FLORA OF JAMAICA

VOL. I.

ORCHIDS OF JAMAICA
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CONTAINING DESCRIPTIONS OF THE FLOWERING PLANTS KNOWN FROM THE ISLAND

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WITH ILLUSTRATIONS

VOL. I.

ORCHIDACEÆ

WITH THIRTY-TWO PLATES

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PREFACE

During his residence in Jamaica for twenty-one years as Director of Public Gardens and Plantations, Mr. William Fawcett gave attention to the botanical exploration of the Island. He was specially interested in the Orchids, and, with the assistance of Mr. William Harris, Superintendent of the Gardens and an excellent collector, a very fine collection illustrating the family was got together. A beautiful series of drawings from the living plants was also made under Mr. Fawcett’s direction by Miss Helen Wood. During one of Mr. Fawcett’s visits to England we agreed to collaborate in a monograph of the Jamaican Orchids, and in 1904 an account of the genus Lepanthes was published in the Transactions of the Linnean Society. The work, however, proceeded slowly until 1908, when Mr. Fawcett retired and came to England. The permission of the Trustees having been obtained for the publication of the work as a British Museum Catalogue, Mr. Fawcett was fortunately able to devote himself to the task, and I have given what time I could spare in the intervals of other work. Though Mr. Fawcett has done the larger part of the work of preparation, we have both been carefully through each species. Our work has been greatly facilitated by the loan of the Jamaican Herbarium, for which we are much indebted to the Government of Jamaica.

As Mr. Fawcett is able to continue his work at the Museum, it is proposed that the present volume shall form the first part of a complete “Flora of Jamaica.”

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INTRODUCTION

The Island of Jamaica, the largest of the British West Indian Islands, is 144 miles long and 30 to 40 miles broad. It lies about 90 miles south of Cuba, and about 380 miles N.E. of Honduras, the nearest part of the mainland.

"Jamaica is remarkable for the limited area in which very many species are found, and for the wonderful contrasts in neighbouring districts in geological structure and soil, in elevation, in rainfall and in temperature.

"The Blue Mountains in the eastern end of the island attain the highest elevations, rising to 7,423 feet. The distance from the ridge to the coast on the north and south in a straight line is about 20 miles. On the Blue Mountains and north to the coast the north-east trade winds bring almost constant rain throughout the year, the rainfall varying from 150 to 200 inches annually. From the ridge to the south coast the rainfall decreases, and as the Blue Mountains run not directly west but inclined towards the north-west, and as the prevailing winds are from the north-east, the result is a decrease in the rainfall in travelling along the coast from Morant Point to Kingston: thus from Morant Point to Morant Bay there is a rainfall from 70 to 55 inches annually, then a belt 50 to 40 inches, and then for a considerable distance to Kingston and beyond, 35 to 30 inches. The slopes of the mountains are frequently precipitous, and there may be great differences in elevation, in moisture and temperature within short distances. For instance, one may pass from the southern slopes of the John Crow Peak of the Blue Mountains at about 5,500 feet, where xerophytic conditions sometimes occur and often cold nights with temperature down to 50° F., round the shoulder to the north, and straight down 2000 feet to the Mabess River, where there is almost constant rain, continual moisture from a perennial stream, and a warm temperature at nights. The geological structure of
the district consists chiefly of brittle shale, easily decomposing, with occasional masses of coral limestone, marble, granite, &c., interspersed.

"There is a range of mountains close to the east end, running in a northerly and southerly direction, and rising to an elevation of 2,100 feet. The coast in the neighbourhood is rocky, and continues so for some distance to the west of Port Antonio. These mountains, known as the John Crow Mountains or Blake Mountains, are so wet, and the limestone rock is so difficult to travel over, that it is believed only one white man has ever crossed them. Nathaniel Wilson may have collected on the slopes of these mountains on the east side, or on the southerly slopes, some of the species that have not been found since. The limestone rock of these mountains occurs over the greater part of Jamaica, and in large districts it has disintegrated so as to form, as in the John Crow Mountains, such a series of precipitous cliffs that it is impossible to travel through it. The so-called 'Cockpit country' is of this nature, and it is in such places that new species of plants may naturally be looked for." (W. F. in Urban, Symbolae Antillae, vi. 86.)

The Orchids of Jamaica are of special interest from the large number of endemic forms which they include. The total number of genera is 61, one of which, *Homalojpetalum*, is endemic. The total number of species is 194, of which 73 are confined to the Island. There are also some endemic varieties.

The most striking affinity of the Orchid flora is with that of Cuba, 82 species, out of a total of 121, which are not endemic, occurring also in that island, and of these 14 are restricted to the two islands. The affinity with Hispaniola is apparently not so marked, there being only 29 species known from both islands, of which two, *Epidendrum repens* and *Broughtonia domingensis*, occur nowhere else. The difference is due no doubt to some extent to our greater knowledge of the botany of Cuba as compared with that of Hispaniola. With the much better explored island of Porto Rico, which lies further east beyond Hispaniola, the affinity is apparently greater, there being 40 species common to Jamaica and this island, four of which are known elsewhere only in Cuba. Ten species are common to Jamaica and the Bahamas, and 15 to Jamaica and Florida, the relation of which to the West Indies is very close. Passing
further east and south from Porto Rico, 38 species are common to Jamaica and one or more of the Lesser Antilles. Forty species occur both in Jamaica and Trinidad, of which nine are not recorded from the Lesser Antilles, but six of these are known from Cuba, and three from Cuba and Porto Rico. *Epidendrum nutans* has a somewhat remarkable distribution, being known only from Trinidad, Venezuela and Brazil, in addition to Jamaica.

The relationship with Central America is well marked; 37 species are common to Jamaica and some part of Central America, and if we include Mexico the number is raised to 44. Of these 28 are also found in equatorial South America, of which sixteen represent an element widely distributed over the West Indian and tropical American area. Of the sixteen which do not occur in equatorial South America, four are confined to Jamaica and Central America and ten to Central America (with Mexico), Jamaica and Cuba.

The affinity with equatorial South America is also strongly marked, 48 species being known to occur in some portion of tropical South America and Jamaica. A number of these also represent a widely distributed tropical American element occurring more or less generally in the West Indies and Central America, some few being also known from Florida and the Bahamas. If we consider Trinidad as part of equatorial South America, six of these forty-eight species occur nowhere else in the West Indies except in Jamaica. These comprise three species of *Epidendrum*—*E. verrucosum*, known also only from Columbia, *E. nutans* from Trinidad, Venezuela and Brazil, and *E. imbricatum* from Central America and Brazil—and *Brassavola nodosa, Maxillaria rufescens* and *Cryptarrhena lunata* from Central America and more or less widely distributed in equatorial South America.

These six species which do not otherwise occur in the West Indies, together with the Central American group already referred to, probably represent an element of the Jamaican flora associated with two former extensions of the land surface between Cuba and Yucatan, and Jamaica and Honduras. The seabottom between Jamaica and Honduras comes within the 6000 fathom limit and contains large banks within the 600 fathom limit. If we include Jamaican species which occur also in the Greater Antilles, there are twenty-four common to these and
equatorial South America which are not found in the Lesser Antilles and may also be associated with the extensions of land already referred to. A south-eastern line of association with equatorial South America through Hispaniola and Porto Rico is without doubt represented by the series of the Lesser Antilles and Trinidad: as we have mentioned above thirty-eight Jamaican species occur in the Lesser Antilles and forty in Trinidad.

These facts of distribution are in accord with geological evidence of a former linking up of Central America and Venezuela by means of the line of the West Indies.

"The Antilles are formed by the summits of a mountain chain which separates the Caribbean Sea from the Atlantic Ocean and the Gulf of Mexico. A second are running from Honduras through Jamaica and the south-west of Haiti appears to join the principal chain. Even the great deeps which occur in certain places, as, for instance, between Virgin Gorda and Anguilla, do not interrupt the continuous course of the mountain chain."

"With the slopes of the Mexican plateau in the State of Oaxaca, says Seebach, the compact northern continent terminates. To the south and to the east of the isthmus of Tehuantepec, Central America commences, which already belongs to the island world of the Antilles. ‘The mountain series of the Greater Antilles, which further to the east in Porto Rico and San Domingo—the eastern part of Haiti—forms a single main chain, divides in the middle of the latter island, giving rise to a southern branch which proceeds through the elongated peninsula of Jacmel towards Jamaica and Honduras, and a northern branch which extends beyond Cuba towards Yucatan . . . Is it merely a remarkable accident that the Sierra Maestra, consisting of crystalline schists and massive rocks and situated in the south-east of Cuba (where the Greater Antilles reach their greatest elevation of 2,338 meters above the sea), should run through the Cayman group, the bank of Misteriosa, the Viciosas, and Swan Island to the depths of the gulf of Honduras, and that from the edge of this mountain ridges similarly constituted should rise abruptly and proceed with constant strike into the interior.’"—(Suess, "The Face of the Earth," Engl. Transl. i. 543.)

Our knowledge of the flora of Jamaica starts with the work of Sir Hans Sloane, who collected in the Island during a stay
INTRODUCTION

of fifteen months in the years 1687–89, and published the results in his work on the Natural History of Jamaica (1707–25). Sloane's Jamaican plants occupy Vols. I. to VIII. of the Sloane Herbarium at the British Museum, and these volumes have been carefully gone through in connection with our work on the Orchids. The herbarium of Sir Joseph Banks, which became at his death the foundation of the Department of Botany, included collections from Jamaica by William Houstoun (1729–33), William Wright (1771–85), Roger Shakespear (1780–2), and Francis Masson (1781), and also a large number of specimens from Olof Swartz (1784–6), including types of many of the new species published in his "Prodromus" and elsewhere. Besides these and the later collections at the British Museum we have worked through the material in the Kew Herbarium, which includes the collections of James Macfadyen (1825–50), W. Purdie (1843, 4), Nathaniel Wilson (1846–58), R. C. Alexander Prior (1849, 50), W. T. March (1857, 8), and others.

We have to thank the Government of Jamaica for the loan of the whole of the material contained in the Jamaican Herbarium, the formation of which was begun by Sir Daniel Morris (1879–86) and was continued by one of us (1887–1908) with the very efficient help of Mr. William Harris as collector. In this connection special reference should be made to Mr. Harris's work as an indefatigable and successful plant-collector, to which is owed a considerable increase in knowledge of the flora of Jamaica. Our work has been greatly facilitated by the use of a fine series of drawings made at the Hope Gardens, Jamaica, from the living plants, under the supervision of one of us, by Miss Helen A. Wood; many of these have been reproduced in the plates at the end of the volume, for the large number of which we are grateful to the Trustees of the British Museum. We have also to thank Dr. N. L. Britton, Director of the New York Botanic Garden, for specimens and for the loan of a collection of Orchids made in Jamaica by Sir D. Morris. A number of private individuals resident in or visiting the Island have also contributed specimens; most of these are contained in the Jamaican Herbarium. By the kindness of Dr. Radlkofer of the Royal Botanical Museum, Munich, we have been able to work through the Orchids collected by H. R. Wullschlaegel (1847–9). As Wullschlaegel's specimens are cited by Grisebach
in the "Flora of the British West Indies," it has been of interest to revise his determinations by comparison with the original collection. Prof. Ignatius Urban of Berlin has generously entrusted to us the volume of Swartz's "Icones Ineditae," and has allowed us to cite the drawings. During the preparation of our work Prof. Urban has given a detailed account of the botanical exploration of Jamaica since the publication of Grisebach's "Flora" in his "Symbolae Antillanae" (vi., pp. 70–131, 1909). To Prof. Cogniaux, who is elaborating the Orchids of the West Indies for the "Symbolae," we are indebted for the loan of specimens and helpful information.

Our descriptions of the genera have been drawn up with special reference to the species which occur in Jamaica. For measurements we have used the metric system, but for convenience of tourists we have added English measures for the height of the plant and the size of the flower. The figure below renders possible a ready comparison of the two systems, e.g. 2·5 cm. are equivalent to an inch, 2 mm. to \(\frac{1}{2}\) inch, and 1 dm. to about 4 inches.

![Measurement Comparison](image)

The J.P. (Jamaican Plants) numbers cited are those given by Sir D. Morris to the species in the Jamaican Herbarium; the numbers cited as Fl. Jam. (Flora Jamaicensis) are those attached to specimens, as collected, later.

The mark "!" indicates that we have seen a specimen.

In order to conform to the international rule, which requires that diagnoses of new species shall be published in Latin, descriptions of novelties have been inserted in the "Journal of Botany," and are quoted here from that work.

W. FAWCETT.
A. B. RENDLE.
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WORKS REFERRED TO IN THE TEXT

(Where no date is given the work is in progress)


Flora—Flora. Regensburg.
Herb. Sloane—Sloane’s Herbarium in the Department of Botany, British Museum.
L. Syst.—Systema Naturae. C. Linnaeus. (Ed. 10. Stockholm. 1759.)
Lindenia—Lindenia. Gand.


Linnaea Limipea. Berlin. 1826-82.


Linnaea Limipea. Berlin. 1826-82.


Linnaea Limipea. Berlin. 1826-82.


Linnaea Limipea. Berlin. 1826-82.


Linnaea Limipea. Berlin. 1826-82.


Sloane Cat.—Catalogus plantarum quae in Insula Jamaica sponte proveniunt... H. Sloane. London. 1696.

Sloane Hist.—Voyage to ... Jamaica, with the Natural History. Hans Sloane. London. 1707–25.


Sw. Icon. ined.—Descriptiones et Icones Plantarum incognitarum quas in India occidentali dextoxit atque delineavit O. Swartz. Lent by Prof. I. Urban. Berlin.


Trans. Linn. Soc.—Transactions of the Linnean Society of London.


NAMES OF THE MORE IMPORTANT COLLECTORS
AND CONTRIBUTORS WITH DATE OF COLLECTION

Bancroft, E. N. 1811-42.
Barrett, Miss T. Moulton, 1887-
Bertero, C. 1821.
Blake, Sir Henry and Lady, 1887-97.
Britton, Dr. N. L. and Mrs. 1906-
Browne, P. 1746-55.
Campbell, E. 1894-6.
Cradwick, W. 1888-
Distin, H. 1830-40.
Eggers, H. von. 1888.
Fawcett, W. 1887-1908.
Gosset, Miss B. 1909-
Harris, W. 1881-
Hitchcock, A. S. 1890-
Houstoun, W. 1729-33.
Jenman, G. S. 1873-9.
Longstaff, Dr. and Mrs. 1907.
Macpayden, J. 1825-50.
March, W. T. 1857, 8.

Masson, F. 1781-
Mc Nab, G. 1838-59.
Moore, A. 1883-
Morris, Sir Daniel. 1879-86.
Nicholls, C. N. 1891.
Nichols, G. E. 1903, 6.
Prior, R. C. Alexander, 1849, 50.
Purdie, W. 1843, 4.
Shakespeare, R. 1780-2.
Sullivan, C. 1883-90.
Swartz, O. 1784, 5, 6.
Syme, G. 1879-84.
Thompson, W. J. 1889-
Thomson, R. 1862-79.
Tomlinson, R. K. 1900-
Waters, J. about 1826-30.
Watt, D. E. 1890-
Wiles, J. 1793-1805.
Wilson, N. 1846-58.
Wright, W. 1771-7, 1782-5.
ORCHIDS OF JAMAICA

Orchids are perennial herbs showing much variety in their habit. They are either terrestrial, growing in the soil, or more or less epiphytic, that is, growing on stems or branches of trees, on rocks, etc., often surrounded by a dense growth of moss. In the simplest form of growth, the stem continually produces new leaves at the apex, while the flowering shoots spring from the axes of older leaves. This method, known as the monopodial, occurs in some epiphytic orchids, as in *Dichaea*, where the internodes and leaves are both very short. In all terrestrial orchids and many epiphytic, growth of the main axis soon ceases, usually at the end of one season, while a lateral shoot continues the growth next season. The apparent main axis of the plant is then a sympodium, consisting of the basal scale-bearing portions of successive shoots, the upper parts of which are aerial and leafy. The shoots may end in an inflorescence, or flowers are borne on special lateral branches. The development of the sympodial rhizome governs the habit of the plant. If the basal portion of the yearly shoot is short, the successive aerial shoots are crowded and the habit is bushy or clustered, whereas if the basal portions are lengthened a creeping or climbing habit results.

In terrestrial orchids the basal portions of the annual shoots form a thin or fleshy root-bearing rhizome (as in *Spiranthes*), or a tuber is produced each year (as in *Habenaria, Bletia*). The aerial stem is slender, bearing one to many foliage-leaves and ending in a single flower or an inflorescence. The leaves are inserted along the stem (cauline) or are clustered at the base (radical).

The majority of epiphytic sympodial forms are pseudobulbous; that is, the stem is thickened to serve as a reservoir of food and water. The pseudobulb consists of only one internode and bears one or more leaves at its apex, or of several internodes and bears leaves throughout its length, or bears scales at the lower nodes and a terminal tuft of leaves. The
pseudobulb is of very various shapes, sometimes globose, usually more or less elongated; its surface is generally smooth and shiny. In Pleurothallis and allied genera the shoots are not thickened to form a pseudobulb, and bear a single leaf which spreads at right angles to the axis or apparently forms a continuation of it.

The leaves are simple, generally sessile, and wither and decay on the stem, or, as in most epiphytic species, separate by a distinct joint. The margin is entire and the apex often denticulate or unequally cut; the venation is as a rule parallel. In some cases the blade passes gradually into a stalk which has generally a sheathing base.

At the basal nodes of the shoots leaf-scales are borne, which pass gradually into foliage leaves, or the latter may start abruptly. The leaves are generally arranged in two ranks, one each side of the stem.

Leaves of epiphytic forms are generally thick and fleshy; and by a thick cuticle they are adapted for storage of water. A main root is never present; its place is taken by adventitious roots which arise especially from the nodes and often show as regular an arrangement as the leaves. In terrestrial orchids the roots are sometimes thickened to form stores of reserve material. The air-roots of epiphytic orchids have a special development of the outer layers forming a sponge-like tissue (velamen), by which water is absorbed for the plant from the atmosphere. Three kinds of air-roots may be distinguished. Clinging roots which creep close to the substratum and are inseparable from it; absorptive roots, or branches of the former which grow into the humus which collects about the plant; and the fine aerial roots which hang down sometimes to a considerable length.

The flowers are hermaphrodite and irregular. The perianth consists of an outer whorl of three sepals and an inner whorl of three petals which alternate with the sepals. The odd or median sepal is normally on the lower side of the flower and furthest from the axis. The odd petal, which generally differs considerably in size and shape from the two lateral petals and is termed the lip, is normally on the upper side of the flower next the axis. This position is, however, generally reversed by a twist of the ovary so that the lip in the open flower is on the lower side. The sepals are usually smaller and less conspicuous than the petals, but in some genera (as Pleurothallis, Lepanthes and Brassia) they are much larger. They are free from each other or more or less coherent; in some genera, as Pelexia and Stenorrhyncos, the lateral sepals are united at the base to form a spur which in Pelexia encloses the elongated base of the lip. The petals show a great variety in form and colour; the lateral pair are generally smaller than the lip. The lip which is, as a
rule, the most conspicuous feature of the flower, is often large and spreading, or has upwardly curving sides. It is simple (undivided) or two- three- or four-lobed and generally bears on the upper face thickened veins or swellings (calli), or fleshy warts, which are often, as in _Oncidium_, large and conspicuous. The lip is sometimes produced at the base into a sac or spur, which may arise partly from the axis of the flower.

The most characteristic feature of the flower is the development of the receptacle, which at an early stage becomes cup-shaped, and finally forms a hollow cylinder. The carpels (three in number) arise as outgrowths from the edge of the cup, on the interior of which the ovules are developed on three double placental lines alternating with the carpellary outgrowths. The perianth springs from the upper edge of the inferior ovary, where there is often also an expansion of the axis known as the _foot_. The lateral sepals are continued along the sides of the foot, from the tip of which the lip springs at a sharp angle, forming externally a chin, inside which at the base nectar is often secreted.

The stamens and stigmatic surfaces are raised above the perianth on an elongation of the floral axis known as the column; occasionally some of the other organs are raised up on the column, as in _Ponthieva_, where the petals and lip are carried up above the sepals. Comparative study of the orchid flowers among themselves, and especially with those of other families of _Monocotyledons_, suggests that the stamens are derived from two alternating whorls, each of three members, the members of the outer whorl alternating with the petals. The stamens are, however, much reduced, and are represented in the great majority of orchids by one anther, which is variously placed on or near the apex of the column, and represents the median stamen of the outer whorl, opposite the median sepal. There is generally no trace of the other members of this whorl, but they sometimes appear as small outgrowths on the side of the column; and the lateral pair of the inner whorl is also often similarly represented; in _Epidendrum Ottonis_ they are more or less fertile. The presence of a single fertile stamen characterises the great majority of the genera; in the genus _Cypripedium_, not found in Jamaica, the lateral stamens of the inner whorl are fertile, while the median stamen of the outer whorl is represented by a large staminode.

_Cypripedium_ has three functional stigmas; but in Jamaican orchids only the lateral pair are functional, the third is sterile and forms the _rostellum_, which often plays an important part in transference of the pollen. The stigmas form a smooth, viscid, flat or cushion-like area on the inner face, or sometimes on the end of the column, or two distinct processes which in _Habenaria_ are borne on projecting style-like structures.
The form of the anther, its position on the column and the means by which the pollen is transferred, vary widely in the different genera. The anther contains two, four, or eight cells, each of which contains a mass of pollen. The pollen masses or pollinia are granular or powdery, breaking up into grains on removal, as in Pogonia, Spiranthus, Vanilla, etc.; or the grains are united into packets by an elastic web as in Habenaria; or waxy pollinia are produced by the formation of a strong common covering round each mass as in Epidendrum and allied genera.

The anther may stand erect and free on the top of the column, as in Habenaria where it is strongly united to the rostellum by its base, and does not separate from the column when the pollinia are removed. Usually, however, the anther is attached to the rostellum by its apex. In this case it may be erect and stand behind the stigma in such a way that the rostellum reaches its apex, as in Stenorrhynchos, and the filament is generally thin but strong enough to hold the anther in place after removal of the pollen. In most cases, however, the anther is not erect, but is placed horizontally or hangs on the inner face of the column; it usually separates so easily from the thin filament that it falls when the pollen is removed. It lies along the rostellum or is more or less enclosed within a special cavity of it (clinandrium), or is in contact with it only at the apex.

The removal of the pollinia is generally effected by the help of insects, which visit the flower for the sake of a sweet juice contained in the sac or spur-like development or in the various excrescences of the lip. Insects are attracted by the colour, form and smell of the flower, the lip of which often forms an effective landing-stage. The pollinia and stigma are so placed in reference to the position assumed by the insect as to favour the carrying off of the pollinia from one flower and its deposition upon the stigma of another of the same species.

To ensure its transference the pollinia are often attached to a stalk, which is associated with a sticky mass, the so-called "gland." Thus in Habenaria each anther-cell is produced into a long process (anther-canal), the contents of which form stalks (caudicles), to which are attached above the numerous packets of grains forming the pollinia. Below, the caudicle is attached to a gland formed from the rostellum. The anthers split open longitudinally when mature, and the pollinia are drawn out by the adhesion of the gland to the head or proboscis of an insect visiting the flower. In other genera no definite gland is produced from the rostellum, but a quantity of viscid matter exudes from it when touched, and serves to glue the protruding tips of the caudicles to the retreating object. In many genera the pollinia are connected to the rostellar gland by a stalk (stipes or pedicel), which is not a development of the anther, but of the
upper face of the rostellum (as in Maxillaria). In some cases short true caudicles are formed, by which the pollinia are attached to the pedicels.

The ovary is generally somewhat cylindrical-ellipsoidal or spindle-shaped, and often bears longitudinal lines, ridges, or wings, which become further developed in the fruit.

The fruit is a dry capsule, except in Vanilla, crowned by the withered remains of the flower, and opening usually by six longitudinal slits, forming three broad and three narrow valves, which remain united above and below; in Harrisella they are free above. In Pleurothallis there are only two slits. In Vanilla the fruit is fleshy and pod-like. The seeds are innumerable and minute, and contain a small rudimentary few-celled embryo enveloped by a thin loose membranous coat, which varies much in shape and colour. They are scattered by aid of hygroscopic hairs on the interior of the valves, and are carried by the wind.

The family falls into two groups, a small one, Diandrae, not represented in Jamaica, with two or rarely three fertile stamens, and a large one, Monandrae, with one fertile stamen.

The subdivision of the Monandrae was based by John Lindley (The Genera and Species of Orchidaceous Plants, 1840) solely on characters derived from the anther, the pollen, or the pollen-distributing apparatus. Lindley recognised six tribes. E. Pfitzer, who more recently elaborated the family in Engler and Prantl's Pflanzenfamilien (ii. part 6, 1889), criticises this arrangement, which was practically followed by Bentham and Hooker in the Genera Plantarum (iii. 1883), as depending too much on the relation of the floral structure to insect visits for the purpose of pollination, and too little on a general study of the whole plant. He retains the Ophrydeae which are characterised by the persistent terminal erect anther (to which belongs Habenaria), but subdivides the remainder into twenty-eight tribes, based on the terminal or lateral character of the inflorescence, the development of the leaf and stem, and the form and relative size of the lip. We have followed the sequence of genera in Pfitzer's arrangement.
ORCHIDS OF JAMAICA

KEY TO GENERA.

I. Terrestrial Plants (growing in soil).

Anther-cells distant, diverging, with the stalks of the pollinia in special tubes and each ending in a naked gland ........................................ 1. Habenaria.

Anther-cells closely approximate.

i. Leaves membranous, not plaited. Pollinia granular (i.e. breaking up into granules on removal), 2 or 4.

Anther deciduous, opercular, on the margin of the clinandrium. Pollinia 2. Leaves along the stem or wanting..................... 2. Pogonia.

(ii. Leaves papery, plaited.

Flowers large, racemose on a scape. Pollinia 4 or 8, waxy.

Pollinia 8. [Lip continuous with base of column, spurred. Flowers white and brown... 39. Phaius.]
KEY TO GENERA

Lip jointed with base of column, not spurred. Flowers purple or rose ...... 41. Bletia.
Claw of lip connate with column, forming a tube, spurred. Flowers white ......................... 40. Calanthe.
Pollinia 4.
Lip produced into a wide spur ........... 18. Galeandra.
Lip forming a chin between the lateral sepals. Flowers greenish, with purple lip......................... 42. Eulophia.
Lateral sepals forming a chin. Flowers white ......................... 43. Govenia.

II. Climbing Plants with fleshy Fruit ................................ 3. Vanilla.

III. Plants growing on Trees, Rocks or Stones, not in the Soil.
(Sometimes it may be difficult to decide whether a plant should be included under I. or III., as it may be growing amongst moss on rocky ground and apparently terrestrial, but unless it is actually growing in soil, it should be classed amongst the epiphytic orchids.)
i. Leaves plaited.
Pollinia 8.
Flowers with large bracts in terminal heads or spikes. No pseudobulbs ...... 38. Elleanthus.
Pollinia 4.
Peduncles several, with one flower on each.
Flowers greenish. Pseudobulbs present 44. Lycaste.
Flowers whitish, with a blue variegated lip. No pseudobulbs ......................... 46. Zygopetalum.
Raceme with several flowers. Pseudobulbs 45. Xylobium.

ii. Leaves not plaited.
Lip on upper side of flower (see also some species of Epidendrum and Oncidium).
Plant very small. Flowers in head with large bracts ......................... 11. Stenoptera.
Lip on lower side of flower (but some species of Epidendrum and Oncidium have lip on upper side).
A. Pollinia 4.
a. Column with foot, with which the sepals more or less form a chin.
   1. Lip free, jointed to foot of column.
      Flowers small, several, on stalk from base of pseudobulb ......................... 47. Bulbophyllum.
Flowers large, solitary, axillary to large leaves. With or without pseudobulbs ........ 48. *Maxillaria*.

Flowers small, solitary, axillary to small two-ranked leaves. No pseudobulb ...... 59. *Dichea*.

Flowers small, in clusters, axillary in sheaths of large leaves. No pseudobulbs ... 49. *Neo-urbania*.

2. Lip not jointed to foot of column; erect.
   Stem covered with imbricated sheaths in two ranks, with pseudobulbs here and there 50. *Ornithidium*.
   Stem bearing short linear leaves in two ranks; no pseudobulbs .......................... 25. *Isochilus*.

b. Column without foot.
   Claw of lip as long as column, with which it is connate into a cup. No pseudobulbs. Pollinia connected in pairs by a viscous substance which stretches elastically into two threads .......................... 28. *Seraphyta*.
   Claw of lip shorter than column, with which it is connate into a cup. Pseudobulbs present. Pollinia connected by a viscous substance .......................... 32. *Hormidium*.
   Claw of lip erect, adpressed to column, and more or less connate with it into a tube, but sometimes quite free. Pseudobulbs present .......................... 29. *Arpophyllum*.
   Lip free from column, and embracing it at base, produced below into an adnate spur. Pseudobulbs present .......................... 31. *Broughtonia*.
   Lip free from the column and continuous with its base, spreading, claw long and keeled-crested above. No pseudobulb .......................... 58. *Cryptarrhena*.
   Lip free, subsessile, somewhat similar to sepals and petals ... 37. *Homalopetalum*.

B. Pollinia 8.
   Without pseudobulbs.
   Flowers numerous, mauve, in a long dense spike .......................... 29. *Arpophyllum*.
   Flowers greenish or whitish-yellow, corymbose .......................... 35. *Brassavola*.
   Flowers creamy-white, racemose ... 26. *Octadesmia*.
KEY TO GENERA

Flowers few, orange-coloured, racemose ....................... 33. Laelia.
With pseudobulbs.
Flowers purple-spotted, several, racemose .................... 34. Schomburgkia.

C. Pollinia 6.
Sepals, petals and lip with long, tailed apices ................ 24. Brachionidium.

D. Pollinia 2.
a. Without pseudobulbs.
   1. Stem with one leaf at the apex.
      Flowers opening only by a chink at the side .......... 20. Cryptophoranthus.
      Flowers opening normally.
      Claw of petals and lip adnate to base of column .......... 23. Lepanthas.
   2. Stem with two or more leaves or leafless.
      Flowers with a short spur.
      Lip longer than sepals; sepals forming the spur ... 52. Ionopsis.
      Lip not longer than the sepals; lip forming the spur.
      Flowers numerous, on spikes. Capsule dehiscing in middle.
      Sometimes leafless ... 60. Campylocentrum.
      Flowers few, on racemes.
      Capsule dehiscing from apex. Leafless ........... 61. Harrisella.
      Flowers with a very long spur.
      Stemless and leafless ...... 62. Dendrophylax.
      Flowers not spurred .................. 56. Oncidium.
   b. With pseudobulbs.
      Flowers spurred ..................... 53. Comparettia.
      Flowers not spurred.
      Lip with large lateral lobes, embracing the column.... 51. Macradenia.
      Lip more or less entire.
      Flowers large, sepals long, narrow ................... 55. Brassia.
      Flowers small.
      Scape shorter than leaves ... 54. Trichopilia.
      Scape longer than leaves ...... 57. Leochilus.
1. HABENARIA Willd.

Terrestrial herbs, with tubers or fleshy roots. Stem erect, simple, with a few leaves which are sheathing at their base. Flowers shortly stalked, in a raceme. Sepals unequal, free; median hooded; lateral spreading or deflexed. Petals smaller, 2-partite, or simple. Lip continuous with the column, spreading or pendulous, spurred, 3-partite, or simple. Column very short, without a foot; stigma produced into two papillose processes; anther-cells distant from one another; pollinia in each cell granular, with long stalks lying in the anther-canals and each ending in a naked gland. Capsule narrowly ellipsoidal.

There are about 500 known species, natives mainly of the warmer regions of both hemispheres.

§ 1. Petals 2-partite; lip 3-partite.
Stem leafy upwards.
Spur much longer than ovary ...................... 1. H. macroceratitis.
Spur not much longer, or shorter, than ovary.
Stem erect, with short roots ...................... 2. H. monorrhiza.
Stem creeping at base, with long roots 3. H. repens.
Stem leafy at base only .......................... 4. H. distans.

§ 2. Petals entire; lip simple.
Spur much longer than ovary ........................ 5. H. Purdiei.
Spur not much longer, or shorter, than ovary.
Sepals and petals acute ........................... 6. H. alata.
Sepals and petals obtuse.
Spur tapering towards apex ........................ 7. H. socialis.
Spur thickened towards apex ........................ 8. H. troyana.

§ 1. Petals 2-partite; lip 3-partite.


* The species name is generally spelt with a capital initial, Habenaria being the name of a genus. Linnaeus, however, did not take the trivial name from a generic name, as Habenaria was founded much later by Willdenow (1805). As therefore the species name is not taken from a generic name (see International Rules of Botanical Nomenclature (1905) Rec. x) it should begin with a small letter as in Linnaeus’s original description.
HABENARIA


Plant 1-2\text{\textfrac{1}{4}} ft. high. Stem leafy, 2-5 dm. 1., 7 mm. br. Leaves oval below; elliptical-oblanceolate in middle, 10-12·5 cm. 1., 2·5-3·5 cm. br.; ovate-acuminate above. Racemes 10-15 cm. 1., numerous-fld. Bracts ovate-lanceolate, acuminate, as long as the ovary, 3·5-4·5 cm. 1., 1·3 cm. br. Flowers greenish-white. Sepals, median ovate-obtusibarbaric, very obtuse, 1·5 cm. 1., lateral ovate, obtuse, 1·6 cm. 1. Petals, posterior segment oblong-falcate, acute to sub-acute, 1·3 cm. 1., 3 mm. br., anterior linear-setaceous, curved upwards, 3·5 cm. 1. Lip 3-partite nearly to base, middle lobe linear-lingulate, ac. te, barely 2 cm. 1., about 2 mm. br., lateral linear-setaceous, curved-spreading, 4 cm. 1. Spur pendulous, curved, filiform, slightly clavate, apex acute 10 cm. 1. and more. *Stigmatic processes* short, obtuse; anther-canals longer, curved upwards.


On damp clayey shady banks; in fl. Nov.—April; *Swartz; Macfadyen!* Hagley Gap, Purdie! Wilson! Mt. Diablo, Prior! Fairfield, Wulfschlaegel, 1049! March; Mt. Airy, J.P. 2052, *Syme,* and "common" *Morris!* Port Antonio & Blue Mt. Peak, Hitchcock; Browns Town, Miss T. M. Barrett! Cinchona, 5000 ft.; Silver Hill Gap; near Castleton; *Fawcett!* Westphalia, 4000 ft.; Cinchona; Wallenford, 3500 ft.; *Harris!* Fl. Jam. 7525, 7771, 7884, 10,407, 10,500 (partly).—Cuba, Porto Rico, St. Thomas, Guadeloupe, Dominica, Martinique, St. Lucia, St. Vincent, Grenada, Trinidad, Guatemala, Colombia, Ecuador, Peru, Venezuela, Brazil.

Plant to 2 ft. high. Stem leafy, 2·5-5 dm. 1., to about 6 mm. br. Leaves 4-8 cm. 1., 2-3 cm. br. Raceme 10-13 cm. 1., densely-fld. Bracts ovate-lanceolate, acute or shortly acuminate, about as long as the ovary, 1·2-2·2 cm. 1., 4-5 mm. br. Pedicels very short. Flowers white. Sepals reticulate-5-nerved, nerves prominent outside; median ovate or ovate-obtusibarbaric, very obtuse, keeled, 7-8 mm. 1., 4-5·5 mm. br.; lateral ovate, obtuse, apiculate, 7-8 mm. 1., 3-4 mm. br. Petals posterior segments narrowly oblong, tapering to base and apex, apiculate, 2-3-nerved, connivent or spreading, 6·5-7·5 mm. 1., 1·8-2·5 mm. br.; anterior segment linear, acuminate, generally about 4 mm. 1., erect, sometimes reduced to a short, descending process, about 1 mm. 1. Lip, lobes subequal; middle lobe linear-lingulate, 7-8 mm. 1., 1-2 mm. br.; lateral filiform, 8-9 mm. 1., barely .5 mm. br. Spur pendulous or curved anteriorly, filiform, apex acute, 1·5-2 cm. 1. *Stigmatic processes* short, fleshy; anther-canals much longer, ascending; rostellum small, triangular.

Cogniaux regards *O. monorrhiza* Sw. as distinct from *H. maculosa* Lindl. and identical with *H. alata* Hook., and describes the lip as undivided. *Swartz,* however, says "labio tripartito" *Prodr.* & "Labium ad basin fere tripartitum" Flor., in which *H. maculosa* agrees, but *H. alata* differs.

3. *H. repens* *Nutt. Gen. Amer. ii. 190* (1818); stem creeping at base; leaves 3-nerved, oblong-lanceolate; lip with lateral lobes pendulous, shorter than sepals.—*Lindl. op. cit. 310;*

In wet places; St. Ann, McNab! Worthy Park, Prior!—Cuba, Porto Rico, Florida, Georgia, Carolina, Alabama, Louisiana, Guatemala, Nicaragua, B. Guiana, Venezuela, Brazil.

Plant ½-2½ ft. high. Stem without tubers, 1·5-7·5 dm. Leaves 1-3 dm. l., 7-2 cm. br. Raceme 5-20 cm. l., dense, many-fl. Bracts linear-lanceolate, acuminate, lowest longer than flower, upper shorter than ovary, to 1·5 cm. l. Pedicels 4-6 mm. l. Flowers erect, yellowish-green. Sepals, median broadly ovate, apiculate, 5 mm. l.; lateral ovate, apiculate, nearly 6 mm. l. Petals 4 mm. l., posterior segment falcate, lanceolate, acute; anterior segment linear-filiform, acute, about as long as the posterior. Lip 4-5 mm. l., lobes sub-equal, linear-filiform, median broader than lateral. Spur incurved, linear, 9 mm. l. Stigmatic processes oblong, thickish; anther-canals short, directed forwards. Capsule 10 mm. l.

4. H. distans Griseb. Cat. Cub. 270 (1866); steam leafy at base only; leaves reticulate-many-nerved, broadly oblong or lanceolate, acute.—Cogn. op. cit. 300; Ames op. cit. 202.


Plant 8-16 in. high. Stem 2-4 dm. Leaves 8-16 cm. l., 2·5-5 cm. br. Raceme laxly 6-10-fl., 6-12 cm. l. Bracts foliaceous, ovate-lanceolate, long-acuminate, 2-1·5 cm. l. Flowers greenish. Sepals 3-nerved, median ovate-oblong, somewhat obtuse, 5-6 mm. l.; lateral deflexed, oblong, acute, about 8 mm. l. Petals, segments somewhat equal; posterior linear-ligulate, abruptly acute, suberect, as long as the median sepal; anterior somewhat longer, filiform. Lip, middle lobe about equal to the lateral sepals, narrowly linear; lateral lobes generally longer, filiform, spreading. Spur incurved, filiform, gradually becoming spindle-shaped, somewhat acute, 1·3-1·6 cm. l. Stigmatic processes extended, thickened, altogether free from the lip; anther-canals shorter, ascending.

Var. jamaicensis Cogn. loc. cit. (1909); plant smaller than the typical species; leaves roundish-oval to oblong-lanceolate. Habenaria jamaicensis Pawc. & Rendle in Journ. Bot. xlvii. 126 (1909); Ames op. cit. iv. 204, t. 67. (Pl. 1, f. 2, 3.)

On rocky or clayey, shady banks; in fl. Dec.—March; below Guava Ridge, J.P. 483, Morris! Mt. Hybla, 4000 ft.; Clydesdale, 4000-4500 ft.; near Cinchona, 4500 ft.; Harris! Fl. Jam. 7851, 7854, 10,499.—Hispaniola.

Plant ¾-1 ft. high. Stem 1-2 dm. Leaves 3-9 cm. l., 1·5-4·5 cm. br. Raceme laxly 4-12-fl., 4-15 cm. l. Bracts membranous, ovate-lanceolate or lanceolate, acute or acuminate; sterile 2-4, more or less distant, 5-2 cm. l.; floral about as long as the stalked ovary, 2·5-1·5 cm. l. Pedicels about 5 mm. l. Sepals 3-nerved, median ovate-suborbicular, very obtuse, 6-7 mm. l., 4·5-6 mm. br.; lateral half-ovate, subfalcate, obtuse, apiculate, 6-5-9 mm. l., 3·5-4 mm. br. Petals, segments equal or unequal; posterior oblong-lanceolate, falcate, acute, connivent, 5·5-7 mm. l., 1·5-2 mm. br.; anterior segment a little shorter than the posterior, 1·5-4 mm. l. Lip, middle lobe linear-ligulate, 6·5-10 mm. l., about 1 mm. br.; lateral lobes filiform, erect, much longer than the petals, 9-12 mm. l. Spur 1·3-1·6 cm. l. Stigmatic processes short, truncate-roundish; anther-canals about as long; somewhat curved; staminodes shortly triangular.
§ 2. Petals entire; lip simple.

5. H. Purdiei Fawc. & Rendle in Journ. Bot. xliii. 263 (1909); leaves lanceolate; bracts lanceolate, shorter than the stalked ovary; sepals very obtuse; spur much longer than ovary.—Ames op. cit. iv. 270. (Pl. 2, f. 1–3.) Type in Herb. Kew.

Hollis's Savanna, Clarendon, Purdie!

Plant 1½ ft. high. Stem about 3 dm. l., 3-5 mm. br. Leaves thin, conspicuously reticulate-11–15-nerved, acute, to 8 cm. l., to 1·9 cm. br. Raceme, about 12 cm. l., somewhat laxly many-fl., oblong in outline. Bracts acuminate, lower 1·7 cm. l. Pedicel about 5 mm. l. Ovary 1–1·8 cm. l. Flowers somewhat spreading. Sepals reticulate-3-nerved, nerves prominent outside; median suborbicular, margin minutely denticulate, 8·5 mm. l., 7·7 mm. br.; lateral oval-oblong-falcate, concave, about 11 mm. l., about 5 mm. br. Petals oblong, very obtuse, 2-nerved, 6 mm. l., 2 mm. br. Lip linear-ligulate, margin revolute, with a small tooth on each side above the base, pendulous, half as long as the sepals, 13 mm. l., nearly 2 mm. br. Spur slender, compressed, tapering to apex, nearly 3 cm. l. Stigmatic processes thick and fleshy at apex, about 2 mm. l.; anther-canals nearly twice as long, about 3·3 mm. l., ascending; anther acutely crested (in the specimen examined).

Near H. obtusa Lindl., from Brazil and Surinam, but differs in the smaller lanceolate bracts and in other details.

6. H. alata Hook. in Exot. Fl. t. 169 (1827); bracts ovate to lanceolate, acuminate, apex shortly awned, about as long as the stalked ovary; sepals acute; petals acute, linear-lanceolate.—Griseb. op. cit. 644; Ames op. cit. iv. 273. H. brachyceras Lindl. op. cit. 315 (1835), non Spreng. H. monorrhiza Cogn. op. cit. 307 excl. syn. (in part). (Pl. 1, f. 4–7.)

In damp clayey ground; in fl. Nov.–April; Macfadyen! Purdie! Prior! Golden Spring, J.P. 466, Morris! Farm Hill, Miss B. Gosset! Salt Hill Road; Westphalia, 4000 ft.; Halls Delight, 1000 ft.; below Cinchona, 4000 ft.; Harris! Fl. Jum. 7526, 7596, 10,470, 10,500.—Cuba, Porto Rico, St. Thomas, Antigua, St. Vincent, Grenada, Mexico, Guatemala, Costa Rica, Venezuela, Bolivia.

Plant reaching sometimes to 3½ feet. Stem leafy, covered by the leaf-sheaths, 2–5 dm. l. Leaves lanceolate, acute, passing from a sheath at the base into bracts above, 7–16 cm. l., 1–2·4 cm. br. Raceme somewhat laxly many-fl., 10–15 cm. l. Bracts 2·7–2·2 cm. l., 4–6 mm. br. Flowers green. Sepals reticulate-7-nerved, keeled, median broadly ovate, 6–8 mm. l., 4·5–6 mm. br.; lateral ovate, acute, 7–9 mm. l., 3–4·5 mm. br. Petals reticulate-3-nerved, with a small projecting lobe on the anterior side near the base, 6–7·5 mm. l., 1·75–2 mm. at greatest width. Lip linear-ligulate, margin revolute, with or without a small tooth on each side above the base, spreading or ascending, 6–8 mm. l., about 1 mm. br. Spur pendulous, clavate, slightly shorter than the ovary, 1·2–1·4 cm. l. Stigmatic processes short, compressed; anther-canals subequal, ascending. Capsule 6-winged.

7. H. socialis Fawc. & Rendle loc. cit.; bracts lanceolate, acuminate, about as long as the stalked ovary; lateral sepals 2-nerved, oblong, retuse, about 4·3 mm. l., about 2 mm. br.; petals oblong, apex emarginate, the nerves ending in two pro-
jecting points, 3·5 mm. l., about 1 mm. br.; spur tapering towards apex.—Ames op. cit. iv. 276. Type in Herb. Kew. (Pl. 2, f. 4–7.)

Growing with H. alata Hook. in marshy soil, near Mandevelle, Purdie!

Plant 12 in. high, glabrous. Stem erect, leafy, covered by leaf-sheaths, about 2 dm. l., 3 mm. br. Leaves lanceolate, thin, 9-nerved, acute, passing into the bracts above, blade to 8·5 cm. l., to 2 cm. br. Raceme somewhat laxly many-fld., about 10 cm. l. Bracts, lower 1·3 cm. l. Pedicel about 3 mm. l. Ovary about 1 cm. l. Flowers green, erect. Sepals median, without nerves, suborbicular, very obtuse, apiculate, about 3·5 mm. l. and br. Petals reticulate-2-nerved, with a projecting lobe on the anterior side near the base, 3·5 mm. l., about 1 mm. br. Lip linear-ligulate, with a small projecting lobe just above the narrow base, margin revolute, simple, about 5·5 mm. l., about 1·2 mm. br. Spur slender, compressed, nearly as long as ovary, about 1 cm. l. Stigmatic processes very short, capitate, glandular; anther-canals ascending, about twice as long as processes.

Differs from H. alata Hook. in the texture and venation of the leaves; in the flowers being about half the size; in the form of the sepals and petals, and the relatively longer lip. Differs from the Brazilian species, H. quadrata Lindl., in form of petals, length of spur, which is 1·5 cm. l. in H. quadrata, and in other details.

8. H. troyana Fawc. & Rendle op. cit. 264; bracts ovate-lanceolate, subacuminate, like the leaves at base of raceme, lowest longer than flower, upper shorter than ovary; lateral sepals reticulate-nerved, falcately oblong-ovate, obtuse, the nerve on the lower face projecting as an apiculus just below the apex, 7 mm. l., 3·5 mm. br.; petals oblong, retuse, oblique at base and rather broader there than at the apex; spur increasing in size upwards from a slender base.—Ames op. cit. iv. 260. (Pl. 2, f. 8–12.)

In damp shady forest; in fl., Nov.; near Troy, 2500 ft., Harris! Fl. Jam. 10,432.

Plant somewhat robust, 2 ft. high. Stem leafy, 3 dm. l. Leaves lanceolate, acute, reticulate-11–15-nerved, passing into bracts above, about 10 cm. l., about 2·5 cm. br. Raceme densely-fld., 30 cm. l. Bracts 3·5–1·2 cm. l., 1·3–6 cm. br. Pedicels short. Sepals reticulate-nerved, median ovate-suborbicular, very obtuse, 6 mm. l., 5 mm. br.; lateral spreading, 7 mm. l., 3·5 mm. br. Petals with an obsolete lobe near base anteriorly, 5 mm. l., 2·3 mm. br. Lip linear-ligulate, angled at the base, 7·5–8 mm. l., 1·5–1·75 mm. br. near apex, 1·5–2 mm. br. near base. Spur pendulous, slightly curved, shorter than the stalked ovary, 9 mm. l. Stigmatic processes short, compressed; anther-canals about as long, slightly projecting upwards.

Since the publication of H. troyana, we have had the opportunity, through the courtesy of Prof. I. Urban, of comparing flowers from the type specimen of H. eustachya Reichb. f. in Ber. Deutsch. Bot. Ges. iii. 274 (1855) from Porto Rico (Sintenis, no. 511b); this differs from H. troyana in being smaller, with thinner, non-clavate spur, and much smaller lip. When describing H. troyana we compared it with H. Sanbornii Ames, which we suggested might prove identical with H. eustachya. Mr. Oakie Ames now (op. cit. 257) refers H. Sanbornii to H. eustachya, and considers H. troyana as probably the same species.
2. POGONIA Juss.

Terrestrial herbs, with fleshy roots or a tuber. Leaves wanting, or appearing on the stem with the flowers; stalk sheathing, blade broad. Flowers medium-sized or small, corymbose, erect. Sepals equal, free, erect. Petals similar to, and nearly as long as, the sepals, erect. Lip erect from the base of the column, free, not spurred, contracted below, narrowly embracing the column, 3-lobed, the face with 1–3 raised lines. Column elongate, at the apex slightly thicker, with a short rostellum; stigma under the rostellum oblong or broad; clinandrium more or less elevated, entire or denticulate. Anther more or less incumbent, obtusely conical or semiglobose; pollinia two, thinly granular. Capsule ellipsoidal, erect.

Species about 90, widely dispersed over the world.

Stem leafy ........................................ 1. P. macrophylla.
Stem leafless...................................... 2. P. gentianoides.


In damp shady places; probably in fl. all the year, our specimens were collected in Feb., April, June & Dec.; woods above Dunrobin Castle, St. Thomas in East, Purdie! J.P. 2000, Morris! Mabess River, 2500 ft., G. Nichols! Vinegar Hill, St. George, 4000 ft.; ridge below Vinegar Hill, 3500 ft.; near Mabess River, 3500 ft.; Harris! Fl. Jam. 6252, 7840, 9013, 10,097.—Cuba, Hispaniola, Porto Rico, Guadeloupe, Dominica, St. Lucia, St. Vincent, Grenada, Venezuela, Guiana, Colombia.

Plant 9–12 in. high, glabrous. Stem often prostrate at the base and rooting at the nodes, erect above, purple, 1–3 dm. l. Leaves, blade ovate, acute or obtuse, at the base rounded, sometimes somewhat cordate and clasping, green above, deep purple beneath, conspicuously 3-nerved, 3–7 cm. l., 2–3 cm. br. Racemes 1-several, with numerous broad bracts, short or becoming long, with 1–6 flowers open at one time at the apex, 2–13 cm. l. Flowers, perianth ½ in. or more l. Bracts, floral broadly ovate, obtuse, clasping, much shorter than the ovary, 5–1 cm. l. Pedicels 4 mm. l., elongating often to 5·5 mm. in fruit. Ovary slender with thin longitudinal ridges, 11 or 12 mm. l. Sepals oblanceolate, 3-nerved, margins somewhat involute, strongly keeled, keel ending in a pointed tip, about 1·5 cm. l., 3·5 mm. br., lateral falcate. Petals oblanceolate, acute or somewhat obtuse, 3-nerved, about 1·4 cm. l., 2·2 mm. br. Lip in outline obovate, a little shorter than the petals (by 1 mm.), nearly 5 mm. br. (including lobes), many-nerved, middle vein prominent, 3-lobed above; middle lobe much larger than the lateral, somewhat roundish-rhomboid, margin somewhat eroded; lateral lobes oblong, obtuse, with a very narrow sinus. Column narrowly winged; clinandrium with 2 pointed lobes. Capsule nearly 2·5 cm. l., 7 mm. br.

In shady places; in fl. June; Morant Bay, Swartz! J.P. 482, Morris!

Plant growing from a tuber, glabrous 5-15 ins. high. Scape erect, slender, with a few sheaths, 1-3 dm. 1., purplish. Sheaths about 5, clasping, rounded at the apex, dark- or reddish-green, 2-1 cm. 1. Flowers at the end of the scape "dark purple, glaucescence, like the calyx of Gentiana Amarella" (Sw.). Peduncles 6-12, somewhat crowded, very long, 2:5-7:3 cm. 1., filiform, 1-flld., lax, red. Bracts ovate, acuminate, entire, concave, 3-nerved, green, 5-9 mm. 1. Sepals 3-nerved, narrowly oblong, hooded at tip, connivent, erect, dark purple, 9 mm. 1., 1:75 mm. br. Petals nearly as long as the sepalas, white, 3-nerved, lanceolate, obtuse, about 8 mm. 1., 1:5 mm. br. Lip narrow at the base, erect, half-embracing the column, nearly as long as the petals, 3-lobed; middle lobe larger than lateral, oblong, blunt; lateral ovate, entire; 3 raised lines marked with green spots run from the base to the apex of the middle lobe. Column somewhat stout, semi-terete. Anther bluntly apiculate. Capsule with 6 shallow keels, 1:1 cm. 1., 5 cm. br.

3. VANILLA Sw.

Herbs; strong, high-climbing, branching; stems with or sometimes without leaves, emitting roots. Leaves leathery, papery, or membranous. Racemes or spikes axillary, generally short. Flowers large. Bracts ovate. Sepals about equal, free, spreading. Petals somewhat similar to the sepalas. Lip, claw adnate to the column; limb broad, concave, embracing the column at the base. Column long, without a foot; stigma transverse under the short rostellum; clinandrium short or obliquely raised. Anther attached to the margin of the clinandrium, incumbent, convex, semiglobose or obtusely conical, with separate cells; pollinia powder-granular, free, or at length sessile on the rostellum. Capsule generally long, fleshy, not dehiscing or only slightly later.

Species about 20, widely dispersed throughout the tropics of the whole world.

Leaves, wanting on main stem, lanceolate-subulate on terminal shoot........................................ 1. V. claviculara.

Stem leafy.

Bracts large, foliaceous. Leaves much longer than internodes ............................................. 2. V. inodora.

Bracts small, not foliaceous. Leaves about as long as, or shorter than, internodes.

Leaves ovate, small, shorter than internodes ... 3. V. Wrightii.

Leaves oblong or elliptical, large, about as long as internodes.

Flowers 2½-3½ in. 1. Capsule thick.

Capsule rounded and somewhat flattish in section ........................................ 4. V. pheantha.

[Capsule somewhat 3-cornered in section V. pompona.]

[Flowers 2 in. 1. Capsule slender .......... V. planifolia.]

1. V. claviculara Sw. in Nov. Act. Upsal. vii. 66, t. 5, fig. 1 (1799) (figure * bad); leaves wanting on main stem; on the

* This figure does not agree with description of Fl. Ind. Occ., but it may refer to V. Wrightii.
VANILLA


Greenwithe.

On shrubs and trees, growing on limestone rocks; in fl. and fr. June; Angels, near Spanish Town, and on hills near, Sloane Herb. vii. 86! in very dry, calcareous mountainous places, Swartz! Retirement, St. Elizabeth, J.P. 460, Morris! Stony Hill, J.P. 460 (2613) Syme! Constant Spring 650 ft., Stony Hill, 900 ft., Harris! Fl. Jam. 5827, 10,411 (March! in Hb. Kew.; owing to the unsatisfactory condition of the flower, which has apparently a glabrous lip, we have had some hesitation in referring it to this species).—Cuba, Hispaniola, Porto Rico, St. Thomas, Bahamas.

Stem leafless on main stem, thick, 1 cm. or more br., shrivelling very much, to 5 or 6 mm., when dry; internodes about 10 cm. l.; adventitious roots often twisting spirally like tendrils. Leaves 3–8 cm. l. Raceme with 8–12 sessile flowers, to 14 cm. l. Bracts below like the leaves, but much smaller, above triangular, acuminate, 2–5 cm. l. Ovary ½ as long as the sepals, cylindrical. Flowers fragrant, glaucous green sepals with a white and purplish lip, perianth nearly 2 ins. l., crowded towards apex of raceme. Sepals narrowly elliptical, obtuse, 4–4.7 cm. l., 1–1.1 cm. br. Petals as long as sepals, keeled, 1–3 cm. br. Lip roundish, crenate and curled on upper margin, attached to column for two-thirds its length, with ramenaceous hairs inside along the central line, and at the sides below, 5 cm. l., about 4–5 cm. br. when flattened out. Column 3 cm. l. Capsule ellipsoidal-cylindrical, thickest in the upper part, narrowing gradually to the base, 10 cm. l., 1.6 cm. br.

Swartz says, “flores albi ... odor fortis Orchidearum,” Grisebach quotes Wright as saying “perigonium rufescenti-vires, labello rubromarginato et punctato, mediano intus barbato.” We have not taken the species name from Linneus’s Cactus parasiticus owing to the great confusion in his references. In the Systema (1759) he describes C. parasiticus as “repens, teres, striatus, muticus,” referring to (1) Sloan. Jam. 224, f. 3, 4, the specimen of which is in Herb. Sloane, and is Vanilla claviculata Sw.; (2) Plum. Ic. 197, f. 2, probably a species of Rhipsalis. In Species Plantarum, ed. 2, i. 668 (1762) he repeats the diagnosis from the Systema, but drops the reference to Sloane, citing instead Cactus parasiticus inermis &c. Browne Jam. 298. In the Linnean Herbarium there is a specimen from Browne named Cactus parasiticus by Linneus; this has no flower, and is either Dendrophylax funalis, or a leafless species of Campylocentrum.

2. V. inodora Schiede in Linnaea iv. 574 (1829); leaves much longer than the internodes, elliptical, shortly acuminate, membranous, very shortly stalked; bracts in two ranks, foliacious, membranous, like the leaves but much reduced and varying in size.—Rolfe op. cit. 449; Cogn. op. cit. 320. Vanilla flore viride et albo, fructu nigrescente, Plum. Nov. Gen. Pl. Amer. 25, t. 28


Stem leafy, somewhat thick, 8 mm. br., shrivelling to 5 or 6 mm. in drying; internodes 3-5-10 cm. 1. Leaves 10-20 cm. 1., 5-10 cm. br., nerves numerous, prominent in drying. Racemes axillary, with 6 or 7 sessile flowers, to 15 cm. 1. Bracts usually 1-3-2-5 cm. 1., sometimes to 8 cm. 1. Ovary ½ as long as sepals, or nearly as long, cylindrical. Flowers greenish, with white lip with orange-yellow crest, perianth 13-2 in. 1. Sepals and petals lanceolate to lanceolate-oblong, somewhat obtuse, 5 cm. 1., to 1½ cm. br. Lip 3-lobed, nearly as long as sepals and petals, united to column only a short distance at base (about 5 mm.); lateral lobes oblong, obtuse, median lobe spreading and then erect, ovate-oblong, subacute; disk 3-keeled, without a tuft of hairs, 4½ cm. 1., about 3 cm. br. (when flattened out). Column 2½-3 cm. 1. Capsule slender, elongate-linear, slightly tapering at apex, not fragrant, 12-18 cm. 1.

3. V. Wrightii Reichb. f. in Flora xlviii. 273 (1865); leaves shorter than the internodes, ovate or elliptical, shortly acuminate, slightly stalked, papery.—Griseb. Cat. Cub. 267; Rolfe op. cit. 454; Cogn. op. cit. 321. V. claviculata Lindl. in Ann. & Mag. Nat. Hist., ser. 3, t. 334 (1858), non Se. Vanillas piperis arbore jamaicensis inanescens Pluk. Alm. 381, t. 320, f. 4. (Pl. 2, t. 17.)


Stem leafy, slender, 3-4 mm. br., shrivelling to 2 mm. in drying; internodes 5-10 cm. 1.; roots 2-4 from the same node. Leaves, nerves numerous, prominent in drying; blade 4-7 cm. 1., 2-3½ cm. br., stalk 5-13 mm. 1. Racemes axillary, with 5 or more, sessile flowers, to 7 cm. 1. Bracts triangular, obtuse, half-clasping, 5-7 mm. 1. Ovary about ¾ as long as sepals, cylindrical. Flowers, perianth 2-2½ in. 1., with dark reddish sepals (in bud reddish-brown). Sepals elliptical-lanceolate, obtuse, 4½ to about 5 cm. 1., 8-9 mm. br. Petals keeled, 4½ cm. 1., 7 mm. br. Lip entire, united to column about 2 cm. above base, roundish-ovate, shortly acute, margin crenulate, with ramentaceous hairs on the disk especially along the central line, about as long as the sepals. Column 3-7 cm. 1., hairy below the stigma, winged on each side of anther. Anther somewhat rectangular in outline. Capsule elongate, linear, somewhat flattened, slender, slightly tapering at apex, 12-14 cm. 1., 4 mm. br.

Reichenbach describes the lip as "apice bilobulo (disco levi?)"; Grisebach as "barba destituto," and Rolfe as "disco levi." Wright, quoted by Lindley, says of his Cuban specimen (672): "Flowers light dull red. Labellum light-yellow with a white margin. Column adhering to the labellum more than half its length, reddish towards the base."
4. *V. phæantha* Reichb. f. *op. cit.* 274; leaves about as long as the internodes, oblong, tapering to an acute apex, with very short stalk, clasping at the base, fleshy; flowers 2½–3½ in. l.; capsule linear-cylindrical, somewhat flattened, tapering to base.—*Rolfe op. cit.* 464. *Cogn. op. cit.* 323. *V. planifolia*, var. *macrantha* *Griseb. loc. cit.* (Pl. 2, f. 20.)

In fl. May; Askenish, 800 ft., near Dolphin Head, *Harris*! Fl. Jam. 10,459.—Cuba, Bahamas, St. Vincent, Trinidad.

*Stem* leafy, thick, 5–8 mm. br. when dry; internodes 13 to 14 cm. 1. *Leaves* several-nerved (when dry), 2·5–3 cm. br. *Raceme* with several flowers, 3–5 cm. 1. *Bracts* ovate, acute, 6–14 mm. l., 4–8 mm. br. Flowers fleshy, perianth 3½ in. 1. *Ovary* cylindrical, slightly 2-angled, 5 cm. l., 6–7 mm. br. *Sepals* oblanceolate, about 11-veined; lateral somewhat acute, slightly falcate, 8·2–8·8 cm. l., 1·6–1·8 cm. br.; median somewhat blunt, 8·5–9·1 cm. l., 1·7 cm. br. *Petals* about 10-nerved, distinctly broadly keeled, 8·1–8·7 cm. l., 1·2–1·4 cm. br. *Lip* attached to column almost to its apex, limb very broadly ovate, apex retuse, apiculate just below the apex on the back, distinctly keeled along the back, the keel ending in a long mucro at 5 mm. below the apex, nerves prominent in the tube and on disk, with a tuft of transverse, flat, toothed crests pointing downwards opposite the column near the apex, margin somewhat curled and crenulate, 8·1–8·3 cm. l., about 4·5 cm. br. *Column* 6·3 cm. l., bearded below the stigma; in the specimen examined 3 anthers are present, in the lateral one cell incomplete. *Capsule* (unripe), 8 cm. l., 1·2 cm. br.


S.E. Mexico, Yucatan, B. Honduras, Guatemala, Costa Rica.

*Stem* leafy, somewhat thick, shrivelling to 5 or 6 mm. in drying; internodes 8 or 9 cm. 1. *Leaves* longer than the internodes, with short thick stalks, oblong to subovate-oblong, acute or shortly acuminate, thick and fleshy, nerves obscure in fresh specimens; 10–18 cm. l., 4–6 cm. br.; stalks half-clasping, about 1 cm. 1. *Racemes* axillary, many-flowered (to 14), 5–7 cm. l. *Bracts* oblong, subacute or obtuse, 5–10 mm. l. *Flowers* greenish-yellow, perianth 2 in. 1. *Sepals* and *petals* oblong-oblanceolate, somewhat obtuse, about 5 cm. 1. *Lip* convolute, attached by its margins to the column almost to its apex, with longitudinal crenulate keels, and a hairy tuft in the tube pointing downwards; somewhat 3-lobed above, apex retuse; with revolute margin, somewhat longer than the sepals. *Column* hairy anteriorly, about 3 cm. l. *Capsule* long, linear, 15–25 cm. l.

This species furnishes the best "vanilla beans" of commerce, and is cultivated to some extent in Jamaica. It may consequently occur here and there, in a naturalised state, producing perfect fruit, as it has done in Hope Gardens without being artificially pollinated, and on that account we have included it.

Miller’s *V. mexicana* (Gard. Dict. ed. 8, 1768), as well as Swartz’s *V. aromatico* (in Nov. Act. Upsal. vi. 66, 1799 & in Schrad. Journ. ii. 208, t. 1, fig. 1b, 1799) was founded on Linneaus’s
Epidendrum Vanilla, and included the vanilla beans of commerce and the leaves and flowers of another species.

The pods of both V. pompona Schiede and V. planifolia are used in commerce, and as V. pompona is much more widely spread than V. planifolia, it is probable that its pods were more common in early times before cultivation was resorted to. V. pompona is not so much cultivated at present as V. planifolia, as its pods are not nearly so valuable commercially.

Judging from the habitat given by Miller for the plant cultivated by him, from the thickness of the pod ("scarcе an inch broad"), and from the shape of the leaves "oblongo-ovatis," it seems more probable that his plant was V. pompona rather than V. planifolia.

V. inodora Schiede has much the same distribution on the mainland as V. pompona, and extends also to the West Indies. The stem and leaves of this species may have been sent to England as specimens of Vanilla, and certainly some of the old drawings suggest V. inodora rather than V. pompona or V. planifolia, e.g. Catesby's plate (Nat. Hist. Carol., App. t. 7), which is quoted by Miller as his V. mexicana. Miller also states in his generic description that the lip "runs out into a long point," and this cannot apply to either V. pompona or V. planifolia, but may well refer to V. inodora."

[V. pompona Schiede in Linneea iv. 573 (1829); leaves and flowers like those of V. phawantha but larger; capsule thick, somewhat 3-cornered in section.—Rolfe op. cit. 465; Cogn. op. cit. 323. V. grandiflora Lindl. Gen. & Sp. Orch. 435 (1840). Banille Merian Pl. Ind. t. 25 (1768).

Trinidad, Mexico, Nicaragua, Panama, Colombia, Venezuela, B. Guiana, Surinam, Cayenne.

Like V. planifolia but larger. Leaves ovate-oblong, 14-25 cm. l., 5-11 cm. br. Racemes 6-8 fld., 2-5 cm. l. Bracts broadly elliptico-oblong, 10-18 mm. l. Flowers greenish-yellow, perianth 3½ in. l. Sepals and petals 8-8·5 cm. l., oblong-lanceolate, subspathulate. Lip 9-9·5 cm.l., adnate to the column almost to the middle, constricted for some distance below, limb obscurely 3-lobed, veins somewhat thick, with tuft pointing downwards, median lobe broadly rounded, apex emarginate and apiculate. Column hairy anteriorly, 6-7 cm. l. Capsule linear-oblong, obtusely 3-cornered, 10-15 cm. l.

The description of this species, which is cultivated in the Hope Gardens, is inserted for comparison.]

4. PELEXIA Lindl.

Terrestrial herbs, with roots clustered. Leaves radical, long-stalked, at base of a simple stem, with several sheaths. Flowers of medium size, with very short stalks, in a somewhat lax spike. Bracts narrow or lanceolate. Sepals, median erect, connate with the petals; lateral linear, connate at the base into
a long linear spur-like appendage, partly open on the upper side, adnate to ovary or half-free. Lip erect, concave, embracing the column above, involute below the column and attached at its base to the inside of the spur of the sepals. Column short, without a foot; stigma broad, at the base of the erect, long, subulate-acuminate rostellum; clinandrium short. Anther erect, behind the rostellum, oblong-linear, cells contiguous; pollinia narrow, powdery-granular, on the dehiscence of the anther pendulous from the apex of the rostellum. Capsule erect, ellipsoidal.

Species about 20, natives of tropical America, from the West Indies and Central America to Brazil.

Sepals produced into a long, awn-like apex.

Spur half-free ....................... 2. P. setacea.


In shady woods; in fl. May; Masson! Bahamas, Cuba, Hispaniola, Porto Rico, Guadeloupe, St. Vincent, Grenada, Margarita.

Plant 1½ ft. high. Stem downy above, glabrous below, about 3 dm. 1. Leaves 2 or 3, oval, acute, blade about 10 cm. 1., 5 cm. br.; stalks red, 14 cm. 1., sheathing at the base. Sheaths coloured, shortly tubular below, free part lanceolate, 4½-2 cm. 1. Spike downy, many-flowered, somewhat lax. Bracts linear-lanceolate, as long as the ovary, 10-17 mm. 1. Flowers more or less erect, green or whitish. Sepals, lateral linear, somewhat spreading, acute, 1-nerved, green outside, white inside, spotted, from attachment at base of column about 6 mm. 1., about 1 mm. br.; median elliptical, obtuse, very concave, 3-nerved, pale green, about 6 mm. 1., (with the attached petals) about 3½ mm. br. Petals linear, white, closely attached to the median sepal, and nearly as long as it. Lip white, about 5½ mm. 1. from base of column, terminal lobe 2 mm. 1., 3½ mm. br. Capsule 6-keeled, 1½ cm. 1., ½ cm. br.

2. P. setacea Lindl. Gen. & Sp. Orch. 482 (1840); flowers 1½-2 in. 1. from apex of sepals to point of spur; sepals produced into a long awn-like apex; spur half-free from ovary; lip oblong, broadening upwards, terminal lobe lanceolate, fimbriate below, with awn-like apex.—Griseb. op. cit. 642; Cogn. op. cit. 327. P. setacea var. glabra Cogn. in Fedde Repert. vii. 123 (1909). Neottia calcarata Hook. in Bot. Mag. t. 3403 (1835). (Pl. 2. f. 21, 22.)

Cayman Brac, Bahamas, Cuba, Hispaniola, Porto Rico, Trinidad, Colombia, Brazil.

*Plant* 15-18 in. high. *Stem* somewhat stout, downy above, glabrous below, 3 dm. and over. *Leaves* 1 or 2, oval, acute, blade 11-15 cm. l., 3-5 cm. br.; stalks 12-18 cm. l. *Sheaths* 1 or 2, radical, below the leaves, scarious, 2-5 cm. l.; cauline tubular below, free part triangular, acuminate, 2-3 cm. l. *Spike* downy, lax, with several flowers, 3-15 cm. l. *Bracts* ovate, apex acuminate,awn-like, 5-nerved, longer than the ovary, 2-2.5 cm. l., abct=5 cm. br. *Ovary* spindle-shaped (with stalk) 2 cm. l. *Flowers* greenish-white. *Sepals* linear-lanceolate, 7-nerved below (from point of attachment at base of column) 2.8 cm. l., barely 2 mm. br., median 2.5 mm. br.; spur tapering, obtuse. *Petals* similar to sepals, attached throughout their length to the median sepal, nearly 2 cm. l., 1.4 mm. br. *Lip* white, many-nerved. *Column* (below stigma) 3 mm. l., from base of column to apex of anther 9 mm. l. *Capsule* broadly ellipsoid, with six shallow keels, dehiscing at some little distance below the apex, 2 cm. l., 8 mm. br.

Var. *glabra* Cogn. is based on Harris Fl. Jam. 7863, the author says "scapus usque ad apicem glaberrimum," but all the specimens which we have seen bear the usual pubescence.

5. **STENORRHYNcos** Spreng.

Terrestrial herbs, root fibres generally fleshy, clustered, with radical leaves, or flowering stems leafless. Leaves elliptical to ligulate, radial, tapering at base into long stalks which are flattish, concave, sheathing at base. Flowers medium size to small, in a spike. Sepals free, subequal; median erect, cohering with the petals; lateral obliquely affixed at the apex of the ovary, and decurrent with the column, produced at the base into a chin or distinct spur, erect. Lip sessile or clawed, erect, concave, embracing the column and sometimes adherent to it, spreading at the apex, entire or indistinctly 3-lobed, without calli. Column terete, at the base with a long foot; stigma broad under the erect, long rostellum; clinandrium posteriorly short, margins sometimes raised and continuous with the rostellum. Anther erect, oblong-lanceolate, 2-celled; pollinia powdery-granular, pendulous from a gland of the rostellum. Capsule obovoid or ellipsoid, 3-keeled.

Species about 25, natives of tropical America.

Leaves, several, elliptical ........................................ 1. *S. speciosus*.
Leaves, 1 or 2, or wanting during flowering season.

Plant with glandular-pubescent hairs. *Perianth* 3-3 in. l. Spur about 1/3 length of ovary ...... 2. *S. lanceolatus*.


1. *S. speciosus* Lindl. *Gen. & Sp. Orch.* 477 (1840); plant glabrous; leaves several, elliptical; bracts crimson or rosy-pink, elliptical, acuminate, nerves 3, lateral branching, nearly as long as or longer than the flower; perianth crimson or rosy-pink, 1/2-3/2 in. l.; sepals forming a short chin.—*Griseb. Fl. Br.* W.


Plant 9 in. to nearly 2 ft. high, with thick, clustered roots. Scape erect, somewhat stout, 2.5–6 dm. l. Leaves acute, with several nerves, 6–17 cm.1., 3.5–6 cm. br., stalks 3–5–10 cm. l. (incl. sheath). Sheaths several at base, 5–7 above, membranous, lax; free portion lanceolate, acuminate; upper red; 4–8 cm. l. Spike erect, dense, somewhat one-sided, generally short, 4–11 cm. l. Bracts 3–5–2 cm. l. Ovary oblong, tapering to base, oblique at apex, 3-ribbed, purplish. Flowers numerous. Sepals slightly spreading at apex, nerves 3, sometimes branching; lateral oblong-lanceolate to narrowly lanceolate, acute to acuminate, 1.6–2 cm. l., about 4.5 mm. br.; median oblong, sub acuminate, to triangular-lanceolate, concave, 1.25–1.5 cm. l., about 4.5 mm. br. Petals 3-nerved, oblong tapering to an acute apex, or linear-lanceolate, slightly falcate, oblique at base and there attached both to median and lateral sepals, 1.25–1.5 cm. l., 2.5–3 mm. br. Lip 7-nerved, pubescent on the disk, shortly pubescent on the lower face, somewhat rhomboidal, with a recurved oblong acute or lanceolate apex, concave, slightly saccate at each side at base, 1.25–1.85 cm. l., about 5 cm. br. Column 3.5 mm. l. from junction with lip to attachment of anther, 1.1 cm. to apex of rostellum; rostellum ovobate, with a long beaked apex (beak 3.5 mm. l.), pubescent below the stigma, 2-winged below, wings united with stalk of anther. Anther 5–6 mm. l., ovate-lanceolate, slightly stalked.

2. S. lanceolatus Griseb. loc. cit.; plant with glandular-pubescent hairs; leaves glabrous, 1 or 2, ligulate or elliptical-lanceolate, often disappearing before flowering; bracts lanceolate to linear-lanceolate, long acuminate, nerves 3, lateral branching, about as long as the ovary; perianth dirty yellow, between \( \frac{1}{2} \) and \( \frac{3}{4} \) in. l.; spur not more than half as long as ovary, bluntly oblong, apex obtuse, almost wholly adnate to ovary, not more than about 1 mm. free.—S. orchioides Lindl. op. cit. 477 (in part). Helleborine purpurea &c. Plum. Pl. Amer. (Burm.) 176, t. 181, f. 2. Limodorum lanceolatum Aubl. Pl. Guian. ii. 821 (1775). Satyrium Orchioides Sw. Prodr. 118 (1788). Neottia Orchioides Sw. Fl. Ind. Occ. 1411, t. 28, fig. a. b. (1806). (Pl. 3, f. 22.)

On banks amongst grass; in fl. and fr., March and April; Macfadyen! Distin! Port Royal Mts., Purdie! Fairfield, Wulfschlaeger, 1882 (in part)! Mt. Moses, 2800 ft., J.P. 2400, Syme! below Vinegar Hill, Portland, 3000 ft.; Mt. Airy, 2000 ft.; Harris! Fl. Jam. 7876.—Cuba, Bahamas, Hispaniola, Antigua, Guadeloupe, Dominica, Martinique, St. Lucia, St. Vincent, Barbados, Grenada, Trinidad, Mexico, Guatemala, Colombia, Brazil, Argentine, Paraguay.
**Plant** 1 ft.–2 ft. 4 in. high, with thick, clustered roots. **Scape** erect, somewhat stout, glandular-pubescent above, glabrescent below; 2–5'–6'–5 dm. l. **Leaves** acute, entire, with several nerves and reticulate veins, 7–20 cm. l., 1'–8–2'–3 cm. br.; stalk 1–5 cm. l. (including sheath). **Sheaths** several at base, 5 or 6 above; free portion ovate, acute, below, to acuminate, above; glabrous, 2–3 cm. l. **Spike** erect, short or elongate, glandular-pubescent, 4–8 cm l. **Bracts** 9–13 mm. l., to 2–7 mm. br., sparsely glandular-pubescent, and sometimes margin ciliolate. **Ovary** obovate-oblong, very oblique at the apex, slightly glandular-pubescent, or glabrescent. **Flowers** close together. **Sepals** glandular-pubescent outside; lateral 5-nerved, lanceolate, acute, greatest length about 1·5 cm. l., length anteriorly about 1 cm. l., 2·5–3 mm. br.; median 7-nerved, triangular-lanceolate, acute, about 1 cm. l., 3·2'–4·2 mm. br. **Petals** 7-nerved, oblong, tapering above middle to apex, subacute, somewhat falcate, about as long as the median sepal, 2·2–2'–75 mm. br. **Lip** several-nerved, dilated and saccate about the middle; oblong, acute above, below convolute, slightly tapering to base; pubescent below the middle on inside, and on outside on margin, lighter in colour than sepals and petals, 12–14 mm. l., 3·2'–4·5 mm. br. in middle, 2·5 mm. br. in lower portion. **Column** 6–7 mm. to apex of rostellum; beak of rostellum about 4 mm. l. **Anther** sessile at base of column, about 4 mm. l. **Capsule** with a few scattered hairs, 1·1–2· cm. l., 5 mm. br.

3. *S. squamulosus* comb. nov.; plant scurfy with white scales; leaves wanting during flowering, according to Macfadyen (fide Grisebach) "serotinous, long, broadly lanceolate, pointed"; bracts lanceolate to linear-lanceolate, acuminate, somewhat longer than the ovary, 3–5–nerved with reticulate veins; perianth brick-red colour, 1–1'–2 in. l.; spur about ½ as long as ovary, ovate, apex obtuse, free from ovary near apex, 2–3 mm. free.—*S. orchioïdes* Lindl. loc. cit. (in part); *Griseb. loc. cit.* *Neottia squamulosa* H. B. & K. Nov. Gen. & Sp. i. 332, t. 71 (1815). N. orchioïdes *Sims Bot. Mag. t. 1036* (1807), non Sw.; *Bot. Reg. t. 701; Salisb. Ic. iucd. fol. 585. (Pl. 3, f. 21.)

On dry banks; in fl. and fr. April, May; St. Mary; Pedro, St. Ann.; Port Royal Mts.; Purdie! Shepherd! Wilson! Fairfield, Wallischaegel 1832 (in part)! Liguanea Plain, J.P. 8, Morris! Campbell! Chapelton, Faccett! Cinchona, Harris! Fl. Jam. 10,395, 10,396, 10,410, 10,496.—Cuba, Colombia.

**Plant** 1–2 ft. high, with clustered thick fleshy roots. **Scape** erect, somewhat stout, scurfy with white scales, 3–6 dm. l. **Sheaths** several at the base, 5–8 above, free portion ovate, acute below, acuminate above, sometimes scurfy, 2·5'–4·5 cm. l. **Spike** erect, long, scurfy, 6–14 cm. l. **Bracts** scurfy, sometimes with ciliolate margin, 16–23 mm. l., 3·5–6 mm. br. **Ovary** oblong, tapering to base and apex, oblique at apex, scurfy. **Flowers** shortly stalked, crowded towards the apex of the spike. **Sepals** scurfy outside; lateral 5-nerved, lanceolate, long acuminate, very oblique and decurrent at the base, greatest length 2·2'–3·5 cm. l., 3·3'–5·5 mm. br.; median 5-nerved, ovate-lanceolate, acuminate, 1·5'–1'–75 cm. l., 3·5'–4·5 mm. br. **Petals** 5–7 nerved, oblong-lanceolate, subacute, somewhat falcate, about as long as the median sepal, 2·5–3 mm. br. **Lip** several-nerved, dilated and saccate about the middle, lanceolate, acuminate, above; below convolute, linear; pubescent below the middle on inside and on outside on margin, 2·2'–3·5 cm. l., 5–6 mm. br. in middle. **Column** about 11 mm. to apex of rostellum. **Capsule** scurfy, 1‘1–1·3 cm. l.

Terrestrial herbs, roots fibrous or tuberous, stems leafy or the flowering leafless. Leaves linear, ovate or elliptical. Flowers small, secund, in often twisted spikes. Sepals free, subequal, median erect, cohering with the petals; lateral gibbous at the base. Lip sessile or clawed, erect, concave, embracing the column and often adherent to it, spreading at the apex, entire or 3-lobed, base concave, sometimes with calli inside. Column short, terete, base generally decurrent on the ovary; stigma broad under the rostellum, which is erect, obtuse, or elongate; clinandrium short, margins sometimes raised and continuous with the rostellum. Anther erect, ovate or oblong, 2 celled; pollinia powdery-granular, pendulous from a gland of the rostellum. Capsule ellipsoid, erect.

Species about 85, widely dispersed through the north temperate zone and tropical Asia and America to Chile.

Leaves linear or linear-lanceolate, generally decaying before flowering .......................... 1. S. tortilis.
Leaves ovate or elliptical, present during flowering.
Leaves all radical ........................................ 2. S. elata.
Leaves radical and along the stem ... 3. S. Fawcettii.


On damp shady banks and in pastures; in ft. and fr. March–June; Hollis Savanna, Clarendon; Guy’s Hill, St. Mary; Purdie! Fairfield, Wullschlaegel, 1067! Hanover, J.P. 2312, Morris! Cinchona, 4900 ft., Moore! Castleton, 490 ft., Fawcett! Harris! Farm Hill, Miss B. Gosset! below Vinegar Hill, Portland, 3000 ft.; between Cinchona and Morse’s Gap, 4900 ft.; Harris! Fl. Jam. 7314, 7553, 9553, 10,495.—Louisiana, Florida, Bermuda, Bahamas, Cuba, Hispaniola, Porto Rico, St. Thomas, Antigua, Guadeloupe, Dominica, Martinique, St. Lucia, Grenada, Trinidad.

Plant 1-1½ ft. high. Scare erect, slender, sparsely pubescent near apex, glabrous below, 2-4 dm. Leaves striate, smooth, to 3 dm. Sheaths 6 or 7, tubular below, free portion lanceolate, acute, 3-1 cm. 1. Spike erect,
spirally twisted, somewhat dense, puberulous, 8-13 cm. 1. Flowers on one side of spike, nodding, white, perianth ⅓-⅔ in. 1. Bracts puberulous, ovate, subacuminate, as long as, or longer than, the ovary, 6–8 mm. 1. Ovary pubescent, broader above. Sepals slightly puberulous, white, 3-nerved, lateral oblique at base, oblong tapering to an obtuse apex, 5 mm. 1., nearly 2 mm. br.; median elliptical, obtuse, 4·5–6 mm. 1., 2 mm. br. Petals 3-nerved, oblong, apex rounded, slightly tapering to base, as long as the median sepal, white. Lip 5·5 mm. 1., 3·75 mm. br. Column very short, green; rostellum and clinandrium connected by broad wings, rostellum on removal of cellular gland with pollinia, 2-dentate. Anther ovate, cordate, somewhat acute, sessile, brown. Capsule 4–6 mm. 1., 3–4 mm. br.

2. S. elata L. C. Rich. loc. cit.; leaves glabrous, radical, long stalked, oval, elliptical or oblong, erect, somewhat abruptly acute, tapering somewhat abruptly into the stalks, which are rather flattish-concave, dilated and clasping at base; lip, lower half somewhat fiddle-shaped with rounded corners, 5-nerved, abruptly contracted above into a neck and then expanding into a roundish or transversely elliptical apical lobe, minutely curled and crenulate, rather broader than the lower half, base slightly saccate with a pair of short calli, white, faintly tinged with pink or with faint tinge of brown at apex and striped with green about middle.—Lindl. op. cit. 470; Griseb. op. cit. 641; Cogn. op. cit. 336 (excl. syn. Sloane and Browne) & under S. bicolor Lindl. (as regards Jamaican spec.). Satyrium elatum Sw. Prodr. 119 (1788). Neottia elata Sw. in Vot. Handl. Stockh. 1800, 226 & Fl. Ind. Occ. 1403; Bot. Mag. t. 2026. P. spiranthoides Griseb. Cat. Cub. 269 (1866) (non Lindl. nec Griseb. Fl.). (Pl. 3, f. 10–14.) Type in Herb. Mus. Brit.


Plant 6 in. to 2 ft. high, with clustered, thick, fleshy root-fibres. Scape erect, somewhat slender, pubescent above, glabrate below, 1·5–4 dm. 1. Leaves 2–6; blade 3–13 cm., 1·5–5·5 cm. br.; stalks 2–7 cm. 1. Sheaths 5–7, free portion oblong-lanceolate, acute or acuminate, 7–1 cm. 1. Spike erect, loosely spirally twisted, sometimes somewhat secund, puberulous, 2–18 cm. 1. Flowers very shortly stalked, nodding, perianth ⅓–⅔ in. 1., green or brownish-green. Bracts glabrate, dotted, oblong-lanceolate, acuminate, longer than the ovary, 8–12 mm. 1., about 2 mm. br. Ovary
sparsely puberulous, cylindrical. *Sepals* green or brownish-green, puberulous, dotted, 1-nerved, slightly gibbous at base; lateral linear-oblong, dilated and oblique at base, slightly falcate, tapering to a somewhat obtuse apex, 5-7 mm. l., ‘75-1-3 mm. br., expanding to 1-5-1-8 at base; median oblong, tapering to a somewhat obtuse apex, 4-75-6 mm. l., 1-3-1-5 mm. br. *Petals* brownish-green or green with pinkish tips, dotted, 1-nerved, oblanceolate with rounded apex, shorter than median sepal, 4-5 5 mm. l., ‘6-75-75 mm. br. *Lip* 5-6-3 mm. l., 1-6-2-5 mm. br. below; neck about 1 mm. l. and 1 mm. br. *Column* pubescent on the upper half anteriorly, to base of anther 1-1-4 mm. l., to apex of rostellum 3-2-3-6 mm. l. *Anther* ovate-elliptical, sub sessile. *Capsule* 8-9 mm. l., 4 mm. br.

3. *S. Faweettii* Cogn. *in Fedde Repert. vit.* 123 (1909); leaves inconspicuously 3-nerved with ascending connecting branches, ovate, sometimes subcordate, obtuse to subacut e, long-stalked, glabrous, stalks long, fl attish-concave, sheathing at the base; lip 3-nerved, lateral nerves with 1 or 2 branches, oblong, suddenly contracting near apex and with somewhat square corners there, pilose inside about the middle of oblong part, apical lobe rounded-kidney-shaped, with small crenulations on margin, striped with green.— *Sauroglossum* tenue *Lindl.* *in Ann. d’ Mag. Nat. H’st.* (1858) 334; *Griseb.* *op. cit.* 642. (Pl. 3, f. 6-9.)


*Plant* 2½-8½ in. high, leafy in the lower portion, with few sheaths, and tuberous roots. *Scape* erect, somewhat weak, pubescent above, glabrous below, 4-16 cm. l. *Leaves*, blade 1-5-3-5 cm. l., 1-2 cm. br.; stalks 1-5-4 cm. l. Sterile sheathing *bracts* generally 3 (2-4), loose, free part lanceolate, acuminate, 2-2.5 cm. l. *Spike* erect, short, pubescent, 1-3 cm. l. *Flowers* sessile, erect or spreading, perianth about ¾ in. l., greenish-white. *Bracts* oblong-subulate, 1-nerved, glabrous, dotted, as long as, or a little longer than the ovary, the lower 1-2 cm. l., nearly 3 mm. br. *Ovary* linear-oblong, slightly pubescent towards the apex, 7 mm. l. *Sepals* pubescent at the base, greenish-white; lateral linear, spathulate, with one nerve which is slightly prominent on the outside, oblique and somewhat gibbous at the base, free, dotted, about 8 mm. l., about 1 mm. br., 1-4 mm. near apex; median oblong, with obtuse apex, 1-nerved, dotted, about 8 mm. l., 1-6 mm. br. *Petals* linear-spathulate, dilated at base, acute, with margin slightly denticulate near apex, somewhat shorter than median sepal, striped with brown, nearly 8 mm. l., ‘5 mm. br., ‘75 mm. br. near apex. *Lip* about 9 mm. l., 2 mm. br., apical lobe nearly 4 mm. br. *Column* long, about 4 mm. l. to junction of anther, about 6 mm. to apex of rostellum; rostellum with 2 acuminate membranous lobes. *Anther* sub sessile. *Capsule* about 1 cm. l.

7. *ERYTHRODES* Blume.

Terrestrial leafy herbs. Roots thickish, clustered at base of stem and from the nodes in the lower part of the stem. Stem ascending or erect, simple, sometimes prostrate and rooting in the lower portion, often pubescent above. Leaves stalked, ovate
or lanceolate, membranous, with many converging nerves with netted veins. Flowers small or minute, subsessile, in a lax or dense terminal spike which is often elongate. Sepals subequal, free, erect or somewhat spreading. Petals cohering with the median concave sepal. Lip erect from the base of the column which it embraces, produced below into a descending obtuse spur. Column short; stigma at the base of the erect rostellum. Anther erect, shortly acuminate, cells contiguous, distinct; pollinia granular, pendulous from an oblong gland of the rostellum, which is deeply 2-fid on the fall of the pollinia. Capsule oblong or ellipsoidal.

Species about 60, natives of the warmer regions of America and Asia.

The name Erythrodes (Blume Bijdr. Flor. Ned. Ind. 410, t. 72, 1825) must be adopted for this genus,—Physurus (L. C. Rich. in Mém. Mus. Par. iv. 55, 1818) being a nomen nudum. We cannot follow Schlechter (Schum. & Lauterb. Nachtr. Fl. Deutsch. Süddeut. 87) in separating as Erythrodes the Old World species as a distinct genus from the species of the New World. His distinction rests on the bilobed character of the spur in the Old World species, which in our opinion is insufficient. The habit of the species from both hemispheres is similar, and the general structure of the flowers also closely corresponds. In the West Indian species, E. plantaginea, the spur sometimes shows an indication of lobing in a slight median depression.

Perianth, including spur, about $\frac{3}{4}$ in. l. .......... 1. E. plantaginea.
Perianth, including spur, about $\frac{1}{2}$ in. l.

Plant more or less hairy (except leaves).

Lip with a lunate apical lobe........... 2. E. hirtella.

Plant glabrous. Lip with a roundish 8-lobed apex, the middle lobe long and narrow................................. 3. E. jamaicensis.

1. E. plantaginea comb. nov.; stem trailing along the ground, attaining a length of 6 ft. and emitting roots at the nodes like Vanilla, stout, leafy and glabrous below, slender, hairy, and with a few scales above; leaves glabrous, oval-elliptical, shortly acuminate, tapering into the stalk, sometimes the uppermost leaf much smaller in transition to the sheaths; lip oblong, concave, enclosing the column, with an apical, ovate, often crenulate lobe (but the lip appears to be sometimes undivided), 5–7-nerved.—Physurus plantagineus Lindl. Gen. & Sp. Orch. 503 (1840); Griseb. Fl. Br. W. Ind. 643; Cogn. in Symb. Ant. vi. 346. Orchis elatior &c. Sloane Cat. 119 & Hist. i. 250, t. 147, f. 2. Satyrium plantagineum L. Syst. ed. 10, 1244 (1759); Sw. Obs. Bot. 320; Salisb. Ic. ined. fol. 585. Orchis plantaginea Sw. in Vet. Handl. Stockh. xxi. 207 (1800). (Pl. 3, f. 15.)

Plant, erect portion 1 to 2 ft. high. Stem, erect portion 3-6 dm. l. Leaves, blade 6-12 cm. l., 3-5-5 cm. br. Sheaths tubular below, free part triangular, shortly acuminate, 3-nerved, glabrous, 2:5-1 cm. l. Spike hairy, with numerous flowers, cylindrical, 5-17 cm. l. Bracts triangular, acuminate, hairy, 1-nerved, concave, lower 1 cm. l.; becoming smaller upwards. Flowers white (including spur), about \( \frac{1}{2} \) in. l. Ovary tapering downwards, shortly stalked, very hairy, (with stalk) 6-5-8 mm. l. Sepals oblong to oblong-lanceolate, obtuse, 1-nerved, hairy; lateral slightly oblique, 6-7-5 mm. l., 1-6-1:9 mm. br.; median 6-7 mm. l., 2:5 mm. br. Petals ob lanceolate-linear, obtuse or acute, slightly oblique, rounded at base, 1-nerved, as long as the median sepal, maximum breadth 1:5 mm. Lip about 5-5 mm. l., 2 mm. br. Spur ellipsoidal, not as long as ovary, 3:5-5 mm. l., 1:6-2 mm. br. Column (including rostellum) about 4:5 mm. l. Capsule ellipsoidal, with 6 shallow keels, 8 mm. l., 3 mm. br.

2. E. hirtella comb. nov.; stem somewhat sparsely pilose, with several leaves crowded at the base; leaves glabrous, ovate to lanceolate, tapering into the stalk, the leaves near the middle the largest, those above and below smaller; lip oblong, with an apical lunate lobe, apex mucronate.—Physurus hirtellus Lindl. op. cit. 501 (1840); Griseb. op. cit. 642; Cogn. in Symb. Ant. vi. 347. Satyrium hirtellum Sw. Prodr. 118 (1788). Orchis hirtella Sw. in Vet. Handl. Stockh. xxi. 207 (1800) & Fl. Ind. Occ. iii. 1394 (1805). (Pl. 3, f. 16-19.)

In damp places in woodland; in fl. and fr. April; Macfadyen! March! Mt. Moses, 2500 ft., J.P. 2107, Syme! near Mabess River, 3000 ft., Harris! Fl. Jam. 8110 (fide Cogn.) 9010.—Cuba, Porto Rico, St. Eustatius, Guadeloupe, Dominica, Martinique, St. Lucia, St. Vincent, Grenada, Trinidad.

Plant 9-12 in. high. Stem 2-2:5 dm. l. Leaves 5-6 cm. l., 1:5-2:5 mm. br. Sheaths 2-3, tubular below, free part oblong, acute, 1-2 cm. l., glabrous. Spike hairy, many-flowered, less than 4 cm. l., elongating in fruit to 15 cm. Flowers white, shortly stalked, erect-spreading, (including spur) about \( \frac{1}{2} \) in. l. Bracts lanceolate, acuminate, 4-6-5 mm. l. Ovary somewhat clavate, hairy, including stalk 6 mm. l. Sepals 1-nerved, ovate-oblong, obtuse, sparsely hairy, green tipped with white, 3-5 mm. l.; lateral 1 mm. br., median broader. Petals linear-ob lanceolate, obtuse, 1-nerved, 3 mm. l., about \( \frac{7}{5} \) mm. br. Lip about 3 mm. l. Spur oblong, 1:5 mm. l. Capsule oblong, tapering to base, 6-keeled, sparsely hairy, 8 mm. l., 2:5-3 mm. br.

3. E. jamaicensis comb. nov.; stem glabrous, leafy nearly to apex; leaves lanceolate, acute, stalked, highest leaf quite small, succeeded by one or two scarios bract-like sheaths; lip 3-nerved, constricted below the middle, upper portion broadly roundish in outline, 3-lobed, lateral lobes somewhat semicircular, middle lobe
subulate, lower portion somewhat ovate, very concave, somewhat cordate at base.—Physurus jamaicensis Fawc. & Rendle in Journ. Bot. xlvii. 264 (1909). (Pl. 3, f. 20.)

In shady woods; in fl. Oct.; Olive River, near Christiana, 3000 ft., Harris! Fl. Jam. 10,472.

*Plant* glabrous, about 8 in. high. *Stem* about 1½ dm. l. *Leaves*, blade 3½–5 cm. l., 11–16 mm. br.; stalk with sheath 7–17 mm. l.; highest leaf, blade 1½–2½ cm. l. *Spike* many-flowered, cylindrical, about 4 cm. l. *Bracts* ovate-triangula, acuminate, 1-nerved, as long as the ovary, 6–4 mm. l. *Ovary* slender. *Flowers* spreading, (with the spur) about ½ in. l. *Sepals* spotted, 1-nerved; median lanceolate, obtuse, margin undulate above the middle, concave, 3½–2 mm. l., 1 mm. br.; lateral oblong-elliptical, obtuse, slightly falcate, 3½ mm. l., 1½–1½ mm. br. *Petals* spotted, 1-nerved, linear-lanceolate, margin undulate, 3½ mm. l., 7½ mm. br. *Lip", middle portion about 1½ mm. l., 1½–6 mm. br., middle lobe ½ mm. l., lower portion about 1½ mm. l. *Spur* roundish-elliptical, about half as long as ovary, 1½–6–1½ mm. l., 1½–3 mm. br.

8. **WULLSCHLÆGELIA** Reichb. f.

Terrestrial leafless herb, with clustered fibrous roots slightly thickened. *Stem* simple, very slender, with a few small scales. Flowers very small, subsessile in a lax spike. *Bracts* very small. *Sepals* thin, erect, connivent; median free; lateral a little broader, united at the base into a sacate chin. Petals similar to the median sepal, but smaller. *Lip* on the upper side of the flower, sessile at the base of the column, erect, broad, concave, un-divided, produced at the base into a sac within the chin of the sepals. *Column* very short; stigma entire, beneath the short broad erect rostellum; clinandrium short. *Anther* erect, sessile, ovate, scarcely acuminate, with distinct cells; pollinia powder-granular, affixed to a small gland of the rostellum. *Capsule* small, ovoid, erect.

Species 3, natives of the West Indies and Brazil.


*Plant* 8–14 in. high, with numerous, very long roots, thickened near base. *Stem* erect, slender, leafless, puberulous, 16–24 cm. l., with numerous minute scales. *Scales* triangular-lanceolate, acuminate, half-clasping, 4–5 mm. l. *Raceme* somewhat long, many-flowered, 4½–13 cm. l. (in fruit). *Pedicels* 2 mm. to 3 mm. l. (in fruit). *Bracts* similar to the scales,
3 mm. l. Flowers very small, pale white, erect, somewhat spreading. Ovary 3-4 mm. l., thicker upwards, puberulous, hairs bifurcate, composed of 3 cells, one of which is the stalk, the other two, forming the fork, are clavate. Sepals sparsely puberulous, median oblong, concave, 1.75 mm. l.; lateral transversely elongated, oblate, with subacute apex, asymmetrical, greatest length about 3.5 mm., 1.5 mm. br. Petals oblong, obtuse, 1.75 mm. l. Lip incumbent, oblong, conduplicate-concave, 3 mm. l. Column with a long foot; clinandrium cup-shaped. Capsule 5-7 mm. l., 3-3.5 mm. br.

9. PSEUDOCENTRUM Lindl.

Terrestrial, tall herbs; rhizome short with clustered fleshy roots. Stems leafy, simple, erect. Leaves several, radical, long-stalked, membranous; a few on the stem, reduced above to sheaths. Flowers of medium size, numerous, almost sessile on a long spike. Bracts membranous. Sepals, median free, narrow, incurved; lateral shorter, broader, connate at the base and produced into a very long cylindrical ascending spur. Petals narrow, free. Lip turned upwards, adnate to the base of the column, produced anteriorly into a long narrow channelled process, inclosed in the sepaline spur with apex inflexed and saccate, auriculate with two erect lobes near the column. Column very short; rostellum erect, broadly membranous, acuminated in the middle, with the deeply-hollowed stigma at the base; clinandrium short, membranous-dilated, the margins continuous with the rostellum. Anther erect on the margin of the clinandrium, ovate, with contiguous cells; pollinia oblong, powdery-granular, pendulous from a terminal gland of the rostellum. Capsule ellipsoidal.

Species 5, natives of Jamaica, Central America, and the Andes of South America.


Plant 1-2 ft. high. Stem stout, glabrous, 3-4 dm. l. Leaves radical, elliptical to lanceolate-oblong, tapering to an acute or shortly acuminate apex, glabrous, blade 10-14 cm. l., 3-6 cm. br., one or two higher up much smaller. Spike dense, 8-21 cm. l. Bracts 1-3-nerved, ovate-lanceolate, acuminate, glabrous, 1-1.5 cm. l. Ovary narrowly cylindrical, somewhat densely covered with several jointed pellucid hairs, 10-12 mm. l. Sepals sparsely pilose on the outside, median oblong-lanceolate, 5-5.5 mm. l., 1.5 mm. br.; lateral, spur somewhat longer than the ovary, 15 mm. l., the limb connate half way, each sepal semicircular, with an obtuse apex. Petals oblong-lanceolate-oblong, apex acute, half as long as the median sepal. Column 1 mm. l. Capsule 1.5 cm. l.
10. CRANICHIS Sw.

Terrestrial herbs, with roots somewhat clustered. Leaves radical, broad, spreading, membranous, many-nerved, reticulately veined, with long stalks, flattish, sheathing at base. Scape generally slender, simple, with a few sheaths. Flowers small, in a spike. Bracts short or narrow. Sepals free, subequal, more or less connivent. Petals a little shorter than the sepals, and less than half as broad, spreading, free from the column. Lip on the upper side of the flower, sessile or shortly clawed at the base of the column, erect, concave, embracing the column, undivided. Column short; rostellum ample, erect, often longer than the column, posteriorly (towards the anther) concave and 2-winged; stigma anterior, near the apex; clinandrium short. Anther on the margin of the clinandrium, sessile or stalked, erect, parallel to the rostellum and somewhat shorter than it, with distinct cells; pollinia powdery-granular, acuminate, pendulous from a gland of the rostellum. Capsule erect, ovoid or oblong.

Species about 30, natives of the West Indies, Mexico, and the Andes of tropical America.

Sheaths foliaceous on scape, leaves 4–6........ 1. C. muscosa.
Sheaths not foliaceous, leaves 1 or 2.
Leaves ovate, cordate; petal glabrous .... 2. C. diphylla.
Leaves roundish-ovate, subcordate;
petals hairy on margin .................... 3. C. pilosa.

1. C. muscosa Sw. Prodr. 120 (1788); glabrous; sheaths foliaceous, passing into bracts above; leaves few (4–6), and often one just above base, oval, oval-roundish, elliptical or ovate, acute or obtuse; petals narrowly linear-lanceolate, obtuse to subacute, glabrous, white.—Sw. Fl. Ind. Occ. 1429, t. 29, f. 3, & Ic. Ind. t. 25; Lindl. Gen. & Sp. Orch. 451; Griseb. Fl. Brit. W. Ind. 639; Cogn. in Symb. Ant. vi. 354; Ames Orch. S. Fla. 14, t. 3. Type in Herb. Mus. Brit.


Plant ½–1 ft. high. Scape 15–30 cm. 1. Leaves, blade 4–7 cm. 1., 2·5–3·5 cm. br.; stalks 2–6 cm. 1. Sheaths, blade roundish-oval, obtuse, near base of stem, to lanceolate, acuminate, above, 3·5–7·5 cm. 1. Spike dense-flowered, 3–5 cm. 1. Flowers white, perianth about ½ in. 1. Bracts triangular-ovate or lanceolate, acute or acuminate, 1-nerved, shorter than the ovary, 4 mm. 1. Ovary 5 mm. 1. Sepals, median narrowly ovate-oblong, obtuse, 1-nerved, 2·6 mm. 1., 1·3 mm. br.; lateral broadly semi-ovate, somewhat acute or obtuse, 2-nerved, 2·7–
3 mm. l., 1·6 mm. b. Lip sessile, roundish in outline, obtuse, with two lateral folds near the base, 2·6–2·8 mm. l., white, spotted with green. Column (including rostellum) 1·5 mm. l., dilated above, towards the anther concave and broadly 4-winged, wings broader above, apex of rostellum obtusely pointed; stigma somewhat roundish. Anther stalked, nearly as high as apex of rostellum. Capsule ellipsoidal, with six shallow keels, 7–8 mm. l., 3–4 mm. br.

2. C. diphylla Sw. Prodr. 120 (1788); glandular-pubescent above; leaves generally 2, sometimes 1 or 3, one smaller, ovate, cordate, shortly acuminate or acute; petals oblanceolate, obtuse, glabrous, white.—Sw. Fl. Ind. Occ. 1423; Lindl. Gen. & Sp. Orch. 450; Griseb. op. cit. 639; Cogn. in Symb. Ant. vi. 357. Type in Herb. Mus. Brit.


Plant 4–14 in. high. Scape slender, 10–40 cm. l., about 1 mm. br. Leaves, blade 2·5–6·5 cm. l., 1–3 cm. br.; stalk, 1–3 cm. l. Sheaths several (4 or 5), linear-lanceolate, shortly acuminate, 2·5–1 cm. l. Spike lax-flowered, glandular-pubescent, 1·6–5·5 cm. l. Flowers greenish-white or green, perianth about \( \frac{1}{3} \) in. l. Bracts ovate, acuminate, 1-nerved, with a few glandular hairs, much shorter than the ovary, 3–4 mm. l. Ovary spindle-shaped, glabrous or with occasional glandular hairs, 5·5 mm. l. Sepals oval, obtuse, 1-nerved, 2·5 mm. l., 1·3 mm. br.; lateral slightly shorter and broader than the median. Petals a little shorter than the median sepal, 6 mm. br. Lip very slightly keeled posteriorly, sessile, roundish in outline, obtuse, 3-nerved, with 2 lateral folds near the base, about 2 mm. l., greenish-white spotted with green. Column (including rostellum) 1·5 mm. l., on the posterior side towards the anther concave and winged, with a long acuminate apex to the rostellum; stigma roundish. Anther stalked, slightly shorter than the rostellum. Capsule ellipsoidal, slightly 3-keeled, 6–7·5 mm. l., 3 mm. br.

3. C. pilosa Fawc. & Rendle in Journ. Bot. xlvii. 265 (1909); glandular-pubescent above; leaves 1 or 2, roundish-ovate or roundish, subcordate, acute; petals linear, acute, margins pilose, light pink with white hairs or pale reddish-brown. (Pl. 5, f. 1–3.) Type in Herb. Mus. Brit.


Plant 4–10 in. high. Scape 10–25 cm. l. Leaves, blade 4–10 cm. l., 2·5–7·5 cm. br.; stalks 1·5–3 cm. l. Sheaths (1 or 2) scarious, below the leaves, and several (5 to 9) loose, elliptical, shortly acuminate, 3–1 cm. l. Spike dense-flowered, glandular-pubescent, 1–2 cm. l. Flowers greenish tinted with pink, perianth about \( \frac{1}{3} \) in. l. Bracts as long as, or shorter than, the ovary, 4–7 mm. l., ovate, acuminate, 3-nerved, with short lateral nerves, glabrous, green or white. Ovary spindle-shaped, broadest below the middle, glabrous, greenish or white, 6–7 mm. l. Sepals 3-nerved, oval, very shortly acuminate, greenish below, flesh-coloured in the upper half,
or greenish tinted with umber; median 3·5-4 mm. 1., 1·5-2 mm. br.; lateral 3·2-3·5 mm. 1., 1·5-2 mm. br. Lip shortly and broadly clawed, broadly ovate, strongly 3-nerved, the lateral nerves with descending branches on the outer side, with a narrow triangular apex, 2·6-2·8 mm. 1., 2 mm. br., white tinted with green outside and pink inside, or white with reddish markings. Column white, tinted, 1·5 mm. 1., on the posterior side towards the anther winged at the base, wings broadest below, with small wings on the sides at the base, with a rather long capitate rostellum; stigma roundish. Anther very shortly stalked. Capsule (not ripe) spindle-shaped, about 1 cm. 1.

11. STENOPTERA Presl.

Epiphytic herb; rhizome short with clustered fleshy roots. Stem leafy, simple, with a sheath above the leaves. Leaves crowded at the base of the stem, tapering into a short clasping stalk. Flowers very small in a dense ovoid bracteate spike. Perianth united below to form a tube, which is attached to back of the column. Sepals free above, incurved, somewhat erect, median shorter. Petals shorter than the sepals. Lip on the upper side of the flower, erect from the tube. Column straight, grooved anteriorly, not winged; rostellum erect, ample, conical, with a broad stigma at the base; clinandrium with membranous sides which are connate with the margins of the rostellum into a cup. Anther erect on the margin of the clinandrium, roundish-ovate, cells contiguous; pollinia powdery-granular, on the dehiscence of the anther remaining attached to the apex of the rostellum. Capsule oblong, erect.

Species 8 or 9, natives of the mountains in tropical America from the West Indies to Brazil and Peru.


On trees, pendent; in fl. March; Beaufort, Wullschlægel, 1077! Prior! Iron River, Golden Spring, 900-2500 ft., J.P. 2383, Syme!—Cuba, Brazil, Venezuela.

Plant very small, about 1½ in. 1. Leaves elliptical, acute, ciliate, with 3 branching nerves, fleshy, semi-transparent, waxy, 1·5-2·5 c.m. 1., 7-11 mm. br. Scape erect, densely clothed with short hairs, as long as the leaves. Spike very short, capitate, many-flowered (5-11 or more), 6-10 mm. 1. Bracts ovate, acuminate, glabrous, margin ciliate or fimbriate, longer than the flowers, 8-10 mm. 1., about 5 mm. br. Sepals lanceolate, 1-nerved, with short hairs at apex and at back, lateral 5 mm. 1., median shorter. Petals oblanceolate, adhering to, and shorter than, the median sepal. Lip similar to petals, shorter than lateral sepals. Column 3·5 mm. 1.
12. PRESCOTTIA Lindl.

Terrestrial herbs, roots clustered on a rhizome, fibrous, sometimes fleshy; stem leafy, slender or tall, simple, with several sheaths above the leaves. Leaves crowded at the base of the stalk or radical, sessile or with long stalks, small or ample, membranous. Flowers small, sometimes very small, numerous in a thick or slender spike, subsessile. Bracts shorter than the flower. Sepals membranous, connate at the base in a short cup or a somewhat long tube, at the apex spreading or generally revolute. Petals narrow, thin, adnate to the sepaline cup just above the median sepal. Lip on the upper side of the flower; claw adnate to the sepaline cup, blade erect, broad, somewhat fleshy, very concave, arched, hooded or almost closed, at the base 2-auriculate, often enclosing the column. Column very short, adnate to the sepaline cup; stigmatic surface beneath the broad, membranous, retuse rostellum; clinandrium erect, acuminate or produced, as it were, into a filament, margins connate with rostellum. Anther erect on the margin or point of the clinandrium, generally short, with cells diverging; pollinia powdery-granular. Capsule small, erect, ovoid or oblong.

Species about 32, natives of tropical America from the West Indies and Mexico to Brazil and Ecuador.

Flowers green; sepals revolute; lip 4 mm. l. ..... 1. P. stachyodes.
Flowers white or rosy, minute; sepals connivent;
lip 1 mm. l. ........................................ 2. P. oligantha.


Plant 1–2 ft. high. Stem slender or stout, with several radical leaves, invested by numerous, membranous sheaths, 2–6 dm. l. Leaves broadly oval, ovate or elliptical, shortly acuminate, base sometimes subcordate, tapering into the stalk, entire or minutely crenulate, veins slightly prominent on the under surface, blade 7–14 cm. l., 3′5–8 cm. br.; stalks
slender, narrowly winged, 2-17 cm. 1. *Sheaths* at base of stem, few, scarious, loose, and soon decaying. *Cauline sheaths* loose, tubular below, free part triangular, acuminate, with several nerves and branching veins, 4'5-1'5 cm. 1. *Spike* long, crowded with flowers, to 10 or 12 cm. 1. *Bracts* elliptical, acuminate, 1-nerved, glabrous, as long as, or longer than, the ovary, 6'5-8 mm. 1., 1'7-2'5 mm. br. *Ovary* obvoid-oblong, glabrous. *Sepals* obtuse, 1-nerved; lateral slightly falcate, free part 3'1-3'4 mm. 1., 1'1-3 mm. br.; median, free part 2'5-2'9 mm. 1., 1 mm. br. *Petals* revolute, narrowly linear, obtuse, 1-nerved, as long as the median sepal, 4 mm. br. *Lip* projecting much beyond the revolute sepals, upper margin rolled in; nerves 7, branching; 3'2 mm. br.; auricles linear, about 5 mm. br. *Capsule* ellipsoidal, with six shallow keels, about 1 cm. 1., 3'5 mm. br.


*Plant* 8-12 in. high. *Stem* slender, with a few radical leaves and many sheaths, 15-23 cm. 1. *Leaves* elliptical or oval, obtuse or acute, tapering into the flattish membranous stalks, sheathing below; blade 2'5-7'5 cm. 1., 1'5-3 cm. br.; stalk 1-3'5 cm. 1. *Sheaths* tubular below, free part oblong, tapering into a shortly acuminate apex, 3-1 cm. 1. *Spike* densely crowded with numerous small flowers, 3-7 cm. 1. *Bracts* ovate, long-acuminate, 1-nerved, as long as, or a little longer than, the ovary, 3-2 mm. 1. *Ovary* obvoid, barely 2 mm. 1. *Sepals* concave, 1-nerved, tinged with brownish-pink at the tips; lateral connivent; median spreading; free part about 1'3 mm. 1., nearly 1 mm. br. *Petals* narrowly obvoid, very obtuse, 1-nerved, recurving, barely 1 mm. 1., about 5 mm. br. *Lip* 3-nerved, 1'1-2 mm. 1.; auricles short, 2 mm. 1. *Column* winged laterally at the apex. *Capsule* ellipsoidal, with six shallow keels, 4 mm. 1., 2'5 mm. br.

13. PONTHIEVA R. Br.

Terrestrial herbs with fibrous roots. Leaves radical, ovate, oval or elliptical, membranous, many-nerved, reticulately veined; stalks long or short, flattish, membranous, sheathing below. Scape simple, slender with a few sheaths. Flowers small, shortly stalked, in a lax raceme generally glandular-pubescent. *Bracts* narrow, generally small. *Sepals* free, spreading, either nearly equal or the lateral broader than the median. *Petals* raised on the column, spreading, very asymmetrical, triangular. *Lip* on the upper side of the flower;
raised on the column, ascending; blade abruptly dilated, concave and more or less folded on itself. Column short, somewhat terete, dilated at the apex; rostellum erect, dilated, posteriorly concave; stigma under the rostellum, broad, hollowed out; clinandrium short. Anther erect behind the rostellum and shorter than it, with cells contiguous; pollinia 4, joined in pairs, powdery-granular, pendulous from a gland of the rostellum. Capsule erect, obovoid-ellipsoidal or ellipsoidal.

Species about 22, natives of the warmer regions of America from the southern United States to Chile, including the West Indies.

Petals, margin ciliate.

Lip roundish with linear apical lobe .................... 1. **P. glandulosa**.

Petals glabrous.

Lip obscurely 3-lobed at apex, with 2 minute erect lobes at base .......................... 2. **P. Harrisii**.

Lip kidney-shaped with linear lobe at apex and 2 minute auricles at base ..................... 3. **P. pauciflora**.

Lip 3-lobed at apex, saccate at base .................... 4. **P. ventricosa**.


Plant 1–2 ft. high, glandular-pubescent above. *Scape* glandular-pubescent above, 2 to nearly 4 dm. l. *Leaves* broadly oval to ob lanceolate-elliptical and ob lanceolate, obtuse or acute; blade 4–15 cm. l., 2–4 cm. br. *Sheaths* (3–6), those near the base (1 or 2) generally foliaceous and passing into the oblong-lanceolate to lanceolate-acuminate sheathes above, glabrous at the lower part of the stem and glandular-pubescent above. *Raceme* 6–20 cm. l., glandular-pubescent, with few to many wide-spreading flowers. *Bracts* oval or elliptical, acuminate, 3-nerved, half as long as the stalked ovary, 10 mm. l. or less, 2.7 mm. br. *Ovary* densely glandular-pubescent, about 1–1.5 cm. l. *Pedicel* 3–4 mm. l. in flower, 7–8 mm. l. in fruit. *Flowers* white, about ½ in. l. *Sepals* glandular-pubescent; median elliptical, obtuse, 5–7 mm. l., 2–2.5 mm. br.; lateral obliquely ovate, obtuse, 5.5–7 mm. l., 3–3.4 mm. br. *Petals* on the outer side dilated and semi-cordate, curved inwards, clawed, several nerves springing from claw and more or less branching; extreme length of blade 4–6 mm. l., 2.5–3.5 mm. br.; claw attached to column for about 1 mm. above base. *Lip*
folded on itself down the middle, each half somewhat round, 5-nerved; blade about 3-4 mm. 1. to base of lobe (1 mm. 1.), 4-5 mm. br.; claw 1·3 mm. l. above its attachment to the column. Column (including rostellum) 4-4·5 mm. l., curved, rostellum long-pointed, winged posteriorly on the side of the anther, wing broadest at the middle; stigma oblong. Anther stalked, nearly reaching apex of rostellum. Capsule obovoid-ellipsoidal, tapering to base, narrowly 6-keeled, 1·3-1·6 cm. 1., 4-5 mm. br.

2. P. Harrisii Cogn. in Fedde Repert. vi. 304 (1909) ; sepals, median glabrous, 5-7 nervèd, lateral sparsely glandular-pubescent, 7-nerved; lip boat-shaped, obscurely 3-lobed at apex, obtuse, with 2 minute, erect lobes near base, with a transverse callus near apex.—Cogn. in Symb. Ant. vi. 362. (Pl. 5, f. 7-11.)

In peaty soil in damp places in woodland; in fl. April, May; Greenhill Wood, 4000 ft.; near Mabess River, 3000 ft.; below Vinegar Hill; Harris! Fl. Jam. 7618, 7883.

Plant 14-21 in. high. Scape 3-5 dm. 1., somewhat sparsely glandular-pubescent. Leaves several (3-8), ovate-elliptical, acute, glabrous, margins slightly wavy; blade 6-11 cm. l., 3 to about 5 cm. br.; stalks with sheath to 6 cm. 1. Cauline leaf much smaller than the radical. Cauline sheaths, 2 or 3, subfoliaceous, tubular below, passing into the bracts above, acute, glandular-pubescent. Raceme 9-10 cm. l., glandular-pubescent, many flowered. Bracts elliptical, shortly acuminate, acute, sparsely glandular-pubescent, 3-nerved, about half as long as the stalked ovary, lower about 8-5 mm. 1., 3·5 mm. br. Pedicels 4-5 mm. l. Ovary densely glandular-pubescent, 7-8 mm. l. Flowers erect-spreading, cream-colour or pale brick colour and lip marked with green. Sepals, median elliptical, shortly acuminate, 4-5 mm. 1., 1·5-2 mm. br.; lateral subfalcately obovate-elliptical, obtuse, 5·5-7 mm. 1., 3-4 mm. br. Petals attached by a short claw to the column at 2·7 mm. above its base, narrowly triangular, on outer side dilated and semi-auriculate, basal lobe obtuse, from apex to end of basal lobe 3 mm. 1. Lip attached to column about 2 mm. above base, 2·5-3 mm. 1., 1 mm. br. Column (to apex of rostellum) 3-4 mm. 1., the long pointed rostellum much thickened upwards, hollow and broadly winged towards anther; stigma round.

3. P. pauciflora comb. nov.; sepals glandular-pubescent, median 3-nerved, lateral incompletely 5-nerved; lip clawed, kidney-shaped, with a sinus above from which projects a short blunt linear lobe, and with very small auricles at base.—Cranichis pauciflora Sw. Fl. Ind. Occ. 1431; Griseb. op. cit. 639; Cogn. in Symb. Ant. vi. 356. (Pl. 5, f. 12, 13.)


Plant ½-1½ ft. high, glandular-pubescent above. Scape 1-3 dm. 1., glandular-pubescent above, glabrous below. Leaves few (about 3), oval or elliptical, obtuse, blade 1·5-6·5 cm. 1., 1-2·5 mm. br., stalk 5-13 mm. l. Sheaths few (about 3), tubular below, free portion ovate, obtuse near base of stem to ovate-lanceolate, acuminate, above, 1-2·5 cm. 1. Raceme somewhat one-sided, few-flowered, glandular-pubescent, 2-10 cm. 1. Bracts broadly oval to obovate, shortly acuminate, 3-nerved, with scattered
glandular hairs, about half as long as the stalked ovary, 4-5·5 mm. l., 2-2·5 mm. br. Pedicel 4 mm. l., glabrescent. Ovary thicker above, glandular-pubescent, 7·5-8 mm. l. Flowers white, erect-spreading, about \( \frac{1}{2} \) in. l. Sepals white, slightly tinged with green outside; median elliptical or lanceolate-elliptical, very shortly acuminate, 5·2-5·5 mm. l., 1·8-2 mm. br.; lateral ovate, slightly oblique, very shortly acuminate, 4·5-5·5 mm. l., 2·6-2·7 mm. br. Petals dilated on the outer side, slightly falcate, 2-4-nerved, 4 to nearly 5 mm. l., 1·6-2·5 mm. br., clawed, attached to column 5-1 mm. above its base. Lip folded on itself, white with 2 green spots on either side, greenish where it joins the column, 3-nerved, very concave at base and thickened on outside, 2·5-3·5 mm. l. (without claw), 3·2-4 mm. br., terminal lobe 1 mm. l.; claw thickened and broad above, rather more than 5 mm. l. Column (including rostellum), 2-2·5 mm. l., the short pointed rostellum dilated above, concave and winged on the posterior side next the anther, wings forming a cup from the edge of which the anther springs; stigma large. Anther shortly stalked, about as high as apex of rostellum. Capsule (unripe) cylindrical-ellipsoidal, somewhat wider near apex.

We have transferred this and the following species to *Ponthieva*, as the petals and lip are raised on the column.


On rocky shady banks; in fl. and fr. Dec.; Fairfield, Wullschlaeger, 1065! Prior! Browns Town, Miss T. M. Barrett! Farm Hill; Tweeds, 2500 ft.; Guava Ridge Road, 2500 ft.; Harris! Anchovy, Cradwick! Fl. Jam. 5538, 6924, 7814, 10,403, 10,469.—Cuba, Hispaniola, Porto Rico.

Plant 7-15 in. high. Scaphe 1·5-3 dm. l., glabrate. Leaves 3 or 4, oblong, elliptical or obovate, often tapering into the stalks, 2-7 cm. l., 1-2·5 cm. br.; sometimes the stalk of the upper leaf completely sheathing. Sheaths 3-6, lower sometimes a leaf-like blade, varying greatly in size; the others tubular below, free portion oblong, acute, 7-16 mm. l. Raceme glandular-pubescent, 3-7 cm. l., lengthening in the fruit. Bracts ovate, acute, 3-nerved, glandular-pubescent, 5 mm. l. Ovary thicker above, tapering to base, glandular-pubescent, 1 cm. l. Flowers white, few or several, small, erect-spreading, shortly stalked, nearly \( \frac{1}{2} \) in. l. Sepals median oval, obtuse, tapering to apex and base, 5·2 mm. l., 2·2 mm. br., lateral forming a chin round short spur of lip, broadly ovate, oblique on the side forming the chin, 6 mm. l., 3·5 mm. br. Petals with 3-nerves branching, somewhat triangular, unequally 2-lobed, about 5 mm. l., nearly 2·5 mm. br. Lip attached to column shortly above the base, 5-nerved, folded on itself, 4·5 mm. l. Column thicker above, with a sharp pointed rostellum, 2·5 mm. l., concave and slightly winged at base posteriorly towards the anther; stigma roundish. Anther stalked, exceeding the apex of the rostellum. Capsule ellipsoidal, tapering to base, 8 mm. l., 3·5-4 mm. br.
14. CORYMBORCHIS Thou.*

Terrestrial, high-growing herbs, leafy, sometimes branching, with thick, woody roots clustered on the short rhizome. Sheaths decaying below, spathaceous or passing into leaves above. Leaves ample, plaited, chartaceous, petioles sheathing. Flowers medium-sized, subsessile, in short terminal or axillary sub-corymbose panicles. Bracts small, ovate. Sepals and petals oblong. Lip erect from the base of the column, ovate, channelled, with a recurved apical lobe. Column long, erect, at the apex thicker, terminated by two erect lobes or auricles; stigma at the base of an erect acuminate rostellum; clinandrium short. Anther erect, narrow, nearly as long as the rostellum, acuminate, cells contiguous; pollinia granular, attached to a subulate stalk which depends from a peltate gland of the rostellum; on the fall of the pollinia the rostellum remains 2-fid. Capsule cylindrical, suberete, crowned by the remains of the perianth.

Species about 13, widely dispersed through the tropical regions of the world, one in West Indies and Mexico.


In damp woods; in fl. Oct.—April; mountains of Clarendon, Swartz; Hector's River, Manchester, Purdie! Prior! Olive River, Christiana district, 3000 ft., Harris! Fl. Jam. 10,398.—Cuba, Hispaniola, Porto Rico, Guadeloupe, Mexico.

Plant to 6 ft. high. Stem about 6 dm. high, simple. Leaves oblong-lanceolate, acuminate, about 7-nerved, blade 18-26 cm. l., 4-6 cm. br. Panicle 4-5 cm. l., with several lax flowers. Bracts, at base of branches oblong, acuminate, about 1 cm. l.; floral ovate, shortly acuminate, 4 mm. l. Flowers yellow, about 3 in. l., subsessile. Ovary cylindrical, about 8 mm. l. Sepals 7-nerved, oblong-linear, acute, nearly 1·5 cm. l., 2-2·5 mm. br. Petals 5-nerved, oblong-elliptical, somewhat blunt, 1·2-1·3 cm. l., about 3 mm. br. Lip ovate, conduplicate below, ovate-oblong above, as long as the petals. Column (including anther) as long as petals.

15. TROPIDIA Lindl.

Like Corymborchis, except in the following particulars: Flowers small, not so lax, in few short dense spikes at the apex of the branches. Bracts linear-subulate. Sepals connivent, median oblong-lanceolate, lateral oblong, connate at the base

* Corymborchis is the generic name given by Thouars (Orch. Iles Afr. t. 37). Corymbis is a uninomial composed from the generic and specific names; it is, therefore, inadmissible to substitute Corymbis for the true generic appellation.
under the lip into a short chin. Lip saccate at base, oblong. Column short.

Species about 15, natives of the East Indies, Malaya, China and Japan, and one in W. Indies and Florida.


In damp woods; in fl. in spring; mountains of Clarendon, Swartz! Manchester; Westmoreland; Purdie! Prior! Stony Hill, J.P. 469, Morris! —Cuba, Florida.

**Plant** nearly 2 ft. high. **Stem** ± dm. high, branching. **Leaves** oblong-lanceolate, acuminate, about 7-nerved; blade 12-22 cm. l., 3-5 cm. br. **Panicle** 10-15 cm. l., with numerous lax flowers. **Bracts** linear-subulate; at base of branches 2-5-7 cm. l.; floral 2-7 mm. l. **Pedicels** very short, 1-2 mm. l. **Flowers** pale red, ⅛ in. l. **Ovary** cylindrical, about 8 mm. l. **Sepals** 5-nerved; lateral, acute, somewhat gibbous at base, erect, falcate 6 mm. l., 2 mm. br.; median, with acute apex, concave, 7 mm. l., 2 mm. br. **Petals** 3-nerved, oblong, somewhat falcate, acute, 6 mm. l., 1½ mm. br. **Lip** very concave and embracing the column below, reflexed and obscurely 3-lobed at apex, 2-lamellate on disk, as long as petals. **Column** 4·5 mm. l. **Capsule** 1 cm. l., 3 mm. br.

16. **MALAXIS** Solander ex Swartz.*

Terrestrial herbs, base of stem generally pseudobulbous. Leaves 1 or 2, broad, not jointed with the sheathing petiole. Scape slender, elongated. Flowers small or minute in a terminal raceme, sometimes contracted and corymbose. Bracts small, narrow. Sepals nearly equal, free or lateral slightly connate at base, spreading. Petals equal to sepals or a little shorter, narrow. Lip sessile, entire or lobed, with auricles embracing the column, not extending as far as the sepals, but, including the auricles, longer than the sepals. Column very short, terete, hollowed at apex. Anther terminal, incumbent, two-celled. Pollinia 4, waxy, ovoid. Capsule small, ovoid or turbinate.

Species about 140, widely distributed, but mainly in Central America and Indo-Malaya.

* Swartz adopted the name *Malaxis* from Solander and defined the genus in Prodr. 119 (1788), including therein the two Jamaican species *M. spicata* and *M. umbelliflora*. This name must therefore be retained for these and for the other species now included under *Microstylis*. The latter name is cited by Bentham & Hooker (Gen. Pl. iii. 494) as of Nuttall (Gen. N. Amer. Pl. ii. 190), but Nuttall uses it only for a section of *Malaxis*. *Microstylis* was first used as a generic name by Lindley (Orch. Scelet. & Gen. & Sp. Orch.).
Leaves two
  Flowers corymbose................................. 1. *M. umbelliflora*.
  Flowers racemose.
  Lip with a distinct apical lobe.................. 2. *M. spicata*.
  Lip not lobed .................................... 3. *M. integra*.

Leaf one ........................................... 4. *M. Grisebachiana*.


*Plant* 4–10 in. high. *Stem* pseudobulbous, with two sheaths; upper sheath 2 ½–4 cm. *Leaves*, the lower larger, blade 6–10 cm. l., 3–6 cm. br., ovate, shortly acuminate, petiole long-sheathing. *Flowers* pale green, numerous, small; pedicels long, to 12 mm. *Bracts* 2–3 mm. l., lanceolate, acuminate, setaceous, much shorter than the lower pedicels. *Sepals* about 3 mm. l., half as broad, median ovate-elliptical, lateral ovate-oblong with revolute margins. *Petals* 3 mm. l., 3 mm. br., linear. *Lip* 4 mm. l., 2–2 ½ mm. br. *Column* 75 mm. l. *Capsule* 8–9 mm. l., ellipsoidal, tapering to base, with three angles.


* The lip is described and figured by Swartz as trilobed, but in all the Jamaican specimens examined by us, including Swartz's type, the lateral lobes are not evident. Swartz describes his figure as the flower of *M. spicata* or *M. umbelliflora*, and in his description of the latter omits the parts of the flower as being very similar to *M. spicata*. The drawing agrees best with *M. umbelliflora*, under which we have cited it. In his Icon. ined. tt. 19 & 20, the flowers are represented as precisely similar, and we can only suggest that a flower of *M. umbelliflora* has been drawn for each plate.
Moody's Cinchona, lateral Morse's Fl. auricles near leaves Guava leaves Cogn. Flowers J.P. Harris Trelawney, Miss T. M. Barrett! Fl. Jam. 7850, 10,471, 10,473.—Cuba, Hispaniola, Porto Rico, St. Eustatius, Martinique.

**Plant** 8–12 in. high. **Stem** thickened at the base, pseudobulbous in fruiting stage, with two sheaths at the base, upper sheath 2–3 cm. l., the outer smaller one often withering. **Leaves** distant, the lower larger, 6–10 cm. l., 3–5 cm. br., ovate, ovate-elliptical or ovate-lanceolate, petiole long-sheathing. **Raceme** 3–8 cm. l. **Flowers** numerous, small; pedicels 6–9 mm. **Bracts** 2–4 mm., lanceolate, setaceous, much shorter than the pedicels. **Sepals** about 3 mm. l., and half as broad; median ovate-lanceolate, acute; lateral shortly connate at base, lanceolate, obtuse, with revolute margins. **Petals** 2 mm. l., 0.5 mm. br., linear, shorter. **Lip** 3·5–4 mm. l., 2·5 mm. br. **Capsule** (unripe) 8 mm. l., ellipsoidal, slightly tapering to base.


On rocky shady banks; in fl. and fr. Nov.; Guava Ridge Road, 2500 ft.; Mount Hybla, 4000 ft.; **Harris**! Fl. Jam. 7735, 7740, 7741.

**Plant** 6 to 12 in. high. **Stem** thickened at the base, 2-leaved below, with a sheath at the base; sheath 1·5 cm. l. **Leaves** elliptical, obtuse or abruptly acute, petiole long-sheathing; lower leaf generally 3–5 cm. l., 2–2·5 cm. br. **Raceme** 3–8 cm. **Flowers** very small, stalked; pedicels 4–5 mm. **Bracts** 2 mm., linear-lanceolate, much shorter than the pedicels. **Sepals** 2·2 mm. l., 1·5 mm. br., obtuse with revolute margins, median ovate, lateral broadly elliptical. **Petals** linear, scarcely as long as the sepals. **Lip** 2·5 mm. l., 2 mm. br. **Capsule** 6 mm. l., ellipsoidal, slightly narrowed at the base.


**Plant** 4–10 in. high. **Stem** 1·5–3 cm., swollen underground into a small spherical corm, 1–2 cm. br., with one leaf affixed below the middle or near the base, with one or two sheaths at the base. **Leaf** 2·5–5 cm. l., 1·5–3 cm. br., elliptical to ovate-elliptical, obtuse, subcordate, with sheathing petiole. **Raceme** 3–4 cm., oblong, with flowers crowded towards the apex. **Flowers** yellowish-green, very small, stalked. **Bracts** triangular, acuminate, much shorter than the pedicels. **Sepals** ovate-oblong, obtuse, with revolute margins, median about 2 mm. l., 0·6 mm. br., lateral slightly shorter. **Petals** 1·5 mm. l., linear shorter than the sepals. **Lip** 2·25 mm. l., 1·75 mm. br., lateral lobes 0·6 mm. l., median 2·25 mm. l., auricles 0·5 mm. l.

Near **M. unifolia** Michx., but distinguished by the auriculate, not cordate, lip, and the position of the leaf nearer the base of the stem.

Terrestrial herbs; stems leafy, short, thickened into a corm or narrow pseudobulb. Leaves one, two or few, springing either from the base of the corm or from the nodes of the pseudobulb, or from below it, with a sheathing leaf-stalk, membranous, conspicuously many-nerved. Flowers small or medium-sized, greenish or purple, in a terminal stalked raceme. Bracts small, narrow. Sepals free, spreading, about equal. Petals narrower. Lip attached to the base of the column, oblong or expanded into a broad spreading or reflexed blade, entire or emarginate. Column long, incurved, half-terete, without a foot, at the apex on both sides margined or appendiculate with a wing; clinandrium short. Anther terminal, opercular; incumbent; pollinia 4, waxy, ovoid, sometimes acuminate, segregated in pairs in the cells, each pair superposed. Capsule generally small, ellipsoidal or obovoid.

Species about 200, widely dispersed through the temperate and warmer regions of the globe.

Leaf one.

Leaf oblong or lanceolate. Corm present... 1. *L. vexillifera*.

Leaf roundish, cordate. Pseudobulb present 2. *L. neuroglossa*.

Leaves two.

Lip greenish, $\frac{1}{2}$ in. 1. Pseudobulb present... 3. *L. Harrisii*.

Lip purple, $\frac{1}{2}$ in. 1. Corm present ............ 4. *L. Saundersiana*.

Leaves three or more ......................... 5. *L. elata*.


*Plant* 4–11 in. high. *Stem* swollen below the ground into a spherical corm, covered by the sheathing leaf-stalks and one or two sheaths, upper sheath sometimes foliate above. *Leaf* blade 7–12 cm. l., 1:5–3:5 cm. br.; stalk sheathing, sometimes very short. *Scape* 1–3 dm. l., angled or winged.
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Raceme 5–18 cm. l., somewhat lax. Flowers pale yellow, 12–30, perianth nearly ½ in. l. Bracts lanceolate, acuminate, 16 mm. l. below, to about 5 mm. l. at apex. Pedicels 5–8 mm. l. (lengthening to about 1 cm. in fruit). Ovary about 5 mm. l., 3-winged. Sepals 3-nerved, oblong-lanceolate, apex somewhat obtuse; median 7·5 mm. l., 2·3 mm. br.; lateral attached at base to lip, 6·5–7 mm. l., 2·3–2·6 mm. br. Petals 1-nerved, linear, obtuse, about 7 mm. l., 8 mm. br. Lip 7–8 mm. l., 5–6 mm. br. Column erect, curved near apex, channelled anteriorly and angled, broadly winged at apex, 3·8 mm. l. Capsule narrowly obovoid, 3-keeled, about 1·2 cm. l., 4 mm. br.

2. L. neuroglossa Reichb. f. Xen. Orch. iii. 26 (1900); with pseudobulb; leaf one, roundish, acute, cordate, many-nerved, with long, sheathing leaf-stalk; lip greenish with five purple nerves, triangular-cuneate with a broad preemorse-apiculate apex, the two upper corners preemorse and irregularly erose; shortly 2-lobed, crimson callus at base.—Ridl. op. cit. 280. L. cardio-phylla Ames Orch. iii. 92, t. 59 (1908). L. rotundifolia Cogn. in Fedde Repert. vi. 305 (1909), & in Symb. Ant. vi. 378.


Plant 3–4½ in. high. Stem a creeping rhizome from which are given off at intervals secondary stems which become thickened and form pseudobulbs, 8–10 mm. l., covered by the sheathing leaf-stalk and sheaths. Sheaths, one at each node, papery, 8–2 cm. l. Leaf, blade 3–4 cm. l., 2–4 cm. br.; stalk 2–3.5 cm. l. Scape 5–10 cm. l., angled. Raceme 1–4 cm. l., somewhat lax below, becoming crowded above. Flowers greenish, perianth ½ in. l. Bracts linear-lanceolate, 1-nerved, 2·5–4 mm. l. Pedicels 3 mm. l. Ovary 6-angled, about 2 mm. l. Sepals 1-nerved; lateral lanceolate, obtuse, about 4 mm. l., 1·4 mm. br.; median oblong-lanceolate, about 4 mm. l., 1·2 mm. br. Petals 1-nerved, linear, 4·3–5 mm. l., 5 mm. br. Lip 3·5–5 mm. l., 3·3–5 mm. br. Column erect, curved towards apex, 2·3 mm. l. Capsule ellipsoid, 5–6 mm. l.

The flowers of the type from Bolivia are rather larger than those from Jamaica, but we fail to see any specific difference. The distribution of L. velliformis and L. elata shows that we may look for the occurrence of L. neuroglossa at intermediate stations.

3. L. Harrisiæ Fawc. & Rendle in Journ. Bot. xlvii. 7 (1909); with pseudobulb; leaves two, oval-elliptical, abruptly acute, with a somewhat long, sheathing stalk; lip greenish, veined and tinged with purple or brown, elliptical, obtuse, cordate, veins prominent in the middle and at the base converging into two calli.—Cogn. in Symb. Ant. vi. 375. (Pl. 6, f. 1–5.) Type in Herb. Mus. Brit.


Plant 4 to 9 in. high. Stem at base slightly thickened and at length forming a pseudobulb 2·5 cm. l., 8 mm. br., covered by the sheathing
petioles and two loose papery sheaths, upper sheaths 3½-5 cm. l. **Leaves**, blade of upper leaf 7-12 cm. l., 4-6½ cm. br. **Scape** 7-13 cm. l., 3-winged. **Raceme** 2-5½ cm. lax. **Flowers** large, greenish, usually from 15 to 10, perianth nearly ½ in. l. **Bracts** 4½ mm. l., lanceolate, 1-nerved. **Pedicels**, without ovary, 8-10 mm. **Sepals** 9 mm. l., 2½ mm. br., greenish margined with purple, linear, acuminate. **Petals** equal in length to sepals, purplish, filiform. **Lip** 13 mm. l., 8½ mm. br. **Column** 4½ mm. l., greenish, slender, curved, enlarged at base and below the anther. **Capsule** 1½ cm. l., ellipsoid, narrowed at base.

Allied to **L. Saundersiana**, but a larger plant with evident stem, and leaves and flowers twice as long.

4. **L. Saundersiana** Reichb. f. in Gard. Chron. 1872, 1003; with corn; leaves two, the lower larger, roundish-ovate, cordate to oval, obtuse; leaf-stalk sheathing, one-third to about one-half the length of the blade; lip purple, oval, cordate, apex rounded, sometimes minutely apiculate.—**Ridl. op. cit. 274.** (Pl. 6, f. 6–10.)


**Plant** very variable in size, 1½–4 in. high. Stem swollen below the ground into a small spherical corn covered by the sheathing leaf-stalks and one or two sheaths, upper sheath 5 to 15 mm. **Leaves**, lower blade very variable, 12×11 mm. to 30×25 mm., sometimes to 69×40 mm. **Scape** angled, edges secedrid. **Raceme** with many flowers, 18–45 mm. l. **Flowers** green in bud, dark purple or sometimes crimson when expanded, dark purple when dried, perianth about ½ in. l. **Pedicels** 4–7 mm. **Bracts** 4–5 mm., thin, lanceolate, acuminate, 1-nerved. **Sepals** 4–5 mm. l., shorter than the lip, greenish in bud, colourless during flowering, lanceolate. **Petals** longer than the sepals, purple, narrower, linear, 6 mm. l., ½½ mm. br. **Lip** 5–6½ mm. l., 4½–5½ mm. br. **Column** curved, enlarged at base and apex. **Capsule** (unripe) 8 mm. l., ellipsoid, narrowed at base. **Capsule** (unripe) 8 mm. l., ellipsoid, narrowed at base.

5. **L. elata** Lindl. in Bot. Reg. t. 1175 (1828), with pseudo-bulb; leaves few (3–5), erect, broadly elliptical, to lanceolate-acute, tapering at the base into sheathing stalks, many-nerved; lip purple, very broadly spathulate, emarginate, with a lunate callus at base.—**Lindl. Gen. & Sp. Orch. 27** (excl. syn.); Griseb. Fl. Br. W. Ind. 612; **Ridl. op. cit. 259**; Cogn. in Fl. Bras. i. pt. 4. 286.

In shady places; in fl. June–Dec., in fr. July–April; Macfadyen; Distin! Wilson! March! Near Castleton, J.P. 2395, Syme! Morris! Morse’s Gap; Silver Hill; Cedar Hurst, 2000 ft.; Harris! Fl. Jam. 7605, 7659, 7873.—Cuba, Hispaniola, Porto Rico, St. Thomas, Guadeloupe, Dominica, St. Vincent, Trinidad, Costa Rica, Colombia, Venezuela, Brazil, Paraguay, Ecuador, Bolivia, Peru.

**Plant** 12–15 in. high (sometimes only 6 in.). Stem forming a pseudo-bulb, 2–5 cm. l., 6–9 mm. br., covered by the sheathing leaf-stalks and sheaths. **Sheaths**, 2 or more, passing into leaves. **Leaves** 1–3 dm. l., 4–10 cm. br. **Scape** 2–3 dm. l., angled. **Raceme** 8–11 cm. l., somewhat lax. **Flowers** purple and green, 10–20, perianth nearly ½ in. l. **Bracts** lanceolate, 1-nerved, 5–8 mm. l. **Pedicels** 5 or 6 mm. l. (somewhat longer in fruit). **Ovary** 8 mm. l., narrowly 3-winged. **Sepals** greenish streaked with purple, 5-nerved, oval-elliptical, obtuse; median 5½ mm. l., 2½ mm.
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br.; lateral shorter, nearly 5 mm. l., 2·5 mm. br., slightly falcate. Petals greenish streaked with purple, 3-nerved, linear-oblanceolate, obtuse, as long as the median sepal, 5·5 mm. l., about 1·5 mm. br. Lip 4 mm. l., and nearly as broad. Column suberect, curved, channelled anteriorly and winged, 3·5 mm. l. Capsule obovoid, 1·5 cm. l., 5-6 mm. br.

18. GALEANDRA Lindl.

Terrestrial herb. Raceme terminal. Sepals equal, free, spreading. Petals similar to sepals. Lip attached at base of column, orbicular, produced into a very short conical spur, erect, disk with longitudinal crests. Column short, without a foot. Anther terminal, opercular, incumbent, imperfectly 2-celled; pollinia 4, ovoid, waxy, on the dehiscence of the anther affixed to a gland of the rostellum.

Species about 25, natives of tropical America from Mexico and the West Indies to Brazil.

Galeandra Beyrichii Reichb. f. in Linnæa xxii. 854 (1849); Cogn. in Fl. Bras. iii. pt. 4, 308, t. 74 & in Symb. Ant. vi. 380. (Pl. 7, f. 1–3.)

In dry woodland; in fl. and fr. Sept.; St. Ann, J.P. 531, Steer! Hope-ton, Westmoreland, 1300 ft., Harris! Fl. Jam. 9780.—Cuba, Venezuela, Colombia, Brazil, Bolivia, Paraguay, Peru.

Plant terrestrial, to 4 ft. high. Stem robust, with thickened pseudobulb-like joints, including raceme 8–12 dm. l. with no leaves during flowering, but covered with sheaths and terminated by a raceme of greenish flowers. Rhizome short, stout, covered with scales, and bearing numerous roots. Sheaths, 12–15, large, loose, scarious, somewhat overlapping, free portion triangular-oblong, acute or shortly acuminate, 3–10 cm. l., at the base of the stem small and embracing, generally tubular below, but becoming bract-like above. Leaves (not seen, but from figure and description in Fl. Bras. loc. cit.) appearing after flowering, erect, large, elongate-oblanceolate, very acute, with 3 thick nerves, 3 dm. l., 3·3–5·5 cm. br., tapering insensibly below into a robust stalk about 1 dm. l. Raceme long, lax, several-flowered (10–12), a fruiting specimen measured 2·5 dm. l. Bracts oblong, tapering to an acute or shortly acuminate apex, about as long as the flower-stalks, 1–2 cm. l., 3–6 mm. br. Flowers greenish, erect-spreadling, large, stalked, perianth nearly an inch l. Ovary terete, tapering gradually to base, about as long as sepals. Sepals linear-oblong, tapering to base and apex, keeled, 5-nerved, green, 2·3 cm. l., lateral rather broader than median (6 mm. br.), with a blunt apiculate apex; median 5 mm. br., obtuse. Petals oblanceolate, abruptly acute, 5-7-nerved, light green, a little shorter than the sepals but as broad as the lateral. Lip with numerous nerves, almost orbicular, shorter than the sepals, broader than long, about 2 cm. l., 2·5 cm. br. when flattened, green with lines of crimson, disk with 4 crests running from the base to the middle, pubescent between the crests, in the middle and along the nerves above the crests. Column barely 1 cm. l., stout, thicker upwards, concave in front with short hairs on apex; anther with short hairs, shortly conical. Capsule reflexed, ellipsoidal, about 2·5 cm. l.
19. POLYSTACHYA Hook.

Epiphytic herbs. Stems leafy, short, sheathed at the base, sometimes thickened into slender pseudobulbs. Leaves few, in two ranks, oblong-ligulate, many-nerved but not plaited, contracted at the base into sheaths and jointed with them. Peduncle terminal, with a few sheaths above the leaf. Raceme terminal on the leafy stem, simple, or several short racemes along a common rachis forming a narrow lax panicule. Flowers small. Bracts small. Sepals connivent, median free, lateral broader, at the base attached to the foot of the column. Petals narrow. Lip on the upper side of the flower, jointed with the foot of the column, at the base contracted, incumbent, then erect; 3-lobed; lateral lobes but little prominent, erect, median spreading or recurved, undivided. Column very short, not winged, produced at the base into a foot; clinandrium short, truncate. Anther terminal, opercular, incumbent, very convex, 1-celled or imperfectly 2-celled; pollinia 4, waxy, broadly ovate, lightly adpressed in pairs, or connate into 2, not appendiculate, affixed to a short stalk or gland. Capsule oblong.

Species about 170, natives chiefly of tropical and south Africa, some of India and Malaya, a few of tropical America.

Flowers with very prominent chin .......... 1. P. minuta.

Flowers smaller, with chin not prominent 2. P. minor.


On trees and rocks; in fl. and fr. Nov. to April; Wilson! Fairfield, Wulfschlägel 1055 (partly)! J.P. 21, 22, Morris! Moneague, Lady Blake! Content Road, Campbell! Mavis Bank, 2000 ft., 7765, Harris!—Cuba, Hispaniola, Porto Rico, St. Thomas, St. Eustatius, Dominica, Martinique, St. Lucia, St. Vincent, Grenada, Trinidad, Florida, Mexico, Guatemala, Colombia, B. Guiana, Surinam, F. Guiana, Brazil, Peru.

Plant 8-14 in. high. Pseudobulb about 3 cm. l. Leaves acute or somewhat obtuse, sometimes slightly oblique, 10-20 cm. l., 12-28 mm. br. Panicle 1'5-3 dm. l., generally longer than the leaves. Bracts triangular, acuminate, 2 mm. l. Flowers yellowish-green, perianth 4 in. l., and somewhat broader; buds very obliquely 3-cornered, apex somewhat acute.
Ocary cylindrical, 4–5 mm. l. Sepals 3-nerved, apiculate; median triangular-ovate, 3 mm. l., 2 mm. br.; lateral deltoid, very oblique, 3½ mm. l., 4 mm. br.; chin obtuse. Petals linear-subspathulate, subobtuse, apiculate, 3 mm. l. Lip, apex of lateral lobes extending to or beyond middle of median lobe; median larger, roundish-elliptical, margin curled, apex rounded, emarginate, apiculate; disk with very short glandular hairs, and a callus extending along the median nerve from the base to the middle; 4 mm. l., 3'3 mm. br. Column, incl. anther, 1 mm. l. Capsule 1 cm. l.

2. P. minor Fawc. & Rendle in Journ. Bot. xxviii. 106 (1910); lateral lobes of lip small, rounded; sinus not above middle of lip; callus basal, projecting, conical.—P. foliosa Griseb. loc. cit. (as regards spec. from Jamaica) non Reichb. f. (Pl. 7, f. 6, 7.)

On trees and walls; in fl. and fr. Sept.–Jan.; road to Guanabo and Red Hills, Sloane Herb. vii. 86! Fairfield, Wullschlaegel, 1055 (partly)! J.P. 523, Morris! near Browns Town, Miss T. M. Barrett! Claremont, 1700 ft., Fawcett & Harris! Lancaster, 2200 ft., 2500 ft., 3000 ft.; Belvedere, Hanover, 500 ft.; Harris! Ramble, Hanover; below Guava Ridge; Fawcett! Fl. Jam. 7563, 7777, 7805, 10,434, 10,457.—B. Guiana.

Plant 5–12 in. high. Pseudobulb 5–2 cm. l. Leaves obliquely emarginate, 7–20 cm. l., 11–25 mm. br. Panicle 1 to nearly 3 dm. l., generally shorter than the leaves. Bracts triangular, shortly acuminate, 1½ mm. l. Flowers yellowish-white, perianth ½ in. l. Sepals 3-nerved, apiculate; median oblong-elliptical, 2½–2½ mm. l., 1½ mm. br.; lateral triangular-ovate, slightly oblique, 3 mm. l., 2 mm. br.; chin rounded. Petals linear-subspathulate, acute, 2½ mm. l. Lip, apex of lateral lobes scarcely extending beyond sinus; median much larger, roundish-elliptical, obscurely apiculate, margin curled; disk with very short, mealy hairs, about 3 mm. l.; median lobe 2 mm. br. Column, incl. anther, about 1 cm. l. Capsule 6–8 mm. l.

Diffs from P. foliosa Reichb. f. in being a larger plant, with larger flowers, also in other details, especially in petals and lip; the conical projecting callus at the base of the lip is characteristic.

20. CRYPTOPHORANTHUS Barb. Rodr.

Epiphytic herbs, with creeping rhizome without pseudobulbs. Stems with one leaf, short, with scarious sheaths. Leaf leathery or fleshy, more or less erect. Flowers rather small, shortly stalked, solitary, or sometimes a few clustered, at the base of the leaf. Sepals connate altogether, except for an open chink on each side between the median and the lateral sepals. Petals each much smaller than the sepals. Lip free, a little longer than the petals, parallel with the column, very shortly clawed, jointed to the foot of the column, 3-lobed. Column erect, produced at the base into a rather long foot. Anther terminal, opercular, incumbent, hooded, 1-celled; pollinia 2, waxy, narrowly obovoid, compressed. Capsule broadly ellipsoidal.

Species 9, natives of W. Indies and tropical America.

(1842). Masdevallia fenestrata Lindl. ex Hook. in Bot. Mag. t. 4164 (1845). (Pl. 7, f. 8-10.)


Plant 3–6 in. high. Stem 3–5 cm. l., 5–7-jointed, covered with sheaths; sheaths increasing in size from below upwards, 5–3 cm. l., dilated at mouth, glabrous. Leaf obovate-elliptical, tapering into a short stalk (1 cm. l.) which is enclosed in the top sheath, 3–9 cm. l., 1.5–3 cm. br. Pedicel 2-jointed, 13 mm. l. Ovary 7–8 mm. l., 12-winged. Bracts at each joint of pedicel, sheathing, one at upper joint 6–7 mm. l., with 3 or 4 smaller at base. Flowers about ½ in. l., deep crimson. Sepals 14–15 mm. l., 5 mm. br., conduplicate; chink 5 mm. from apex, 2 mm. l., 6–7 mm. br. Petals nearly 4 mm. l., 2 mm. br., oblong, truncate, 3-toothed at apex. Lip 4–5 mm. l., 75 mm. br. at base, hastate, lateral lobes folded in front, a minute auricle at each side at the base. Column 2–2.5 mm. l.; clinandrium 2-toothed in front and 1-toothed behind.

21. STELIS Sw.

Stems erect, clustered, simple, with one leaf at the apex, 2-jointed, with a sheath to each joint and small basal sheaths. Leaf leathery, contracted at the base into a short stalk, jointed near the base. Flowers very small, numerous on a long raceme springing from the base of the leaf, enclosed by a spathaceous bract and smaller inner bracts. Floral bracts small, sheathing below, about equalling the pedicel. Sepals generally subequal, laterally slightly oblique, spreading, shortly or deeply connate. Petals much shorter, broad, with thickened margins. Lip sessile at the base of the column, equal and somewhat similar to the petals. Column short, broad, generally thicker above; clinandrium with a lobe at each side, and a posterior lobe which is 3-lobulate; rostellum tongue-like. Anther terminal, opercular, incumbent, semiglobose, incompletely 2-celled; pollinia 2, waxy, pyriform, generally connected at the apex by slight viscum. Capsule small, ovoid or oblong, 3-cornered.

Species about 210, natives of tropical America, from the West Indies and Mexico to Brazil and Peru.

Closed flowers rounded; sepals elliptical ... 1. S. micrantha.
Closed flowers 3-cornered; sepals deltoid ... 2. S. ophioglossoides.

1. S. micrantha Sw. in Schrad. Journ. Bot. ii. 240 (1799); racemes somewhat longer than leaf; closed flowers rounded; sepals elliptical-ovate, longer than broad, shortly connate at base, nerves slightly prominent below, the central nerve generally forming a keel in the lateral sepals.—Sw. Fl. Ind. Occ. 1553; Smith Exot. Bot. t. 75; Hook. Exot. Fl. t. 158; Griseb. Fl. Br. W Ind. 611; Cogn. in Symb. Ant. vi. 386. Epidendrum micranthum Sw. Prodr. 125 (1788) & Icon. ined. t. 50. Dendrobium
Stelis

Micranthum Sw. in Nov. Act. Upsal. vi. 84 (1799). (Pl. 7, f. 15–28.)

Type in Herb. Mus. Brit.


Stem 7–12 cm. l., 1·5–2 mm. br., sometimes as short as 2 or 3 cm., or as long as 15 cm. Sheaths striate, apex truncate, apiculate, generally covering stem, scarios, soon decaying. Leaf lanceolate-oblong or ligulate, apex obtuse, sometimes minutely toothed, generally somewhat longer than stem, 11 or 12 cm. l., about 1·5 cm. br., sometimes as short as 7 cm., or as long as 16 cm. Raceme solitary (rarely 2), many-flowered, 12–14 cm. l., rarely longer; spathaceous bract at base about 12 mm. l. Bracts sheathing at base, apex rounded, acute or apiculate to shortly acuminate, 1·5–2 m. l. Flowers: the size of the flower varies considerably: in Swartz’s original specimen the median sepal is 2·3 mm. l., 1·4–1·5 mm. br., and the petal 0·6 mm. l. and br.; in Fl. Jam. 7537 the median sepal is 2·5 mm. l. and br., and the petal 7·5 mm. br.; in Fl. Jam. 7835 the median sepal is 3 mm. l., 2·5 mm. br., and the petal 1 mm. br. Measurements of parts of the flower from dried specimens are somewhat misleading. In specimens put into spirit when collected (Fl. Jam. 10,087) the median sepal is 3·75 mm. l., 3 mm. br., and the sepals are not distinctly keeled on back (petal 1·2 mm. br.); sepals from the dried specimen (moistened in hot water) measure 3·5 mm. l., 2·4 mm. br., and are obviously keeled. The flowers from the type specimen, and also from the Marquis of Blandford’s specimen figured by Sowerby (J. E. Smith, Exot. Bot. l. 75), are much smaller, but these are evidently not fully developed. Sepals pale green, 3-nerved, the central nerve in the median sepal sometimes forming a dorsal mucro just below apex, lateral nerves generally meeting the central nerve above in lateral sepals, but not always in the median sepal, lateral shorter but as broad or broader. Petals deep purple, sub-quadrangular, upper margin sub deltoid-lunate. Lip deep purple, somewhat like petals but broader above, upper surface semicircular with a narrowly elliptical median depression, with the upper margin lunate. Column deep purple.


On trees and rocks; in fl. all the year; Swartz! J.P. 12, Morris! J.P. 2094, Syme! near Morse’s Gap, 5000 ft., Fawcett! near Moy Hall, Sullivan! Greenhill, Moore! Mabess River, 3000 ft.; Cinchona, Harris! Fl. Jam. 7764a, 7764b.
Similar to *S. micrantha* with the following differences: *Stems* 3-9 cm. 1., 1-2 mm. br. *Leaf* longer than the stems, 5-11 cm. 1., 1-2 cm. br. *Racemes*, 1-3, much longer than leaf, 12-22 cm. 1. *Bracts* shortly acuminate, 2-3 mm. 1. *Sepals* greenish-yellow with purplish tinge at base, apex obtuse, mucronate, 3-nerved, lateral nerves generally meeting the central nerve above in lateral sepals, but not always in median, median 2-2 3 mm. 1., 2.5-2.6 mm. br., lateral 1.6-2 mm. 1., 2-2.1 mm. br. *Petals* deep purple, broadly roundish or obovate, upper margin lunate, with very thin points, °7 mm. 1., °9-1°1 mm. br. *Lip* deep purple, angular-semicircular, °75 mm. 1., 1 mm. br.

### 22. PLEUROTHALLIS R. Br.

Stems clustered or branches of a creeping stem or rhizome, simple, somewhat long, short or very short, with one leaf at the apex, sometimes with one to numerous sheaths below the leaf, not pseudobulbous. *Racemes*, one to numerous, at the base of the leaf, within the sheath or spathe, simple, with several flowers or laxly few-flowered, or in a few species shortened, 1-3-flowered, and densely crowded, or sometimes solitary. Flowers small, sometimes very small, or in a few species of medium size or rather large, generally on one side of the raceme. *Bracts* small, shortly tubular. *Sepals* about the same length, erect or spreading; the median free or very shortly connate with the lateral at the base; lateral connate at the base or higher into one, entire, 2-fid or generally 2-partite, generally concave or slightly gibbous under the foot of the column. *Petals* shorter or narrower than the sepals, sometimes very small, more rarely about as long as the sepals. *Lip* shorter than the petals or more rarely a little longer, at the base generally contracted and jointed with the base of the column, 3-lobed; lateral lobes erect, embracing the column, or small, dentiform, or obsolete; the median somewhat spreading. *Column* as long as the lip or a little shorter, semiterete, the angles sometimes membranous-margined, not truly winged, at the base generally produced into a very short foot; clinandrium small or with a membranous extension, oblique, entire or shortly 3-lobed. Anther terminal or within the margin of the clinandrium, opercular, incumbent, 1-2-celled, pollinia 2, waxy, globose, ovoid or pyriform, free or cohering at the apex by a sparse viscid substance. Capsule sub-globose or ellipsoidal, 3-keeled or 3-cornered.

Species nearly 600, natives of the mountains of tropical America from the West Indies and Mexico to Brazil and Bolivia.

**I. Spathe at base of racemes large and leathery.**

<table>
<thead>
<tr>
<th>Description</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Racemes solitary, much longer than leaf.</td>
<td>1. <em>P. longissima.</em></td>
</tr>
<tr>
<td>Sepals yellow, acute</td>
<td>2. <em>P. racemiflora.</em></td>
</tr>
<tr>
<td>Sepals purple, acuminate</td>
<td></td>
</tr>
<tr>
<td>Racemes two or more, clustered, not longer than leaf</td>
<td></td>
</tr>
<tr>
<td>Lip undivided; sepals white, gibbous</td>
<td>3. <em>P. gelida.</em></td>
</tr>
<tr>
<td>Lip 3-lobed; sepals pale yellow</td>
<td>4. <em>P. velaticaulis.</em></td>
</tr>
</tbody>
</table>
II. Spathe inconspicuous, scarious.

A. Sheaths of the stem straight, adpressed, not ciliate.

1. Stem evident, leaf distant from base.
   a. Racemes many-flowered, longer than the leaf or about as long.
   Sepals yellowish-green, shortly acute, connivent .................
   Sepals brownish-purple, obtuse, connivent ....................
   Sepals deep purple, acuminate, divaricate ....................
   5. P. alpestris.

   b. Flower-stalks with few flowers or only one, shorter than leaf.
   Leaf 4 or 5 inches l. Flower-stalks very numerous, short, clustered ..
   Leaf less than 4 inches l.
   Basal sheaths hirsute ........
   Basal sheaths glabrous, ovary smooth.
   Petals not subulate.
   Sepals greenish-yellow.
   Leaf linear-lanceolate
   Leaf elliptical-lanceolate .....................
   Sepals dark purple ........
   Petals subulate ..........
   Basal sheaths glabrous, ovary warty .................
   10. P. ruscifolia.

   8. P. hirsutula.

2. Stem very short, leaf close to the root.
   Stems clustered.
   Flower-stalk shorter than leaf-stalk. Capsule covered with soft prickles ..................
   Flower-stalk shorter than leaf. Capsule smooth ....
   Flower-stalks much longer than leaf (or about as long in P. lanceola). Capsule smooth.
   Leaf roundish ..................

   15. P. rotundifolia.

   Leaf not roundish.
   Flower-stalk with one flower;
   lateral sepals connate nearly to apex .............
   16. P. corniculata.

   Flower-stalk few-flowered;
   lateral sepals free or not more than \( \frac{1}{2} \)-connate.
   Flower-stalk much longer than leaf.
   Sepals, apex obtuse; flower-stalk zig-zag ........
   Sepals, apex tailed ........
   22. P. Helena.
   Flower-stalk about as long as leaf ...............
Stems at intervals from creeping rhizome.
Leaf oval-roundish .......................... 17. P. testifolia.
Leaf linear-spathulate ........................ 24. P. sertularioides.

B. Sheaths (as in Lepanthes) with mouth
dilated, margined, ciliate. Leaves
½ inch l. or less.
Flower-stalk much shorter than leaf;
stems much shorter than leaf...... ... 25. P. microlepanthes.
Flower-stalk longer than leaf; stem not
shorter than leaf.
Stem with more than one leaf............. 26. P. foliata.
Stem with only one leaf.................... 27. P. trilobata.

In the sequence of the species we have followed the arrangement

1. P. longissima Lindl. Fol. Orch. Pleuroth. 31 (1859);
raceme solitary, many-flowered, two or three times as long as
leaf, enclosed by large leathery spathe; sepals greenish-yellow,
acute, lateral connate almost to apex.—Griseb. Fl. Br. W. Ind.
607; Reichb. f. in Saund. Ref. Bot. t. 141 (1872); Cogn. in Symb.
Ant. vi. 397. P. racemiflora Lindl. Bot. Cab. x. t. 949 (1824);
Lindl. in Hook. Exot. Fl. t. 123 (1825), non in Fol. Orch. Type
in Lindley's Herb. at Kew.

On trees and rocks; in fl. March-June; Bertero; Macfadyen! St.
Mary, Purdie! McNab; Wilson! Fairfield, Wullschlægel, 1838! St.
Mary, J.P. 2331, Syme! St. Ann, Miss T. M. Barrett! Claverty Cottage,
Harris! Fl. Jam. 9018, 10,424, 8118 (fide Cogn.)—Guatemala.
Plant 1-1½ ft. high. Stems 4-17 cm. l., shorter or a little longer than
the leaves, clustered, clothed below with 2 or 3 adpressed acute sheaths.
Leaf 9-14 cm. l., 2-3 cm. br., sessile, oblong or oblong-elliptical, obtuse,
tapering to base. Raceme to 35 cm. l., with 15-26 second flowers; spathe
1-2 cm. l. Bracts 3-4 mm. l., slightly shorter than pedicels, scarious,
sheathing, obliquely truncate and obtuse. Pedicels short, 5 mm. l.
Flowers about ½ in. l., greenish-yellow. Sepals 7-9-5 mm. l., with mid-nerve
prominent on back; lateral 4-4½ mm. br., broadly ovately concave;
median 3-3½ mm. br., ovate, subacute, 3-nerved. Petals 6-8 mm. l.,
2½-2½ mm. br., narrowly oval-oblong, broadest below the middle, to
lanceolate, apex rounded, very minutely apiculate to acute, exceeding lip.
Lip shorter than petals, when flattened barely exceeding 4 mm. l., limb
3½-5½ mm. l., 2-2½ mm. br., with large basal auricles and short claw,
roundish, 3-nerved, mid-nerve thickened in upper part. Column about
3 mm. l., slender; cinandrium membranous, ovate, blunt.

2. P. racemiflora Lindl. Fol. Orch. Pleuroth. 34 (1859);
racemes usually more than one, but only one flowering, many-
flowered, two or three times as long as leaf, enclosed by large
leathery spathe; sepals purple, long acuminated, lateral ½-connate.
—Griseb. op. cit. 607; Cogn. op. cit. 398. P. oblongifolia
Lindl. in Comp. Bot. Mag. ii. 355 (1837). Epidendrum
racemiflorum Sw. Prodr. 125 (1788). Dendrobium racemi-


Plant 5 to 12 in. high. Stems to 10 cm. 1., 2 mm. br., with two developed internodes, clustered, terete at the base, compressed and angular above; sheaths, upper about 4 cm. 1., loose, brown, membranous, longitudinally striate, widening considerably towards the mouth. Leaf generally about as long as the stem, blade 5·5–9 cm. 1., 1·5–2·8 cm. br.; oval-oblong, narrowed at the base into a short stalk (1 cm. or less). *Racemes 14–24 cm. 1., with 10–12 flowers in two rows, lax; spathe 1·5–3 cm. 1., compressed, obtuse. *Petals 4–7 mm. 1., slightly shorter than the pedicels, scarious, ovate, obtuse, sheathing at base. *Flowers about ¾ in. 1., magenta-coloured. *Sepals 7–10 mm. 1., connivent, concave, lanceolate, median 2 mm. br., lateral 4·5 mm. br. *Petals 4 mm. 1., 2 mm. br., less than half as long as the sepal, oval, narrowed at the base, apex rounded, crenulate, 3–nerved. Lip longer than the petals, clawed, limb 4 mm. 1., 1·5 mm. br., concave, disk 3-keeled, elliptical, apex obtuse, triangular. Column scarcely equalling the petals; ciliandrium shortly 3-fid. Capsule 7–9 mm. 1., oblong.


Plant often 1½ ft. high. Stems clustered, about 3 mm. thick near the base; 2-jointed; sheath above the base of the stem somewhat compressed, membranous, blunted, to 8·5 cm. 1. Leaf elliptical, 18–25 cm. 1., including stalk (3–4 cm.), 4–5·5 cm. br. *Racemes ’12–14 cm. 1., with 16–20 spadix flowers; spathe 1·5–2 cm. 1. *Bracts barely 2 mm. 1., short, obtuse. *Flowers nearly ¾ in. 1., pale yellow. *Sepals 7 mm. 1., erect, forming a cup, subelliptic, obtuse, with short hairs on the inside. *Petals 3 ½ mm. 1., subovate. Lip 2·5 mm. 1., widening above to a broad rounded apex, bearing two wing-like keels on the upper face which do not reach the apex, with two teeth in the middle of each side. Column less than 2 mm. 1., with a minute tooth on each side at the apex. Capsule ellipsoidal, 3-ribbed.

Lindley says of *P. univaginata, “very like the last” (*P. gelida), “but distinguished by the state of the sepal and form of the lip.” Examination of the type specimens in Lindley’s herbarium and of other available material leads to the conclusion that we are dealing with only one species. The degree of union of the lateral sepal varies somewhat, while the hairs to which Lindley refers in his description “sepalis intus pilosis,” are present to a very slight extent in the type specimen; the form of the lip is the same in both, the two median wing-like keels being present, though Lindley says of *univaginata, “labello ecarinato.”
Neither at Kew nor the British Museum are there any specimens named *P. gelida*, and Grisebach merely quotes Lindley's description, which was based on a cultivated plant obtained by Messrs. Loddiges from Jamaica.

The figure in *Xenia Orchidacea* (iii. t. 267, II.) represents the flower more widely open than obtains in any specimens we have seen.

4. *P. velaticaulis* Reichb. *f. in Linnæa xxii.* 824 (1849); racemes 1–5, with numerous flowers, shorter than leaf, or about as long, enclosed by a large leathery spathe; ovary terete, smooth; sepals keeled, lateral subfree; lip 3-lobed, lateral lobes emarginate.—*Lindl.* *Pol. Orch. Pleuroth.* 29 (1859); *Cogn. op. cit.* 400 & under. *P. crassipes* Lindl., so far as concerns Jamaican specimen Fl. Jam. 7745. (Pl. 8, f. 17–22.)

On rocks and trees; in fl. Nov.; near Cinchona, 5000 ft., Harris! Fl. Jam. 7745.—Cuba.

*Plant* a foot or more high. *Stems* 13–21 cm. l., clustered, long, slender, angular, of two internodes, with a long thin tubular sheath at each node, 5 cm. l., with a shorter outer one at the base. *Leaf* oblong-oblong-oblong, tapering into a long stalk, shorter than the stem, 10–12 cm. l., of which the stalk is about 2 cm. l., 2–2.5 cm. br. *Racemes* 6–10 cm. l. *Bracts* tubular below, dilated upwards, truncate, apiculate, 3–3.5 mm. l. *Pedicels* as long as the bracts. *Ovary* 3–5–4 mm. l., carrying the flower much above the bracts. *Sepals*, median ovate, subacute, 3-nerved, 4 mm. l., 2 mm. br.; lateral lanceolate, acute, 3-nerved, 4 mm., 1.1–3 mm. br. *Petals* linear-oblong, blunt, obscurely apiculate, 1-nerved, a little over 2 mm. l., 7 mm. br. *Lip* broad, 3-lobed, 3-nerved, 1–7 mm. l., barely 1.5–5 mm. br., inserted by a short broad claw, above which is a transverse ridge, middle lobe shortly ovate, blunt; lateral lobes much shorter than the middle lobe, rounded, emarginate. *Column* short, broad, about 1 mm. l., without a membranous margin.

Reichenbach's description differs in that the sepals are oblong, obtuse, and the petals cuneate. This species is very near *P. crassipes* Lindl.


*Plant* 4 or 5 in. high. *Stems* 2–3 cm. l., 1 mm. or less thick, clustered; somewhat compressed and angular when dry; a loose membranous sheath springs from a node just above the base and extends about half-way to the leaf. *Leaf* 3–4.5 cm. l., 7–13 mm. br., narrowly oval to oval-lanceolate,
obtuse, sessile, at the base subacuminate. *Racemes* 3·5-5·5 cm. l., filiform. *Flowers* ½ in. l., yellowish-green, lax. *Pedicels* scarcely longer than the bracts. *Bracts* 2 mm. l., small, acute, sheathing. *Sepals* 8 mm. l., median 1·75 to 2·5 mm. br., the united lateral 3 to 4 mm. br., erect, keeled, lanceolate. *Petals* yellowish-green tinged with purple at the base, 2·5-2·75 mm. l., 75 to 1 mm. br., subovate, acute, one-third as long as the sepals. *Lip* deep purple, very small, 2·5 mm. l., shortly clawed, 2-keeled on the disk, keels running up near the apex, sub-panduriform with a blunt tooth on each side below middle, then constricted, and 2-auricled above the narrow claw. *Column* shorter than the petals, clinandrium crenulate, 2-denticulate, tinged with purple at the base. *Capsule* 8 mm. l., 2·5 mm. br., oblong, gibbous, with 6 muricate keels.

6. *P. multirostris* Reichb. *f.* in *Linnæa* xli. 49 (1877); *raceme* 1, with several flowers; sepals brownish-purple, curved, beak-like, the lateral connate nearly to apex, apex obtuse.— *Cogn. in Symb. Ant. vi. 401.*

*In fl. Sept.*


We have not seem any specimen of this species, and it is solely on the authority of Reichenbach that it is included among the orchids of Jamaica.


*Plant* 3 to 5 in. high. *Stems* clustered, 2-5 cm. l., barely reaching 1 mm. in width, somewhat compressed and angular when dry, covered within 1 cm. or less of the leaf by three loose membranous keeled sheaths. *Leaf* 8-4 cm. l., 1-1·3 cm. br., oval-oblong. *Racemes* 5-7 cm. l. *Bracts* 2 mm. l., clasping, acute. *Flowers* deep purple, ½ in. l. *Sepals* 8 mm. l., lateral narrowly lanceolate, median linear-lanceolate. *Petals* 4 mm. l., purple or purple-streaked, narrowly lanceolate, half the length of the sepals. *Lip* slightly shorter than the petals, spotted with purple, shortly clawed, the lower part concave, obtusely lobed, the upper part ovate, recurved, with a pair of short, rounded erect lobes at base, 2-keeled on the disk. *Column* a little shorter than the petals, spotted with purple; clinandrium denticulate, anther-case dark purple.
8. P. hirsutula Froel. & Rendle in Journ. Bot. xlvii. 3 (1909); basal sheaths with dark brown stiff short hairs; racemes 1–5 together, generally not more than one flowering at a time, with four or five flowers, about one-third the length of the leaf.—Cogn. in Symb. Ant. vi. 403. (Pl. 9, f. 15–19.) Type in Herb. Mus. Brit. & Jam. Herb.


Plant 4½–7 in. high. Rhizome creeping, rooting. Stems 6–10 cm. l., clustered, longer than the leaves, two-edged, edges furrowed; sheaths three, loose. Leaf 5–7½ cm. l., 1–1½ cm. br., sessile, lanceolate, at the base clasping. Raceme 1–2–2½ cm. l. Bracts 2 mm. l., sheathing, truncate. Flowers about ⅛ in. l., very dark red. Sepals more or less erect, 3-nerved, somewhat fleshy; median 6–5 mm. l., lanceolate, somewhat acuminate, concave; lateral slightly shorter, narrowly triangular-lanceolate, acute, at the base connate, gibbous. Petals slightly exceeding 3 mm. l. by 1½ mm. br., rhomboid, narrowed at the base, upper margins minutely toothed. Lip 2–7½ mm. l., 1×2½ mm. br., ovate, shortly clawed, margin undulate. Column 2–2½ mm. l., slender, curved.

9. P. pruinosa Lindl. in Bot. Reg. xxviii. Misc. 75 (1812) stem longer than leaf; raceme one, with about six flowers, shorter than the leaf; leaf linear-lanceolate to narrowly oval; sepals greenish-white or pale yellow, lateral connate almost to apex; petals linear, somewhat acute.—Lindl. Fol. Orch. Pleuroth. 26; Griseb. op. cit. 608; Cogn. op. cit. 404.


Plant 2 to 3 in. high. Stems to 5–5½ cm. l., clustered, subtene, thin, sheathed at the base, and with one close, glabrous, obliquely truncate sheath below the middle. Leaf to 3–5½ cm. l., 6 mm. br., sessile. Spathé 5–7 mm. l., closely compressed, lanceolate, subacute. Bracts sheathing, truncate, obtuse, glabrous, a little shorter than the pedicels. Flowers ⅛ in. l., pale yellow or greenish-white, minute, distant, very shortly stalked, cleistogamous (?).. Sepals 3 mm. l., equal, broadly ovate, slightly 2-keeled; median ovate, subacute, slightly keeled. Petals a little shorter than the sepals. Lip half as long as sepals, erect, slightly clawed, limb triangular, somewhat acute, with 3 parallel keels on the disk. Column barely 1 mm. l., short, thick. Capsule 4 mm. l., elliptical, crowned by the persistent calyx.


Plant 7 to 13 in. 1. Rhizome creeping, 1–1.5 mm. thick, with a dense covering of slender root fibres and from the upper surface a number of erect slender rounded clustered stems from 4 to 20 cm. 1., with a slender adpressed cylindrical truncate bract (about 2 cm. 1.) about or rather below the middle. Leaf, blade 11 cm. 1., 2.5 cm. br., erect or suberect, stiff, many-nerved, glabrous, oblong-lanceolate, apex more or less acuminate, stalk about 1.5 cm. 1. A dense cluster of inflorescences springs from the short peduncles (6–7 mm. 1.); each inflorescence contains several stalked flowers (stalks 5–6 mm. 1.), the base of each stalk is surrounded by a thin hyaline bract. Sepals 7 mm. 1., lanceolate, acuminate, lateral connate. Petals 3.5 mm. 1., linear, acuminate, erect. Lip 1.25–1.5 mm. 1., 7.5–1 mm. br., lower portion nearly square in outline with raised convex sides and a broad central channel, apex bluntly triangular with a much thickened callus on the midrib. Column less than 1 mm. 1., including the short rounded anther-cell. Ovary 2 mm. 1. Capsule green, narrowly club-shaped, about 1 cm. 1.

11. P. brachypetala Griseb. in Cat. Cub. 257 (1866); stems nearly as long as leaf; racemes 2–4 together, with two to five flowers, one-third to one-fourth the length of the leaf; leaf oval; sepals dark purple, lateral ¼ connate; petals cuneate, apiculate.—Cogn. op. cit. 406. (Pl. 8, f. 7–10.) Type: Cuba, Wright, 3349.


Plant 2 to 3 in. high. Stems 2–3 cm. 1., clustered, compressed, nearly covered with rather loose sheaths, the upper keeled, acute, the others blunt. Leaf 3–4 cm. 1., 10–14 mm. br., sessile, oval to narrowly elliptical, base clasping. Racemes to 1 cm. 1., with a prominent sheathing bract at base. Flowers dark purple. Bracts 2 mm. 1., sheathing, loose, shortly acute. Sepals 4 mm. 1., gibbous; median ovate, obtuse; lateral ovate-lanceolate, shortly acute. Petals half as long as sepals, 8 mm. br. Lip shortly clawed, with two short lobes below the middle, elliptical above, apex rounded, incurved towards the column below, recurving above the middle. Column as long as petals, clavate, winged, with a distinct foot.

Specimens from Jamaica agree with Wright No. 3349 in Herb. Kew, which unfortunately has no flowers. Grisebach's description differs from our plant in petals being ovate and lip obovate.

12. P. Wilsonii Lindl. in Ann. & Mag. Nat. Hist. ser. 3, i. 326 (1858) (in part); stem longer than the small elliptical-lanceolate leaf; peduncles, one or (rarely) two or three, with one flower (or rarely two) on each, much shorter than leaf; petals oblong-lanceolate, shortly acute.—Lindl. Foli. Orch. Pleuroth. 17 (in part); Griseb. Fl. Br. W. Ind. 608; Cogn. op. cit. 407. (Pl. 9, f. 8.) Type in Lindley's Herb. at Kew.

Plant 2½ in. high, with creeping rhizome. Secondary stem 1·5–4 cm. l., slender, the lower half loosely sheathed. Leaf 1·5–3·3 cm. l., 5–8 mm. br., sessile, marginated. Peduncles 3–5 mm. l. Bracts about 1 mm. l., sheathing, truncate, obtuse. Flowers greenish-yellow, striated violet inside (fide Cogniaux), about ½ in. l. Sepals about 4 mm. l., 3-nerved; median narrow, triangular, acute, concave, 1·2 mm. br.; lateral triangular, falcate, slightly narrower. Petals 2 mm. l., ½ mm. br. Lip, lower portion somewhat broadly ovate above a short broad claw, indistinctly 3-lobed, middle lobe narrow, oblong, blunt, about 2 mm. l.; lower portion about two-thirds of whole length; margin papillose. Capsule obovoid, narrowly 3-keeled, 8–9 mm. l.

Lindley included two plants in his description of P. Wilsonii—one from Cuba (Wright, No. 668), and the other from Jamaica, collected by Wilson. The two plants differ remarkably in the conformation of the lip, and must be regarded as distinct species. We retain the name P. Wilsonii for the Jamaican plant, as Lindley’s description of the lip evidently refers to it, and not to the Cuban plant, which we have described, in Journ. Bot. xlvii. 129 (1909), under the name P. confusa. The lip only of P. Wilsonii is represented in Pl. 9, f. 8. A portion of the plant P. confusa is shown in f. 5, a petal in f. 6, and the lip in f. 7.

Cogniaux’s description of Porto Rico and Guadeloupe specimens differs somewhat from ours, e.g., the median sepal is oblong-subspathulate, obtuse, the petals are narrowly ovate, 1·5–1·75 mm. l., ½ mm. br., the peduncles are 6–14 mm. l.

13. P. monophylla comb. nov.; stem shorter than the leaf; racemes, two or three together (only one flowering), with two flowers, shorter than the leaf; leaf elliptical-lanceolate; ovary warty; sepals pale-green, lateral united near base and somewhat gibbous; petals lanceolate, acute.—P, emarginata Lindl. Fol. Orch. & Fl. 25 (1859); Griseb. op. cit. 608; Cogn. op. cit. 408. Epidendrum (?) monophyllum Hook. Exot. Fl. t. 109 (1825).

Without locality, Wiles.

Plant about 2 in. high. Stems about 2 cm. l., clustered, erect, slender, covered for the most part by sheathing bracts. Leaf 3–4 cm. l., 1·2 cm. br., obtuse. Pedicels about one-third as long as sepals, rather swollen upwards. Bract scarcely exceeding the pedicel, sheathing, with ovate acute mouth. Sepals 7 or 8 mm. l., 1-nerved, slightly keeled, lanceolate, acute. Petals minute, about one-third as long as sepals, whitish with a red central line, 1-nerved. Lip small, about as long as the petals, pink or deep purple, lanceolate, parallel with the petals and enclosed by them, nearly plane, slightly serrated at the margin, near the base above having two indistinct tubercles. Column shorter than the petals, straight, semicylindrical at the base, above at the base of the anther expanding into a sort of hood formed by the concave broadly winged and toothed margin, the base deep purple. Ovary very short, purple. No specimen seen; described from figure and description in Hooker’s Exotic Flora.

14. P. Morrisii Fawc. & Rendle in Journ. Bot. xlvii. 3 (1909); stem about as long as the narrowly lanceolate, somewhat falcate, subacuminate sessile leaf; peduncles two together, 1-flowered, very short; petals subulate; lip entire.—Cogn. op. cit. 408. (Pl. 9, f. 1–4.) Type in Herb. Mus. Brit. and Jam. Herb.
Without locality, Morris, 28!

Plant 3 or 4 in. high. Stems 3-5 cm. l., filiform, clustered, terete, with two dark-brown, adpressed sheaths at the base, the upper sheath 7-9 mm. l. Leaf 4-5 cm. l., 5-8 mm. br. Sepals 3-5 mm. l., broadly elliptical; median 2 mm. br., 3-nerved; lateral somewhat broader, connate, 2-nerved, at apex 2-toothed. Petals 2·5 mm. l. Lip 2·4 mm.l., 1·6 mm. br., shortly clawed, articulated to foot of column, obtuse, concave, with a thickened margin. Column 1·5 mm. l., short; clinandrium with a long narrow process in front.

The species is named after Sir Daniel Morris, formerly Director of Public Gardens and Plantations in Jamaica.

15. P. rotundifolla Rolfe in Kew Bulletin, 1895, 191; stems almost none, clustered; peduncle much longer than the roundish leaf, solitary, few-flowered; sepals straw-coloured, lateral connate nearly to apex.—Cogn. op. cit. 409. (Pl. 8, f. 11–16.) Type in Herb, Kew.

Without locality, Morris!

Plant very small, 1½-2 in. high, acaulescent. Leaves roundish-ovate, marginate, fleshy, 6-8 mm. l., 5-7 mm. br.; petiole short, 2-4 mm. l. Scape slender, with about six flowers, 4-5 cm. l. Bracts tubular at the base, triangular-ovate, acute, small, 1 mm. l. Pedicels 2 mm. l. Flowers straw-coloured, about ½ in. l. Sepals oval; median acute, concave, 3-nerved, 4 mm. l., 1·8 mm. br., with light red-purple nerves; lateral 2-nerved, 4-5 mm. l., 2·5 mm. br. Petals spathulate-oblong, subobtuse, 1·4 mm. l., straw-coloured with mid-nerve purple-red. Lip subcurved, undivided, oblong, obtuse, 3-nerved, 1·7 mm. l., 1·7 mm. br., basal three-fourths purple-red, upper fourth straw-coloured. Column winged, with acute apex, 1·25 mm. l.


On trunks of trees; in fl. Sept.-April; Swartz! near Rodney Hall, Purdie! Beaufort, Wallischlagel, 1081 (in part)! Prior! lowlands to 1000 ft.; St. Mary; J.P. 2403; Syne! Hopeton, Westmoreland, 1400 ft., Harris! Fl. Jam. 9781.—Cuba.

Plant 1½-2 in. high. Stems closely clustered, barely exceeding 5 cm. l., enveloped in loose overlapping brown scarios blunt sheaths. Leaf 1-2 cm. l., 5-7 mm. br., margined, with a short stalk (3-8 mm. l.). Peduncle 2·5-3·5 cm. l., solitary, longer than the leaf, filiform, with one flower, with a scarious sheathing bract above the middle. Flower yellowish, not open (cleistogamous?), about ½ in., slightly curved. Sepals 5 mm. l., lanceolate-acuminate; median 3-nerved, median nerve keeled; lateral connate almost to the apex, 2-keeled, gibbous at the base. Petals 2·75 mm. l., erect, subobtuse-lanceolate, 3-nerved, a little more than half as long as the sepals. Lip yellow, 2·5 mm. l., subrhomboid, obtusely acuminate above, 3-nerved. Column, including the anther, 2 mm. l., erect, a little shorter than the petals; clinandrium, with a lateral tooth and prolonged anteriorly on both sides into a slightly curved tooth. Capsule 6 mm. l., oblong.
17. P. testifolia Lindl. in Ann. & Mag. Nat. Hist. ser. 3, i. 328 (1858); stems very short from a creeping rhizome; leaf oval or roundish oval, 7-9-nerved, sessile at the apex of the stalk-like stem, minutely 3-toothed at the obtuse apex; sepals purple, oblong, 3-nerved, covered with white hairs, median obtuse and minutely apiculate, lateral connate above the middle, gibbous at base, connivent above over the lip and column, concave, narrowing to a shortly apiculate apex.—Lindl. Fol. Orch. Pleuroth. 43; Griseb. op. cit. 609; Cogn. op. cit. 414. Epidendrum testefolium Sw. Prodr. 122 (1788). Cymbidium testafolium Sw. in Nov. Act. Upsal. vi. 71 (1799) & Fl. Ind. Occ. 146.


Plant creeping, branch with leaf to 1½ in. 1. Rhizome long, creeping, rooting at the nodes, ringed, 1 mm.—or a little more—thick; sheaths about equal to internodes, membranous, obtuse, keeled. Secondary stems reduced, distant along rhizome, usually at every third node, 1 cm. or less apart, about 5 mm. 1., enveloped in a pair of overlapping truncate sheaths. Leaf 20-30 mm. 1., 10-20 mm. br. Flower purple, nearly 1/4 in. 1., single, sub sessile, subtended by a sheath; sheath ultimately about 6 mm. 1., persistent, accrescent, conduplicate, with a lacerate-winged keel. Ovary covered with white hairs. Sepals, median 5-5 mm. 1., 1-5 mm. br., lateral 6 mm. 1. Petals 2:5-3 mm. 1., erect, not quite half the length of the sepals, spatulate, crenulate at upper margin. Lip including the narrow claw (75 mm. 1), 2:75-3 mm. 1., broadly oblong-pandurate, shortly crenulate at the base, apex rounded, 3-nerved, margin with long hairs. Column slightly shorter than the petals; clinandrium membranous, curled-crenulate.


Plant 1 or 2 in. high. Stems about 2 mm. 1., closely clustered on a short densely rooted rhizome, and enveloped in scarious sheaths. Leaf 3-5 cm. 1., 8-10 mm. br., narrowly elliptical to elliptical-oblong, tapering into a long stalk, minutely emarginate. Peduncle closely surrounded by short blunt scarious sheaths. Ovary densely covered with long papillae.
Flowers about ½ in. l., brownish-red. Sepals papillose, 6 mm. l.; median nearly 2 mm. br. at base, broadly linear-tapering; lateral 2·5 mm. br. together, 2-nerved, about ¾-connate, free part acuminate. Petals about 2 mm. l., one-third as long as sepals, oval-oblong. Lip about as long as petals, short-clawed; limb narrowing from a broader base to a short linear recurved fleshy shortly pubescent tip. Column nearly as long as petals, narrowly margined, margins forming a slender tooth at each side near apex. Capsule about 5· cm. l., broadly ellipsoidal.

19. P. uncinata Fawc. in Journ. Bot. xxxii. 12 (1895); stem about as long as the leaf; peduncles much shorter than the leaf, three or four together, 1-flowered; leaf 8 or 9 in. l.; sepals and ovary rough.—Cogn. op. cit. 416. (Pl. 10.)


Plant about 15 in. high. Stems 12-24 cm. l., clothed with 5-7 loose scarious falcate sheaths, terete below, compressed and angular above, striate. Leaves 15-23 cm. l., 2·5-3 cm. br., oblong-lanceolate or lanceolate, with numerous prominent nerves. Peduncles 3-4 cm. l., rough; pedicels about 6 mm. l.; floral bracts 1·3 cm. l., reaching nearly to top of ovary, sheathing at the base, gradually tapering to an obtuse apiculate apex; spathaceous bract about 2 cm. l. at base of peduncles. Sepals purplish, surface rough on inner and outer sides, tomentose on outer side; median 1·7 cm. l., 5 mm. br., oblong, tapering to a subacute apex, 5-nerved; lateral 1·6 cm. l., 5·5 mm. br., free or shortly connate at base, oblong-elliptical, tapering to a subacute apex, 4-nerved. Petals about 8 mm. l., 2 mm. br., half as long as the lateral sepals, ob lanceolate, apex acute, 3-nerved, purplish above, orange-coloured at base. Lip slightly exceeding 7 mm. l., nearly as long as the petals, about 3 mm. br. above, purplish, indistinctly 3-lobed, 3-nerved; middle lobe roundish, margin with minute denticulations; lateral lobes conduplicate, uncinate, each forming a sharp curved hook pointing upwards, with a thickened margin above the hook. Column nearly 7 mm. l., narrowly winged in front, with a short foot. Ovary about 8 mm. l., about 3·5 mm. br. above, rough. Capsule 2·2 cm. l., 1·1 cm. br., ellipsoidal, surface rough and tomentose, with 6 furrows.

20. P. jamaicensis Rolfe in Journ. Bot. xcviii. 122 (1909); plant 1-1½ in. high; stems clustered, shorter than the leaf; peduncle one-half or one-third as long as the leaf, with one or a few flowers; sepals reddish-purple, lateral very shortly connate at base; petals linear-lanceolate, acuminate.—Cogn. op. cit. 422.

Without locality, Morris! Flowered at Kew in Sept. 1886 and on subsequent occasions.

Plant 1-1½ in. high. Secondary stems clustered, 1-2 cm. l., shorter than the leaf; sheaths tubular, apiculate, veined. Leaf shortly stalked, elliptical, obtuse, leathery, 1·5-2·5 cm. l. Racemes shortly stalked, with one or a few flowers, 1-1·5 cm. l. Bracts sheathing, shortly acuminate, 2 mm. l. Flowers light reddish-purple with a darker lip, scarcely ½ in. l. Sepals somewhat spreading, ovate-lanceolate, acute, 7-8 mm. l. Petals a little shorter than the sepals. Lip linear, obtuse, recurved, 2 mm. l. Column slender, curved, 1 mm. l.

21. P. delicatula Lindl. Fol. Orch. Pleuroth. 38 (1859); stems almost none, clustered; peduncle flexuose, generally much
longer than leaf, one flower developed at a time, but pedicels of
former flowers present (to 16); lateral sepals \( \frac{3}{4} \)-connate.—
*Griseb. op. cit. 608; Cogn. op. cit. 423.*

On trees in moist woods; in fl. Oct.–April; *Purdie*! near Mabess River,
3500–4000 ft.; near Troy, 2500 ft.; near Christiana, 3000 ft.; near John
Crow Peak; *Harris*! Ellen Aire, Moy Hall, *Sullivan*! slope of John Crow
Peak, 100 ft. above Mabess River, *Fawcett*! Fl. Jam. 7617, 7826, 8869,
9007, 10,399, 10,476, 10,478.

*Plant* (without the raceme) \( \frac{1}{2} \)-\( \frac{3}{4} \) in. high. *Stems* about 3 mm. 1., very
short, closely clustered, filiform, enveloped by the membranous sheath.
*Leaf* 1–2 cm. 1., including the stalk, ob lanceolate, margined, narrowed at
the base into a slender stalk. *Racemes* 2:5–4 cm. 1., generally much
longer than the leaf, but occasionally shorter, clustered, flowering solitary,
filiform, flexuose, with several (to 16) flowers, laxly secund or in two ranks.
*Bracts* about 1 mm. 1., short, half the length of the pedicels, sheathing,
obtuse, shortly apiculate. *Pedicels* about 2 mm. 1. *Flowers* about \( \frac{4}{5} \) in.,
greenish-yellow streaked with crimson or purple. *Sepals* 3:75 mm. 1.,
suberect, acuminate above and somewhat thick, obtuse; lateral narrowly
ovate, about \( \frac{3}{4} \)-connate; median oblong or lanceolate-oblong, keeled.
*Petals* about 2 mm. 1., half as long as the sepals, cuneate, fimbriate-
serrulate above, acute. *Lip* about 3 mm. 1., a little shorter than the
sepals, 3-lobed; middle lobe oblong or oblong-ob lanceolate, somewhat
thick; much exceeding the short broad incurved serrate lateral lobes.
*Column* a little shorter than the petals, upper margin dilated, serrulate;
climandrium 2 or 3-dentate. *Capsule* 6 mm. 1., obovate-elliptical, glabrous.

22. *P. Helenæ* Fawc. & Rendle in Journ. Bot. xcvii. 4 (1909);
stems very short, clustered; peduncle filiform, much longer than
the leaf, few-flowered; sepals caudate, lateral free; lip nearly
half as long as sepals.—*Cogn. op. cit. 424.* (Pl. 9, f. 9–14.) *Type*

2279, *Syme*! Mabess River, 3500 ft., *Harris*!

*Plant* \( \frac{1}{2} \)-2 in. high. *Stems* very short, clustered; sheaths tubular below, acute.
*Leaf* including stalk, 10–15 mm. 1., 2–3 mm. br., ob lanceolate-
elliptical or ob lanceolate-linear, narrowed at the base into the stalk.
*Racemes* 1:5–5 cm. 1., branched. *Bracts* sheathing, acute or apiculate.
*Flowers* \( \frac{3}{4} \) in. 1., pale green. *Sepals* about 3:25 mm. 1., pale greenish,
1-nerved, spreading, caudate, glabrous; median ovate, 1 mm. br.; lateral
lanceolate, free, narrower than median. *Petals* two-thirds as long as sepals,
2:6 mm. 1., \( \frac{7}{5} \) mm. br., pale greenish, ovate, fimbriate on the upper
margin, caudate at the apex. *Lip* half as long as the sepals when spread
out, 1:5 mm. 1., \( \frac{7}{5} \) mm. br., pale greenish marked with crimson, 3-lobed,
conduplicate, lateral lobes broadly rounded, fimbriate on the upper margin,
middle lobe ovate, obtuse. *Column* lined with crimson, including the
conical anther, as long as the lip, slender, thicker above; climandrium
3-toothed. *Capsule* obovoid-ellipsoid, 3–4 mm. 1., 2 mm. br.

The figures in the plate are from a detailed drawing by Miss H. A. Wood,
after whom the plant is named.

23. *P. lanceola* Spreng. Syst. iii. 731 (1826); stems very
short, clustered; peduncle about as long as the leaf; clustered,
only one flowering at a time, 2–4-flowered; lateral sepals connate


Plant 1¼ to 2¼ in. high. Stems generally 1–1½ cm. l., sometimes shorter, enveloped in scarious sheaths, filiform. Leaf 3–4 cm. l., 3–3½ mm. br., narrowing gradually below into a distinct stalk, linear-lanceolate, shortly apiculate, margins revolute when dry, midrib prominent on the under side. Pedicels ⅔ cm. l. Bracts about 1½ mm. 1., sheathing, truncate. Flowers nearly ½ in. 1., orange or scarlet. Sepals 5–6½ mm. 1., lanceolate, obtuse, 3-nerved, keeled, spreading at apex, lateral connate at the base, gibbous. Petals 2½ mm. 1., nearly half as long as the sepals, oblong-spatulate, with 1–2 nerves, prominent. Lip, as long as the petals, oblanceolate, 3-nerved, reflexed about the middle, with undulate margin there. Column scarcely shorter than the petals, winged; ciliation, margin crenulate. Capsule ⅔ cm. 1., ellipsoid to obovoid.


Plant barely an inch high. Rhizome less than 1 mm. br., slender, creeping, ringed, rooting at the nodes, covered with membranous sheaths. Stems less than 5 mm. 1., from 5 to 10 mm. apart, generally springing from alternate nodes or every third node of the rhizome, enclosed by sheaths. Leaf 1½–2½ cm. 1. Pedicules solitary, capillary, scarcely as long as the leaf, 1-rarely 2-flowered, with a short, truncate, 2-dentate, spathaceous bract at the base and above the middle, sometimes with 3 bracts; occasionally the peduncles of two preceding flowering seasons persist. Bracts barely exceeding 1 mm. 1. Flowers about ¼ in. 1., straw-coloured or light green. Sepals about 4 mm. 1., 1 mm. br., 1-nerved. Petals 3 mm. 1., 7½ mm. 1., linear-lanceolate, acuminate, 1-nerved. Lip 2½–2½ mm. 1., 4–7½ mm. 1., sessile, with minute square auricles at base, linear-lanceolate, margin undulate, denticulate about midway, recurved above. Column 1½ mm. 1., with a membranous wing. Capsule ellipsoid, 3-keeled, about 9 mm. 1.

25. P. mierolepanthes Griseb. op. cit. 610; plant not more than ½ in. high; stems clustered, shorter than the leaf; sheaths with mouth dilated, margined and ciliate; peduncle half as long as leaf; sepals yellow in drying, lateral connate nearly to apex.—Cogn. op. cit. 430.
ORCHIDS


Stems reduced, glabrous, 2-5 mm. l.; sheaths 2-3, tubular, with a glabrate deltoid mouth. Leaf margined, elliptical, or elliptical-roundish, somewhat pointed, tapering into the stalk, 8-6 mm. l., 4-6 mm. br. Racemes stalked, clustered, with 2-5 flowers. Flowers yellow and purple. Sepals ovate, acute, erect, scarcely 1 mm. l., yellow in drying; lateral connate nearly to apex. Petals minute, spathulate, half as long as the breadth of the sepals. Lip oblong, obtuse, a little shorter than the sepals.

26. P. foliata Griseb. op. cit. 610; stems clustered, with more than one leaf, much longer than leaf; sheath with mouth dilated, margined and ciliate; peduncle longer than leaf; sepals, lateral connate to apex; petals acute or acuminate; lip undivided.—Cogn. op. cit. 431. Type in Herb. Kew.

Without locality, Wilson!—Cuba.

A small plant 2 to 3 in. high. Stems 3-7 cm. l., puberulous at the angles, often somewhat branched or distantly 2-several-leaved. Leaf margined, elliptical or obvate, apex somewhat rounded and sometimes minutely apiculate, narrowed into the stalk (2-3 mm. l.), 12-8 mm. l., 5 mm. br. Racemes stalked, one or sometimes two, distantly 4-8-flowered, 15-25 mm. l. Pedicels 2-3 mm. l. Bracts acuminate, 1-1.5 mm. l. Flowers yellowish. Sepals oblong-lanceolate, erect, 2-3 mm. l., yellow in drying. Petals ovate, acute, half as long as the sepals. Lip linear, obtuse, puberulous above, a little longer than the petals, dark purple at apex.


Plant minute, ½ to 3 in. high. Stem 7 mm. l. Leaf 7 mm. l., nearly 3 mm. br., elliptical, narrowed at the base into a thin stalk. Sheaths 2 or 3, covering the stem. Scape 2 cm. l., one or few-flowered, solitary or two, filiform, flexuose. Bracts 6 mm. l., spathaceous, lanceolate, acute. Sepals, median 4-4.3 mm. l., 1.5 mm. br., lateral somewhat shorter and much narrower; median elliptical, apex caudate, 3-nerved, lateral 1-nerved. Petals 1.6 mm. l., 7 mm. br., oblong, narrowed at the base, 1-nerved, about one-third as long as the sepals. Lip 1.5-1.7 mm. l., nearly as broad, 3-nerved, middle lobe oblong, sometimes crenulate at the apex, a little longer than the rounded lateral lobes. Column a little over 1 mm. l.

23. LEPANTHES Sw.

Small or dwarf epiphytic herbs. Stems clustered, thin, erect, covered throughout the length with sheaths, and bearing
at the apex a single leaf; sheaths tubular, enlarging towards the margined oblique mouth, and marked with several vertical ridges. Leaf sessile or subsessile, rigid, elliptical or roundish elliptical, margined, minutely 3-toothed at the apex. Racemes axillary, solitary or clustered; flowers few or several, somewhat close together, in two ranks, generally minute. Sepals spreading or erect, more or less ovate, subequal, lateral more or less connate. Petals minute, the short claw adnate to the base of the column, the limb generally much wider than long. Lip adnate at the base or above the base of the column, 2-lobed, the lobes erect, parallel to the column, cuneate, with the upper edges thickened, forming flattened surfaces embracing the column; or sometimes simple, with or without two posterior lobes. Column short; anther terminal, opercular, generally obovate; pollinia 2, waxy, pear-shaped, pedicellate. Capsule obovoid.

Species about 50, on the mountains of tropical America and the West Indies.

§ 1. *Diplocheilus*. Lip dividing near the base into two erect, diverging lobes of which the upper edges thicken into more or less expanded lanceolate surfaces, embracing the column.

A. Breadth of petals shorter than length of sepals.

I. Breadth of petals longer than upper surfaces of lip.
   a. Posterior lobe of petal subequal to anterior.
      1. Sepals acuminate, lateral \( \frac{3}{4} \)- or less connate.
         Sepals ciliolate, lateral connate only at base ..................... 1. *L. pulchella*.
         Sepals glabrous, lateral \( \frac{3}{4} \)-connate 7. *L. divaricata*.
      2. Sepals acuminate, glabrous, lateral \( \frac{3}{4} \)-connate; petals rhomboidal ...... 9. *L. obtusipetala*.
      3. Sepals acute or obtuse, \( \frac{4}{3} \)-connate.
         Sepals ciliolate, lateral \( \frac{3}{4} \)-connate 2. *L. sanguinea*.
         Sepals glabrous, lateral \( \frac{3}{4} \)-connate.
         Petals deltoid or obversely deltoid.
         Plants 1\( \frac{1}{2} \)-2\( \frac{1}{2} \) inches high, petals obversely deltoid.
         Sepals acute, crimson ... 3. *L. Wullsclaegetii*.
         Sepals obtuse, yellow ... 4. *L. Woodiana*.
         Plants 4-7 inches high; petals acute, petals deltoid 10. *L. obtusa*.
         Petals lanceolate ............... 5. *L. Loddisiana*.
         4. Sepals connate nearly to apex .......
      II. Breadth of petals shorter than upper surfaces of lip ..................... 11. *L. arcuata*.
   b. Posterior lobe of petal nearly to apex ..
      4. Sepals connate nearly to apex .......
      II. Breadth of petals shorter than upper surfaces of lip ..................... 11. *L. arcuata*.

B. Breadth of petals about as long as length of sepals ........................................... 12. *L. cochllearifolia*.
§ 2. Haplocheilus. Lip not dividing near the base, but expanding variously above the petals.

Lip simple in outline.

Petals small, rounded.

Sepals free nearly to base ........... 15. L. brevipetala.


Lip prolonged posteriorly into 2 lobes.

Lip-lobes linear.

Anterior part of lip rounded ...... 17. L. tridentata.
Anterior part of lip square ....... 18. L. quadrata.


§ 1. Diplocheilus. Lip dividing near the base into two erect diverging lobes, of which the upper edges thicken into more or less expanded lanceolate surfaces, embracing the column.


In fl. throughout the year; top of Catherine Peak, Swartz's! Moody's Gap, J.P. 2031, Syne! Mabess River, 3000 ft.; John Crow Peak; Newhaven, 4000 ft.; Newhaven Gap, 5600 ft.; Gap to Vinegar Hill, 4000 ft.; Morse's Gap; ridge above Morse's Gap, 5300 ft.; Harris! John Crow Peak, Fawcett! Mow Hall, Sullivan! Fl. Jam. 7761, 7830, 10,085.

Plant less than an inch high. Stems 1 cm. or less in length, about as long as the leaves; mouth of the sheaths acute, ciliolate, ridges glabrous. Leaves, including the short stalk, 10–14 mm. l., 5–6 mm. br., oval, acute. Racemes 1½–2 cm. l., exceeding the leaf, generally 2–5-clustered, rarely solitary. Flowers about 5 in. l., several, three or four appearing at the same time. Sepals 6–8 mm. l., 2–3 mm. br., ovate, long-acute, ciliolate, lateral connate only at the base. Petals crimson, inclining to yellow at the ciliolate margin; apex obscure, indicated by an inconspicuous notch or tooth; lobes subequal, subtriangular, varying somewhat in shape, especially in breadth, more or less bluntly and asymmetrically triangular, the outer edges of the two forming an almost continuous line, 2½–4 mm. br. Lip crimson, minutely ciliolate, 1½–5 mm. br. Column to base of clinandrium 1 mm. l., crimson; anther subglobose, emarginate. Capsule (unripe), 5 mm. l., 6-keeled. (The flowers of some specimens are only about half the above measurement.)

Swartz's figure in Adnot. Bot. l. c. represents a larger plant than any that we have seen, having stems to 2 cm. and leaves to nearly 2 cm. l., 1½ mm. br.

2. L. sanguinea Hook. in Bot. Mag. 4112 (1844); sepal magenta-crimson, ciliolate, subacute, lateral 5/6-connate; posterior
lobe of petal subequal to anterior, breadth of petals shorter than length of sepals, longer than upper surfaces of lip.—*Griseb. op. cit.* 611; *Fawc. & Rendle op. cit.* 9, t. I. f. 16, 17.

In fl. throughout the year; near Mabess River, 4000 ft.; near John Crow Peak; Mt. Diabolo, 2500 ft.; *Harris*! Fl. Jam. 7616, 7747, 7825.

Plant ½ to 1 in. high. Stems 1 cm. or less l., shorter than the leaves; mouth of the sheaths acute, ciliolate, ridges muriculate. Leaves 1·2-1·8 cm. l., 5-8 mm. br., subsessile, oval to elliptical, shortly apiculate. Racemes 4-6 mm. l., ⅓ or ¼ as long as leaves, several clustered, few-flowered. Bracts acute, more or less hirsutulous on the dorsal nerve and margin. Sepals 1·5 mm. l., ovate, median 2·5-3 mm. br. Petals 2·7 mm. l., 2·5-3 mm. br., rose-coloured and crimson, somewhat equally extended on both sides, lobes oblong or oblong-elliptical, ciliolate, apex forming an almost straight line or slightly retuse. Lip deep crimson, upper margins elliptical to elliptical-lanceolate. Column short, dilated above; anther obovately orbicular, emarginate.

3. *L. Wullschlaegelii* *Fawc. & Rendle in Journ. Bot. xlvii.* 126 (1909); plant 1½-2½ in. high; leaves green; bracts ciliolate on keel and margins; sepals crimson, glabrous, acute, lateral ½-connate; petals obversely deltoid, apex abruptly apiculate, lobes subequal, glabrous, breadth of petals shorter than length of sepals, longer than upper surfaces of lip.—Type in Herb. Reg. Monac.

Beaufort, *Wullschlaegel, 1078!*

Plant 1½-2½ in. high. Stem longer than leaf, 2·5-6 cm. l., slender, sheaths long, slender, ciliolate on the ridges and at the ovate acuminate mouth. Leaves ovate, shortly acuminate, 2-2·5 cm. l., about 1 cm. br. Racemes shorter than the leaf; flowers many, in two ranks. Bracts clasping, broadly ovate, 1·1-2·2 mm. l. Sepals ovate, lateral, nearly 2 mm. l., 1·75 mm. br.; median nearly 2 mm. l., 1·3-2 mm. br. Petals 1·3-1·4 mm. br. Lip, upper surfaces lanceolate, 0·6 mm. l. Column long, 8 mm. l. Capsule small, obovoid, 2·5 mm. l.

Closely resembles *L. divaricata* in habit, but the structure of the flower brings it near to *L. obtusa* and *L. Woodiana.*

4. *L. Woodiana* *Fawc. & Rendle op. cit.* 6; plant 1½ in. high; bracts glabrous; sepals transparent yellow, glabrous, obtuse, lateral ½-connate; petals obversely deltoid, apex short, obtuse, lobes subequal, glabrous, breadth of petals shorter than length of sepals, longer than upper surfaces of lip.—(Pl. 11, f. 12-17.)

On trunks of trees; in fl. Feb.; Holly Mount, Mt. Diabolo, 2600 ft., *Harris*!

Stem to 3·5 cm. l., generally longer than the leaf; sheaths very acute, muriculate on the ridges. Leaf generally 8-14 mm. l., elliptical, subsessile. Racemes several, clustered, shorter than the leaf. Bracts somewhat acute. Flowers ⅓½ in. l., yellow, several. Sepals broadly ovate, median 2 mm. l., lateral barely as long as median. Petals slightly over 1 mm. br., a deeper shade of yellow than the sepals, shaded with crimson. Lip 0·5 mm. l., crimson, upper margins elliptical to elliptical-lanceolate. Column deep pink, short, dilated above; anther case white.

The specific name is given in honour of Miss H. A. Wood.

Highest parts of mountains.

*Plant* 1-3 in. high. *Stems* varying from 4 mm. to 5 cm. 1., generally shorter than the leaves; sheaths smooth. *Leaves* 3-7 cm. 1., oval, with shortly acute apex, tapering at the base into an obscure petiole. *Racemes* about half as long again as the leaves, solitary, 1-2-flowered. *Sepals* equal, ovate, median purple with a yellow edge, lateral yellow, slightly tinged with purple, the surface frosted with brilliantly glittering tubercles. *Petals* half as long as the sepals, deep purple. *Lip* downy, yellowish, lower part tinged with purple. *Column* short, with two small lateral horns.

We have not seen this plant. The description is compiled from the account and figure in the "Botanical Register," where it is assigned by Lindley to *L. tridentata* Sw. It differs widely from that species in the form of the petals and lip, which resemble somewhat those of *L. pulchella*.


Without locality, *Macfadyen*.

*Plant* about 2 in. high. *Stems* much longer than the leaf; sheaths with a subulate minutely ciliate limb. *Leaf* 12-16 mm. 1., 8 mm. br., elliptical. *Racemes* clustered, sometimes solitary, longer than the leaf. *Flowers* about ⅛ in. 1. *Sepals* deltoid, lateral cohering below the 2-dentate apex. *Petals* much smaller than the sepals. *Lip*, lobes diverging, spathulate, adnate to the middle of the column.

We have not seen this plant.

7. *L. divaricata* Fawc. & Rendle *op. cit.* 11, *t.* II. 27-29; sepals light yellow shaded with crimson down the centre, glabrous, acuminate, lateral ⅓-connate; posterior lobe of petals subequal to anterior, breadth of petals shorter than length of sepals, longer than upper surfaces of lip.

In fl. Aug.—April; Blue Mt. Peak, J.P. 14 (in part); Cinchona, J.P. 16 (in part); Morris! Moy Hall, Sullivan! John Crow Peak, 5500 ft.; Newhaven, 4000 ft.; ridge from Newhaven Gap to Vinegar Hill, 4000 ft.; near Woodcutters' Gap, 4000 ft.; ridge above Morse's Gap, 5300 ft.; Hardware Gap, 4500 ft.; Blue Mt. Peak, 7000 ft.; Harris! Fortland Gap; Morse's Gap, 4800 ft.; John Crow Peak; Fawcett! Retreat, J.P. 2031, Miss T. M. Barrett! Fl. Jam. 7758, 7828, 7833, 10,082, 10,127, 10,459.

*Plant* 3-8 in. high. *Stems* 2-5 cm. 1., rarely longer (to 15 cm.), much longer than the leaves; mouth and ridges of the sheaths minutely ciliolate. *Leaves*, including the short stalk, generally 2-3 cm., rarely to 4 cm. 1., 8-13 mm. br., often purple beneath, elliptical, acuminate. *Racemes* 2-3-5 cm. 1., several, clustered, sometimes shorter, sometimes longer than the leaves; flowers several, close together. *Sepals* very
variable in size, 4-6 mm. 1., 2-4 mm. br., ovate, acuminate; lateral ½-connate, apices diverging. Petals 2·5-3·5 mm. br., apex obscure, extended nearly equally on both sides; lobes '75-1·5 mm. br., linear to linear-oblung, obtuse; anterior half orange, posterior half crimson, the crimson colour sometimes extending nearly to the edge. Lip crimson, with more or less orange shading, upper surfaces lanceolate, anterior acute, posterior obtuse. Column crimson; anther light-purplish. Capsules 5 mm. l., 4 mm. br., obovoid, with 6 ridges.

The colour of the sepals varies with age; when the flower opens, it is a transparent light yellow slightly shaded with crimson down the centre; as the flower grows older the crimson shading extends almost to the edges showing very little of the yellow. When the flower opens, the tips of both lobes of the petals overlap, then they straighten, but in the old flower, converge again; when the lobe-tips converge, the apex of the petal appears distinctly acute, but when the petals are straight, the apex is not evident.

Var. minor Fawc. & Rendle loc. cit.

In fl. Sept., Moy Hall, Sullivan!

Plant smaller. Stems to 3 cm. 1. Leaves broadly elliptical, very shortly acuminate, rarely exceeding 1·5 cm. 1., 1 cm. br. Racemes to 2 cm. 1., slightly longer than the leaf. Sepal, median 3 mm. 1., barely 2 mm. br.; lateral 3·2 mm. 1. Petals less than 5 mm. 1., 2·5 mm. br. Upper surfaces of lip-lobes lanceolate, acute, a little over 2 mm. l.

8. L. ovalis comb. nov.; stem many times (3-5) longer than leaf; leaf 4-7 cm. 1.; sepals tawny yellow, sometimes flushed with crimson, deltoid, acute, lateral ½-connate; petals, posterior lobe much larger, elliptical, obtuse, anterior lanceolate, acute; breadth of petals shorter than length of sepals, longer than upper surfaces of lip; lip, upper surfaces scarcely longer than the anterior lobes of the petals, lanceolate-subulate, apex pointing abruptly upwards.—L. concinna Sw. in Nor. Act. Upsal. vi. 85 (1799); Fl. Ind. Occ. 1557 & Adnot. Bot. t. 2, f. 4; Griseb. op. cit. 611; Fawc. & Rendle op. cit. 10, t. II.f. 22-25. Epidendrum ovale Sw. Prodr. 125 (1788).


Plant sometimes as much as 10 in. high. Rhizome short, woody. Secondary stems, sometimes as much as 20 cm. l., barely 1 mm. br., slender, wiry, erect or suberect; sheaths thin, minutely ciliolate on the acute mouth and ridges; by the perishing of the sheaths, the older stems often become bare, exposing the cylindrical internodes, which often have a reddish tinge. Leaves, generally 4-7 cm. 1., 1·5-2·8 cm. br., elliptical, acuminate, shortly stalked. Racemes to 5 cm. 1., shorter than the leaves; besides the flowering peduncle, a number (sometimes as many as 15) of dried peduncles of former flowering seasons often form a dense cluster in the leaf-axil. Bracts glabrous, slightly acuminate. Flowers 8-16, in two close ranks in the upper 6-12 mm. Sepals deltoid, acute, 2·5-4 mm. l.; median 2·5-3·75 mm. br.; lateral 3·4-5 mm. br. Petals 2·5-3 mm br.,
posterior lobes 1.5–1.6 mm. × 1–1.3 mm.; orange, shaded on the inner side with crimson or purple; anterior lobes 1.4–1.5 × 0.75 mm., yellow. Lip crimson or purple; upper surfaces .75–1.1 mm. l. Column short, crimson, dilated above; anther obovate, apex retuse. Capsule 4 mm. l., 3 mm. br., obovate, gibbous at the apex, the pedicel elongating considerably in the fruit (7 mm. in our specimen).

9. *L. obtusipetala* sp. nov.; plant 4–7 in. high; stem many times (2–3) longer than leaves; leaf 3–5 cm. l.; bracts glabrous; sepals deltoid, acuminate, lateral ½-connate; petals rhomboidal, apex mucronate, lobes subequal, somewhat square, breadth of petals shorter than length of sepals, longer than upper surfaces of lip; lip, upper surfaces longer than anterior lobes of petals, narrowly obovate, tapering both anteriorly and posteriorly to an acute point.—*L. concinna* Sw. var. obtusipetala *Fawc. & Rendle* op. cit. 11 (1904). Types in Herb. Mus. Brit. and Jam. Herb.

In fl. June; J.P. 14 (in part) *Morris*! Portland Gap, 5550 ft., *Fawcett*! Plant much like *L. ovalis*, differing in some details given above, and also as follows: 4–7 in. high. *Stems* 7–14 cm. l. *Leaves* 1.5–2 cm. br. *Racemes* 1–2 cm. l., much shorter than the leaves, few (3–5) in a cluster, and most of them with one flower open at the same time, pedicels of 2–4 older flowers remaining on each peduncle. *Sepals*, median 4.5–5 mm. l., 3.7–4 mm. br., lateral 5 mm. l., together 4.5–5 mm. br. *Petals* 1.2 mm. l., 2.3–2.5 mm. br., posterior lobe a little larger than the anterior. *Lip*, upper surfaces of lobes 1.5–2 mm. l. (The flowers on some specimens measure scarcely more than half the above.)

On reconsideration, we are inclined to regard this as a distinct species.

10. *L. obtusa* *Fawc. & Rendle* op. cit. 11, t. II. f. 26; plant 4–5 in. high; stems (1½–2 times) longer than leaves; leaf 3.5–5.5 cm. l.; bracts glabrous; sepals crimson, glabrous, deltoid, acute, lateral ½-connate; petals somewhat deltoid, apex obtuse, surface minutely pubescent, lobes subequal, posterior somewhat rhomboidal, anterior obtuse triangular, breadth of petals shorter than length of sepals, longer than upper surfaces of lip; lip, upper surfaces a little longer than the anterior lobes of petals, posterior half oblong, anterior tapering to an acute apex.


Plant much like *L. ovalis* but smaller. *Stems* slender, 10–12 cm. l., much longer than the leaves. *Leaves* 1.2–2 cm. br., narrowly elliptical, acuminate, bright violet on lower side. *Racemes* 2 cm. l., scarcely half as long as the leaves, few (3–6) in a cluster, of which two or three have one (sometimes two) flowers open at same time. *Bracts* sheathing, shortly acuminate, about 2 mm. l. *Sepals*, median 5–6 mm. l. and br.; lateral,
5·5–6 mm. l., 6·3–6·5 mm. br. below the point of union. Petals 3·5 mm. br., crimson. Lip crimson. Column short, dilated above. Capsule 5 mm. l., broadly obovoid. (The flowers on some specimens scarcely measure more than half the measurements given above.)


On trunks of trees; in fl. and fr., Feb.; Holly Mount, Mt. Diabolo, 2600 ft., Harris!

Plant 1 to 1½ in. high. Stem 1·5–2·5 cm. l., longer than the leaf; sheaths ciliate on the mouth and ridges. Leaf 1·2–1·7 cm. l., narrowly-elliptical to roundish-elliptical. Racemes with several flowers, clustered, shorter than the leaf. Bract shortly acute, glabrescent. Flowers about 5 in. l. Sepals, median 2·3 mm. l., ovate-lanceolate, acuminate; lateral 2 mm. l., broadly ovate, acuminate, 1-nerved. Petals brick-orange-yellow, barely 1 mm. br., 3-lobed, lobes subequal, obtusely triangular. Lip brick-orange-yellow tinged with crimson, 1·5 mm. l., upper surfaces of lateral lobes much longer than the petals and column, 1 mm. l., linear-lanceolate, subfalcate. Column short, 3·6 mm. l., of a rather lighter shade of magenta-crimson than the sepals; anther white.

This species is near L. tridentata in appearance, but differs in the lip, the short column, and in other respects. Petals in breadth barely 1 mm., while those of L. tridentata are 1·5 mm. broad. Lip 1·5 mm. l., the lateral lobes nearly twice as long as the column, being 1 mm. l., whereas the lip of L. tridentata is just over 1 mm. l., the lateral lobes being barely 1 mm. l. The column is 3·6 mm. l. as contrasted with that of L. tridentata, which is 1 mm. l.

12. L. cochlearifolia Sw. in Nov. Act. Upps. vi. 86, t. 5, figs. 6, a, b (1799); stem much longer than leaf; leaf roundish, 1·5–2·5 cm. l.; sepals purple, lateral 3⁄5-connate; breadth of petals about as long as length of sepals.—Sw. Fl. Ind. Occ. 1563 & Adnot. Bot. t. 2, fig. 1; Griseb. op. cit. 611; Fawc. & Rendle in Trans. Linn. Soc. viii. 9, t. II. f. 18–21. Epidendrum cochlearifolium Sw. Prodr. 126 (1788). Type in Herb. Mus. Brit.

In fl. Sept.–April; summits of the Blue Mts., Swartz! Swift River, J.P. 463 (2679); Mt. Moses, 3500 ft., J.P. 2973; Syme! Browns Town, Miss T. M. Barrett! John Crow Peak, slopes of spur, 100 to 300 ft. above Mabess River, Fawcett! near Mabess River, 3500–4000 ft.; near John Crow Peak; Harris! Fl. Jam. 7788, 7828, 9015.

Plant less than 3 in. high. Stems 2–6 cm. l.; mouth of the sheath broadly open, apex acute; margin and ridges covered with numerous stiffish white hairs. Leaves 1–1·8 cm. br., sometimes tinged with purple, varying in shape from orbicular to broadly elliptical, shortly apiculate, narrowing at the base into a short stalk, the marginal and three principal veins uniting below the apex. Racemes generally less than 1 cm. l., less than half as long as the leaves, generally several clustered, lax, with few flowers. Sepals 5–6 mm. l., 3·3–5·5 mm. br., ovate, acuminate. Petals brick-orange-yellow, tinged with crimson towards the centre, with a short blunt apex and a short rhomboidal body 1·55 mm. l., shortly toothed at the lower corners and drawn out at the upper into longer tapering upcurving
horns; 6 mm. br., including the horns. Lip purplish-crimson; upper surfaces lanceolate. Column short, dilated under the apex; anther obovately rectangular, emarginate.

§ 2. *Haplocheilus*. Lip not dividing near the base, but expanding variously above the petals.


In fl. Sept.-Feb., above Mabess River, 3000 and 4000 ft., *Fawcett*! *Harris*! near Hardware Gap, 4300 ft.; ridge below Vinegar Hill, 3800 ft.; *Harris*! Fl. Jam. 7786, 10,095.

Plant 3/4 to 1 1/2 in. high. Stems 1-2.5 cm. l., rarely shorter, thin, usually exceeding the leaf; sheaths with acuminate mouth ciliolate, ridges muricate. Leaf narrowly elliptical, narrowing at the base into a short stalk 2-3 mm. l., blade 10-17 mm. l., 4-7 mm. br., obscurely apiculate. Racemes often several clustered, half as long as the leaf, lax, with a few flowers. Bracts subacute, almost glabrous. Sepals, median 3 mm. l. and br., concave and shaped like an open basket, mucronate; lateral 2.5 mm. l., forming an anterior bifid lip, like the dorsal but scarcely as wide, apices acute. Petals about 3 mm. br., apex obscure, the anterior lobe whitish-yellow, shortly subulate; the posterior lobe larger, dark crimson-purple. Lip about 2 mm. l., and somewhat broader when flattened; whitish-yellow, concave, 2- or 3-denticulate at apex, enclosing the column. Column short, dilated above; anther obovate, deeply emarginate. Capsule subglobose, gibbous, with six conspicuous keels, markedly asymmetrical.

14. *L. elliptica* Fawc. & Rendle *in Journ. Bot.* xlviii. 5 (1909); sepals crimson, lateral 3/4-connate; petals subulate; lip elliptical, apiculate.—(Pl. 11, f. 18-21.)


Plant 1 to 1 1/2 in. high. Stem 1-3 cm. l., exceeding the leaf; the large spreading hirsute sheaths and stems are much like those of *L. cochlearifolia*. Leaf 1-2 cm. l., 5.1-1.1 cm. br., sessile, elliptical, narrowing at the base. Racemes 2-several clustered or solitary, shorter than the leaf, with few flowers, bracteoles ciliolate at length glabrate. Flowers about 1 1/2 in. l., crimson. Sepals 3-5 mm. l., the median slightly over 2 mm. br., triangular-ovate, shortly acuminate, lateral similar to median. Petals only developed anteriorly into a subulate lobe reaching in bud to about the top of the anther. Lip small, simple, springing from the column. Column (without anther) 1 mm. l.


Plant 2 to 3 1/2 in. high. Stem 3-7 cm. l., robust for the genus, exceeding the leaf; sheaths large, spreading, much like those of *L. coch-
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learifolia, ferruginous-hirsute, mouth broadly open with acute apex. Leaves 2-5-4 cm. l., 7-1 cm. br., narrowly elliptical, obtuse. Racemes generally several clustered, often a little longer than the leaf. Flowers very small, \( \frac{1}{3} \) in. l., crimson, several. Sepals, median 1-4 mm. l., broadly ovate, obtuse, concave; lateral 1-2 mm. l., subacute. Petals \( \ast \) mm. l., simple. Lip 1 mm. l., a little more than 1 mm. br., concave, strongly 3-nerved. Column short, about \( \ast \) mm. l. Capsule 4 mm. l., ellipsoidal, with three narrow wings.

16. L. Harrisii Fawc. & Rendle loc. cit.; sepalas dark crimson-purple, lateral \( \frac{1}{2} \)-connate; petals short, shortly elliptical, rounded at apex; lip ovate-roundish, subcordate, rounded at apex.—(Pl. 11, f. 8-11.)

On trees; in fl. and fr. Feb.; Holly Mount, Mt. Diabolo, 2600 ft., Harris!

Plant about \( \frac{1}{2} \) in. high. Stem 3-4 cm. l., longer than the leaf; sheaths robust, ferruginous-hirtellous on the broad mouth and ridges. Leaf, blade 1-5-2 cm. l., 7-9 mm. br., elliptical. Racemes few-flowered, longer than the leaf; bracts acute, glabrous. Flowers \( \frac{1}{4} \) in. l., dark crimson-purple, less caduceous than usual. Sepals 2-5 mm. l., median long-ovate, 3-nerved; lateral lanceolate, 1-nerved. Petals \( \ast \) mm. l., like those of L. brevipetala, but twice as long. Lip 1-3 mm. l., strongly 3-nerved. Column short, \( \ast \) mm. l. Capsule ellipsoidal, 6-keeled.

17. L. tridentata Sw. in Nov. Act. Upsal. vi. 86 (1799); sepals yellowish, lateral \( \frac{1}{2} \)-connate; petals subrhomboid but extended transversely, truncate at the base, with the upper margins slightly concave, the posterior lobes embracing the column and meeting behind it; lip anteriorly rounded and suddenly mucronate, posteriorly with two erect awl-shaped lobes lying close to the column and of equal length to it.—Sw. Fl. Ind. Occ. iii. 1561 & Adnot. Bot. t. 2, f. 2; Griseb op. cit. 610, excl. syn.; Fawc. & Rendle in Trans. Linn. Soc. vii. 6, t. I. f. 8-11. Epidendrum tridentatum Sw. Prodr. 125 (1788). Type in Herb. Mus. Brit.

In fl. throughout the year; Blue Mts., Swartz! near Mabess River, 4000 ft.; Morse's Gap, 5000 ft.; near John Crow Peak, 5200 ft.; Harris! near John Crow Peak; near Newhaven Gap; Fawcett! Moy Hall, Sullivan!—Cuba.

Plant \( \frac{1}{3} \)-3 in. high. Stems 2-7 cm. l., very much longer than the leaves; sheath margins ciliolate, ridges muricate. Leaves somewhat elliptical, and tapering at base and apex, 1-5-2-4 cm. l., 5-7 mm. br. Racemes a little shorter than the leaf, 2-4-clustered, rarely solitary. Flowers numerous, in two ranks, closely crowded in the upper half or third of the raceme. Sepals 2-5 mm. l., ovate-acuminate; median 1 mm. br.; lateral 1-5 mm. br. at the point of union. Petals yellowish, suberect. Lip crimson. Column 1 mm. l., pink, scarcely dilated at the apex; anther white, roundly obcordate. Capsule 5 mm. l., subglobose, with prominent deep-purple keels.

Swartz describes the flower as purple-yellow.

18. L. quadrata Fawc. & Rendle op. cit. 7, t. I. f. 12-14; sepals purplish-crimson, lateral \( \frac{1}{3} \)-connate; petals with a short
blunt apex, the lobes of equal length, posterior ob lanceolate, converging, anterior linear; lip consisting of a large anterior subquadrate portion attached by a very short insertion on the column-base, with a shallowly notched broadly rounded apex, and produced behind into a pair of bluntly tapering narrow lobes about equal in length to the anterior portion.

In fl. Nov.–April; near John Crow Peak; near Mabess River, 3500 ft.; Holly Mount, Mt. Diabolo, 2700 ft.; Harris! Fl. Jam. 7746, 7824, 7827, 9016, 9893.

Plant about 1½ in. high. Stems to 2½ cm. l., longer than the leaves; mouth of the sheaths spreading, minutely ciliolate; ridges muricate. Leaves 1–1½ cm. l., 4–9 mm. br., oval to elliptical. Racemes generally several clustered, sometimes solitary, not half as long as the leaves. Bracts glabrous. Flowers few, distant. Sepals 3 mm. l., ovate-acuminate, ven tricose, margin and nerves ciliolate, lateral a little smaller. Petals 1½ mm. br. Column short, dilated above; anther ovoid, rectangular, emarginate. Capsule obovoid.

19. L. concolor Fawc. & Rendle op. cit. 5, t. I. f. 5–7; sepals pale yellow, lateral ½-con nate; petals obversely deltoid, at the apex unequally concave; lip anteriorly shallowly retuse with a short apicus, lobes thick, extended backwards and embracing the column.


Plant ½–1½ in. high. Stems generally 2–3 cm. l., much longer than the leaf; sheaths conspicuously ridged, the mouth (sharply acute) and the ridges minutely ciliolate. Leaf, blade generally 1 to 1½ cm. l., 5–8 mm. br., oval to roundish oval. Racemes 6–8 mm. l., generally shorter than the leaf, 1–3-clustered, lax, with a few flowers, one or two open at a time. Bracts glabrate. Flowers about ½ in. l., pale yellow. Sepals 3 mm. l., ovate, glabrous, lateral each barely 1½ mm. br. at union, median 2½ mm. br. Petals a little over 1 mm. l. and slightly broader, pale yellow. Lip 1½ mm. br., lobes 1 mm. l. Column short, dilated above. Capsule 4 mm. l., 3 mm. br., obliquely obovoid, 6-keeled.

The plant from Rose Hill differs from the other specimens in having the racemes longer than the leaf; they reach nearly 2 cm. The flowers, however, resemble those of specimens from other localities.

24. BRACHIONIDIDIUM Lindl.

Epiphytic herbs, forming a long prostrate rhizome, which often branches, and is more or less covered with scarious sheaths. Secondary stems with a solitary leaf, very short below the leaf, covered by one or two scarious sheaths. Leaf somewhat leathery, rather small, contracted at the base into a short petiole. Peduncle solitary, enclosed with the petiole in a scarious sheath with one flower and generally also an aborted bract. Sepals produced at
the apex into long tails, lateral connate nearly to apex. Petals similar to sepals. Lip small, jointed to foot of column. Column short, broad, erect, with a foot; clinandrium 3-lobed. Anther opercular, incumbent, somewhat flat, cordate, indistinctly 2-celled; pollinia 6, elongated, clavate, in two bundles. Capsule obovoid.

Species 5 or 6, natives of the Andes of Bolivia and Colombia, of Mt. Roraima in British Guiana, and of the West Indies.

B. Sherringii Rolfe in Kew Bulletin, 1893, 4.—B. parvum Cogn. in Fedde Repert. vi. 307 (1909), as regards the Jamaican plant. (Pl. 12.)


Plant 1–1½ in. high from the creeping or climbing rhizome. Secondary stems very short, 6–12 mm. l., enclosed by scarious truncate apiculate sheathes. Leaf oblanceolate, or oblong-lanceolate, narrowed into the petiole, 3-denticulate at apex, 7-nerved; blade 1·5–3 cm. l., 4–12 mm. br. Peduncle slender, longer than the leaf, 1·5–3·5 cm., springing from a scarious bract, bearing an acuminate sheathing bract at or below the middle, 3–4·5 mm. l., and a third at the apex, 2–3 mm. l., tubular, spreading, enclosing the short thick pedicel of the flower and a slender pedicel 4 mm. l., bearing an aborted bract. Flowers claret-coloured, sometimes tinged with tawny-yellow on the sepals, perianth 1 in. l. Sepals, median oval, acuminate, caudate, 1·2 cm. l. without tail, 3–4 mm. br.; tail reaching nearly 2 cm. l.; lateral connate, tail 2-fid at apex, similar to median but broader, 4–5 mm. br., tail 1·5 cm. l. Petals as long as the sepals, subfalcate, ovate, caudate, margin minutely ciliolate, 1–1·1 cm. l., 2·5–4 mm. br., tail 1·5 cm. l. Lip, in the fresh flower, apparently simple, horseshoe-shaped, embracing the column, attached by a rather broad claw to the foot of the column, purple; when spread out under the microscope, it is evidently 3-lobed, with a short, slender claw, 1·5 mm. l., middle lobe transversely oblong-elliptical, at apex mucronate, 3-nerved, 1 mm. br., lateral lobes oblong, incurved over the disk; breadth of lip at lobes 3 mm. Column broad, a little over 1 mm. l.

25. ISOCHILUS R. Br.

Stems erect from a creeping rhizome, covered with the sheaths of leaves, no pseudobulbs. Leaves in two ranks, spreading, linear or lanceolate, somewhat rigidly herbaceous, generally obtuse or retuse. Flowers medium-sized, rose-coloured, lake-magenta or crimson, in a terminal dense one-sided raceme, with very short stalks. Bracts concave, much shorter than the flower. Sepals equal, erect, keeled-concave, at the base somewhat saccate. Petals slightly shorter than the sepals, flat. Lip equal to the petals, and with them attached to the base of the column, contracted below the middle, and slightly sigmoid-flexuose, dilated towards the middle. Column erect, somewhat long, semiterete, not winged, at the apex at the sides of the stigma produced into two erect points, with a short foot; clinandrium little prominent,
with a short posterior tooth, bearing the anther. Anther terminal, opercular, convex, distinctly 2-celled; cells divided again into two cells by an imperfect longitudinal septum; pollinia 4, waxy, two in each cell, equal, ovoid-oblong, compressed parallel, erect, the appendage granular-viseous, laminiform, ascending from the base, incumbent on the pollinia. Capsule globose or ovoid, ribs only slightly prominent.

Species about 13, natives of warmer America from the West Indies to Brazil and Peru.


Plant 1 ft.–2 ft. 4 in. high. Stems 2–6 dm. l. Leaves 3 5–6.5 cm. l., 3–6 mm. br.; sheaths 1–2.5 cm. l. Racemes 1.5–3.5 cm. l. Bracts coloured like the flowers, obovate, 7–10 mm. l. Flowers about ¾ in. l. Ovary 2-winged. Sepals 2–3 nerves on each side of median curve, lateral with a strong keel, which is decurrent on ovary, and forms a mucro at apex, oblong, tapering near apex, shortly connate at base, about 10 mm. l., 3 mm. br.; median not keeled, oblong, abruptly acute, a little shorter and broader than the lateral. Petals 5-nerved, ob lanceolate-elliptical, apex obtuse, somewhat oblique at base, a little shorter and narrower than the median sepal. Lip 7-nerved, oblong, expanding in middle, tapering near the apex, and slightly tapering to base, curved from base inwards to embrace column and then outwards, 8–10 mm. l., 1–1.25 mm. br. Column ± 5 cm. l. Capsule 6-ribbed, two ribs prominent above, 7–9 mm. l., about 3 mm. br.

26. OCTADESMIA Benth.

Epiphytic herbs, with simple leafy stems. Leaves linear-oblong or broadly lanceolate, in two ranks, somewhat rigid but not fleshy, with numerous fine prominent nerves, jointed with, and deciduous from, the sheath. Peduncle terminal, simple, or slightly branched, the branches laxly few-flowered. Flowers medium-sized, shortly stalked. Bracts short, sheathing at the base. Sepals, all of about the same length, somewhat spreading, lateral somewhat falcate, connected under the lip into a slightly prominent chin. Petals somewhat like the lateral sepals. Lip suberect from the base of the column, free, oblong or roundish,
3-lobed, lateral lobes slightly prominent. Column somewhat long, slightly incurved, concave anteriorly, with a short foot; clinandrium obscurely 3-lobed. Anther terminal, opercular, incumbent, semi-globose, with two cells which are divided again. Pollinia 8, four in each cell, connected at the apices by a small amount of viscid substance. Capsule oblong or elongate, spindle-shaped, contracted into a short beak.

Species 2, natives of West Indies and Brazil.

Plant 1–2 ft. high ...................... 1. O. montana.
Plant reaching to 6 ft. high.............. 2. O. elata.


Plant 15–24 in. high. Stem 2–5 dm. l., covered below with sheaths, leafy above. Sheaths striate and with brown spots and minute warts, 2.5–3 cm. l., free portion short. Leaves 4–11 cm. l., 7–20 mm. br. Panicle (sometimes a raceme) 4–20 cm. l. Bracts minutely spotted and warty, free portion triangular, acute or acuminate; sterile 1–1.7 cm. l.; floral 5–1 cm. l. Ovary and pedicel each 4–5 mm. l. Flowers creamy-white, with a delicate scent of viola-ts, perianth over 1.5 in. l. Sepals 5-nerved, oblong-lanceolate, median 1.4–1.8 cm. l., 4–5 mm. br., apex obtuse; lateral rather shorter, apex thickened and shortly apiculate. Petals 3-nerved, linear-oblong, tapering to apiculate apex, 1.2–1.5 cm. l., 2.5–3.5 mm. br. Lip very shortly clawed, 5-nerved with numerous lateral nerves branching off, roundish in outline, disk 2-lamellate below, with minute warty calli along the three nerves of the terminal lobe, lamella 2-lobed; lateral lobes short, obtuse; terminal lobe much larger, minutely crenulate, apiculate, 9–10 mm. l., and about as broad. Column narrowly 2-winged, 6–6.5 mm. l. Capsule ellipsoid, 2.5 cm. l.

2. O. elata Benth. & Hook. f. Gen. Pl. iii. 525 (1883); leaves broadly lanceolate; lip longer than broad.—Type in Herb. Kew.

On trees, in rocky soil, and in peaty mould in forest; in fl. March; Mt. Moses, 3500–4000 ft., Syme! Harris!

Plant robust, erect, upright, reaching to 6 ft. high. Stem 15 or 16 dm. l., below bearing the fibrous remains of the leaf-sheaths, leafy above. Leaves, passing above into spathaceous bracts, blade 8–11 cm. l., 2–3 cm. br. Panicle 2 dm. l. Bracts, sterile 4–2 cm. l., floral about 1 cm. l. Ovary (fertilised) and pedicel, each generally about 1 cm. l. Flowers, perianth over 1.5 in. l. Sepals 7-nerved, narrowly oblong, slightly apiculate;
median 1.75 cm. l., 4 mm. br.; lateral keeled and slightly hooded towards apex, about 1.5 cm. l., barely 4 mm. br. Petals 5-nerved, narrowly oblong, slightly keeled and hooded, 1.5 cm. l., 3.5 mm. br. Lip sessile, 7-nerved with lateral nerves, obovate-oblong in outline, 1 cm. l., 7 mm. br., disk 2-lamellate below, lamellae and prominent middle nerve extending as prominent lines towards apex, lateral lobes rounded, terminal lobe much larger, at apex 3-lobulate, apiculate. Column about 7 mm. l.

27. CÆLIA Lindl.

Epiphytic herbs. Stems with several leaves, increasing at the base to form fleshy pseudobulbs. Leaves long, narrow, plaited, veinly. Scapes at the base of the pseudobulbs, short, simple, with imbricate subspathaceous sheaths at the base. Flowers medium-sized, densely racemose, shortly pedicellate. Bracts membranous or paleaceous, narrow, longer than the flowers. Sepals, all of about the same length, erect from the base, spreading above; median free, concave; lateral broader, connate at the base with the foot of the column, forming a short or long chin. Petals somewhat similar to the median sepal. Lip jointed at foot of column, narrow, incumbent at the base, spreading above, undivided, contracted into a flexuose claw. Column short, rather broad, acute, margined, produced at the base into a foot. Anther terminal, opercular, incumbent, semiglobose, perfectly 2-celled; pollinia 8, waxy, four in each cell, ovoid, cohering at the apex by a sparse viscid substance. Capsule prominently winged.

Species about 6, natives of the West Indies, Central America and Mexico.


Plant 1 ft. and more high. Pseudobulbs obovate-oblong, 3–5 cm. l. Leaves 3 or 4 from apex of pseudobulb, linear-lanceolate, long-tapering to base where they are articulated with closed sheaths, 2–4 dm. l. (incl. sheath), 1–2 cm. br. Scape 10–14 cm. l. Bracts linear-lanceolate, long-acuminate, 2–2.5 cm. l. Flowers white, perianth a little over ¼ in. l. Ovary with nine wings, three very broad, about 1 cm. l. Sepals 5-nerved, obovate, obtuse, about 7–5 mm. l., and 3 mm. br. Petals obovate, concave, obtuse, about 7 mm. l., nearly 2 mm. br. Lip with seven branching veins, obovate below, expanding to form an obscure lobe on each side about the middle, tapering to an obtuse apex, with a callus along the upper margin as far as the lobes, about 6 mm. l., more than 3 mm. br. at lobes. Column scarcely 2 mm. l. Capsule ellipsoidal, about 1 cm. l.
28. SERAPHYTA Fisch. & Mey.

Epiphytic herb. Stems leafy, sheathed at the base, scarcely fleshy. Leaves leathery, elliptical, oblong or lanceolate, in two ranks along the stem, with sheaths tightly adpressed. Panicle terminal, laxly and thinly branched, with small stalked flowers laxly racemose along the branches. Bracts minute. Sepals nearly equal, free, acute, somewhat spreading. Petals narrowly linear, nearly as long as the sepals, spreading. Claw of the lip as long as the column, with which it is connate forming a cup; limb broadly ovate-cordate, undivided, spreading; disc with a callus at the mouth of the cup. Column short, the wings forming a cup with the claw of the lip, foot wanting; clinandrium short, lateral lobes roundish, median obsolete. Anther terminal between the lateral lobes, opercular, incumbent, subglobose, thick and fleshy at the back, as if appendaged, 2-celled anteriorly, each cell divided again into two cells; pollinia 4, waxy, ovoid-globose, distinct, without an appendage, connected in pairs by a somewhat copious viscid substance elastically extensible into two threads, and often attached to the rostellum. Capsule broadly ellipsoidal, somewhat beaked, the ribs scarcely prominent.

Species 1, native of the West Indies, Mexico, Colombia and Surinam.


Plant 7–27 in. high. Stem 3–30 cm. l. Leaves 3–6 cm. 1., 1·5–3·5 cm. br. Panicle 1–3·5 cm. l. Bracts deltoid, acute, 1–2 mm. l. Pedicels 1–3 mm. l. Flowers yellowish-green, drying red, perianth about ¾ in. l. Sepals 3-nerved, linear-lanceolate, subacute, 7–5 mm. l., lateral somewhat oblique, 2–25 mm. br., median 1–75 mm. br. Petals 1-nerved, obtuse, 7 mm. l., 65 mm. br. Lip as long as lateral sepals, median nerve prominent below and forming a mucro at apex, limb about 5 mm. l., 3–5 mm. br. Column 2·5 mm. l. Capsule 13–18 mm. l.
29. ARPOPHYLLUM Llav. & Lex.

Epiphytic herb. Stems erect from a creeping rhizome, with one leaf at the apex, and covered below the leaf with ample sheaths. Leaf leathery, very long, folded together at the base, but not closed into a sheath. Peduncle terminal with one or two sheaths above the leaf; spike long, dense, cylindrical, with numerous medium-sized shortly stalked or stalkless flowers. Bracts very small. Sepals of nearly equal length, free among themselves, spreading, the lateral a little broader than the median, concave at the base, adnate to the foot of the column. Lip attached to the foot of the column, concave and somewhat saccate quite at the base, above the swelling contracted and incumbent, then erect; crenulate on the margin above. Column erect, slightly bent, not winged, produced at the base into a short foot; clinandrium little dilated, rostellum shorter. Anther opercular; incumbent, subglobose, 2-celled; pollinia 8, four in each cell, obovoid, acute or shortly acuminate, cohering into two groups by a sparse viscid substance. Capsule ellipsoidal, 3-keeled, 3-ribbed.

Species 5, natives of Jamaica, Mexico and Guatemala.


On rocks; in fl. March–May; Old England, 4000 ft., J.P. 26, Morris! Harris! Fl. Jam. 7652.—Mexico, Guatemala.

Plant 2 ft. high and over. Rhizome about 8 mm. thick, covered with sheaths, sending out very long stout roots. Stem 14–25 cm. l., compressed, of three or four long joints; sheaths short at base, increasing above to 11 cm.1. Leaves ligulate, flat above, keeled, 4–5 dm. l., 2 to nearly 3 cm. br. Peduncle 10–15 cm. l. to base of spike; spathe at base 9–13 cm. l. Spike 14–15 cm. l. Bracts triangular, acuminate, sterile, lowest clasping, 15–18 mm. l., higher 2–5–5 mm. l., floral 1–5 mm. l. Flowers light purple, stalkless, perianth ½ in. l. Sepals, lateral with 3 nerves branching from base, ovate-oblong, obtuse, slightly oblique, 6 mm. l., about 3 mm. br. at base; median 3-nerved, oblong, obtuse, 5–5.5 mm. l., 2 mm. br. Petals, 1 median nerve with a few pinnate nerves, oblanccolate-linear, apex rounded, margin erose above, about 5–5.5 mm. l., 16 mm. br. Lip about 5–5.5 mm. l., 7-nerved, not divided, hooded and erose above. Column 3–5–4 mm. l. Capsule 7–8 mm. l.

30. EPIDENDRUM Sw.

Epiphytic herbs. Stems leafy, sometimes fleshy, or at length thickened into a pseudobulb, sometimes thinner, sometimes branching. Leaves leathery or more rarely grass-like. Peduncle terminal on a leafy stem, simple or paniculate. Flowers medium-sized or somewhat small, racemose on a simple rachis or the branches of a panicle, shortly stalked, with small or narrow bracts, more rarely crowded on a very short, sessile raceme with
imbricate bracts. Sepals free, equal, spreading or reflexed, or more rarely somewhat erect. Petals somewhat similar to the sepals, or more rarely much narrower. Claw of the lip erect, adpressed to the column and more or less connate with it into a tube; lateral lobes obsolete or more rarely dilated embracing the column; blade spreading, undivided or 3-fid; disc with various calli. Column generally narrow, connate with the claw of the lip even to the apex, sometimes free, semiterete or more rarely 2-winged or 2-auriculate; clinandrium generally short. Anther terminal, opercular, incumbent, convex or semiglobose, distinctly 2-celled, each cell again divided longitudinally; pollinia 4, waxy, ovate or broad, equal, compressed from the side, in one series, connected in each cell by a granular-viscous appendage. Capsule ovoid or oblong, the ribs often very prominent, or sometimes winged.

Species about 750, widely dispersed through tropical America, a few extending to the southern States of North America.

I. Column connate with lip beyond its middle or even as far as the apex (but only to about the middle in E. cochleatum and E. spondiadum).

1. With pseudobulbs.
   Lip 3-lobed, with fringed lobes ........................ 1. E. ciliare.
   Lip entire.
   Lip greenish-white with purple streaks ... 2. E. fragrans.
   Lip purple ................................. 3. E. cochleatum.
   Lip indistinctly 2-lobed, cream-colour blotched with reddish-purple ............................ 4. E. spondiadum.

2. Without pseudobulbs.
   a. Floral bracts inconspicuous, much shorter than the flowers.
      Sterile bracts none, or a few similar to floral bracts.
      Flowers more than 1½ inch 1., apparently solitary.
      Flowers less than ½ inch 1.
      Flowers umbellate ......................... 7. E. difforme.
      Flowers in a raceme or panicle.
      Lip undivided ........................... 8. E. jamaicense.
      Lip 3-lobed with terminal lobe 2-partite.
      Lip longer than sepals, lateral lobes oblong, apex of lobes eroded... 9. E. verrucosum.
      Lip not longer than sepals, lateral lobes rounded, apex of lobes entire ............................ 10. E. patens.

Sterile bracts spathaceous.

Lateral lobes of lip entire.


Flowers in a crowded raceme, almost like a head; lateral lobes of lip roundish, almost obsolete .......... 12. E. anceps.

b. Floral bracts large, broad, concave, spathe-like, enclosing the ovary or even the flower. Lip undivided.
Leaves small, not more than 4 inches l. Leaves oblong-elliptical, 2 inches l.; spike longer than leaves.  14. *E. rigidum.*
Leaves linear-ligulate or linear-lanceolate.
Spike with few flowers.
Leaves linear, 3-4 inches l. Flowers ¼ inch l.  15. *E. ramosum.*
Leaves linear-lanceolate, ½ inch l.  16. *E. strobiliferum.*
Flowers solitary.  17. *E. repens.*
Leaves large; 6-8 inches l.  18. *E. imbricatum.*
Lip 3-lobed  19. *E. bifarium.*

II. Column free, or only connate below the middle with the lip (connate about half-way in *E. teretifolium*).

1. With pseudobulb.
   a. Lip undivided.
      Flowers solitary  20. *E. polybulbon.*
      Flowers racemose or paniculate.
      Lip somewhat similar to sepals and petals  21. *E. Ottonis.*
      Lip long-clawed, broadly ovate  22. *E. subaquitum.*
   b. Lip 3-lobed.
      Lip quite free.
      Lateral lobes rounded, median lobe rounded and not larger  24. *E. parvilobum.*
      Lateral lobes narrow, middle lobe differing in form, and much larger.
      Ovary rugose  25. *E. monticolum.*
      Ovary smooth  26. *E. belvederense.*
      Lip attached to column about one-third of its length  27. *E. angustifolium.*

2. Without pseudobulb.
   Stem with one leaf.
   Flower-stalk longer than leaf, with one flower  28. *E. brachyglossum.*
   Leaf serrulate, spike of flowers shorter than leaf  29. *E. serrulatum.*
   Stem with a few semi-terete fleshy leaves.
   Stem short with a few minute flowers clustered at apex  30. *E. globosum.*
   Stem long with one flower at apex  31. *E. teretifolium.*

On trees; in fl. July–Dec.; *Shepherd* in Herb. Kew!—Porto Rico, S. Thomas, Tortola, St. Cruz, St. Martin, St. Bartholomew, Saba, St. Eustatius, St. Kitts, Antigua, Guadeloupe, Dominica, Martinique, St. Lucia, St. Vincent, Bequia, Barbados, Grenada, Trinidad, Venezuela, B. Guiana, French Guiana, Colombia, Brazil, Guatemala, Costa Rica, Mexico, B. Honduras.

*Plant* 1½ ft. high and more. *Pseudobulbs* 1–2 dm. 1. *Leaves* leathery, oblong-ligulate to elliptical-oblong, obtuse, 1–2 dm. 1., 2.5–4.5 cm. br. Raceme with few or many flowers above, as long as the leaves, sometimes longer, clothed below with compressed keeled sterile bracts (2.5–5 cm. 1.). *Bracts*, floral large, spreading, broadly lanceolate, acute, 2.5–5 cm. 1. *Pedicels* about 1 cm. 1. *Flowers* large, sweet-smelling, pale yellowish-green with white lip. *Sepals* narrowly-linear-lanceolate, long acuminate, many-nerved, 4–5½ cm. 1., 3.5–5 mm. br. *Petals* like the sepals but slightly smaller, and somewhat falcate. *Lip*, lateral lobes 1–2 cm. 1., 2–3 mm. br., median lobe 3–3½ cm. 1. *Column* white, dilated above, 13–15 mm. 1. *Capsule* oblong-spindle-shaped, 4–5 cm. 1., 1.5–2–5 cm. br.; beak 2–2.5 cm. 1.

The sole authority for including this species rests on a specimen from Shepherd "from Jamaica" in the Kew Herbarium. If truly native, it is remarkable that so striking a plant should have escaped the notice of so many collectors from Swartz onwards.


On trees and rocks; in fl. all the year; *Swartz*! *Bertero, Distin! *Lane! Fairfield, Wulfschlaegel, 1066! Moneague, *Prior!* J.P. 11, *Morris!* Ramble, Hanover; *Bath! Fawcett! Silver Hill, 4000 ft.; *Dolphin Head, 1600 ft.; Harris! near Radnor, *Miss B. Gosset!* Fl. Jam. 7850, 10,441.—Cuba, Florida, Hispaniola, Dominica, Martinique, St. Vincent, Grenada, Trinidad, Venezuela, B. Guiana, Surinam, Brazil, Panama, Colombia, Ecuador, Nicaragua, Guatemala.

*Plant* 12–18 in. high. *Pseudobulb* 6–13 cm. 1., with a few, rather large scarious sheaths, soon decaying. *Leaves* leathery, ligulate-oblong, obtuse, 2.5–3 dm. 1., 2.5–4 cm. br. Raceme 6–10 cm. 1., with few or several flowers, much shorter than the leaf; spathe at base broadly ovate, compressed, about 4 cm. 1. (3–6). *Bracts* minute, triangular or triangular-lanceolate, acute or shortly acuminate, 3–6 mm. 1. *Flowers* fragrant, shortly stalked, perianth 1 in. or more 1. *Sepals* lanceolate, long-acuminate, 5–7 nerved, yellowish-white with greenish tint outside, 25–35 mm. 1., 3.5–5 mm. br. *Petals* oval-lanceolate, long acuminate, 7-nerved, yellowish-white, 22–28 mm. 1., 7–10 mm. br. *Lip* 11–13-nerved, 16–18 mm. 1. (to junction with column), 10–13 mm. br. *Column* greenish-white, short, 5–8 mm. 1., thicker above, at the apex three obtuse lobes with a long tooth on the inner side of the median lobe; anther indistinctly 2-lobed above. *Capsule* ellipsoidal, 2.5–3 cm. 1.

3. E. *cochleatum* L. *Sp. Pl.* ed. 2, 1351 (1763), excl. *syn. Sloane*; pseudobulb with one to three small joints at base and apex, ovoid-lanceolate or cylindrical, with two or sometimes
three leaves: lip purple, whitish round column, with conspicuous purple radiating veins, rarely yellow, on the upper side of flower, undivided, shell-shaped, coriaceous, broadly roundish, apiculate, with two calli at base; column connate with lip to about the middle.—Jacq. in. Pl. Rar. iii. t. 605; Andrews Bot. Rep. t. 13; Bot. Mag. t. 572; Grisct. op. cit. 616; Cogn. in Symb. Ant. iv. 175. Viscum caryophylloides &c. Catesby Nat. Hist. Carol. ii. 88 t. 88. Helleborine cochleato flore Plum. Pl. Amer. (Burm.) 9 t. 185, f. 2.

On trees and rocks; in fl. throughout year; Swartz! Fairfield, Wallischlaegel, 1064 bis! Newcastle Road, Prior! St. Ann (lip yellow), Steer! J.P. 10, 2153, Morris! Syme! Green River, G. Nichols! Silver Hill; Chester Vale, 3000 ft.; Vinegar Hill, 4000 ft.; Harris! near Radnor, Miss B. Gosset! Moneague; Mrs. Balston! Fl. Jam. 7676, 8000, 10,461. —Cuba, Bahamas, Florida, Hispaniola, Porto Rico, Costa Rica, Nicaragua, B. Honduras, Guatemala, Mexico, Venezuela.

Plant 1-2 ft. high. Pseudobulb 9-16 cm. l., with a few rather large scarious sheaths, soon decaying. Leaves oblong-lanceolate, acute, 2-3 dm. l., 2-3'5 cm. br. Raceme 2-5 dm. l., with few or several flowers, longer than the leaf; spathe at base 7-14 cm. l. Bracts small, triangular-lanceolate, acuminate, 5-12 mm. l. Flowers stalked, perianth 1 in. and more l., lip about ¼ in. l. Pedicels 1-2 cm. l. Ovary 3-cornered, about 1 cm. l. Sepals linear-lanceolate from a broad base, acute or acuminate, pale green or greenish-white with one or two purple spots at base, pendulous, 2'5-4'2 cm. l., 3-5 mm. br. Petals narrowly ob lanceolate, otherwise like sepals, but shorter and narrower. Lip 12-20 mm. l. Column purple below, white above, short, about 6 mm. l., thicker above; ciliandrium with three obtuse lobes. Capsule ellipsoidal, with three broad wings, recurved, about 4 cm. l.

4. E. spondiadum Reichb. f. in Bot. Zeit. x. 731 (1852); pseudobulb with one or two small joints at base, cylindric, sometimes slightly larger at base, with one leaf; lip reddish-purple with cream-coloured or yellowish-green margin, on the upper side of flower, coriaceous, broadly ovate with obscure lateral lobes, apex apiculate, two calli at base running up to a circular callus on the lower part of the disk, and level with top of column; column connate with lip to about the middle.—Hook. f. in Bot. Mag. t. 7273. E. variegatum Hart in Gard. Chron. xxvi. 11 (1886) (non Hook.).

On trees and rocks; in fl. and fr. Nov.—Feb.; Coldspring; Whitfield Hall; J.P. 245; Morris! Clydesdale, Harris! Fl. Jam. 7866.—Costa Rica. 

Plant 12-16 in. high. Pseudobulbs clustered along a creeping rhizome, 10-17 cm. l., with two somewhat large scarious sheaths, soon decaying. Leaves ligulate, obtuse, 2-3 dm. l., 3-3'5 cm. br. Raceme 8-11 cm. l., with a few or several flowers, much shorter than the leaf, spathe at base 3'5-4'5 cm. l. Bracts small, triangular, obtuse, 3-4 mm. l. Flowers shortly stalked, perianth more than ¼ in. l., lip about ¼ in. br., but not so long. Pedicels 4-6 mm. l. Ovary 3-winged, about 1 cm. l. Sepals somewhat fleshy, oblong, with an acute apex, creamy-white or greenish-yellow tinted with reddish-purple, 13-15 mm. l., 3'5-4 mm. br. Petals 7-nerved, somewhat fleshy, oblanceolate, acute, creamy-white or greenish-yellow with a reddish-purple blotch in the centre, 11-15 mm. l., 4-4'5 mm. br. Lip about 11 mm. l. from junction with column. Column short, about 5 mm.
Epidendrum 87

1; clinandrium with three lobes, lateral lobes obtuse, retuse or slightly 2-lobed, median lobe denticulate. Capsule ellipsoidal, with three broad wings, recurved, 3·5–4·5 cm. l.

5. E. nocturnum Jacq. Enum. Pl. Carib. 29 (1760); without pseudobulbs; bracts very much shorter than flowers; flowers solitary, perianth 1½ in. l.; ovary about 5 cm. l.; lip deeply 3-lobed, lateral lobes semi-ovate, obtuse, entire, about 2 cm. l., 5–7 mm. br., the median lobe about 2·5 cm. l., 1 mm. br., resembling petals; column connate with lip nearly to apex.—Jacq. Sel. Stirp. Amer. 225, t. 139, Ed. pict. t. 210; Sw. Obs. Bot. 327; Lindl. Gen. & Sp. Orch. 105 & Fol. Orch. Epid. 81; Hook. in Bot. Mag. t. 3295; Griseb. op. cit. 619; Cogn. in Fl. Bras. iii. pt. 5, 134, t. 37; Ames Orch. S. Fla. 16, t. 7. (Pl. 15, f. 2.)


Plant 14–15 in. high. Rhizome short, with numerous stout roots. Stems 10–40 cm. l., 4–3 mm. br., several, erect, long, stout, covered with the leaf-sheaths, the blades of which are fallen below, compressed and leafy above. Leaves 7–12 cm. l., generally from 2–3 cm. br., in two ranks, leathery, linear-oblong to oblong, apex rounded or slightly emarginate, at the base clasping and sheathing; sheaths slightly keeled. Bracts 3–7 mm. l., broadly ovate, acute, at base clasping. Flowers greenish-white or cream-coloured, sessile, five or six or more, in a terminal panicle, the rachis of which is scarcely developed, and generally remains enclosed by the leaf-sheaths, only one or two flowers generally appearing at a time. Ovary about 5 cm. l., as long as, or longer than, perianth. Sepals 4–4·5 cm. l., greenish-white or cream-coloured, narrowly lanceolate, acuminate, many-nerved, lateral 5 mm. br., slightly oblique, median slightly narrower. Petals as long as the sepals, 1–1·5 mm. br., whitish or cream-coloured, linear, long-acuminate. Lip as long as, or a little shorter than, the petals; disk with two long broad parallel lamellae. Column 15–18 mm. l., much dilated above, clinandrium dentate. Capsule 6 cm. l., about 1·5 cm. br., oblong, spindle-shaped, much attenuated above and at the base.

6. E. angustilobum Fawc. & Rendle in Journ. Bot. xlvii. 124 (1909); without pseudobulbs; bracts very much shorter than flowers; flowers solitary, large, perianth 1½ in. l.; ovary very long, 12·5 cm. l.; lip deeply 3-lobed, lateral lobes linear, acuminate, 7 mm. l., barely 1 mm. br., the median lobes three times as long, linear, long-acuminate, 2·2 cm. l., 1 mm. br.; column auricled, connate above the middle with the lip, about three-quarters of its length. (Pl. 15, f. 1.)


Plant over 2 ft. high. Stem high, erect, stout, terete at the base, bare above the base, compressed above, covered with the sheaths of the leaves,
with two leaves at the apex, 5 dm. 1., 4-10 mm. br. Leaves oval or elliptical-oblong, leathery, obtuse, many-nerved, at the base clasping and long-sheathing, blade about 11 cm. 1., 4-5 cm. br., sheaths compressed, slightly keeled. Panicle, rachis scarcely protruded and covered by sheaths. Bracts sheathing at the base, ovate-oblong, acute or somewhat acuminate, 7-8 mm. 1. Flowers cream-coloured. Sepals narrowly oblong, acuminate, many-nerved, 4:2-4:3 cm. 1. Petals as long as the sepals, linear, long-acuminate. Lip a little shorter than the sepals; disk with two narrow parallel lamellae at the base. Column 2 cm. 1., above very dilated; clinandrium with three posterior ovate acuminate lobes, and three anterior, the middle acuminate, and the lateral obtuse; anther purplish.


Plant 2-10 in. high. Stems 4-20 cm. 1., few or several, clustered, covered with leaf-sheaths. Leaves leathery, elliptical-oblong or ligulate, obtuse, obliquely retuse, clasping at base, blade 2:5-7:5 cm. 1., 1-2:5 cm. br. Bracts linear, 7-12 mm. 1. Flowers pale green or whitish. Pedicels 1-2:5 cm. 1. Ovary 1-2:5 cm. 1. Sepals with seven incomplete nerved prominent on inside, elliptical, median apex thickened, subacute, 15 mm. 1., about 5:5 mm. br.; lateral somewhat oblique, apex keeled at back, keel forming an acute point, 15-16 mm. 1., 6 mm. br. Petals 3-nerved, linear-lanceolate, 14 mm. 1., 2:5 mm. br. Lip with numerous nerves, 13-14 mm. 1., about 18 mm. br. Column short, about 1 cm. 1. (to apex of clinandrium), thicker above; clinandrium with denticulate margin. Capsule ellipsoidal, shortly and thickly beaked, 2:5 cm. 1., 1:5 cm. br.

8. E. jamaicense Lindl. Fol. Orch. Epid. 82 (1853); without pseudobulbs; bracts shorter than flowers; flowers in a raceme, perianth ⅔ in. 1.; lip undivided, roundish or broader than long, undulate, subentire, inconspicuously mucronate, two calli on disk at base; column connate with lip to apex.—Griseb. op. cit. 618.

On trees; in fl. Sept.; Manchester, Dunrobin Castle, Purdie! Cedar Hurst, Rose Hill, J.P. 431, Syme! near Cedar Hurst, 2400, Morris! near Bath, Harris!
Plants to 1 ft. high. Stems 2-3 dm. l., covered with leaf-sheaths, leafy above. Leaves oblong-lanceolate, very acute, longer than the raceme, blade 4-11 cm. l., 1-2 cm. br. Bracts triangular-lanceolate, acuminate, keeled, 12-15 mm. l. Pedicels 11-12 mm. l. Ovary rather longer than pedicel. Sepals ob lanceolate, 12-16 mm. l. Petals narrowly linear, slightly shorter than sepal s. Lip, limb 8 mm. l., 12 mm. br. Column short, branching upwards, 9 mm. l.; clinandrium hooded, undivided.

9. E. verrucosum Sw. in Nov. Act. Upsal. vi. 68 (1799); without pseudobulbs; bracts much shorter than flowers; flowers in a diffuse panicle, sepal s and petals ½ in. l.; lip much longer than sepals, 3-lobed with median lobe 2-lobed, lateral lobes and median lobes somewhat oblong with upper margins more or less eroded, three calli on disk at base; column connate with lip to apex.—Sw. Fl. Ind. Occ. 1497; Lindl. Fol. Orch. Epid. 92. (Pl. 15, f. 11.)


Plant 1-4 ft. high. Stems 1-6 dm. l., covered with leaf-sheaths. Leaves lanceolate or linear-lanceolate, acute, blade 8-14 cm. l., 18-30 mm. br.; sheaths covered with minute warts. Bracts triangular, acuminate, 2-5-4 mm. l. Flowers creamy-white or light yellow. Pedicels about 1 cm. l. Ovary about 1 cm. l. Sepals with seven to nine nerves, prominent on inside, elliptical, apex thickened, obtuse, 9 mm. l., 4 mm. br., lateral rather narrower and slightly oblique. Petals with three to five branching nerves, linear-ob lanceolate, 9 mm. l., 2-25 mm. br. Lip with numerous fine nerves, about 12 mm. l. Column short, about 5 mm. l. (to apex of clinandrium); clinandrium with four broad truncate lobes; anther slightly 2-lobed above. Capsule spindle-shaped, beaked, 2-5 cm. l.

10. E. patens Sw. in Nov. Act. Upsal. vi. 68 (1799); without pseudobulbs; bracts much shorter than flowers; flowers in a panicle; perianth nearly ½ in. l.; lip as long as median sepal, 3-lobed with median lobe 2-lobed, lateral lobes roundish, median lobes oblong, margins of lobes entire, three calli at base of median lobe; column connate with lip to apex.—Sw. Fl. Ind. Occ. 1495; non Lindl. in Paxt. Flow. Gard. i. Glean. 119, f. 198, nec Fol. Orch. Epid. 75; Griseb. op. cit. 617 (in part).

Stems 20-30 cm. l. Leaves, blade 5-10 cm. l., oblong or oblong-lanceolate; sheaths smooth. Bracts linear-lanceolate. Flowers pale yellow, shortly stalked. Sepals ob lanceolate-oblong, acute, median 1-1½ cm. l., lateral 9-1 cm. l. Petals ob lanceolate to elliptical, 1 cm. l. Lip 1-1½ cm. l. Column stout, concave in front, widening upwards, with a dorsal keel; clinandrium 3-lobed, median lobe broad, truncate, crenulate.

We have not seen any specimen from Jamaica, but a specimen in Herb. Mus. Brit. labelled in Solander's hand "Epipendrum patens fl. ind. occid., Barthol." agrees with Swartz's description. Swartz assigns the species to Jamaica and the Carribean Islands and cites Fahlberg as the collector. Samuel Fahlberg, a Swede, visited St. Bartholomew in 1785. The specimens referred by Lindley to this species, belong to the section Amphilottum, characterised by a closely sheathed peduncle, and have flowers ½ in. across.
11. *E. nutans* Sw. *Prod.* 121 (1788); without pseudobulbs; floral bracts much shorter than the flowers; panicle sheathed at base by two large spatheaceous bracts; lip cordate, 3-lobed, median lobe 2-lobed, lateral lobes subrotund or subrhomboid, disk with three lamelle, the lateral forming at the base two auriculate calli; column connate with lip to apex.—*Sw. Fl.* Ind. Oce. 1499; *Bot. Reg.* t. 17; *Hook. Exot. Pl.* t. 50; *Lindl. Pol. Orch.* Epid. 56; *Griseb. op. cit.* 616. (Pl. 15, f. 5.) Type in Herb. Mus. Brit.


*Plant* 1½–2 ft. high. *Stem* 4–5 dm. l. 7–10 mm. br., erect, stout, covered with leaf sheaths, leafy above. *Leaves* leathery, oblong to oblong-lanceolate, acute to subobtuse, clasping and sheathing, blade 12–20 cm. l., 3–5–5 cm. br. *Panicle* terminal, large, longer than the leaves, lax, many flowered, submutant; spatheaceous bracts much smaller than the leaves and passing above into the floral bracts, lower floral bracts linear, decreasing upwards, the uppermost 3–4 mm. l., triangular, acuminate, very much shorter than the pedicels. *Flowers* between ½ and ⅔ in l., greenish, or whitish-green, pedicels long; ovary and pedicel together 2–3 cm. l. *Sepals* 1½–1½ cm. l., 3–5 mm. br., oblong-lanceolate, distinctly 5-nerved, median obtuse, lateral acute, rather broader and longer. *Petals* a little shorter than the sepals, 3-nerved, subspathulate-linear, obtuse. *Lip* as long as or longer than the sepals. *Column* 1½–1½ cm. l., erect, thick, club-shaped; clinandrium with a tooth on each side anteriorly.

*Var. tridentatum* var. *nov.*; *E. tridentatum* *Fawc.* in *Journ. Bot.* aexxiii. 12 (1895); leaves narrower and more acute, sterile bract small or none, middle lobe of lip with three triangular lobules.

In fl. April, Blue Mts., *Harris*!

*Var. obtusifolium* var. *nov.*; stems reaching to 4½ ft. in length; leaves oblong to oblong-elliptical, obtuse, broader than in type; flowers smaller, generally dark-purple lip and column and the same colour on back of sepals; sepals broader than in type, 1½–3 cm. l. or less, 5–6 mm. br.; petals same length, barely 2 mm. br.; lip as long as the sepals, and as broad as long.


12. *E. anceps* *Jacq. Sel. Stirp. Amer.* 224, t. 138 (1763), *Ed. pict.* t. 208; without pseudobulbs; sheaths on long flower-stalk below, flowers crowded above almost into a head; floral bracts much shorter than the flowers; lip broadly kidney-shaped-cordate, 2-lobed at apex; column connate with lip nearly to apex.—*E. fuscatum* *Smith Spicil.* 21, t. 23 (1791);
13. *E. rivulare* Lindl. Ann. & Mag. Nat. Hist. ser. 3, i. 330 (1858); without pseudobulbs; stems long; slender; leaves linear-lanceolate; base of peduncle clothed with closely-sheathing, sub-foliouscous sterile bracts; flowers few above, long-stalked, lax, somewhat cortyombose; floral bracts much shorter than the flowers; lip 3-lobed, lateral lobes large, fringed; median lobe linear; 3-toothed at dilated apex; disk with two calli at base; column connate with lip to apex.—**Griseb. op. cit. 616.** (Pl. 15, f. 7.)


**Plant** 1½–2 ft. and over. **Stem** to 6 dm. and over, covered by the leaf-sheaths. **Leaves** 6–12 cm. l., 8–11 mm. br. **Peduncle** 7–12 cm. l., sterile bracts in two rows, compressed, tapering upwards, keeled above, imbricating, to 5 cm. l. **Raceme** short, rarely branching, 2–3 cm. l. **Bracts** lanceolate, acute, 10–4 mm. l. **Flowers** yellowish-green speckled with red, lip white or light yellow, column tipped with red, perianth nearly ¾ in. l. **Ovary** slender, 12–13 mm. l. **Pedicel** about 15 mm. l. **Sepals** with 7-nerves prominent on outside, oblong-lanceolate, acute, 1½–1·6 cm. l., 3½ mm. br. **Petals** 1-nerved, linear, as long as sepals. **Lip** about 1 cm. l. above attachment to column. **Column** thicker above, 7–8 mm. l.; clinaendrium with two shallow lobes at each side. **Capsule** ellipsoid, tapering to base, and forming a beak at apex, about 3 cm. l., 1 cm. br.

14. *E. rigidum* Jacq. Enum. Pl. Carib. 29 (1760); without pseudobulbs; stems erect from a creeping rhizome, compressed;
leaves leathery, ligulate-oblong or oblong-elliptical, obtuse, bracts ample, broadly triangular, obtuse, keeled, keel deciduous, clasping, as long as ovary and enclosing it; lip on the upper side of the flower, leathery, a little longer than the sepals, undivided, roundish-ovate, cordate, apex obtuse, disk with two calli at base; column connate with lip to apex.—Jacq. Sel. Stirp. Amer. 222, t. 134. Ed. pict. t. 204; Sw. Prodr. 121 & Fl. Ind. Occ. 1507; Hook. Ic. Pl. t. 314; Lindl. Fol. Orch. Epid. 76; Griseb. op. cit. 618; Cogn. in Fl. Bras. iii. pt. 5, 171.


Plant 4–10 in. high. Stems somewhat stout, simple, covered by the leaf-sheaths, 5–14 cm. l. Leaves, blade 2–6.5 cm. l., 1.2–2 cm. br.; sheaths 1–2 cm. l. Spike 3–11 cm. l., longer than the leaves, simple, very compressed, with two winged edges. Bracts 10–15 mm. l. Flowers few or several, green, perianth about ½ in. l. Sepals 6–7-nerved, leathery, oval, apex with thickened margin, somewhat acute, 6 mm. l., 3 mm. br., lateral slightly oblique. Petals 3-nerved, linear, obtuse, as long as the sepals, 1 mm. br. Column short, thick, 3 mm. l.; clainandrium denticulate on margin. Capsule ellipsoid, with a short and thick beak, 16–20 mm. l., 8–9 mm. br.

15. E. ramosum Jacq. Enum. Pl. Carib. 29 (1760); without pseudobulbs; spike with few flowers; bracts ample, elliptical-ovate, obtuse, sometimes acute, slightly keeled at apex, hooded, as long as, or scarcely longer than the ovary and enclosing it; leaves leathery, linear-ligulate, apex obliquely emarginate; lip on the lower side of the flower, slightly shorter than the sepals, leathery, with numerous nerves, undivided, ovate, cordate, acute, with two calli at base of disk which unite above and form a rib running to apex; column connate with lip nearly to apex.—Jacq. Sel. Stirp. Amer. 221, t. 132, Ed. pict. t. 202; Sw. Prodr. 120 & Fl. Ind. Occ. 1505; Lindl. Fol. Orch. Epid. 76; Griseb. op. cit. 618; Cogn. in Fl. Bras. iii. pt. 5, 172. (Pl. 15, f. 12.)


Plant 1–3 ft. long. Stems to 1 m. l., much branched. Leaves sheath-
ing at the base, 2-9 cm. l., 3-13 mm. br. Spike terminal on the branches, shorter than the leaves, or as long, laxly few- or several-flowered, 2-3 cm. l. Bracts becoming scarious and white, 9-11 mm. l. Ovary with a cavity above, within its walls, below the lip. Flowers greenish, perianth about \( \frac{1}{2} \) in. l. Sepals 5-9-nerved, lateral ovate-oblong, slightly oblique at base, keeled outside near apex, point of keel 3-denticulate, acute, 8 mm. l., 2-75 mm. br.; median oblong, slightly keeled outside at apex, keel ending in a small tooth, 8 mm. l., 2-25 mm. br. Petals 5-nerved, linear, somewhat acute or obtuse, shorter than the sepals, 7-8 mm. l., 1 mm. br. Lip 3-5 mm. br. Column 2-2-5 mm. l., short, thick, thicker upwards; clinandrium, lateral lobes very broadly ovate, median lobe very short, 2-denticulate. Capsule ellipsoidal-ovoid, with a short, thick beak, 10-12 mm. l., 6-8 mm. br.

16. E. strobiliferum Reichb. f. in Nederl. Kruidk. Arch. iv. 333 (1859); without pseudobulbs; spike with few flowers; bracts ample, somewhat leathery, scarious, strongly nerved, plicate-hooded, broadly ovate, obtuse, keeled, clasping, nearly as long as the flowers, somewhat densely imbricate in two ranks; leaves in two ranks, fleshy-leathery, small, shortly ligulate-oblong or linear-lanceolate, at the apex obtuse, or subtruncate or sometimes obliquely emarginate, at the base half-clasping and shortly sheathing; lip on the upper side of the flower, leathery, about as long as the sepals, undivided, broadly ovate-cordate, acute, sub acuminate, disc with several, somewhat prominent nerves; column connate with lip nearly to apex.—Griseb. op. cit. 618; Cogn. op. cit. 174, t. 25, f. 2; Ames Orch. i. 37, t. 10.


Plant 1-6 in. high. Stems clustered, branching, generally leafy to the base, 3-15 cm. l. Leaves, blade 1-5-2 cm. l., 4-6 mm. br.; sheaths 5-9 mm. l. Spike very short, 5-8 mm. l., shorter than the leaves, with 3-6 flowers. Bracts 5-6 mm. l. Ovary with a cavity below the lip. Flowers, perianth about \( \frac{1}{2} \) in. l. Sepals with seven or eight prominent nerves, lateral oblong-lanceolate, acute, about 4 mm. l., 1-75 mm. br.; median oblong, tapering slightly to a somewhat blunt point, as long as the lateral, 1-25 mm. br. Petals with three to five prominent nerves, linear, a little shorter than the sepals, 5 mm. br. Column 1-5 mm. l., short, thick, thicker about the middle; clinandrium with two teeth on each side, one long and one short, and two short teeth behind. Capsule ellipsoidal, with short thick beak, 8-9 mm. l., 5-6 mm. br.

17. E. repens Cogn. in Fedde Repert. vii. 122 (1909); without pseudobulbs; bracts two or three, with a solitary flower, ample, triangular-ovate to roundish, obtuse, slightly keeled, overlapping, clasping, as long as or longer than ovary and enclosing it; leaves somewhat rigid, small, narrowly ligulate-oblung, apex rounded and obliquely and slightly emarginate, at the base roundish-subcordate and shortly sheathing; lip erect on the
upper side of the flower, slightly shorter than the sepals, leathery, with numerous nerves prominent on the outside and sometimes slightly on the inside, undivided, ovate, cordate, acute; column connate with lip nearly to apex.


Plant 1-1½ ft. long or longer. Stems long, creeping, slender, much and irregularly branched, with many leaves even to the base, 3-4 dm. l. or longer. Leaves, blade 1·5-2 cm. l., 4-6 mm. br.; sheaths 6-8 mm. l. Bracts 5-6 mm. l. Ovary with a cavity above, within its walls, below the lip. Flowers terminal at the apex of branches, solitary; perianth scarcely ⅓ in. l. Sepals leathery, with seven to nine prominent nerves, ligulate-lanceolate, shortly acuminate, 7-8 mm. l., 2 mm. br., median sepal slightly longer. Petals 3-5-nerved, narrowly linear, very acute, a little shorter than lateral sepals, about 7 mm. br. Column 2·5 mm. l., very short, thick, thicker upwards; ciliaendrium 3-lobed, lateral lobes triangular, acute, longer than median. Capsule erect, ovoid-subglobose, with short beak, 11-12 mm. l., 7-8 mm. br.

18. **E. imbricatum** Lindl. Gen. & Sp. Orch. 110 (1831); without pseudobulbs; bracts ample, spathe-like, leathery, broadly ovate, obtuse, concealing the flower in bud, keeled above; leaves large, leathery, ligulate-oblong, obtuse; lip undivided, leathery, ovate, obtuse, obliquely apiculate, cordate, strongly 1-ribbed; column connate with lip to apex.—Lindl. Fol. Orch. Epip. 78; Cogn. in Fl. Bras. iii. pl. 5, 170, t. 14, f. 2. (Pl. 15, f. 9.)


Plant 15 in. high and more. Stem 40 cm. l. and more, long, stout, branching, covered even to the apex with truncate, adpressed, sheathing bases, from which in the lower part the blades have dropped, succeeded near the base by simple sheaths. Leaves, blade 9-18 cm. l., 1-2 cm. br. Spikes several-flowered, much shorter than the leaves. Bracts 2·1-2·5 cm. l. Flowers white, sessile, about ⅔ in. l. Sepals 12-14 mm. l., 3-5 mm. br., leathery, equal, narrowly oblong, subacute to acute, keeled above. Petals 11-13 mm. l., 1-2·5 mm. br., a little shorter and much narrower than the sepals, linear-lanceolate to oblanceolate, acute. Lip a little shorter than the petals, 8-10 mm. l., 6 mm. br. Column 4-5 mm. l., short, thick; ciliaendrium obtusely auricled. Capsule 2·5 cm. l., 12 mm. br., ovoid, constricted at apex, slightly 6-ribbed.

19. **E. bifarium** Sw. in Nov. Act. Upsal. vi. 68 (1799); without pseudobulbs; spike long, 2-edged, many-flowered; bracts ample, spathe-like, compressed, keeled, triangular, sheathing, acute, about as long as the ovary; flowers pale greenish shaded with reddish-brown; petals setaceous, white; lip 3-lobed; column connate with lip nearly to apex.—Sw. Fl. Ind. Occ. 1509 & Le. ined. t. 42; Lindl. Fol. Orch. Epip. 78; Griseb. op. cit. 618.
E. anceps *Sw. Prodr.* 121 (1788) (non Jacq.). (Pl. 15, f. 6.) Type in Herb. Mus. Brit.


Plant 6–13 in. high. Stem 5-15 cm. l., leafy, covered with leaf-sheaths, sometimes decayed below, branching below, throwing out very long slender roots. Leaves fleshy, linear-lanceolate, cordate, clasping, somewhat falcate, 3–6 cm. l., 4–8 mm. br. Spikes much longer than the leaves, 10–25 cm. l. Bracts 5–10 mm. l. Flowers, perianth about \(\frac{1}{2}\) in. l. Sepals 3-nerved, oblong-elliptical, tapering to the keeled apex, lateral slightly falcate, 6–7 mm. l., 3 mm. br.; median as long, but a little narrower. Petals 5 mm. l. Lip 5–6 mm. br., greenish-yellow, lobes somewhat equal, broader than long, lateral somewhat roundish, with undulate margin, median 2-lobed, apiculate; disk with two calli at base. Column short, thick, laterally compressed, thicker upwards, 3–4 mm. l.; clinandrium, margin undulate. Capsule spindle-shaped, long-tapering at base and apex.


Plant 2 or 3 in. high. Rhizome jointed, covered with remains of decayed sheaths. Pseudobulb ellipsoidal to cylindrical, with a short joint at apex, rising directly from the rhizome or on branches of it, 1'5–2'5 cm. l., covered at first with two scarious sheaths which soon decay. Leaves linear-oblong to oblong-elliptical, obtuse, obliquely marginate, with numerous nerves, half-clasping at base, 2–5 cm. l., 7–14 mm. br. Ovary cylindrical, with stalk about 3 cm l.; stalk with 3 bracts. Bracts sheathing below, shortly acuminate, about 1 cm l. Flowers, perianth a little more than \(\frac{1}{2}\) in. l. Sepals 5-nerved, lanceolate-linear, very acute, spreading, 15–17 mm. l., 2–5 mm. br. Petals like the sepals but narrower. Lip white, subroundish-cordate, clawed, as long as the sepals, 10–11 mm. br. Column short, 2-angled and with two projecting teeth in front, and two long, subulate, erect teeth, one on each side, 4–5 mm. l. Capsule cylindrical, narrow.

21. *E. Ottonis* Reichb. *f. in Hamburg. Gartenz.* xiv. 213 (1858); pseudobulbs with one long narrow leaf and flowering stalk nearly as long as leaf; flowers cream-coloured; lip undivided, somewhat similar to sepals and petals; column quite free.—*Griseb. op. cit.* 613; *Cogn. in Symb. Ant. iv.* 173. (Pl. 15, f. 8.)

Plant 6-8 in. high. *Pseudobulbs* on short many-jointed clustered branches of a creeping rhizome, covered with three or four scarios sheaths, of which one is longer than pseudobulb, ellipsoidal, 2-2·5 cm. 1. *Leaves* linear-ligulate, obtuse, mucronate, 9-15 cm. 1., 6-9 mm. br. *Peduncle* many-jointed, covered with bracts, 7-10 cm. 1. *Bracts*, sterile and floral similar, folded together and compressed, linear-lanceolate, acuminate, 12-15 mm. 1. *Ovary* smooth, 8-10 mm. 1. *Pedicel* 2 mm. 1. *Flowers*, perianth about $\frac{4}{5}$ in. 1. *Sepals* 5-nerved, lanceolate, shortly acuminate, 8-9 mm. 1., 2-3 mm. br., lateral slightly falcate. *Petals* ob lanceolate, acute, 3-nerved, 6-6·5 mm. 1., 2-2·5 mm. br. *Lip*, margin undulate, nearly as long as petals, 5·5-6 mm. 1., 2 mm. br. *Column* 4 mm. 1., thicker upwards, slightly winged at the sides; clinandrium 5-toothed; anthers 3, the lateral anthers apparently somewhat aborted, obtuse at apex and sides. *Capsule* narrowly ellipsoidal, with three shallow keels, very shortly beaked, 14-15 mm. 1., 5 mm. br.

22. *E. subaquillum* Lindl. in Bot. Reg. xxxii. sub. t. 64 (1846); pseudobulbs with one leaf and panicle longer than, or about equal to, leaf; lip undivided, broadly ovate above claw; column almost free.—*Lindl. Fol. Orch. Epid.* 5. E. Harrisii Fawc. in *Symb. Ant.* i. 291 (1899).


*Plant* 8-12 in. high. *Pseudobulbs* densely clustered, with three or four scarios sheaths, soon splitting into ribbons, of which two are longer than the pseudobulb, ovoid, 2-2·5 cm. 1., about 1 cm. br. *Leaves* linear-ligulate, obtuse, obliquely emarginate, 8-19 cm. 1., 3·5-6 mm. br. *Scape* slender, paniculate, 16-27 cm. 1. *Bracts* sterile, small, few, distant, sheathing, adpressed, triangular, acute or obtuse, 4-6 mm. 1.; floral smaller, spreading, subulate. *Ovary* about as long as the pedicel, about 4 mm. 1. *Flowers* greenish-yellow striped with reddish-brown, perianth $\frac{4}{5}$ in. 1. *Sepals* 3-nerved, linear-lanceolate, somewhat acute, 8-9 mm. 1., 2 mm. br., median slightly narrower. *Petals* 1-nerved, linear, 7-8 mm. 1., less than 1 mm. br. *Lip* embracing the column, disk with three calli, as long as the sepals. *Column* 4-5 mm. 1., slightly thicker above, 2-edged; clinandrium with two short rounded lobes. *Capsule* ellipsoidal, 10-11 mm. 1., 5-6 mm. br.

23. *E. bleitoides* Griseb. *Fl. Br.* W. Ind. 615 (1864); pseudobulbs with two (?) leaves and a scape longer than leaf; lip undivided, concave, elliptical, pointed, with two linear crests below the middle, claw very short; column free.

Hanover, *Purdie*! near Browns Town, Miss T. M. Barrett (in Herb. Kew.,)!

*Plant* 1-1½ ft. high. *Pseudobulbs* ovate-lanceolate, 3·5 cm. 1. *Leaves* fleshy, oblong, apex rounded, 12-15 cm. 1., about 2·5 cm. br. *Scape* with flowers distant in a spreading panicle, or racemose. *Bracts*, sterile distant, short, adpressed-sheathing, blunted, about 1 cm. 1.; floral short, broadly clasping, acute, much shorter than the pedicel, 3 mm. 1. or less. *Flowers*, perianth $\frac{4}{5}$ in. 1. *Sepals* oblong-lanceolate, acute, 12-13 mm. 1. *Petals* oblong to slightly ob lanceolate, acute, as long as sepals. *Column* obovate, sharply 3-dentate at the broad summit, 7 mm. 1. *Capsule* (immature) spindle-shaped, keeled, 2·5 cm. 1.
24. **E. parvilobum** Fawc. & Rendle in *Journ. Bot.* xlvii. 123 (1909); pseudobulbs with one leaf and panicle much longer than leaf; lip 3-lobed, lateral lobes obovate, somewhat roundish, middle lobe small, semicircular, minutely apiculate, disk with three thick raised lines and near the base a large callus; column quite free. — (Pl. 16, f. 5–7.)

On trees; in fl. May; Dolphin Head, 1600 ft., *Harris*! *Fl. Jam.* 10,439.  
*Plant* 2 ft. high.  
*Pseudobulbs* 3–5 cm. l., lanceolate-ovate, covered by two scarious sheaths.  
*Leaf* linear-ligulate, obtuse, conduplicate at base, with many prominent nerves, 22 cm. l., 1.5–2 cm. br.  
*Panicle* laxly few-flowered.  
*Bracts,* sterile sheathing, small, obtuse, 5–10 mm. l.; floral deltoid, half-clasping, shortly acute, 1.5–2 mm. l.  
*Pedicels* 7 mm. l.  
*Sepals* 5-nerved, oval, obtuse; median 10 mm. l., 4 mm. br.; lateral 8 mm. l., 4 mm. br.  
*Petals* reticulate-3-nerved, ob lanceolate-oblong, 8 mm. l., 2.5 mm. br.  
*Lip* 5 mm. l., 10 mm. br.  
*Column* small, 3 mm. l., wider at apex, winged; clinandrium with minute teeth.

25. **E. monticolum** Fawc. & Rendle op. cit. 124; pseudobulbs with one leaf or sometimes two, and scape as long as, or shorter than, the leaf; ovary rugose; lip shortly and broadly clawed, deeply 3-lobed, lateral lobes oblong, somewhat obtuse, median lobe much larger, roundish-rhomboidal, broadly clawed, somewhat apiculate at the apex, margin slightly curled below, veins raised, branching, diverging, disk with two thick calli; column quite free. — (Pl. 16, f. 1–4.)

*Plant* 7–9 in. high.  
*Pseudobulbs* 1.5–2 cm. l., ovoid, covered by scarious sheaths.  
*Leaf* linear-ligulate, obtuse, conduplicate at the base, with many nerves scarcely prominent, 12–22 cm. l., 7–10 mm. br.  
*Scape* laxly few-flowered, rugulose.  
*Bracts,* sterile sheathing, small, somewhat acute, 8 mm. l.; floral half-clasping, somewhat acute, 2–3 mm. l.  
*Ovary* and pedicel covered with minute warts, 1.5–1.7 cm. l. (apparently fertilised).  
*Pedicels* 1 cm. l.  
*Sepals* reticulate-6–7-nerved, lanceolate-oblong, somewhat acute, somewhat thick, dark green, 1 cm. l., 3 mm. br.  
*Petals* reticulate-3–4-nerved, ob lanceolate-oval, obtuse, green, 9 mm. l., 3 mm. br.  
*Lip* brownish-yellow, 9 mm. l.; median lobe, 6 mm. l., 5–6 mm. br.; veins raised.  
*Column* 5 mm. l., stout, winged, at the apex auriculate.

26. **E. belvederense** Fawc. & Rendle op. cit. 123; pseudobulbs with two leaves and panicle much longer than leaf; ovary smooth; lip reticulate-nerved, the three median nerves thick, prominent, especially on the disk, 3-lobed, lateral lobes short, obtusely triangular, much smaller than the median, median deltoid or triangular-ovate, shortly apiculate; column quite free. — (Pl. 16, f. 8–10.)

On trees; in fr. Dec.–Jan.; Belvedere, Hanover, 500 ft.; Lancaster, 2500 ft.; *Harris*! *Fl. Jam.* 7541, 7620; between Mandeville and Black River, J.P. 532, *Syme*!  
*Plant* 14 ft. high.  
*Pseudobulbs* about 4 cm. l., about 1 cm. br., lanceolate-ovoid, covered by scarious sheaths.  
*Leaves* linear-ligulate, obtuse, conduplicate at base, with many prominent nerves, 16–18 cm. l., 15–18 mm. br.  
*Panicle* laxly few-flowered.  
*Bracts,* sterile sheathing, small,
obtuse, 7–8 mm. 1.; floral deltoid, half-clasping, shortly acute, 2–3 mm. 1. Pedicels 1 cm. 1. Sepals 5–7-nerved, oblong-lanceolate, subacute, 1–3 cm. 1.; lateral slightly keeled below the apex, 3–5 mm. br.; median 3 mm. br. Petals reticulate-8-nerved, oblongate, 1·3 cm. 1., 3 mm. br. Lip 1·2 cm. 1., 9 mm. br.; lateral lobe 2 mm. 1. Column stout, flat-tish anteriorly, 7–5 mm. 1. (including anther); clinandrium 3-toothed, auriculate anteriorly. Capsule spindle-shaped, 3 cm. 1., 1 cm. br.

27. E. angustifolium Sw. Prodr. 123 (1788); pseudobulbs with one grass-like leaf, and panicle much longer than leaf; lip 3-lobed, lobes subequal, lateral half-round, middle ovate; column connate with lip for one-third of its length.—Sw. Fl. Ind. Occ. 1512; Griseb. op. cit. 613.

On trees and rocks; Dolphin Head, Purdie! Dolphin Head, 1600 ft., Harris! Fl. Jam. 10,440.

Plant 8 in. to 1 ft. high. Pseudobulbs clustered, 1·5 cm. 1., 6–7 mm. br., ovoid, acuminate. Leaf 12–22 cm. 1., 2 mm. br., linear, exceeded by the scape. Scape about 3 dm. 1., filiform, naked. Bracts 2–3–1 mm. 1., minute, pointed. Raceme lax, branched at the base. Pedicels 4 mm. 1., as long as the ovary. Flowers, perianth less than 1⁄4 in. 1. Sepals about 5 mm. 1., about 1·5 mm. br., oblong-lanceolate, 3-nerved. Petals about as long as the sepals, linear-lanceolate, 1-nerved. Lip about as long as the sepals. Column nearly as long as the lip, auricled below the clinandrium.

28. E. brachyeglossum Cogn. in Fedde Repert. vii. 121 (1909); stem without pseudobulb, with one leaf at apex and an erect slender peduncle twice as long as leaf with solitary flower; column nearly connate with lip above base.


Plant 3–12 in. high, with brown spots on sheaths, bracts and peduncle. Stem 4–7 cm. 1., 1·5–2 mm. br., with sheaths below. Leaf sessile, somewhat leathery, linear-ligulate, tapering downwards shorty above the base, apex somewhat obtuse and obliquely emarginate, with numerous nerves prominent beneath, especially the middle nerve, 6–10 cm. 1., 6–9 mm. br. Sheaths three, scarious, free portion short, triangular, obtuse, uppermost 2–3 cm. 1., lowest 1–1·3 cm. 1. Bracts 3–5, closely sheathing, free portion short, triangular, obtuse; floral bract shortly spatheaceous, shorter than the ovary. Pedicels about 5 mm. 1. Flowers orange-scarlet, 3–1 in. 1., solitary, erect, thinly membranous. Ovary cylindrical, smooth, with pedicel nearly 3 cm. 1. Sepals 7-nerved; lateral oblong-elliptical, apex somewhat obtuse and conduplicate, margin slightly undulate, 1·8–2·3 cm. 1., 7–8 mm. br.; median elliptical, apex rounded, 1·7–2 cm. 1., 8–9 mm. br. Petals a little oblique, 5–6-nerved, elliptical, tapering to base, apex rounded, shorter than the sepals, 1·9 cm. 1., 9 mm. br. Lip very short, not half as long as petals, 9 mm. 1., 7 mm. br., embracing column, 3-lobed, lateral lobes rounded, median lobe somewhat smaller than lateral, indistinctly 3-lobed; disk with two broad longitudinal lamellae and warty protuberances above them. Column as long as the lip, broader above than below, winged; clinandrium with two large auricles, apex toothed. Capsule (not ripe) narrowly spindle-shaped, 3-angled, 3-keeled, keels 2-edged, 2·4 cm. 1.

29. E. serrulatum Sw. Prodr. 121 (1788); stem without pseudobulbs, with one leaf at apex and a spike shorter than leaf;
column shortly connate with lip above base.—*Sw. Ic. ined. t. 43*; *Griseb. op. cit. 615.* Cymbidium serrulatum *Sw. in Nov. Act. Upsal. vi. 72 (1799) & *Fl. Ind. Occ. 1465. (Pl. 15, f. 4.) Type in Herb. Mus. Brit.


*Plant* 1-4 in. high. *Stem* 5-3 cm. l., covered with sheaths. *Leaf* linear, tapering below, sessile, apex acute, serrulate, 2-7 cm. l., 3-5 mm. br., turning blackish in drying. *Sheaths* one longer than stem, somewhat spathaceous above, and one or two smaller and scarious below. *Bracts* ovate-triangular, acute, half-clasping, 3-4 mm. l. *Flowers* greenish, sometimes yellowish above, changing to reddish-yellow, sessile or subsessile, perianth ½ in. l. *Ovary* thicker above. *Sepals* fleshy, lanceolate, obtuse, keeled, 5 mm. l. *Petals* 3-nerved, narrowly oblong, obtuse, 4 mm. l. *Lip* indistinctly 3-lobed, lateral lobes rounded, median lobe triangular, disk with three prominent nerves, 4 mm. l., 3 mm. br. *Column* very short. *Capsule* ellipsoidal, 10-11 mm. l.


*Plant* 1-6 in. high. *Stems* 2-5-14 cm. l., numerous, clustered, slender, many-jointed, covered with sheaths. *Leaves* short, fleshy, rigid, linear, semiterete, flattened when dried, obtuse, jointed to the sheath, 1-2 cm. l., 1-5-2 mm. br. *Peduncles* one-flowered, 1-2 mm. l. *Flowers* yellow, red-variegated, perianth ½ in. l. *Bracts* sheathing at the base, 1-1½ mm. l. *Sepals* fleshy, elliptical-ovate, obtusely acute, 3 mm. l., median slightly broader, 2 mm. br., lateral very short, at base, 1½ mm. br. *Petals* yellow, fleshy, ovate-subrahmboïd, obtusely angled, apex somewhat acute, a little shorter than the sepals. *Lip* fleshy, slightly shorter than the sepals, undivided, ovate-rhomboid, apex obtuse, slightly gibbous. *Column* short, thick, 1¾ mm. l. *Capsule* nodding, ellipsoidovoid, apex shortly beaked, 4 mm. l., 3 mm. br.

31. *E. teretifolium* *Sw. Prodr.* 121 (1788); stem long, simple, without pseudobulbs, with a few linear fleshy leaves, and one flower at apex; column connate with lip about half its length.—*Sw. Ic. ined. t. 44*; *Griseb. op. cit. 619.* Cymbidium teretifolium

Plant 6–11 in. high. Stems 15–28 cm. l., numerous, clustered, somewhat robust, many-jointed, covered with sheaths below, naked above and somewhat compressed. Leaves rigid, semiterete, obtuse, jointed to the sheath, 2–5.5 cm. l., on lower half or two-thirds of stem, one leaf with very much abbreviated sheath at apex. Peduncle solitary, terminal, short, one-flowered, 7 mm. l. Bracts at base of peduncle, four spathaceous bracts outside and two sheathing bracts inside, about 8 mm. l. Flower yellowish-green, perianth about ½ in. l. Sepals 12 mm. l., 1.6 mm. br., fleshy, linear, tapering towards the thickened obtusely acute apex, somewhat convex. Petals half as long as sepals, 6–7 mm. l., 1.5 mm. br., stalked, elliptical, thickened at the rounded apex, 3-nerved, with the median nerve forming a keel, green. Lip shorter than sepals, from junction with column 8 mm. l., about 2 mm. br., clawed, lower half of limb broadening upwards, concave, disk 3-nerved with a median keel at base, above 3-edged and thickened. Column shorter than petals, 5 mm. l., 2-winged at apex. Capsule ellipsoidal-spindle-shaped.

31. BROUGHTONIA R. Br.

Epiphytic herbs, with ovoid or globose pseudobulbs, which are covered with a few sheaths, and have one or two leaves at the apex. Leaves leathery or fleshy, oblong or elongate. Peduncles terminal, with adpressed sheaths. Raceme lax, simple or sparingly branched. Flowers medium-sized or rather large, shortly stalked. Bracts small, scale-like. Sepals equal, free, somewhat spreading. Petals larger than the sepals. Lip sessile at the base of the column, free from it, erect, broad, embracing the column. Spur adnate to ovary, long, slender. Column several times shorter than the sepals, erect, broadly 2-winged; clinandrium with short teeth. Anther terminal, opercular, incumbent, convex, 4-celled; pollinia 4, waxy, in two pairs, ovate, equal, compressed from the side, connected by a granular-viscous appendage. Capsule ovoid, beaked with the neck of the ovary.

Species 2, natives of the West Indies.

Flowers crimson, ¾–nearly 1 inch l........ 1. B. sanguinea.
Flowers lilac, 1–1½ inch l................... 2. B. domingensis.


Plant 12–15 in. high. Pseudobulbs 2·5–5 cm. l., 1·5–2·5 cm. br., varying in shape from somewhat globular to nearly cylindrical, clustered, with two leaves and peduncle much longer than leaves. Leaves leathery, oblong, somewhat acute, with numerous nerves visible when dry, 8–20 cm. l., 1·5–4·5 cm. br. Sheaths 2 or 3, 3–6 cm. l. Peduncle long, 2–4 dm. l., sometimes branched with lax raceme (7–8 cm. l.) at apex. Bracts sterile, short, sheathing, adpressed, triangular, somewhat obtuse, few, distant, 5–6 cm. l.; floral minute. Pedicels 1–1·5 cm. l. Flowers 5–12. Sepals oblong-lanceolate, 1·5–2·4 cm. l., 4–5 mm. br., lateral broader and slightly falcate. Petals roundish-elliptical, tapering to base and to apex, which is either acute or obtuse, as long as sepals, 7 mm. br. Lip nearly as long as sepals and petals, and broader than long, roundish, truncate, margin eroded, yellow at base with purplish veins. Column about 9 mm. l., slightly curved, thicker and winged above.


On trees; Westmoreland, Purdie! Edwards! Tomlinson!—Hispaniola. Plant 1–2 ft. high. Pseudobulb 2–5 cm. l., 1·5–2·5 cm. br., ellipsoidal to globose, with two leaves (rarely one), and peduncle much longer than leaves. Leaves leathery, oblong-ligulate, apex oblique, mucronate, with numerous nerves apparent only when dry, 6–20 cm. l., 8–30 mm. br. Sheaths 2 or 3, 2·5–5 cm. l. Peduncle very long, 3–5 dm. l., rarely branching, with a lax raceme (5 cm. l.) at apex. Bracts sterile, short, sheathing, adpressed, triangular, somewhat obtuse, very few, distant, 6 mm. l.; floral minute, triangular. Flowers 8–14. Sepals linear-lanceolate, somewhat acute, to nearly 3 cm. l., 4–6 mm. br. Petals elliptical tapering to base and to somewhat acute apex, about as long, or a little longer, and twice as broad as sepals. Lip a little longer than sepals, broadly erminate, margin wavy, denticulate. Column about 7 mm. l. Capsule (unripe) ellipsoidal, beaked.

32. HORMIDIIUM Lindl.

Small epiphytic herbs, with small pseudobulbs crowded along the creeping rhizome, with two or three membranous sheaths and two leaves at the apex. Leaves small, shortly sheathing at base, and jointed with sheath. Flowers small, stalked, in a terminal cluster, the cluster sometimes reduced to a single flower. Sepals, all of equal length, suberect or at
length spreading, the median free, the lateral broader, at the base adnate to the columnar cup. Petals similar to the median sepal, but narrower. Lip connate at the base with the column into a cup, the blade erect-spreading, 3-lobed. Column short, with the dilated margins connate with the lip into a cup; clinandrium short. Anther terminal, opercular, incumbent, with four parallel cells; pollinia 4, waxy, ovoid, distinct, without an appendage, on the dehiscence of the anther connected at the apex by a sparse viscid substance. Capsule ovoid or subglobose, not beaked, the ribs winged.

Species 7, natives of tropical America from the West Indies and Mexico to Brazil.


**Plant** rising 3 or 4 in. from the long, creeping rhizome. **Pseudobulbs** 2–3 cm. 1., ovoid-oblong or narrowly spindle-shaped. **Leaves** narrowly elliptical or oval, obtuse, minutely apiculate, shortly sheathing at the base and jointed with sheath, blade 3–5 cm. 1., 1–1.5 cm. br. **Bracts** somewhat longer than the pedicels, 6 or 7 mm. l. **Flowers** yellowish-white, perianth ¾ in. l. **Sepals** elliptical, acuminate, shallowly keeled, 5–6 mm. l., 2 mm. br.; **lateral** shortly connate at base. **Pétals** linear, acuminate, 4–4.5 mm. l. **Lip** extending about half as long as sepals, 4–5–5 mm. br., median lobe triangular, acuminate, much smaller than the roundish lateral lobes. **Column** half as long as lip. **Capsule** about 1.3 cm. l.

33. **LÆLIA** Lindl.

Epiphytic herbs, with fleshy generally oblong pseudobulbs, not, however, present in the Jamaican species, which have a few sheaths, and at the apex one or two leaves. Leaves somewhat leathery, not plaited. Peduncles terminal, almost always only one-flowered, with a few sheaths at intervals. **Bracts** like the sheaths, the uppermost spathaceous. **Sepals** almost equal, free, spreading. **Petals** wider than the sepals. Lip erect at the base of the column; lateral lobes enclosing the column; the median lobe spreading. **Column** rather long, narrowly 2-winged; clinandrium crenulate. **Anther** attached to a posterior tooth, opercular, incumbent, convex, distinctly 2-celled, each cell.
imperfectly divided again into two cells by a longitudinal partition; pollinia 8, four in each cell, all compressed in the same direction, the ascending portion of the inferior pair connected with the descending portion of the upper pair in each cell by a linear granular appendage.

Species about 39, natives of the warmer parts of America from the West Indies and Mexico to Brazil.


Plant 4–8 (sometimes 12) in. high. Stem slender, 2–9 cm. 1., covered with three speckled cylindrical sheaths springing from the nodes, and with one leaf at apex. Leaf linear-oblong, obtuse, 5–10 cm. 1., 7–10 mm. br. Peduncle with 4–6 bracts like the sheaths, 5–22 cm. 1. Flowers vivid orange-scarlet, except the anther-cap which is purple, about 3 in. 1. Sepals, lateral elliptical, obtuse, 17–22 mm. 1., 5’5–7’5 mm. br.; median ovoid-elliptical, 16–19 mm. 1., 6’5–7’5 mm. br. Petals obovate-elliptical, 14–17 mm. 1., 6–9 mm. br. Lip obovoid in outline, 7–9 mm. 1., continuous with wings of column below, 3-lobed near apex, lateral lobes rounded, median lobe semicircular, somewhat apiculate, disk papillose, with a sac-like outgrowth along the median line. Column 6’5–8’5 mm. 1., winged; clinandrium broadly winged, crenulate on the dorsal margin.

34. SCHOMBURGKIA Lindl.

Epiphytic herbs; pseudobulbs with several scarious sheaths, 2-leaved at the apex. Leaves oblong, elongated, thick, leathery. Raceme simple on a terminal elongated sheathed peduncle, flowers stalked. Bracts persistent, rigidly membranous. Sepals almost equal, free, spreading, more or less undulate. Petals similar and equal to the sepals. Lip very shortly connate quite at the base with the column, erect; the sides at first loosely embracing the column; the upper margin undulate. Column straight or incurved, winged; clinandrium lobed. Anther attached to the apex of the median tooth, incumbent; imperfectly 8-celled; pollinia 8, waxy, superposed in pairs, broadly ovate, compressed, connected by a slender granular appendage. Capsule ovoid.

Species about 13, natives of tropical America, including the West Indies.


35. BRASSAVOLA R. Br.

Epiphytic herbs. Stems scarcely thickened, sympodial, springing from the contracted base of the next older stem, with one or two sheaths covering the contracted base, with a few lax ash-coloured scarious sheaths above, and one leaf. Leaves thick and fleshy, conduplicate, almost half cylindrical, linear, tapering to a subulate apex. Flowers terminal, on an elongated peduncle, racemose, stalked. Bracts short. Ovary very slender. Sepals free, equal, spreading, long, linear, acuminate. Petals similar to the sepals, but slightly shorter and narrower, narrowly linear-lanceolate. Lip with a long involute serrate claw; blade roundish, acuminate, entire. Column very short, clinandrium 3-lobed, the median toothed at the apex. Anther attached to the median lobe of the clinandrium, opercular, incumbent, with two distinct cells, each cell divided into two smaller cells by a longitudinal partition; pollinia 8, four in each cell, broadly ovate and compressed in the same direction, connected by a granular, linear or blade-shaped appendage. Capsule large, ellipsoidal, 3-keeled, beaked.

Species about 22, natives of tropical America from the West Indies and Mexico to Argentine.

Flowers few, perianth 2-3 inches l. .......... 1. B. nodosa.
Flowers many, perianth 1¼–1½ inch long. ..... 2. B. cordata.

1. B. nodosa Lindl. Gen. & Sp. Orch. 114 (1831); flowers few; sepals longer than ovary with pedicel, 5–7½ cm. l.; blade of lip roundish, 3–5 cm. l., claw 17–25 mm. l.—Lindl. in Bot. Reg.
BRASSAVOLA

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On rocks and trees; in fl. Aug., Sept.; Wright! Dickson! March! Cedar Valley, Moore!—Mexico, Honduras, Guatemala, Panama, Venezuela, Colombia, Peru.

Plant 8–13 in. high. Stem 6–7 cm. l., with two long joints, each covered with a sheath. Sheaths increasing in size from base (4 cm. l.), the topmost triangular, acute, 3·5–5·5 cm. l. Leaf 14–22 cm. l., 8–18 mm. br. Peduncle with three sterile joints below, followed by the few-flowered raceme, 10–27 cm. l. Bracts, sterile sheathing, 7–10 mm. l.; floral triangular, acute, 4–7 mm. l. Ovary with pedicel 3·5–4·5 cm. l. Flowers large, spreading, perianth 2–3 in. l. Sepals and petals pale green. Lip white. Column about 9 mm. l. Capsule about 5 cm. l.

2. B. cordata Lindl. in Bot. Reg. 1914, t. 1913 (1836); flowers many; sepals as long as ovary with pedicel, 3·5–4·5 cm. l.; blade of lip subcordate-roundish, 1·8–2 cm. l., claw 12–16 mm. l.—Hook. in Bot. Mag. t. 3782; Griseb. op. cit. 620. B. nodosa Hook. in Bot. Mag. t. 3229 (1833). B. subulifolia Rolfe in Orch. Rev. x. 66 (1902); Griseb. loc. cit. (in part). Viscum delphini &c. Sloane Cat. 120 & Hist. i. 251, t. 121, f. 3. (Pl. 19, f. 7–11.)


B. subulifolia Lindl. Gen. & Sp. Orch. 114 was described from a plant from Nevis. Lindley says “species distinctissima.” We have not seen a specimen.

Plant 8–21 in. high. Stem 12–18 cm. l., with three or four long joints, each covered with a sheath. Sheaths increasing in size from base (2 cm. l.), the topmost becoming spathaceous, free portion oblong, tapering to an acute apex, or oblong-lanceolate, 5·5–8 cm. l. Leaf 20–35 cm. l., 7–12 mm. br. Peduncle one or two sterile joints below, followed by the many-flowered raceme, somewhat crowded above, 8–20 cm. l. Bracts sterile, sheathing, free portion triangular, acute, 7–10 mm. l.; floral lanceolate, acuminate, 6–9 mm. l. Ovary with pedicel 3·5–4·5 cm. l. Flowers of medium size, spreading, perianth 14–15 in. l. Sepals and petals pale green or greenish-yellow. Lip white, with a long involute serrate claw. Column about 7 mm. l., thicker upwards. Capsule 3·2 cm. l., 1·6 cm. br.

36. TETRAMICRA Lindl.

Terrestrial herbs. Stems leafy, scarcely thickened, no pseudo-bulbs. Leaves from the rhizome within overlapping sheaths at the base of the scape, 1–3, linear, fleshy, semiterete, short and
thick. Peduncle terminal, elongate, thin, rigid, with membranous adpressed sheaths at intervals. Raceme simple, lax, with small stalked flowers. Bracts minute. Sepals somewhat equal, free, spreading. Petals similar to the sepals but narrower. Lip attached at the base of the column, free, spreading from base; lateral lobes distinct on a short claw, ample, spreading; median broad, entire, contracted at the base. Column erect, broadly 2-winged above; lateral lobes or teeth of the clinandrium often membranous, median small. Anther terminal, opercular, incurved, convex, with two distinct cells, which are imperfectly divided into two smaller cells; pollinia perfect, 4, waxy, segre-gated in pairs in the cells, compressed in the same direction, connected by appendages. Capsule oblong, not beaked.

Species 7, natives of tropical America from the West Indies to Brazil.


In dry rocky ground; in fl. Feb.–April; Stony Hill, 1000 ft., J.P. 2033, Morris! Syme! near constant Spring, 600–1000 ft., Campbell! Le Ray! Harris! Fawcett! Fl. Jan. 7655, 10,409.—Bahamas.

Plant 7–15 in. high. Stem very short, 2-4 mm. l., with two or three small leaves and a long peduncle. Leaves 1-4 cm. l., 3-6 mm. br. Peduncle 18–38 cm. l., very slender, with a lax raceme (4–10 cm. l.) at apex. Bracts, sterile sheathing, free part very short, acute, 3·5–5 mm. l.; floral half-clasping, ovate, very acute, 2·2–5 mm. l. Flowers small, different shades of pink, sometimes white with a tinge of pink at the top of the column, perianth less than ½ in. 1. Sepals green, sometimes striped inside with fine lines of purplish-brown, 5-nerved, oblong, apex acute to obtuse, 4·5–5 mm. l., 1·6–2·1 mm. br. Petals 3-nerved, linear-lanceolate, somewhat obtuse, 4–5 mm. l., 75–9 mm. br. Lip 5–6 mm. l., 3-lobed, lateral lobes broadly elliptical-ovate; median ovate, 5-nerved, 3·5 mm. br. Column 2·5 mm. l.

37. HOMALOPETALUM Rolfe.

Epiphytic herb, with a creeping rhizome, giving off 1-leaved pseudobulbs at intervals. Leaves sessile, fleshy. Peduncle solitary from apex of pseudobulb, longer than leaf, with one flower. Bracts few, small, distant. Sepals equal, free, connivent. Petals similar to sepals. Lip nearly similar to petals, free, undivided. Column thicker upwards, semiterete, incurved, with a falcate-oblong auricle at each side of the base, without a foot; clinandrium margined; rostellum ovate-oblong, descending. Anther terminal, opercular, convex; cells two, distinct, imperfectly divided by a longitudinal division; pollinia, perfect 4, waxy, in pairs in the cells, with linear granular-viscous appendicule, at the apex of which are small imperfect pollinia.

Species 1, known only from Jamaica.

On trees; in fl. Dec.–April; mountains, Swartz! Coltthirst’s Run, St. George, J.P. 238, **Morris!** Abbey Green, Blue Mts., 4000–5000 ft; near Cinchona, 5000 ft.; **Harris!** Fl. Jam. 6107, 7658, 7816, 9783, 10,494 (in part).

**Plant** 1½–4 in. high. **Pseudobulbs** cylindrical, ellipsoidal or somewhat globose, 4–6 mm. l. **Leaves** ovate-oblong to oblong, shrivelling on drying, keeled, somewhat obtuse, 1–2 cm. l., 4–5 mm. br. **Peduncle** filiform, 1–6·5 cm. l. **Bracts**, sterile sheathing, distant, 2–3 mm. l.; floral somewhat spathaceous, 3–3·5 mm. l. **Flowers** sessile, perianth ½–¾ in. l. **Sepals** 1·4–2 cm. l., linear-lanceolate, acuminate. **Petals** similar, but shorter by about 2 mm. and narrower. **Lip** as long as the petals, elliptical (when flattened), shortly acuminate, disk smooth. **Column** 4 mm. l., slender below; clinandrium with one tooth behind and two in front, and a rounded lobe on each side. **Capsule** (unripe) ellipsoidal with a very short beak, 11 mm. l.

38. **ELLEANTHUS** Presl.

Terrestrial herbs, tall, simple or branched, leafy. Leaves sessile above a sheath, plaited, lanceolate, nerves somewhat prominent below, highest leaf bract-like. Flowers sometimes dense in the form of a head or in a dense two-ranked spike. Sepals almost equal, free, erect, somewhat rigid. Petals as long as the sepals, generally narrower. Lip attached at the base of the column, erect, as long as the sepals or longer, generally enclosing the column, concave at the very base, with two prominent calli in the hollow, generally slightly constricted above the hollow, above roundish or inconspicuously trilobed, margin entire or denticate. Column erect, semiterete or winged, without a foot. Anther attached to the median tooth, opercular, somewhat convex, slightly incumbent, afterwards erect, distinctly 2-celled, the cells not divided; pollinia 4 in each cell, waxy, ovoid, hardly superposed in pairs, connected at the apex by a sparse viscid substance or by a small granular appendage. Capsule shortly cylindrical, erect or spreading.

Species 45, natives of tropical America from the West Indies and Central America to Brazil and Peru.

**Flowers** in a head .......................... 1. **E. capitatus**.  
**Flowers** in a spike .......................... 2. **E. longibracteatus**.

1. **E. capitatus** Reichb. **f. in Walp. Ann. Bot. vi.** 475 (1861); flowers in a head.—**Cogn. in Fl. Bras. iii.** pt. 5. 325. **Bletia**

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* The original spelling was *vomiforme*, an error in orthography, subse-

quently corrected by Swartz.


Plant rising to 4 ft. and over. Stem to 12 dm. l., 3-5 mm. br., simple, somewhat stout, erect, covered with leaf sheaths. Leaves papery, 7-9 nerved, 1-2 dm. l., 2-5 cm. br.; sheaths 5-6 cm. l., smaller near apex. Head dense, many-flowered, hemispherical, 2:5-5 cm. br. Bracts, outer without flowers, closely overlapping, ovate-triangular, acuminate, 2:5-4 cm. l., 1-1:5 cm. br.; inner bracts subtending the flowers half as short and two or three times narrower. Flowers rosy-purple, perianth ¾ in. l., lip ¾ in. l. Sepals 3-5-nerved, ligulate, shortly tapering to an acute apex, 12-13 mm. l., 3-3:5 mm. br., lateral united and gibbous at base. Petals similar to sepals. Lip longer than the sepals, roundish with a narrower base, enclosing the column, saccate at base, apex broadly emarginate, margin denticulate-ciliate, with two large, subglobe cali at base. Column 9-10 mm. l., thicker above, with a projecting, obtuse process on the anterior side below the stigma.

2. E. longibracteatus Fawc. Fl. Pl. Jam. 38 (1893); flowers in a spike.—Evelynia longibracteata Lindl. ex Griseb. loc. cit. (1864). (Pl. 20, f. 8-12.) Type in Herb. Lindl. at Kew.

On peaty banks and rocks; in fl. March-May; Wright! Macfadgen! March! J.P. 528, Syme! Greenwich, Moore! Fairfield, Ochler! Lancaster, 2500 ft.; near Troy, 1400 ft.; Cinchona, 10,414 ft.; Harris!—Dominica, Colombia, Ecuador.

Plant 2-3 ft. high. Stem 4:5-8 dm. l., 2-4 mm. br., simple, erect, nearly covered with leaf-sheaths. Leaves papery, 5-nerved, 8-17 cm. l., 1-2 cm. br.; sheaths 1:5-3:5 cm. l. Spike somewhat dense, 4-8 cm. l., several-flowered. Bracts ovate, acuminate, spath-like, longer than the flower, 1:5-2:5 cm. l. Flowers cream-colour or pale yellow, perianth ½ in. l., lip longer. Sepals 9-nerved, lateral oblong-triangular, mucronate, saccate and gibbous at base, 7:5-8:5 mm. l., 4-5 mm. br. at base; median oblong, apex rounded, mucronate, 7 mm. l., 4 mm. br. Petals 6-nerved, ligulate, obtuse, nearly 7 mm. l., 2-3 mm. br. Lip not exserted beyond the sepals, saccate, enclosing the column, indistinctly 3-lobed, upper margin denticulate, somewhat eroded, curled, lobes rounded, nearly equal, with two large ovate cali at base, and two transverse linear cali at base of lobes, nearly as long as the lateral sepals. Column 6 mm. l., winged; clinandrium with a spreading lobe at each side. Capsule cylindrical, slightly puberulous, 8 mm. l.

[39. PHAIUS Lour.]

[Terrestrial herbs, rather tall, with stems crowded on a caudex. Leaves elongate, plaited, at the base narrowed or contracted into a long stalk, with sheaths generally striate. Scape springing from the caudex. Flowers in a raceme, several, stalked. Bracts sometimes small, linear, sometimes rather large, membranous or herbaceous. Sepals free, almost equal, spreading]
or somewhat erect. Petals similar to the sepals, but narrower. Lip erect, concave, produced at the base into a short spur, continuous with the base of the column; lateral lobes ample, erect, enclosing the column; median lobe expanded, generally short and broad, spreading or recurved. Column somewhat long, subterete, 2-angled or 2-winged, thicker upwards, without a foot; clinandrium short, oblique, sinuate on the margin. Anther attached near the margin of the clinandrium, opercular, incumbent, convex, distinctly 2-celled, cells divided imperfectly into four smaller cells; pollinia 8, obovate or oblong, compressed from the side, applied by the faces in pairs, the lower pair of each cell generally longer than the upper, connected at the apex by a granular appendage almost filling the cells in the younger anther. Capsule oblong, without a beak, ribs very prominent.

Species 50, natives of tropical Asia, but spreading to tropical Africa, the Mascarene Islands, Australia, the islands of the Pacific Ocean, China and Japan.


In damp shady places; in fl. throughout year; Bethany, Wallscllaegel, 1061 ! Prior! Blue Mts., J.P. 7, Morris! Vinegar Hill, Moore! Clydesdale, near Cinchona, Fawcett! Farm Hill, Miss B. Gosset! near Catadupa, 1800 ft.; Wallenford, 3000 ft.; Harris! Fl. Jam. 7637, 9183.—China, Australia, N. Caledonia, Rarotonga.

Plant ½–3 ft. high. Stem tuberous. Leaves, blade oblong-lanceolate to lanceolate, acute, 3–5 dm. 1., 7–10 cm. br.; stalks 5–15 cm. l. Scape 5–9 cm. Flowers chocolate-brown and white, 1½ in. 1. Bracts large, spathé-like, obtuse, about 3·5 cm. l. Sepals 7-nerved, oblong-lanceolate, 4·5–5 cm. 1., 11–14 mm. br. Lip embracing the column, indistinctly 3-lobed above, median lobe slightly reflexed with margin curled; disk with two parallel keels, 3·5–4 cm. l. Spur slightly curved, 5 mm. l. Column 1·5–2 cm. l.

This species cannot be considered indigenous, but it is so completely naturalised and so common in some parts of Jamaica, that a full description has been included. It is also recorded from Cuba.]

40. CALANTHE R. Br.

Terrestrial herbs; stem very short, rhizomatous. Leaves few, large, broad, veins prominent, contracted into a sheathing petiole. Scape tall. Raceme simple, lax-flowered. Bracts very long, narrow. Sepals nearly equal, free, spreading. Petals somewhat similar, smaller. Lip clawed, claw connate with the column forming a tube, produced at the base into a short spur;
ORCHIDS OF JAMAICA


Species about 138, widely distributed in tropics of the old world, especially Asia, one or two in tropical America.


Plant more than a foot high. Stem with abundant roots and two sheaths; upper sheath 9 or 10 cm. Leaves two, oblong to oval, acute, 25–40 cm. l., 7–11 cm. br. Scape 40–50 cm. Raceme 6–8 cm. Flowers white, ten or more, perianth ½ in. l., all parts downy. Pedicels 3–5 mm. Bracts 13–30 mm. l., linear, acuminate. Sepals 11–12 mm. l., 5–4 mm. br., oblong, shortly acute, 5-nerved, median rather shorter and broader than the lateral. Petals 8 mm. l., 3 mm. br., obovate-lanceolate, obtuse, 3-nerved. Lip (measuring from junction with tube) 6 mm. l., 4 mm. br., subrotund, shortly apiculate, entire (thus differing from the 3-lobed form generally characteristic of the genus). Capsule 2–2.5 cm. l.

41. BLETIA Ruiz & Pavon.

Terrestrial, erect herbs. Leaves springing from the top of a corn, few, very long, lanceolate, contracted into a sheathing petiole. Scape rising from the side of the corn, leafless with sheathing sterile bracts. Flowers numerous, stalked, somewhat large, in a terminal generally branched raceme. Bracts small. Sepals free, converging or somewhat spreading, subequal. Petals similar to the sepals, but broader. Lip attached to base of the column, free, erect, middle lobe spreading, broad, emarginate; lateral lobes somewhat broad, converging over the column; disc with five to seven crests. Column long, semiterete, 2-winged, incurved, auricled at the base, without a foot. Anther incumbent, two-celled. Pollinia 8, waxy, obovate. Capsule oblong, erect.

Species about 45, mostly in tropical America.

Flowers rosy-purple or purplish-crimson; lateral lobes of lip broader below than above, and with narrow apex........................................... 1. B. purpurea.

Flowers dark purple; lateral lobes of lip rounded above and narrowing towards the base .......... 2. B. floridea.

1. B. purpurea DC. in Mém. Soc. Phys. & Hist. Nat. Genève, ix. pt. 1, 100 (1841); flowers rosy-purple or purplish-crimson; lip with seven crests, only five of which pass into the middle
lobe, lateral lobes with a bluntly triangular apex above the
sinus and increasing in breadth towards the base, middle lobe
(1893). Limodorum purpureum Lam. Encycl. Méth. iii. 515
(1789); Redouté Liliacées i. 83. L. tuberosum Jacq. Coll. iv. 108
(1790), non L.* L. altum Jacq. Ic. Rur. iii. 17, t. 602 (1786–93),
non L.* L. verecunda Salisb. Prodr. 9 (1796). Cymbidium
vereundum Sw. in Nov. Act. Upsal. vi. 75 (1799). (Pl. 21, f. 1–7.)

Dry stony banks, rocky land, on rocks in moist woods, 600-5000 ft.;
in fl. and fr. Oct.–May; Houstoun! Fairfield, 1059, Wullschlaegel! J.P. 9,
Morris! Cinchona, 5000 ft. ! Fawcett! G. Nichols! Farm Hill, C. Nicholls!
Hanover, Tomlinson! Silver Hill, 3500 ft., Harris!—Cuba, Bahamas,
Florida, Central America.

Plant 1½–2½ ft. high; leaves 1½ ft. long. Corm 2 cm., globose. Leaves
30–50 cm. l., 1–2 cm. br., narrowly lanceolate, long-tapering at base
and apex, narrowing into a basal sheath. Flowers, perianth ½–1 in. l. Bracts,
sterile 1–1½ cm. l., ovate, blunt, adpressed, sheathing at the base;
floral 4–5 mm. l., broadly ovate, acuminate, somewhat clasping. Pedicels
(including ovary) 1–1½ cm., of fruit about half as long. Sepals 15–18
mm. l., 5–7 mm. br.; median ovate-lanceolate, acute; lateral ovate, acute,
slightly gibbous. Petals broader and slightly shorter than the sepals. Lip
shorter than the petals, veins numerous and branching, middle lobe
emarginate, crenate, curled. Column winged. Capsule 2½ cm. l., cylin-
drical, erect.

2. B. florida R. Br. in Ait. Hort. Kew. ed. 2, v. 206 (1813);
flowers dark purple, sometimes rosy with white lip; lip with five
crests, of which only three generally stretch far into the middle lobe,
lateral lobes rounded above, narrowing gradually to the base, middle lobe generally cuneate in form.—Griseb. op. cit. 621.
B. Shepherdii Hook. in Bot. Mag. 3319 (1834); Griseb. loc. cit.
B. verecunda DC. loc. cit. non R. Br. Limodorum floridum
Salisb. Prodr. 9 (1796) & Ic. ined. vi. fol. 572. L. altum Sims in
Bot. Mag. t. 930 (1806). (Pl. 21, f. 8–11.)

Dry stony banks 1000–5000 ft.; in fl. and fr. Oct.–May; Sloane Herb.
iv. 117*! St. Ann's Bay, Prior! J.P. 2145, Morris! Lane! Bryans Hill,
Sullivan! Silver Hill, 3500 ft.; Wallenford, 2500 ft.; Constant Spring;
Green Valley; Harris! Pl. Jam. 7622, 7653, 7652.—Cuba.

Plant 2–3½ ft. with leaves 1½ to 2 ft. long. Corm 1½–2½ cm., ovate-
globose. Leaves 20–50 cm. l., 2–9 cm. br., narrowly lanceolate to broadly
lanceolate or oblanceolate, acuminate, narrowing into a basal sheath
which persists after the fall of the leaf, many-nerved. Flowers, perianth
less than an inch to 1½ in. long. Bracts, sterile 1–2½ cm. l., ovate,
blunt, adpressed, sheathing at the base; floral 3–10 mm. l., ovate,

* Limodorum tuberosum L. Sp. Pl. 950 is Calopogon pulchellus R. Br.
L. altum L. Syst. ed. 12, ii. 594 is Eulophia alta.
acuminate, somewhat clasping. *Pedicels* (including ovary) about 2 cm.,
of fruit less than 1 cm. *Sepals* 2–2.5 cm. l., 7–9 mm. br.; median oblong,
apiculate; lateral ovate-elliptical. *Petals* about the same length as the
sepals but broader, oval. *Lip* shorter than the petals, middle lobe
emarginate, crenate, curled. *Column* about \( \frac{2}{3} \) length of lip, winged.
*Capsule* 4 cm. l. narrowly oblong, erect.

*Limodorum floridum* was founded by Salisbury on a specimen sent
"from Jamaica by Wm. Shakespeare." The original specimen is not
extant, but among Salisbury's drawings and Mss in the Department
of Botany are comparative descriptions and sketches of parts of the
flower of this species and of *L. virecundum*; the drawing of the lip of
*L. floridum* is reproduced in our plate. Brown followed Salisbury in
regarding the two species as distinct, but there are no specimens of *Bletia
florida* authenticated by him. In our opinion *B. florida* is identical with
the plant subsequently described by Hooker as *B. Shepherdii*.

### 42. EULOPHIA R. Br.

Terrestrial herbs, with rhizome thickened into a tuber-like
pseudobulb, and stem with a few leaves. Leaves long, plaited,
many-veined, contracted into the stalk. *Scapes* erect from the
rhizome, tall, leafless, with several sheaths. *Raceme* simple; flowers medium-sized, shortly stalked. *Bracts* linear or lanceo-
late. *Sepals* free from each other, almost equal, the lateral
broader at the base and more or less decurrent into the foot of
the column. *Petals* somewhat similar to the median sepul, but
a little broader and shorter. *Lip* attached at the apex of the
foot of the column, forming a gibusse sac or spur between the
lateral sepals, 3-lobed, lateral lobes embracing the column, the
median rounded, spreading, with curled margin. *Column* erect,
produced at the base into a foot, semiterete, with acute scarcely
winged angles; *clianandrium* oblique, entire. *Anther* terminal,
*opercular*, incumbent, obtusely conical, with a 2-lobed appendage,
imperfectly 2-celled. *Pollinia* 2 or 4, more or less connate
in pairs, broadly ovoid or globose, waxy, without appendage,
attracted to a gland of the rostellum, which is broad, generally
membranous, or produced into a short thick stalk. *Capsule*
ellipsoid, pendulous, without a beak, ribs thick and prominent.

Species about 180, widely diffused through the Tropics, most
numerous in Africa, and rare in Malaya, Polynesia, Australia
and Tropical America.

68 (1897); *Ames Orch. S. Fla.* 19. *Limodorum altum* L. *Syst. ed.*
*Pl. Amer. (Burm.)* t. 189 & *Ic. ined. iii.* t. 192. *Satyrium foliiis
H. B. & K. Nov. Gen. & Sp. i.* 360 (1815). *Cyrtopodium Wood-
fordii Sims in Bot. Mag. t. 1814 (1816); *Lindl. in Bot. Reg.*
EULOPHIA

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(1833); Griseb. op. cit. 630. C. longifolia Cogn. in Fl. Bras. iii. pl. 5, 354, t. 76. (Pl. 22, f. 4–8.) Type in Herb. Linn.

Ground Coco, Wild Coco.


Plant 2–4 ft. high. Leaves appearing after the flowers, three or four at a time, very long, lanceolate, acuminate, below tapering into a long sheath, 7–9-nerved, plaited, 3–5 dm. l., 3–10 cm. br. Scapo 3/4–1 in. l. and sometimes more, much longer than the leaves. Sheaths long; free portion triangular, obtuse or somewhat acute. Raceme somewhat laxly manyflowered. Bracts linear-lanceolate or linear-subulate, acuminate, much shorter than the stalked ovary, 8–13 mm. l. Pedicels about 5 mm. l. Ovary about 1 cm. l. Flowers green with brownish-green lip; perianth 3/4–1 in. l. Sepals 5-nerved, outer nerve branching, oblong to oblong-oblancoolate, apex bluntish; lateral oblique at apex, about 2 cm. l., 5–5 mm. br.; median about 1·6 cm. l., 4–5 mm. br. Petals with seven branching nerves, oblong, broadening slightly upwards, obtuse, about 1·4 cm. l., 6 mm. br. Lip brownish-green, shaded and veined inside with purple, about 1·8 cm. l., with several branching nerves; lateral lobes short, rounded; disk with warty calih on nerves. Column about 9 mm. l. to base, about 13 mm. l. from apex to end of foot. Capsule 4·5 cm. l., 1·8 cm. br., pendulous.

43. GOVENIA Lindl.

Terrestrial herbs, with a rhizome sometimes thickened into tuber-like pseudobulbs. Stems erect, with few leaves and some stalked sheaths at the base, of which one is often inflated and utricule-like. Leaves ample, plaited, with many veins, with a long sheathing base. Raceme terminal on a leafy stem, simple; peduncle with a few sheaths near the base. Flowers medium-sized, crowded, or at length distant, very shortly stalked. Bracts small, ovate or narrow, a little shorter than the ovary. Sepals almost equal, convivient; median incurved, erect; lateral falcate or decurved, at the base forming a short chin with the foot of the column. Petals somewhat similar to the sepals. Lip attached at the foot of the column, jointed, incumbent at the base, concave, spreading at the apex, undivided. Column incurved, broadly semiterete, winged, produced into a short foot at the base; clinandrium truncate. Anther terminal, opercular, incumbent, very convex, sometimes crested on the back, 1-celled; pollinia 4, waxy, broadly ovate, compressed, without an appendage, on the dehiscence of the anther attached by an oblong or broad stalk, gland small or dilated. Capsule oblong, without a beak.

Species about 17, natives of tropical America from the West Indies and Mexico to Brazil and Bolivia.  


*L. 1½–2 ft. high. Stems 3–4½ dm. Sheaths inflated, one 10–20 cm. l., 2 or 3 cm. br., outer 4–8 cm. l.; cauline, free-portion oblong-ovate, obtuse, 2½–5 cm. l. Leaves one or two, blade elliptical, tapering to base and apex, 15–25 cm. l., 5–9 cm. br.; the tubular sheathing base 13–18 cm. l. Raceme 6–14 cm. l., laxly few- to many-flowered. Bracts linear-lanceolate, lower floral, 1½–2 cm. l., upper shorter. Flowers rather more than ½ in. l., cream-coloured. Sepals 5-nerved; lateral lanceolate, 12 mm. l., 3 mm. br.; median oblong, shortly acuminate, about 15 mm. l., 2½–7½ mm. br. Petals 6-nerved, outer nerves branching, broadly ob lanceolate, acute, broader than sepals, 14 mm. l., 5 mm. br. Lip 5-nerved, nerves branching, ovate, acute, very shortly clawed, 9 mm. l., 4½ mm. br. Column 6 mm. l. Capsule 2½–5 cm. l.*

44. *LYCASTE* Lindl.

Epiphytic herbs. Stem short, with few leaves, sheathed at the base, becoming thickened into fleshy pseudobulbs. Leaves ample, plaited, many-veined. Scapes erect at the sides of the pseudobulbs, closely sheathed, with one flower, rarely two or three. Flowers large, nodding. Sepals nearly equal, erect-spreading, the lateral broader, forming a chin. Petals similar to the sepals but smaller. Lip attached at the foot of the column, shorter than the sepals; lateral lobes erect; the median spreading. Column rather long, curved, semi-terete, produced at the base into a foot; clainiandrium short. Anther terminal, opercular, incumbent, very convex, 1-celled; pollinia 4, oblong or ovoid, without an appendage, attached by a long linear stalk, gland small. Capsule oblong or spindle-shaped, erect.

Species about 40, natives of tropical America from the West Indies and Mexico to Peru.


LYCASTE

Plant 1-2 ft. high. Pseudobulb ellipsoid with two or three leaves at apex, about 8 or 9 cm. l., 5 cm. br. Leaves long-elliptical, tapering to a short stalk and to apex, 3-5 dm. l., 5-12 cm. br. Scapes 8-12 cm. l. Bracts 4-6, sheathing, loose, ovate, obtuse, uppermost nearly as long as stalked ovary, 1.5-3 cm. l. Flowers drooping, nearly 2 in. l., olive-green. Stalked ovary about 3 mmn. l. Sepals 4-5 cm. l., about 1.7 cm. br., oblong-ovate, lateral cohering and forming a bluntly conical, median narrower. Petals similar to sepals but smaller. Lip light buff in colour, about 3-5-4-5 cm. l., with a long claw broadening upwards, lateral lobes at apex of claw, narrowly falcate; median ovate-oblung, blunt, with fimbriate margin, and terminating abruptly by a broad deeply furrowed callus. Column bordered, thicker upwards, about 2 cm l. (to end of foot over 3 cm. l.).

45. XYLOBIUM Lindl.

Epiphytic herbs. Stems short, with several sheaths, becoming thickened into fleshy pseudobulbs with one or two leaves. Leaves ample or elongate, plaited, many-veined, contracted into the stalk. Scapes at the base of pseudobulbs, erect, simple. Flowers in racemes, medium-sized, very shortly stalked. Bracts linear, generally rather long. Sepals nearly equal, erect, at length somewhat spreading; lateral broader than the median, adnate at the base to the foot of the column, forming a chin. Petals similar to the median sepal but smaller. Lip somewhat jointed with the foot of the column, sessile or contracted at the base and incumbent, then erect; lateral lobes or sides erect, embracing the column; the median lobe or upper portion short, broad, spreading; the face lamellate or callose. Column erect, semi-terete, anteriorly concave or narrowly 2-winged, produced at the base into a foot; clinandrium obliquely truncate. Anther terminal, opercular, incumbent, very convex, 1-celled; pollinia 4, ovoid, without an appendage, on the dehiscence of the anther attached to a stalk which is sometimes rather long; gland transverse, scale-like. Capsule oblong, erect.

Species about 12, natives of tropical America.

Pseudobulb with one leaf .................... 1. X. palmifolium.
Pseudobulb with two leaves .................... 2. X. stachyobiorum.


On trees and rocks; in fl. Sept.; Swartz! Mt. Moses, 2500 ft., J.P. 2315, Syme! Trelawney, Miss T. M. Barrett.—Cuba.

Plant over 1 ft. high. Pseudobulb cylindrical-ovate, 5.5-7.5 cm. l., with one leaf. Leaves (generally) broadly lanceolate, blade 26-42 cm. l.,
2·7–8 cm. br. Scape laxly few-flowered, about 10 cm. 1. Bracts, sterile sheathing, ovate-oblong, acute or acuminate, 3·3–5 cm. 1.; floral linear, acuminate, 2·5–3 cm. 1. Flowers yellowish-white, sweet-scented. Pedicels about 5 cm. 1. Ovary about 1·3 cm. 1. Sepals 7-nerved; median oblong, tapering towards an acute apex, 1·8 cm. 1., 5 mm. br.; lateral very oblique and broad at base, falcately triangular-lanceolate, 2·2 cm. 1., 9 mm. br. Petals 5-nerved, linear-oblong, tapering to apex, about 1·4 cm. 1., about 3·5 mm. br. Lip white, about 15-nerved, outline obovate-oblong, about 1·6 cm. 1., about 9 mm. br.; terminal portion fleshy, warty, retuse, 4 mm. 1., 7 mm. br.; sides incurved above, margin crisped; disk with four or five median nerves thickened, extending beyond the middle of the disk. Column (from apex to end of foot) 1·4 cm. 1.

2. X. stachyobiorum Hemsl. in Biol. Centr. Amer. Bot. iii. 252 (1883); flowers rather more than 1½ in. 1., lateral sepals with broad keel extending beyond apex, lip 3-lobed above.—Maxillaria stachyobiorum Reichb. f. in Bol. Zeit. x. 735 (1852).

On peaty banks; in fl. Jan.–March; near Castleton, Fawcett! Silver Hill, 3500 ft., Harris!—Nicaragua, Panama. Plant over 1 ft. high. Pseudobulb large, ovate, compressed, 5·5–6 cm. 1., with two leaves. Leaves lanceolate to oblanceolate, acute or acuminate, narrowed into the stalk, 30–45 cm. 1., 5–6 cm. br. Scape laxly many-flowered, 14–17 cm. 1. Bracts, sterile sheathing, ovate-oblong, acute or acuminate, about 3 cm. 1.; floral subulate, about 1·5 cm. 1. Flowers cream-coloured, irregularly speckled with brown. Pedicels 4–5 mm. 1. Ovary about 1 cm. 1. Sepals 5-nerved with less well-marked intermediate nerves, median oblong-ovate, shortly acuminate, 14 mm. 1., about 4 mm. br.; lateral oblong-ovate, tapering and keeled towards apex, 15 mm. 1., 5·5 mm. br. Petals 5-nerved, oblong-lanceolate, apex somewhat acute and fleshy, falcate, 11 mm. 1., 3·5 mm. br. Lip with seven branching nerves, broadly oblong, 11 mm. 1., 7 mm. br., shallowly 3-lobed above, lateral lobes rounded, terminal fleshy, broader than long, rounded, larger than lateral lobes; disk with the three or five median nerves elevated. Column (from apex to end of foot) nearly 1 cm. 1. Capsule 2·5 cm. 1.

46. ZYGOPETALUM Hook.

Epiphytic herbs, stemless, leafy. Leaves membranous, with numerous prominent veins, plaited. Scape 1-flowered. Sepals nearly equal, spreading, free or scarcely very shortly connected at the base, lateral attached to the short foot of the column. Petals similar to the sepals. Lip attached to the foot of the column, forming with it a very short chin; lateral lobes erect, embracing the column; median lobe generally broad; disk with a transverse crest generally very prominent, fleshy. Column incurved, semiterete, produced at the base into a short foot; clinandrium oblique, entire, or membranous and hooded with fimbriate margin. Anther opercular, incumbent, 2-celled; pollinia 4, obovoid, segregated in pairs in the cells, without an appendage. Capsule ovoid or oblong, without a beak.

Species about 90, natives of warmer America from the West Indies and Central America to Brazil.


Plant 8–12 in. high. Leaves oblong to narrowly oblong, abruptly acute, tapering below into a sheathing stalk with which the blade is jointed, 12–30 cm. 1., 2.5–4.2 cm. br. Sheaths below leaves, 3–6 cm. 1. Scape from the axils of the outer leaves, erect, 3–10 cm. 1. Bracts several at and just above base of scape, and two at base of flower, spathe-like, 1–2 cm. 1. Ovary white, curved, 2–3 cm. 1. (pedicel forming about one-third.) Flowers white with blue lip, with fragrance like lily-of-the-valley, perianth 1–1½ in. 1. Sepals oblong or oblong-lanceolate, greenish-white, 3–3.5 cm. 1., 9–10 mm. br. Petals similar and slightly smaller. Lip very large, somewhat square in outline when flattened, with a small short claw, at base broad, cordate, ventricose, margin involute and curled, apex emarginate; at the base within is a large lunate fleshy depressed crest, lobed and crenated, marked with purple lines continued into disk; 2.5–3 cm. 1. and br. Column short, with two small wings above, white streaked with red in front, 1 cm. 1. Capsule cylindrical, 4–5 cm. 1., 10–13 mm. br.

47. BULBOPHYLLUM Thou.

Epiphytic herbs. Stem more or less covered with scarious sheaths. Pseudobulbs sessile at the axils of the sheaths, bearing one or two leaves at the apex. Flowering scapes at the sides of the pseudobulbs, leafless, simple, with numerous sheaths at intervals. Flowers minute, numerous on a terminal spike. Bracts small. Median sepal free, erect or spreading, about as long as the lateral; lateral at the base obliquely dilated, and adnate to the foot of the column, above spreading, free, or connate somewhat high up. Petals shorter than the sepals. Lip on the upper side of flower, contracted at the base, jointed with the foot of the column, or mobile, incumbent on the foot; entire or plumose-ciliate, recurved, often variously thickened. Column erect, generally short, produced at the base into a rather long foot, 2-winged above; eliandrum short, posteriorly often produced into a tooth which bears the anther, anteriorly 2-armed, 2-toothed or 2-angled, and sometimes the wings of the column below the arms appended on both sides with a somewhat small tooth. Anther terminal, opercular, incumbent, flattish-hemispherical or obtusely conical, generally 2-celled; pollinia waxy, normally four, segregated in pairs in the cells,
sometimes one pair very small or wanting, without an appendage, or more rarely cohering by a small, subgranular viscid body. Capsule globose, ovoid or oblong, not beaked.

Species about 550, scattered for the most part through the tropical regions of Africa and Asia, very few in West Indies, South America or Australia, one in New Zealand.

Flower-stalk not swollen, petals ciliate........ 1. B. jamaicense.
Flower-stalk swollen, petals glabrous ........... 2. B. pachyrrhaehis.

1. B. jamaicense Cogn. in Fedde Repert. vii. 122 (1909); with flowering-stalk not swollen, petals ciliate, lip pilose below. (Pl. 23, f. 8–14.)

On trees; in fl. and fr. March; near Tweedside, south St. Andrew, 2500 ft., Harris! Fl. Jam. 7998.

Plant 4 in. high. Pseudobulbs small, densely clustered, globose, 1-leaved, 6–8 mm. I. Leaves leathery, oblong-lanceolate, acute, 1–3½ cm. l., 4–8 mm. br. Scope 6–10 cm. l., much longer than the leaf, very slender, with a few short (5–6 mm. l.) obtuse sheaths at intervals; the upper portion (2–3 cm. l.) a spike with slender rachis. Flowers reddish, few (4–10), lax, small, ½–1 in. l. Bracts ovate, acute, 2–3 mm. l., about as long as ovary. Sepals 3-nerved; median concave, ovate, acute, 4½–5 mm. l., 2 mm. br.; lateral connate nearly to apex, elliptical, 5 mm. l., 3 mm. br. Petals 1-nerved, linear, tapering to an acute apex, ciliate, 3–4 mm. l., 7–1 mm. br. Lip shortly clawed, somewhat thick, oblong-elliptical, with sides recurved, obtuse, pillose, pilose below, 3 mm. l. Column very short, ½ mm. l., posterior tooth short, bristle-like, lateral subulate, erect, as long as column, branching at apex. Capsule obovoid, 5–6 mm. l.


Plant 4–13 in. high. Pseudobulbs with two or more scarious sheaths, on a creeping rhizome, ovoid-conical, 4-winged, 2-leaved, 5–2 cm. l. Leaves somewhat leathery, ligulate, obtuse, 7–19 cm. l., 8–23 mm. br. Scope 10–45 cm. l., much longer than the leaves, with short (8–10 mm. l.) obtuse sheaths at intervals; the upper portion (5–30 cm. l.) a spike with more or less swollen and fleshy rachis. Flowers many, lax, small, ½–1 in. l. Bracts very broad at the clasping base, triangular, obtuse, 3–4 mm. l., a little shorter than the flower; two, ovate, acute, at apex of ovary, 1 mm. l. Sepals 3-nerved, median concave, ovate, very acute, 4½–5 mm. l.; lateral connate at base, ovate, acuminate, 4½–3 ½ mm. l., 1½–2 mm. br. Petals 1-nerved, oblong-elliptical, obtuse, 1½–7½ mm. l., 9–1½ mm. br. Lip thick and fleshy, 3-angled in section, undivided, with a very thick, 3-angled claw, disk at right angles to claw, oblong-elliptical, obtuse, margin entire and glabrous, slightly keeled at back but not serrate, disk with a longitudinal furrow in the middle; claw about 1 mm. l., disk 2½–4 mm. l. Column short, posterior tooth small, lateral teeth longer, subulate, slightly incurved, shorter than the petals, 1½–1½ mm. l. Capsule ellipsoidal, with six broad keels, 8 mm. l., 5 mm. br.

Epiphytic herbs. Stems sometimes very short on the rhizome becoming thickened into a fleshy pseudobulb with one or two leaves, sometimes elongated at the apex of the rhizome with the leaves close together in two ranks. Leaves leathery, thin or somewhat fleshy, veins thin except the central nerve. Scapes or peduncles at the base of the pseudobulbs or in axils of the leaves, solitary, with two to numerous sheaths, always 1-flowered. Flowers large or medium-sized. Sepals nearly equal, free amongst themselves, lateral adnate at the base to the foot of the column, generally forming a chin, not very prominent, spreading or more rarely somewhat erect. Petals similar to the sepals or sometimes smaller. Lip concave, erect at the apex of the foot of the column with a very short inflexed claw; lateral lobes erect, median ovate-oblong spreading, shorter than the sepals; disk with a tubercle or naked. Column with a short foot, erect, often slightly incurved, thick, semiterete, not winged, anteriorly concave; clinandrium somewhat thick, concave, entire. Anther terminal, opercular, incumbent, conical or semiglobose, 1-celled or imperfectly 2-celled, often pubescent; pollinia 4, ovate, compressed, without an appendage, on the dehiscence of the anther attached by a flat, short stalk, with a scale-like gland. Capsule ovoid or obovoid-oblong, erect, not beaked.

Species about 240, natives of tropical America from the West Indies and Mexico to Brazil.

Pseudobulbs conspicuous.
- Pseudobulbs clustered, ovoid-cylindrical, with membranous sheaths ...................... 1. **M. rufescens**.
- Pseudobulbs distant, ellipsoidal-compressed, with hard bases of foliaceous sheaths .................. 2. **M. alba**.
- Pseudobulbs poorly developed and inconspicuous, bases of leaves thickened ...................... 3. **M. sessilis**.

1. **M. rufescens** Lindl. in Bot. Reg. under t. 1802 (1835) & t. 1848; pseudobulbs clustered, ovoid-cylindrical, with membranous sheaths; lip yellow with numerous purple spots, distinctly 3-lobed, lateral lobes springing from a little below middle of lip, triangular-falcate, subacute, terminal lobe much larger, broadly oblong, emarginate, disk with an oblong callus half length of lip.—Reichb. f. in Sound. Ref. Bot. ii. under t. 79 & t. 133; Griseb. Fl. Br. W. Ind. 626; Cogn. in Fl. Bras. iii. pt. 6, 12. (Pl. 25, f. 13-16.)

On trees; in fl. May; cult. in Hope Gardens from plant collected at Lancaster, Harris, drawing by Miss H. Wood!—Trinidad, Costa Rica, Colombia, Venezuela, B. Guiana, Brazil.

**Plant** 6-8 in. high. **Stem**, primary almost obsolete. **Pseudobulbs**
3-3'5 cm. 1., 1'5 cm. br., at first covered with three or more scarious membranous sheaths (to 3 cm. 1) with one leaf at apex. *Leaves* ligulate, shortly complicate at base, apex somewhat abruptly acute, 14-18 cm. 1., 2 cm. br. *Pedicelles* 2-3 cm. 1., several, 1-flowered, with scarious sheaths at base; pedicel shorter than peduncle or ovary, with one sheathing bract (18 mm. 1). *Flowers* creamy-yellow, perianth nearly 1 in. 1. *Ovary* and pedicel together 3 cm. 1. *Sepals* oblong, about 2 cm. 1., lateral spreading. *Petals* somewhat oblong, nearly as long as median sepal. *Lip* nearly as long as sepals.

Var. minor *Fawc. & Rendle* in *Journ. Bot. xlviii*. 108 (1910); flowers about half the size; disk of lip with a linear-tapering deep crimson callus $\frac{3}{4}$ length of lip, and two nerved on each side. (Pl. 25, f. 17-19.)


Pedicel with one sheathing bract (7-8 mm. 1.). *Flowers*, perianth $\frac{3}{4}$ in. 1. *Sepals* 1-1'3 cm. 1., 4-5 mm. br.


On trees and banks; in fl. Aug.—March; *Sloane* Herb. iv. 116* & Ic! Wiles! *March*! near Cedarhurst; *Mt. Moses*; J.P. 465; *Morris*! Trelawney, Miss T. M. Barrett! Lancaster, 2500 ft., *Harris*! Fl. Jam. 7209.—Cuba, Trinidad, Guatemala, B. Guiana, Surinam, Brazil.

*Stem* stout, 7 cm. and more long. *Pseudobulbs* to 4 or 5 cm. 1., covered at first with several sheaths, with one leaf at apex. *Sheaths* in two ranks, imbricate, the outer triangular, acute, short, the inner becoming gradually folicaceous. *Leaves* ligulate, obliquely and slightly emarginate, to 2'5 dm. and more, 1'5-2 cm. br. *Pedicelles* several, solitary in the axil of a sheath, 1-flowered, bearing several two-ranked scarious narrow acuminate bracts. *Flowers*, perianth rather more than $\frac{3}{4}$ in. 1., white. *Ovary* with pedicel (if any) 2-3 cm. 1. *Sepals* somewhat leathery, 9-nerved, oblong-ligulate, acuminate, about 2 cm. 1., nearly 5 mm. br. *Petals* 9-nerved, oblong-elliptical, somewhat acute, 1'6 cm. 1., 4 mm. br. *Lip* 1'1-1'2 cm. 1., 4'5 mm. br. *Column* 8'5 mm. 1. *Capsule* cylindrical-tapering, 3 cm. 1., bearing the hard persistent column.


On rocks and the trees; in fl. Aug.–March; Swartz! McNab! Petersfield, St. Mary, Purdie! Springfield, Wullschlaegel, 1085a! Wag Water R., J.P. 2 & 2399, Morris! & Syme! Trelawney, Miss T. M. Barrett! Belvedere, Hanover, 500 ft.; Newcastle Road, 1500 ft.; Tweedside, south St. Andrew, 2500 ft.; Harris! Fl. Jam. 7681, 7841, 9006.—Cuba, Costa Rica, Mexico, Venezuela, Brazil.

Plant 10–14 in. high. Stem very short, almost obsolete, buds springing from base of old plant. Pseudobulbs oblong, much compressed, with one leaf at apex, 2·5 cm. l., 1·5 cm. br. Leaves radical (except one at apex of pseudobulb), in two ranks, 3-edged, complicate below, sheathing and much thickened at base, jointed above the sheath, the outer lower leaves with very shortly developed blade; blade of inner leaves ligulate, oblique at apex and with a very short curved apiculus, keeled, 18–29 cm. l., 17–26 mm. br. Peduncles 8 or 9 mm. l., several, two or three in a cluster from the axil of each leaf and enclosed by its sheath, each cluster enclosed by three or four scarious bracts, about 1·5 cm. l.; each peduncle with three sheathing bracts from base; pedicel as long as peduncle, solitary, 1-flowered, with one sheathing bract. Sepals leathery, oblong, tapering to a thickened and slightly hooded apex; lateral 1·5 cm. l., 5 mm. br.; median concave, 1·4 cm. l., 5 mm. br. Petals somewhat fleshy, ob lanceolate, somewhat acute, 1·25 cm. l., about 3 mm. br. Lip 1·2 cm. l., 4·5 mm. br. Column 8 mm. l. Capsule ellipsoidal with six broad keels and furrows, 2·3 cm. l.

49. NEO-URBANIA Fawc. & Rendle.

Herb, on trees or procumbent on shady stony banks, with long leafy branching stems, the lower internodes rooting. Leaves alternate, narrow, with persistent tightly adpressed sheathing stalks. Flowers stalked, rather small, few, clustered in the axils of the leaves. Sepals nearly equal in length and breadth, connivent, median free, lateral adnate to the foot of the column, forming a chin under the lip. Petals similar to the sepals. Lip 3-lobed, jointed to the foot of the column, and incumbent on it, the lateral lobes above the base curved in towards the column, the blade oval, recurved-spread ing. Column very short, erect, not winged, produced at the base into a long foot; clinandrium slightly concave, entire, the median line raised, and ending in the slightly pointed rostellum; anther terminal, opercular, incumbent, hooded, 2-celled; pollinia 4, waxy, pyriform, equal, compressed laterally, collateral in pairs in the cells, not appendiculate, free. Capsule long, oblong, shortly beaked.

Differs from Ponera in its free simple pollinia and axillary flowers; from Pleuranthium in the lip, which is free from and attached to the foot of the column, and in the pollinia; from Camaridium in habit, in character of the pollinia (absence of gland and stipes), and in the connivent perianth.
Dedicated to Prof. Dr. Ignatius Urban in recognition especially of his work on the botany of the West Indies.

Species 1, a native of Jamaica and Cuba.


In fl. and fr. Sept.–March; near Cedar Hurst (high up on trees), J.P. 480, *Morris*! Lancaster, 2500 ft. (on stony banks under shade); *Harris*! Fl. Jam. 7650, 7696, 7874.—Cuba.

**Plant** several feet in length; internodes 2–4 cm. 1. **Leaves** linear-lanceolate, subacuminate, 12–15 cm. 1, 2 cm. br. **Peduncle** 7 mm. 1. **Pedicel** 7–5 mm. 1. **Bracts** scarious, the one subtending the cluster, 1·1 cm. 1.; that at the base of the peduncle 1 cm. 1.; that at the base of the pedicel 8 mm. 1.; **bracteole** below the ovary 1·3 mm. 1. **Ovary** 8 mm. 1. **Flowers** white, perianth about $\frac{1}{2}$ in. 1. **Sepals** 5·5 mm. 1., subacuminate, median oblong, lateral oblong-elliptical. **Petals** 5 mm. 1., oblong, acuminate, 3-nerved. **Lip** middle lobe, 3 mm. 1, nearly 3 mm. br., margin undulate, apex emarginate; disk at the base with two calli, 1-nerved, at the back 3-nerved, callose at the base, and with a thick apiculus below the apex. **Column** 2 mm. 1.; foot 2 mm. 1. **Capsule** (unripe) 1·6 cm. 1., with slightly prominent ribs.

50. **ORNITHIDIDIUM** Salisb.

Epiphytic herbs. Stems leafy, covered with overlapping sheaths in two ranks, and emitting here and there lateral or sub-lateral 1–2-leaved pseudobulbs. Leaves thinly leathery, in *O. vestitum* only from pseudobulb, elongate, in *O. proliferum* short, those from stem, in two ranks, jointed with the sheath. Peduncles 1-flowered, clustered at the axils. Flowers small. Sepals about equal, free, erect or spreading, acute, the lateral scarcely forming at the base a very short chin. Petals similar to the sepals but smaller. Lip sometimes erect from the base of the column with which it is continuous or very shortly connate, sometimes attached at the apex of the very short foot, erect from a claw which is very shortly horizontal; lateral lobes erect, parallel, often embracing the column, the median spreading, undivided. Column short or a little elongated, thick, without a foot or with a very short foot, not winged; clinandrium obliquely truncate. Anther terminal, opercular, incumbent, helmet-like, imperfectly 2-celled; pollinia 4, waxy, ovoid, sometimes free, sometimes attached to a linear stalk, with a small gland. Capsule oblong-ellipsoidal.

Species about 44, natives of tropical America from the West Indies and Mexico to Brazil.

Leaves, one on each pseudobulb, none on stem .......... 1. *O. vestitum.*

Leaves, two on each pseudobulb, in two ranks on stem 2. *O. proliferum.*


Stem to 3 dm. 1., branching, decumbent and rooting, covered with scales, which are triangular-ovate, acute, sheathing at base, imbricating, dry and becoming scarious, 1–1.5 cm. 1. Pseudobulbs oblong-ellipsoidal, compressed, 1-leaved, 2 to nearly 3 cm. 1. Leaves lanceolate-ligulate, apex acute or obtuse, shortly attenuated at the base, middle nerve prominent below, 1–2 dm. 1., 1.5–2 cm. br. Peduncles clustered in the sheathing scales of the stem just below each pseudobulb, many-jointed, with a sheathing, spathaceous bract at each node. Sepals, lateral 5-nerved, broadly elliptical, apex acute, thickened, 5 mm. 1., 3 mm. br.; median 7-nerved, elliptical, apex with a thickened apiculus, 5–5.5 mm. 1., 2–4 mm. br. Petals 5-nerved, broadly lanceolate, acute, 4–5 mm. 1., 1.8 mm. br. Lip broadly 3-lobed, clawed, lateral lobes rounded, median larger than lateral, shortly ovate, thickened at the apex with a dorsal apiculus, 4 mm. 1. Column 1.75 mm. 1. Capsule smooth, 1 cm. 1.


Stem 5–2 dm. 1., decumbent and rooting below. Pseudobulbs obovate-ellipsoidal, compressed, 2-leaved, 1.5–2 cm. 1. Leaves lanceolate-oblong or oblong, apex obliquely emarginate, apiculate, middle nerve prominent below, those on pseudobulbs narrowed at base, those on stems jointed to strongly compressed sheath, 1.5–2.5 cm. 1., 4–7 mm. br. Sclutters slightly keeled. Peduncles 7 mm. 1., 1-flowered, with three sterile bracts at base; pedicle very short, with one floral bract. Flowers purple, perianth ⅓ in. 1. Ovary cylindrical, 6-furrowed, very long. Sepals with three strong nerves and four faintly indicated, slightly keeled, obtuse, 8 mm. 1., 3 mm. br.; lateral ovate-oblong; median elliptical. Petals 3-nerved, elliptical-oblong, obtuse, 7 mm. 1., 2 mm. br. Lip similar to petals, erect, purple. Column with a short foot, 5 mm. 1. Capsule elongate, half-concealed by the sheaths, narrowly spindle-shaped, 6-furrowed, 1.5 cm. 1.

O. coccineum Salisb. is quoted by Grisebach as coming from Jamaica on the authority of Swartz, but we have seen no specimen from Swartz nor any citation of it by him.

51. MACRADENIA R. Br.

Small herbs. Pseudobulbs with one leaf at apex and scarious sheaths at base. Leaves flat, fleshy or leathery. Peduncles short, from base of pseudobulb. Racemes nodding or reflexed, lax.
Flowers medium-sized. Bracts small. Sepals equal, free, somewhat spreading. Petals a little smaller. Lip continuous with the base of the column, erect; lateral lobes broad, erect, embracing the column, the median spreading. Column erect, not winged, without a foot, furrowed in front, terminated by a thin erect or slightly inclined rostellum; clinandrium behind the rostellum. Anther erect in the bottom of the clinandrium, oblong, produced into a long membranous appendage embracing the rostellum; pollinia 2, waxy, ovoid, distinct, without an appendage, attached to the dilated apex of a long, very narrow stipes, gland small, ovate. Capsule ellipsoidal, tapering to base, shortly beaked.

Species 13, natives of the West Indies, Florida, Guatemala and Surinam.


Plant 5–8 in. high. Pseudobulbs slender, narrowly ovoid-cylindrical, 2–5 cm. l., 5–10 mm. br. Leaf oblong-lanceolate, acute, slightly tapering at base, 10–15 cm. l., 1½–3 cm. br. Peduncle shorter than the leaf, sometimes drooping, with a few sheathing acuminate bracts below (1 cm. l.). Pedicels with ovary 1½–2 cm. l., of fruit 1½–3 cm. l. Bracts triangular, acute, much shorter than ovary, 3–5 mm. l. Flowers 4–9, dingy yellow with brown or purplish blotches on the inside, shortly stalked, perianth nearly ½ in. l., sometimes longer. Sepals membranous, lateral 5–6-nerved, elliptical-lanceolate, acute, somewhat falcate, 1 cm. l., 3 mm. br.; median 7-nerved, very concave, elliptical, acute, 1½–3 cm. l. Petals similar to sepals, but 5–7-nerved, elliptical-oblong, acute, somewhat falcate, 9 mm. l., nearly 3 mm. br. Lip roundish-ovobate in outline below, 5 mm. l., 6 mm. br., with a narrow reflexed, terminal lobe; disk with three keels along centre as far as base of terminal lobe, and four nerves on each side; terminal lobe linear-lanceolate, 3-nerved, narrower at base than above, margin revolute, 4 mm. l., 1½ mm. br. Column thicker above, 4½ mm. l., 2 mm. br. above; rostellum linear, about 1½ mm. l.; clinandrium membranous, cup-shaped, with the margin irregularly toothed. Anther shortly and imperfectly 2-celled.

52. IONOPSIS H. B. & K.

Epiphytic herbs. Stems leafy, very short, without pseudobulbs. Leaves few, narrow, leathery; sheaths persistent, overlapping, in two ranks. Peduncles 1–3, lateral or subterminal, elongated, thin, rigid, with few sheaths. Racemes slender, lax, simple or branching. Flowers medium-sized, with somewhat
long stalks. Bracts very small. Sepals of nearly equal length, erect or spreading at the apex; median free, the lateral quite at the base under the lip connate into a short sac. Petals similar to the median sepal but wider. Lip attached to the base of the column, large, expanded, clawed, the claw bearing two pairs of flat calli, broadening above. Column short, erect, thick, anteriorly concave, not winged, without a foot; clinandrium short, truncate. Anther terminal, opercular, incumbent, semi-globose, 1-celled or imperfectly 2-celled, anteriorly shortly produced; pollinia 2, waxy, obovoid-subglobose, without an appendage, attached to a linear stalk, gland scale-like. Capsule oblong or ovoid, without a beak or with only a short one.

Species 9, natives of tropical America from the West Indies and Mexico to Brazil and Peru.

1. Lip 2-lobed, much longer than the sepals; leaves flat ........................................ 1. I. utricularioides.
Lip entire, scarcely longer than sepals; leaves terete ...................... 2. I. satyrioides.


On trees; in fl. Jan.–June; Swartz! Wright! Shakespear! Masson! Wag Water River, St. Mary, J.P. 2284, Morris! Syme! Manchester; Mona, St. Andrew, 700 ft.; Belvedere, Hanover, 500 ft.; Harris! Fl. Jam. 7635.—Cuba, Hispaniola, Porto Rico, Martinique, St. Vincent, Trinidad, Guatemala, Mexico, Brazil, Peru.

Plant 7 in. to nearly 2 ft. high, occasionally with minute pseudo-bulbs. Leaves leathery, jointed to the sheathing base, 5–12 cm. l., 5–12 mm. br., with a few scarious sheaths on the rhizome below the leaves. Panicle 20–50 cm. l., much longer than the leaf, with a few distant adpressed sheaths (5–7 mm. l.). Bracts minute, triangular, acute, 1½–2 mm. l. Flowers white or pale rose-colour, variegated or with purple veins; perianth about ½ in. l., lip over ½ in. l. Sepals 3-nerved; lateral broadly lanceolate, acute, united at base into a very short simple obtuse sac, 6 mm. l., 2 mm. br.; median oblong, obtuse, 4½–5 mm. l., 2 mm. br. Petals 3-nerved, oblong, obtuse, very shortly apiculate, 4½–5 mm. l., 2 mm. br. Lip 2-lobed above, tapering below to base, with 2 pairs of wing-like calli on the narrow base opposite the column, the lower pair larger and less fleshy than the upper, 10–13 mm. l., and as broad or broader. Column very short, 2 mm. l. Capsule ellipsoidal, beaked, 2 cm. l., 7 mm. br.


Plant 2 in. to a foot high, varying much in size. Leaves 3–14 cm. 1., 2–3 mm. br. Raceme or panicle, 3–15 cm. 1., generally longer than the leaf, with a few distant lanceolate acute or acuminate adpressed sheaths (2–8 mm. 1.), and sometimes with a few small leaves. Bracts small, triangular, acute, half-clasping, concave, 1·5–3·5 mm. 1. Flowers creamy-white, perianth ⅓ in. 1. Sepals, lateral 3-nerved, oblong-lanceolate, acute, united (for about 2 mm.) at the base and forming a 2-lobed sac, 7 mm. 1., 2 mm. br.; median, 5-nerved, ovate-lanceolate, acute, a little shorter than the lateral, 2·3 mm. br. Petals 5-nerved, ovate-oblong, margin slightly undulate and curled, apex obtuse, 7 mm. 1., nearly 3 mm. br. Lip 8·5 mm. 1., obovate, long-tapering to base, with 5 nerves branching above, margin slightly undulate, apex obtuse, undulate and curled and so it may appear to be either 2-lobed or 3-lobed, with two minute calli at the outer edge of the base, and on the disk two lamellate calli which extend to about 2 mm. from base. Column short, 2 mm. 1., thicker above. Capsule ellipsoidal, tapering to base, 13–16 mm. 1., 5 mm. br.

53. COMPARETTIA Pêpp. & Endl.

Epiphytic herbs. Stem very short with two or three sheaths, becoming thickened into a small fleshy pseudobulb with one leaf. Leaf leathery. Scapes at the base of the pseudobulbs, erect, elongate, simple. Flowers laxly racemose, distinctly stalked. Bracts small. Sepals, all of equal length, erect-spreading, median free, lateral connate and produced at the base into a long spur free from the petals. Petals as long as the sepals but broader. Lip continuous with the base of the column, produced at the base into two long linear spurs, included within the spur of the sepals; spreading, much longer than the sepals, very broad, emarginate, clawed, the claw broadening below into a rounded base. Column erect, somewhat thick, semiterete, furrowed anteriorly, not winged, without a foot; clinandrium short, oblique, posteriorly somewhat acute. Anther terminal, opercular, incumbent, very convex, 1-celled; pollinia 2, waxy, broadly ovoid, furrowed, without an appendage, attached to a linear wedge-shaped stalk, gland ovate. Capsule ovoid or oblong, acute-angled, beaked.

Species 6, natives of the West Indies and the Andes, from Central America to Peru.

Lindelia iv. 41, t. 163; Williams Orch. Alb. viii. t. 359; Cogn. in Symb. Ant. iv. 181 & in Fl. Bras. iii. pt. 6, 181, t. 42, f. 2. (Pl. 28, f. 10–15.)


Plant 6–15 in. high. Pseudobulbs small, slender, 1·5–2·5 cm. l., 4–5 mm. br.; sheaths triangular-lanceolate, 2·5–4·5 cm. l. Leaf somewhat leathery, oblong-elliptical to oblong-ligulate, obtuse, apiculate, 5–18 cm. l., 1·2–3·8 cm. br. Scape 1–3 dm. l., much longer than the leaf, simple or occasionally branching, with a few distant adpressed triangular acuminate or obtuse sheaths (4–10 mm. l.). Pedicels with ovary 1–1·5 cm. l. Bracts triangular, acute, clasping, 3–4 mm. l. Flowers bright pink or light crimson, lip ½ in. l. Sepals concave, 10 mm. l., lateral connate, oblong, tapering to an obtuse apex, 5-nerved; median oblong, acuminate, 5-nerved; spur 13 mm. l. Petals 7-nerved, obovate-elliptical, abruptly acute, 8–10 mm. l., 5 mm. br. Lip half as long again as the sepals, 15 mm. l., and nearly as broad, mid-vein forming a wing-like callus in the lower half of the claw. Column 5 mm. l.

54. TRICHOPILIA Lindl.


Species about 27, natives of warmer parts of America, chiefly in Colombia, Central America and Mexico, with two species in the West Indies.


Plant 6 or 7 in. high. Pseudobulb narrowly cylindrical, scarcely swollen, 1–2 cm. l., about 2 mm. br. Leaf linear, subterete and tapering above, 11–17 cm. l., about 4 mm. br. Scape about 2·5 cm. l.; sheath nearly 2 cm. l. Bracts elliptical-oblong, acuminate, 10–14 mm. l., about 4 mm. br. Pedicel and ovary 1 cm. l.; pedicel of fr. 5 cm. l. Flowers, perianth nearly ½ in. l. Sepals 3-nerved, with a few undulating pinnate nerves; lateral, linear-lanceolate, slightly folded on itself, forming a keel which extends separately as an acute projection beyond the apex, 19 mm. l., barely 2·5 mm. br.; median 4-nerved, slightly reticulate-nerved, ligulate, acuminate, 17 mm. l., 2·5 mm. br. Petals with nerves as in lateral sepals, similar to median sepal, but a little shorter and broader, 16 mm. l., 3 mm. br. Lip, general outline broadly oval-elliptical, somewhat spoon-shaped, obscurely 3-lobed, apex abruptly acute, saccate below, margin denticate-
eroded, 15-17-nerved, nerves branching, at base on inside 3 nerves prominent and calllose, forming the inner walls of two shallow pockets, 14 mm. l., about 10 mm. br. Column 5 mm. l., thicker upwards, with a small tooth on each side at the base of the clinandrium; clinandrium 2-5 mm. l., with upper margin truncate and eroded; stigma deeply sunk, margin rounded. Capsule (ur ripe), 1.5 cm. l., 5-6 mm. br.

55. BRASSIA R. Br.

Epiphytic herbs. Stems short, terminated by a pseudobulb with one or two leaves. Leaves under the pseudobulb few or reduced to sheaths, leathery. Peduncles from under the pseudobulb simple. Racemes lax, generally few-flowered. Flowers rather large. Bracts short or spathe-like. Sepals free, spreading, narrow, acuminate or tailed, the lateral longer. Petals similar to the median sepal or smaller. Lip sessile at the base of the column, spreading, flat, undivided, shorter than the sepals, at the base 2-lamellate. Column short, erect, not winged, without a foot; clinandrium hardly prominent, truncate. Anther terminal, opercular, incumbent, very convex or semiglobose, 1-celled; pollinia 2, waxy, obovoid, without an appendage, attached to a flat oblong or linear stalk.

Species 40, natives of tropical America, from the West Indies and Mexico to Brazil and Peru.

Lip about 1½ in. l.; lateral sepals twice as long ..... 1. B. maculata.
Lip about 1 in. l.; lateral sepals 4 or 5 times as long 2. B. caudata.


Plant 1½-2 ft. high. Pseudobulbs large, oblong, sometimes contracted below, compressed, 2-edged, 6-10 cm. l., 2·5-3·5 cm. br. Leaves leathery, broadly ligulate, acute, tapering to base, 10-40 cm. l., 3-5 cm. br. Peduncle stout, longer than the leaves, with a few distant sheathing bracts, 3·5-6 dm. l., with 7-14 flowers. Bracts, sterile sheathing, obtuse, distant, 12-20 mm. l.; floral triangular, acute, much shorter than ovary, 6-10 mm. l. Flowers large, yellowish-green with brown or purple spots; lip, yellowish-white, 13-1½ in. l., sepals 2-3 in. l. Sepals narrowly linear-lanceolate, 4·5-7·5 cm. l., 4-6 mm. br. Petals similar to sepals 3-4 cm. l., 4-5 mm. br. Lip 3·5-4 cm. l., 2·5-3 cm. br.; lamellæ yellow, 5-6 mm. l. Column 5-6 mm. l., green.


**Plant** 10–15 in. high. **Pseudobulbs** large, oblong, compressed, 2-edged, 9–12 cm. l., 2·5–3 cm. br.; at apex 2-leaved. **Leaves** leathery, broadly ligulate, abruptly acute, tapering towards base, 18–30 cm. l., 4–5·5 cm. br. **Peduncle** stout, a little longer than the leaves, with a few distant sheathing bracts below, 2·5–3·5 dm. l., with 9–15 flowers. **Bracts** oblong-triangular, obtuse, shorter than the ovary, 8–10 mm. l. **Flowers** large, shortly stalked, greenish-yellow, with brown or purplish spots, lip about 1 in. l., lateral sepals 2 to 4 or 5 in 1. **Sepals** linear-lanceolate, very long, very acuminate, 5–6 mm. br., lateral 5–11 cm. l., median 4–5 cm. l. **Petals** lanceolate, long-acuminate, 2·2–5 cm. l., 4–6 mm. br. **Lip** 2·5–3 cm. l., 10–12 mm. br. **Column** 4 mm. l.

The floral parts vary much in size. In a living plant brought from Jamaica by Mrs. Longstaff, which flowered at Highlands, Putney, the measurements were as follows: sepals 6 mm. br., lateral 13·3 cm. l., median 5·2 cm. l.; petals 2·3 cm. l., 4·5 mm. br.; lip 2·8 cm. l., 1·2 cm. br.; column, including anther, 5 mm. l.

56. **ONCIDIUM** Sw.

Epiphytic herbs. Stems leafy, generally short or very short, with or without a pseudobulb. Leaves 3-edged or flat. Peduncles lateral, generally elongated and branching. Racemes lax. Bracts small. Sepals generally almost equal, spreading or reflexed, free or lateral connate nearly to apex. Petals similar to the median sepal or larger. Lip attached to the base of the column, continuous, median lobe spreading, very broad, emarginate or 2-fid; disk at the apex of the claw remarkably crested or tuberculare. Column short, thick, furnished with petaloid wings, without a foot; clinandrium sometimes very short, truncate, sometimes ovate, obliquely erect, entire or anteriorly shortly 2-dentate. Anther terminal, opercular, incumbent, very convex, semiglobose or hooded, 1-celled or imperfectly 2-celled; pollinia 2, waxy, obovoid, without an appendage, attached to a flat stalk, narrow and elongated or broad and very short. Capsule almost always ovoid, oblong or spindle-shaped, more or less beaked.
Species over 400, natives of tropical America, from the West Indies, Florida and Mexico to Brazil and Bolivia.

Leaves 3-edged, keeled, linear-ligulate; no pseudobulb; lateral sepals connate nearly to apex.

Lip, middle lobe clawed ........................................ 1. O. guttatum.
Lip, middle lobe not clawed.
Middle lobe entire .................................................. 2. O. triquetrum.
Middle lobe 2-lobed .................................................. 3. O. pulchellum.

Leaves flat; lateral sepals free.
Pseudobulbs wanting, or, if present, small;
leaves very broad, oblong ................................. 4. O. luridum.
Pseudobulbs present, leaves ligulate ......................... 5. O. leucocilum.


—Cuba, Hispaniola, Porto Rico, St. Thomas, St. Martin, Saba, St. Eustatius, Mexico, Colombia.

Plant 9 in to 2 ft. high. Leaves, margin entire to somewhat serrulate, 5–20 cm.1, 3–6 mm. br. Peduncle erect, simple or slightly branched above, much longer than the leaves, with a few distant short acute sheaths below (5–9 mm.), many-flowered above, 3–6 dm.1. Pedicels with ovary 1–3–2 cm. Bracts triangular, acute, much shorter than ovary, 3–5 mm.1. Flowers variable in colour, lip white tinted with pink, sepals and petals brownish with purplish markings, or flowers dingy-brown with rose-coloured markings, or brilliantly coloured white, green and crimson; lip over ½ in. l., ⅛ in. br. Sepals spathulate, keeled, apex acute, 7–5–8 mm.1; lateral 5-nerved; median 3-nerved, 3 mm. br. Petals 3-nerved, in general outline broadly elliptical, broadly clawed, more or less indistinctly 3-lobed, lateral lobes rounded, median lobe broadly triangular-ovate, apex shortly acute, 7–5–8 mm.1, 4–5–5 mm. br. Lip varying in size, 10–13 mm.1, 8–5–16 mm. br., lobes 2–5 mm. 1. Column short, 3–5 mm.1, with a broad square wing in front of lower half; upper wings falcately ovate, acute, 3 mm.1.

O. variegatum Sw., from Hispaniola, differs in its obtuse sepals and emarginate petals. Although this species and O. sylvestre Lindl. are quoted by Grisebach from Jamaica we have not seen any authoritative specimens.


Plant 4–8 in. high. Leaves 3–19 cm. 1., 5–10 mm. br. Peduncle erect, simple or slightly branched above, shorter or longer than the leaves, with a few distant triangular acute keeled sheaths below (4–5–6 mm. 1.), few-flowered above, 7–18 cm. 1. Pedicel with ovary 11–15 mm. 1., of fruit 8 mm. 1. Bracts triangular, acuminate, much shorter than ovary, 2–4 mm. 1., sterile longer. Flowers variable in colour, white and densely purple-spotted, or rose bordered with white and deeply stained and spotted with crimson, lip nearly ½ in. 1. Sepals slightly concave, oblanceolate, apex acute, 9–10 mm. 1., 4 mm. br. Petals triangular-ovate, clawed, apiculate, as long as sepals, 5–6 mm. br. Lip a little over 10 mm. 1. and nearly as broad. Column very short, 3–4 mm. 1., wings somewhat triangular with an acute apex.

3. O. pulchellum _Hook. in Bot. Mag. t. 2773_ (1827); leaves 3-edged, keeled, linear-ligulate; no pseudobulbs; lateral sepals connate nearly to apex; lip, median lobe 2-lobed, broader than long, lateral lobes large, rounded, varying from considerably smaller to almost the size of half the median lobe, crest at base of disk consisting of three narrow calli free at apex.—_Lindl. Gen. & Sp. Orch. 206, Fol. Orch. Oncid. 12 & in Bot. Reg. t. 1787; Griseb. op. cit 631; Cogn. in Fl. Bras. iii. pt. 6, 434._ (Pl. 29, f. 4–8.)


Plant 1–2 ft. high. Leaves 7–20 cm. 1., 7–15 mm. br. Peduncle erect, simple or occasionally branched, much longer than the leaves, with a very few distant short acute sheaths below (7–12 mm. 1.), many-flowered above, 3–6 dm. 1. Pedicels with ovary 1½–2 cm. 1. Bracts triangular, acute, much shorter than ovary, 3–5 mm. 1. Flowers white with rosy tinge, not large, but varying very much in size; lip ½ in. 1. Sepals boat-shaped, lateral, 2-nerved, oblong or oblong-elliptical, tapering to base, 6–10 mm. 1., 3–5–4 mm. br.; median 3-nerved, concave, obovate-cuneate, acute, 5–5–9 mm. 1., 2–5–3 mm. br. Petals 6–10 mm. 1., 4½–7 mm. br., roundish-elliptical or obovate, tapering to base, 3-nerved, apex rounded or apiculate, margin undulate. Lip 1½–2½ cm. 1., median lobe 1½–2½ cm. br. Column very
short, 2 mm. l., wings somewhat oblong-triangular with rounded corners, about 3 mm. l., 4 mm. br.

4. O. luridum Lindl. in Bot. Reg. t. 727 (1823); leaves large, leathery, broadly ligulate-oblong; pseudobulbs wanting or occasionally occurring and quite small; lateral sepals free; lip much narrower at base than above, at base cordate, lateral lobes small, semi-elliptical, margin revolute; median lobe large, shortly clawed, kidney-shaped, at apex emarginate, sinus between the lobes roundish, rather broad, disk at the base with a thick fleshy crest composed in the lower half of two swollen calli uniting below where there is sometimes a small tubercle on each side, a third thin callus rises between these calli and is continued above with a 2-lobed tubercle on each side.—Lindl. Gen. & Sp. Orch. 201 (excl. syn. L. & Willld.), Fol. Orch. Oncid. 41 (excl. syn. L. & Willld.); Hook. in Bot. Mag. t. 3603; Griseb. op. cit. 632.


Roots numerous, densely-clustered, long. Sheaths triangular-ovate, acute, 1–12 cm. l. Leaves 3–5 dm. l., 6–9 cm. br. Panicle 9–18 dm. l., much longer than the leaves, with several very short adpressed distant sheaths (to 1·5 cm. l.). Bracts very short, 3–5 mm. l., triangular, acute. Flowers rather large, long-stalked, segments spreading, margin curred-wayy, yellow colour spotted more or less with cinnamon-brown, rarely yellow without any spots, lip about ½ in. l., and nearly an inch br. Sepals with 3–5 branching nerves of about equal length, rounded at the apex, median obovate-roundish or obovate-oblong, at the base abruptly long and narrowly clawed, 1·4–1·7 cm. l. (claw 4–5 mm. l.), 8·5–10 mm. br.; lateral narrower, broadly elliptical, at the base long tapering into a claw, 1·4–1·7 cm. l., 7–8 mm. br. Petals with four or five branching nerves, obovate-roundish, or obovate-oblong at the base abruptly, rather broadly, shortly clawed, about as long as sepals or slightly shorter, 1·5–1·6 cm. l., 9–10 mm. br. Lip 1·5–2 cm. l., 1·6–2·3 cm. br., at base about 8 mm. br. Column short, 4–5 mm. l., wings 2-lobed, anterior lobe hatchet-shaped, posterior small rounded. Capsule very large, obovoid-ellipsoidal, tapering to base, 5 cm. l., 2 cm. br.

5. O. leucocodium Bateman ex Lindl. in Bot. Reg. under t. 1920 (1837); leaves large, leathery, ligulate, acute; pseudo-
bulbs ovoid-oblong, furrowed, compressed, with two leaves; lateral sepals free; lip 3-lobed, lateral lobes small, oblong-obtuse; middle lobe broadly kidney-shaped, emarginate or retuse; crest with two long lobes on each side, and an erect recurved one in the middle.—Bateman Orch. Mex. & Guat. t. l. (1837); Lindl. Foi. Orch. Oncid. 48 & in Puxt. Mag. Bot. vii. 241 with plate.

On trees in the Blue Mts.; Monklands, Moore! near Newcastle, Walker!—Mexico, Guatemala.

Roots numerous, long, branching. Pseudobulbs 5–10 cm. 1. Leaves 2–4 dm. 1., 2·5–4 cm. br. Panicle 10–20 dm. 1., much longer than the leaves, laxly-flowered, with several adpressed distant sheaths (about 1 cm. 1.). Bracts triangular, acute, 5–7 mm. 1. Flowers rather large, long-stalked; sepals and petals nearly equal, about ¾ in. 1., greenish-brown barred with light yellow-green; lip white, about same length. Sepals and petals similar, elliptical-oblong, acute, spreading, about 2 cm. 1. Column short, about 5 mm. 1.; wings somewhat hatchet-shaped, acute or obtuse above, rounded below.

O. altissimum Sw. is credited to Jamaica by Swartz (Prodr. 123 & Fl. Ind. Occ. 1481). We have seen no specimen nor any other record of the species for Jamaica. Swartz’s citation may have been due to the fact that Jacquin, in his first description of the species (Epidendrum altissimum Pl. Ins. Carib. 30, 1760), cited Sloane’s figure (Hist. Jam. i. t. 148, f. 1), which, as we have seen, represents O. luridum. The species is known from Guadeloupe, Dominica, Martinique, St. Vincent, Mexico, Panama, Colombia, British Guiana, and Surinam.

A very closely allied species, O. sphaelatum Lindl., from Florida and Central America, has been grown under the name of O. altissimum in the Jamaica Botanic Gardens, and a flower is figured on Pl. 29, f. 22–25, but there is no satisfactory evidence that it is native in Jamaica.

57. LEIOCHILUS Knowles & Westc.*

Small epiphytic herbs. Stems very short, terminated by a pseudobulb with one leaf, covered by membranous scarious sheaths or a few leaves under the pseudobulb. Leaves oblong or elliptical, flat, contracted into the stalk. Scapes under the pseudobulb, thin, simple or more rarely somewhat branched. Racemes lax, with small tender flowers, distinctly stalked. Bracts about as long as the stalks or shorter, narrow, acute. Sepals about equal, spreading, free or the lateral shortly connate at the base. Petals similar to the sepals or a little broader. Lip attached at the base of the column, continuous, spreading.

* We have retained the original spelling for this genus. Bentham and Hooker f., Gen. Pl. iii. 564 (1883), on etymological grounds, wrote Leiochilus, overlooking the fact that a genus of Rubiaceae established by Hooker in an earlier volume of the same work, ii. 116 (1873), bears the same name.
oblong, undivided, sometimes longer than the sepals, the disk fleshy or callose. Column short, erect, without a foot, not winged but 2-auredic below the stigma; clinandrium truncate; rostellum elongated. Anther terminal, opercular, incumbent, 1-celled, anteriorly produced beyond the cell into a membranous hooded appendage; pollinia 2, waxy, globose, without an appendage, attached to a narrow elongated stalk, gland ovate. Capsule ellipsoidal, beaked.

Species 7, natives of the West Indies, Mexico, and Central America.


On trees; in fl. March–June; McNab; St. Mary; St. Ann; Purdie! Beaufort, Willschlaegel, 1091! Castleton, on river banks, J.P. 2324, Syne! near Gordon Town; near Hope Bay; Moore! near Browns Town, Miss T. M. Barrett! Christiana, Tomlinson! Castleton; Troy, 1500 ft.; Harris! Fl. Jam. 10,423, 10,426, 10,462.—Cuba, Hispaniola, Guadeloupe, Dominica, St. Vincent, Trinidad.

**Plant** 2–9 in. high. **Roots** numerous, very long. **Pseudobulb** somewhat globose, 7–15 mm. 1. **Leaves**, from apex of the pseudobulb and from its base, somewhat leathery, 2–7 cm. 1., 5–1.5 cm. br. **Scape** with a few distant lanceolate keeled acute sheaths below (5–9 mm. 1.), and a few flowers above. **Pedicels** about equalling ovary, together 8 mm. 1. **Bracts** triangular, acute, 2–3 mm. 1. **Sepals** green, spotted with dark reddish-brown, 3-nerved; lateral oblong, obtuse, united at a distance of 1.5–3 mm. from base, 4–4.5 mm. 1., 3–1.5 mm. br. each at point of union; median elliptical, very shortly acuminate, 3–5 to nearly 4 mm. 1., 1.5 to nearly 2 mm. br. **Petals** green, spotted with dark reddish-brown, elliptical-oblong, apex conduplicate, shortly acute, 3.25–3.5 mm. 1., 1.5–1.75 mm. br. **Lip** yellow, streaked with dark reddish-brown at base, elliptical-oblong, contracted above the base, where there is a fleshy callus, and very concave at the base, apex generally emarginate, about 5 mm. 1., 2.5 mm. br. **Column** 1.5 mm. 1. **Capsule** 14–15 mm. 1, 7 mm. br.

**58. CRYPTARRHENA** R. Br.

Small epiphytic herbs. Stems leafy, very short, without pseudobulbs. Leaves several, crowded, membranous-leathery, with leathery sheaths overlapping in two ranks. Peduncles axillary, erect, longer than the leaves, simple. Flowers small, laxly racemose. **Bracts** narrow, about equalling the pedicels. **Sepals** almost equal, free, spreading, acute. Petals somewhat like the sepals. **Lip** continuous with the base of the column, spreading, claw long, keeled-crested above; lateral lobes at the apex of the claw narrow, spreading or recurved; median shorter, broader, divided. Column short, thickened above, not winged, without a foot; clinandrium elevated, hooded, with small teeth.
on the margin. Anther within the clinandrium, opercular, incumbent, convex, shortly acuminate, imperfectly 2-celled; pollinia 4, waxy, incumbent in pairs without appendage, affixed by the dilated apex of a linear stipes, with a small gland. Capsule ovoid or oblong.

Species 2, one extending through the West Indies and Central America to Peru and Guiana, the other growing in Surinam.


Plant 4-10 in. high. Leaves linear-oblanceolate, acute, jointed to the sheathing base, 6-14 cm. l., 7-13 mm. br. Peduncle 10-18 cm. l. Pedicel and ovary 4-6 mm. l. Bracts lanceolate, acuminate, 2.5-5 mm. l. Sepals elliptical, tapering to an apiculate apex; lateral 3-5 mm. l., nearly 2 mm. br.; median 3.25 mm. l., 1.5 mm. br. Petals obovate-oblong, apex rounded, upper margin minutely eroded, about 3 mm. l., 1.5 mm. br. Lip about 4 mm. l., lateral lobes linear-subulate, curved backwards, more than 2 mm. l., terminal lobe 2-fid, upper margin slightly irregularly eroded, 1 mm. l., 2 mm. br. Column about 2 mm. l. Capsule cylindrical, tapering abruptly at base into the stalk, 6-8 mm. l., 3 mm. br.

59. DICHÆA Lindl.

Epiphytic herbs. Stems leafy, elongated, often pendulous, covered with the leaf-sheaths and leaves. Leaves in two ranks, somewhat membranous, spreading, short. Peduncles axillary, solitary, each with one small flower, with two or three scarious ample bracts, one above the other, near the base, the upper one acute, the lower obtuse, and bracteoles generally two at apex below the flower, the lower broadly roundish, apiculate, the upper linear, sometimes wanting. Sepals subequal, free, spreading, lateral, slightly oblique, forming at the base with the foot of the column a scarcely prominent chin. Petals similar to the sepals, but smaller. Lip fleshy, fixed to the base of the column, sometimes with a short claw; blade sometimes broadening upwards with angles produced sometimes into lobes or teeth, concave, undivided. Column erect, semiterete, very stout, at the base produced into a short or very short foot; clinandrium oblique, short, entire, rather broad. Anther terminal, opercular, incumbent, very convex, imperfectly 2-celled; pollinia 4, waxy, ovoid, closely incumbent in pairs on themselves, without appendage, affixed by a flat stipes, with a small gland. Capsule ovoid or oblong, muricate or smooth, ribs only slightly prominent.
Species about 35, natives of tropical America, chiefly the West Indies, Central America and Mexico.

Leaves persistent, not jointed below; capsule densely covered with long bristles.

Leaves oblong, tapering to an acute apex with a long tip, inclined slightly towards the end of the shoot ........................................

Leaves elliptical-oblong with a rounded apex with a short tip, inclined slightly away from end of shoot ........................................

Leaves linear, inclined slightly away from end of shoot ........................................

Leaves jointed above the sheath, limb falling; capsule smooth.

Leaves oblong-linear, with a long tip at apex, spreading ........................................

Leaves oblong, with a very short tip, inclined towards end of shoot ........................................

Leaves jointed above the sheath, limb falling; capsule densely covered with long bristles.

Leaves oblong or oblong-ligulate, with a short or long tip, ciliate at apex, spreading ............

1. D. echinocarpa

2. D. muricata

3. D. trichocarpa

4. D. graminoides

5. D. glauca

6. D. Morrisii


Plant to 1½ ft. l. Stem to 5 dm. l., simple or sometimes branched, decumbent, pendulous, emitting roots, somewhat slender, compressed, 1-5 mm. br. Leaves, limb 12-25 mm. l., 5-8 mm. br., the long apical tip readily rubbing off, median nerve very prominent below, forming a slight keel, 5-7 nerves on each side; sheaths 12-15 mm. l., compressed, keeled. Peduncles about 15 mm. l.; basal bracts, lower 2-4 mm. l., upper 5 mm. l.; bracteoles about 3 mm. l. Flowers pale yellow. Sepals 5-nerved, outside muricate; lateral oblong, elliptical, tapering to a shortly acuminate apex, 9-2 mm. l., 4 mm. br.; median obovate-oblong, tapering to a shortly acuminate apex, 8-9 mm. l., 3-25 mm. br. Petals outside muricate, oblanceolate-oblong, somewhat falcate, tapering to a shortly acuminate apex, nearly 8 mm. l., 2-5 mm. br. Lip 6 mm. l., about 4 mm. br. Column barely 2-5 mm. l., short and thick, hooded, stigmatic lip absent. Capsule ellipsoidal, somewhat tapering to base, 12-15 mm. l., 6-8 mm. br.
Lindley included two species under his *D. echinoarpa*, viz. *Limodorum pendulum* Aubl. Guian. t. 322, and *Epidendrum echinoarpa* Sw. Prodr. 124; in this he is followed by Cogniaux in Symb. Ant. iv. 182 (1903) and in Fl. Bras. iii. pt. 6, 487, under the name *D. pendula*. Swartz described the lip as entire, and the Jamaican specimens agree with this. Aublet's figure shows a tri-lobed lip, which accords better with Lindley's description of the lip as sagittate. Aublet's species should therefore bear the name *D. pendula*, while *D. echinoarpa* should be reserved for the Jamaican plant.

2. **D. muricata** Lindl. Gen. & Sp. Orch. 209 (1833); leaves persistent, not jointed below, elliptical-oblong, with a rounded apex with a short tip, inclined slightly away from end of shoot; lip blue, 7-nerved, shortly clawed, obovate-rhomboid, the outer angles with a recurved, long, acuminate lobe, apex tapering, long-mucronate; capsule densely covered with long bristles which are only slightly swollen just at the base.—*Griseb. op. cit.* 624; *Cogn. in Symb. Ant. iv.* 183 (in part) & in Fl. Bras. iii. pt. 6, 487 (in part). Cymbidium muricatum Sw. in Nov. Act. Upsal. vi. 71 (1799) & Fl. Ind. Occ. 1454. (Pl. 30, f. 22–25.)


**Plant** to 1½ ft. l. **Stems** to 5 dm. l., simple, somewhat erect, emitting roots, slender, compressed, 1 mm. br. **Leaves**, limb 10–20 mm. l., 5–7 mm. br., median nerve prominent below or sometimes forming a slight keel, 5–8 nerves on each side; sheaths 7–10 mm. l., compressed, keeled. **Peduncles** about 2 cm. l.; bracts, lower 1·5–3·5 mm. l., upper 4·5 mm. l.; bracteoles 2·5–3 mm. l. **Sepals** incompletely 5-nerved, elliptical, acuminate, 7·5 mm. l., 2·5 mm. br. **Petals** incompletely 5-nerved, lanceolate-elliptical, shortly acuminate, spotted with blue, 7 mm. l., 2·1 mm. br. **Lip** 7-nerved, 6 mm. l., 3·25 mm. br. (just above the lobes). **Column** 2·5–3 mm. l., stigmatic lip depressed; clinandrium hooded. **Capsule** obovate, tapering to base, 14–17 mm l., 5 mm. br.

Cogniaux has included this species in Fl. Bras. as a native of tropical S. America, but as there seems to have been some confusion between the W. Indian and S. American species of *Dichaea*, we have cited only those localities from which we have seen specimens.

3. **D. trichocarpa** Lindl. Gen. & Sp. Orch. 209 (1833); leaves persistent, not jointed below, linear, acute, inclined slightly away from end of shoot; lip sessile, broadly oblong, with a triangular lobe on each side above, just above the base cuneate, apex truncate with a blunt mucro projecting at the back, with callus-like thickening at the apex on each side of the central line; capsule densely covered with long bristles, which are swollen nearly throughout their length.—*Griseb. op. cit.* 624. *Epidendrum trichocarpon* Sw. Prodr. 124 (1788). Cymbidium trichocarpon Sw. in Nov. Act. Upsal. vi. 71 (1799) & Fl. Ind. Occ. 1455. (Pl. 30, f. 17–21.) **Type** in Herb. Mus. Brit.


**Plant to 2 ft. 1. Stems** to 6 dm. 1., generally branching, pendulous, emitting roots, slender, terete, a little over 1 mm. br. **Leaves**, limb 9-15 mm. 1., 1-2·5 mm. br., slightly fleshy, median nerve of the younger leaves in drying more or less prominent below, two or three nerves on each side sometimes evident; sheaths. 5-7 mm. 1., slightly compressed, sometimes slightly keeled. **Peduncles** about 8 mm. 1.;’bracts, lower 1·5-2·5 mm. 1., upper about 5·5 mm. 1., attached about 1 mm. above base; bracteoles 2·5-3 mm. 1. **Sepals** 3-nerved; lateral oblong-elliptical, tapering to an acute point, nearly 7 mm. 1., 2·5 mm. br.; median ovate-elliptical, tapering to a somewhat obtuse point, nearly 6 mm. 1., 2·5 mm. br. **Petals** 3-nerved, oblanceolate-oblong, apex somewhat obtuse, slightly apiculate, 5 mm. 1., 1·75 mm. br. **Lip** 4·5 mm. 1., 4 mm. br. (incl. lobes). **Column** 2·5 mm. 1., 2 mm. br., short, slightly hooded above stigma, stigmatic lip obscurely 2-lobulate. **Capsule** narrowly obovate, ‘8 cm. 1., 4 mm. br.


**Plants** 4-12 in. high. **Stems** 1-3 dm. 1., simple or branching a little from base, somewhat erect, emitting roots, somewhat slender, compressed, 2 mm. br. **Leaves**, limb 3-4 cm. 1., 3-5 mm. br., six to eight nerves on each side of the median, slightly prominent; sheaths 10-16 mm. 1., compressed, slightly keeled. **Peduncles** about 2 cm. 1.;’bracts, lower 2-5 mm. 1., upper about 6 mm. 1., attached about 3 mm. above base; bracteoles about 2·5 mm. 1. **Flowers** whitish. **Sepals** incompletely 5-nerved, elliptical, tapering to an acute apex, lateral 6 mm. 1., 2·3 mm. br.; median slightly shorter. **Petals** incompletely 5-nerved, ovate, apex acute, nearly 5 mm. 1., 2·2 mm. br. **Lip** 4·5 mm. 1., 3·2 mm. br. (at lobes), 2 mm. br. at lower portion. **Column** about 2 mm. 1., 1·2 mm. br., stigmatic lip forming a triangular obtuse lobe; anther broad, emarginate, apiculate, with acutely-pointed sides.

We have not seen any specimens elsewhere than from Jamaica that appear to agree with the description of the species.

5. **D. glauca** Lindl. Gen. & Sp. Orch. 209 (1833); leaves deciduous, jointed above the sheath, oblong, with a very short tip, inclined towards the end of the shoot; lip 7-nerved, with a thick short claw, broadly cuneate, with each lateral angle produced into a short ligulate lobe, apex retuse, at base a


*Plant* to 1½ ft. *Stems* to 4·5 dm., simple, clustered, erect, somewhat stout, compressed, about 3 mm. br. *Leaves* of a glaucous colour, limb 3·5–5 cm. l., 9–13 mm. br., median nerve prominent or slightly keeled below, lateral nerves 13–19 on each side, very thin; sheaths 1·3–1·8 cm. l., compressed, keeled. *Peduncle* about 2 cm. l.; bracts 5·5–6 mm. l., upper about 4 mm. from base; bracteole about 1·5 mm. l., broadly roundish, apiculate. *Flowers* whitish. *Sepals* 3-nerved; lateral oblong-ovate, tapering to an acuminate apex, about 8 mm. l., 3·5 mm. br.; median oval, tapering to an acuminate apex, 7·5 mm. l., 3·25 mm. br. *Petals* 3-nerved, lanceolate-elliptical, acute, 7 mm. l., 2·75 mm. br. *Lip* nearly 6 mm. l., about 5 mm. br. (exclusive of lobes). *Column* about 2·5 mm. l., 1·5 mm. br., short, thick, slightly hooded above stigma, apiculate, stigmatic lip triangular with a ligulate lobule at apex. *Capsule* obovate-ellipsoidal, tapering to base, 2 cm. l., 6 mm. br.


*Plant* to 1½ ft. *Stems* to 4·5 dm. l., few, simple, stout, compressed, 4 mm. br. *Leaves*, limb 3·5–5 cm. l., 10–13 mm. br., median nerve prominent or slightly keeled below, lateral nerves 20–30 on each side, very thin; sheaths about 25 mm. l., compressed, keeled. *Peduncle* about 8 mm. l., bracts at the base about 1 cm. l. *Sepals*, margin ciliate; lateral 7-nerved, ovate, shortly acuminate, 11–13 mm. l., 5·5–7 mm. br.; median 9-nerved, oblong, tapering to an acute apex, as long as but narrower than lateral. *Petals* 7-nerved, like the median sepal, 10 mm. l., 3·5 mm. br. *Lip* white barred with brownish-red colour below, fleshy, about 9 mm. l. *Column* very short, thick, winged, 4 mm. l. *Capsule* about 15 mm. l., 10 mm. br.

This species is named after Sir D. Morris, who discovered it. Since printing our description in the Journal of Botany we have seen better material kindly lent by Mr. G. E. Nichols, and have made a few emendations.

60. **CAMPYLOCENTRUM** Benth.

Epiphytic herbs; with leafy stems, or stemless and leafless; with clustered roots. Leaves oblong, in two ranks. Flowers minute, in two ranks, crowded, in spikes, radical or lateral. Braacts
small, persistent. Sepals free, subequal, erect, connivent. Petals as long as the sepal, but narrower. Lip as long as the sepals, sessile at base of column, produced at the base into a more or less clavate spur, often recurved; the blade somewhat quadrate below, with convolute margins, produced upwards into a triangular lobe. Column very short, without a foot; anther terminal, opercular, incumbent, convex, 2-celled; pollinia 2, globose, waxy, with filiform stalks. Capsule small, narrowly oblong, dehiscing in the middle by three valves.

Species 30 in number, natives of tropical America from Brazil to the West Indies and Mexico.

Leafy plants.
Leaves deeply 2-lobed at apex. Capsule smooth.

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<tr>
<th>Lip</th>
<th>Terminal lobe</th>
<th>Leafy plants.</th>
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<td>4-5 mm.</td>
<td>1., terminal lobe about half length of lip</td>
<td>Capsule smooth.</td>
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1. C. Barrettiae Fawc. & Rendle in Journ. Bot. xliii. 127 (1909); leaves deeply 2-lobed at apex; spikes opposite to, and much shorter than, the leaves, solitary or sometimes geminate, densely flowered, 1-2·7 cm. l.; lip 4·5 mm. 1., 5-nerved above, 7-nerved at base, obsolescantly 3-lobed, as long as the sepal, 2 mm. br., middle lobe linear-lanceolate, acute; lateral lobes bluntly rounded, not developed anteriorly, middle lobe about half length of the lip, 2 mm. l., nearly 1 mm. br. at base; spur linear, narrowly clavate, slightly constricted at the origin, 2 mm. l., nearly 1 mm. br., much shorter than the sepal, straight or slightly curved in flower, spreading in fruit; capsule smooth. (Pl. 31, f. 9-15.)


Plant 2-9 in. high. Roots somewhat slender, long, flexuose, canescent, simple, 1-3 dm. l., 1-2 mm. br. Stem somewhat stout, slightly compressed, emitting roots, simple, covered by the leaf-sheaths, becoming bare below, 5-26 cm. l., 2-3 mm. br. Leaves, blade rather large, somewhat leathery, oblong to ligulate, tapering to the base, at the apex very obliquely 2-lobed, lobes rounded at the apex, in two ranks, numerous, caduceous at the base of the stem, 3-7 cm. l., 8-15 mm. br., middle nerve prominent below, caliculate above, lateral nerves numerous; sheaths closely adpressed, with numerous ribs, 6-15 mm. l. Bracts triangular, acute, 1 mm. l. Flowers sessile. Sepals ligulate, apex subacute, slightly apiculate, concave, 3-nerved, 4-5 mm. l., a little over 1 mm. br.; lateral, at the base slightly
oblique and not constricted. *Petals* linear-lanceolate, acute, 3-nerved, with involute margins, 4 mm. l., 1 mm. br. *Capsule* (not ripe) elongated, narrowly oblong, straight, 1 cm. l.

2. *C. jamaicense* Fawc. *Fl. Pl. Jam.* 40 (1893); leaves deeply 2-lobed; spikes opposite to, and very much shorter than, the leaves, solitary, about 1 cm. l.; bracts triangular, acute, barely 1 mm. l.; lip 5-nerved above, 7-nerved at base, subquadrate with an oblong shortly apiculate lobe, about 3 mm. l., 1·75 mm. br.; apical portion less than half the length of the lip, a little over 1 mm. l., 1·6 mm. br.; spur cylindrical, less than 2 mm. l., shorter than the sepals; capsule smooth.—*Aeranthus jamaicensis* Reichb. f. & Wullschl. *in Walp. Ann. ii.* 901 (1861). *Aeranthes micrantha* Griseb. *Fl. Br. W. Ind.* 625 (1864) (in part), non Reichb. f.

Fairfield, 1053, Wullschlaegel!

*Plant* 4 in. high. *Leaves* elliptical, at apex very obliquely 2-lobed, lobes rounded at the apex, in two ranks, numerous, caducous at the base of the stem, 2·5-3 cm. l., 1-1·3 cm. br.; middle nerve prominent below, canaliculate above, lateral nerves numerous; sheaths tubular, closely adpressed, with numerous ribs, 5-10 mm. l. *Sepals* ligulate, apex obtuse, shortly apiculate, concave, 3-nerved, about 3 mm. l., less than 1 mm. br. *Petals* similar to sepals. *Capsule* (not ripe) spindle-shaped, 8 mm. l.

3. *C. minus* Fawc. & Rendle loc. cit.; leaves, apex obtuse, occasionally slightly 2-lobed, obliquely or not; spikes opposite to the leaves and about as long or longer, 2-4-clustered, densely flowered, to 4 cm. l.; lip without nerves, obsoletely 3-lobed, middle lobe triangular, acute, with involute margins; lateral lobes rounded, projecting very slightly anteriorly; 2·5 mm. l., at lobes barely 2 mm. br.; middle lobe about 1 mm. l., less than half the length of the lip; spur ellipsoidal, much constricted at origin, 1·5 mm. l., 1·7 mm. br., much shorter than the sepals, spreading; capsule 6-ribbed. (Pl. 31, f. 5-8.)

On trees; in fl. Dec., in fr. Jan.; Cedar Hurst, Harris!

*Plant* to 5 or 6 in. high. *Roots* slender, long, flexuose, canescent, simple, to 2 dm. l., 1-1·5 mm. br. *Stem* slightly compressed, emitting roots, simple, covered by the leaf-sheaths, to 16 cm. l., about 2 mm. br. *Leaves*, blade somewhat membranous, elliptical, in two ranks, numerous, caducous near the base of the stem, 3-4 cm. l., 7-12 mm. br., middle nerve prominent below, canaliculate above, lateral nerves numerous; sheaths closely adpressed, with numerous ribs, 6-8 mm. l. *Bracts* triangular, acute, apiculate, keeled, 2 mm. l., more than 2 mm. br. *Flowers* sessile. *Sepals* without nerves, median linear-lanceolate, acute, shorter than the lateral, 2·3 mm. l., barely 1 mm. br. at base, 7 mm. higher up; lateral linear-lanceolate, acute, 2·6 mm. l., 7 mm. br. *Petals* linear-lanceolate, acute, without nerves, 2 mm. l., 6 mm. br. *Capsule* (not ripe) oblong-lanceolate, 6 mm. l.

4. *C. pachyrhizum* Rolfe in Orch. Rec. xi. 246 (1903); leafless; bracts spathaceous, roundish, acuminate, cordate, margin minutely eroded, reddish-brown, 3-4 mm. l.—*Aeranthus pachyr-
rhizus Reichb. f. in Flora xlviii. 279 (1865); A. spathaceus Griseb. Cat. Pl. Cub. 264 (1866).

On trees; Castleton; Cedar Hurst; J.P. 2336, Syme! Belvedere, Hanover, 500 ft., Harris! Fl. Jam. 7570.—Cuba, Trinidad, Guiana.

*Plant* less than 1 in. to 1½ in. high. *Aerial roots* hanging free or sometimes attaching themselves to the bark of trees, broad and flat, flexuose, simple, to 3 dm. l., to 4 mm. br. *Stem* reduced to a knob from which the aerial roots and the racemes spring. *Leaves* wanting. *Spikes* radical, several, 3-many-clustered, with numerous flowers; peduncle puberulous. *Flowers* sessile. Sepals, median narrowly triangular, 3-nerved, abruptly acute, 4-6 mm. l., about 1 mm. br.; lateral lanceolate, slightly oblique, 1-nerved, 5-2 mm. l., 1-2 mm. br. Petals subulate, 3-nerved, 4-5 mm. l., 1 mm. br. Lip, lower half suborbicular, upper triangular, acuminate; 4 mm., lower part about 2 mm. br., upper 1 mm. br.; 9-nerved below, 5-nerved above. *Spur* narrowly ellipsoidal, slightly constricted at the origin, about 2-5 mm. l., ±7 mm. br., spreading. *Capsule* ellipsoidal, 6-ribbed, about 8 mm. l.

5. *C. Sullivanii* Fawc. & Rendle op. cit. 128; leafless; bracts ovate, acute, clasping, 1-7 mm. l., 1-3 mm. br. Aeranthes filiformis Griseb. Fl. Br. W. Ind. 625 (1864) (in part, excl. syn.). (Pl. 31, f. 1-14.)


*Plant*, raceme 1-2 in. high. Aerial roots hanging free or sometimes attaching themselves to the bark of trees, somewhat slender, long, flexuose, canescent, simple, to 3 dm. l., 1-5-2 mm. br. *Stem* reduced to a knob, from which the aerial roots and the racemes spring. *Leaves* wanting. *Spikes* radical, several, 4-7-clustered, with numerous flowers in two ranks, 3-6 cm. l., rachis minutely puberulous. *Pedicels* short, about 7 mm. l. *Ovary* obovoid, 1-5-2 mm. l., nearly 1 mm. br. *Flowers* brownish-white. Sepals 1-nerved; median ovate, acute, apiculate, 1-4-1-7 mm. l., ±8 mm. br.; lateral ovate-lanceolate, apiculate, 1-7-1-8 mm. l., ±7-8 mm. br. Petals 1-nerved, oval or ovate-elliptical, subacute, 1-25 mm. l., ±6-7 mm. br. Lip 3-lobed, 7-nerved, 1-3 mm. l., 1-3 mm. br., middle lobe triangular, acute, apiculate, 25 mm. l.; lateral rounded; spur linear, slightly clavate, 1-1-1-2 mm. l. *Column* green. *Capsule* broadly ellipsoidal, 9-ribbed, 4 mm. l., 2-3 mm. br.

*C. filiforme* Rolfe (Epipendrum filiforme Sw.; type in Herb. Mus. Brit. from S. Domingo) differs from this species in the lip, the capitate spur, and the obtuse sepal and petals.

61. **HARRISELLA** Fawc. & Rendle.

Epiphytic herbs, stemless and leafless; roots clustered. Flowers minute, in two ranks, in lax few-flowered radical racemes, jointed on a short pedicel which is swollen above. Bracts small, persistent. Sepals free, subequal, erect, slightly spreading above. Petals similar to, and as long as the sepals, but narrower. Lip slightly longer than the sepals, sessile at base of column, produced at the base into a spur, globose from a very constricted base; the blade somewhat globose, embracing the column, and
hooded over it. Column very short, without a foot; anther terminal, opercular, incumbent, rather flat, indistinctly 2-celled; pollinia 2, globose, waxy, with short filiform stalks. Capsule small, shortly ellipsoidal, dehiscing from the apex by six valves which are alternately broad and narrow.

Species, only one known, native of Jamaica and Cuba.

The genus is very near to Campylocentrum, in which it has been included, but differs in the inflorescence, the lip, the form of the anther, and the form and dehiscence of the capsule.

It is dedicated to Mr. William Harris, F.L.S., Superintendent of Public Gardens, Jamaica, and an indefatigable collector, who has added much to our knowledge of the Jamaican Flora.

—Aeranthus porrectus Reichb. f. in Flora xlviii. 279 (1865); Griseb. Cat. Pl. Cub. 265. Campylocentrum porrectum Rolfe in Orch. Rev. xi. 247 (1903); Ames Orch. i. 15, t. 4. (Pl. 31, f. 16-21.)


*Plant* 1½-2 in. high. *Aerial roots* hanging free or sometimes attaching themselves to the bark of trees, very slender, flexuose, white, canescent, simple, to 1 dm. 1., ·5 mm. br. *Racemes* several, clustered, zig-zag at each node, 4-5 cm. 1. *Bracts* tubular below, obtuse, 1-8 mm. 1. *Pedicels* slightly exceeding the bracts, thicker upwards than the base of ovary. *Flowers* about 1½ in. long, yellow-green. *Ovary* attenuated below, glandular along six vertical lines, 2·7 mm. 1. *Sepals* reticulate-nervulose, slightly keeled, a little over 2 mm. 1., median ·8 mm. br.; lateral 1 mm. br.; dorsal oval-elliptical, obtuse; lateral oval, oblique, acute. *Petals* a little over 2 mm. 1., ·7 mm. br., linear, obtuse, apiculate, 1-nerved. *Lip* 2·5 mm. 1., obtusely apiculate. *Spur* ·7 mm. *Column* terete; clinandrium 2-lobed anteriorly; anther-case, somewhat deltoid. *Capsule* 6 mm. 1., 5 mm. br.

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62. **DENDROPHYLAX** Reichb. f.

Epiphytic leafless herbs, with the roots densely clustered, a very short stem and no pseudobulb. Scapes thin, simple, with small distant bracts. Flowers solitary on the scape or a few in a raceme, very large, medium-sized or small. Sepals about equal, free, spreading. Petals somewhat similar to the sepals. Lip sessile at the base of the column, produced at the base into a long spur much dilated towards the mouth, continuous with the column, erect; limb entire or 2-lobed. Column very short, broad, without a foot. Anther terminal, opercular, incumbent, indistinctly 2-celled; pollinia 2, somewhat globose, waxy, each with a stalk, which is simple or flat and 2-partite. Capsule oblong or elongated.

Species about 5, natives of West Indies.

Sepals about ⅓ inch l. .......................... 1. *D. funalis.*
Sepals about ¼ inch l. .......................... 2. *D. Barretti*.


*Plant* 5 or 6 in. high. *Roots* to 3 dm. or more l., slender, compressed, flexuose, canescent, simple, occasionally branched, repeatedly forming new growths from the tips of the old roots. *Stem* very much reduced, extending occasionally to scarcely 2 cm., covered with brown sheathing scales, leafless, bearing long slender woody stolons. *Scape* simple, few-flowered, 5-10 cm. 1. *Bracts* sheathing, wide at mouth, acute or acuminate, brown, 4-5 mm. l. *Pedicel* (of fruit) 1 to nearly 2 cm. l. *Sepals* elliptical, obtuse, reticulate-7-veined; median spreading, about 2 cm. l., 7 mm. br.; lateral deflexed, about 2-2 cm. l., 6 mm. br. *Petals* oblong-elliptical, subacute, reticulate-7-veined, spreading, about 2 cm. l., 5-6 mm. br. *Column* short, with two broad wings produced anteriorly. *Anther* sub-hemispherical, cells not divided, but indicated by an almost obsolete wall and by a longitudinal depression outside; pollinia on a ribbon-like process of the flat stalk. *Capsule* elongated, cylindrical, 6-angled, 7 cm. l., about 5 cm. br.

2. D. Barretttie *Fawc. & Rendle in Journ. Bot. xlvii.* 266 (1909); lip undivided, saccate, above broadly ovate, shortly acuminate, extending about as far as lateral sepals; spur spreading, 2-3 cm. l., increasing in thickness from the middle towards the apex. Types in Herb. Kew. and in Herb. Mus. Brit.

On trees; in fl. in Aug.; near Browns Town, *Miss T. M. Barrett! Holly Mount, Mt. Diabolo, 2600 ft., Harris!*

A small stemless, leafless plant, about an inch high. *Roots* very slender, flexuose, simple, to 12 cm. l. *Scapes* several, clustered, simple, to 2-5 cm. l. *Bracts* few (three), tubular below, free part ovate, apiculate, 1-5 mm. l. *Flowers* small, one flower appearing at a time, greenish-white, the spur rather lighter in colour. *Sepals* spreading, 3-nerved, linear-lanceolate, subacute to acute, 5-6 mm. l., 1-3-1-5 mm. br. *Petals* erect, 3-nerved, similar to sepals, linear-ligulate, acute, nearly 5 mm. l., 1 mm. br. *Column* very short, auriculate at apex as in *D. funalis*, auricles toothed on upper margin; anter-cells somewhat ovate-rectangular in outline; pollinia with a simple stalk.
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PLATES
EXPLANATION OF PLATE 1

Habenaria macroceratidis

1. Flower, natural size.

H. distans var. jamaicensis (H. jamaicensis)

2. Flower × about 2.
3. Petal × 5.

Habenaria alata

4. Flower × nearly 2.
5. Column and lip with part of petals × 4.
6. Petal × 5.
7. Lip, under side × 7.

Habenaria monorrhiza

8. Flower × between 2 and 3.

Pogonia macrophylla

11. Upper part of stem × \( \frac{2}{3} \).
1 Habenaria macroceratitis; 2, 3 H. distans var.; 4-7 H. alata; 8-10 H. monorrhiza; 11 Pogonia macrophylla.
EXPLANATION OF PLATE 2

_Habenaria Purdiei_
1. Flower $\times 2$.
2. Lateral sepal $\times 3$.
3. Petal $\times 3$.

_Habenaria socialis_
4. Flower $\times 2$.
5. Lateral sepal $\times 4$.
6. Petals $\times 4$.
7. Lip $\times 4$.

_Habenaria troyana_
8. Flower $\times 2$.
9. Lateral sepal $\times$ about 5.
10. Petal $\times 4$.
11. Another form of petal $\times 4$.
12. Lip $\times 4$.

_Pogonia gentianoides_
14. Flower $\times 2$.
15. Lip $\times 4$.

_Vanilla inodora_
16. Lip and column $\times \frac{1}{2}$.

_Vanilla Wrightii_
17. Flower, with one sepal and one petal removed, $\times \frac{1}{2}$.

_Vanilla clariculata (by error parasitica)_
18. Lip and column $\times \frac{1}{2}$.
19. Column showing attachment of portion of lip $\times \frac{1}{2}$

_Vanilla phœantha_
20. Lip (cut open) and column $\times \frac{1}{2}$.

_Pelexia setacea_
22. Flower, with two sepals and one petal removed, nat. size.
Orchids of Jamaica

1-3 Habenaria Purdiei; 4-7 H. socialis; 8-12 H. troyana; 13-15 Pogonia gentianoides; 16 Vanilla inodora; 17 V. Wrightii; 18-19 V. parasitica; 20 V. phaeantha; 21, 22 Pelexia setacea.
EXPLANATION OF PLATE 3

*Spiranthes tortilis*
1. Flower × 4.
3. Column × about 5, from side.
4. Do. from back.
5. Do. from front.

*Spiranthes Fawcettii*
6. Flower × about 2 1/2.
7. Lip × 3.
8. Column × 3, from front.
9. Do. from back.

*Spiranthes elata*
13. Another form of do.

*Erythrodes plantaginea*
15. Flower, with part of the sepals and one petal removed, × 3.

*Erythrodes hirtella*
16. Flower × 3.
17. Flower, with lateral sepals and one petal removed, × 3.
19. Do. from side.

*Erythrodes jamaicensis*
20. Lip and spur × 3.

*Stenorrhyncos squamulosus*
21. Flower × 1 1/2.

*Stenorrhyncos lanceolatus*
22. Flower × 1 1/2.

*Wullschlægelia aphylla*
23. Plant, nat. size (from Swartz's type).
24. Flower, with lateral sepal pulled down and a petal removed, × 6.
1-5 Spiranthes tortilis; 6-9 S. Fawcettii; 10-14 S. elata; 15 Erythrodes plantaginea; 16-19 E. hirtella; 20 E. jamaicensis; 21 Stenorrhyncos squamulosus; 22 S. lanceolatus; 23-25 Wullschlægelia aphylla.
EXPLANATION OF PLATE 4

*Pseudocentrum minus*

1. Plant, half natural size.
2. Flower, about nat. size, from side
3. Do. from back.
4. Do. from front.
5. Flower × about 3.
6. Section of flower × between 2 and 3.
7. Column enlarged.
8. Column from side enlarged.
10. Anther, with pollinia, enlarged.
11. Pollinia enlarged.
Pseudocentrum minus.
EXPLANATION OF PLATE 5

*Cranichis pilosa*

1. Raceme, natural size.
2. Flower × about 4½.
3. Column, with lip thrown back, × about 10.

*Prescottia oligantha*

4. Flower, with one sepal and one half and one petal removed, × 16.

*Stenoptera ananassocomos*

5. Plant, nat. size.
6. Flower × 8.

*Ponthiera Harrisii*

8. Flower, with sepal thrown back, × about 3.
9. Flower, with one sepal and one half and one petal removed, × about 6.
10. Anther enlarged, from different points of view.
11. Pollinia enlarged.

*Ponthiera panciflora*

12. Flower, with one sepal and one petal removed, × about 6.

*Corymborchis flava*

14. Flower, with lip and lateral sepals spread out, nat. size.

*Tropidia polystachya*

15. Flower × 2.
1-3 Cramichis pilosa; 4 Prescottia oligantha;
5, 6 Stenoptera ananassocomos; 7-10 Ponthieva Harrisii;
12, 13 P. pauciflora; 14 Corymborchis flava;
15 Tropidia polystachya.
EXPLANATION OF PLATE 6

*Liparis Harrisii*

1. Top of flower-spike, natural size.
2. Sepal pressed flat $\times 2\frac{1}{2}$.
3. Lip pressed flat $\times 3$.
4. Column $\times 5$, from the front.
5. Do. from the side.

*Liparis Saundersiana*

7. Column, from the front, enlarged.
8. Column, from the side, enlarged.

*Malaxis integra*

12. Top of flower-spike, nat. size.
13. Flower $\times$ about 6, from front.
14. Do. from back.
15. Lip $\times$ about 8.
17. Pollinia enlarged.

*Malaxis Grisebachiana*

18. Plant, lower portion, nat. size.
20. Flower $\times$ about 6, from front.
21. Do. from back.
22. Column enlarged.
23. Pollinia enlarged.
Orchids of Jamaica

1-5 Liparis Harrisii; 6-10 L Saundersiana; 11-17 Malaxis integra; 18-23 M Grisebachiana.
EXPLANATION OF PLATE 7

Galeandra Beyrichii

1. Part of peduncle with one flower, about natural size.
2. Lip torn away at base and flattened, with column, about nat. size.
3. Anther enlarged.

Polystachya minuta

4. Flower, with one sepal and one half removed, and lip turned back, × about 4.
5. Lip spread out × about 5.

Polystachya minor

6. Flower, with one sepal and one half and one petal removed, and lip turned back, × about 4.
7. Lip spread out × about 5.

Cryptophoranthus atropurpureus

8. Flower, nat. size.
9. Flower, with sepals removed and one petal turned back, × 3.
10. Lip × 3.

Stelis ophioglossoides

11. Raceme and part of leaf, nat. size.
12. Flower × 5.
13. Petals, lip and column × 16.
14. Column viewed more from the anterior × 16.

Stelis micrantha

15. Raceme and part of leaf, nat. size.
16. Flower (Fl. Jam. 10,087) × 5.
17. Petals, lip and column of do. × 16.
18. Column of do., viewed more from behind, × 16.
19. Flower (Fl. Jam. 7835) × 5.
20. Petals, lip and column of do. × 16.
22. Lip of do. lying flatter × 16.
23. Bud of do. × 16.
24. Column of do. × 16.
25. Pollinia × 16.
26. Flower of Sowerby’s specimen × 5.
27. Flower of Swartz’s specimen × 5.
28. Flower (J.P. 23) × 5.
Orchids of Jamaica

Pl. 7

3. Galeandra Beyrichii; 4,5 Polystachya minuta; 6,7 P. minor; 8-9 Cryptopnoranthus atropurpureus; 11-14 Stelis ophiglossoides; 15-28 S. micrantha.
EXPLANATION OF PLATE 8

Pleurothallis trilobata

1. Plant, natural size.
2. Flower × 5.
5. Column × 10.
6. Pollinia enlarged.

Pleurothallis brachypetala

8. Flower with part of the sepals removed × 7.

Pleurothallis rotundifolia


Pleurothallis velaticaulis

17. Portion of stem with leaf and raceme, nat. size.
18. Flower × 5.
20. Lateral sepal × 5.
22. Lip × 7.
1-6 Pleurothallis trilobata. 7-10 P. brachypetala. 11-16 P. rotundifolia. 17-22 P. velaticaulis.
EXPLANATION OF PLATE 9

Pleurothallis Morrisii

1. Plant, natural size.
2. Petal × 15.
3. Lip × 15.

Pleurothallis confusa

5. Portion of plant, nat. size.
6. Petal × 15.

Pleurothallis Wilsonii


Pleurothallis Helenæ

12. Ovary and column × 15.

Pleurothallis hirsutula

15. Portion of plant, nat. size.
17. Petal × 5.
1-4 Pleurothallis Morrisii; 5-7 P. confusa;
8 P. Wilsoni; 9-14 P. Helenae; 15-19 P. hirsutula.
EXPLANATION OF PLATE 10

Pleurothallis uncinata

1. Plant, half natural size.
2. Capsule and flower, nat. size.
3. Petal $\times$ about 4 times.
4. Lip $\times$ about 4 times.
5. Column enlarged.
Pleurothallis uncinate.
EXPLANATION OF PLATE 11

*Lepanthes arcuata*
1. Plant, natural size.
2. Flower with dorsal sepal in front × 11.
3. Do. with lateral sepal in front × 11.
5. Petal flattened out × 14.
6. Anther case enlarged.
7. Pollinia enlarged.

*Lepanthes Harrisii*
10. Anther case enlarged.
11. Pollinia enlarged.

*Lepanthes Woodiana*
14. Flower flattened out × 12.
15. Capsule enlarged.
17. Pollinia enlarged.

*Lepanthes elliptica*
19. Flower flattened out × 5.
20. Petals and column enlarged.

*Lepanthes brevipetala*
23. Flower flattened out × 12.
1-7 Lepanthes arcuata; 8-11 L. Harrisii;
12-17 L. Woodiana; 18-21 L. elliptica; 22, 23 L. brevipetala
EXPLANATION OF PLATE 12

*Brachionidium Sherringii*

1. Plant, natural size.
2. Leaf showing position of sheaths $\times 2$.
3. Flower $\times 1\frac{1}{2}$, from front.
4. Do. from back.
5. Dorsal sepal $\times$ about 2.
6. Lateral sepals $\times$ about 2.
7. Petal $\times$ about 2.
8. Lip and column $\times$ 17, side view.
10. Anther case enlarged.
11. Pollinia enlarged.
Brachionidium Sherringii.
EXPLANATION OF PLATE 13

*Cœlia triptera*

1. Plant, half natural size.
2. Flower with dorsal sepal held down $\times 2$.
3. Flower with sepals and petals removed $\times 2$.
4. Do. from one side $\times 2$.
5. Column enlarged.
6. Anther enlarged.
7. Pollinia enlarged.

*Isochilus linearis*

9. Flower $\times$ nearly 2.
10. Flower, with half the sepals and one petal removed, $\times 3$.
11. Lip $\times 3$.
12. Anther enlarged
13. Pollinia enlarged.
1-7 Coelias triptera; 8-13 Isochilus linearis.
EXPLANATION OF PLATE 14

_Seraphyta diffusa_

1. Flower × about 3.
2. Anther enlarged.
3. Pollinia enlarged.

_Arrophyllum giganteum_

4. Upper portion of spike, natural size.
5. Flower × 2.
7. Do. with lip depressed.
8. Anther enlarged.

_Broughtonia sanguinea_

10. Flower, with one sepal and one half and one petal removed, nat. size.
11. Lip slightly enlarged.
12. Column × about 2.

_Broughtonia domingensis_

15. Upper portion of spike, nat. size.
16. Lip, nat. size.
17. Column × about 2.
18. Anther enlarged.
19. Pollinia enlarged.
13 Seraphyta diffusa; 4-9 Arpophyllum giganteum; 10-14 Broughtonia sanguinea; 15-19 B. domingensis.
EXPLANATION OF PLATE 15

_Epidendrum angustilobum_

1. Flower, natural size.

_Epidendrum nocturnum_

2. Lip and column, nat. size.

_Epidendrum disforme_

3. Flower $\times 2$.

_Epidendrum serrulatum_

4. Flower with lateral sepal and petal removed $\times 5$.

_Epidendrum nutans_

5. Flower $\times 1\frac{1}{2}$.

_Epidendrum bisavium_

6. Flower $\times 6$.

_Epidendrum rivulare_

7. Flower slightly enlarged.

_Epidendrum Ottonis_

8. Flower $\times 4$.

_Epidendrum imbricatum_

9. Flower $\times 3$.

_Epidendrum anceps_

10. Flower slightly enlarged.

_Epidendrum verrucosum_

11. Flower slightly enlarged.

_Epidendrum ramosum_

12. Lip and column $\times 4$. 
Epidendrum spp.
EXPLANATION OF PLATE 16

*Epidendrum monticolum*

1. Plant, natural size.
2. Flower $\times 1\frac{1}{2}$.
3. Petal $\times 2\frac{1}{2}$.
4. Lip $\times 2\frac{1}{2}$.

*Epidendrum parvilobum*

5. Plant, lower part, with leaf, nat. size.
6. Petal $\times 3$.
7. Lip $\times 3$.

*Epidendrum belvederense*

8. Petal $\times 3$.
9. Lip $\times 3$.
1-4 Epidendrum monticolum; 5-7 E. parvilobum; 8-10 E. belvederense.
EXPLANATION OF PLATE 17

_Hormidium tripterum_

1. Portion of plant, natural size.
2. Flower × 3.
3. Column and lip, anther removed × about 7.
4. Anther enlarged, side view.
5. Do. front view.

_Laelia monophylla_

7. Flower, nat. size.
10. Anther enlarged from back.
11. Do, from front.
12. Pollinia enlarged.

_Octadesmia montana_

15. Do. back view.
16. Pollinia enlarged.
Orchids of Jamaica

1-5 Hormidium tripterum; 6-12 Lælia monophylla; 13-16 Octadesmia montana.
EXPLANATION OF PLATE 18

*Homalopetalum vomeriforme (H. jamaicense)*

1. Plant, natural size.
2. Column and lip × 3.
3. Lip flattened × 3.
4. Anther with pollinia, enlarged.
5. Pollinia enlarged.
6. Do. spread out.

*Tetramiera parviflora*

8. Flower × about 3.
10. Pollinia enlarged,
1-6 Homalopetalum jamaicense; 7-10 Tetramicra parviflora.
EXPLANATION OF PLATE 19

*Schomburgkia Lyonsii*

1. Portion of raceme, natural size.
2. Column × 2, back view.
3. Do. front view.
4. Anther enlarged, front view.
5. Do, back view.
6. Pollinia, as attached to stigma, enlarged.

*Brassavola cordata*

7. Flower, nat. size.
9. Anther, with pollinia, enlarged.
10. Empty anther case enlarged.
11. Pollinia enlarged.
1-6 Schomburgkia Lyonsii, 7-11 Brassavola cordata.
EXPLANATION OF PLATE 20

_Elleanthus capitatus_

1. Apex of stem with head of flowers, natural size.
2. Flowers, nat. size, from back.
3. Do. from side.
4. Column $\times$ about 2, partly front view.
5. Do. from side.
6. Anther enlarged.
7. Pollinia enlarged.

_Elleanthus longibracteatus_

8. Flower with bract $\times$ 2.
9. Column and lip $\times$ 2.
10. Do., lip thrown back, $\times$ 2½.
11. Lip $\times$ 2½.
12. Pollinia enlarged.

_Phais Tuncarvilleae (P. grandifolius)_

13. Flower $\times$ about ½.
14. Column slightly enlarged from side.
15. Do. from front.
17. Pollinia enlarged.

_Calanthe mexicana_

19. Flower, with one sepal and one half and one petal removed, $\times$ 2½.
20. Lip flattened $\times$ 3.
22. Pollinia enlarged.
1-7 Eleanthus capitatus; 8-12 E. longibracteatus; 13-17 Phaius grandifolius; 18-22 Calanthe mexicana.
EXPLANATION OF PLATE 21

*Bletia purpurea* (*B. alta*)

1. Top of raceme, natural size.
2. Flower spread out $\times 2$.
3. Lip and column of bud, nat. size.
4. Lip and column of opening flower $\times 2$.
5. Lip flattened out $\times 2$.
6. Anther enlarged.
7. Pollinia enlarged.

*Bletia floridana*

8. Flower, with one sepal and one half and petal removed, nat. size.
10. Lip $\times$ nearly 2.
11. Column $\times 2$.

Figs. 3, 9, 10, 11 are copies of Salisbury’s original drawings in the Department of Botany.
1-7 Bletia alta. 8-11 B. florida.
EXPLANATION OF PLATE 22

*Govenia utriculata*

1. Lower portion of stem, about natural size.
2. Upper portion of raceme slightly enlarged.
3. Flower slightly enlarged.

*Eulophia alta* (by error *longifolia*)

5. Flower with lip removed, nat. size.
7. Anther enlarged.
8. Pollinia enlarged.
1-3 Govenia utriculata: 4-8 Eulophia longifolia.
EXPLANATION OF PLATE 23

Lycaste Barringtoniae

1. Scapes and pseudobulb, with sepals and petals removed in one flower, half natural size.
2. Anther enlarged.
3. Pollinia enlarged.

Xylobium palmifolium

4. Scapes and pseudobulb, half nat. size.
5. Flower with perianth removed, except one sepal and one petal, slightly enlarged.
6. Anther enlarged.
7. Pollinia enlarged.

Bulbophyllum jamaicense

8. Stem and pseudobulb, nat. size.
10. Flower, sepals and one petal removed × 6.
12. Anther enlarged, from front.
13. Do, from back.

Bulbophyllum packyrrhachis

15. Upper portion of stem, nat. size.
16. Flower, sepals removed, × 7.

Zygopetalum flabelliforme (Z. cochleare)

17. Lower portion of plant, nat. size.
18. Anther enlarged.
19. Pollinia enlarged.
1-3 Lycaste Barringtoniae: 4-7 Xylobium palmifolium.
8-14 Bulbophyllum jamaicense. 15, 16 B. pachyrrhachis,
17-19 Zygopetalum cochleare
EXPLANATION OF PLATE 24

*Neo-urbania adendrobium*

1. Plant, half natural size, lower part.
2. Do. upper part.
3. Flower and peduncle with bracts × 3.
4. Flower, half the sepals and one petal removed × 7.
5. Lip from side × 7.
7. Column × about 8.
8. Anther enlarged, from above.
9. Do. from below.
Neo-urbania adendrobiun.
EXPLANATION OF PLATE 25

Maxillaria alba
1. Plant, half natural size.
2. Flower, nat. size.
3. Lip and column slightly enlarged.
4. Lip flattened slightly enlarged.
5. Anther enlarged.
6. Pollinia enlarged.

Maxillaria sessilis
7. Tip of leaf nat. size.
8. Flower nat. size.
10. Column enlarged.
11. Anther enlarged.
12. Pollinia enlarged.

Maxillaria rufescens
14. Lip flattened $\times 1\frac{1}{2}$.
15. Anther enlarged.
16. Pollinia enlarged.

Maxillaria rufescens var minor.
17. Flower, nat. size.
18. Lip flattened slightly enlarged.
1-6 Maxillaria alba; 7-12 M. sessilis; 13-16 M. rufescens; 17-19 M. rufescens var. minor.
EXPLANATION OF PLATE 26

Ornithidium vestitum

1. Portion of plant, natural size.
2. Flower, with one sepal and one half and one petal removed × 5.
3. Anther enlarged.
4. Pollinia enlarged.

Ornithidium proliferum

5. Portion of plant, nat. size.
6. Flower × about 2.
7. Lip flattened × about 2.
Orchids of Jamaica

1-4 Ornithidium vestitum; 5-7 O. proliferum.
EXPLANATION OF PLATE 27

_Ionopsis satyrioides (I. testiculata)_

1. Plant, natural size.
2. Flower, with one sepal and one half and one petal removed, $\times$ between 3 and 4.
3. Pollinia enlarged.

_Ionopsis utricularioides_

5. Flower, with half perianth removed, slightly enlarged.
6. Pollinia enlarged.

_Macradenia lutescens_

8. Flower, with sepals and petals removed, $\times$ about 2.
10. Do, from back.
1-3 Ionopsis testiculata, 4-6 Utricularioides, 7-10 Macradenia lutea
EXPLANATION OF PLATE 28

*Brassia maculata*

1. Portion of plant, half natural size.
2. Portion of raceme, half nat. size.
3. Column $\times$ 4, from side.
4. Do. from front.
5. Anther enlarged.
6. Pollinia enlarged.

*Brassia caudata*

7. Flower, with one sepal and one petal removed, nat. size.
8. Anther enlarged.

*Comparretia falcata*

11. Flower, with sepals and one petal removed, slightly enlarged.
12. Sepals and ovary, slightly enlarged.
13. Column $\times$ 3.
15. Pollinia enlarged.
1-6 Brassia maculata, 7-9 B. caudata, 10-15 Comparettia falcata
EXPLANATION OF PLATE 29

*Trichopilia jamaicensis*

1. Plant, natural size.
2. Column × about 3.
3. Pollinia enlarged.

*Oncidium pulchellum*

4. Flower, nat. size.
6. Anther enlarged.
7. Pollinia enlarged, from front.
8. Do. from side.

*Oncidium luridum*

10. Anther enlarged.
11. Pollinia enlarged.

*Oncidium triquetrum*

12. Flower, slightly enlarged.
13. Column × 4 or 5, from front.
14. Do. from back.
15. Anther enlarged.
16. Pollinia enlarged, from front.
17. Do. from back.

*Oncidium guttatum (O. tetrapetalum)*

18. Flower, nat. size.
19. Flower, with one sepal and one petal removed, × 2½.
20. Anther enlarged.

*Oncidium sphacelatum (by error altissimum)*

22. Flower, nat. size.
23. Anther enlarged.
24. Pollinia enlarged, from front.
25. Do. from side.
Trichopilia jamaicensis, 4 6 Oncidium pulchellum, 9 11 0 luridum. 12 17 0 triquetrum, 18 20 tetrapetalum, 22 25 0 altissimum.
**EXPLANATION OF PLATE 30**

*Leochilus labiatus*  
(*L. cochlearis*)
1. Plant, natural size.
2. Flower, with one sepal and one half and one petal removed \(\times\) about 4.
3. Lateral sepals \(\times\) about 4.
4. Column \(\times\) about 9.
5. Pollinia enlarged.

*Cryptarrhena lunata*
6. Flower \(\times\) about 4.
7. Lip \(\times\) about 4.

*Dichaea graminoides*
9. Lateral sepal \(\times\) 3.
10. Median sepal \(\times\) 3.
11. Petal \(\times\) 3.
12. Lip \(\times\) 3.

*Dichaea glauca*
13. Lateral sepal \(\times\) 3.
14. Median sepal \(\times\) 3.
15. Petal \(\times\) 3.
16. Lip \(\times\) 3.

*Dichaea trichocarpa*
17. Lateral sepal \(\times\) 3.
18. Median sepal \(\times\) 3.
19. Petal \(\times\) 3.
20. Lip \(\times\) 3.
21. Hairs from capsule \(\times\) 3.

*Dichaea muricata*
22. Sepal \(\times\) 3.
23. Petal \(\times\) 3.
24. Lip \(\times\) 3.
25. Hairs from capsule \(\times\) 3.

*Dichaea echinocarpa*
26. Lateral sepal \(\times\) 3.
27. Median sepal \(\times\) 3.
28. Petal \(\times\) 3.
29. Lip \(\times\) 3.
30. Hairs from capsule \(\times\) 3.

*Dichaea Morrisii*
31. Lateral sepal, nat. size.
32. Median sepal, nat. size.
33. Petal, nat. size.
34. Lip and column \(\times\) 3.
35. Lip \(\times\) 3.
36. Hairs from capsule \(\times\) 3.
EXPLANATION OF PLATE 31

Campylocentrum Sullivanii

1. Plant, natural size.
2. Flower $\times 11$ times.
3. Flower, with sepal and petal removed, $\times 11$ times.
4. Lip $\times 11$ times.

Campylocentrum minus

5. Leaf and spike, nat. size.
6. Flower $\times 10$.
7. Flower, lateral sepals removed, and lip held down, $\times 10$.
8. Lip $\times 10$.

Campylocentrum Barrettii

10. Flower $\times 5$.
11. Lip, spur, column and ovary $\times 8$.
12. Lip $\times 8$.
14. Do. from front.
15. Pollinia enlarged.

Harrisella porrecta

17. Flower $\times 8$.
18. Flower, with sepals and petals removed, $\times 8$.
19. Anther, enlarged, from front.
20. Do. from back.
1-4 Campylocentrum Sullivani; 5-8 C. minus; 9-15 C. Barrettiae; 16-21 Harrisella porrecta.
EXPLANATION OF PLATE 32

*Dendrophyllax funalis*

1. Plant, natural size.
2. Flower cut to show entrance to spur and lip flattened out, not quite full size.
3. Column with anther raised to show position of pollinia x 3 times.
4. Anther enlarged, from back.
5. Do. from front.
6. Pollinia enlarged, front view.
7. Do, side view.
Orchids of Jamaica

Dendrophyllax funalis

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