobium crenulatum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX.

(1908), 15.

Tab. XX. 63.

(latin diagnosis)

Dutch New Guinea : Fak Fak (W. Den Berger 1906, living plant).

This species was collected by Den Berger in the vicinity of Fak Fak.

Schlechter considers this plant may be identical with D. reptans Ridl. (this name does not have to be changed because D. reptans Franch. et Sav. has already been changed by Makino to Eria). However, I cannot agree with this opinion, since Ridley's description does not fit D. crenulatum J.J.Sm. in several respects. The flowers here are not small, the dorsal sepal is not lanceolate, the lip not 6 mm but more than double this length, the middle lobe is not elliptical, rounded off, and orange in colour, nor is the column orange at the apex. Furthermore, the leaves are broader and not slender.

The species appears to me to be more related to D. chrysotropis Schltr., but is different in the relatively longer sepals and particularly in the tri-lobed pointed narrow labellum, with five longitudinal ridges. Dendrobium glabrum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. V (1907), 4.

Tab. XX. 64.

Dutch New Guinea : At the Merauke River (Jaheri 1901, no. 67, living plant).

Dendrobium hydrophilum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 17.

Tab. XXI. 65.

(latin diagnosis)

Dutch New Guinea : At the Noord River, on trees in Metroxylon swamps (Lorentz Expedition 1907, Djibdja no. 21, living plant).

In the section Longicollia this species is characterized by the relatively small flowers, the broad rhombic middle lobe, the relatively large lateral lobes and the two-margined ridges of the lip, as well as the strongly bent column-foot.

Dendrobium inconstans J.J. Sm., in Bull. Dép. Agric. Ind. Néerl XIX (1908), 18.

Tab. XXI. 66

(latin diagnosis)

Dutch New Guinea : Without specific locality details (Meijer).

This species is possibly most closely related to D. Dendrocolla J.J. Sm. from Ambon, but, however, differing from it in the ridges on the lip and the much longer middle lobe. The top half of the sepals and the petals become violet on wilting.

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

Dutch New Guinea : At the Merauke River (Jaheri 1901 no. 59, living plant).

Dendrobium Phalangillum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 19.

Tab. XXI. 67.

(latin diagnosis)

Dutch New Guinea : At the Noord River, south of Geluks Hill on trees in the primary forest (G.M. Versteeg no. 1536, flowering in July 1907).

Unfortunately, only one specimen exists of this small species which is distinguished from all other species in the section Longicollia, by the small flowers.

The flowers are white, the sepals rose-red, the lip whose lateral lobes are margined dark brown, with yellow efflorescence.

Dendrobium Tipula J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 20.

Tab. XXI. 68.

(latin diagnosis)

Dutch New Guinea : At the Noord River, south of Geluks Hill (Lorentz Expedition 1907, Djibdja no. 558, living plant).

The description was made from the living imported plant at Buitenzorg.

This species belonging to the section Longicollia is related to D. Dendrocolla J.J. Sm. from Ambon. From this, it is easy to

distinguish through the claw on the undulate ridges of the middle lobe.

Dendrobium validicolle J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX
(1908), 21.

Tab.XXII. 69.

(latin diagnosis)

Dutch New Guinea : At the Noord River, south of Geluks Hill

(Lorentz Expedition 1907, Djibdja no. 367, living plant).

This species is distinguished from all others in the section
Longicollia by the very broad leaves and the only slightly ribbed
labellum.

The description was made from a living imported plant at
Buitenzorg.

As I have emphasized earlier, Schlechter's section Mekynosepalum
is identical with my section Longicollia and his section Goniobulbon
must also be included. The only difference, of the pseudobulbs not
being drawn out to a stem, is insufficient to separate them. All
stages of transition between the species with long and hardly extended
bulbs exist, but in other respects, such as habit and floral structure,
they are completely identical.

Section : Desmotrichum

Dendrobium rhipidolobum Schltr., in Schum. et Laut., Nachtr. Fl. Deutsch.
Schutzgeb. Südsee, 151.

Tab. XXII. 70.

(latin diagnosis)

Dutch New Guinea : At the Noord River (Lorentz Expedition 1907,

Djibdja no. 815, living plant); Nafri at Jotefa Bay (Wichmann

Expedition 1903, Djibdja no. 102h, living plant). Geographic

distribution : German New Guinea, Ceram, Amahei (Treub 1893 no.

580b, living plant), Celebes, Minahasa (Koorders 1895 no. 241c,

living plant).

Although, according to Schlechter, the lip possesses only two longitudinal keels, this obviously widespread species from the eastern Archipelago is certainly D. rhipidolobum Schltr.

The plants collected by Koorders in the Minahasa Province have relatively broader petals than the others.

Also probably like most of the orchids with ephemeral flowers such as D. crumenatum Sw., D. acuminatissimum Lindl., D. insigne Rchb.f., D. angustifolium Lindl., Thrixopermum arachnites Rchb.f., etc., they flower like this species, exactly or approximately on the same day.

Section : Aporum

Dendrobium calceolum Roxb., Hort. Beng. 63; Fl. Ind. III, 488; Miq., Fl.

Ind. Bat, III, 630. - D. Roxburghii Lindl., in Jour. Linn. Soc.

III, 4. - Aporum Roxburghii Griff., in Calc. Journ. N. Hist. V, 4.-

Callista calceola O.K., Rev. Gen. Pl. II, 654.

Dutch New Guinea : Sekar Bay (Naumann). Geographic distribution : Ambon.

Kränzlin nominates this species for New Guinea; however, I have not seen any specimens from there.

Dendrobium MacFarlanei F.v.M., Desc. Notes Pap. Pl. II, 29. -

D. eboracense Krzl., in Österr. Bot. Zeitschr. XLIV (1894), 419. -

D. podagraria Krzl. (nec. Hook.f.), in Schum. et Laut. Fl. Neu-Pomm. 105.

Tab. XXII. 71.

(latin diagnosis)

Dutch New Guinea : Near Gelieb village (B. Branderhorst no. 169, flowering in Oct. 1907); in the region between Geelvink Bay and the MacCluer Gulf (W. Den Berger 1906, living plant); Merauke River (Jaheri 1901 no. 53, living plant). Geographic distribution: British and German New Guinea, Kei Islands, Banda.

Dendrobium pseudo-calceolum J.J. Sm., in Bull. Dép. Agric. Buit. V

(1907), 34; in Ic. Bog. III (1907), 97, t. CCXL.

Dutch New Guinea : In the region between Geelvink Bay and the MacCluer Gulf (W. Den Berger 1906, living plant); Inggarorumi Island, near Wendësi (Wichmann Expedition 1903, Atasrip no. 83).

Section : Oxystophyllum

Dendrobium atropurpureum Miq., Fl. Ind. Bat. III, 644. -

Oxystophyllum atropurpureum Bl., Rumphia IV, 41, t. 193, f. 4;
t. 198c.

Dutch New Guinea : Without specific locality details. Geographic distribution: German New Guinea, Ambon.

I am not completely convinced that this species occurs, as stated, also in Borneo, Sumatra, the Malay Peninsula, the Philippines, etc.

Section: Rhizobium

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

XIX (1908), 16.

Tab. XXIII. 72.

(latin diagnosis)

Dutch New Guinea : Merauke River (Jaheri 1901, no. 60).

This species of the section Rhizobium appears to be most closely related to the insufficiently known D. rigidum R.Br. from New Holland [Australia].

In the branching of the stems and the swollen terminal members, this plant and the related species remind one of the section Desmotrichum.

The description was made from a plant cultivated earlier at the Botanical Garden at Buitenzorg. The plant collected by Branderhorst (no. 133) near Okaba, which unfortunately is only in fruit, may also belong here.

Section: Fugacia

Dendrobium inaequale Rolfe, in Kew Bull. 1901, 147; Hook.f., in Bot. Mag.

1900, t. 7745.

New Guinea : Probably in the western part. Geographic distribution:

Aru Islands (Van Kampen).

The specimens from the Aru Islands have white flowers with a pale yellow, yellow-brown-veined labellum and lateral lobes coloured faintly purple towards the margin. The middle lobe has five raised cinnamon-brown ribs and is margined brown; the callus was yellow with brown spots and situated in front of this callus are two longitudinal rows of two to three subulate soft spines.

This species is related very closely to D. amboinense Hook.f.

Section : Latouria (Dendrocoryne p.p.).

Dendrobium biloculare J.J. Sm., in Rec. Trav. Bot. Néerl. I (1904), 148.

[48?]

Dutch New Guinea : Without specific locality details (Zippelius);

Etna Bay (J.W.R. Koch 1903 - 04).

Dendrobium chloropteron [chloropterum] Rchb.f. et S. Moore var.

striatum J.J. Sm. - Bulbophyllum oncidiochilum Krzl., in Engl. Bot.

Jahrb. XVIII (1894), 485. - Latourea oncidiochila Krzl., in Österr.

Bot. Zeitschr. XLIV (1894), 336.

(latin diagnosis)

Dutch New Guinea : Southern New Guinea near Okaba (Branderhorst nos 30 and 118, flowering in Aug. and Oct. 1907); Merauke (Koch 1904 - 05). Geographic distribution : British and German New Guinea, Sabai Islands, Timor Laut. [Tanimbar Islands].

The variety differs from the Type only in the colour.

D. chloropterum Rchb.f. et S. Moore (Journ. of Bot XVI (1878), 137, t. 196) from the Kei Islands, is in cultivation at Buitenzorg.

Lindley's description of D. bifalce Lindl. fits this species very well and so far I am not yet convinced that Reichenbach was correct in considering the plant as a Doritis. If D. bifalce Lindl. and D. chloropterum Rchb.f. et S. Moore are identical, then the first is the oldest name for the striped form. [Ed. - Taxonomists now consider the species as D. bifalce Lindl.]

Dendrobium macrophyllum A. Rich., Sert. Astr. 22, t. 9; Rchb.f., in Walp. Ann. VI, 304.

Dutch New Guinea : At the Noord River, at the foot of Nepenthes Hill, on trees in the primary forest (G.M. Versteeg no. 1384, flowering in July 1907); Sélé (Galewo Strait) (Naumann).

Geographic distribution : Kei, [I.] Ambon, and several forms or varieties in Borneo, Java, the Philippines.

The specimens from Java are distinguished by fewer flowers on the racemes, larger more yellow-coloured flowers are are best kept separate as var. Veitchianum.

Dendrobium spectabile Miq., Fl. Ind. Bat. III, 645; Rolfe, in Orch. Rev. IV (1896), 356; Gard. Chr. 1899, II, 491, f. 162; Kew Bull. 1900, App. II, 43; Hook.f., in Bot. Mag. 1900, t. 7747. - D.tigrinum Rolfe ex Hemsl., in Ann. Bot. V (1891), 507. - Latouria spectabilis Bl., Rumphia IV, 41, t. 195, f.I; t. 199c; F.v.M., in Vict. Nat. I (1884), 52.

Dutch New Guinea : Without specific locality. Geographic distribution : German New Guinea, Solomon Islands.

Dendrobium subquadratum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 20.

Tab. XXIII. 73.

(latin diagnosis)

Dutch New Guinea : At the Noord River, on trees in the primary forest (G.M. Versteeg no. 1391, flowering in July 1907).

Of this species only an apparently weak specimen was available; it was also rather withered. In habit it is similar to D. kingianum Bidw., D. gracilicaule F.v.M., etc., but differs, however, in the long pointed sepals and petals. The flowers were yellow with an orange-coloured lip. It is, however, not improbable that the colour changed somewhat after collection.

Section : Bigibba

Dendrobium affine Steud., Nom. ed. II, I, 489; Lindl., in Bot. Reg. 1844, Misc. 64; Miq., Fl. Ind. Bat. III, 641. - D. leucophotum Rchb.f., in Gard. Chr. XVIII (1882), 552. - D. Urvillei Finet, in Bull. Soc. Bot. France, L (1903), 372, t. XI, f. I. - Onychium affine Dcne., in Nouv. Ann. Mus. Par. III (1836), 365; Herb. Tim. 37.

(latin diagnosis)

Dutch New Guinea : Merauke River (Wichmann 1904, living plant).

Geographic distributuion : Tanimbar Islands, Larat, Komodo Island (Dengeman, living plant), Timor (Decaisne, Teysmann).

The lip should be glabrous, according to Finet's description.

From a bloom of the typical D. Urvillei Finet sent me it is clear that the lip is similar to all those mentioned by me from the above habitats and has short soft hairy spines on the inside.

This species belongs to the affinity of D. bigibbum Lindl., D. phalaenopsis Fitzg. etc. It is a really pretty plant but nevertheless in beauty is inferior to D. phalaenopsis Fitzg.

Section : Ceratobium (Antennata, Strebloceras)

Dendrobium antennatum Lindl., in Hook. Lond. Journ. Bot. II (1843), 236;

Bth., Bot. Sulphur (1844), t. 59; Miq., Fl. Ind. Bat. III, 643; Rchb.f., in Walp. Ann., VI 298; Xenia Orch. III, 92, t. 251, I; F.v.M., Descr. Notes Pap. Pl. I, 14.

Dutch New Guinea : Inggarorumi Island, near Wendèsi (Wichmann Expedition 1903, Atasrip no. 81). Geographic distribution:

English [British] and German New Guinea, Aru Islands (Van Kampen, living plant), Salawati (Teysm.).

D. antennatum Lindl. and D. d'Albertisii Rchb.f. are very similar.

The typical D. d'Albertisii Rchb.f. is distinguished by more robust, shorter stems, slimmer flowers, a diagonal retrorse dorsal sepal, thicker mentum, shorter (3 - 4 cm long) petals, convex middle lobe and appears

to grow at locations more exposed to the sun. However, forms occur which do not agree readily with either species.

Dendrobium d'Albertisii Rchb.f., in Gard. Chron. 1874, 366, t. 41; 1875, 217.

Dutch New Guinea : Merauke, on trees in Imperata fields (G.M.Versteeg no. 1906, flowering in Sept. 1907; Djibdja no. 892, living plant); Korn Village, near Okaba (B. Branderhorst no. 83, flowering in Sept. 1907); Merauke (J.W.R. Koch 1904 - 05); in the region between Geelvink Bay and MacCluer Gulf (W. Den Berger 1906, living plant). Geographic distribution : British New Guinea, Aru Islands (Van Kampen). Refer to the note under D. antennatum Lindl.

Dendrobium Gouldii Rchb.f., Xenia Orch. II, 167, t. 169, f. IV, 9 - 10

Tab. XXIII. 74.

(latin diagnosis)

Dutch New Guinea : Near Korn Village (B. Branderhorst no. 91, flowering in Sept. 1907). Geographic distribution : Thursday Island. [Ed. - A rather doubtful location].

Until now this pretty, lively-coloured species was known only from Reichenbach's description and illustration. However, he had not seen the vegetative parts.

It has now been established that this species has been imported quite often into Java. However, it is not easy to cultivate especially at Buitenzorg, but this is the case with several species of the section Ceratobium. Branderhorst collected good herbarium material and noted that the plant grows terrestrially on Pandanus plains. I received some fresh flowers from Van Brero of Batavia.

It is distinguished from all other species of the section by the vegetative parts.

Dendrobium leporinum J.J. Sm., nov. sp.

Tab. XXIV. 75.

(latin diagnosis)

Dutch New Guinea : Without specific locality details (Horst, living plant).

I received a specimen of this species during my travels through the Moluccas in 1900, from the late D.W. Horst, then resident at Ternate, who had collected it in New Guinea. I had considered it initially as D. Stratiotes Rchb. f., although it differed in several respects. However, I was recently sent a flower of a Dendrobium from a private garden and according to descriptions and illustrations to hand it is undoubtedly D. Stratiotes Rchb.f., so I am convinced that the plant described above is a new species.

D. leporinum J.J. Sm. differs from D. Stratiotes Rchb.f. in the narrower stem, the fewer flowered inflorescences, a broad ovate middle lobe and in the colour. The flowers of the two species are almost equal in size.

The tubular bracts are very remarkable and are inserted far beneath the flower, thereby giving the impression that the stems are adnate to the base of the rachis. D. antennatum Lindl. and D. d'Albertisii Rchb.f. have similar bracts.

Dendrobium Mirbelianum Gaud., in Voy. Freyc. 423, t. XXXVIII. -

D. Rosenbergii T. et B., in Nat. Tijdschr. Ned. Ind. XXIV (1862), 317.

Dutch New Guinea : In the region between Geelvink Bay and the MacCluer Gulf (W. Den Berger 1906, living plant); near Gelieb Village (B. Branderhorst no. 160, flowering in Oct. 1907).

Geographic distribution : Ambon, Ceram, Buru.

I have often received flowers of this species from orchid-fanciers. The main colour of the flower is pale green; it possesses a relatively

short mentum, only slightly twisted petals which are not much longer than the sepals, three ridges of which the outer ones are doubled, and a large longitudinal ovate middle lobe.

The plants which I collected on Ambon as D. Mirbelianum Gaud. possess not green, but yellow-brown flowers and a relatively shorter middle lobe, much narrower towards the apex. They are, in my opinion, not specifically different, but may be considered a variety.

The plants collected by Branderhorst appear to me also to belong to the same species, even though they were only small and had very few (3 to 4) flowered inflorescences. The middle lobe also was relatively short.

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

XIX (1908), 21.

Tab. XXIV. 76.

(latin diagnosis)

Dutch New Guinea : Merauke (Jaheri 1901, living plant); in the region between Geelvink Bay and the MacCluer Gulf (W. Den Berger, living plant).

This species is closely related to D. Johannis Rchb.f., but differs in the more twisted sepals and petals, the colour and especially in the lamella-like raised ridges on the middle lobe.

Among the plants originating from Merauke, however, there were some with shorter and less twisted sepals and petals. From the shape of the ridges, the middle lobe and the colour, they belong, however, to D. trilamellatum J.J. Sm. and not to D. Johannis Rchb.f.

It is yet to be investigated whether the two species should be considered as varieties.

Dendrobium undulatum R. Br., Prodr. 332; Lindl., Gen. et Sp. Orch.; Bot.

Reg. XXIX 43; F.v.M., Fragm. I, 87; Rchb.f., in Walp. Ann. VI, 298;

Bailey, Syn. Queensl. Fl. 509, D. discolor Lindl., in Bot. Reg. XXVII

(1841), Misc. 50.

Dutch New Guinea : Merauke (Lorentz Expedition 1907, Djibdja no.

889, living plant; Jaheri 1901, herbarium material and living plant Kock 1904 - 05, no. 28); without specific locality details

(Wichmann Expedition 1903, Djibdja no. 100, living plant).

Geographic distribution : British New Guinea, New Holland [Australia].

This species is fairly variable.

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

Miq., Fl., Ind. Bat. III, 643; Rchb.f., in Walp. Ann. VI, 297. -

D. lineale Rolfe, in Gard. Chr. 1889, II, 381. D. Augustae-

Victoriae Krzl., in Gartenfl. (1894), 115.

Dutch New Guinea : Nafri (Wichmann Expedition 1903, Atasrip no.

107). Geographic distribution : British and German New Guinea.

The flowers of this plant agree perfectly with a flower of

D. veratrifolium Lindl., which Rolfe kindly sent me from Kew.

The flowers of this species are, however, rose-red or white while the local collector Atasrip assured us, albeit five years later, that the plants he preserved had yellow flowers.

Section: Grastidium (Dianthe)

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

Dutch New Guinea : Etna Bay (J.W.R. Koch 1904 - 05, no. 28).

Geographic distribution : Aru Islands, Java, Sumatra.

The description of D. Schwartzkopffianum Krzl., is very reminiscent of this species.

The flowers which originated from the eastern part of the archipelago are larger than those of the plants from Java.

Dendrobium dulce J.J. Sm., nov. sp.

Tab. XXIV. 77.

(latin diagnosis)

Dutch New Guinea : Without specific locality details.

This species has been cultivated at the botanical garden for a

long time and flowered in 1908, probably for the first time.

The flowers are equal in size to those of the largest forms of D. acuminatissimum (Bl.) Lindl., but differ in colour, the blunt lateral lobes and the severely lacerated middle lobe. It has a strong, sweet fragrance reminiscent of Galium verum L.

Dendrobium falcatum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 17.

Tab. XXV. 78.

(latin diagnosis)

Dutch New Guinea : At the Noord River, south of Geluks Hill, on trees in the secondary forest (G.M. Versteeg no. 1706, flowering in Sept. 1907).

This species belongs to the section Grastidium and is closely related to D. rugosum Lindl. from Java and D. pruinatum T. et B. from the Moluccas; both species are, however, much larger plants. D. dactylodes Rchb.f. from Samoa seems, from the short description, to belong to the same affinity.

The sepals and petals are white with purple spots, the lip brown-orange at the centre, dense purple-striped at the margin, the ovary pale yellow.

The species is represented by a solitary specimen.

Dendrobium Horstii J.J. Sm., in Ic. Bog. III (1906), 23, t. CCX.

Dutch New Guinea : Without specific locality details (D.W. Horst, living plant); between Geelvink Bay and the MacCluer Gulf (W. Den Berger 1906, living plant).

Dendrobium igneum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 17.

Tab. XXV. 79.

(latin diagnosis)

Dutch New Guinea : At the Noord River, at the base of Nepenthes

Hill, epiphytic in Pandanus and Metroxylon swamps (G.M. Versteeg no. 1260, flowering in June 1907); south of Geluks Hill, on trees in the primary forest (G.M. Versteeg no. 1572, flowering in Aug. 1907).

This species of section Grastidium is best placed beside D. orientale J.J. Sm. from Ambon. The small retrorse, subulate apex of the middle lobe is remarkable and is reminiscent of Taeniophyllum glandulosum Bl.

The rostellum appears to be missing, I could not identify it in the flowers examined, the the pollinia were on the stigma.

The flowers are orange.

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

D. Gazellae Krzl., in Engl. Bot. Jahrb. VII (1886), 436.

D. lyperanthiflorum Krzl., in Österr. Bot. Zeitschr. XLIV (1894), 333. - Dichopus insignis Bl., Mus. Bot. Lugd. Bat. II, 176.

Tab. XXV. 80.

(latin diagnosis)

Dutch New Guinea : Without specific locality details (Meyer, living plant); Sekar Bay (Naumann); in the area between Geelvink Bay and the MacCluer Gulf (W. Den Berger 1906, living plant).

Geographic distribution : British and German New Guinea, Aru Islands (P. Wamer, Voy. de l'Astrolabe et de la Zélée 1038 - 40, Herb. Lugd. Bat. no. 900, 351 - 241[sic]; van Kampen 1907, living plant).

I have seen several living specimens of this peculiar species. The plants collected by van Kampen on the Aru Islands differ from those I received from Meyer in the less densely gathered spots on the sepals and petals, the more intense purple-red marking of the lip, and the more severe laceration of the middle lobe.

No. 900, 351 - 241, Herb. Lugd. Bat. has been designated by Kränzlin as D. lyperanthiflorum Krzl. with a query and the notation that the

labellum was missing. The plant belongs without doubt to this species.
Dendrobium multistriatum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX
 (1908), 18.

Tab. XXVI. 81

(latin diagnosis)

Dutch New Guinea : At the Noord River (Lorentz Expedition 1907,
 Djibdja no. 131, living plant); south of Geluks Hill (Lorentz
 Expedition 1907, Djibdja no. 666, living plant).

This is related to the species grouped around D. pruinoseum T. et B.
 and D. rugosum Lindl., and probably closest to D. falcatum J.J. Sm.,
 but differs from the latter in the larger pointed leaves, larger flowers
 and particularly in the shape of the lip.

Dendrobium pruinoseum T. et B., in Nat. Tijdschr. Ned. Ind. XXIV (1862),
 314; J.J. Sm., Orch. Ambon, 57.

Tab. XXVI. 82.

Dutch New Guinea : In the area between Geelvink Bay and MacCluer
 Gulf (W. Den Berger 1906, living plant). Geographic distribution:
 Kei Islands, Ambon.

Dendrobium quinqueidentatum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl.
 XIX (1908), 19.

Tab. XXVI. 83.

(latin diagnosis)

Dutch New Guinea : Nepenthes Hill, on trees in the primary forest
 (G.M. Versteeg no. 1316, flowering in June 1907).

According to the flowers, this species of the section Grastidium
 belongs to the close affinity of D. acuminatissimum Lindl. and
D. biflorum Sw., but differs from both species, apart from the floral
 characteristics, in the much shorter, relatively broader, non-gramineous
 leaves.

The flowers are yellowish white, the lip pale rose-red below and

with a very narrow purple margin, the column partly orange below.

Section : Biloba (Monanthos)

Dendrobium erectifolium J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 16.

Tab. XXVI. 84.

(Latin diagnosis)

Dutch New Guinea : Nepenthes Hill (G.M. Versteeg no. 1309, flowering in June 1907)); at the Noord River, south of Geluks Hill (G.M. Versteeg no. 1309A, flowering in July 1907); summit of Resi-Rücken, alt. c. 900m (G.M. Versteeg no. 1670, flowering in Aug. 1907). On trees in the primary forest. Geographic distribution: Probably German New Guinea.

Several specimens of this species were collected at different locations and on different days under the same number, some without flowers or bearing only one bloom. There is therefore a possibility that they are not all identical. The description was made, however, from an alcohol-preserved, slightly insect-attacked flower.

This species may perhaps be D. gracilicaule Krzl.[sic] since the description, including the flower colour, agrees fairly well. [Ed. - The correct author of D. gracilicaule is F.v.M. not Kränzlin].

It does not belong to Schlechter's D. piestocaulon; according to the description this plant and two authentic small branches, without flowers, in the Buitenzorg Herbarium, has broader leaves and agrees better in this respect with a plant cultivated at Buitenzorg and originating from Dutch New Guinea, whose flowers furthermore are coloured differently. Schlechter, unfortunately, does not mention the colour of the flowers of his D. piestocaulon [Ed. - see Schlechter, 'Die Orchidaceen von Deutsch-Neu-Guinea' p. 632, published after J.J. Smith's comment].

The flowers of D. erectifolium J.J. Sm. are red-brown.

Dendrobium isochiloides Krzl. var. pumilium J.J. Sm., nov. var.

Tab. XXVI. 85.

(latin diagnosis)

Dutch New Guinea : At the Noord River, at the foot of Nepenthes Hill, on trees in the primary forest (G.M. Versteeg no. 1358, flowering in July 1907).

The description of D. isochiloides Krzl. fits this plant well so that I best regard it as a dwarf variety. The flowers are yellowish green, the lip brown-red with a greenish apex.

I would like to point out here that D. Koordersii J.J. Sm. could possibly be united with D. isochiloides Krzl., and finally both species could belong to D. bilobum Lindl.

Dendrobium piestocaulon Schltr., in Schum. et Laut., Nachtr. Fl. Deutsch. Schutzgeb. Südsee, 173.

Tab. XXVII. 86.

(latin diagnosis)

Dutch New Guinea : Without specific locality details. Geographic distribution : German New Guinea.

Both plants in cultivation at Buitenzorg are somewhat different in the shape of the petals and lip, but certainly belong to the one species.

Sterile originals of D. piestocaulon Schltr. in the Buitenzorg Herbarium agree very well with these plants.

Section : Pedilonum

Dendrobium constrictum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 15.

Tab. XXVII. 87.

(latin diagnosis)

Dutch New Guinea : At the Noord River, south of Geluks Hill.

(G.M. Versteeg no. 1509A, flowering in July 1907; Djibdja nos

92 and 603, living plants).

This species was mixed up with D. molle J.J. Sm., and actually shows a close similarity to it. The differences between the two plants have been pointed out under D. molle J.J. Sm.

Based on its description D. capituliflorum Rolfe could be considered as one of the closest related species.

[Ed. - In 'Nova Guinea VIII, page 568-570 (1911), [Type setter please check page numbers and correct] Smith decided that the material he had examined when writing his diagnosis for D. constrictum J.J. Sm. constituted two species and goes on to create a second species, D. confusum J.J. Sm.]

Dendrobium molle J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 18.

Tab. XXVII. 88.

(latin diagnosis)

Dutch New Guinea : At the Noord River, south of Geluks Hill, on trees in the primary forest (G.M. Versteeg no. 1509, flowering in July 1907).

A species of the section Pedilonum, very similar in habit to D. constrictum J.J. Sm., but differing in the pilose flowers and inflorescences, as well as in the labellum.

The flowers are pallid yellowish, the bracts pale yellow with a green apex. In the alcohol-preserved flowers, inside the anther towards the apex is a hardened thick transverse viscid mass.

Dendrobium Smilliae F.v.M., Fragm. VI, 94; Bth., Fl. Austr. VI, 282; Bailey, Syn. Queensl. Fl. 510.

(latin diagnosis)

Dutch New Guinea : Kwalamul, near Okaba (B. Branderhorst no. 29, flowering in Aug. 1907); in the area between Geelvink Bay and the MacCluer Gulf (W. Den Berger 1906, living plant). Geographic

distribution : Aru Islands (Van Kampen 1907, living plant, Queensland.

The nicely coloured, but not very elegant species has been cultivated at Buitenzorg for a long time.

It appears that all species of the sections Pedilonum, as well as Amblyanthus, have the soft viscid mass which covers the rostellum in front and which, in alcohol, detaches itself as a fairly large, more-or-less elliptical transverse apparent viscid mass.

Section : Calyptrochilus

Dendrobium cochleatum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 15.

Tab. XXVII. 89.

(latin diagnosis)

Dutch New Guinea : At the Noord River, south of Geluks Hill, on trees in the primary forest (G.M. Versteeg no. 1360, flowering in July 1907; no. 1561, flowering in Aug. 1907).

This species belongs to the section Calyptrochilus and appears to be very closely related to D. trichostomum Rchb.f, but which from the description differs in the very obtuse and very much shorter (1/6 - 1/4 poll.) mentum.

Versteeg describes the flower colour of no. 1360 as orange-red and no. 1561 as rose-red. This difference may well be ascribed to the fact that as they age, the colour of the flowers more-or-less changes, as also stated by Schlechter for D. oreogenum Schltr. The majority of the flowers for no. 1561 were not yet open.

D. Novae Hiberniae Krzl. is, according to Schlechter's no. 14629, a typical Pedilonum.

[Ed. - The relevance of this statement by Smith is difficult to follow as he has been dealing with species of the section Calyptrochilus not Pedilonum. In actual fact, Schlechter did regard D. Novae

Hiberniae Krzl., as belonging to the section Pedilonum and reduced it to a synonym of D. bracteosum Rchb.f. - Schlechter, 'Die Orchidaceen von Deutsch-Neu-Guinea', p. 503].

Dendrobium trichostomum Rchb.f, in Walp. Ann. VI, 282; Oliver, in Journ.

Linn. Soc. Bot. XV (1877), 30.

Dutch New Guinea : Geelvink Bay (A.B. Meyer). Geographic distribution : British New Guinea.

Section : Amblyanthus

Dendrobium cavipes J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 14.

Tab. XXVIII. 90.

(latin diagnosis)

Dutch New Guinea : At the Wespen Creek, on trees in the primary forest (G.M. Versteeg no. 1377, flowering in July 1907).

This species belongs to Schlechter's section Amblyanthus and is readily distinguished from the related species by the clearly tri-lobed lip. In habit it is very similar to D. squamiferum J.J. Sm., only slightly smaller.

In the unopened flowers the rostellum is transversely thickened at the broad apex. In the opened flowers, preserved in alcohol, this thickened apex was on the side of the pollinia where the front apex rested, forming a hollow in front of the anther, where the thick viscid mass rested. This type of viscid substance can probably be compared with that of the section Sestochilos of the genus Bulbophyllum.

The flowers of D. cavipes J.J. Sm. are white, the lip marked rose-red below and with yellow hairs.

Dendrobium squamiferum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 19.

Tab. XXVIII. 91.

(latin diagnosis)

Dutch New Guinea : At the Noord River, near Bivouac Island and at Pandanus Creek in Metroxylon swamps growing on Pandanus (G.M. Versteeg no. 1068, flowering in May 1907).

Externally, and also in the flowers, this plant is evidently very similar to D. melanostictum Schltr., of the section Amblyanthus. The reasons which motivated me to separate my plant are as follows : The labellum of D. squamiferum J.J. Sm. is of a more complicated structure than apparent from Schlechter's description of D. melanostictum; it has not only antrorse margins in the middle, but is concave for the whole length, and the longitudinal ribs are very definite, even though not strong. The scale at the base of the lamina is broad, tri-partite and not only the bottom but the whole width is lacerated. The column-foot has only one cavity which is traversed by a relatively frail longitudinal rib. The colour of the lip varies according to the date given and the possibility that the species are identical is diminished in that Schlechter's plant was found at alt. c. 1100m whilst Versteeg's D. squamiferum J.J. Sm. was collected at approximately sea level.

The flowers are white inside, yellowish outside, the lip marked inside with two red and several pale red longitudinal stripes, the hairs on the front part are yellow, the bracts green.

[Ed. - Further details of this species are given on page 138 [Type setter please check and correct page number] in the Postscript]

Section : Distichophylla

Dendrobium Zippelii J.J. Sm., in Rec. Trav. Bot. Néerl. I (1904), 150. [50?].

Dutch New Guinea : Without specific locality details (Zippelius); Etna Bay, mangrove (J.W.R. Koch 1903 - 04).

Section : dubious

Dendrobium Amblyornidis Rchb.f., in Gard. Chr. 1878, I, 332.

Dutch New Guinea : Arfak Mountain (Beccari).

The description is not at my disposal, so I cannot judge to which section this species belongs.

Dendrobium funiforme Bl., Rumphia IV (1847), 40, t. 193, f. 5; t. 198D; Miq., Fl. Ind. Bat. III, 612.

Dutch New Guinea : Without specific locality details.

In habit this plant reminds one of several species of the section Longicollia, but it has very different flowers. It may be necessary to form a separate section for it.

Eria Lindl.

Section : Convolutae

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

Tab. XXVIII. 92.

(latin diagnosis)

Dutch New Guinea : At the Noord River, in the vicinity of the confluence with the Dumas River, on trees in Metroxylon swamps (G.M. Versteeg no. 1147, flowering in May 1907).

This species of the section Convolutae has to be placed beside E. ramuana Schltr. Initially, I thought it could probably be united with this species, but Schlechter's description is different in so many respects that there can be no question of it.

E. imbricata J.J. Sm., differs mainly in the flowers which are pilose on the outside; the plain tri-lobed labellum, inside with three, instead of one, fleshy longitudinal ridges, beginning just above the base, a three-ribbed column-foot thickened at the upper end and not at the base, and a pilose ovary.

In some cases the three ridges of the lip start at the same height above the base and in other cases this may differ.

The flowers were pallid yellowish, the column-foot violet-margined and with two violet longitudinal lines, the apex brown-

violet, and below with an orange transverse band margined with dark brown.

[Ed. - Further details of this species are given on page 139 [Type-setter please check and correct page number in the Postscript]

Eria javanica (Sw.) Bl., Rumphia II, 23; Ames, Orch. II, 193.

Eria rugosa Lindl., Gen. et Sp. Orch. 66; etc.

Dutch New Guinea : At the Noord River, on trees in Metroxylon swamps (Lorentz Expedition 1907, Djibdja no. 110, living plant); in the area between Geelvink Bay and the MacCluer Gulf (W. Den Berger 1906, living plant); near Nafri (Wichmann Expedition 1903, Djibdja no. 101h, living plant). Geographic distribution : Nusa Laut, Ceram, Ambon, Celebes, Java, Borneo, Sumatra, Singapore, Malay Peninsula, the Philippines, eastern India.

This very widespread plant must carry the above epithet. E. Pseudo-stellata Schltr. most probably belongs here also.

Section : Trichotosia

Eria paludosa J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 23.

Tab. XXIX. 93.

(latin diagnosis)

Dutch New Guinea : At the Noord River, near the confluence with the Reiger River, on trees in the primary forest (G.M. Versteeg nos 1199 and 1210, flowering in May and June 1907).

This species of the section Trichotosia is obviously very closely related to E. phaeotricha Schltr. and, if it had not been specifically stated in the description that the petals and labellum were glabrous, then one would have considered the plants identical. Apart from hairiness, E. paludosa J.J. Sm. differs in the ridges of the lip and the definitely not longish, but narrow, linear column-foot.

The possibility that the two species could be identical is therefore very slight, particularly since E. phaeotricha Schltr. was

collected at alt. c. 1100m, whilst E. paludosa J.J. Sm. grows in the plains.

The flowers are whitish with red-brown hairs.

Section : Hymenaria

Eria papuana J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 23.

Tab. XXIX. 94.

(latin diagnosis)

Dutch New Guinea : At the Noord River, at the confluence with the Reiger River, on trees in Metroxylon swamps (G.M. Versteeg no. 1208, flowering in June 1907); in the vicinity of Geluks Hill (G.M. Versteeg no. 1555, flowering in Aug. 1907).

A species of the section Hymenaria and related closest to E. flavescens Lindl., yet differing from it in thinner stems, smaller flowers and in colour. In Buitenzorg a species originating from the Kei Islands is being cultivated and while the flowers are very similar, the leaves are much broader.

There are a number of closely related species, or perhaps only varieties, grouped around E. flavescens Lindl., which still require an exact comparison,

E. oligotricha Schltr. has three only very small calli at the base of the lip, but the colouring is very similar.

The rachis and bracts of E. papuana J.J. Sm. are pale yellow-green and the sepals and petals pale yellow or greenish with red veins, the lateral lobes of the lip red or reddish and the middle lobe yellow.

Bulbophyllum Thou.

Bulbophyllum absconditum J.J. Sm. var. neo-guineense J.J. Sm., nov. var.

Tab. XXIX. 95.

(latin diagnosis)

Dutch New Guinea : At the Noord river, south of Geluks Hill, on trees in the primary forest (G.M. Versteeg no. 1514, flowering in July and Aug. 1907).

The variety differs from the Type in the non or only slightly acuminate dorsal sepal, the spatulate petals and the acuminate labellum more concave at the base.

The occurrence in New Guinea of a variety of this plant from western Java is surprising. The flowers are yellowish white.

Bulbophyllum acutilingue J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 4.

Tab. XXIX. 96.

(latin diagnosis)

Dutch New Guinea : On and in the vicinity of Nepenthes Hill, on trees in the primary forest (G.M. Versteeg nos 1303, 1389 and 1530, flowering in June and July 1907).

This species is probably most closely related to B. fruticula J.J. Sm., from which it may be distinguished by almost uncovered rhizomes with sheaths only on the younger parts, the larger, differently coloured flowers, the petals constricted above the base and a lip warty and papillose in the lower half, whilst glabrous on the underside.

The remarkable structure of this plant is similar to that of B. tortuosum Lindl. and B. perductum J.J. Sm.

A plant preserved in alcohol had a strong smell of cumarin.

Versteed described the colour of the flowers as follows:

no. 1303: Sepals white, with three narrow pale red-violet lines, the lip a muddy brown-violet and the column-foot red-violet.

no. 1389 : Flowers white, lip violet-red.

no. 1530 : Flowers yellowish green, lip brown-red and yellow towards the apex.

no. 1389 : Was preserved in alcohol and had the smaller flowers.

Bulbophyllum angustifolium (Bl.) Lindl., Gen. et Sp. Orch. 57; etc.

Dutch New Guinea : In the region between Geelvink Bay and the MacCluer Gulf (W. Den Berger 1906, living plant). Geographic distribution : Java, Sumatra.

Bulbophyllum arfakianum Krzl., in Engl. Bot. Jahrb. XXXIV (1904), 250.

Dutch New Guinea : Arfak Mountain (Beccari no. 889).

Bulbophyllum Blumei (Lindl.) J.J. Sm. var. pumilum J.J. Sm., nov.var.

Tab. XXX. 97.

(latin diagnosis)

Dutch New Guinea : Nepenthes Hill, on trees in the primary forest (G.M. Versteeg no. 1278, flowering in June 1907).

This widespread species is rather variable in dimensions but very constant in flower characteristics.

The present specimens are significantly smaller than the ones I had seen previously, and the appendages of the lateral sepals are somewhat thicker than usual.

The largest specimens I have seen originate from the Kei Islands.

The sepals are purple, more-or-less striped, the petals whitish with purple stripes, the column yellow.

Bulbophyllum bulliferum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 5.

Tab. XXX. 98.

(latin diagnosis)

Dutch New Guinea : At the Noord River, south of Geluks Hill, on trees in the primary forest (G.M. Versteeg no. 1449, flowering in July 1907).

The flowers are brown-red, the sepals greenish towards the apex and with a small black button.

Related to B. antennatum Schltr., but differing in the smaller leaves, the very long and multi-flowered inflorescences, the non-subulate

petals and in the shape of the lip.

In this species I could only detect two pollinia. In Bulbophyllum as well as in Dendrobium the normal number of pollinia is four. Frequently these are of approximately equal size, but not uncommonly the two inside ones are smaller or altogether missing. Between the extremes a whole range of transitions is found. I am aware of such deviations only in these two genera, usually the number of pollinia is a very constant characteristic.

I have seen only a solitary specimen. [of this species].
Bulbophyllum callipes J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 5.

Tab. XXX. 99.

(latin diagnosis)

Dutch New Guinea : At the Noord River, at the base of Nepenthes Hill, growing on Pandanus in Pandanus and Metroxylon swamps (G.M. Versteeg no. 1234, flowering in June 1907); Resi-Rücken, on trees in the primary forest, alt. c. 500m (G.M. Versteeg no. 1652, flowering in Aug. 1907).

This remarkable species of the section Monanthaparva has no close relationship to any of other species known to me. Most peculiar is the curved column and column-foot with only one callus. The clawed labellum, connected at the base with two lateral lobes by a transverse plate, is very characteristic.

The flowers are red-brown with an orange-coloured lip.
Bulbophyllum cryptanthum Schltr., in Schum. et Laut., Nachtr. Fl.

Deutsch. Schutzgeb. Südsee, 199.

Tab. XXXI. 100.

(latin diagnosis)

Dutch New Guinea : At the Noord River, south of Geluks Hill
 (Lorentz Expedition 1907, Djibdja no. 444, living plant.

Geographic distribution : German New Guinea.

I do not doubt that this plant is B. cryptanthum Schltr., even though the description does not fit in several aspects. The plants cultivated at Buitenzorg are smaller, have relatively broader blunter leaves, smaller petals and an ovate labellum.

The flowers look very similar to those of a small Papilionaceae.
Bulbophyllum dichotomum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 5.

Tab. XXXI. 101.

(latin diagnosis)

Dutch New Guinea : At the Noord River, south of Geluks Hill, on trees in the primary forest (G.M. Versteeg no. 1537, flowering in July 1907).

This species is strongly reminiscent in habit of B. sessile (Koen.) J.J. Sm., B. Teysmannii J.J. Sm., etc. and is probably best fitted into this affinity.

The flowers are white.

Bulbophyllum fractiflexum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 6.

Tab. XXXI. 102.

(latin diagnosis)

Dutch New Guinea : Nepenthes Hill, alt. c. 30m, on trees in poor primary forest (G.M. Versteeg no. 1295, flowering in June 1907).

In habit this species is similar to B. angustifolium Lindl., B. obtusum Lindl., B. capitatum Lindl., etc. It can, however, be distinguished readily from all these species by the prolonged pedicel with a bent, relatively large flexuose rachis, but small ovary and the undersection of the flowers all covered by bracts.

It unites the habit of these species more-or-less with the flower characteristics of the species grouped around B. sessile (Koen.) J.J. Sm.

The flowers are white.

Bulbophyllum futile J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 6.

Tab. XXXI. 103.

(latin diagnosis)

Dutch New Guinea : At the Noord River, south of Geluks Hill, epiphytic in secondary forest (G.M. Versteeg no. 1524, flowering in July 1907).

A species of the section Monanthaparva which, because of its small size, can be placed alongside B. puntjakense J.J. Sm. from Java, from which it however differs in all segments.

The description was made from a solitary specimen preserved in alcohol.

The flowers are orange-yellow.

Bulbophyllum Gerlandianum Krzl., in Engl. Bot. Jahrb. VII (1886), 437.

Dutch New Guinea : Sekar Bay (Naumann).

Bulbophyllum grandiflorum Bl. Rumphia IV, 42, t. 195, f. 3; t. 199B

(Ehippium grandiflorum Bl. in tab.). Sarcopodium grandiflorum

Lindl., in Fol. Orch. Sarc. 3.

Dutch New Guinea : Without specific locality details.

Bulbophyllum infundibuliforme J.J. Sm., in Ic. Bog. II, 103, t. CXXA.

Dutch New Guinea : At the Noord River, in the vicinity of Nepenthes Hill (G.M. Versteeg nos 1344 and 1510, flowering in July 1907). Geographic distribution : Misol, Ambon.

This species, it seems, is not uncommon in New Guinea and easily recognised. It is best fitted into the section Intervallata, although the flowers bloom one after another at short intervals.

Bulbophyllum latibrachiatum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 7.

Tab. XXXII. 104.

(latin diagnosis)

Dutch New Guinea : At the Noord River at the foot of Nepenthes Hill, on trees in Metroxylon swamps (G.M. Versteeg no. 1261, flowering in May 1907); at the mouth of the Reiger River (Djibdja no. 242, living plant).

In habit this species is rather similar to B. Versteegii J.J. Sm.; it stands about intermediate between the sections Sestochilos and Monanthaparva.

Particularly remarkable are the very long column auricles. These, unlike most which are subulate, here are broadened, linear and blunt, but like the lateral sepals in the section Cirrhopetalum they are somewhat twisted at the base causing the outwards turned sides to turn upwards towards the front.

Bulbophyllum macranthoides Krzl., in Engl. Bot. Jahrb. XXXIV (1904), 254.

Dutch New Guinea : Sorong (Döm Island) (Beccari no. 87).

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

Dutch New Guinea : Sorong (Beccari no. 486). Geographic distribution : Kei Islands.

I would not be surprised if this plant turned out to be a large flowered form of B. Blumei (Lindl.) J.J. Sm.

Bulbophyllum neo-guineense J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 7.

Tab. XXXII. 105.

(latin diagnosis)

Dutch New Guinea : In a gully in the vicinity of Nepenthes Hill, in the primary forest (G.M. Versteeg no. 1281, flowering in June 1907).

A species of the section Monanthaparva with few characteristics. It belongs to those species with a relatively large lip, long column auricles and a column-foot much thickened at the apex. It is probably

best placed beside B. violaceum Lindl. from Java.

The lateral sepals are orange, the petals translucent white with several black-purple spots, the lip with small violet-red spots and violet-red lateral lobes and the middle lobe orange at the base.

Bulbophyllum pachyacris J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 7.

Tab. XXXII. 106.

(latin diagnosis)

Dutch New Guinea : At the Noord River, at the foot of Nepenthes Hill, on trees in the primary forest (G.M. Versteeg no. 1357, flowering in July 1907).

In habit, this species reminds one of B. sessile (Koen.) J.J. Sm. and its relatives, but on account of the bright-coloured flowers and the complicated structure of the lip it belongs more to the section Monanthapava. B. tortuosum Lindl., B. perductum J.J. Sm. are similar [to this species].

The flowers have white, brown-dotted sepals and an orange-red labellum.

Only one small specimen of this species was collected.

Bulbophyllum piliferum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 8.

Tab. XXXII. 107.

(latin diagnosis)

Dutch New Guinea : Nepenthes Hill, on trees in the primary forest (G.M. Versteeg no. 1330, flowering in June 1907).

A species of the affinity of B. sessile (Koen.) J.J. Sm., which is recognised easily by the thick pointed leaves and in the sepals, terminating in a long hair.

Unfortunately, Versteeg collected only a small specimen which was preserved in alcohol.

The flowers are greenish yellow.

Bulbophyllum rostratum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 8.

Tab. XXXIII, 108.

(latin diagnosis)

Dutch New Guinea : Nepenthes Hill, on trees in the primary forest (G.M. Versteeg no. 1333, flowering in June 1907); at the Noord River, south of Geluks Hill (G.M. Versteeg no. 1562, flowering in Aug. 1907).

This species is very closely related to B. ochroleucum Schltr. and differs from this only in the much smaller flowers and the obovate more-or-less smaller flowers and the obovate more-or-less spathulate petals, warty on the inside. It is possible that B. rostratum J.J. Sm. is only a small-flowered form of B. ochroleucum Schltr.

The flowers are white.

Bulbophyllum sessile (Koen.) J.J. Sm., in Fl. Buit. VI, Orch. 448; etc.

Dutch New Guinea : Nepenthes Hill, on trees in the primary forest (G.M. Versteeg no. 1749, flowering in Sept. 1907). Geographic distribution : Java, Sumatra, Borneo, Malay Peninsula, eastern India.

This species has so far not been found east of Borneo.

Bulbophyllum spathilingue J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 9.

Tab. XXXIII. 109.

(latin diagnosis)

Dutch New Guinea : At the Noord River, in the vicinity of Wespen Creek and south of Geluks Hill, on trees in the primary forest (G.M. Versteeg nos 1380 and 1429, flowering in July 1907).

This species belongs to the section Intervallata and through its flower characteristics is easily distinguished from the other New Guinea species known at present. In habit it is very similar to

B. thrixspermiflorum J.J. Sm., but has broader leaves.

The flowers are white with purple-red markings.

Bulbophyllum spathipetalum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl.

XIX (1908), 9.

Tab. XXXIII. 110.

(latin diagnosis)

Dutch New Guinea : At the Noord River, south of Geluks Hill, on trees in the primary forest (G.M. Versteeg no. 1548, flowering in Aug. 1907).

A species of the section Monanthaparva without particular characteristic features. It is best recognised by the spatulate petals and the relatively short column auricles. Only a single specimen of this species was found and preserved in alcohol.

The sepals are orange, white at the base; the petals translucent violet with a dark violet mid-vein, the lip white outside, orange inside and with a narrow violet margin; the ovary yellowish green with red-brown lips; the stem yellowish white.

Bulbophyllum Teysmannii J.J. Sm., Orch. Amb. 79.

Dutch New Guinea : In the region between Geelvink Bay and the MacCluer Gulf (W. Den Berger 1906, living plant); on the Noord River (Lorentz Expedition 1907, Djibdja, no. 39, living plant).

Geographic distribution : Ambon.

Bulbophyllum thrixspermiflorum J.J. Sm., in Bull. Dép. Agric. Ind.

Néerl. XIX (1908), 9.

Tab. XXXIV. 111.

(latin diagnosis)

Dutch New Guinea : Nepenthes Hill, on trees in the primary forest, alt. c. 40m (G.M. Versteeg no. 1221, flowering in June 1907).

A species of the section Intervallata differing from the other related species in the greatly lengthened sepals. The petals have

the same shape as for B. biflorum T. et B.

The peduncle is black-brown, the bracts dark green; the pedicels pale green, the sepals pale green-yellow with red-brown lines, the petals almost completely red-brown, the lip yellow with red-brown lines, the column yellow.

Bulbophyllum trifilum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 10.

Tab. XXXIV. 112.

(latin diagnosis)

Dutch New Guinea : At the Noord River, south of Geluks Hill, on trees in the primary forest (G.M. Versteeg no. 1511, flowering in July 1907).

In habit, this species coincides exactly with B. dichotomum J.J. Sm., but is recognised immediately through the extended inflorescences and the long extended filamentous sepals.

Quite remarkable are the flower-pedicels, articulated at the base.

Bulbophyllum unguiculatum Rchb.f., in Linnaea XXII, 864; etc.

Dutch New Guinea : At the Noord River, south of Geluks Hill, on trees in the primary forest (G.M. Versteeg no. 1460, flowering in July 1907). Geographic distribution : Java, Sumatra, Borneo.

I surmise that B. ebulbe Schltr. is identical with this plant.

Bulbophyllum Versteegii J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 10.

Tab. XXXIV. 113.

(latin diagnosis)

Dutch New Guinea : At the Noord River, south of Geluks Hill, on trees in the forests along the river banks (G.M. Versteeg nos 1559 and 1712, flowering in Aug. and Sept. 1907).

In habit this species appears to be best fitted into the section Sestochilos. No closer relations are known to me and the species

does not have any striking floral characteristics.

The flowers are orange-yellow with red-brown dots. The flower pedicels and bracts are whitish.

Grammatophyllum Bl.

Grammatophyllum scriptum Bl., Mus. I; Rumphia IV, 48; etc.

Dutch New Guinea : Merauke (Lorentz Expedition 1907, Djibdja no. 887, living plant); in the area between Geelvink Bay and the MacCluer Gulf (W. Den Berger 1906, living plant). Geographic distribution: German New Guinea, Ambon, Buru, Ternate, the Celebes.

Dipodium R. Br.

Dipodium elatum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 22.

Tab. XXXV. 114.

(latin diagnosis)

Dutch New Guinea : Near Gelieb Village (B. Branderhorst no. 248, flowering in Nov. 1907).

This species is related closest to D. punctatum R. Br. but differs, however, in the blunt flower buds, truncate sepals, broader middle lobe with an almost flat longitudinal callus, which, in D. punctatum R. Br., is represented by two longitudinal ribs.

The inflorescences reach a height of 1.6m. The flowers as stated by the collector are white with red stripes.

Dipodium pandanum Bail. var. album J.J. Sm., nov. var.

Tab. XXXV. 115.

(latin diagnosis)

Dutch New Guinea : At the Noord River, on trees in Metroxylon swamps (G.M. Versteeg no. 1143, flowering in May 1907).

The flowers are white with a yellow column. The variety appears

to differ from the species in the colour only.

Phreatia Lindl.

Section : Ebulbosae

Phreatia bicostata J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX
(1908), 31.

Tab. XXXV. 116.

(latin diagnosis)

Dutch New Guinea : Hellwig Range, on trees in the primary forest,
alt. c. 2100m (G.M. Versteeg no. 1696, flowering in Sept. 1907).

Unfortunately, Lorentz collected only a solitary inflorescence
on the [Mount] Hellwig summit. [Ed. Versteeg was the actual collector
on the Lorentz Expedition].

It appears to me to be most closely related to P. sphaerocarpa
Schltr., and if this were so it then belongs to the section Ebulbosae
but it has, however, broader, non-pointed sepals, short clawed petals
and at the base of the claw a labellum with two short lobes. The
severe retrorse dorsal sepal is remarkable.

The flowers are white.

Phreatia bigibbosa J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908),
31.

Tab. XXXV. 117.

(latin diagnosis)

Dutch New Guinea : Summit of Resi-Rücken, on trees in the primary
forest, alt. c. 900m (G.M. Versteeg no. 1660A, flowering in Aug.
1907).

A small species of the section Ebulbosae, which is easily
recognised by the two calli of the lip-claw. Mixed up with this plant
was a solitary specimen of another species with petiolate leaves (no.
1660B), but it was, however, too withered to describe.

Phreatia breviscapa J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX
(1908), 31.

Tab. XXXVI. 118.

(latin diagnosis)

Dutch New Guinea : At the Noord River, in the vicinity of
Nepenthes Hill, on trees on the edge of Metroxylon swamps (G.M.
Versteeg no. 1233, flowering in June 1907); south of Geluks Hill,
on trees in the primary forest (G. M. Versteeg no. 1521, flowering
in July 1907).

This species is related, among others, to P. petiolata Schltr.,
however, it differs in the shorter, short-stemmed inflorescences, smaller
flowers and non-terete pedicels.

Phreatia cucullata J.J. Sm., nov. sp.

Tab. XXXVI. 119.

(latin diagnosis)

Dutch New Guinea : At the Noord River, south of Geluks Hill, on
trees in the forest along the river banks (G.M. Versteeg nos 1483
and 1531, flowering in July 1907).

This species of the section Ebulbosae seems related most closely
to P. scaphioglossa Schltr., P. platychila (Krzl.) Schltr. and
P. petiolaris Schltr. It differs from all these species in the broad
rhombic petals, furthermore from P. scaphioglossa Schltr. in the non-
crenate lip with a non-linear claw which is markedly concave; from
P. platychila (Krzl.) Schltr. in the non-circular lip-lamina; and from
P. petiolaris Schltr. in the sessile leaves and rhombic bracts.

The flowers are white.

Phreatia thelasiflora J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX
(1908), 32.

Tab. XXXVI. 120.

(latin diagnosis)

Dutch New Guinea : At the Noord River, south of Geluks Hill, on trees along the banks (G.M. Versteeg nos 1393 and 1560, flowering in July and Aug. 1907).

In habit and particularly regarding the inflorescences, this species shows great similarity to a Thelasis of the section Oxyanthera. Amongst the species of the section Ebulbosae with a not clearly spurred, more-or-less rhombic lip, this species is distinguished furthermore by the broad longitudinal callus on the underside of the lip. The inflorescences are either a little longer or shorter than the leaves.

The flowers were white and turned a muddy orange on withering.

Section : Bulbosae

Phreatia calcarata J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908),

31.

Tab. XXXVI. 121.

-(latin diagnosis)

Dutch New Guinea : At the Noord River, south of Geluks Hill, on trees in the primary forest (G.M. Versteeg no. 1478, flowering in July 1907).

This species may be identical with P. saccifera Schltr., but I have kept it separate because it differs from Schlechter's description in the very broad, ovate-triangular petals, the differently shaped lip and the rostellum extending beyond the clinandrium.

The flowers are white.

Phreatia resiana J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908),

32.

Tab. XXXVII. 122.

(latin diagnosis)

Dutch New Guinea : Resi-Rücken, on trees in the primary forest, alt. c. 500m (G.M. Versteeg no. 1685, flowering in Aug. 1907); summit of Resi-Rücken, alt. c. 900m (G.M. Versteeg no. 1663,

flowering in Aug. 1907).

This interesting species is related closely to P. saccifera Schltr. and P. calcarata J.J. Sm., but differs from both in its smaller size, petiolate leaves, smaller flowers and in flower characteristics.

The flowers are white.

I do not believe it is desirable to separate the Phreatia [species] with a spurred lip, as a separate genus. They coincide in all parts so exactly with other Phreatia and amongst these are several species with more-or-less concave or serrated lip-spurs, so that the existence of a spur seem to me here to be too insignificant a characteristic to establish a new genus.

Podochilus Bl.

Podochilus densiflorus Bl., Rumphia IV, 44, t. 192; 5. t. 200B; Lindl., in Jour. Linn. Soc. Bot. III (1859), 37; Miq., Fl. Ind. Bat. III (1855), 687; Schltr., in Mém. Herb. Boiss. (1900), no. 21, 14.

Dutch New Guinea : In the south-west region (Zippelius).

Podochilus imitans Schltr., in Schum. et Laut., Nachtr. Fl. Deutsch. Schutzgeb. Südsee. 118.

Tab. XXXVII. 123.

(latin diagnosis)

Dutch New Guinea : At the Noord River, at the confluence of the Reiger River, epiphytic in Metroxylon swamps (G.M. Versteeg no. 1164, flowering in May 1907; Djibdja no. 173, living plant); north of Nepenthes Hill, on trees in the primary forest (G.M. Versteeg no. 1552A, flowering in Aug. 1907).

The description of P. imitans Schltr. does not match all aspects of the plants that I examined. Therefore, I examined a bud of the sparse authentic material at the Buitenzorg Herbarium and now I do not doubt that my plant is P. imitans Schltr., even though the inflor-

escences are somewhat denser, the bracts and flowers somewhat smaller and also several other deviations occur. The labellum, however, is even, if somewhat slimmer and narrowed at the apex, just as clearly tri-lobed, the rostellum in three parts (the tooth described by Schlechter is not located at the lower edge of the stigma, but belongs to the rostellum) and the viscid mass in two sections, as for Versteeg's plants. The petals were appreciably narrower and hardly spathulate which can be attributed perhaps to their not being completely developed. In Versteeg's plants they are also narrower than in the opened flower.

The species is closely related to P. lucescens Bl. According to Schlechter the flowers are white.

Podochilus longipes J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 34.

Tab. XXXVII. 124.

(latin diagnosis)

Dutch New Guinea : At the Noord River, on trees in the Metroxylon swamps (G.M. Versteeg no. 1142, flowering in May 1907); Nepenthes Hill, on trees in the primary forest (G.M. Versteeg no. 1332, flowering in June 1907).

forma brevicalcaratus

Tab. XXXVII. 125.

(latin diagnosis)

Dutch New Guinea : At the Noord River, south of Geluks Hill, on trees in the secondary forest (G.M. Versteeg no. 1552, flowering in Aug. 1907).

This species is related to P. sciuriodes Rchb.f., P. Smithianus Schltr., P. appendiculatus J.J. Sm., etc. With the last-named species particularly, the flowers show much similarity, but the labellum is differently formed. The much extended column-foot and the anther are noteworthy.

In the forma brevicalcaratus the column-foot and accordingly the labellum are considerably shorter. The remaining segments of the plants, however, are completely similar to each other.

The flowers are white with purple markings.

Podochilus scapelliformis Bl., Rumphia, IV, 45, t. 194, f. 4; t. 200C; Miq., Fl. Ind. Bat. III, 688; Schltr., in Mem. Herb. Boiss. (1900), no. 21, 16.

Dutch New Guinea : At the Noord River, south of Geluks Hill (Lorentz Expedition 1907, Djibdja no. 466, living plant); MacCluer Gulf and Sekar Bay (Naumann); in the south-west region (Zippelius).
Geographic distribution : German New Guinea, Moluccas.

Appendicula Bl.

Appendicula applicata J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 3.

Tab. XXXVIII. 126.

(latin diagnosis)

Dutch New Guinea : Bivak Island, on trees in the primary forest (G.M. Versteeg no. 1091, flowering in April 1907).

This species is, in many respects, so similar to Podochilus polystachyus Schltr., and I am establishing a new species only with a certain hesitation. According to the description, however, the differences are too large to have the plants declared identical without having seen comparative material.

A. applicata J.J. Sm. differs in the appreciably shorter leaves, the long stalked inflorescences reaching beyond the leaves (the last characteristic can change, however, through subsequent branching), but particularly through the lip which is not narrowed, but broadened at the base of the pollinia, which have two caudicles attached.

The very wide column-foot is remarkable, so is the strongly

protruding lower margin of the stigma, which probably is related to fertilization. Schlechter does not mention any of these aspects in his description of P. polystachyus Schltr.

The flowers are green with a purple tinge, the lip greenish white, and the column purple.

Appendicula callifera J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 3.

Tab. XXXVIII. 127.

(latin diagnosis)

Dutch New Guinea : At the Noord River, on trees in the forest along the river banks (G.M. Versteeg no. 1369, flowering in July 1907); south of Geluks Hill (Djibdja no. 818, living plant).

This species belongs to the affinity of A. cornuta Bl., A. pilosa Krzl. and A. papuana Krzl. A. pilosa Krzl., in other respects, differs in the pointed, antrorse, labellum apex and the hirsute column; A. cornuta Bl. in the very wide more-or-less convex mentum, the lip very wide at the base and the shape of the callus on the lip-lamina; A. papuana Krzl., finally, in the large extraordinary horse-shoe-shaped appendages and the complete absence of a callus formation on the lip-lamina.

Appendicula oxysepala J.J. Sm. [comb. nov.]

Pódochilus oxysepalus Schltr., in Schum. et Laut., Nachtr. Fl. Deutsch. Schutzgeb. Südsee, 120.

Tab. XXXVIII. 128.

(latin diagnosis)

Dutch New Guinea : At the Noord River, at the confluence with the Reiger River, on trees in Metroxylon swamps (G.M. Versteeg no. 1213, flowering in June 1907); south of Geluks Hill, on trees in the secondary forest (G.M. Versteeg no. 1578, flowering in Aug. 1907).

When I had examined Versteeg's nos 1213, 1272 and 1578, I believed initially that I was dealing with two new species, closely related to Appendicula disticha Ridl. and Podochilus oxysepalus Schltr. They differ completely from both the named species in the large, longish anther which is not square. However, it became evident that the authentic specimen of Podochilus oxysepalus Schltr. in the Buitenzorg (from the Torricelli Range no. 14350) is identical with nos 1213 and 1578, but Schlechter's specimen is weak and has a fairly lax inflorescence, while Versteeg's plants are strong and have long, dense spikes. Schlechter's Type has also a longish anther, a relatively short mentum and a square extirpated rostellum and entire margined bracts of which only the lower ones are slightly denticulate. Although Schlechter's description deviates in several aspects from the authentic specimen, Versteeg's nos 1213 and 1578 should be regarded as Podochilus oxysepalus Schltr.

Possible differences between the Torricelli and the Beining Ranges specimens will still have to be investigated. The rostellum is described as tri-lobed, which is the case also with my var. longicalcarata J.J. Sm., where the short middle section is not cut short, but rounded off.

Schlechter does not mention in his description that the lip is adnate to the column-foot, nor the callus at the base of the column-foot, although this is shown in his sketch.

From its description A. disticha Ridl. differs from A. oxysepala (Schltr.) J.J. Sm. in the smaller flowers, the very short mentum, the square anther, the four pollinia and the extirpated rostellum which is not quadrate. A new precise examination of this plant is very desirable and I hardly doubt that here also at least the existence of six pollinia will be established.

The flowers are white with a purple column.

var. longicalcarata J.J. Sm., nov. var.

Tab. XXXIX. 129.

(latin diagnosis)

Dutch New Guinea : In a gully at Nepenthes Hill (G.M. Versteeg no. 1272, flowering in June 1907).

This plant, of which Versteeg found unfortunately only a solitary specimen, differs in the description and illustration in several respects from Appendicula oxysepala (Schltr.) J.J. Sm. However, it is so similar to this species that I can only consider it as a variety. It differs from the Type through the strongly ciliated bracts, the significantly longer mentum extending beyond the ovary, the longer lip-claw and the rounded off middle lobe of the rostellum.

The flowers are white with a purple transverse marking on the lip.
Appendicula palustris J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 4.

Tab. XXXIX. 130.

(latin diagnosis)

Dutch New Guinea : At the mouth of the Reiger River in Metroxylon swamps, growing terrestrially (G.M. Versteeg no. 1157, flowering in May 1907).

This species belongs to the affinity of A. pendula Bl. and stands very close to Podochilus dendrobioides Schltr. It differs, however, according to the description in the somewhat smaller flowers, the clearly spathulate petals, the thick fleshy horse-shoe-shaped appendages whose margins do not extend on to the margins of the lip, but continue into the longitudinal calli, extending approximately to the middle of the lamina, the small callus underneath the apex of the labellum and in the pollinia to which two stipes are attached.

The authentic specimen of P. dendrobioides Schltr. in the Buitenzorg Herbarium is without flowers, thus comparison serves no purpose.

The flowers are yellowish white, the column white and purple-spotted below and above.

forma angusta

Tab. XXXIX. 131.

(latin diagnosis)

Dutch New Guinea : Wespen Creek, on trees in the primary forest (G.M. Versteeg no. 1378, flowering in July 1907); Geluks Hill (G.M. Versteeg no. 1601, flowering in Aug. 1907).

The variety differs from the Type in the narrower leaves and the floral segments.

The flowers are yellowish green, the lip white with two small purple spots and the column is also purple-spotted.

Appendicula pendula Bl. var. Chalmersiana J.J. Sm. - A. Chalmersiana

F.v.M., in Wings South.Sc. Rec. I. (n.s.), 1885. - Podochilus pendulus Schltr. (p.p.), in Mém. Herb. Boiss. (1900), n. 21, 48.

Tab. XL. 132.

(latin diagnosis)

Dutch New Guinea : At the Noord River, on trees in Metroxylon swamps (G.M. Versteeg no. 1240, flowering in June 1907); Nepenthes Hill (Djibdja no. 369, living plant). Geographic distribution : British New Guinea.

This plant is without doubt A. Chalmersiana F.v.M. which Schlechter united with A. pendula Bl. In my opinion, however, it is better to separate it as a variety.

It differs from A. pendula Bl. in the shorter, very blunt (in A. pendula Bl. they are long and acuminate and only once at Tjibodas did I find a specimen with blunt leaves), rounded-off, bi-lobed and towards the apices small crenate leaves, the longer inflorescences with broader retrorse bracts, the broader petals, the longer horse-shoe-shaped appendages of the lip, the longer anther, rostellum and column-foot.

The plant described by Ridley in Jour. Linn. Soc. Bot. XXXI, 301, as A. pendula Bl., and cultivated at Buitenzorg, is very similar in habit to var. Chalmersiana J.J. Sm. The flowers have, however, a shorter rostellum and column-foot and therefore agree closer with the Type.

Appendicula penicillata Bl., Rumphia IV, 46, t. 195, f. 4; t. 200D; Miq.,

Fl. Ind. Bat. III (1855), 702. - Podochilus penicillatus Schltr., in Mém. Herb. Boiss. (1900) n. 21, 50.

Dutch New Guinea : In the south-west region (Zippelius)?;

MacCluer Gulf (Naumann).

Appendicula reflexa Bl., Bijdr. 301; etc.

Tab. XL 133.

Dutch New Guinea : At the Noord River (Djibdja no. 842, living plant). Geographic distribution : German New Guinea, Ambon, Celebes, Borneo, Java, Sumatra, Malay Peninsula.

Living plants of this species were imported to Buitenzorg and soon started to flower; all the flowers being cleistogamous. As often the case in such transformations, the column, column-foot and lip in particular were considerably shortened. The lip was almost circular in outline also the claw in particular and accordingly the horse-shoe-shaped appendages were greatly reduced. The rostellum was represented only by a small tooth which could not prevent the pollinia from reaching the stigma. The raised lower margin of the stigma was less pronounced than in a normal bloom and was broad and significantly tri-dentate.

The definition of the species is not in doubt and all features were existing, but the individual parts were more-or-less modified.

Appendicula Steffensiana J.J. Sm. [comb. nov.]

Podochilus Steffensianus Schltr., in Schum et Laut., Nachtr. Fl. Deutsch. Schutzgeb. Südsee, 124.

Tab. XL 134.

Dutch New Guinea : In the vicinity of the Noord River, south of

Geluks Hill (G.M. Versteeg nos 1420 and 1567, flowering in July and Aug. 1907); Resi-Rücken, alt. c. 500m (G.M. Versteeg no. 1651, flowering in Aug. 1907), epiphytic in the primary forest. Geographic distribution : German New Guinea.

A plant evidently very widespread in New Guinea. It is possible that Blume's Appendicula penicillata is this species, although his illustration would then not be very true to nature. It appears likely that he saw only a young plant.

Acriopsis Reinw.

Acriopsis javanica Reinw., Fl. Lit. II, 4; Syllog. Ratisb. 1828; etc.

Dutch New Guinea : At the Noord River, near Bivak Island, epiphytic on Pandanus (G.M. Versteeg no. 1069, flowering in May 1907); at Pandanus Creek, likewise on Pandanus (G.M. Versteeg no. 1114, flowering in May 1907).

Geographic distribution : German New Guinea, Malay Archipelago and Peninsula, the Philippines, Tenasserim.

Luisia Gaud.

Luisia Beccarii Rchb.f., in Bot. Centralbl. XXVIII (1886), 344.

Dutch New Guinea : In the north-west region (Beccari).

Phalaenopsis Bl.

Phalaenopsis amabilis Bl., Bijdr. 294, f. 44: Rumphia IV, 52, t. 194, 199A; etc.

Dutch New Guinea : At the Noord River, near Regen Island (G.M. Versteeg no. 1797, flowering in Oct. 1907).

Geographic distribution : Ambon, Buru, Celebes, Java, Borneo, the Philippines.

Sarcochilus R. Br.

Sarcochilus Beccarii F.v.M., Descript. Not. Pap. Pl. IX (1890), 66-

Thrixspermum Beccarii Rchb.f., in Bot. Centralbl. XXVIII (1886),
343.

Dutch New Guinea : In the north-west region (Beccari).

Sarcochilus platyphyllus F.v.M., Descript. Not. Pap. Pl. IX (1890),

66. - S. keyensis J.J. Sm., in Ic. Bog. III (1906), 49, t. CCXIX. -
Thrixspermum platyphyllum Rchb.f., in Bot. Centralbl. XXVIII (1886),
343.

Dutch New Guinea : In the north-west region (Beccari) ; at the
Noord River, south of Geluks Hill, on trees in the primary forest
(Lorentz Expedition 1907, Djibdja no. 819, living plant); without
specific locality details (Wichmann Expedition 1903, Djibdja no.
98h, living plant); in the region between Geelvink Bay and the
MacCluer Gulf (W. Den Berger 1906, living plant). Geographic
distribution : Kei islands.

I believe that S. keyensis J.J. Sm. should be united with
S. platyphyllus F.v.M.

Sarcochilus ramuanum Schltr., in Schum. et. Laut., Nachtr. Fl. Deutsch.

Schutzgeb. Südsee, 232. - S. Englerianum Krzl., in Schum et Laut.,
Nachtr. Fl. Deutsch. Schutzgeb. Südsee, 232. - Renanthera ramuana
Krzl., l.c.

Tab. XLI. 135.

Dutch New Guinea : On the hills south of Geluks Hill, on trees
in the primary forest (Lorentz Expedition 1907, Djibdja no. 445,
living plant); in the forest, near Gelieb (B. Branderhorst 1907,
no. 1902); Merauke River (Jaheri 1901, no. 57n, living plant).
Geographic distribution : German New Guinea.

Thrixspermum Lour.

Thrixspermum validum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX
(1908), 37.

Tab. XLI. 136.

(latin diagnosis)

Dutch New Guinea : At the Noord River, south of Geluks Hill, on trees in the secondary forest (G.M. Versteeg no. 1724, flowering in Sept. 1907).

This species, among the relatives of T. arachnites Rchb.f., belongs to the large-foliated species and in this respect exceeds only slightly both the related species T. neo-hibernicum Schltr. and T. xantholeucum Schltr.

The flowers of these three species vary little in size.

Because the species of this affinity are similar to one another and the descriptions do not fit the present species in several respects, I have to regard them as new.

It appears that T. validum differs from both of Schlechter's named species in the much longer inflorescences and rather large callus which is not bi-lobed and is somewhat below the middle of the lip. With T. xantholeucum Schltr., the whole inflorescence measures only 21 cm, but with T. neo-hibernicum Schltr. it is only stated that it extends beyond the leaves. In addition, T. neo-hibernicum Schltr. is characterized by longer lateral lobes and T. xantholeucum Schltr., by the lanceolate, not broad triangular middle lobe.

The sepals and petals are yellow, the lower part of the lip pale yellow with brown dots and the middle lobe white.

Vanda R.Br.

Vanda truncata J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 38.

Tab. XLI. 137.

(latin diagnosis)

Dutch New Guinea : Merauke River (Jaheri 1901, living plant).

This plant is a close relative of V. furva Lindl., however, I believe the differences are large enough to consider it as a separate species.

On the middle lobe of the lip of V. truncata J.J. Sm. there are seven continuous longitudinal ribs extending far to the front, the two lateral ones being less distinct. The little foot-lobe of the middle lobe on V. truncata J.J.Sm. is larger, ovate-triangular and more-or-less pointed, but in V. furva Lindl. is rounded off. The middle lobe of V. truncata J.J. Sm. is quadrate and appreciably smaller than in V. furva Lindl. In addition the column in V. truncata J.J. Sm. is longer and the colour different.

The flowers of the new species have at the same time the fragrance of soap and cinnamon and are modestly beautiful.

Vandopsis Pfitz.

Vandopsis Beccarii J.J. Sm. [comb. nov.]

Arachnis Beccarii Rchb.f., in Bot. Centralbl. XXVIII (1886), 343.

Dutch New Guinea : In the north-west region (Beccari).

Although I am not completely sure, I think it most probable that this plant is a Vandopsis. It is possible that Reichenbach's species could be identical with Vandopsis Warocqueana (Rolfe) Schltr., and in this instance Reichenbach's name would be the oldest one.

Vandopsis Warocqueana Schltr., in Schum. et Laut., Nachtr. Fl. Deutsch.

Schutzgeb. Südsee, 225. - Stauroopsis Warocqueana Rolfe, in

Lindenia, 1892, t. 312. - Cleisostoma Hansemannii Krzl., in Österr.

Bot. Zeitschr. XLIV (1894), 254.

Tab. XLII. 138.

(latin diagnosis)

Dutch New Guinea : Without specific locality details (Meyer).

Geographic distribution : German New Guinea.

Sarcanthus Lindl.

Sarcanthus bicornis J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX
(1908) 35.

Tab. XLII. 139.

(latin diagnosis)

Dutch New Guinea : At the Noord River, near Bivouac Island, on
Pandanus in Metroxylon swamps (G.M. Versteeg no. 1077, flowering
in May 1907). Geographic distribution : Aru Islands (Djibdja no.
843, living plant).

Among the species of the genus with an unchambered spur, the present
one is characterized by the rather long lobes of the lip, the long
column with a callus extending into a small horn on either side. This
callus is reminiscent chiefly of Saccolabium Machadonis Ridl. (Journ.
Roy. Asiat. Soc. Straits Br. XXXIX, 82; Mat. Fl. Mal. Penins. I, 163)
and probably also of Cleisostoma teretifolium T. et B. (Nat. Tijdschr.
Ned. Ind. XXVI, 1864, 20), but is, however, in all other parts very
different from this species.

I have previously used the name Sarcanthus; refer to the comment
under Saccolabium squamulosum J.J. Sm.

Sarcanthus praealtus Rchb.f, in Bot. Centralbl. XXVIII (1886), 344.

Dutch New Guinea : In the north-west region (Beccari).

Cleisostoma Bl.

Cleisostoma firmulum Rchb.f, in Bot. Centralbl. XXVIII (1886), 344.

Dutch New Guinea : In the north-west region (Beccari).

Cleisostima Koordersii Rolfe, in Kew Bull. 1889, 131; J.J. Sm., Orch.
Amb. 104.

Dutch New Guinea : Merauke River (Jaheri 1901, no. 54h, living

plant). Geographic distribution : Ambon, Obi, Celebes.

Cleisostoma sagittatum Bl., Bijdr. 363, f. 27; etc.

Dutch New Guinea : MacCluer Gulf (Naumann).

Kränzlin's description of this plant is probably not correct.

Trichoglottis Bl.

Trichoglottis celebica Rolfe, in Kew Bull. (1899), 130.

Dutch New Guinea : At the Noord River (Lorentz Expedition 1907, Djibdja no. 76, living plant); in the vicinity of Nepenthes Hill, epiphytic in Pandanus and Metroxylon swamps (G.M. Versteeg no. 1242, flowering in June 1907). Geographic distribution : Celebes, Borneo, Java.

The plant from New Guinea differs from the Type in the narrower leaves.

Trichoglottis flexuosa Rolfe, in Ames Orch. I, 107; II, 257.

Tab. XLII. 140.

(latin diagnosis)

Dutch New Guinea : At the Noord River, south of Geluks Hill (Lorentz Expedition 1907, Djibdja no. 492, living plant).

Geographic distribution : the Philippines.

This plant agrees very well with T. flexuosa Rolfe. At the moment, living plants of this species are not at my disposal, so I have to leave it undecided at present whether the plant from New Guinea should possibly be separated as a variety. The spur appears relatively narrower and the colour less vivid than for the Type.

T. littoralis Schltr. is surely related, but differs in the blunt bi-lobed leaves, longer inflorescences, differently coloured flowers, longish square lateral lobes, etc.

Taeniophyllum Bl.

Taeniophyllum arachnites J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX
(1908), 36.

Tab. XLIII. 141.

(latin diagnosis)

Dutch New Guinea : At the Noord River, at the confluence with the Reiger River, epiphytic in Metroxylon swamps (G.M. Versteeg no. 1201, flowering in June 1907).

From the size of the flowers, this species can be placed alongside T. grandiflorum Schltr. and T. fimbriatum J.J. Sm. It is at once distinguished from T. grandiflorum Schltr. by the rounded-off lateral lobes, much longer middle lobe and a much shorter spur and from T. fimbriatum J.J. Sm. by the petals which are non-ciliate, and a distinct tri-lobed labellum with calli.

Unfortunately, only a solitary specimen was collected.

The flowers are pallid yellowish.

Taeniophyllum crenatum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX
(1908), 36.

Tab. XLIII. 142.

(latin diagnosis)

Dutch New Guinea : At the Noord River, in the vicinity of Nepenthes Hill, epiphytic in Pandanus and Metroxylon swamps (G.M. Versteeg no. 1370, flowering in July 1907).

It appears best to compare this species with T. pulvinatum Schltr., but from which, however, it differs in the very numerous and very crowded flowers with the middle lobes adorned with smaller pointed lobes, and in the shorter spur.

In the inflorescence, the species is very reminiscent of T. filiforme J.J. Sm. The flowers are yellow.

Taeniophyllum excavatum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl.

XIX (1908), 36.

Tab. XLIII. 143.

(latin diagnosis)

Dutch New Guinea : At the Noord River, south of Geluks Hill, on trees in the primary forest (G.M. Versteeg no. 1445, flowering in July 1907).

This species is clearly related closely to T. platyrhizum Schltr. and T. torricellense Schltr., but differing in the short bracts which are not retrorse, a round viscid disc, and apparently in the colour. In addition, from T. platyrhizum Schltr. in the large crenate lateral lobes and a middle lobe with a marked depression extending downwards.

The material was very sparse in flowers and the alcohol-preserved flower very delicate. Although I believe my description is correct, it would be desirable to examine closer the connection of the ridges at the base of the lip lamina.

The hairiness of the inflorescences in a dry condition is not black, but here also between the hairs the already mentioned black fungus exists.

The sepals and petals were orange, the lip white, orange-yellow below at the centre, the spur yellow and the anther white.

Taeniophyllum fimbriatum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 37.

Tab. XLIII. 144.

(latin diagnosis)

Dutch New Guinea : At the Noord River, in the vicinity of Nepenthes Hill, epiphytic in Pandanus and Metroxylon swamps (G.M. Versteeg no. 1317, flowering in June 1907).

The flowers are somewhat larger than for T. grandiflorum Schltr. The labellum of both species is very different. The description was made from a solitary, already withered flower. The colour of the

flowers is a pallid yellow.

Taeniophyllum paludosum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX
(1908), 37.

Tab. XLIV. 145.

(latin diagnosis)

Dutch New Guinea : At the Noord River, south of Nepenthes Hill,
epiphytic in Pandanus and Metroxylon swamps (G.M. Versteeg no.
1371, flowering in July 1907).

This species is rather similar to T. fimbriatum J.J. Sm. in the
shape of the lip, but recognised immediately in the much smaller flowers
and in the non-ciliate petals. The flowers are yellowish green.

Geissanthera Schltr.

Geissanthera tubulosa J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX
(1908), 24.

Tab. XLIV. 146.

(latin diagnosis)

Dutch New Guinea : Nepenthes Hill, on trees in the primary forest,
on sandstone ground (G.M. Versteeg no. 1292, flowering in June
1907).

It differs from G. papuana Schltr. in the much smaller bracts,
the sepals and petals grown to form a tube, and in the labellum. The
flowers are pale green.

The genus Geissanthera Schltr. belongs together with Microtatorchis
Schltr. to the close relationship of Taeniophyllum Bl., not Saccolabium
Bl. as Schlechter states. They differ essentially from the latter in
having only two pollinia. Geissanthera Schltr. appears only recognis-
able from the caudicle appendages on the bracts. The column for
Microtatorchis Schltr. is not described but appears, if the illustration
is correct, to be divided as in Geissanthera Schltr. This feature

occurs, however, also in Taeniophyllum Bl. and for example in T. glandulosum Bl. is more developed than in Geissanthera Schltr. In T. obtusum Bl. the column has two broader auricles inside the stigmatic lobes which is a transition towards the kidney-like stigma of T. filiforme J.J. Sm., and the non-lobed transverse oval stigma of T. Hasseltii Rchb.f.

The floral structures of Taeniophyllum grandulosum Bl., Geissanthera tubulosa J.J. Sm. and Microtatorchis pusilla Schltr. are strikingly similar to each other.

[Ed. - Schlechter obviously had second thoughts on this matter. On p. 998 of his 'Die Orchidaceen von Deutsch-Neu-Guinea' he states : 'some time ago (Fedde, Repert. IX (1911) p. 112) I found it necessary to combine under the first name the genera Microtatorchis Schltr. and Geissanthera Schltr., described by me in the year 1905']

Saccolabium Bl.

Saccolabium calopteryum Rchb.f., in Gard. Chr. (1882), II, 520.

S. Schleinitzianum Krzl., in Engl. Bot. Jahrb. VII (1886), 440.

Dutch New Guinea : Sekar Bay (Naumann).

This is very closely related to Cleisostoma cryptochilum F.v.M., but the lip has extended lateral lobes.

Saccolabium palustre J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 35.

Tab. XLIV. 147.

(latin diagnosis)

Dutch New Guinea : At the Noord River, south of Nepenthes Hill, epiphytic in Pandanus and Metroxylon swamps (G.M. Versteeg no. 1347, flowering in July 1907; Djibdja no. 419, living plant).

The closest relatives of this species are S. Witteanum Rchb.f., S. undulatum Ridl., S. insectiferum J.J. Sm. and S. cladophylax Schltr.

S. Witteanum Rchb.f. has extended inflorescences, larger flowers, and a broader spur compressed at the back.

S. undulatum Ridl. was first described in 'Journ. Bot. 1900, 72'; where it is stated that the spur is broadened in the middle. Later in 'Mater. Fl. Mal. Penins. I, 170' the spur is described as almost cylindrical. In any case, the plant appears to have larger leaves and smaller flowers than S. palustre J.J. Sm.

S. insectiferum J.J. Sm. is distinguished by a much shorter horizontal spur, compressed at the back and larger pollinia in relation to the caudicles.

S. cladophylax Schltr. is distinguished by the upright inflorescences which are very striking in the group; the truncated lateral lobes and a very wide spur.

The species of this group appear particularly variable in the shape of the spur and otherwise one could consider the different shapes as species. The question as to which is the correct interpretation will only be decided when further material is examined. All species appear, as a rule, to occur only sporadically.

Saccolabium squamulosum J. J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 35.

Tab. XLIV. 148.

(latin diagnosis)

Dutch New Guinea : At the Noord River, south of Nepenthes Hill, epiphytic in Pandanus and Metroxylon swamps (G.M. Versteeg no. 1779, flowering in Oct. 1907; Djibdja no. 873, living plant).

A plant which came into flower at Buitenzorg had flowers coloured as I described above; according to Versteeg they are orange with brown dots and an almost white column.

The closest relatives of this species are Cleisostoma spathulatum Bl. (C. spicatum Lindl.), Saccolabium ascendens Gaud., S. Mooreanum Rolfe,

S. amboinense J.J. Sm. and S. gracilistipes Schltr.

Cleisostoma spathulatum Bl. differs from this species in a distinct four-ribbed spur truncated at the apex whilst Saccolabium ascendens Gaud. and S. Mooreanum Rolfe, which appear very similar in floral construction, differ in a hardly bent spur, rounded off lateral lobes, broad petals, the first [S. ascendens Gaud.], in addition, through a blunt anther, the second through the broad caudicle of the pollinia and a large viscid-disc. S. amboinense J.J. Sm. differs in the larger flowers and pointed lateral lobes and S. gracilistipes Schltr. in the completely glabrous flowers and inflorescence, the non-linear but shortened square lateral lobes and the spur which is hardly bent.

According to Schlechter, S. camptocentrum Schltr. belongs also to the affinity of S. Mooreanum Rolfe, but differs in the glabrous flowers and a differently shaped labellum. All these species are closely inter-related. Most of them were described as Saccolabium, although they have nothing to do with Blume's Type of the genus. The oldest species was alternately described as Cleisostoma, Saccolabium and Sarcanthus, although the features as now defined agree with none of those genera very well.

The most outstanding features of the group are: the lateral lobes of the lip short; the middle lobe stretched forward, clearly developed and carinose; the spur relatively long, in the middle more-or-less constricted, broadened at the apex, inside on the back with a vee-shaped appendage scarcely protruding and on the lower side a more-or-less callus-like thickening. The column is like that in Trichoglottis with two protruding more-or-less tooth-shaped auricles. Pollinia two, grooved, on a spathulate caudicle.

As I pointed out earlier a large uncertainty exists regarding the limits of the genus Saccolabium; it has become a kind of refuge for those monopodial species which could not be fitted into any other

genus. The matter has not improved recently when Sarcanthus and Cleisostoma are still regarded as Saccolabium. If one followed this practice then surely Trichoglottis and several other genera would not stand.

The genera Cleisostoma and Sarcanthus are also incorrectly named. Cleisostoma Bl. is of older origin than Sarcanthus Lindl., however, both genera (perhaps excluding the deviating C. spathulatum Bl.) agree completely, as clearly seen from the diagnoses and the species initially included by the authors. The genus Sarcanthus therefore should become a synonym of Cleisostoma and those species described by Lindley and others later on and which differ from Blume's Cleisostoma should receive new names.

I consider that the above-mentioned species grouped around Cleisostoma spathulatum Bl. are best regarded as a separate genus. As is well known, most genera of the Sarcanthinae differ from each other only in relatively small features. Without having made an exact study of all species of the respective genera, it appears undesirable at present to make any partial name changes.

[Ed. - Both Schlechter and J.J. Smith were in general agreement that action was required to better separate the heteromorphic group surrounding Saccolabium and both made contributions to this subject.

References include :

Smith J.J. (1912) Natuurk. Tijdschr. Néderl. Ind. LXXII, 1912, p.26.

Schlechter R. (1913) Die Orchidaceen von Deutsch-Neu-Guinea ' pp.
974 - 992.

Smith J.J. (1914) Bull. Jard. Bot. Buitenz. 2e ser. XIV (1914),
p. 150.]

Postscript

Peristylus remotifolius J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXII
[1909], 2.

Tab. XLV. 149.

(latin diagnosis)

Dutch New Guinea : South of Geluks Hill (Lorentz Expedition 1907,
Djibdja no. 380, living plant).

The description was made from a living plant introduced to
Buitenzorg.

The description of Habenaria papuana Krzl. (which is probably a
Peristylus) fits this species very well. However, in that case the
leaves at the end of the stem beneath the inflorescence are closely
crowded, the spur is pointed and Kränzlin does not mention the large
antrorse, column auricles. It therefore appears to me best to keep
the plants separate.

Habenaria dryadum Schltr., in Fedde. Repert. III (1906), 60. — H. epiphylla

Schltr. (non Rchb.f.) in Schum. et Laut. Nachtr. Fl. Deutsch.

Schutzgeb. Südsee, 78; J.J. Sm., in Nova Guinea VIII, 6. t. 2, f.4.

Because of the older H. epiphylla Rchb.f. from Brazil it seemed
necessary for Schlechter to re-name his species.

Habenaria Rumphii Lindl. var. meraukensis J.J. Sm., in Bull. Dép. Agric.

Ind. Néerl. XXII [1909], 6.

Tab. XLV. 150.

(latin diagnosis)

Dutch New Guinea : Merauke (B. Branderhorst no. 301, flowering in
Feb. 1908).

After comparing this plant with several specimens of H. Rumphii
Lindl., originating from Ambon, I believe this has to be considered as

a variety and not an individual species, even though the differences are fairly marked. The variety is larger and has, according to the collector, violet flowers. The petals and sepals in each plant are of about equal size, but the lip-lamina in the variety is considerably smaller, while the spur is considerably longer and the ovarium almost equally long.

H. Dahliana Krzl. and H. stauroglossa Krzl. which Schlechter united with H. Rumphii Lindl., according to the descriptions, stand closer to the Type than the variety. However, H. Dahliana Krzl. has rose-red flowers.

Lecanorchis javanica Bl., Mus. Bot. Lugd. Bat. II, 188; Fl. Jav. Orch.

150, t. 63, f. I, t. 66A; Miq., Fl. Ind. Bat. III, 718; J.J. Sm., in Fl. Buit. VI, Orch. 62; Atlas f. XL. - L. triloba J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 26; in Nova Guinea VIII, 10, t. III, f. 9.

Bernard was kind enough to put at my disposal flowering material of the species from Java. This established that L. triloba J.J. Sm. is not specifically different, since Blume had described and illustrated the flowers incorrectly.

Coelogyne Beccarii Rchb.f., in Bot. Centralbl. XXVIII (1886), 345;

Pfütz. et Krzl., in Engl. Pflanzenr. IV, 50 (1907), 32.

Tab. XLV. 151.

(latin diagnosis)

Dutch New Guinea : (Lorentz Expedition 1907, Djibdja no. 839, living plant at the Botanical Garden at Buitenzorg, flowering in Jan. 1909).

A very characteristic species to which Reichenbach's short description fits very well, hence the definition is not in doubt.

Oberonia cuneata J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXII [1909],
18.

Tab. XLVI. 152.

(latin diagnosis)

Dutch New Guinea : At the Noord River (Lorentz Expedition 1907,
Djibdja no. 43, living plant).

Among the Papuan species with prolonged stems, this species is
distinguished by the broader, cuneate, obovate, rough denticulate
petals and the narrow lip.

The description was made from a plant cultivated at Buitenzorg
which flowered in Dec. 1908.

Microstylis Rhinoceros J.J. Sm., in Bull. Dép. Agric. Ind. Néerl.
XXII [1909], 21.

Tab. XLVI. 153.

(latin diagnosis)

Dutch New Guinea : South of Geluks Hill (Lorentz Expedition
1907, Djibdja no. 385, living plant).

Finet based the genus Pseudoliparis on Microstylis epiphytica
Schltr., but I have already tried to prove on p. 29 [type setter please
note number to be revised] that it is not a genus separate from
Microstylis. However, the name may be retained as a section.

As far as I know at present the following species belong to the
section Pseudoliparis (Finet) J.J. Sm. :

M. moluccana J.J. Sm. together with var. sagittata J.J. Sm.

M. tubulosa J.J. Sm.

M. dryadum Schltr.

M. epiphytica Schltr.

M. Schumanniana Schltr.

M. incurva J.J. Sm.

M. Rhinoceros J.J. Sm.

The latter species is probably most closely related to M. tubulosa J.J. Sm. and M. incurva J.J. Sm.; it is, however, a smaller plant with pale green leaves, a conical, carnose little horn at the base of the column, a bi-dentate auricle and, for the section, a very broad anther.

The usual colour of the flowers of this section is ochre-yellow with a dark green column. I suspect that this has been incorrectly described as blue in several species.

[Ed. - Schlechter gave his views on Pseudoliparis not being entirely in agreement with J.J. Smith. Refer : Schlechter R. (1911) 'Die Orchidaceen von Deutsch-Neu-Guinea' pp. 110-112.]

Dendrobium squamiferum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX [1908], 19; Nova Guinea VIII, p. 83.

According to several plants which flowered at Buitenzorg, the sepals are white covered with dark yellow-brown lodicules with distinct veins inside, the petals white on both sides, likewise with the distinct veins. The lip is pallid yellow, the squamae on the base darker yellow, the six rather indistinct longitudinal ribs mostly a red-lead colour. The column is white, the rib in the column-foot tri-partite at the apex and lemon-yellow. The bracts are dull pale green and dotted grey.

Eria imbricata J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 22. Nova Guinea VIII, p. 85.

This species has flowered at Buitenzorg, so I can give a description of the colour here.

The sepals and petals are pallid yellow. The lip is movably attached, papillose and pallid yellowish at the base, the lateral lobes margined dark brown. The middle part up to the base of the

middle lobe is pale brown with a zig-gag dark brown transverse line. The middle lobe in the centre is lemon-yellow and whitish towards the apex. The column inside, beneath the stigma, as well as the lower part of the column-foot are yellowish white, with crenate brown margins and a rather broad, thickened longitudinal band, tinged brownish, brown margined and having a small brown middle stripe which is bordered by two broad, fairly deep grooves. The rear side of the column is pallid yellowish, pale yellow towards the apex, the apex of the column-foot is convex, velvety, brown with a W-shaped, orange-coloured, black-brown margined marking. The anther is pale yellow, the ovarium and pedicel are white, shiny and covered with black scale-like hairs.

Bulbophyllum dubium J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXI [XXII 1909], 36.

Tab. XLVI. 154.

(latin diagnosis)

Dutch New Guinea : At the Noord River, south of Geluks Hill

(Lorentz Expedition 1907, Djibdja no. 585, living plant, cultivated the Botanical Garden of Buitenzorg).

It is not easy to decide whether to consider this plant as an individual species or a variety of B. infundibuliforme J.J. Sm. The flowers are deceptively similar to the latter species but they are differently coloured. The vegetative parts, in contrast, are fairly different. The pseudobulbs are appreciably thinner and cylindrical, the leaves with much shorter petioles, becoming narrower, very pointed soft carnose and dark green, whilst in B. infundibuliforme J.J. Sm. they are blunt, rigid and fairly pale green. The peduncle in B. dubium J.J. Sm. is much thinner and, furthermore, the plant is almost never without flowers, while the B. infundibuliforme J.J. Sm. at Buitenzorg either does not, or very seldom, flowers.

Bulbophyllum dischidiifolium J.J. Sm., nov. sp.

Tab. XLVI. 155.

(latin diagnosis)

Dutch New Guinea : At the Noord River (Lorentz Expedition 1907,

Djibdja no. 85, living plant, flowering at Buitenzorg in Jan. 1909).

The leaves distinguish this as a species of the section

Monanthaparva. The only specimen at Buitenzorg bears only cleistogamous flowers which fruit regularly.

Appendicula biloba J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXII
[1909], 42.

Tab. XLVI. 156.

(latin diagnosis)

Dutch New Guinea : Horna, in the Manikion area, on the north-west peninsula (Wichmann Expedition 1903, Djibdja no. 136h, living plant, cultivated at the Botanic Gardens at Buitenzorg, flowering in Dec. 1908.

This interesting plant belongs to the deviating species of the genus. The lip is very carnose and cannot be expanded flat. At the apex it is much broadened, bi-lobed and rather similar to A. Steffensiana (Schltr.) J.J. Sm. Particularly remarkable is the column, the rostellum is not more-or-less protruding as is usually the case in this genus, but very short and broadly excavated. The pollinarium is fairly normal, both caudicles and the six pollinia rest, however, on the large triangular viscid mass.

The inflorescences develop on the lower part of the stem, often after the leaves have fallen, and are nevertheless terminal also.

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'THE ORCHIDS

OF

DUTCH NEW GUINEA'

BY

J. J. SMITH

BEING A TRANSLATION OF

'DIE ORCHIDEEN

VON

NIEDERLÄNDISCH - NEU - GUINEA'

FROM

'NOVA GUINEA' VOL. VIII, PART III (1911)

The Orchids of Dutch New Guinea.

The following collection comprises essentially the material collected by L.S.A.M. von Römer, a medical officer of the Royal Dutch Navy during the second expedition led by Dr. R.H. Lorentz in 1909. Included also are a number of orchids from J.W. van Nuhuys who visited the central ranges, whilst Rachmat, the 'Mantri' of the Botanical Garden at Buitenzorg was responsible for the collection of living plants. Furthermore, in 1911 a large consignment of orchids from southern New Guinea was received from Dr. B. Branderhorst.

Finally, on the north coast of Humboldt Bay and also during the travels of the Commission for the Determination of the Borders between Dutch and German Territory considerable collections were made which included several orchids. It is most regrettable that a large collection of herbarium and living plant material from the region of the Kaiserin-Augusta [Sepik] River, together with many instruments etc. was lost.

Already several of the living plants have flowered, some being new species and from these it was possible occasionally to supplement the descriptions made from herbarium or alcohol-preserved material.

It is remarkable that the orchid species of New Guinea show a great tendency to vary. Furthermore, since these plants are often collected only as solitary, or very few specimens, it is in most cases very difficult to decide whether or not one is confronted with a variety. For the present it is desirable to note as many of these deviations as possible. Later, when more adequate material from different parts of the Territory is available, it can be decided whether the varietal names should be retained.

J.J. Smith.

Circa 1911.

Neuwiedia Bl.

Neuwiedia cucullata J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XLV
(1911), 1.

Tab. LXXV.

(latin diagnosis)

Dutch New Guinea : On the north coast near the Hollandia Bivouac,
on Humboldt Bay, terrestrial in primary forest, alt. c. 30m (K.
Gjellerup no. 291, flowering and fruiting in Aug. 1910).

In habit this species is similar to N. calanthoides Ridl. However, it has much smaller flowers and at the front a cucullate labellum with relatively much shorter and broader anthers. The lip of the only opened flower, preserved in alcohol, was 'protruding' which was not the case with the other species known to me. Perhaps this unusual position is only incidental.

The collector noted that the flowers were a deep yellow.

Peristylus Bl.

Peristylus hollandiae J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XLV
(1911), 1.

Tab. LXXVI A.

(latin diagnosis)

Dutch New Guinea: On the north coast near the Hollandia Bivouac,
on weathered rocks, on a hill (K. Gjellerup no. 140, flowering in May
1910).

Differs from the most closely related P. goodyeroides Lindl., and
P. grandis Bl., in smaller flowers, very obtuse petals, a broad obtuse
middle lobe and in addition from P. grandis Bl., in having a globular
spur. The colour according to Gjellerup was pale yellow.

Peristylis remotifolius J.J. Sm., in Bull. Dép. Agric. Ind. Néerl.

XXII (1909), 2; in Nova Guinea VIII (1909), 134, t. XLV, 149.

Dutch New Guinea : At the Noord River, terrestrial on the plains
(von Römer no. 531, flowering in Oct. 1909).

Habenaria Willd.

Habenaria cruciata J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908),
25; in Nova Guinea VIII (1909), 5, t. I, 3.

Dutch New Guinea : At the Noord River, terrestrial on the plains
(von Römer no. 575, flowering in Oct. 1909).

Habenaria dryadum Schltr., in Fedde. Rep. III (1906), 60. -H. epiphylla
Schltr., in Schum. et Laut., Nachtr. Fl. Deutsch. Schutzgeb. Südsee.
78; J.J. Sm., in Nova Guinea VIII (1909), 6, t. II, 4.

Dutch New Guinea : Foothills of the Hellwig Range, alt. c. 1350m,
growing terrestrially (von Römer, no. 977a, flowering in Feb. 1909).

Corysanthes R. Br.

Corysanthes triloba J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX
(1910), 7.

Tab. LXXVI B.

(latin diagnosis)

Dutch New Guinea : Foothills of the Hellwig Range, alt. c. 1000m
(von Römer no. 1343, flowering in Nov. 1909).

This is the third species of this pretty genus in Dutch New Guinea
and surely more will be discovered. It is distinguished from both
other species by an unusually strong concave and therefore half-global
dorsal sepal and a clearly tri-lobed lip with a short, retrorse and con-
vex, distended middle lobe. The plant was discovered by Habbema.
According to a note about the living plant, the leaves were dark green
with distinctive red veins, the flowers red.

Cryptostylis Bl. [R.Br.]

Cryptostylis arachnites (Bl.) Lindl., Gen. Pl. 216; etc.

Dutch New Guinea : Foothills of the Hellwig Range, alt. c. 750m,
growing terrestrially (von Römer no. 868, flowering in Nov. 1909).

The existing material cannot be distinguished from C. arachnites
(Bl.) Lindl.

Didymoplexis Griff.

Didymoplexis minor J.J. Sm., in Bull. Inst. Bot. Buit. VII 1900, 1; in

Ic. Bog. II, 9, t CII A; in Fl. Buit. VI, Orch. 79; Atlas, fig. LIII.

German New Guinea : Bougainville Range, near the mouth of the Tami
River, terrestrial in primary forest, alt. c. 60m (K. Gjellerup no.
284, flowering in July 1910). Geographic distribution : Java.

The New Guinea specimen differs only in minor details from that of
Java.

Vrydagzynea Bl.

Vrydagzynea elongata Bl., Fl. Jav. I, 61, t. 28, f. 1.

Hetaeria elongata Miq., Fl. Ind. Bat. III, 726.

Dutch New Guinea : At the Noord River, terrestrial in the primary
forest of the plain (von Römer nos 602 and 603, flowering in Oct.
1909); Geluks Hill (von Römer no. 496, flowering in Oct. 1909).

Because of their extended inflorescences, I believe that these
plants are V. elongata Bl. However, the flowers look very similar to
V. triloba J.J. Sm. but those from Versteeg's collected material,
including those in fruit, possess very short compact inflorescences.
Further material of these Vrydagzynea is most desirable.

Zeuxine Lindl.

Zeuxine amboinensis J.J. Sm., in Ic. Bog. II, 259 [sic]. - Haplochilus

amboinensis J.J. Sm., l.c. II, 19, t. CV A.

Dutch New Guinea : Salt spring, Beguwri River, terrestrial in the primary forest, alt. c. 160m (K. Gjellerup no. 254, flowering in June 1910).

Hetaeria Bl.

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

Dutch New Guinea : Foothills of the Hellwig Range, alt. c. 750m, growing terrestrially (von Römer nos. 807 and 950, flowering in Nov. 1909).

Hetaeria oblongifolia Bl., Bijdr. 410, f. 14; etc.

Dutch New Guinea : At the Noord River, terrestrial in the primary forest of the plain (von Römer no. 532, flowering in Oct. 1909).

Goodyera R. Br.

Goodyera constricta J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910), 16.

Tab. LXXVI C.

(latin diagnosis)

Dutch New Guinea : At the Noord River, in dry locations, terrestrial in the primary forest of the plain (von Römer no. 687, flowering in Oct. 1909); near Alkmaar (Lorentz Expedition 1909, Rachmat, living plant in cultivation Hort. Bog. under no. 264R).

From this very characteristic plant only one inflorescence and leaf were collected. The most outstanding characteristics are the constricted lip, inside with two strong ridges and two pulvinate pads at the base and the column with two ribs underneath. The ridges of the lip and the column together form a tube.

Lepidogyne Bl.

Lepidogyne longifolia Bl., Fl. Jav. Orch. 78, t. 25; etc.

Dutch New Guinea : Foothills of the Hellwig Range, alt. c. 750m, growing terrestrially (von Römer nos 879 and 970, flowering in Nov. 1909).

With normal flowers.

Tropidia Lindl. [Bl.]

Tropidia triloba J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908),

38; in Nova Guinea VIII (1909), 19, t. VIII, 19.

Dutch New Guinea : Koeskoes Hill, alt. c. 45m, growing terrestrially (von Römer no. 629, flowering in Oct. 1909); near Alkmaar (Lorentz Expedition 1909, Rachmat, living plant in cultivation at Hort. Bog. under no. 129R).

The flowers are whitish and possess a strong, peculiar fragrance.

Corymbis Thou.

Corymbis veratrifolia (Reinw.) Rchb.f., in Flora XLVIII (1865), 184; etc.

Dutch New Guinea : Salt spring at the Beguwri River, alt. c. 170m (K. Gjellerup no. 214, flowering in June 1910).

Coelogyne Lindl.

Coelogyne asperata Lindl., in Journ. Hort. Soc. IV (1849), 221; etc.

German New Guinea : On the middle Kaiserin-Augusta [Sepik] River, near the Pioneer Bivouac, epiphytic in the primary forest, alt. c. 50m [sic] (K. Gjellerup no. 399, flowering in Sept. 1910).

Coelogyne Beccarii Rchb.f., in Bot. Centralbl. XXVIII (1886), 345;

Pfitz. et Krzl., in Engl. Pflanzenr. Heft XXXII (1907), 32, Fig. 8, A - E; J.J. Sm., in Nova Guinea VIII (1909), 136, t. XLV, 151.

Dutch New Guinea : At the Noord River, on trees in the primary forest of the plain (von Römer no. 551 and 573, flowering in Oct. 1909); foothills of the Hellwig Range, alt.c. 750m (von Römer no. 811, flowering in Nov. 1909).

There is little doubt that C. Micholitziana Krzl. (in Gard. Chr. 1891, II, 300; Xenia Orch. III (1892), 100, t. 256; in Engl. Pflanzenr. l.c.), belongs to this species.

Pholidota Lindl.

Pholidota imbricata Lindl., in Hook., Fl. Exot. t. 138; etc.

Dutch New Guinea : At the upper Digul [River] (B. Branderhorst 1909, living plant cultivated at Hort. Bog. under nos 5B and 31B).

Dendrochilum Bl.

Dendrochilum longifolium Rchb.f., in Bonplandia IV (1856), 329; J.J. Sm., in Rec. Trav. Bot. Néerl. 1904, 73; in Fl. Buit. VI, Orch. 166; Atlas fig. CXXV. - Platyclinis longifolia Hemsl., in Gard. Chr. 1881, II, 656; Ridl., Mat. Fl. Mal. Penins. I, 26.

var. Papuanum J.J. Sm. nov. var.

(latin diagnosis)

Dutch New Guinea:: At the Noord River (Lorentz Expedition) 1907, Djibdja, living plant in cultivation at Hort. Bog. under no. 112 Dj). The plants differ from the Javanese material only in minor respects.

Chrysoglossum Bl.

Chrysoglossum papuanum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910), 7. - Nephelaphyllum papuanum Schltr., in Schum. et Laut., Nachtr. Fl. Deutsch. Schutzgeb. Südsee, 96.

Tab. LXXVII A.

Dutch New Guinea, Foothills of the Hellwig Range, alt. c. 750m,

growing terrestrially in the primary forest (von Römer no. 946, flowering in Nov. 1909).

Closely related to C. nebulosum (Bl.) J.J. Sm., and C. simplex (Rchb.f.) J.J. Sm., but mainly differing in the much broader middle lobe of the lip and the relatively shorter lateral lobes.

Tainia Bl.

Tainia papuana J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910), 21.

Tab. LXXVII B.

(latin diagnosis)

Dutch New Guinea : Foothills of the Hellwig Range, terrestrial in the primary forest, alt. c. 750m (von Römer nos 944 and 966, flowering in Nov. 1909).

This large-flowered species is, according to the illustrations, related to T. cordifolia Hook.f. from Formosa [Taiwan], T. scaphigera Hook.f., from Borneo, etc., but differing them all in floral characteristics. The labellum is so strongly bent that an attempt to lay alcohol-preserved material out flat results in it breaking. Von Römer describes the flowers of no. 944 as yellow, but the collector notes that for no. 966 the sepals and petals are yellow-green, the lip yellow (old gold), and the column red-striped. Since only individual parts were collected the total plant structure is not yet known.

Calanthe R. Br.

Calanthe Engleriana Krzl., in Schum. et Laut., Nachtr. Fl. Deutsch.

Schutzgeb. Südsee, 142; J.J. Sm., in Nova Guinea VIII (1909), 34. t. VIII, 24.

Dutch New Guinea : At the Noord River, in swamps on the plain (von Römer no. 313, flowering in Sept. 1909); Geluks Hill,

terrestrial in the primary forest (von Römer no. 472, flowering in Oct. 1909).

Spathoglottis Bl.

Spathoglottis plicata Bl., Bijdr. 401, t. 76; etc.

Dutch New Guinea : At the Noord River, on gravel beds of the plain (von Römer nos 356 and 301, flowering in Oct. 1909); foothills of the Hellwig Range, alt. c. 750m (von Römer no. 957, flowering in Nov. 1909).

The flowers of no. 957 showed some small differences; namely, a clearly projecting callus on the claw of the middle lobe of the lip.

Spathoglottis obovata J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910), 20.

Tab. XXVII C.

(latin diagnosis)

Dutch New Guinea : Between Alkmaar and the Hellwig Range (von Römer no. 758, flowering in Oct. 1909); Treub Range, alt. c. 2200m (J.W. van Nouhuys, flowering in Oct. 1909).

This species is easy to recognise among the Papuan ones by the very short-clawed, broad, obovate middle lobe of the lip. Since only one specimen was collected, it cannot be stated that the above-mentioned dimensions are normal for this species.

[Ed. - J.J. Smith later reduced this species to a synonym of S. parviflora Krzl. - Engl. Bot. Jahrb. LXVI (1934), pp. 179-180.]

Eulophia R. Br.

Eulophia imperatifolia Schltr. var. viridis J.J. Sm., in Schum. et Laut., Nachtr. Fl. Deutsch. Schutzgeb. Südsee, 148.

Tab. LXXVIII A.

(latin diagnosis)

Dutch New Guinea : At the Noord River, terrestrial on the plains
(von Römer no. 530, flowering in Oct. 1909).

This plant is probably a form of E. imperatifolia Schltr., which, according to von Römer, has green flowers. A bloom of one of Schlechter's original taxon which I examined showed, in addition, a relatively smaller middle lobe of the lip and a longer spur. Schlechter described the petals as pointed, but in the original they are blunt like von Römer's plant. The flowers preserved in alcohol showed brown patches.

Oberonia Lindl.

Section : Caulescentes

Oberonia pedicellata J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX
(1910), 18.

Tab. LXXVIII B.

(latin diagnosis)

Dutch New Guinea : At the Noord River on trees in the plains (von Römer no. 665, flowering in Oct. 1909).

Through the relatively long stemmed flowers the inflorescence acquires a lax appearance. Characteristic also are the two small lobes on the base of the lip. The flowers were whitish green.

Section : Acaules

Oberonia rhizomatosa J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XLV
(1911), 2.

Tab. LXXIX A.

(latin diagnosis)

German New Guinea : Bougainville Range, alt. c. 700m, on a tree
(K. Gjellerup no. 156, flowering in June 1910).

This species is distinguished from all others by the extended rhizome. In habit it completely resembles Schlechter's genus Hippeophyllum, but differs by its inarticulate foliage, and a typical

Oberonia labellum.

Even if very closely related to Oberonia, it is probably better to maintain Hippeophyllum as a genus.

Oberonia Scortechinii Hook. f. also belongs here.

The flowers are reddish brown.

Microstylis Nutt.

Section : Crepidium

Microstylis pectinata J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 29; in Nova Guinea VIII (1909), 33. t. XI, 33.

Dutch New Guinea : At the upper Digul [River] (B. Branderhorst 1909, living plant in cultivation in Hort. Bog. under no. 149B).

Microstylis xanthochila Schltr., in Schum. et Laut. Nachtr. Fl.

Deutsch. Schutzgeb. Südsee, 102.

Tab. LXXIX B.

Dutch New Guinea : South of Geluks Hill (Lorentz Expedition 1907, Djibdja, living plant in cultivation at Hort. Bog. under no. 388 Dj.). Geographic distribution : German New Guinea.

The leaves are pale grey-green, the flowers greenish yellow.

Microstylis riparia J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XLV (1911), 2.

Tab. LXXIX C.

(latin diagnosis)

Dutch New Guinea : Salt spring on the Beguwri River, in primary forest, alt. c. 160m (K. Gjellerup no. 194, flowering in June 1910).

Distinguished by the small or relatively broad leaves of those Papuan species with more-or-less long narrow divided lobes at the front of the labellum as M. arachnoidea Schltr., M. pectinata J.J. Sm., and M. retusa J.J. Sm.

Section : *Pseudoliparis*

Microstylis latipetala J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX
(1910), 17.

Tab. LXXX. A.

(latin diagnosis)

Dutch New Guinea : South of Geluks Hill (Lorentz Expedition 1907,
Djibdja, living plant in cultivation in Hort. Bog. under no. 383 Dj).

This species is closely related to M. moluccana J.J. Sm., but differs
in the narrow leaves, the more open inflorescence, and the shape of the
lip and column.

) Apparently there are a number of related species in New Guinea
which are grouped around M. moluccana J.J. Sm. and which together with
this species belong to the section Pseudoliparis.

The plant described in Nova Guinea VIII, 32, t. X, 32 as
M. moluccana J.J. Sm. var. sagittata J.J. Sm. is probably better con-
sidered as a separate species, which I have renamed M. Zippelii J.J. Sm.
It differs from M. latipetala J.J. Sm. in the broader leaves, narrower
flower segments, and a different column structure; from M. Schumanniana
Schltr. in the broader petals, shorter lobes of the lip and an ovate,
not obovate anther. In addition the column is dark green, whereas in
) M. Schumanniana Schltr. it is really blue, as I am assured by Schlechter.
Microstylis Zippelii J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX

(1910), 17. - M. moluccana J.J. Sm. var. sagittata J.J. Sm., in
Nova Guinea VIII (1909), 32, t. X, 32.

Dutch New Guinea : At the Noord River, near Alkmaar (Lorentz
Expedition 1909, von Römer no. 522, Rachmat, living plant in
cultivation at Hort. Bog. under no. 138R).

Liparis L.C. Rich.

Section : *Mollifoliae*

Liparis Rheedii Lindl., Gen. et Sp. Orch. 27; Miq., Fl. Ind. Bat. III, 621; Ridl., in Journ. Linn. Soc. XXII 261; J.J. Sm., in Fl. Buit., VI, Orch. 264; Atlas f. CCII.

Dutch New Guinea : At the Noord River, near Alkmaar (Lorentz Expedition 1909, Rachmat, living plant in cultivation at Hort. Bog. no. 252R.). Geographic distribution : Java.

The specimen is a relatively poor example, but shows no distinctions from the Javanese material.

Liparis pectinifera Ridl., in Journ. Bot. XXXVI, 210; J.J. Sm., in Fl. Buit. VI, Orch. 265; Atlas, f. CCIII.-L. montana Ridl. (non Lindl.), in Jour. Linn. Soc. XXII, 277.

Dutch New Guinea : At the upper Digul [River] (B. Branderhorst 1909, living plant in cultivation at Hort. Bog. under no. 167B). Geographic distribution : Java, Borneo, Malay Peninsula.

The plant does not appear to differ from the likewise living material from Borneo, which I examined.

Liparis cymbidiifolia J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 27; in Nova Guinea VIII (1909), 36, t. XII, 38.

Dutch New Guinea : Foothills of the Hellwig Range, alt. c. 1350m (von Römer no. 1336, flowering in Dec. 1909).

von Römer's description of the colour [of the flowers]: sepals pale yellow (yellow-brown), lip flesh-coloured, does not exactly coincide with the plant formerly brought to Buitenzorg as living material. However, this does not constitute a reason for creating a new species.

Section : Distichae

Liparis pseudo-disticha Schltr., in Schum. et Laut., Nachtr. Fl. Deutsch. Schutzgeb. Südsee, 106; J.J. Sm., in Nova Guinea VIII (1909), 38, t. XIII, 41.

Dutch New Guinea : At the Noord River, on trees in the primary forest of the plains (von Römer nos 156 and 440, flowering in Sept. and

Oct. 1909).

Agrostophyllum Bl.

Agrostophyllum costatum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 1; in Nova Guinea VIII [1909], 39, t. XIII, 43.

Dutch New Guinea : At the Noord River, on trees in the swamps on the plain (von Römer no. 26, flowering in Sept. 1909); on the upper Digul [River] (B. Branderhorst 1909, living plant in cultivation at Hort. Bog. under no. 21B).

Agrostophyllum brachiatum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 1; in Nova Guinea VIII (1909), 38, t. XIII, 42.

Dutch New Guinea : At the upper Digul [River] (B. Branderhorst 1909, living plant in cultivation at Hort. Bog. under no. 6B).

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

Tab. LXXX. B.

(latin diagnosis)

Dutch New Guinea : Hellwig Range (Mt. Agathodämons) (von Römer no. 1217, flowering in Nov. 1909).

In habit, this species is similar to A. spicatum Schltr., A. mucronatum J.J. Sm. and A. paniculatum J.J. Sm., but in all other respects is different. The flowers are white, the lip yellow at the base.

Agrostophyllum paniculatum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 2; in Nova Guinea VIII (1909), 41, t. XIV, 45.

Dutch New Guinea : At the upper Digul [River] (B. Branderhorst 1909, living plant in cultivation at Hort. Bog. under no. 41B).

One of the plants collected by Branderhorst in south New Guinea flowered in the Botanical Gardens at Buitenzorg. The sepals and petals were a pallid straw-yellow, the lip white with a violet patch, the column margined a muddy purple.

At the beginning the sepals and petals are distant, later on revoluted. The small wings of the column were more angular than in the specimen I examined earlier, and the lip was not bent inwards, but backwards, at the apex.

Glomera Bl.

Section : Capitatae

Glomera subracemosa J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910), 15.

Tab. LXXXI A.

(latin diagnosis)

Dutch New Guinea : Hellwig Range (Mt. Agathodämons), alt. c. 2577m
(von Römer no. 1295, flowering in Nov. 1909).

Among the species from Dutch New Guinea this stands closest to G. dentifera J.J. Sm. However, it possesses significantly broader sepals, a differently formed lamina and a longer spur. The somewhat extended inflorescences are remarkable. Because only the top end of a stem with the inflorescence was collected, the indicated measurements of the leaves are probably not average. According to the collector the flowers are white, the lip yellow with a red apex, and the anther black.
Glomera manicata J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910), 15.

Tab. LXXXI B.

(latin diagnosis)

Dutch New Guinea : Hellwig Range (Mt. Agathodämons), alt. c. 2577m
(von Römer nos 1325 and 1328, flowering in Nov. 1909).

The species was represented by two small branches, one with flower buds, the other one already withered. The description, particularly that of the column, is therefore not quite reliable. Besides capitate inflorescences the plant possesses long, fringed leaf-sheaths. It is

also easy to recognise by the saddle-shaped lamina.

Section : Uniflorae

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

Dutch New Guinea : Kuskus Hill, on trees in the primary forest,
alt. c. 45m (von Römer no. 604, flowering in Oct. 1909); at the
Noord River, on trees of the plain (von Römer no. 663, flowering
in Oct. 1909).

This plant differs from the Type only in the lateral sepals which
embrace the spur up to the apex. Since the species appears to be some-
what variable in this respect, it is not considered necessary at this
stage to establish a variety.

The lateral sepals, as for all Glomera species, are connate at the
base.

Glomera retusa J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910),
15.

Tab. LXXXI C.

(latin diagnosis)

Dutch New Guinea : At the Noord River, on trees of the plain (von
Römer no. 346, flowering in Sept. 1909).

This species is most closely related to G. uniflora J.J. Sm., but
differs in the relatively broader, bent leaves, broader squat petals, a
lamina with a projecting, transverse ridge and in a tri-lobed spur,
broad at the apex and completely enclosed by the lateral sepals. The
leaves are pale green, the flowers white.

Glomera subuliformis J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX
(1910), 16.

Tab. LXXXII A.

(latin diagnosis)

Dutch New Guinea : At the Noord River, on trees of the plain (von

Römer, nos 348 and 436, flowering in Oct. 1909).

This species is closely related to G. uniflora J.J. Sm., but is well characterised by the thin subulate leaves.

The plant collected as no. 436 possesses longer (up to 8.7 cm) leaves, somewhat shorter sepals and petals and has a somewhat more distinct lip-lamina. However, I do not believe it should be separated as a variety.

The collector notes for no. 348; leaves reddish brown, flowers slightly but pleasantly fragrant, white, with the petals red at the base; and for no. 436, the flowers pale rose-red.

Glomera latilinguis J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910), 14.

Tab. LXXXII B.

(latin diagnosis)

Dutch New Guinea : Mt. Agathodämons, alt. c. 2577m (von Römer, no. 1300, flowering in Nov. 1909); (J.W. van Nouhuys, flowering in Oct. 1909).

In common with G. elegantula (Schltr.) J.J. Sm., this species possesses non-ciliate leaf sheaths, but is distinguished by its leaves, the broad labellum, a non pouch-like spur, and, according to von Römer, completely white flowers.

Glomera fimbriata J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910), 14.

Tab. LXXXII C.

(latin diagnosis)

Dutch New Guinea : Mt. Agathodämons, growing terrestrially, alt. c. 2577m (von Römer no. 1289, flowering in Nov. 1909)!

Because of its large flowers, this species stands intermediately between G. amboinensis (Ridl.) J.J. Sm. and G. uniflora J.J. Sm. According to von Römer's information the flowers were white.

Glomera compressa J.J. Sm. in Bull. Dép. Agric. Ind. Néerl. XLV (1911),

2.

Tab. LXXXIII A.

(latin diagnosis)

Dutch New Guinea : On the south slope of the Hellwig Range, alt. c. 2300m (J.W. van Nouhuys 1909).

The solitary flower was probably already withered when being pressed, however, it was in a sufficiently good condition for the description.

G. amboinensis (Ridl.) J.J. Sm. may be regarded as its closest relative, from which it is distinguished by the compressed pedicel and auricles, longer bracts, narrower petals and longer spur.

Glomera carnea J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910),

13.

Tab. LXXXIII B.

(latin diagnosis)

Dutch New Guinea : Mt. Agathodämons, growing terrestrially, alt. c. 2577m (von Römer no. 1293, flowering in Nov. 1909).

The large number of Glomera species collected by von Römer is striking. No less than eight new species, mostly originating from Mt. Agathodämons and consequently growing terrestrially, were in the collection. In addition, come the earlier and already described G. uniflora J.J. Sm. and three species without flowers, but distinct, so that the total now stands at twelve.

The examination of these species showed clearly that the combination of the genus Glossorrhyncha Ridl. with Glomera Bl. (J.J. Smith in Bull. 'Dép. Agric. Ind. Néerl. XV (1908), 27.) was completely justified. Now I can add that the new genus Giulianettia Rolfe cannot remain. G. carnea J.J. Sm., described above, is very similar to Glomera tenuis (Rolfe) J.J. Sm. The latter, however, after the description and illustration, differs in the narrower leaves, pointed petals and a free protruding frontal spur, not enclosed by bracts.

A third, closely related species is G. grandiflora J.J. Sm., which differs mainly in the much larger flowers.

From the other Glomera species they are distinguished by the extended narrow sepals and petals and, because of the long spur, they are related closest to G. amboinensis (Ridl.) J.J. Sm.

Glomera grandiflora J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910), 14.

Tab. LXXXIV A.

(latin diagnosis)

Dutch New Guinea : Mt. Agathodämons, growing terrestrially, alt. c. 2577m (von Römer no. 1292, flowering in Nov. 1909); summit of the Wichmann Range, alt. c. 3200m (J.W. van Nouhuys, flowering in Oct.-Nov. 1909).

Closely related to G. carnea J.J. Sm. but distinguished by the larger flowers. The lamina of the lip is indeed coagulate, but not as sharply appressed against the thinner spur wall as with most other known Glomera species.

According to Von Römer the flowers were flesh-coloured whilst van Nouhuys describes them as salmon-coloured with a black lip.

Aglossorrhyncha Schltr.

Aglossorrhyncha biflora J.J. Sm., in Bull. Dép. Agric. Ind. Néerl.

XXXIX (1910), 1.

Tab. LXXXV.

(latin diagnosis)

Dutch New Guinea : Mt. Agathodämons, alt. c. 2577m (von Römer nos 1219 and 1290, flowering in Nov. 1909).

A notation by the collector for no. 1290 indicates that the flowers are pale green, the lip dark green and the column tip white, while for no. 1219 the flowers are greenish yellow. The latter showed, however,

by the fusing of the upper and lower margins, a closed up stigma and a slightly swollen ovary, so that the greenish yellow colouring is most probably attributed to the withering.

The new species is distinguished from A. aurea Schltr. by very flattened pedicels, broader deep bi-lobed leaves, larger green paired flowers and as far as could be seen non-connate lateral sepals, as well as a differently shaped anther.

Mediocalcar J.J. Sm.

Mediocalcar agathodaemonis J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910), 16.

Tab. LXXXIV B.

(latin diagnosis)

Dutch New Guinea : Mt. Agathodämons, alt. c. 2577m (von Römer no. 1266, flowering in Nov. 1909).

From the other presently known species of this genus, this plant is distinguished by the non-spurred lip which has a deep pouch. In common with M. bifolium J.J. Sm., it has two-leaved pseudobulbs.

The flowers are described by von Römer as red with green tips.

Mediocalcar bifolium J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910), 17.

Tab. LXXXVI A.

(latin diagnosis)

Dutch New Guinea : Mt. Agathodämons, growing terrestrially, alt. c. 2577m (von Römer no. 1322, flowering in Nov. 1909).

Although M. agathodaemonis J.J. Sm. also has two-leaved pseudobulbs, this species differs in the narrower leaves, the colour of the flowers and the pouch-shaped, spurred lip.

The flowers were red with white tips.

Ceratostylis Bl.

Section : Acaules

Ceratostylis formicifera J.J. Sm., in Bull. Dép. Agric. Ind. Néerl.

XXXIX (1910), 5.

Tab. LXXXVI B.

(latin diagnosis)

Dutch New Guinea : At the Noord River, on trees of the primary forest of the plains (von Römer no. 349, flowering in Sept. 1909).

From the related C. scirpoides Schltr., this species differs in a longer mentum and at the front a much thickened, very blunt lip and from C. spathulata Schltr., in larger flowers, a clavate mentum and the lip much thickened at the apex. The flowers are pale purple, the apex of the lip yellow.

Ceratostylis recurva J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX

(1910), 6.

Tab. LXXXVI C.

(latin diagnosis)

Dutch New Guinea : At the Noord River, on trees in the primary forest of the plain (von Römer no. 660, flowering in Oct. 1909).

A small plant differing, from all the other species of this section known to me, in the erect dorsal sepal and in the lip markedly retrorse at the apex.

Ceratostylis albiflora J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX

(1908), 11; in Nova Guinea VIII (1909), 46, t. XVI, 52.

Dutch New Guinea : At the Noord River, on the Papuan border [sic] alt. c. 240m, on trees in the primary forest (von Römer no. 416, flowering in Oct. 1909).

Ceratostylis indifferens J.J. Sm., in Bull. Dép. Agric. Ind. Néerl.

XXXIX (1910), 6.

Tab. LXXXVII A.

(latin diagnosis)

Dutch New Guinea : At the Noord River, on trees in the primary forest of the plain (von Römer no. 659, flowering in Oct. 1909).

The flowers of this species are very similar to those of C. pugioniformis J.J. Sm., but the leaves are terete.

The colour of the flowers was red, yellow inside.

Ceratostylis longifolia J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910), 6.

Tab. LXXXVII B.

(latin diagnosis)

Dutch New Guinea : Mt. Agathodämons (von Römer no. 1291, flowering in Nov. 1909).

A large species easily recognised by the long linear leaves. The flowers show nothing very unusual and in general are similar to those of C. clavata J.J. Sm.

The colour of the flowers was violet.

Dendrobium Sw.

Section : Cadetia

Dendrobium Rumphiae Rchb.f. var. quinquecostatum J.J. Sm., in Nova Guinea VIII (1909), 53, t. XIX, 60. — D. Rumphiae Rchb.f. var. quinquenervium Krzl., in Engl. Pflanzenr. Heft 45, 285.

Dutch New Guinea : At the north coast near the Hollandia Bivouac, on a tree at the rocky beach, alt. c. 0.5m (K. Gjellerup no. 104, flowering in Apr. 1910).

The plants have significantly broader leaves than those collected earlier by Versteeg, being up to 7.5 cm long and 2 cm broad.

Dendrobium transversilobum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910), 11; Krzl., in Engl. Pflanzenr. Heft 45, 361.

Tab. LXXXVII C.

(latin diagnosis)

Dutch New Guinea : At the upper Digul [River] (B. Branderhorst 1909, living plant in cultivation at Hort. Bog. under no. 203B); at the Noord River, on trees in the primary forest of the plain (von Römer no. 661, flowering in Oct. 1909).

This species is well distinguished from others of the section Cadetia by its colour. The middle, almost rectangular, retrorse mentum is quite remarkable and together with the upright, transverse lateral lobes appressed to the column, creates an image looking very similar to the transverse lamina of the lip of some species from the section Aporum and which probably serve the same purpose. Kränzlin, without justification, places this species in the section Bolbodium.

Section : Diplocaulobium (Longicollia)

Dendrobium aratriferum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 13; in Nova Guinea VIII (1909), 54, t. XIX, 61; Krzl., in Engl. Pflanzenr. Heft 45, 340 sub Diplocaulobio lageniformi (J.J. Sm.) Krzl.

Dutch New Guinea : At the Noord River, on trees in swamps of the plain (von Römer no. 230, flowering in Sept. 1909); at the upper Digul [River] (B. Branderhorst 1909, living plant in cultivation at Hort. Bog. under nos 47B and 110B).

This species has flowered at Buitenzorg, so that I am able to describe the colour of the flowers exactly. The sepals are white at the base, progressively from a pallid to a dark purple at the tip. The lateral lobes of the lip are white, dark purple transverse striped and margined; the middle lobe is a pallid yellow with scattered dark purple dots. The column and anther are pale yellow, the column-foot white, yellow at the apex and with dark purple marks. The plant was collected by the Mantri Djibdja (no. 655) during the Lorentz Expedition

in 1907, south of Geluks Hill and flowered at Buitenzorg in Sept. 1909.

Dendrobium hydrophilum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 17, t. XXI, 65. - Diplocaulobium hydrophilum Krzl. in Engl. Pflanzenr. Heft 45, 336.

Dutch New Guinea : At the upper Digul [River] (B. Branderhorst 1909, living plant in cultivation at Hort. Bog. under no. 105B.)

Dendrobium validicolle J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 21; in Nova Guinea VIII (1909), 59, t. XXII, 69. - Diplocaulobium validicolle Krzl., in Engl. Pflanzenr. Heft 45, 342.

Dutch New Guinea : At the upper Digul [River] (B. Branderhorst 1909, living plant in cultivation at Hort. Bog. under nos 96B and 114B).

Dendrobium phalangillum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 19; in Nova Guinea VIII (1909), 58, t. XXI, 67. - Diplocaulobium phalangillum Krzl., in Engl. Pflanzenr. Heft 45, 336.

Dutch New Guinea : At the Noord River, on trees in the primary forest of the plains. (von Römer no. 566, flowering in Oct. 1909); at the upper Digul [River]. (B. Branderhorst 1909, living plant in cultivation at Hort. Bog. under no. 97B.)

The living plant from B. Branderhorst 1909, collected at the upper Digul [River], southern New Guinea, flowered in the Botanical Gardens at Buitenzorg.

The sepals and petals were yellow-whitish and pallid yellow at the apex and base. The lip was pale yellow with the lateral lobes spotted transversally dark brown-purple and with a broad dark brown-purple margin between the adjacent ridges and the apices of the lateral lobe. The middle part, as well as the base of the middle lobe, brown-purple dotted; the middle lobe pallid yellow.

The dorsal sepal is upright, the lateral sepals bent downwards and the petals backwards. The pollinia are strongly compressed laterally,

ovate-triangular and are yellow.

Dendrobium auricolor J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XLV
(1911), 3.

Tab. LXXXVII D.

(latin diagnosis)

Dutch New Guinea : At the upper Eilanden River (B. Branderhorst,
living plant in cultivation at Hort. Bog. under no. 223B).

This species is distinguished from all others of the section by
the very broad sepals and petals. The prettily coloured flowers remind
one of the section Bigibba.

Dendrobium centrale J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XLV
(1911), 3.

Tab. LXXXVIII A.

(latin diagnosis)

Dutch New Guinea : Treub Range, alt.c. 2300m (J.W. van Nouhuys no.
9, flowering in Dec. 1909).

Of this species only the top section of a stem with leaf and flower
existed. As far as could be ascertained from the severely pressed
flower the labellum is completely glabrous. This species by the nature
of its broad flowers is best related to D. auricolor J.J. Sm.

According to Kränzlin the name I used in 1907 (Bull. Dép. Agric.
V, 5) and already assumed in 1903 (Ic. Bog. II, 75) is quite correct,
but he completely overlooked the precedence of Reichenbach's
Diplocaulobium over Longicollia which he had proposed.

Section : Desmotrichum

Dendrobium comatum Lindl., Gen. et Sp. Orch. 76; Miq., Fl. Ind. Bat III
635; J.J. Sm., in Fl. Buit. VI, Orch. 314; Atlas f. CCXXXVI. -
D. criniferum Lindl., in Bot. Reg. 1844, Misc. 41; Rchb.f., in
Walp. Ann. VI, 303; Ridl., in Journ. Linn. Soc. Bot. XXXII, 238;
Mat. Fl. Mal. Penins. I, 36. - D. Zollingerianum T. et B., in Nat.

Tijdschr. Ned. Ind. XXIV, 313. - Desmotrichum comatum Bl., Bijdr. 230; Krztl., in Pflanzenr. Heft 45, 349. - D. criniferum Krztl., l.c. 348, fig. 34, F.G.H. - Callista comata O.K., Rev. Gen. Pl. 654.
 Dutch New Guinea : At the Noord River (Lorentz Expedition 1907, Djibdja, living plant in cultivation at Hort. Bog., under no. 90Dj); on the upper Digul [River] (B. Branderhorst 1909, living plant in cultivation at Hort. Bog., under nos 26B and 71B).
 Geographic distribution : Java, Borneo, Sumatra, Riouw [Islands], Malay Peninsula.

The specimens from New Guinea are distinguished from the Type by the dark brown flushed stems and relatively narrower darker green coloured leaves. They could perhaps be distinguished as var. papuanum.
Dendrobium rhipidolobum Schltr., in Schum. et Laut., Nachtr. Fl. Deutsch.

Schutzgeb. Südsee, 151; J.J. Sm., in Nova Guinea VIII (1909), 60, t. XXII, 70.

Dutch New Guinea : At the Noord River, on Kuskus Hill, alt. c. 45m, on trees in the primary forest. (von Römer, no. 605, flowering in Oct. 1909).

This fine species is mentioned by Kränzlin in Engl. Pflanzenr. Heft 45, 254, but is incorrectly united with Desmostrichum fimbriatum Bl.

Section : Aporum

Dendrobium MacFarlanei F.v.M., Descr. Notes Pap. Pl. II, 29; etc.

Dutch New Guinea : At the upper Digul [River] (B. Branderhorst 1909, living plant in cultivation at Hort. Bog. under nos 9 and 20).
 German New Guinea : At the middle Kaiserin-Augusta [Sepik] River, below the Pioneer Bivouac, alt. c. 30m, [sic] (K. Gjellerup no. 396, flowering in Sept. 1910).

Section : Onystophyllum [Oxystophyllum]

Dendrobium tumoriferum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX

(1910), 11; Krzl., in Engl. Pflanzenr. Heft 45, 362.

Tab. LXXXVIII B.

(latin diagnosis)

Dutch New Guinea : At the Noord River, on trees in the swamps (von Römer no. 252, flowering in Sept. 1909).

This species is most closely related to a species from Borneo which may be D. excavatum Miq.

Almost all authors mistake the species belonging to the section Oxystophyllum and place them in the section Aporum although they represent a small sharply defined group which is well characterized in habit, inflorescences and floral structure, especially that of the lip. I can testify that Schlechter of late shares my opinion.

Section : Latouria

Dendrobium macrophyllum A. Rich., Sert. Astr. 22, t. 9; Rchb.f., in Walp. Ann. VI, 304; Krzl., in Engl. Pflanzenr. Heft 45, 244, Fig. 20, D.E.

Dutch New Guinea : At the upper Digoel [River] (B. Branderhorst, living plant in cultivation at Hort. Bog. under no. 120B); at the Noord River, on trees in the swamps of the plain (von Römer no. 190, flowering in Sept. 1909); at the north coast, Tanah Merah [Bay], in the primary forest on a hill, alt. c. 100m (K. Gjellerup no. 403, flowering in Sept. 1910).

var. subvelutinum J.J. Sm., nov. var.

(latin diagnosis)

Dutch New Guinea : At the north coast, near the Hollandia Bivouac, epiphytic in the primary forest on a hill, alt. c. 40m (K. Gjellerup no. 401, flowering in Dec. 1910).

This plant differs from all other forms of D. macrophyllum A. Rich. that I have seen through the very short almost velvet-like soft prickly hairs on the sepals, ovaries and the flower pedicels.

It remains a difficult question to answer, whether or not to give the different forms of variable species a new name, particularly, as is often the case with orchids, when only a solitary specimen exists to analyse.

The Dendrocoryne section was established by Lindley in Bot. Reg. 1842, 63 and 1844, t. 53 (not in Bot. Mag. as Kränzlin states). The Type of the section is D. lamellatum Lindl. (D. compressum Lindl.), a species which surely does not belong to the relationship of D. macrophyllum A. Rich. and in which later many not so closely related species were incorporated. In my opinion, Schlechter, therefore, was completely correct when he used the name Latouria for the species grouped around D. macrophyllum A. Rich. and this name is, as far as I know, the first which exclusively relates to a species of this relationship. (Latouria spectabilis Bl.)

Kränzlin's sub-genus Dendrocoryne (Engl. Pflanzenr. Heft 45, 241) is made up of very heterogeneous components.

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

Schutzgeb. Südsee, 162; Krzl., in Engl. Pflanzenr. Heft 45, 249.-

D. bellum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX [1910]

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Tab. LXXXVIII C.

Dutch New Guinea : At the Noord River, near Alkmaar (Lorentz Expedition 1909, Rachmat, living plant in cultivation in Hort. Bog. under no. 236R); Went Range, alt. c. 400m (J.W. van Nouhuys 1909).
Geographic distribution : German New Guinea.

After I had seen the pressed flowers of van Nouhuys, which were significantly larger than the ones grown at Buitenzorg, I was convinced that D. bellum J.J. Sm. is identical with D. eximium Schltr.

The labellum, however, is not as compressed and has a three-ribbed callus at the base. The illustration is made from the plant which

flowered at the Buitenzorg Gardens.

Dendrobium subquadratum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX
(1908), 20; in Nova Guinea VIII (1909), 65, t. XXIII, 73. -

D. Kingianum Bidw. var. subquadratum Krzl., in Engl. Pflanzenr.
Heft 45, 274,

During the first Lorentz Expedition [1907], the Mantri of the
Botanical Gardens collected a plant, which flowered at Buitenzorg, and
therefore I am able to supplement my earlier description.

The sepals and petals of the fresh flower are pallid green; the
claw of the lip is green; the lobes are pale green at first but soon
turn a pale dull yellow. The base of the middle lobe ends in a
thickened longitudinal ridge passing through from the thick carnose lip.
The middle lobe especially is very thick and cannot be spread out; it
consists of a triangular receptacle with erect trapeze-like side pieces.
The stems are multi-edged (7 - 9) with concave sides. The specimen
was no larger than the one collected by Versteeg.

Section: Grastidium

Dendrobium acuminatissium Lindl. var. latifolium J.J. Sm., nov. var.

(latin diagnosis)

Dutch New Guinea : At the north coast near Hollandia Bivouac, on
Humboldt Bay, alt. c. 10m, on a tree in the primary forest (K.
Gjellerup no. 301, flowering in Aug. 1910).

Differs from the Type in the broader, stiff, leathery, shiny leaves
and a broader deep slit in the middle lobe of the lip. The flowers are
white with a purple spot on the mentum.

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

Tab. LXXXIX A.

(latin diagnosis)

Dutch New Guinea : Hollandia Bivouac, alt. c. 50m, on trees in the

primary forest on a hill (K. Gjellerup no. 303, flowering in Aug. 1910).

In habit this species appears rather similar to D. cyrtosepalum Schltr, but differs in the size and colouring of the flowers, structure of the lip, etc.

Warts occur frequently in this section and they are very plentiful on D. Gjellerupii J.J. Sm. They may be found on the upper side of the leaves, the leaf sheaths, the scales at the base of the inflorescences, the outside of the sepals as well as on the ovaries and pedicels.

The appendage of the leaf sheath which stands opposite the lamina is remarkable. Although the sheath from several species of this section (e.g. D. acuminatissimum Lindl., D. dulce J.J. Sm., D. falcatum J.J. Sm., etc.) is provided with a tooth on the tip, none of them show the marked development shown in D. Gjellerupii J.J. Sm.

The flowers are green-yellow, the lip coloured a stronger green. Dendrobium discerptum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910), 9; Krzl., in Engl. Pflanzenr. Heft 45, 360.

Tab. LXXXIX B.

(latin diagnosis)

Dutch New Guinea : At the Noord River, on trees of the plain (von Römer no. 570, flowering in Oct. 1909).

A species of the section Grastidium which, in regard to the slit and hairy middle lobe of the lip, may be compared with D. multistriatum J.J. Sm. ; von Römer describes the flowers as white and brown striped.

The comparison of this species with D. lyperanthiflorum Krzl. (Krzl. l.c.) is unfortunate.

Dendrobium ostrinum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910), 10; Krzl. in Engl. Pflanzenr. Heft 45, 361.

Tab. XC A.

(latin diagnosis)

Dutch New Guinea : At the Noord River, on trees in the primary forest of the plain (von Römer nos 567 and 568, flowering in Oct. 1909); south of Geluks Hill (Rachmat 1909, living plant in cultivation at Hort. Bog. under no. 45R).

This is a species related to D. pruinsum T. et B. from New Guinea, the Kei Islands and Ambon, and to D. rugosum Lindl., from Java. The pretty purple-violet colour is rare in the section.

Dendrobium planum J.J. Sm. var. collinum J.J. Sm. - D. collinum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910), 8; Krzl., in Engl. Pflanzenr. Heft 45, 360.

Tab. XC B.

(latin diagnosis)

Dutch New Guinea : At the Noord River, on trees of the plain (von Römer no. 601, flowering in Oct. 1909); (Rachmat 1909, living plant in cultivation at Hort. Bog. under no. 422R).

After examining a living plant I came to the conclusion that it is not specifically different from D. planum J.J. Sm.

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

Tab. XC C.

(latin diagnosis)

Dutch New Guinea : At the upper Eilanden River (B. Branderhorst, living plant in cultivation in Hort. Bog. under no. 225B).

A species of the section Grastidium which is well represented in New Guinea, and which, in common with D. falcatum J.J. Sm., has the plain labellum. The flowers possess a peculiar, but not unpleasant fragrance. The plant started to flower shortly after arriving in Buitenzorg and possessed only a single well developed leaf.

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

(1908), 17; in Nova Guinea VIII (1909), 72, t. XXV, 78; Krzl., in

Engl. Pflanzenr. Heft 45, 193.

Tab. XC D.

Dutch New Guinea : South of Geluks Hill (Lorentz Expedition 1909 ,
Rachmat, living plant in cultivation in Hort. Bog. under no. 413R).

I can now supplement the description of this species (in Nova
Guinea VIII (1909), 72) after a living plant at Buitenzorg had reached
the flowering stage.

The stems extend to 37.5 cm in length. The leaves are narrow
ovate-lanceolate, long acuminate , unevenly pointed, two toothed,
contracted stalk-like at the base, leathery, shiny pale green with matt
pale green sheaths with up to 0.3 cm long, triangular unevenly
cartilaginous margined tooth opposite the lamina. The flowers are
approximately 1.4 cm broad, with white, purple-dotted sepals and petals
thickened towards the apices and bent inwards. The sepals are almost
linear, the dorsal approximately 1.45 cm long, 0.325 cm wide, the
lateral ones falcate, approximately 1.275 cm long and at the broadened
base 0.475 cm wide. The linear petals are broadened slightly in a
spathulate manner towards the apices and are 1.25 cm long and 0.24 cm
wide. The lip is not lobed, divergent, longitudinal five-cornered,
pointed, crenate towards the apex approximately 0.725 cm long, 0.4 cm
wide at the base, with purple raised convex transverse lines and with
small purple merging spots at the front, whilst the wart-like middle
stripe is orange below and a pallid yellow towards the top. The
column measures 0.25 cm, the purple-spotted column-foot approximately
0.3 cm.

Dendrobium longicaule J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX
(1910), 9; Krzl., in Engl. Pflanzenr. Heft 45, 361 (sub nomine
D. imbricati J.J. Sm.)

Tab. XCI A.

(latin diagnosis)

Dutch New Guinea : In the southern region (Lorentz Expedition 1909, Rachmat, living plant in cultivation in Hort. Bog. under no. 119).

The plant flowered, with a few minute blooms, shortly after arrival at Buitenzorg.

The top section of the very strong peduncle had been cut off and the remaining part had a length of 65 cm.

This species stands closest to D. multistriatum J.J. Sm., but differs in the sepals and petals, broader towards the tip, a dotted lip with a relatively smaller middle lobe and larger lateral lobes.

Dendrobium imbricatum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910), 9; Krzl., in Engl. Pflanzenr. Heft 45, 361, (nomen tantum).

Tab. XCI B.

(latin diagnosis)

Dutch New Guinea : At the upper Digul [River] (B. Branderhorst, living plant in cultivation at Hort. Bog. under no. 72B).

A very characteristic species of the section Grastidium. The stiff upright robust stalks are covered from bottom to top with thick ovate carnose, pruinose blue leaves, reducing in size towards the tip and between which the thick carnose yellow flowers appear.

Living plants of this species were sent by B. Branderhorst in 1909 to the Botanical Gardens at Buitenzorg and flowered soon after arriving.

The description by Kränzlin l.c. does not belong to D. imbricatum J.J. Sm., but to D. longicaule J.J. Sm.

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

Tab. XCI C.

(latin diagnosis)

Dutch New Guinea : At the upper Eilanden River (B. Branderhorst 1910, living plant in cultivation at Hort. Bog. under no. 289B).

This species is closely related to D. longicaule J.J. Sm., but differs in the wider sepals and petals, larger lateral lobes of the lip and the absence of the hairy callus on the middle lobe.

Dendrobium Horstii J.J. Sm., in Ic. Bog. III (1906), 23, t. CCX; Krzl., in Engl. Pflanzenr. Heft 45, 182.

Dutch New Guinea : At the upper Digul River (B. Branderhorst 1909, living plant in cultivation in Hort Bog. under no. 73B).

The species collected by Branderhorst has pretty orange-yellow flowers.

Kränzlin l.c. has incorrectly placed this species in the relationship of D. comatum Lindl., D. metachilinum Rchb.f. etc.

Dendrobium Branderhorstii J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910), 8; Krzl., in Engl. Pflanzenr. Heft 45, 360.

Tab. XCI D.

(latin diagnosis)

Dutch New Guinea : At the upper Digul River (B. Branderhorst 1909, living plant in cultivation in Hort. Bog. under sub. no. 34B); (Lorentz Expedition 1909, Rachmat, living plant in cultivation at Hort. Bog. under sub. no. 171R); on the border of Papua, alt. c. 240m, on trees in the primary forest (von Römer no. 407, flowering in Oct. 1909).

The thick carnose, pallid yellow flowers of this species look, on the outside, very much like D. imbricatum J.J. Sm., but the structure of the lip and column are completely different. Especially peculiar is the column-foot which is severely antrorse and on the front is provided with a very large callus which one could assume is formed by the coalescence of several small horizontal plates, the edges of which are lacerated transversely. The description is made from living material.

Dendrobium insigne Rchb.f. ex Miq., Fl. Ind. Bat. III, 640; J.J. Sm.,
in Nova Guinea VIII [1909], 74, t. XXV, 80 (excl. syn.); Krzl.,
in Engl. Pflanzenr. Heft 45, 194. - Dichopus insignis Bl., in Mus.
Bot. Lugd. Bat. II, 176; Finet, in Not. Syst. I, 91.

Tab. XCII A.

Dutch New Guinea : At the north coast (K. Gjellerup 1910, living
plant in cultivation in Hort. Bog. under no. I).

Finet believes in the resurrection of Blume's cited genus Dichopus
because of the peculiar appendages to the column below the stigma. I
cannot see the necessity of the separation of a genus because of a
secondary characteristic such as this lamella. In my opinion Dichopus
insignis Bl. is a valid Dendrobium of the section Grastidium.

Finet was in the position to examine only dried flowers and it
probably may be assumed that the description and the conclusions of his
otherwise thorough systematic work does not in every respect coincide
with reality.

The flowers of D. insigne Rchb.f. open very widely as the
illustration cited in 'Nova Guinea' shows, so that the lip and the
column appear free. The ridges of the lip do not begin on the upper
edge of the lateral lobes, but are continuous on to the base of the lip.
They are thick carnose, protruding, soft and hirsute, whilst on the front
part of the middle lobe, three longitudinal rows of longer hairs can be
detected. Besides, on this broadened part, an indefinite number of
linear or subulate, rather carnose lamellae are found, more-or-less
parallel to the margin in a single row.

Soft prickly appendages or carnose hairs which are probably com-
parable with the appendages on D. insigne Rchb.f., occur on several
species of the section Grastidium, e.g. on D. multistriatum J.J. Sm.,
D. quinquedentatum J.J. Sm., D. discerptum J.J. Sm., D. ostrinum J.J. Sm.,
D. acuminatissimum Lindl., etc. They can also be found in Eulophia

imperatifolia Schltr.

Concerning the lamella beneath the stigma or on the border between the column and column-foot, Finet's opinion that one is dealing with the third stamen of the inner circle, is not very extreme. With aberrants, e.g. Dendrobium tetradon (Schltr.) Rchb.f. and Appendicula flaccida J.J. Sm., this stamen is occasionally represented by a more-or-less similar appendage.

In its natural position the lamella of D. insigne Rchb.f. is turned upwards towards the tip of the column and touches both carnose ridges of the lip loosely or hardly at all. It is linear longitudinal, carnose, concave above, thickened at the apex, diagonally truncated towards the top and bi-lobed on the lower projecting edge. This supporting surface is very weakly, irregularly margined, not folded and just a little concave or duo-loculate. I have not noticed any secretion of nectar.

The peculiar appendage of the column, furthermore, is elastically attached. If a pencil is slipped into the flower between the lip and the column, a slight pressure is enough to overturn the lamella backwards and in this position it is pressed on to the column-foot and can perhaps be easily overlooked. Because the lamella, in a fresh flower, is always turned forward and resting loosely on the lip, the latter has to be pressed downwards necessarily by the overturning which is possible not only by the poor flexibility of the labellum but also where the weight of the visiting insects plays a part. The orchid flowers are being constantly pollinated by relatively large insects which are able to carry the pollinia and for this reason the theory of pollination given by Finet, whereby the lamella acts as a bridge is probably untenable. The overturned lamella is easily returned to its original position.

I have never noticed the setting of fruit in the plants cultivated

at Buitenzorg and probably have never seen an overturned lamella. I assume that the appendage serves to aggravate the access to the flower in the interest of pollination.

However, the question still has to be resolved as to whether D. Gazellae Krzl. and D. lyperanthiflorum Krzl. should be considered as separate species or forms of D. insigne Rchb.f. Considering the illustrations in 'Pflanzenreich' one tends to agree with Kränzlin's opinion. Kränzlin was kind enough to obtain material of both species for me. I also have an illustration, by the author, of the whole plant of D. Gazellae Krzl., including the flower and spread out lip from which the habit appears identical to that of D. insigne Rchb.f. The lip is different from the illustration of the latter in 'Pflanzenreich' in which the lateral lobes are separate almost to the base and the middle lobe carried ten filament appendages on each side which hang down to the apices of the lateral lobes. The pencil sketch shows the lip exactly similar to that of D. insigne Rchb.f. with the lateral lobes becoming separate somewhat above the base with the middle lobe with only two appendages towards the top on both sides. It really looks very similar to the form of D. insigne Rchb.f. discovered by van Kampen on the Aru Islands. An important feature of D. Gazellae Krzl. is supposed to be the absence of the lamella beneath the stigma, but I hazard an assumption that it was perhaps overturned backwards and was therefore not observed. I would however, point out that D. Gazellae Krzl. was found also at MacCluer Gulf where Den Berger came across D. insigne Rchb.f.

Of D. lyperanthiflorum Krzl. I was only able to examine a single flower. Here, the sepals and petals are longer and narrower than for D. insigne Rchb.f. and the lip also is especially extended at the apex. The illustration in 'Pflanzenreich' is not true to Nature; the lip-lamina between the appendages which here also are attached within the

margin as for D. insigne Rchb.f. is much wider and usually the labellum looks very similar to the already mentioned 'Aru-form' of D. insigne Rchb.f., even if the apex of Kränzlin's plant is greatly extended.

On the basis of my examination I have come to the conclusion that most likely D. insigne Rchb., D. lyperanthiflorum Krz. and D. Gazellae Krzl. are 'forms' of a rather variable and widespread species. However, since the characteristics, especially the thickening of the carnose lip, can hardly be distinguished on dried material, it is most desirable that the latter be studied on living or alcohol-preserved material.

The flowers of the specimens collected by Gjellerup in northern New Guinea are somewhat smaller than those described in 'Nova Guinea VIII [1909] 74', furthermore the marks on the lateral sepals tend to coalesce and the middle lobe of the lip has on both sides only a single well-developed linear appendage. This plant comes somewhat close to D. insigne Rchb.f. var. subsimplex J.J. Sm.

var. subsimplex J.J. Sm., nov. var.

Tab. XCII B.

(latin diagnosis)

Habitat :?

At first I regarded this plant as a separate species, but after repeated considerations and comparing it with the above D. insigne Rchb.f. material collected by Gjellerup in northern New Guinea I came to the conclusion that it represents only a variety of this species.

The differences are found mainly in the labellum whose lateral lobes are smaller and blunt and whose middle lobe possesses only indications of the typical appendages. The lamella of the column is slightly shorter and broader.

I received the material from Mrs. M. Viêtor Sibinga-Nijman in Batavia.

Dendrobium Vonroemeri J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX

(1910), 12; Krzl., in Engl. Pflanzenr. Heft 45, 362.

Tab. XCII C.

(latin diagnosis)

Dutch New Guinea : Mount Agathodämons growing terrestrially, alt.
c. 2577m (von Römer no. 1329, flowering in Nov. 1909).

According to the description, it appears that this species is most closely related to D. glossorrhynchoides Schltr. However, it does not belong to my section Biloba (Monanthos Schltr.) but rather to the section Grastidium. Due to the scarcity of material available to me, I cannot decide if it should perhaps form a separate section together with D. glossorrhynchoides Schltr. and D. herpetophytum Schltr. The column of the solitary flower was mutilated at the apex.

According to von Römer's note the flowers are white.

Section : Biloba

Dendrobium erectifolium J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 16; in 'Nova Guinea VIII, (1909), 76, t. XXVI, 84; Krzl., in Engl. Pflanzenr. Heft 45, 163.

Tab. XCIII A.

Dutch New Guinea : At the upper Digul [River] (B. Branderhorst 1909, living plant in cultivation at Hort. Bog. under no. 104B.)

The section which coincides with Schlechter's Monanthos is completely different from Grastidium.

Dendrobium isochiloides Krzl. var. pumilum J.J. Sm., in Nova Guinea VIII (1909), 77, t. XXXVI, 85; Krzl., in Engl. Pflanzenr. Heft 45, 163.

Dutch New Guinea : At the Noord River, on trees of the plain (von Römer no. 434, flowering in Oct. 1909); on the upper Digul [River] (B. Branderhorst 1909, living plant in cultivation in Hort. Bog. under no. 35B).

Section : Pedilonum

Dendrobium Smilliae F.v.M., Frag. VI, 94, etc.

Dutch New Guinea : At the upper Digul [River] (B. Branderhorst 1909, living plant in cultivation at Hort. Bog. under nos 74B and 117B); on the lower Utaqua River (B. Branderhorst, living plant in cultivation at Hort Bog. under no. 300B).

Dendrobium glomeratum Rolfe, in Kew Bull. (1894), 155; in Gard. Chr. (1894), I, 653, fig. 80; Krzl., in Engl. Pflanzenr. Heft 45, 114.

Tab. XCIII B.

(latin diagnosis)

Dutch New Guinea : At the Noord River (Lorentz Expedition 1909, Rachmat, living plant in cultivation in Hort. Bog. under nos 254B and 268B).

The size of the flowers of this pretty plant are rather variable; those described above are the largest I have seen. Occasionally, the mentum at the front is opened up almost to the apex.

Dendrobium Novae Hiberniae Krzl., in Österr. Bot. Zeitschr. XLIV (1894), 301; in Engl. Pflanzenr. Heft 32 (1910) [1907], 135, fig. 9, A - D.

Tab. XCIII C.

(latin diagnosis)

Dutch New Guinea : At the upper Digul [River] (B. Branderhorst 1909, living plant in cultivation at Hort. Bog. under nos 121B and 195B); at the Noord River, on trees in the swamps of the plain (von Römer, no. 250 flowering in Sept. 1909).

German New Guinea : At the upper Kaiserin-Augusta [Sepik] River, alt. c. 400m (K. Gjellerup no. 391, flowering in Nov. 1910).

Kränzlin was kind enough to compare this plant with the Type.

Apparently, this species is not uncommon in New Guinea.

Dendrobium constrictum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 15; in Nova Guinea VIII [1909], 79 (p.p.) XXVII, 87 excl. fig. a; Krzl., in Engl. Pflanzenr. Heft 45, 138.

Tab. XCIV A.

(latin diagnosis)

Dutch New Guinea : At the Noord River, south of Geluks Hill (G.M. Versteeg no. 1509A, flowering in July 1907); (von Römer no. 564, flowering in Oct. 1909); (Rachmat 1909, living plant in cultivation in Hort. Bog. under no. 409R)

D. constrictum J.J. Sm. was described in Bull. XIX after being confused with D. molle J.J. Sm. in the collection made by Versteeg, south of Geluks Hill, during the first New Guinea Expedition led by Lorentz.

Of the living orchids collected during this expedition several were deceptively like D. constrictum J.J. Sm., despite small differences so that I supplemented my description in 'Nova Guinea' [1909], from those plants. These specimens all had leaves violet at the base, a point which Versteeg did not mention.

Later collections of living plants contained, however, not only specimens with leaves coloured violet at the base, but also some with completely green leaves and an exact study revealed that the already verified differences are definite. I have therefore separated the species with leaves violet at the base under the name D. confusum J.J. Sm. It is distinguished from D. constrictum J.J. Sm mainly by the colour of the leaves, more pointed and not so thoroughly crenate apices sloping together but parallel; the less severely concave petals and lip, and the shorter, blunter mentum.

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

5. - D. constrictum J.J. Sm., p.p. in Nova Guinea VIII [1909], 79, t. XXVII, fig. a.

Tab. XCIV B.

(latin diagnosis)

Dutch New Guinea : At the Noord River, south of Geluks Hill (Lorentz Expedition 1907, Djibdja, living plant in cultivation in Hort. Bog. under no. 603Dj); at the upper Digul [River]

(B. Branderhorst 1909, living plant in cultivation in Hort. Bog. under nos 50b and 54B).

The differences between this species and D. constrictum J.J. Sm. have been brought to notice under D. constrictum J.J. Sm.

Section : Calypetrochilus

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

(1908), 15; in Nova Guinea VIII, (1909), 81, t. XXVII, 89; Krzl., in Engl. Pflanzenr. Heft 45, 124.

Dutch New Guinea : At the Noord River, on gravel banks, epiphytic (von Römer no. 347, flowering in Oct. 1909).

During the Lorentz Expedition 1907, Mantri Djibdja collected a plant under no. 526 which flowered in the Buitenzorg Garden in Feb. 1909.

The flowers are small, finely verrucose, glabrous orange-red on the outside, the petals with a narrow pallid margin. The lip is pale orange, pallid at the apex, the small auricles with a narrow purple stripe; the anther pale green with a black-purple transverse stripe and whitish tip, the pollinia olive-green. The ovary and petiole are orange. The bracts are tri-nerved, verrucose on the outside, pallid purple with greenish apices.

Dendrobium mitriferum J.J. Sm., in Bull. Dép. Agr. Ind. Néerl. XXXIX

(1910), 10; Krzl., in Engl. Pflanzenr. Heft 45, 361.

Tab. XCIV.C.

(latin diagnosis)

Dutch New Guinea : Summit of [Mount] Erica, alt. c. 1460m (von Römer no. 1034, flowering in Nov. 1909); slope of the Hellwig Range, alt. c. 2400m (J.W. van Nouhuys, without number, flowering in Oct. 1909); summit of the Hellwig Range, alt.c. 2583m (J.W. van Nouhuys, without number, flowering in Oct. 1909); (von Römer no. 1218, flowering in Nov. 1909); Went Range (J.W. van Nouhuys no. 3).

A pretty species which could perhaps be united with D. subclausum

Rolfe. Rolfe and Kränzlin do not, however, mention the serrated leaves and the lip which is attached to the column-foot upwards for a considerable length.

The number 1034 was represented only by a single detached flower, but it probably belongs to this species. The dorsal sepal was yellow, the mentum orange and the lip orange-red at the tip.

Dendrobium uliginosum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910), 11; Krzl. in Engl. Pflanzenr. Heft 45, 362.

Tab. XCIV D.

(latin diagnosis)

Dutch New Guinea : At the Noord River, on trees in the swamps of the plain (von Römer no. 4, flowering in Sept. 1909).

According to the descriptions, this species is related most closely to D. Lawesii F.v.M., D. Pseudo-Mohlianum Krzl. and D. Warburgianum Krzl. Schlechter regards the latter two species as identical with D. Lawesii F.v.M., although the descriptions show rather large differences. In Engler's Pflanzenreich Heft 45, 125, Kränzlin unites also D. Pseudo-Mohlianum Krzl. with D. Lawesii F.v.M.

D. uliginosum J.J.Sm. is distinguished from all three of these species by the obovate dorsal sepal and spatulate petals.

Furthermore, D. Lawesii F.v.M.* has pointed bracts, the lateral sepals are connate much further up and the apices of the lip are more deeply separated whilst D. Pseudo-Mohlianum Krzl. has only two-flowered inflorescences, pointed bracts, much shorter sepals and petals, and D. Warburgianum Krzl. has pointed bracts and a severely lacerated labellum apex.

The flowers of D. uliginosum J.J. Sm. are violet-red.

*Footnote by J.J. Smith : 'I had only Kränzlin's description (Österr. Bot. Zeitschr. XLIV, 208) and Engler's Pflanzenreich nos 45, 126 available. From the description in Pflanzenreich, D. Lawesii F.v.M.

has a 'labellum minute denticulatum' but the accompanying illustration shows the lip deeply lacerated. I presume that the illustration belongs to D. Warburgianum Krzl. It is hardly possible, in any case, to define the related species correctly from the conflicting descriptions.'

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

Tab. XCV A.

Dutch New Guinea : Treub Range, alt. c. 2100 - 2300m (J.W. van Nouhuys, without number, flowering in Oct. 1909).

Only a few flowers exist of this species belonging to Schlechter's section Calypetrochilus. It differs from related species in having a mentum completely open at the front, a lip very broad at the tip, bilobed with small serrations and a column with two retrorse subulate stellidia. Such stellidia are unknown to me in the genus Dendrobium, but appear in several species of Bulbophyllum, e.g. B. virescens J.J. Sm. B. inunctum J.J. Sm. B. phaeanthum Schltr. etc., as well as in Chrysoglossum, Acriopsis etc.

The sepals and petals appear to be purple or violet, the lip yellow. However, the colours were not noted by the collector.

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

Tab. XCV B.

(latin diagnosis)

Dutch New Guinea : Between the Hellwig Range and the Wilhelmina Top (J.W. van Nouhuys no. 4, 1909).

This species of the section Calypetrochilus is easy to recognise from the small oval leaves and the severely bent mentum. Unfortunately, more precise details of localities and the colour of the flowers are missing.

Section : Oxyglossum

Dendrobium pentagonum Krzl., in Engl. Pflanzenr. Heft 45, 128.

Dutch New Guinea : Summit of the Wichmann Range, alt. c. 2800 - 3000m (J.W. van Nuhuys sub. no. 17, flowering in Oct. - Nov. 1909); (von Römer no. 1344 (collected by Lorentz), flowering in Dec. 1909); Hubrecht Range, alt. c. 3000m (J.W. van Nuhuys no. 20, flowering in Dec. 1909).

The description of this plant is rather a doubtful one. In some respects, Kränzlin's description fits well, but the 'labellum cuneatum vel obvatum.....cuspidatum' is surely not applicable. On the other hand it should be pointed out that the lip of 2.7 cm length and 0.6 cm breadth can hardly be interpreted as 'labellum obovatum'.

The measurements given by Kränzlin are somewhat smaller than those of the flowers I examined.

From the description, D. violaceum Krzl. is probably closely related to this species, but in Kränzlin's Monograph it is separated by 20 pages. Although the colour of the flowers from van Nuhuys' collection (described by the collector as transparent grape-blue with a deep blue lip, blood-red at the tip) agrees exactly with that of D. violaceum Krzl., the two plants do not really appear to be identical.

The keels of the not long-pointed [sic] sepals are not mentioned, the mentum is longer and the lip narrower.

The comparison of D. pentagonum Krzl. with D. subacaule Reinw. is probably correct, but nevertheless the plants are separated by 51 pages [Ed. - in Kränzlin's Monograph] and placed in very different groups.

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

Tab. XCV C.

(latin diagnosis)

German New Guinea : Central Range, on the upper Kaiserin-Augusta

[Sepik] River, alt. c. 1500m epiphytic (K. Gjellerup no. 390, flowering in Nov. 1910).

This species belongs to Schlechter's section Oxyglossum and appears to be closely related to D. violaceum Krzl. and its description is in several respects close to that of the latter.

There are differences in width of the leaves, sepals, petals and lip, colouring and especially in the length of the mentum, which in D. violaceum Krzl. is 1.0 cm long and in D. tenuicalcar J.J. Sm. is 2.7 cm long.

The alcohol-preserved fragmented parts bear a leaf at the apex and two dried-up sheaths; thus the pseudobulbs are probably tri-foliate.

The flowers according to Gjellerup are deep rose-red flushed with pale violet.

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

XXXIX (1910), 12; Krzl., in Engl. Pflanzenr. Heft 45, 362.

Tab. XCVI A.

(latin diagnosis)

Dutch New Guinea : Mount Agathodämons, alt. c. 2577m (von Römer nos 1294 and 1297, flowering in Nov. 1909).

Unfortunately, only a few small fragmented pieces of this species exist so that the structure of this terrestrial plant remains unknown.

It probably belongs to Schlechter's section Oxyglossum. The sections Oxyglossum and Calypstrochilus should be defined more critically; perhaps it would be better to consider them as sub-divisions of section Pedilonum.

According to vonRömer the rather large flowers are pleasantly coloured. The sepals are pale yellow, the lip mainly dark green with a red tip and a yellow transverse stripe. The leaves are red-brown in living condition.

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

XXXIX (1910), 7; Krzl., in Engl. Pflanzenr. Heft 45, 360.

Tab. XCVI B.

(latin diagnosis)

Dutch New Guinea : Mount Agathodämons, growing terrestrially, alt.

c. 2577m (von Römer nos 710 and 1296, flowering in Oct. - Nov.

1909); on the slopes of the Hellwig Range, alt. c. 2400m (J.W. Van Nouhuys, flowering in Oct. 1909).

This interesting and pretty species, because of its branched stems, reminds one of the genus Glomera which, likewise, is plentifully represented in this region.

D. Agathodaemonis J.J. Sm. grows in a moss-covered stone habitat like all the other orchids occurring here, e.g. species of the genera Aglossorrhyncha, Mediocalcar, Dendrobium, Phreatia and Vonroemeria. No epiphytic orchids were observed.

D. Agathodaemonis J.J. Sm. is probably best placed in the section Oxyglossum.

Section : Amblyanthus

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

(1908), 19; in Nova Guinea VIII (1909), 83, t. XXVIII, 91.

Dutch New Guinea : On the upper Digul [River] (B. Branderhorst

1909, living plant in cultivation at Hort. Bog. under nos 109B and 44B); on the north coast (K. Gjellerup 1910, without number).

This species is united by Kränzlin with D. melanostictum Schltr. in Engler's Pflanzenreich Heft 45, 110.

Section : Distichophylla

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

(cum fig.), - Appendicula sp. Krzl., in Engl. Pflanzenr. Heft 45 304.

Dutch New Guinea : At Humboldt Bay, near Hollandia Bivouac, on

rocks at the river banks, alt. c. 40m (K. Gjellerup no. 286,
flowering in Apr. 1910).

Eria Lindl.

Section : Convolutae

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

German New Guinea : At the middle Kaiserin-Augusta [Sepik]
River, in primary forest, alt. c. 60m (K. Gjellerup, no. 387,
flowering in Nov. 1910).

Section : Hymeneria

Eria 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 : At the Noord River on trees in the primary
forest of the plain (von Römer no. 438, flowering in Oct. 1909).

Eria Hollandiae J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XLV (1911), 7.

Tab. XCVII.

(latin diagnosis)

Dutch New Guinea : Hollandia Bivouac, on a tall tree in the primary
forest, on a hill, alt. c. 50m (K. Gjellerup no. 302, flowering in
Aug. 1910).

This species is closely related to E. moluccana Schltr. et J.J. Sm.,
but differs in the relatively shorter inflorescences, the absence of the
strong thickened folds of the lip, the three ridges extending up to the
middle lobe of the lip, the broad shallow bi-lobed middle lobe and the
shape of the anther.

According to Gjellerup the flowers have a pleasant fragrance and
are coloured yellowish white with a deep yellow longitudinal stripe on
the lip.

Eria Lorentziana J.J. Sm. et Krzl. - E. clausa J.J. Sm., in Bull. Dép.
Agric. Ind. Néerl. XXXIX (1910), 13.

Tab. XCVIII A.

(latin diagnosis)

Dutch New Guinea : At the Noord River, on trees in the primary forest, in swamps on the plain (Lorentz Expedition 1907, Djibdja, living plant in cultivation in Hort. Bog. under no. 240 Dj); (von Römer no. 201, flowering in Sept. 1909).

Kränzlin was kind enough to point out that E. clausa had already been used by King and Pantling. On his suggestion we are now naming this species E. Lorentziana J.J. Sm. et Krzl.

The flowers never open very well and all regularly produce fruit. The pollination evidently occurs already in the bud.

Bulbophyllum Thou.

Section : Sestochilos [Sestochilus]

Bulbophyllum macrobulbum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910). 4.

Tab. XCVIII B.

(latin diagnosis)

Dutch New Guinea : In the southern region (Lorentz Expedition 1909, Rachmat, living plant in cultivation at Hort. Bog. under nos 63R, 83R and 109R).

This species was collected in 1909 by Rachmat, the Mantri of the Botanical Gardens, during the second Lorentz Expedition and flowered shortly after arrival at Buitenzorg.

It belongs to the section Sestochilus and is distinguished by the relatively thick pseudobulbs, very much shortened inflorescences and the dotted flowers. The creased petals are noteworthy.

Bulbophyllum Lorentzianum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910), 3.

Tab. XCIX A.

(latin diagnosis)

Dutch New Guinea : South of Geluks Hill (Lorentz Expedition 1907, Djibdja, living plant in cultivation at Hort. Bog. under no. 465Dj).

This species more-or-less represents a transition between the sections Sestochilus and Monanthaparva, but is closest to the former section.

According to the habit, consistency of the flowers and the shape of the column which is provided with broad stelidia, the plant belongs to the relationship of B. Pahudii Rchb.f., B. Binnendijkii J.J. Sm., B. uniflorum Hassk., etc. The petals, however, are similar to those in the section Monanthaparva.

Bulbophyllum Versteegii J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 10; in Nova Guinea VIII (1909), 102, t. XXXIV, 113.

Dutch New Guinea : At the Noord River, on trees in the primary forest of the plain (von Römer nos 351 and 658, flowering in Oct. 1909).

Bulbophyllum longipedicellatum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910), 3.

Tab. XCIX B.

(latin diagnosis)

Dutch New Guinea : At the Noord River, on trees in the primary forest (von Römer no. 686, flowering in Oct. 1909).

This species exists also only as an incomplete specimen, so that the general structure of the plant is unknown. Quite remarkable is the much-extended pedicel. The lateral sepals are yellow-black-striped, the lip brown-black and the column green.

var. Gjellerupii J.J. Sm., nov. var.

Tab. XCIX C.

(latin diagnosis)

German New Guinea : At the upper Kaiserin-Augusta [Sepik] River,

in the primary forest (K. Gjellerup no. 393, flowering in Nov. 1910).

I thought it desirable to describe the variety in detail as it looks rather different from the Type, particularly as only one flower of the latter existed. It is distinguished by the lateral sepals which are connate at the base and hardly narrowed at the apex. According to the descriptions, the colour of the flowers differs; Gjellerup gives them as white with blue-violet patches, greenish on the outside.

I have placed these last two species under Sestochilus even though they hardly belong there. My material is inadequate to give a satisfactory classification of this genus which is strongly represented in New Guinea.

Section : Monanthaparva

Bulbophyllum Blumei (Lindl.) J.J. Sm., in Fl. Buit. VI, Orch. 459; etc.

Dutch New Guinea : At the Noord River (Lorentz Expedition 1907, Djibdja, living plant in cultivation at Hort. Bog. under no. 199Dj).

The flowers are 7 cm long.

var. longicaudatum J.J. Sm., nov. var.

Tab. C A.

(latin diagnosis)

Dutch New Guinea : At Humboldt Bay near Hollandia Bivouac, epiphytic in primary forest on the hill alt. c. 50m (K. Gjellerup no. 388, flowering in Dec. 1910).

The variety differs in the very long-tailed sepals.

B. masdevalliaceum Krzl. appears to me to be only a large-flowered variety of B. Blumei (Lindl.) J.J. Sm., which appears to be a very variable species.

Bulbophyllum muricatum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XLV (1911), 9.

Tab. C B.

(latin diagnosis)

Dutch New Guinea : Wichmann Range, alt. c. 2800 - 3000m, growing terrestrially (J.W. vanNouhuys sub. no. 17, flowering in Oct. - Nov. 1909); Hubrecht Range, alt. c. 3100m (J.W. van Nouhuys, flowering in Dec. 1909).

Unfortunately, there exist only a few inflorescences of this extremely interesting species which is probably best fitted into the section Monanthaparva and thus, for the present, nothing can be said regarding its vegetative structure.

Most remarkable are the ovaries covered with soft bristles extending up to the middle of the sepals which are connate, so much so that the pressure of the ovary on the labellum causes the flower to open. The petals are more-or-less like those of B. Epicrianthes Hook. f. and B. mirum J.J. Sm.

According to the notes of the collector the flowers are yellowish green or pallid green with brown warty dots.

Bulbophyllum falciferum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX [1910], 3.

Tab. C C.

(latin diagnosis)

Dutch New Guinea : At the Noord River, on trees in the primary forest, on muddy ground (von Römer no. 251, flowering in Sept. 1909).

A very characteristic species which, for the time being, I have placed in the section Monanthaparva, but which would probably be better located in the section Cirrhopetalum.

Unfortunately, only a few flowers were collected and preserved in alcohol.

Bulbophyllum lineariflorum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XLV (1911), 9.

Tab. CI. A.

(latin diagnosis)

Dutch New Guinea : At the Noord River, on the hills near Alkmaar
(Lorentz Expedition 1909, Rachmat, living plant in cultivation in
Hort. Bog. under no. 477R).

This species is closely related to B. recurviflorum J.J. Sm.,
B. cryptanthum Schltr., B. polyblepharon Schltr., B. dischidiifolium
J.J. Sm., etc., which constitute a well characterized sub-group of the
section Monanthaparva.

Bulbophyllum stabile J.J. Sm. [sp. nov.]

Tab CI B.

(latin diagnosis)

Dutch New Guinea : At the Noord River (Lorentz Expedition 1907,
Djibdja, living plant in cultivation at Hort. Bog. under no.
279Dj).

The description was made from several living plants in the Botanical
Garden at Buitenzorg.

The species is closely related to B. callipes J.J. Sm., but is,
however, distinguished by the longer stemmed, differently coloured
flowers; an immovable broader labellum, warty only towards the apex, and
margins, which are, however, less severely retrorse; a narrower column
and shorter bracts.

After repeated comparison of B. callipes J.J. Sm. and B. stabile
J.J. Sm., I decided to regard the latter as a separate species, not a
variety of B. callipes J.J. Sm.

Bulbophyllum xanthoacron J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XLV
(1911), 10.

Tab. CII A.

(latin diagnosis)

Dutch New Guinea : South of Geluks Hill (Lorentz Expedition 1907,
Djibdja, living plant in cultivation at Hort. Bog. under no. 442Dj).

This species is very closely related to B. callipes J.J. Sm.,

which is, however, distinguished by its larger flowers, the apices of the sepals not being yellow, the petals having a different shape and the shorter, relatively much narrower, clawed labellum.

Among the living orchids from New Guinea introduced to Buitenzorg, I came across several specimens of B. callipes J.J. Sm. which agreed completely in floral structure with Versteeg's Types. I saw only a solitary plant of B. xanthoacron J.J. Sm., but by the examination of a number of specimens, it may probably become apparent that B. callipes J.J. Sm. is a variable species and that B. xanthoacron J.J. Sm. is only one of its varieties.

B. chrysoglossum Schltr. is also related, but from its description is immediately recognised by the glabrous, non-papillose labellum and the anther, split at the tip.

Bulbophyllum coloratum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910), 2.

Tab. CII B.

(latin diagnosis)

Dutch New Guinea : South of Geluks Hill (Lorentz Expedition 1907, Djibdja, living plant in cultivation in Hort. Bog. under no. 855Dj).

This species flowered at Buitenzorg in Sept. 1909 for the first time. It is closely related to B. callipes J.J. Sm., from which it is distinguished by larger flowers, colour, relatively longer petals and the shape of the labellum, which is broader at the base and at the front possesses more retrorse margins.

B. trachyglossum Schltr. is also related, but has very thin pseudo-bulbs, different-coloured flowers and much shorter petals.

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

Tab. CII C.

(latin diagnosis)

Dutch New Guinea : At the Noord River (Lorentz Expedition 1907, Djibdja, living plant in cultivation in Hort. Bog. under no. 278Dj); at the upper Digul [River] (B. Branderhorst living plant in cultivation at Hort. Bog. under no. 51B).

This species belongs to the relationship of B. callipes J.J. Sm.

This group, which is distinguished by an immovable or slightly movable labellum, a thin bent column and a much shortened column-foot, is apparently represented by many species in New Guinea.

Bulbophyllum alkmaarense J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XLV (1911), 7.

Tab. CIII A.

(latin diagnosis)

Dutch New Guinea : South of Geluks Hill (Lorentz Expedition 1907, Djibdja, living plant in cultivation in Hort. Bog. under no. 667Dj).

A small species related to B. callipes J.J. Sm. and with the habit of B. tenellum Lindl., B. ovalifolium Lindl., etc.

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

Tab. CIII B.

(latin diagnosis)

Dutch New Guinea : South of Geluks Hill (Lorentz Expedition 1907, Djibdja, living plant in cultivation in Hort. Bog. under no. 604D).

It is remarkable that these species grouped around B. callipes J.J. Sm. with an immovable or only slightly movable labellum, a column lacerated in front and a very short column-foot and which may be regarded best as a sub-group of the species included in the section Monanthaparva, all differ greatly in habit.

B. frustans J.J. Sm. resembles B. perductum J.J. Sm. and

B. tortuosum Lindl. in habit, whilst B. alkmaarense J.J. Sm. and, less distinctly B. cruciatum J.J. Sm., possess the monopodial arrangements of pseudobulbs of B. cernuum Lindl., B. ovalifolium Lindl., B. tenellum Lindl., B. Stormii J.J. Sm., etc., whilst B. callipes J.J. Sm. looks similar to B. hydrophyllum J.J. Sm.

This subordinate group is apparently very widespread in New Guinea and represented by numerous species.

Bulbophyllum quadricaudatum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XLV (1911), 10.

Tab. CIV A.

(latin diagnosis)

Dutch New Guinea : Salt spring at the Beguwri River, in the primary forest on a dead tree-trunk (K. Gjellerup no. 225, flowering in June 1910).

A species of the section Monanthaparva of the relationship of B. callipes J.J. Sm.

The large flowers, the long extended sepals and the almost isomorphic lip, bi-carinate below, distinguishes it from other species in the group.

Unfortunately, only two flowers were collected and preserved in alcohol.

Bulbophyllum membranaceum T. et B., in Nat. Tijdschr. Ned. Ind. III (1855), 397; Miq., Fl. Ind. Bat. III, 647; Rchb.f., Walp. Ann. VI, 249; J.J. Sm., in Fl. Buit. VI, Orch. 465; Atlas, f. CCCLVI. — B. Avicella Ridl., in Journ. Linn. Soc. Bot. XXXII, 270; Mater. Fl. Mal. Penins. I, 67. — Phyllorchis membranacea O.K., Rev. Gen. Pl. II, 667.

Dutch New Guinea : At the upper Digul [River] (B. Branderhorst, living plant in cultivation at Hort. Bog. under no. 55B).

Geographic distribution : Java, Sumatra, Singapore, Penang.

The lateral sepals are paler coloured on the outside than the specimens from Java and Sumatra.

Bulbophyllum acutilingue J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 4; in Nova Guinea VIII (1909), 89, t. XXXIX, 96.

Dutch New Guinea : At the Noord River on trees in the primary forest of the plain (von Römer nos 345 and 664, flowering in Oct. 1909).

Bulbophyllum Planitiae J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910), 4.

Tab. CIV C.

(latin diagnosis)

Dutch New Guinea : At the Noord River (von Römer no. 569, flowering in Oct. 1909).

This species belongs to the relationship of B. perductum J.J. Sm. The flowers are yellow.

Bulbophyllum ulcerosum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910), 5.

Tab. CIV B.

(latin diagnosis)

Dutch New Guinea : Foothills of the Hellwig Range, facing the highlands, alt.c. 750m (von Römer no. 809, flowering in Nov. 1909).

This species is very closely related to B. tortuosum Lindl., but differs in its narrow leaves, blunt petals and lateral sepals, a longer, more bent clawed lip and less pointed column auricles. One could regard it as a variety of B. tortuosum Lindl.

B. indragiriense Schltr., which I had earlier already united with B. tortuosum Lindl., is more robust than the Javanese plant, but shows no differences in the flowers.

The flowers of B. ulcerosum J.J. Sm. are, according to the notes of the collector, red, the apices of the lateral sepals yellow.

Section : Intervallata

Bulbophyllum Digoelense J.J. Sm., in Bull. Dép. Agric. Ind. Néerl.

XLV (1911), 10.

Tab. CV A.

(latin diagnosis)

Dutch New Guinea : At the upper Digul [River] (B. Branderhorst, living plant in cultivation in Hort. Bog. under no. 23B).

The flowers of this species appear very similar to those of B. macrochilum Rolfe, B. attenuatum Rolfe, B. tardeflorens Ridl., and B. Stella Ridl. The structure of the lip reminds one very much of B. amplebracteatum T. et B.

The stigma is quite remarkable.

var. septemtrionale J.J. Sm., nov. var.

Tab. CV B.

(latin diagnosis)

Dutch New Guinea : At Humboldt Bay near Hollandia Bivouac, epiphytic in the primary forest on a hill, alt. c. 40m (K. Gjellerup no. 400, flowering in Dec. 1910).

This variety differs from the Type in more robust inflorescences, the much shorter caudate petals, a non-acuminate lip with still smaller lateral lobes, the column with longer auricles and apparently differently coloured flowers.

According to Gjellerup the flowers are greenish yellow, the lip in the middle brown-red with a white tip.

Bulbophyllum Papilio J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910), 4.

Tab. CVI B.

(latin diagnosis)

Dutch New Guinea : At the Noord River (Lorentz Expedition 1907, Djibdja, living plant in cultivation in Hort. Bog. under no. 863Dj).

A very distinct species of the section Intervallata, remarkable because of the appreciably extended inflorescences and the large flat labellum.

Bulbophyllum dubium J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXII

[1909], 36; in Nova Guinea VIII (1909), 139, t. XLVI, 154.

Dutch New Guinea : At the Noord River, on trees of the gravel banks of the plain (von Römer no. 390, flowering in Oct. 1909).

This plant may be identical with B. aemulum Schltr., as considered by Schlechter. The bulbs, however, according to the description, are only 0.3 cm long, whereas in B. dubium J.J. Sm. they measure 1.7 - 2.0 cm and, furthermore, several other differences occur in the description.

Section : Dubious status

Bulbophyllum breviscapum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl.

XXXIX (1910), 2.

Tab. CVI A.

(latin diagnosis)

Dutch New Guinea : At the Noord River, on trees in the primary forest of the plain (von Römer no. 435, flowering in Oct. 1909).

This species does not fit into any of the accepted sections.

The flowers are white.

Grammatophyllum Bl.

Grammatophyllum papuanum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XLV

(1911), 11.

Tab. CVII.

(latin diagnosis)

Dutch New Guinea : Salt spring on the Beguwri River on an approximately 60m tall tree, alt. c. 160m (K. Gjellerup no. 246, flowering in June 1910).

Although this plant is very closely related to G. speciosum Bl.,

the characteristics of the lip and column appear to me to justify the formation of a new species.

The leaves and flowers are smaller than those of G. speciosum Bl. which could, however, be attributed to the circumstances [of habitat]. The shape of the sepals and petals is the same in both plants. The lip, however, in G. papuanum J.J. Sm. is relatively smaller and possesses only 17 veins (compared to 23 - 25 in G. speciosum Bl.)

The ridges of the lip are formed with significant differences. In G. papuanum J.J. Sm. the thick convex ridges approximately in the centre are raised severely, obtuse-angled, convex, and disappear gradually towards their base. In G. speciosum Bl. they are less strongly developed and only the middle one disappears towards the base, the lateral ones are laminated on the lower part and separated from the upper thicker part by a weak incision. In G. papuanum J.J. Sm. the middle lobe is almost glabrous and only in the upper part of the labellum on both sides of the ribs are a few hairs visible. In G. speciosum Bl. the middle lobe is closely villose. The lateral lobes of G. papuanum J.J. Sm. are more robust, almost linear acuminate.

The column also, in both species, is quite different; the calyx in G. papuanum J.J. Sm. is truncated at the base whilst in G. speciosum Bl. there are two rather large vertical, parallel, ovate-triangular lobes in front.

The description was made from two alcohol-preserved flowers already fertilized, hence I could not describe the column-apices, stigma or pollinia.

According to Gjellerup the flowers are pale brown-yellow with numerous round dark red-brown patches; the lip yellow with brown margins and longitudinal stripes; the column pale pink-violet with pale brown-rose-red patches. They possess a sweet fragrance.

Octarrhena Thw.

Octarrhena Lorentzii J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910), 18.

Tab. CVIII A.

(latin diagnosis)

Dutch New Guinea : Hubrecht Valley, alt. c. 3000m (von Römer no. 1338, flowering in Nov. 1909).

This plant is probably best placed in the genus Octarrhena with which it has most characteristics in common. Noteworthy are the sepals connate at the base and it remains to be determined whether those of Octarrhena parvula Thw. are similarly fused.

Chitonanthera Schltr. differs through its four pollinia, but in habit is very similar. The column of Octarrhena Lorentzii J.J. Sm. is also reminiscent of Chitonanthera.

The genus Vonroemeria J.J. Sm. is also of this relationship. V. tenuis J.J. Sm. is similar in habit to Schlechter's Chitonanthera species, but has sepals which are fused much further up, a differently formed column and probably eight pollinia. From Octarrhena it differs in the lip hidden in the cavity of the lateral sepals, the column and the presence of a short column-foot.

The leaves of the existing specimens of O. Lorentzii J.J. Sm. had nearly all fallen off.

The plant was collected by H.A. Lorentz and transferred to von Römer's collection.

According to von Römer the colour of the flower is orange.

Vonroemeria J.J. Sm.

(Latin diagnosis of genus.)

Vonroemeria tenuis J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910), 22.

Tab. CVIII B.

(latin diagnosis)

Dutch New Guinea : Mount Agathodämons, alt. c. 2577m (von Römer no. 1323, flowering in Nov. 1909).

The only material available is a small branch with an inflorescence.

Under Octarrhena Lorentzii J.J. Sm. I have already discussed the differences between this species and the related genera. The pollinia were missing in both flowers examined, but the structure of the anther indicates eight.

In Bull. l.c. I described the plant as an epiphyte; however, von Römer advises me that on Mount Agathodämons no epiphytic orchids were noted, they all grow there on moss-covered rocks.

Phreatia Lindl.

Section : Caulescentes

Phreatia semiorbicularis J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX (1909) [1910], 19.

Tab. CIX A.

(latin diagnosis)

Dutch New Guinea : Between Alkmaar and the Hellwig Range (von Römer no. 713, flowering in Oct. 1909).

Among the species from Dutch New Guinea, this species until now stands isolated. It is, however, probably closely related to P. longicaulis Schltr. Both these species are characterised by their extended peduncles and relatively small leaves and could be separated from other species as a section Caulescentes.

Section : Ebulbosae

Phreatia bicostata J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 31; in Nova Guinea VIII (1909), 105, t. XXXV, 116.

Dutch New Guinea : Mount Agathodämons, alt. c. 2577m (von Römer no.

1298, flowering in Nov. 1909).

Again unfortunately, also only a solitary inflorescence was collected.

Phreatia thelasiflora J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 32; in Nova Guinea VIII (1909), 107, t. XXXVI. 120.

Dutch New Guinea : At the Noord River, on trees in the primary forest of the plain (von Römer nos 287 and 571, flowering in Sept. - Oct. 1909.

Phreatia collina J.J. Sm., sp. nov.

Tab. CIX B.

(latin diagnosis)

German New Guinea : At the Kaiserin-Augusta [Sepik] River, epiphytic in the primary forest, alt. c. 400m (K. Gjellerup no. 399, flowering in Nov. 1910.

A not very characteristic species with linear leaves and inflorescences equally long, rhombic-shaped petals and the ovary almost stalkless.

Section : Bulbosae

Phreatia Habbemae J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910), 18.

Tab. CIX C.

(latin diagnosis)

Dutch New Guinea : Between Alkmaar and the Hellwig Range (von Römer no. 712, flowering in Oct. 1909).

Among the species with pseudobulbs this one is distinguished by the much shortened lamina. The small lobes at the base of the claw occur also in P. bicostata J.J. Sm., which, however, belongs to the section Ebulbosae.

The species honours D. Habbema under whose order the Dajaks collected for the expedition.

Phreatia repens J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910),
19.

Tab. CX A.

(latin diagnosis)

Dutch New Guinea : Mount Agathodämons, alt. c. 2577m (von Römer
no. 1299, flowering in Nov. 1909.

This species is closely related to P. laxa Schltr., but distinguished
by its laxer growth and appreciably shorter clawed labellum.

P. prorepens Rchb.f., from the Philippines, is also a close
relative. Compared with Plate 43 in 'Ames Orchidaceae III', this
species, however, has wider leaves, relatively much shorter inflorescences
and a differently shaped lip.

The flowers are white with a yellow anther.

Phreatia calcarata J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908),
31; in Nova Guinea VIII (1909), 108, t. XXXVI, 121.

Dutch New Guinea : At the Noord River, on trees in the primary
forest of the plain (von Römer no. 685, flowering in Oct. 1909).

The specimen was withered.

Thelasis Bl.

Section : Oxyanthera

Thelasis phreatioides J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XLV
(1911), 11.

Tab. CX B.

(latin diagnosis)

Dutch New Guinea : At the upper Digul [River] (B. Branderhorst
1909, living plant in cultivation in Hort. Bog. under no. 99).

Because of its small white flowers, the plant, at first sight,
looks very similar to a Phreatia; the long rostrate anther and the
extended rostellum show, however, that it is correctly placed in the genus
Thelasis.

This is the first species of the genus from our region and differs from Oxyanthera papuana Schltr. from German New Guinea in much smaller flowers, longer bracts, etc.

[Ed. - In his 'Die Orchidaceen von Deutsch-Neu-Guinea' (1913) p. 911, Schlechter places Thelasis phreatioides J.J. Sm. into the genus Phreatia as P. digulana Schltr. On p. 901 he urges the reinstatement of both Oxyanthera and Thelasis as genera which Smith had combined under Thelasis]

Podochilus Bl.

Podochilus imitans Schltr., in K. Schum. et Laut. Nachtr. Fl. Deutsch.

Schutzgeb. Südsee, 118; J.J. Sm., in Nova Guinea VIII (1909), 110, t. XXXVII, 123.

Dutch New Guinea : At the Noord River, on trees in the primary forest of the plain (von Römer nos 249, 387 and 565, flowering in Sept. - Oct. 1909).

Podochilus longipes J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX

(1908), 34; in Nova Guinea VIII (1909), 111, t. XXXVII, 124.

Dutch New Guinea : At the upper Digul [River] (B. Branderhorst 1909, living plant in cultivation at Hort. Bog. under no. 12B)

The young leaves are more-or-less purple-coloured, the flowers white, the petals with a purple patch on the upper half; the lip purple in front with a narrow white longitudinal stripe.

Podochilus scalpelliformis Bl., Rumphia IV, 45, t. 194, f. 4; t. 200C,

Dutch New Guinea : At the upper Digul [River] (B. Branderhorst 1909, living plant in cultivation at Hort. Bog. under no. 59B).

Appendicula Bl.

Appendicula oxysepala J.J. Sm., in Nova Guinea VIII (1909), 114, t.

XXXVIII, 128. - Podochilus oxysepalus Schltr. in K. Schum. et

Laut., Nachtr. Fl. Deutsch. Schutzgeb. Südsee, 120.

Dutch New Guinea : At the upper Digul [River] (B. Branderhorst 1909, living plant in cultivation in Hort. Bog. under no. 207B).

The sepals and petals are yellowish, the lip white with very pallid purple-flushed ridges in front; the anther white with a larger dark purple patch on the front half.

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

Dutch New Guinea : Foothills of the Hellwig Range, alt. c. 750m (von Römer nos 810, 945 and 949, flowering in Nov. 1909.)

Appendicula pendula Bl. var. Chalmersiana J.J. Sm., in Nova Guinea VIII (1909), 117, t. XL, 132; Appendicula Chalmersiana F.v.M., in Wings South. Sc. Rec. I (n.s.) 1885. - Podochilus pendulus Schltr., (pp.) in Mém. Herb. Boiss. (1900), no. 21, 48.

Dutch New Guinea : At the Noord River, on trees in swamps on the plain (von Römer nos 66 and 100, flowering in Sept. 1909).

Appendicula applicata J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908) [3]; in Nova Guinea VIII (1909), 112, t. XXXVIII, 126.

Dutch New Guinea : At the Noord River, on trees in the primary forest of the plain (von Römer no. 684, flowering in Oct. 1909.)

Acriopsis Reimer. [Reinw.]

Acriopsis javanica Reinw., Fl. Lit. II, 4, etc.

Dutch New Guinea : At the upper Digul [River] (B. Branderhorst 1909, living plant in cultivation in Hort. Bog. under nos 7B and 130B).

German New Guinea : At the Kaiserin-Augusta [Sepik] River, alt. c. 50m (K. Gjellerup no. 397, flowering in Sept. 1910).

The flowers of nos 7B and 66B, in cultivation, differ in the paler than usual colour.

The plant collected by Gjellerup is claimed to have white-yellow

flowers.

Phalaenopsis Bl.

Phalaenopsis amabilis Bl., Bijdr. 294, f. 44, etc.

Dutch New Guinea : At the Noord River, on trees in the swamps of the plain (von Römer no. 266, flowering in Sept. 1909).

Chamaeanthus Schltr.

Chamaeanthus paniculatus J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XLV (1911), 12.

Tab. CX C.

Dutch New Guinea : On the hills near Alkmaar (Lorentz Expedition 1909, Rachmat, living plant in cultivation in Hort. Bog. under no. 472R).

This species is distinguished from C. brachystachys Schltr., known from Borneo and Java, by the extended peduncles, branched panicle, laxer inflorescences and remarkable anther.

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.

German New Guinea : At the middle Kaiserin-Augusta [Sepik] River, epiphytic in the primary forest, alt. c. 60m (K. Gjellerup no. 395, flowering in Sept. 1910).

The leaves are longer and narrower than the specimen collected earlier by Versteeg.

Sarcanthus Lindl.

Sarcanthus papuanus J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX

(1910), 19.

Tab. CXI A.

(latin diagnosis)

Dutch New Guinea : At the Noord River, on trees in swamps of the plain (von Römer no. 200, flowering in Sept. 1909).

This species is closely related to S. callosus Rchb.f. and S. proboscideus J.J. Sm., but is easy to distinguish from both by the absence of the calli on the inside of the lateral lobes of the lip. Only a single inflorescence was collected.

Sarcanthus bicornis J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 35; in Nova Guinea VIII, (1909), 123, t. XLII, 139.

Dutch New Guinea : At the upper Digul [River] (B. Branderhorst 1909, living plant in cultivation in Hort. Bog. under no. 192B).

Taeniophyllum Bl.

Taeniophyllum filiforme J.J. Sm., in Bull. Inst. Bot. Buit. VII (1900), 4; in Ic. Bog. II, 127, t. CXXVB; in Fl. Buit. VI, Orch., 623.

Dutch New Guinea : Hollandia Bivouac (Humboldt Bay) on a tree trunk, alt. c. 40m (K. Gjellerup no. 176, flowering in July 1910).

Geographic distribution : Celebes, Borneo, Java, Sumatra.

Taeniophyllum breviscapum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910), 20.

Tab. CXI C.

(latin diagnosis)

Dutch New Guinea : At the Noord River, on trees of the gravel banks (von Römer no. 388, flowering in Oct. 1909).

From its habit of short inflorescences, this species is similar to T. Hasseltii Rchb.f., T. obtusum Bl., T. calcaratum J.J. Sm., etc., but completely different from them all in floral characters.

Taeniophyllum minutiflorum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910), 21.

Tab. CXI B.

(latin diagnosis)

Dutch New Guinea : At the Noord River, on trees of the gravel banks (von Römer no. 389, flowering in Oct. 1909).

A very small-flowered species with orange-yellow flowers, according to the collector.

Taeniophyllum maximum J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910), 20.

Tab. CXII

(latin diagnosis)

Dutch New Guinea : At the Noord River, on trees in the swamps of the plain (von Römer no. 225, flowering in Sept. 1909); salt spring at the Beguwri River, on trees in the primary forest, alt. c. 170m (K. Gjellerup no. 224, flowering in June 1910).

A remarkable species on account of the extraordinary [large] dimensions. The thick carnose, warty labellum is very peculiar and has excavations and a retrorse margin.

Saccolabium Bl.

Saccolabium palustre J.J. Sm., in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 35; in Nova Guinea VIII (1909), 130, t. XLIV, 147.

Dutch New Guinea : At the upper Digul [River] (B. Branderhorst 1909, living plant in cultivation at Hort. Bog.); near Alkmaar (Lorentz Expedition 1909, Rachmat, living plant in cultivation at Hort. Bog. under no. 139R).

Saccolabium 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 : At the Noord^{*} River, on trees in the swamps of the plains (von Römer no. 202, flowering in Sept. 1909).

* J.J. Smith adds the following footnote 'This river which has been mentioned so often, has, in the meantime, been renamed the Lorentz River'.

Acaules

Acriopsis Reinw.

javanica Reinw.

Aglossorrhyncha Schltr.

aurea Schltr.

biflora J.J. Sm. LXXXV,

Agrostophyllum Bl.

brachiatum J.J. Sm.

costatum J.J.Sm.

lamellatum J.J.Sm. LXXX - B,

mucronatum J.J.Sm.

paniculatum J.J.Sm.

spicatum Schltr.

Amblyanthus

Aporum Bl.

Appendicula Bl.

applicata J.J.Sm.

Chalmersiana F.v.M.

flaccida J.J.Sm.

oxysepala (Schltr.) J.J.Sm.

palustris J.J.Sm.

pendula Bl.

var. Chalmersiana F.v.M.

Bigibba

Biloba

Bolbodium

Bulbophyllum Thou.

acutilingue J.J.Sm.

Bulbophyllum Thou.

aemulum Schltr.

alkmaarense J.J.Sm. CIII - A,

amplebracteatum T. et B.

attenuatum Rolfe

Avicella Ridl.

Binnendijkii J.J.Sm.

Blumei (Lindl.) J.J.Sm.

var. longicaudatum J.J.Sm. C - A,

breviscopum J.J.Sm. CVI - A,

callipes J.J.Sm.

cernuum Lindl.

chrysoglossum Schltr.

coloratum J.J.Sm. CII - B,

cruciatum J.J.Sm. CII-C,

cryptanthum Schltr.

Digoelense J.J.Sm. CV - A,

var. septemtrionale J.J.Sm. CV - B,

dischidiifolium J.J.Sm.

dubium J.J.Sm.

Epicrianthes Hook.f.

falciferum J.J.Sm. C - C,

frustrans J.J.Sm. CIII - B,

hydrophyllum J.J.Sm.

indragiriense Schltr.

inunctum J.J.Sm.

lineariflorum J.J.Sm. CI - A,

longipedicellatum J.J.Sm. XCIX - B,

var. Gjellerupii J.J.Sm. XCIX - C,

Lorentzianum J.J.Sm. XCIX - A,

III.

Bulbophyllum Thou.

- macrobulbum J.J.Sm. XCVIII - B,
- macrochilum Rolfe
- masdevalliaceum Krzl.
- membranaceum T. et B.
- mirum J.J.Sm.
- muricatum J.J.Sm. C - B,
- ovalifolium Lindl.
- Pahudii Rchb.f.
- Papilio J.J.Sm. CVI - B,
- perductum J.J.Sm.
- phaeanthum Schltr.
- Planitiae J.J.Sm. CIV - C,
- polybelpharon Schltr.
- quadricaudatum J.J.Sm. CIV - A,
- recurviflorum J.J.Sm.
- stabile J.J.Sm. CI - B,
- Stella Ridl.
- Stormii J.J.Sm.
- tardeflorens Ridl.
- tenellum Lindl.
- tortuosum Lindl.
- trachyglossum Schltr.
- ulcerosum J.J.Sm. CIV - B,
- uniflorum Hassk.
- Versteegii J.J.Sm.
- virescens J.J.Sm.
- xanthoacron J.J.Sm. CII - A,

Bulbosae

Cadetia Gaud.

Calanthe R.Br.

Engleriana Krzl.

Callista Lour.

comata O.K.

Calyptrochilus

Capitatae

Caulescentes

Ceratostylis Bl.

albiflora J.J.Sm.

clavata J.J.Sm.

formicifera J.J.Sm. LXXXVI - B,

indifferens J.J.Sm. LXXXVII - A,

longifolia J.J.Sm. LXXXVII - B,

pugioniformis J.J.Sm.

recurva J.J.Sm. LXXXVI - C,

scirpoides Schltr.

spathulata Schltr.

Chamaeanthus Schltr.

brachystachys Schltr.

paniculatus J.J.Sm. CX - C,

Chitonanthera Schltr.

Chrysoglossum Bl.

nebulosum (Bl.) J.J.Sm.

papuanum (Schltr.) J.J.Sm. LXXVII - A,

simplex (Rchb.f.) J.J.Sm.

Cirrhopetalum Lindl.

Coelogyne Lindl.

asperata Lindl.

Beccarii Rchb.f.

Micholitziana Krzl.

Convolutae

Corymbis Thou.

veratrifolia (Reinw.) Rchb.f.

Corysanthes R.Br.

triloba J.J.Sm. LXXVI - B,

Crepidium

Cryptostylis Bl. [R.Br.]

arachnites (Bl.) Lindl.

Dendrobium Sw.

acuminatissimum Lindl.

var. latifolium J.J.Sm.

Agathodaemonis J.J.Sm. XCVI - B,

aratriferum J.J.Sm.

auricolor J.J.Sm. LXXXVII - D,

bellum J.J.Sm.

Branderhorstii J.J.Sm. XCI - D,

centrale J.J.Sm. LXXXVIII - A,

cochleatum J.J.Sm.

collinum J.J.Sm.

comatum Lindl.

compressum Lindl.

confusum J.J.Sm. XCIV - B,

constrictum J.J.Sm. XCIV - A,

crassiflorum J.J.Sm. XCI - C,

criniferum Lindl.

cyrtosepalum Schltr.

discerptum J.J.Sm. LXXXIX - B,

dulce J.J.Sm.

erectifolium J.J.Sm. XCIII - A,

excavatum Miq.

Dendrobium Sw.

eximium Schltr. LXXXVIII - C,

falcatum J.J.Sm. XC - D,

Gazellae Krzl.

Gjellerupii J.J.Sm. LXXXIX - A,

glomeratum Rolfe XCIII - B,

glossorrhynchoides Schltr.

herpetophytum Schltr.

Horstii J.J.Sm.

hydrophilum J.J.Sm.

imbricatum J.J.Sm. XCI - B,

insigne (Bl.) Rchb.f. XCII - A,

var. subsimplex J.J.Sm. XCII - B,

isochiloides Krzl.

var. pumilum J.J.Sm.

Kingianum Bidw.

var. subquadratum Krzl.

lamellatum Lindl.

Lawesii F.v.M.

longicaule J.J.Sm. XCI - A,

lyperanthiflorum Krzl.

MacFarlanei F.v.M.

macrophyllum A. Rich.

var. subvelutinum J.J.Sm.

melanostictum Schltr.

metachilinum Rchb.f.

mitriferum J.J.Sm. XCIV - C,

molle J.J.Sm.

multistriatum J.J.Sm.

Novae Hiberniae Krzl. XCIII - C,

Dendrobium Sw.

ostrinum J.J.Sm. XC - A,

pentagonum Krzl.

phalangillum J.J.Sm.

planum J.J.Sm.

var. collinum J.J.Sm. XC - B,

pruinatum T. et B.

Pseudo Mohlianum Krzl.

Pulleanum J.J.Sm. XC - C,

quinqüedentatum J.J.Sm.

) rhipidolobum Schltr.

rugosum Lindl.

Rumphiae Rchb.f.

var. quinqüecostatum J.J.Sm.

var. quinqüenervium Krzl.

Smilliae F.v.M.

squamiferum J.J.Sm.

subacaule Reinw.

subclausum Rolfe

subquadratum J.J.Sm.

) tenuicalcar J.J.Sm. XCV - C,

tetrodon (Schltr.) Rchb.f.

transversilobum J.J.Sm. LXXXVII - C,

tumoriferum J.J.Sm. LXXXVIII - B,

uliginosum J.J.Sm. XCIV - D,

validicolle J.J.Sm.

Vannouhuysii J.J.Sm. XCV - A

vexillarius J.J.Sm. XCVI - A,

violaceum Krzl.

Vonroemerii J.J.Sm. XCII - C,

VIII.

Dendrobium Sw.

Warburgianum Krzl.

Wentianum J.J.Sm. XCV - B,

Zippelii J.J.Sm.

Zollingerianum T. et B.

Dendrochilum Bl.

longifolium Rchb.f.

var. Papuanum J.J.Sm.

Dendrocoryne Lindl.

Desmotrichum Bl.

comatum Bl.

criniferum Krzl.

fimbriatum Bl.

Dichopus Bl.

insignis Bl.

Didymoplexis Griff.

minor J.J.Sm.

Diplocaulobium Krzl. [Rchb.f.]

hydrophilum Krzl.

lageniforme Krzl.

phalangillum Krzl.

validicolle Krzl.

Distichae

Distichophylla

Ebulosae

Eria Lindl.

clausa J.J.Sm.

Hollandiae J.J.Sm. XCVII,

javanica (Sw.) Bl.

Eria Lindl.

Lorentziana J.J.Sm. et Krzl. XCVIII - A,

moluccana Schltr. et J.J.Sm.

papua J.J.Sm.

Eulophia R.Br.

imperatifolia Schltr.

var. *viridis* J.J.Sm. LXXVIII - A,

Glomera Bl.

amboinensis (Ridl.) J.J.Sm.

carnea J.J.Sm. LXXXIII - B,

compressa J.J.Sm. LXXXIII - A,

dentifera J.J.Sm.

elegantula (Schltr.) J.J.Sm.

fimbriata J.J.Sm. LXXXII - C,

grandiflora J.J.Sm. LXXXIV - A,

latilinguis J.J.Sm. LXXXII - B,

manicata J.J.Sm. LXXXI - B,

retusa J.J.Sm. LXXXI - C,

subracemosa J.J.Sm. LXXXI - A,

subuliformis J.J.Sm. LXXXII - A,

tenuis (Rolfe) J.J.Sm.

uniflora J.J.Sm.

Glossorrhyncha Ridl.*Goodyera* R.Br.

constricta J.J.Sm. LXXVI - C,

Grammatophyllum Bl.

papuanum J.J.Sm. CVII,

speciosum Bl.

Grastidium

Giulianettia Rolfe

Habenaria Willd.

cruciata J.J.Sm.

dryadum Schltr.

epiphylla Schltr.

Haplochilus Bl.

amboinensis J.J.Sm.

Hetaeria Bl.

elongata Miq.

falcatula J.J.Sm.

oblongifolia Bl.

Hippeophyllum Schltr.

Hymeneria

Intervallata Ridl.

Latouria Bl.

spectabilis Bl.

Lepidogyne Bl.

longifolia Bl.

Liparis L.C. Rich.

cymbidiifolia J.J.Sm.

montana Ridl.

pectinifera Ridl.

pseudo-disticha Schltr.

Rheedii Lindl.

Longicollia

Mediocalcar J.J.Sm.

agathodaemonis J.J.Sm. LXXXIV - B,

bifolium J.J.Sm. LXXXVI - A,

Microsytlis Nutt

arachnoidea Schltr.

latipetala J.J.Sm. LXXX - A,

moluccana J.J.Sm.

var. sagittata J.J.Sm.

pectinata J.J.Sm.

retusa J.J.Sm.

riparia J.J.Sm. LXXIX - C,

Schumanniana Schltr.

xanthochila Schltr. LXXIX - B,

Zippelii J.J.Sm.

Mollifoliae

Monanthaparva

Monanthos

Nephelaphyllum Bl.

papuanum Schltr.

Neuwiedia Bl.

calanthoides Ridl.

cucullata J.J.Sm. LXXV,

Oberonia Lindl.

pedicellata J.J.Sm. LXXVIII - B,

rhizomatosa J.J.Sm. LXXIX - A,

Scortechinii Hook.f.

Octarrhena Thw.

Lorentzii J.J.Sm. CVIII - A,

Octarrhena Thw.

parvula Thw.

Oxyanthera Brogn.

papuana Schltr.

Oxyglossum

Oxystophyllum

Pedilonum

Peristylus Bl.

goodyeroides Lindl.

grandis Bl.

hollandiae J.J.Sm. LXXVI - A,

remotifolius J.J.Sm.

Phalaenopsis Bl.

amabilis Bl.

Pholidota Lindl.

imbricata Lindl.

Phreatia Lindl.

bicostata J.J.Sm.

calcarata J.J.Sm.

collina J.J.Sm. CIX - B,

Habbemae J.J.Sm. CIX - C,

laxa Schltr.

longicaulus Schltr.

prorepens Rchb.f.

repens J.J.Sm. CX - A,

semiorbicularis J.J.Sm. CIX - A,

thelasiflora J.J.Sm.

Phyllorchis Thou.

membranacea O.K.

Platyclinis Benth.

longifolia Hemsl.

Podochilus Bl.

imitans Schltr.

longipes J.J.Sm.

oxysepalus Schltr.

pendulus Schltr.

scalpelliformis Bl.

Pseudoliparis

Saccolabium Bl.

palustre J.J.Sm.

squamulosum J.J.Sm.

Sarcanthus Lindl.

bicornis J.J.Sm.

callosus Rchb.f.

papuanus J.J.Sm. CXI - A,

proboscideus J.J.Sm.

Sestochilus

Spathoglottis Bl.

obovata J.J.Sm. [= parviflora Krzl.] LXXVII - C,

plicata Bl.

Taeniophyllum Bl.

breviscapum J.J.Sm. CXI - C,

calcaratum J.J.Sm.

filiforme J.J.Sm.

Hasseltii Rchb.f.

maximum J.J.Sm. CXII,

minutiflorum J.J.Sm. CXI - B,

Taeniophyllum Bl.

obtusum Bl.

Tainia Bl.

cordifolia Hook.f.

papuana J.J.Sm. LXXVII - B,

scaphigera Hook.f.

Thelasis Bl.

phreatioides J.J.Sm. CX - B,

Thrixspermum Lour.

validum J.J.Sm.

) Tropidia Lindl. [Bl.]

triloba J.J.Sm.

Uniflorae

Vonroemeria J.J.Sm.

tenuis J.J.Sm. CVIII - B,

Vrydagzynea Bl.

elongata Bl.

) triloba J.J.Sm.

Zeuxine Lindl.

amboinensis J.J.Sm.

