Ann. Naturhistor. Mus. Wien	69	57 — 67	Wien, November 1966
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Some Notes on the Genus **Schomburgkia** LINDL. of the Orchidaceae and its Relationships

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(Mit 6 Tafeln)

Manuskript eingelangt am 10. November 1965

1. Introduction

The following paper contains a summary of the characteristic features which distinguish the genus *Schomburgkia* Lindl.; and a brief discussion of its relationships, with special reference to the genera *Laelia* Lindl., *Pseudolaelia* Pto. & Br. and *Renata* Rus. The possibility that the two last-named taxa may be natural hybrids derived in part from *Schomburgkia* is suggested as a point of departure for future research — rather than a final solution to the mystery surrounding the origin of these rather fascinating plants.

The notes which comprise this article are based mostly upon the study of living plants cultivated here in Barbados; but a large number of actual specimens as well as drawings and photographic records from various American and European herbaria have also been studied. In this connection, we have to record a special word of thanks to Dr. G. F. J. Pabst, Director of the Herbarium Bradeanum in Rio de Janeiro, and to Dr. C. D. Adams, senior lecturer in botany at the University of the West Indies in Jamaica, who very kindly placed at our disposal all the *Schomburgkia* material from the herbaria of their respective institutions. Our thanks are also due to Sir George Taylor, Director of the Royal Botanic Gardens, Kew, for permission to reproduce Plates 1, 4 and 6, which are copyright.

2. History of the Genus

The genus Schomburgkia, as we know it today, is largely the work of three distinguished botanists who made the study of the Orchidaceae their life's task: John Lindley (1799—1865), Heinrich Gustav Reichenbach (1824—1889) and Friedrich Richard Rudolf Schlechter (1872—1925). The genus was established by Lindley in 1838 on the basis of two species which had been discovered by Dr. Richard Schomburgk — for whom the genus was named — in British Guyana: S. crispa and S. marginata. In the

¹⁾ Anschrift des Verfassers: Bridgetown, Barbados, West Indies.

same year, the wealthy English horticulturist, Mr. James Bateman, described *Epidendrum tibicinis*, which he subsequently transferred to *Schomburgkia* himself, three years later.

During the last half of the nineteenth century, many new Schomburgkias were discovered and introduced. In 1844, Lindley described S. undulata, which is probably the most geographically widespread of all the species; and in the following year he published S. rosea, which we consider to be the same thing as S. undulata. The last Schomburgkia to be described by Lindley was S. Lyonsii, a beautiful West Indian species which he published in 1853. Paxton's S. violacea, which was described in 1849, we consider to be a synonym of Lindley's S. undulata; while S. superbiens, which Lindley described as a Laelia in 1840, was not transferred to Schomburgkia by Rolfe until 1917.

In 1845 the French botanist, Achille Richard, described a beautiful new Mexican species which he named S. Galeottiana in honour of its collector. Unfortunately, Richard's diagnosis of this concept was rather vague, and as a result, the same plant was subsequently again described as new by three different writers: as S. chionodora by Reichenbach in 1866; as S. Sanderiana by Rolfe in 1891 and as Laelia Sawyeri by Dr. L. O. Williams in 1943! The smaller form of this species is known as var. Kimballiana.

Another species which has been subject to continual misinterpretation until quite recently is S. Brysiana, a lovely orange-flowered plant which was described by Lemaire in 1851. Apart from the forma typica, there are two quite distinct varieties of this species, both of which have been classified as independent entities by other writers. The var. minor 2 was described as S. Thomsoniana by Reichenbach in 1887; while the var. atropurpurea was named S. campecheana by Kränzlin in 1903. In describing the latter concept, Dr. Kränzlin suggested the possitility of its being a natural hybrid between S. undulata and S. Thomsoniana.

Of the many species of Schomburgkia described by H. G. REICHENBACH, we accept only one name as valid — S. Humboldtii, which he originally described as an Epidendrum in 1849 and subsequently transferred to Schomburgkia in 1856. The remaining species which he described — namely S. gloriosa (1860), S. Wallisii (1877) and S. lepidissima (1889) — are considered to be synonyms of S. crispa, S. marginaia and S. Humboldtii respectively.

² Schomburgkia Brysiana var. minor (Hook. f.) H. G. Jones, comb. nov. S. Thomsoniana var. minor Hook. f. in Bot. Mag. t. 7815. 1902. S. Thomsoniana Rchb. f. in Gard. Chron. 2: 38. 1887. S. Brysiana var. Thomsoniana H. G. Jones in Amer. Orch. Soc. Bul. 32: 8. 1963.

In making the above reduction in 1963, we automatically used the *oldest* name — thereby failing to comply with the international rules of botanical nomenclature. We take this opportunity to correct the mistake and to thank Dr. ROBERT L. DRESSLER for drawing it to our attention.

Three other Schomburgkias were described before the end of the century: S. Lueddemannii³, published by PRILLEUX in 1862, is a beautiful large-flowered variety of S. undulata; LINDEN's S. Quesneliana (1860) is also S. undulata; while GRISEBACH's S. carinata, described in 1864, is generally considered to be a synonym of S. Lyonsii.

The early years of the twentieth century brought the publication of several new Schomburgkias from the pens of Kränzlin and Schlechter. Kränzlin's S. Weberbaueriana, described in 1906, is a synonym of S. marginata; while his S. exaltata (1926) is merely a variety of the common Central American species, S. tibicinis.

Of the four species described by SCHLECHTER, we accept only one as valid — namely S. splendidia (1913), a handsome large-flowered plant from Colombia. S. moyobambae (1921) seems to be a small-flowered variety of S. undulata; while S. elata and S. Schultzei, both published in 1924, also appear to be indistinguishable from that species.

The most recent additions to the genus are S. Parkinsoniana and S. Wendlandii, which were published by the writer in 1960 and 1961 respectively. The former is a natural hybrid which was discovered here in Barbados; while the latter was originally described as Bletia (Laelia) Wendlandii by Reichenbach in 1861. The case of S. vellozicola, which was described by the Brazilian botanist, F. C. Hoehne, in 1933, will be considered seperately, below.

3. Schomburgkia and Laelia

The amalgamation of Schomburgkia and Laelia was first proposed by Dr. Louis O. Williams in 1941; and since that date, his system of classification has been adopted by a few other taxonomists — mostly Orchid specialists working in the Ames Herbarium at Harvard University. A few transfers not included in Williams' 1941 list were subsequently made by Dr. Charles Schweinfurth in 1944, during the course of work on his treatment of the Orchids of Peru. Although closely related, these two genera may readily be distinguished by a number of characteristic features — as will be seen from Table 1, below.

The genus Schomburgkia falls naturally into two distinct subgeneric sections. Rudolf Schlechter was the first to describe and name these taxa: in a review of the genus which he published in 1913, he proposed the names § Eu-Schomburgkia and § Chauno-Schomburgkia for the two groups. However, as the international rules of botanical nomenclature require that the section

³ S. Lueddemannii is an interesting species on which some more research must be done before its true status can be finally determined; it is probably a Central American plant, although it has also been reported from northern South America. We have some interesting flowers from Venezuela which resemble S. Lueddemannii, but which may possibly represent a new species. Should this be the case, then it appears as though S. Lueddemannii should be treated as an independent species rather than a variety of S. undulata.

which contains the generic type must repeat the name of the genus unaltered, Schlechter's Eu-Schomburgkia had to be changed to § Schomburgkia.

Four years after the appearance of Schlechter's paper, the English botanist, R. A. Rolfe, published a short article in which he proposed the division of *Schomburgkia* into two seperate genera. The name *Schomburgkia* was retained for the species which comprised Schlechter's *Eu-Schomburgkia*; while the species of *Chauno-Schomburgkia* were transferred to a new genus for which Rolfe proposed the name *Myrmecophila* 4). Although he makes no reference to Schlechter's paper, Rolfe's article was probably based upon this work.

Even if the amalgamation of Laelia and Schomburgkia were finally accepted, however, we do not think that the whole of the former could simply be reduced to a section of the latter, as Dr. Williams has proposed. When treated as a subgeneric part of the genus Laelia, we think that Schomburgkia could be represented only by the species of Chauno-Schomburgkia. As Laelias, the species of § Schomburgkia would have to be assigned to the Calolaelia section of that genus, which Schlechter established in 1917 to accommodate the so-called Laelia superbiens of Lindley (= Schomburgkia superbiens Rolfe).

Table 1

Schomburgkia	Laelia	
 Pseudobulbs with 2-4 leaves se- perated by small but distinct inter- nodes. 	1. Pseudobulbs with $1-2$ leaves.	
2. Inflorescence always terminal and erect, usually branched at the summit, but never subtended by a large spathaceous bract as in Cattleya.	2. Inflorescence usually terminal but sometimes lateral, somewhat arching, never branched and often subtended by a large spathaceous bract as in Cattleya.	
Roots not very thick; often sur- prisingly weak in proportion to the large size of the plants.	3. Roots fleshy and usually quite robust.	
4. Lip adnate to the base of the column.	4. Lip entirely free of the column.	
5. Flowers \pm with a short column-foot.	5. No column-foot.	
6. Petals and sepals usually undulate.	6. Petals and sepals not undulate.	

⁴ To the best of our knowledge, the only subsequent authors to accept Rolfe's genus Myrmecophila as valid were Garay and Pabst in their 1959 "Catálogo e Estatística", where the number of species was given as 7 — presumably the same 7 which Rolfe transferred in 1917.

That § Schomburgkia provides a connecting link between Laelia and Schomburgkia is certain; and were it finally established beyond doubt that these species show closer affinity with the genus Laelia than they do with Chauno-Schomburgkia, we believe that it would be advisable to restore Schlechter's Calolaelia, and to place therein all the species of Schomburgkia § Schomburgkia. The § Chauno-Schomburgkia would then assume full generic rank; as a result of which, it would be necessary either to re-write the generic diagnosis of Schomburgkia (if that name were conserved), or to take up Myrmecophila in the sense in which it was originally used by Rolfe. In the latter case, it would still be necessary to write a formal generic diagnosis for Myrmecophila, since Rolfe failed to provide one in 1917.

With regard to the distinctive features which have been used to seperate Schomburgkia from Laelia, we believe that those listed in Table 1, above, appear to be the most reliable. Some taxonomists have rejected the marginal undulation of the perianth segments for Schomburgkia on the ground that this condition is also found in two of the Laelia species — namely L. superbiens and L. Wendlandii. However, as we consider that these two "Laelias" really belong in the genus Schomburgkia, this objection would appear to be overruled. The slight marginal undulation which sometimes occurs in the sepals and petals of the true Laelia species is so slight as to be hardly noticeable.

The presence of the column-foot is more evident in some species of Schomburgkia than in others — more so, for instance, in the species of § Chauno-Schomburgkia than in those of the typical section. This condition appears to reach its maximum development in certain forms of S. tibicinis and S. Brysiana, where it is somewhat reminiscent of that found in the palaeotropical genus Dendrobium Sw. As is usual in such cases, the bases of the sepals are joined together in the form of a short spur-like cap into which the prolongation of the column-base descends.

The fact that the lateral lobes of the lip are often explanate (rather than enfolding the column, as in Laelia) has also been cited as one of the key-characters of Schomburgkia; but as this condition is not constant, we have refrained from including it in our tabulation. However, although this character is not sufficiently strong to seperate Schomburgkia from Laelia, it appears to have some value in distinguishing the two subgeneric sections of Schomburgkia, as indicated in Table 2, below. In the group of species typified by S. crispa, the lateral lobes of the lip are narrow and always explanate; but in the § Chauno-Schomburgkia, the side lobes of the lip are broader and usually surround the column.

4. The Sections of Schomburgkia

The first noticeable difference between the two sections of *Schomburgkia* seems to be the shape of the pseudobulbs: in § *Chauno-Schomburgkia*, these are always hollow and conical in shape; but in the species of the typical section, the pseudobulbs are distinctly fusiform in shape and more fleshy. A

very similar trend of variation in the shape of the pseudobulbs may be seen in the genus Caularthron Raf. In the typical C. bicornutum (Hook.) Raf., the pseudobulbs are always fusiform or spindle-shaped, that is to say, thickest in the middle and tapering towards both the base and the summit; this is also the condition in typical Schomburgkia. In C. bilamellatum (Rchb. f.) R. E. Sch., however, we find a somewhat different shape, but one which is paralleled exactly in the species of § Chauno-Schomburgkia. Here, the pseudobulbs are definitely thickest at the base and gradually taper upwards to the pointed summit. In both Caularthron and § Chauno-Schomburgkia, the hollow interiors of the pseudobulbs are usually infested with black ants—hence Rolfe's generic name Myrmecophila.

The shape of the leaves differs considerably in the two sections of Schomburgkia: in the typical species, the foliage is usually long and narrow; while the members of § Chauno-Schomburgkia have short, broad leaves. In § Schomburgkia, the pseudobulbs usually bear 2 leaves each, but monophyllous pseudobulbs sometimes occur, and 3-leaved pseudobulbs have also been recorded. In § Chauno-Schomburgkia, a robust pseudobulb normally bears 2 leaves, but 3-leaved pseudobulbs are by no means uncommon. S. tibicinis is the only species in which we have noticed 4 leaves on a pseudobulb.

Two other striking features which characterize the typical section of the genus are the large pendant bracts which subtend the units of the always racemose inflorescence, and the fact that all the flowers open simultaneously. In contrasting their genus Pseudolaelia with Schomburgkia, Messrs. Pôrto and Brade remarked that in the former "a inflorescencia já é bem differente as flores abrem-se successivamente, permittindo ver flores abertas e botões de diversos tamanhos na mesma inflorescencia, ao contrario de Schomburgkia na qual, em ergra, todas as flores abrem-se contemporaneamente." But although this is true of the typical species of Schomburgkia, it certainly does not apply to those of § Chauno-Schomburgkia. In the latter group, the inflorescence is usually paniculate, with very small bracts; and the flowers open from the bottoms of the racemes upwards, so that there are always a number of flowers and buds in various stages of development.

Table 2, below, contains a list of the main features by which the two subgeneric sections of the genus *Schomburgkia* may be distinguished from each other. In Table 3, we have endeavoured to indicate the possible pattern of relationships which exist between the twelve taxa that we accept as valid for the genus *Schomburgkia*. As previously indicated herein, however, several of these species may, in turn, be divided into a number of more or less distinct varieties.

5. The Laelia-Epidendrum Alliance

There exists within the subtribe Laeliinae a group of fascinating genera which — for the sake of convenience — may be called the *Laelia-Epidendrum* alliance. The group is a rather homogeneous one: its members are closely

related, and it is not always easy to distinguish between them by means of the traditionally used key-characters — although the plants themselves are immediately recognizable at sight. There are, for instance, certain species of the genus Brassavola R. Br., which have been moved back and forth between that genus and Laelia with bewildering regularity; while few taxonomists who have worked with the orchids of the American tropics during the past few decades have failed to point out that Cattleya Lindl. and Epidendrum L. are in fact no more than the genera of convenience. In spite of this, however, Reichenbach's reduction of Cattleya to Epidendrum has not been accepted

Table 2

§ 1. Schomburgkia	§ 2. Chauno-Schomburgkia	
1. Pseudobulbs fusiform, 2-leaved.	1. Pseudobulbs conical, 3-4-leaved.	
2. Leaves ± narrow oblong-oblan- ceolate, acute or subacute.	$2.~{ m Leaves}~\pm~{ m broad}~{ m oblong-elliptic},$ obtuse.	
3. Inflorescence always racemose, floral bracts equal to or exceeding the length of pedicels.	3. Inflorescence racemose or branched, floral bracts less than half the length of the pedicels.	
4. Lateral lobes of the lip narrow, \pm explanate.	4. Lateral lobes of the lip broad, \pm surrounding the column.	

by modern botanists, who have apparently realized that no practical benefit could be derived from the adoption of such a course. And since the relationship of Schomburgkia to Laelia is almost exactly that of Epidendrum to Cattleya, the reduction of Schomburgkia to a section of Laelia can hardly be considered more satisfactory than the union of Cattleya with Epidendrum.

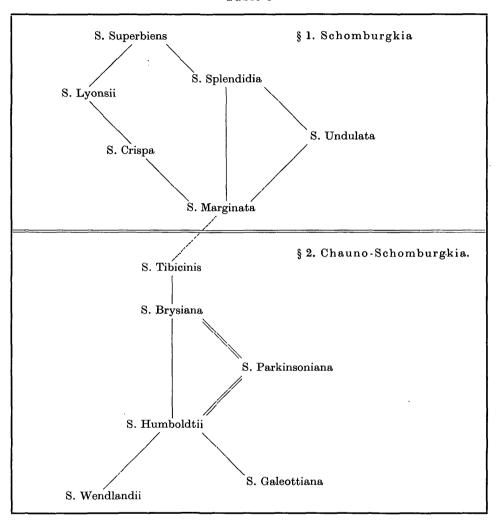
In recents years, taxonomists have been showing an increasing awareness of the impossibility of expressing a naturally reticulate patern of relationships through the somewhat artificial medium of a dichotomous key; and this is particularly true of the Laelia-Epidendrum alliance. In Table 4, below, we have tried to indicate the position of the genus *Schomburgkia* within the possible patern of relationships which may exist between the members of this group.

6. Pseudolaelia and Renata

The genus *Pseudolaelia* was established by Pôrto and Brade in 1935 on the basis of their own species, *P. corcovadensis*; and at the same time, they also transferred to the new genus another species — *Schomburgkia vellozicola* — which had been described by Hoehne two years before. Because these plants bore a certain superficial resemblance to the monotypic genus *Sophronitella* Schltr., the authors of *Pseudolaelia* remarked that "o novo

gênero aproxima-se, pela forma da columna, mais do grupo de *Sophronitis* do que *Laelia-Schomburgkia*. Além diso o labello, apesar da juncção com a columna, differe bem do typo de *Schomburgkia*."

Table 3

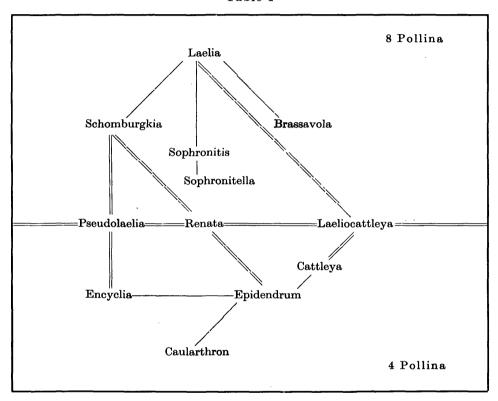


In our opinion, P. corcovadensis and S. vellozicola are merely variants of a single natural hybrid derived from Schomburgkia crispa — which seems to be the only true Schomburgkia found in Brazil — and a species of Encyclia such as E. dichroma (Lindl.) Schltr. The original P. corcovadensis, as illustrated by Pôrto and Brade, differs from Hoehne's S. vellozicola in having somewhat broader sepals and petals; but this is a notoriously variable feature, and the specimen of P. corcovadensis in the Pabst Herbarium (No. 1481) — determined, incidentally, by Brade himself — has quite narrow sepals and

petals, exactly like Hoehne's plant. It is interesting to note that both P. corco-vadensis and S. vellozicola were found growing upon species of Velloziaceae.

Of the third species of *Pseudolaelia* to be described — namely *P. Dutraei* Rus. (1949) — we have seen no material. This concept is known to us only from the original publication and a number of drawings which were very kindly lent by Dr. L. A. Garay of the Ames Herbarium: from these, *P. Dutraei* appears to be a less robust plant than those mentioned above, from

Table 4



which it may also be distinguished by its somewhat differently shaped lip. However, in view of the proven fact that progeny derived from intergeneric crosses in the Orchidaceae is subject to a considerable degree of variation, it is by no means impossible that *P. Dutraei* may represent yet another phase of the same natural hybrid.

The genus Renata, established by Ruschi in 1946, consists only of the original species, R. canaanensis, which we believe to be a natural hybrid derived from S. crispa and an Epidendrum of the E. violacens Ridl. type. In general appearance, the plant resembles the Epidendrum, but is more robust, with a distinct pseudobulbous swelling at the base of the stem — two characteristics undoubtedly derived from the Schomburgkia parent. The

inflorescence is branched, as in *E. violacens*, but the tiny yellow flowers look rather like miniature editions of *S. crispa*.

One Brazilian Orchidologist, with whom we discussed these ideas, objected to our theory of natural hybridization on the ground that he did not know of any species in the area where *Pseudolaelia* and *Renata* were discovered which could have combined to produce such hybrids. This may be so; but although such species may not as yet have been reported, it does not necessarily follow that they do not occur. The possibility also exists that the hybrids may have been derived from cultivated plants. Here in Barbados, for instance, we have recently discovered a natural hybrid between *Schomburgkia Humboldtii* and *S. Brysiana*; but neither of these species belongs to the flora of Barbados.

In natural hybrids derived from parents having 8 pollina (Schomburgkia) and 4 pollina (Encyclia, Epidendrum) respectively, one would expect the resulting offspring to produce anthers containing the intermediate number of 6 pollina; but both Pseudolaelia and Renata have 8 pollina each. It is known, however, that some Laeliocattleya hybrids, derived from the genera Laelia (8 pollina) and Cattleya (4 pollina), produce flowers whose anthers contain 8 pollina of which 4 are normal and the other 4 somewhat smaller. A similar lack of uniformity in the size of the pollina is found both in Pseudolaelia and Renata.

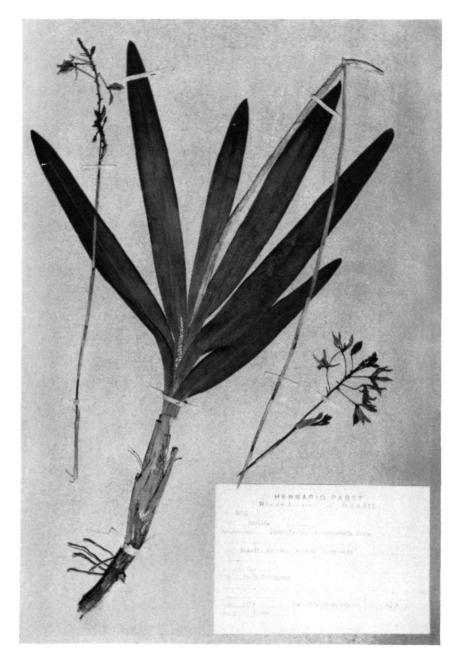
Bibliography

- Brade, A. C. & G. F. J. Pabst, (1951-52): Index Generum et Specierum Oridacearum Brasiliensium inter MXMXXXII et MCML descripta sunt. Orquidea, vols. 13-14.
- DRESSLER, R. L. & C. H. Dodson, (1960): Classification and Phylogeny in the Orchidaceae. Annals of the Missouri Botanical Garden, vol. 47.
 - (1960): On the Evolution of the Orchidaceae. American Orchid Society Bulletin, vol. 29.
 - & R. J. GILLESPIE, (1960): Cattleya Dormaniana, a Valid Species. American
 Orchid Society Bulletin, vol. 29.
 - (1961): A Reconsideration of Encyclia (Orchidaceae). Brittonia, vol. 13.
- GARAY, L. A. & G. F. J. Pabst, (1959): Orchidaceae. In Dr. João Angely's "Catálogo e Estatística dos Gêneros Botânicos Fanerogrâmicos. No. 48". — Instituto Paranaense de Botânica.
 - (1960): On the Origin of the Orchidaceae. Botanical Museum Leaflets, Harvard University, vol. 19.
 - & C. Slocum, (1963): A Note on Schomburgkia Brysiana. American Orchid Society Bulletin, vol. 32.
- HAWKES, ALEX D., (1949): Laelia Thomsoniana. The Orchid Digest, vol. 13.
- Hoehne, F. C., (1933): Contribuição para o conhecimento da flora orchidológica brasilica III. Boletim de Agricultura, São Paulo, vol. 34.
 - (1952): Algo concernente ao gênero Laelia Lindl. das Orchidáceas e uma nova espécie para êle do Estado de Minas Gerais. — Arquivos de Botânica do Estado de São Paulo, vol. 2.
- JONES, H. G., (1960): A Natural Hybrid in the Genus Schomburgkia Lindl. of the Orchidaceae Discovered in Barbados. Journal of the Barbados Museum & Historical Society, vol. 28.

- Jones, H. G., (1961): Notes on two Interesting Species of Schomburgkia. American Orchid Society Bulletin, vol. 30.
 - (1963): Studies in Schomburgkia. American Orchid Society Bulletin, vol. 32.
 - (1963): Schomburgkia undulata Lindl. and its Varieties. The Orchid Review, vol. 71.
 - (1965): Schomburgkia tibicinis Batem. (Orchidaceae) and its Varieties. Adansonia, vol. 5.
- Kränzlin, F., (1926): Eine neue Schomburgkia. Mitteilungen aus dem Institut für Allgemeine Botanik in Hamburg, vol. 6.
- Pôrto, P. Campos & A. C. Brade, (1935): Orchidaceae Novae Brasiliensis I. Arquivos do Instituto de Biologia Vegetal, Rio de Janeiro, vol. 2.
- ROLFE, R. A., (1917): The Genus Myrmecophila. The Orchid Review, vol. 25.
- Ruschi, A., (1946): Orquidáceas novas do Estado do Espírito Santo. Publições do Arquivo Público do Espírito Santo, vol. 5.
 - (1949): Uma nova espécie de orquidacea. Boletim do Museu de Biologia "Professor Mello Leitão", vol. 1.
- SCHLECHTER, R., (1913): Die Gattung Schomburgkia Ldl. Orchis, vol. 7.
 - (1917): Die Einteilung der Gattung Laelia und die geographische Verbreitung ihrer Gruppen. – Orchis, vol. 11.
- WILLIAMS, L. O., (1941): The Validity of the Genus Schomburgkia. Darwiniana, vol. 5.
 - (1943): A New Laelia from Mexico. American Orchid Society Bulletin, vol. 11.



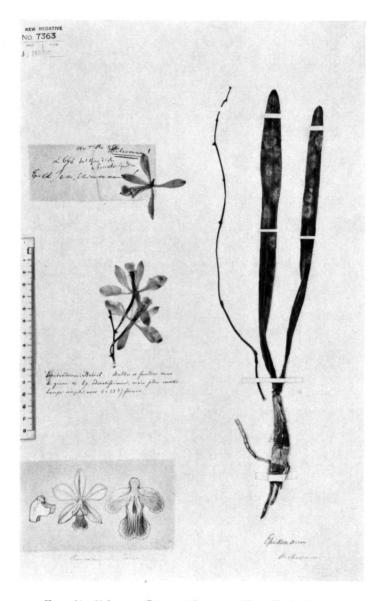
Schomburgkia crispa Lindl. (Kew Herbarium).



Pseudolaelia corcovadensis Pto. & Br. (Herbario Pabst).



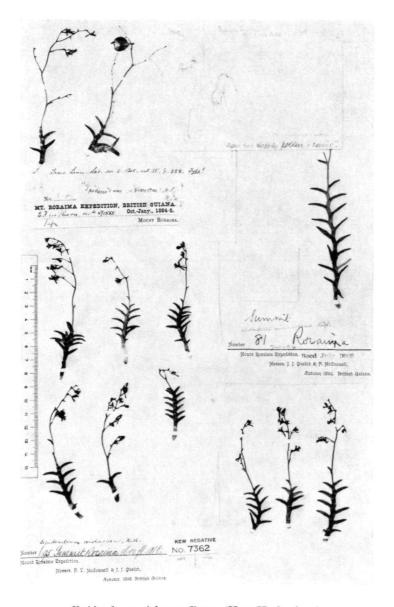
Pseudolaelia vellozicola (Ноен.) Рто. & Br. (Herbarium Bradeanum).



Encyclia dichroma (LINDL.) SCHLTR. (Kew Herbarium).



Renata canaanensis Rus. (Herbarium Bradeanum).



Epidendrum violacens Ridl. (Kew Herbarium).

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Zeitschrift/Journal: Annalen des Naturhistorischen Museums in Wien

Jahr/Year: 1966

Band/Volume: 69

Autor(en)/Author(s): Jones Henry G.

Artikel/Article: Some Notes on the Genus Schomburgkia Lindl. of the

Orchidaceae and ist Relationships. (Tafel 1-6) 57-67