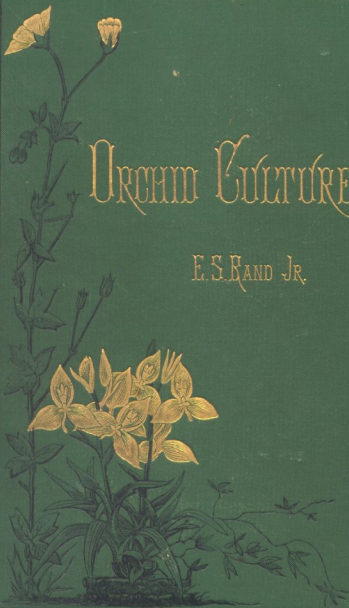


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ORCHID CULTURE

E. S. RAND JR.



Dedication.



To

THE HORTICULTURAL CLUB.

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HENRY WINTHROP SARGENT.
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GALEANDRA DEVONIANA.

INTRODUCTION.

THE present volume has been in preparation many years. As long ago as 1868, some of its chapters, in somewhat different form, however, appeared in the pages of the "American Journal of Horticulture." Since then, the times have not been propitious for the issue of a volume on a specialty, but at the present time, the increasing interest in Orchid culture seems to warrant the publication.

The want has long been felt of a trustworthy manual of culture adapted to the United States. English publications on this subject are not to be relied on, as the climate is so different from our own that the rules they give are not applicable to us; they make no provision for the brightness of our sun, the heat of our summer, the dryness of our atmosphere, and the cold of our winter.

To supply this want, is the object of this volume. It has been the intention to give every department of culture due consideration, and while every information necessary to the beginner is given, the writer trusts the volume may not be without value to the experienced culturist. Although the work is mostly

a record of personal experience, many hundred species are described which we have never grown at Glen Ridge. The object has been to render the book one of ready reference, both for cultural directions and for descriptions of species. To accomplish this, it has been necessary to draw largely from all sources of information, such as the volumes of English and French writers and numerous articles in foreign horticultural journals. Chief among these, have been the "Orchid Grower's Manual," by Benjamin S. Williams, and "Culture des Orchidées, par Ch. Morel."

The greater portion of the cultural directions, and most of the descriptions, are original, drawn from the experience of the writer, now extending over many years. As it is often very desirable for a beginner to see what the flower of his plant looks like, a list of illustrated books, in which Orchids are figured, is given, and reference is made to the figures of each species under the respective descriptions.

The list of species and varieties will be found very full; it is often most desirable to know what *not* to grow, and no plant is recommended for general culture unless it possesses beauty of flower, fragrance, or marked singularity of form. A good Orchid requires no more room and calls for no more care than a poor one, but as long as cultivators fill their houses with the mass of trash kindly sent to them by friends in the tropics, we shall find those who are disgusted with Orchid culture. We call to mind a certain large

house, not a hundred miles from New York, filled with Orchids sent to the owner by friends in South America; ten dollars would have been a high price for the whole collection of thousands of plants. A friend once sent us from Mexico an immense case of "Orchids," which on being unpacked was full of a species of gray Tillandsia much resembling withered pineapple crowns, of which the flower was a small spike of inconspicuous red blossoms. The steamer freight on this precious consignment would have bought half a dozen fine specimen Cattleyas. We must remember that Orchids are the weeds of the tropics, and that by sending to a friend for Orchids we run about as much chance of getting something desirable as a foreigner would, who should send to a New England farmer, and request a consignment of the wild plants of New England.

Let it also be borne in mind there is no economy in buying small plants at low prices. Orchids grow slowly, and when weak do not bloom.

If a dealer wishes to disgust a beginner with Orchid culture, let him send him a dozen plants for twenty-five dollars. Put the same money into two or three good plants, and the result will be a virulent attack of Orchid fever; in the former case the patient is inoculated forever.

There is a vast field for Orchid culture in this country. Orchids are the *élite* of the floral kingdom; they combine more of beauty, fragrance, and singularity of structure, than any other family of plants,

and certain rules being observed, are generally as easily grown as roses, pinks, and violets.

The recommendations of Orchids are so fully set forth in the preface to a little volume on the subject, issued by James Brook & Co. of Manchester, that we cannot refrain from a quotation. "The flowers of Orchids are, without exception, the most curious and beautiful in nature. Their qualities taken separately, would give eminence to a race of plants; the singularity of their shapes, their delicate and aromatic odors, and the richness and variety of their colors, all being different from everything we meet with elsewhere. In Orchid flowers these charming qualities form a trio of recommendations; and when, satisfied with contemplating their hues and sweetness, we turn to the plants themselves, we find among them some of the most remarkable in the world as regards structure, habitations, and the general phenomena of life and renewal.

"Over and above their intrinsic loveliness Orchid flowers possess rare and engaging qualities, which at the moment we may not recognize, but which win upon us daily. There is always a sound and hearty reality about them. An Orchid flower means what it says. It does not fall to pieces like a lily; there is no shedding of petals; no dropping away from the peduncle; no self-decapitation like that of a fuchsia; no collapsing and dissolving like a spider-wort; no, there is never any of this; the Orchid flower is neither superficial or fugitive nor insincere; it may be worn

even for a long evening and be as fresh at the close, as when newly gathered. If we mistake not, Orchid flowers have a grand future before them, not simply as shapes of beauty for the conservatory, to be admired and be left untouched, but as an absolute necessity even in completing in-door dress. Some of these Orchids, when they *do* change, actually grow larger and more beautiful. Witness those extraordinary species of the Venus' Slipper, the petals of which are only an inch in length, when the flowers expand, but which in four days' time grow to be a foot and a half long, and endure for three weeks.

"Orchids not only fulfill the excellent use of fostering good taste. The collection and culture of these plants opens up new fields for the legitimate employment of wealth. While their flowers supply new and exquisite materials for modest and becoming personal adornment, they greatly contribute, likewise, to advance the knowledge of physiological science. Therefore, we must not be hard upon them because they supply so little of *economic* worth. Vanilla is the only product of the race, that in England, at all events, is ever utilized. Never mind. As the forest-tree, that is green for a thousand years, can leave it to the summer poppy to be gaudy, so the Orchids, filling the soul with an ever new delight, may well leave the food and clothing question to more homely things.

"The special homes of epiphytal orchids are moist woods upon the slopes of hills, chiefly in equinoctial

climates, where they suspend their graceful clusters above the head of the admiring traveller; some mantle the trunks of prostrate trees, while a few trail over mossy rocks, and a few others venture even to crags close to the shore. The height above the sea at which some of them occur is almost incredible; *Oncidium nubigenum*, for instance, is found in Peru at an altitude of 14,000 feet, and *Epidendrum frigidum* where trees are unknown, and where snow is familiar.

“No single country is Orchidaceous *par excellence*. Wherever heat and moisture are abundant, whether it be in Asia, Africa, or America, there they exist in profusion; the principal stations being the forests of Peru and Brazil, the lower mountains of Mexico, the West Indies, Madagascar and the adjacent islands, the damp jungles of Nepaul and Burmah, and the whole of the Indian Archipelago, especially New Guinea and Java. In Java alone, there have already been found not less than three hundred species.

“Sierra Leone and the torrid countries watered by the Niger, likewise teem with these brilliant epiphytes, showing how vast is the wealth yet to be gathered. ‘Such is their number and variety,’ Humboldt tells us, ‘in the valleys of the Peruvian Andes, that the entire life of a painter would be too short to delineate all the magnificent forms which adorn those deep recesses.’ Contrariwise, in regions where the heat is accompanied by great permanent dryness, such as the sandy wastes of Arabia and Africa, Orchids are nearly absent. Orchids, in a

word, of one kind or another, grow in all latitudes' except the very coldest and the very driest, having their maximum in the neighborhood of the equator and their minimum in the extreme north, ceasing only upon the threshold of the frozen zone. Let the atmosphere be warm and *pure* and gently and plentifully moistened, and they flourish; damp without warmth, foul air and stagnant water, they abhor; they never grow in pestiferous places, and in these facts we find our first hints as to wise culture. Every part of the world possesses its characteristic species, and we might map it out into Orchid provinces. Very curious features would arrest us during the survey. How comes it, that those lovely Asiatic Dendrobies, the peerless Phalaenopsids, and many more of the orientals, so often have *pendulous* stems, while in the Orchids of America we so generally find an *erect* habit of growth? Why, again, is there so much larger a variety of grotesque configuration of flower in the Orchids of the Western continent than exists in those of the Eastern? Why, yet again, do the Cyripedes of cold and temperate countries often have leafy stems, while those of hot countries prefer leafless ones? And, why in the whole breadth of the world is there scarcely one absolutely *blue-flowered* Orchid? Many Orchids have a fine blue spot, or wear an apron of blue silk, but an Orchid purely blue in every portion of the flower is said to be found only in the *Herschellia* and the *Thelymitra*. One or two are named *cæruleus* and *cæru-*

lescens; but their color is only a delicate lilac-lavender. This almost total want of blue Orchids becomes the more remarkable from the frequency of the color in all the large nearly related families, unless in the Amaryllids, which show much less than the Liliaceæ and Iridaceæ. Every other hue is possessed by the Orchids in abundance, and the richest variety, spotless pearl and the intensest crimson-violet forming the poles, with everything there is in spring and sunset lying between.

"Orchids beset us with questions such as those indicated, and ask more riddles than ever the Sphinx proposed to travellers. Grotesqueness of flower-shape, let us remember, so remarkable in the new world forms, is one of the very special characteristics of the entire family; and probably a part of the interest which Orchids excite in our minds comes from their weird outlines and expression, so totally distinct are these from the physiognomy of all other flowers in nature. It is now an old story that Orchid flowers present the *simulacra* of beasts, birds, and fishes, reptiles and insects, yea, even of the human figure, as in the droll *Aceras anthropophora*, which dressed like an acrobat, in skin-tunic of green, swings as if gibbeted in company with some fifty other little felons.

"The *Espiritu Sancto* seems a white dove with expanded wings. As for horns, antennæ, antlers, tails, ears, and other adjuncts, of shape the most eccentric, there are enough to give a zoölogist the agonies;

and when we have done with these, there are devices and tintings enough for the fabrication of a new heraldry. Looking at the comparative novelty of the knowledge of Orchids, of course we have to remember that our forefathers had not opportunities like our own, and that the countries producing these plants were seldom visited. Orchids need not have remained unknown, because they are diminutive and short-lived. That some are pigmies is shown in the little *Drymoda*; but *Oncidium altissimum* has golden panicles nine or ten feet in length; many *Dendrobes* and some of the *Lælias* measure as much from root to apex, and the reed-like *Sobralias* in their native countries are thrice the height of a man. So with their duration. Excepting as to their flower stems, no Orchids are either annual or biennial, while many are absolutely longeval. Colonel Benson tells us of a *Saccolabium giganteum* in Burmah, which he estimated by trustworthy marks to be above one hundred years old.

“Living so long, Orchids, well managed, thus offer not only beauty, but a thoroughly sound investment for capital, their money value increasing every day, and when of good quality they bring prices comparable with those of pictures.

“At a sale this last summer (1875), the following prices were obtained:—

“*Cypripedium Lowii*, 220 shillings. *Oncidium splendidum*, eight bulbs, two young growths, 630 s. *Saccolabium Russellianum*, fourteen leaves, 588 s. *Sacco-*

labium guttatum, 1,305 s. *Aerides margariticum*, thirty-two inches high, 525 s. *Vanda tricolor Russelliana*, 546 s. *Aerides Veitchii*, 725 s. *Angraecum Ellisii*, 200 s. *Cattleya lobata*, 300 s. *Cypripedium caudatum*, 320 s. *Cattleya Warneri*, 562 s. *Cattleya Russelliana*, 882 s. *Cattleya labiata Warneri*, 609 s. *Zygopetalum maxillare*, 378 s. *Cattleya Dowiana*, 550 s. *Colax jugosus*, 294 s. The whole sale realized £2,211 14 s.

"These enormous figures of course imply exceptionally fine specimens, and need cause no alarm to the intending cultivator. Orchids, as a rule, are not more costly than other select plants; their culture is very simple, and there is no reason why every man who has a conservatory, and who will lay out a little money judiciously, and treat his plants tenderly and lovingly, may not have it gay with these Orchid treasures. Plants are marvelously docile. When they die prematurely it is not of 'treatment' but of *maltreatment*, and with Orchids especially, as with women and chameleons, their life is the reflection of what is around them."

It is often urged that floral names are difficult and meaningless. A little study and investigation will show upon how slight a foundation this statement rests. To aid in this, a copious glossary of botanical terms and of the signification of Orchid names is appended.

In the second portion of the book there are many Orchids described, in the growth of which the writer

has had no personal experience ; for cultural directions and descriptions of these, he is indebted to those of other writers, among whom he may mention Mr. B. S. Williams, author of the "Orchid Grower's Manual." The many illustrated magazines have been carefully studied, and it is hoped the directions may be sufficiently explicit.

The chapter on History of Orchid Culture in the United States, will be valuable as putting on record facts which, now within the memory of the living, might before many years have been forever lost.

For information and kind assistance, he would express his obligations to John A. Lowell, Esq., of Boston, Gen. John F. Rathbone, and Mr. Louis Menand, of Albany ; George Such, of South Amboy, and Mr. John Fleming, L. A. Lienau, and Isaac Buchanan, of New York.

That there are errors both of commission and of omission, in a volume embracing so great a range is more than probable.

Experience will bring knowledge, and not only develop new modes of culture, but demonstrate their superiority, and it is to lead to the experiment of Orchid culture those by whom it is as yet untried, as well as to aid the present Ochiologist, that the volume is given to the public.

GLEN RIDGE, *January, 1876.*

LIST OF

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Abbreviations.

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 HARV. COL. . . . Library of Harvard College.

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ORCHIDS.

CHAPTER I.

NATURE AND HABITS OF ORCHIDS.

THE primary division of Orchids is into two general classes, those growing upon trees, and those growing upon the ground, in other words epiphytal and terrestrial. In hot countries the species are generally epiphytes; in temperate regions we find only the terrestrial classes. These rules are not, however, without some exceptions; epiphytes often grow upon rocks or in earth (though in both cases, the position is rather for support than one of nourishment), and terrestrial Orchids abound in hot countries.

The peculiar characteristics of Orchidaceous plants will be fully described in a future chapter; suffice it at present to say that there is no order of plants the structure of whose flowers is so anomalous as regards the relation borne to each other by the parts of reproduction, or so singular in respect to the form of the floral envelopes. Orchidaceous plants inhabit all parts of the world except those which are excessively dry or excessively cold, both of which extremes of temperature appear uncongenial to their nature.

They abound chiefly in regions with a mild climate, moist and warm during the greater part of the year.

The flora of the temperate regions abounds in terrestrial Orchids, which are, however, with some exceptions, distinguished by flowers more remarkable for peculiarity of form than for size and brilliancy of color. It is, however, in the tropical forests, that we meet with these plants in full luxuriance ; here the species are mostly epiphytal ; establishing themselves upon the branches of the trees, they either vegetate amid masses of decaying vegetable matter or cling by long succulent grasping roots to the naked branches of trees, from which and the moist atmosphere they derive their nourishment.

They are also found abundantly on the banks of streams near falls of water, where they are constantly bathed in the rising spray. Some few species indeed seem of a different nature, growing mostly on rocks exposed to a broiling sun, their roots alone absorbing the moisture of the dew.

In general, a certain degree of shade seems to be essential to Orchids. In Brazil, they are found abundantly in damp woods and rock valleys, embowered among foliage of the most luxuriant description.

In Nepaul, as stated by Dr. Wallich, the epiphytal species grow in company with ferns ; and the thicker the forest, the more stately the trees, the richer and blacker the natural soil, the more profuse the Orchidaceæ and ferns upon them. There they flourish by the sides of dripping springs, in deep shady recesses, in inconceivable quantity, and with an astonishing degree of luxuriance.

We should, however, err, did we suppose that the principal haunts of Orchids are the deep shady woods ; it is even probable that just the contrary is the fact, and that the cases just cited are extreme.

Orchids are chiefly found on the borders of the forests or in the open glades or savannas ; it is seldom they are met with in the primitive forests.

They are very abundant in Brazil, near Rio Janeiro, in Mexico, in Colombia, in Trinidad, especially in mountainous places and damp woods. In the East Indies, in Java, Ceylon, Nepaul, and China, where they are principally found in the woods, on the borders of rivers and mountain streams. The localities of Orchids are very marked ; of some species only a single habitat is known ; many are exceedingly rare, some only being known to botany by a single dried specimen in a herbarium, and others once known in our hot-houses are now lost to cultivation ; some species now in cultivation have sprung from a single imported plant. The Orchids of the Eastern and Western hemispheres are entirely different, there being no affinity between them. Orchids are also most capricious in their locations ; sometimes a river may be ascended for miles and not an Orchid be seen, when on a sudden turn of the stream every tree becomes covered with them. The part of the tree on which they live is also uncertain ; some are found close to the ground, others a few feet high, others on the forks of the trunk and branches, some only on the trunk, others only on the branches, and many only on the topmost branches of the loftiest trees, so high that they are only discoverable by their delicious perfume.

Some varieties will only thrive when grown on the lower side of a block, their native growth being on the under side of a branch. Of these the fine yellow *Cattleya* (*C. citrina*) is our most familiar example.

Where they find a congenial home, they grow to im-

mense size, increasing by the pseudo-bulbs in every direction, and often covering a whole tree. In many cases a large tree becomes a large bouquet of Orchids, for many species with various colored curiously shaped flowers are often found on the same tree.

While all the East Indian Orchids require a hot moist temperature, many of the South American and Mexican species will endure much cold without injury; they are sometimes found where the mercury at night descends below the freezing point and where the leaves are covered with hoar-frost; thus the different species demand far different treatment, and from an ignorance of these requirements and peculiarities, have arisen many of the failures which have hitherto attended their culture.

"A high mean temperature throughout the year, and a climate either constantly humid, or at least, periodically so, are atmospheric elements eminently favorable to the production of these plants. All those species which simply exist by clinging by their roots to the branches of growing trees, and probably other species, must derive necessarily their nourishment in a great measure, if not entirely, from the moisture in a very elastic state that surrounds them. And, although nature seems in general to have provided for the scantiness of their food, by the construction of them with a cuticle only capable of parting by slow degrees with the fluid they receive by their roots, yet it is obviously requisite that they should be so situated as to be within reach of an abundant supply, not only at the time when they are growing, but to a certain extent at other periods. Thus we find that the hottest countries if dry, and the dampest if cold, are destitute of them, while there is no instance of a country,

both hot and damp, where they are not plentiful. It may however be remarked, that the terrestrial Orchids will bear a far greater degree of cold and drought than the epiphytal species, their range is therefore much greater, and the general remarks about Orchids must be taken with a great degree of allowance in respect to this class.

Notwithstanding the high temperature of Africa, they are unknown in the sandy deserts and parched atmosphere; yet they abound in *Sierre Leone*, where the climate is damp and are not infrequent in the jungles at the *Cape of Good Hope*.

In the *West India Islands*, they exist in great quantities, particularly in *Jamaica* and *Trinidad*, not however so much on the coast as on the lower ranges of hills.

At *Rio Janeiro* the mean temperature is $74^{\circ} 3'$ and much higher inland; the woods are so damp it is impossible to dry plants; and in such situations multitudes of *Orchidaceous* plants occur. In the immediate vicinity of *Buenos Ayres*, however, where the mean temperature is $67^{\circ} 6'$ and the air dry, epiphytes are unknown. No country, however, exhibits in a more striking manner than the *East Indies* the necessity of a hot and damp climate for the production of epiphytes. In the *Malayan Archipelago*, the mean temperature of which is estimated at between 77° and 78° , where the atmosphere is always very damp, they are found in profusion. In *Nepaul*, they occur upon the sides of the lower mountains, where they grow amongst clouds and constant showers, while on the continent of *India* they are almost wholly unknown, except in the mountain valleys.

In *Mexico* and *Central America*, the provinces most

prolific in Orchids are Oaxaca, Honduras, and Guatemala; they are also plenty upon the Isthmus.

The conditions of Orchid growth can thus be easily stated. In their native countries they are exposed to a dry season, during which they rest, and to a rainy season, when the heat is higher and the air moist nearly to saturation. To grow Orchids in any perfection, their native climate must, to a certain extent, be imitated; that is, they must have a period of rest in a dry and comparatively cool atmosphere, and during their growth and flowering they should be exposed to a high moist temperature. As Orchids principally grow on the trunks and branches of trees, it is important that they should be exposed to a free current of air, and also to the light. The plants should not, however, be exposed directly to the sun's rays, which are apt to scorch the leaves and wither the flowers, and some species require constant shade.

The great heat and moisture are only necessary while the plants are in vigorous growth, and this period should be during spring and summer, the best period of rest being from November till March. It should be understood that it is this long season of rest which predisposes the plant to blossom. Of course these rules of growth and rest can only be stated in general terms. There are certain kinds which grow uninterruptedly throughout the year. And again, even of those which go to rest periodically on the completion of their growth, it does not always happen that their time of rest corresponds with that of the largest number. As we come in course to mention the different species, their proper time of rest, if peculiar, will be indicated.

It is not alone in the form of the flowers that the Orchidaceous plants differ from other members of the floral world; the whole structure of the plant is peculiar. The roots are of four kinds. First, annual fibres, simple or branched, of a succulent nature, incapable of extension, and burrowing under ground, as in the genus *Orchis*.

Secondly, annual fleshy tubercles, round or oblong, simple or divided, as in the various species of the same genus; they are always combined with the first, and appear to be intended as receptacles for matter fit for the nourishment of the plant.

Thirdly, fleshy simple or branched perennial bodies, much entangled, tortuous, or irregular in form, as in *Corallorhiza*, or nearly simple and resembling tubers.

Fourthly, perennial round shoots, simple or a little branched, capable of extension, protruded from the stem into the air, adapted to adhering to other bodies, and formed of a woody or vascular axis covered with cellular tissue, of which the subcutaneous layer is often green and composed of large reticulated cells.

The stem is often (as in some terrestrial species) merely a growing point surrounded by scales, and constituting a leaf bud when at rest, but eventually growing into a secondary stem or branch on which the leaves and flowers are developed. In other cases the growing point becomes perennial, thickens, is scarred with the remains of leaves which once grew upon it, and assumes the state of a short, round, or ovate perennial stem or pseudo-bulb.

Or again, the rhizoma, instead of having pseudo-bulbs, forms short stems which are terminated by one or more leaves.

The leaves are very uncertain in their appearance;

usually they are sheathing at the base, and membranous ; but in some species they are hard stalked, articulated with the stem, and have no trace of a sheath. Frequently they are leathery and veinless ; as frequently they are membranous and strongly ribbed, and both these conditions may occur in the same genus, as in *Cypripedium*.

The peculiarities of the floral leaves and organs will more properly be noticed in treating of the classification of Orchids ; suffice it to say that the flowers are constructed irregularly upon the ternary type, and consist of three exterior and three interior pieces, of which the exterior are usually nearly equal, and less brightly colored than the interior.

On account of the peculiarities of growth and structure, so unlike other plants, it was many years before any of these plants were successfully cultivated in England. A few were barely kept alive, but never flowered satisfactorily, and their successful culture was considered impossible. Within the last forty years, however, their true nature has been understood, until at the present day they are cultivated with success, and bloom with a luxuriance equal to that of their native haunts. To promote this culture, and to call attention to the more remarkably beautiful species and varieties, is the object of this volume.

CHAPTER II.

BEGINNING AND PROGRESS OF ORCHID CULTURE.

IT had long been known from travellers that Orchidaceous plants, especially the epiphytal species, were remarkable for brilliancy of color, extraordinary form, and exquisite fragrance ; but for many years they were only known to the horticultural world from dried specimens in herbaria, where of course both color and perfume were lost, and often the flower itself pressed out of shape. In time, however, a few living plants found their way to England ; these were mostly of the hardier and more common species, and, not receiving proper culture, soon perished. Plants imported in good condition were with difficulty kept alive, and never flourished. As they came from a hot climate, they were constantly forced in heat, no season for rest and the formation of flower buds was given. Such treatment may be likened to keeping an animal perpetually awake ; or keeping our forced grapes or fruit trees in perpetual growth ; in either case, death by exhaustion would be the result.

It may, however, be said, that in their native countries these plants enjoy perpetual summer ; this, as far as a high temperature is concerned, is often the case, but the rest is afforded by a decrease of atmospheric moisture during certain seasons of the year ; and thus the force of the argument is more apparent than real.

In fact, at the end of the last century, there were only

about a dozen poorly grown plants of this family in the greenhouses at Kew ; from 1800 to 1815, about ten more species were added to this little collection, and from 1815 to 1830 fifty-three new species and varieties formed, with those we have mentioned, all the living plants of this numerous family which we either possessed or had knowledge of. Since 1830, constant additions have been made, till to-day the number of Orchids introduced to cultivation is so great that we may safely say there is no family of plants so rich in species and varieties.

What, then, have been the reasons which have operated so unfavorably for the introduction and cultivation of Orchids? The first and most natural was that they could not be made to live in the climate of Europe. If any were imported in good condition they were doubtless cultivated like greenhouse plants. There being entire ignorance of their requirements and habits, they received only the care ordinarily given to plants under glass. That is, they were potted and watered in the ordinary way, and the consequence was that few survived the experiment. Cultivators knew nothing of the moist heat, which is indispensable, or of the care necessary to be taken for the preservation of the roots and pseudo-bulbs ; in a word, the plants perished from a total want of all the requisites for successful cultivation, and none cared to repeat the experiment of their culture.

About the year 1820, Mr. Cattley, to whom is dedicated the magnificent genus *Cattleya*, by a series of experiments, arrived at the mode of successful culture. His success was soon known, and many amateurs following his example, sought to stock their hot-houses with these beautiful plants.

Many collectors were sent, at great cost, to the East and West Indies to procure them, and the number of rare and valuable Orchids received from these sources was very large.

The cultivation of Orchids was soon attempted on the Continent; in Belgium, Switzerland, Germany, and Russia, large houses, devoted exclusively to the cultivation of these plants, were erected, and soon boasted rich collections. France alone manifested little interest in their culture, the only large collection being in the Museum of Natural History in Paris. This fact is the more remarkable, as the French have ever maintained the highest place in all branches of horticulture.

About 1840, many species, hitherto unknown, were imported by French amateurs, and their cultivation was attended with marked success; this led to further importations, until at the present time the collections are as rich as those of any country.

From the year 1820, whence we must date the progress of Orchid culture, there has been a constant improvement; difficulties which seemed insurmountable have been gradually overcome, till at the present day there is no bar to perfect success, though even now there are many disputed questions and differences among the most successful growers, as to the best methods of growing some species. As the same species seem to grow equally well under opposite modes of treatment, we can only conclude that the plants very easily adapt themselves to culture, and are by no means as capricious as has been supposed. In fact in the Orchid houses, these plants have acquired a beauty, and grow with a luxuriance wholly unknown to them in their native haunts.

Species which in the wild state yield only two or three curious blossoms, in cultivation have been brought to produce from twenty to thirty, and in fact many plants of the order submit to domestication as readily as our more common garden flowers.

There seems to be no reason why Orchid culture should not be far more popular than at present ; already the number of species and varieties have increased from the thirty known in 1820, to many hundreds, and the future opens a vast field of progress. The island of Java alone produces over three hundred species and varieties, from which it may be seen what immense additions may yet be made to collections. This is the more probable, as the Orchid growing countries have as yet been imperfectly explored, and when in this connection we consider the peculiar local habits of most Orchids, we may reasonably look for large and rich additions to our Orchid flora.

It must not be supposed that all of these many species are equally beautiful. While we have many which for singularity of form, richness of color, and exquisite fragrance, excel all productions of the floral kingdom, there are hundreds which are attractive only to the botanist, and of which the flowers are insignificant ; but all are curious and interesting.

We have said that in the general distribution of Orchidaceous plants, those of North America (excepting always Mexico and the Isthmus) are wholly terrestrial ; there is, however, one epiphyte met with in the extreme Southern States, where a species of *Epidendrum* (*E. conopseum*) is found upon the *Magnolia glauca*.

There is one cause which does much to retard Orchid culture : the cost of the plant is so great, and the expense

of culture in our climate so considerable, that it must always be confined to the rich ; indeed, at the present time, there are very few choice collections in the United States. We trust, however, to be able to show that the cost of culture may be much reduced ; and every year the plants are becoming more plenty, and consequently cheaper.

Among those who have done much for Orchid culture, may be mentioned, Pescatore, whose hot-houses at St. Cloud contained one of the richest collections in Europe ; and whose magnificent plants have been illustrated by the work on Orchids (bearing his name) by Linden, which enriches some of our horticultural and private libraries.

In England, the sale collections of Messrs. Low of Clapton, of Messrs. Veitch of Exeter, and Rollinson of Tooting, and of William Bull and B. S. Williams, are most extensive.

The Orchids of Mexico, the Isthmus, of Colombia, and Brazil, have been chiefly brought into cultivation by the French, while we owe most of the choice productions of the East Indies to the enterprise of English collectors.

The horticultural world owes a debt of gratitude to the enterprise of M. Pinel of Rio Janeiro, and of M. Porte of Bahia, through whom many of the finest Brazilian species have been brought into cultivation ; to M. Linden of Brussels, whose importations of Mexican Orchids have greatly enriched our hot-houses ; to Rev. C. S. Parish, whose discoveries of East Indian Orchids have added many new species to our collection ; and to Fred. U. Skinner, who is worthily commemorated by some of the most showy plants.

CHAPTER III.

CLASSIFICATION.

THE family of Orchids owes its chief peculiarities to the following circumstances : —

Firstly, The consolidation of all the sexual organs into one common mass, called the column.

Secondly, The suppression of all the anthers, except one, in the greater portion of the order, or two in the tribe *Cypripedææ*.

Thirdly, The peculiar condition of the pollen, and the anther which contains it.

Fourthly, The very general development of one of the inner leaves of the perianth or petals in an excessive degree, or in an unusual form.

Many botanists have devoted special attention to this family, of whom we may mention, Bateman, Brown, Hooker, and Paxton in England ; Brongniart and Richard in France, Linden, in Belgium, and Reichenbach in Leipsic ; but Dr. Lindley has paid more attention to their nomenclature and arrangement, and his classification, which we follow, has been generally adopted.

These peculiarities of the order are in most cases very striking, and are strongly manifested in the same flower ; we also find the true nature of each part, indicated by special cases of structure, occurring in different parts of the order.

Thus in *Cypripedium*, not only are two lateral stamens

furnished with anthers while the central stamen is antherless, but the stigma and style separate from the filaments nearly to the base and the triple nature of the former is distinctly shown, together with the relation of its lobes to the other parts of the flower.

The pollen, which has so anomalous an appearance in its waxy or sectile state, presents the usual appearance of that substance in *Goodyera* and many *Neottea*. And the irregularity of the labellum disappears in such genera as *Paxtonia*, *Thelymitra*, and some others whose flowers are almost as regular as those of a *Sisyrinchium*.

In the classification of Orchids, the most important characters seem to reside in the pollen, which in many is consolidated into firm waxy masses of a definite number in each species, and in others is either in its usual loose powdery condition, or is collected in granules or small wedges, the number of which is far too great to be counted.

Of those with waxy pollen masses, some (*Malaxeæ*) are destitute of any visible organs, or means by which the masses are brought into contact with the stigma; others (*Epidendreeæ*) have strap-shaped caudiculæ, which are either bent down upon the masses themselves, or serve to hold them together, without, however, forming any organized union with the stigma; while the remainder (*Vandeeæ*) have a caudicula, which adheres firmly to a gland found on the upper margin of the stigma, and separating freely from that organ.

The last form is much more distinct from the two first, than they are from each other, and it may be requisite to combine *Malaxeæ* with *Epidendreeæ*, or to exclude from the former not only *Acanthophippium*, *Cælogyne*, and *Pho-*

lidota, but several other genera at present referred to them.

The genera with powdery, granular, or sectile pollen, cannot be classified so conveniently by modifications of that part, but are readily divided into three natural tribes by peculiarities in the anther.

In some (*Ophreæ*) the anther is erect, not hinged to the column but continuous with it, and stands above the stigma, the pollen masses having their points directed to the base of the lobes of the anther.

In others (*Arethuseæ*) the anther is hinged to the column, upon the end of which it is placed transversely like a lid.

And finally in others (*Neottææ*) it is also hinged to the column, but is placed at its back so as to be nearly parallel with the stigmatic surface.

If to these three we add the *Cypripedeæ*, which has two anthers while all the others have one only, we find the order divided into seven tribes, of which the following is a tabular view.

A TABULAR VIEW OF THE TRIBES OF ORCHIDACEÆ.

I. Anther one only.

A. Pollen masses waxy.

a. No caudicula or separable stigmatic gland.

TRIBE I. MALAXEÆ OR MALAXIDEÆ.

b. A distinct caudicula, but no separable stigmatic gland.

TRIBE II. EPIDENDREÆ.

c. A distinct caudicula united to a deciduous stigmatic gland.

TRIBE III. VANDEÆ.

B. Pollen powdery, granular, or sectile.

a. Anther terminal, erect.

TRIBE IV. OPHREÆ, OR OPHRYDEÆ.

b. Anther terminal, opercular.

TRIBE V. ARETHUSEÆ.

c. Anther dorsal.

TRIBE VI. NEOTTEÆ.

II. Anthers two.

TRIBE VII. CYPRIPEDEÆ.

From this general view of the classification of Dr. Lindley, any cultivator can easily ascertain to which of the tribes any Orchid which may bloom in his collection belongs.

Each of these tribes subdivides itself into a greater or less number of species, the determination of each of which demands a special study of individual peculiarities.

The geographical distribution of these different tribes is interesting as illustrating the remarks in former chapters.

By reference to the following table we shall see that the greater proportion of the tribes *Vandæ* and *Epidendræ* are found in the Indian Archipelago and in tropical America; it is in these two tribes, we must remember, that the Epiphytal Orchids mostly range themselves; the European and North American species being confined to three in the former tribe, and two in the latter. On the other hand, the terrestrial species, which are mostly found in the tribes *Ophreæ*, *Arethuseæ*, and *Neotteæ*, are sparsely represented in the Indian Archipelago and tropical

Names of Tribes.	North Africa.	Asia within the Tropics.	Mexico, etc.	South Africa.	South America beyond the Tropics.	America within the Tropics.	South Sea Islands.	New Zealand.	Japan.	China.	Indian Archipelago.	Oceania.	Continents of India.	Northern India and beyond.	North America.	Siberia and Korea and Asia.	Europe.	Number of species described.
Malacem . . .	1	6	26	1	1	46	10	10	4	10	152	24	44	56	4	2	3	386
Epilobandrea . .	1	1	2	1	1	112	1	1	1	4	16	4	5	8	2	1	1	153
Vandrea	1	6	54	14	1	198	2	5	3	11	169	24	41	58	2	1	1	487
Ophrea	23	6	31	135	6	33	1	2	2	5	7	9	17	48	42	28	85	449
Arethnsea . . .	1	1	1	1	31	26	1	115	3	1	9	1	3	5	8	1	5	218
Neotrea	2	1	2	1	7	50	1	77	1	3	28	10	16	11	19	6	11	276
Cypripedrea . .	1	1	1	1	1	6	1	1	1	1	1	1	1	3	9	4	2	23
TOTAL . . .	25	24	96	149	42	511	13	209	15	31	322	126	72	189	86	42	107	1980

America (except *Neottia*, which is plentifully distributed through both) and are abundant in Europe, North America, and even have twenty-eight representatives from *Ophrea* in Siberia, which class also gives one hundred and thirty-five species to South Africa; the tribe *Arethuseae* is very largely represented in New Holland, there being no less than one hundred and fifteen species.

It must, however, be stated that this tabular view of Dr. Lindley is by no means complete; the number of species has largely increased, especially in the three tribes *Malaxae*, *Epidendreae*, and *Vandae*. We give it as the best that has yet been presented.



GOODYERA MACRANTHA.

CHAPTER IV.

COLLECTION AND TRANSPORTATION.

AS much depends upon the care used in the collection of Orchids, and as the most healthy plants may be ruined by careless packing and transportation, a chapter on these subjects may not be out of place. It is easy to collect Orchids which grow on the ground or on the lower branches of trees. Those in healthy and vigorous condition should be selected, as offering the greatest chances of exportation in a living state. All, which by their foliage appear to be of different species, should be collected, for unless the plants are in bloom no judgment can be formed of what the flower will be, and the foliage is no criterion of excellence, many Orchids with insignificant foliage producing the most gorgeous flowers.

It is not easy to collect Orchids which grow upon the lofty trees, where their presence is only known by the brilliancy of the flowers, or their powerful perfume. To climb them is almost impossible, on account of the height, and not unattended with danger because of the poisonous snakes which frequently lurk in the crotches of the branches, or hide in the hollows of the trunk.

The only means of getting them is to cut down the tree, which is by no means an easy task; the wood is like iron, and turns the edge of the best tempered axe; this, together with the immensity of the tree, presents almost insuperable obstacles to collectors. When, however, the

tree has once fallen, the fall dislodges the reptiles which may have harbored there, and the plants can then be collected without danger. The collection, however, calls for care and precaution; if the branches on which the plants are should be broken or rotten, the mass of the plant should be detached, breaking or bruising the roots as little as possible. If the branch is sound, it may be cut on each side of the plant, taking care to leave sufficient wood for its growth on its arrival. It is noticeable that plants, which in our stoves are still grown on the same branch on which they naturally grew, are more vigorous, flower oftener, and give stronger spikes of bloom, and better flowers, than those which have been changed. Where the plants grow on branches too large and heavy for removal, the bark, with the plant attached, may be removed, or a portion of the branch sawed off.

The roots of the plant should, in every case, be preserved as far as possible, and should not be detached from the bark or wood. The mosses and other little plants which grow with the Orchids should in no case be removed from them; they help to keep the plants in good condition during the voyage of importation, and are in themselves often valuable additions to our stove plants: in this way many interesting Begonias, Ferns, and Bromelias have been imported.

It is important that collectors should use all possible discrimination in the selection of plants, and as far as possible ascertain the character of the flower, though, as we have said, none should be discarded because the flower is unknown. The species most desirable for our hot-houses are those with brilliant flowers, but many with insignificant bloom may be most interesting to the botan-

ist; these should be preserved in herbaria, and notes taken of their peculiarities of growth and location, in order, as far as possible, to aid in their classification. The points which should be especially observed are the size and the form of the flower, the color of the perianth and labellum, the number of flowers, the height of the flower stalk, the point from which it springs, whether the base, the middle, or the top of the pseudo-bulbs, the form and disposition of the leaves, the shape of the bulbs and their markings, and finally, any other peculiarity which may attract attention.

The woods or places where the plants occur should be noted, whether more or less shady, warm or cool, the temperature by day and night, and whether wet or dry. All this information is valuable to those who receive the plants, as thereby they are enabled to adapt their culture to the requirements of the plant.

A collection once made should be forwarded as soon as possible. There are many modes of packing, of which the most simple is to envelop the plants in moss, packing them tight in a basket. This method, however, has but little chance of success, only the hardier Orchids surviving the voyage, most plants dying from want of moisture.

They are often sent in wooden boxes, instead of baskets, with a few holes bored for air; these retain moisture longer than the baskets, and about a fourth of the plants survive. Importations made in close wooden cases, the seams of which have been tarred, arrive safely, if the passage is not very long. Where the plants have been carefully packed, wrapped in moss, the decayed and injured bulbs removed, and the plants placed on openwork

of bars running across the case, the results have been most satisfactory.

Where moss cannot be procured, it is better to use shavings than either hay or straw; if the plants should start into growth during the voyage, the young roots would attach themselves to the shavings. The best way, however, to import Orchids, is in glass cases.

The larger plants are placed on the bottom of the case, and are held firmly by brass wire, nails are driven into the sides of the frame and the span roof, to which plants are suspended: all nails and wire should be of brass or copper, as iron rusts. Care must be taken that the plants do not rub against each other, which is easily prevented by securing each one with wire.

These cases must be made perfectly air-tight; all joints should be hermetically sealed. On arrival, care should be taken to not expose the plants too suddenly to the external air. There are many Orchids of very small size and delicate growth, such, for instance, as *Comparettia*, *Sophranitis*, *Burlingtonia*. These should be sewed in a mat, and lightly covered with moss. The mat, so disposed as to bring the layers of plants one above the other, is placed in a glass case, and it is seldom the plants do not arrive in good condition.

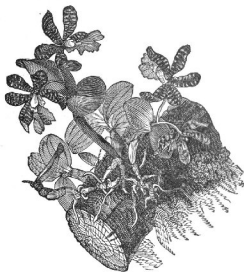
When very large masses of bulbs are to be sent, it is better to pack them in a basket, fixing them in position with bars of wood, tying the pseudo-bulbs strongly together, packing moss between to prevent them from touching each other.

The moss used should always be dry; if green or wet it causes the plants to rot, and almost always destroys them.

Before packing the plants, they should be carefully examined ; it is necessary to remove all decaying or injured bulbs, and also to dislodge any insects that may lurk among the plants, and which would during the voyage live upon the new roots and young shoots ; this precaution is too often neglected.

Orchids should not be packed until the time for embarking them ; their stay in the cases is a period of forced repose, and should be made as short as possible. The cases should be placed in a light and convenient place so they can be removed on arrival without delay.

The insects most injurious to Orchids during the voyage are cockroaches, which swarm in every ship ; one benefit derived from hermetically sealed cases is the perfect safety from these insects, and the exclusion of the salt air, which seems fatal to Orchids.



CATTELEYA ACKLANDIÆ.

CHAPTER V.

TREATMENT OF NEWLY IMPORTED ORCHIDS.

AS soon as the plants are unpacked from the cases, they should be placed in a shady part of the Orchid house ; not at once in great heat, but where the temperature is moderately warm and where they will not be exposed to draughts of air, for having been so long confined in close cases, any immediate exposure to atmospheric changes would prove injurious. It is a good plan to cover them with an awning, in order to guard against too much light.

It is not best to unpack the cases in the Orchid house, for almost always cockroaches will have found their way into the cases, and these once domesticated in an Orchid house are with difficulty extirpated. Every portion of the plants should be carefully sponged to remove scale, with which Orchids are much infected. All withered, decayed, and dead roots and pseudo-bulbs should be removed with a sharp knife. Where large plants are received, they are often incumbered with masses of long, tangled roots ; these should be carefully disentangled by hand and the dead portions removed, care being taken not to bruise the living parts or the young spongioles which often shoot out from old roots.

Care must also be taken not to injure the eyes, which may have developed at the base of the last year's bulbs, or to bruise any tender foliage.

The living roots of Orchids are green within ; as soon as they die they become soft, and the thread (so to speak) running through the middle grows hard and woody ; thus it is easy to tell what portions should be removed. Any roots entirely dead should be cut off close to the base of the pseudo-bulbs.

Where the plants are very large, they may often be divided to advantage, but it is not best to attempt this before they show signs of growth. Should the plants, however, be so large as to be unmanageable and the future eyes be developed, it may be well to divide into as many plants as there are eyes. This, however, will be seldom done by the amateur, for it is his object to have large and fine specimens, but must be resorted to by florists who wish a stock for sale. The plants obtained from florists are generally so small that a growth of a dozen years is necessary to make a specimen, and the flower of a small plant gives but little idea of the magnificent effect produced by a specimen.

It not unfrequently happens that the upper part of a pseudo-bulb is decayed while the lower is sound and has healthy eyes at the base. In this case the diseased portions may be cut away without injury to the plant, and frequently the shoots developed from a plant thus treated are stronger and more healthy than those from sound bulbs.

It is not necessary that the pseudo-bulbs should have leaves ; these are frequently lost in importation, and if the bulb is ripe, the health of the plant or its power to produce eyes are not visibly affected ; all bulbs, however, which are alive and sound should be preserved, as they are most necessary to the plant.

In separating large masses of bulbs, three or four pseudo-bulbs at least should be given to each new plant, the newest of which will always have the eye for the new growth. These old bulbs are necessary for the nourishment of the new growth, and from them we may often cause eyes to break forth and thus form a fine specimen.

Even if a pseudo-bulb appears dead, and if the roots are all gone, if it is at all green and without decay, it should not be cast aside, for it may produce eyes under careful treatment.

With such plants as *Epidendrums*, *Lelias*, and *Cattleyas*, the top of the bulb is often dead, but the bottom fresh and in good health. If after removing the dead or decayed portions we can save even a small part of the bulb, we need not despair of the formation of a new plant.

Some Orchids, as *Huntleya* for example, have no pseudo-bulbs ; if the leaves of such have fallen off during the voyage, the crown with living roots attached must be carefully preserved ; even if it appears dead it will generally produce a new shoot.

Sometimes we receive large masses of plants with large pseudo-bulbs, such as *Oncidium*, *Zygopetalum*, *Peristeria*, and *Odontoglossum*, where the whole lower part of the bulbs is decayed ; in such cases all the rotten or diseased portions should be cut away and the plants placed in the Orchid house either on a shelf or potted. Smaller bulbs will not unfrequently form on the top of the old bulbs, throw out roots, and derive nourishment from the rest of the bulb, and in time make good plants.

When the plants are thus all clean, they should be laid in dry moss or sand in a rather cool and dry part of the house and shaded as we have said. The moss or sand

should be gradually moistened, and when the plants begin to grow and make roots, they should be potted or put on blocks or in baskets ; but care must be taken not to have the pots too large, as over-potting is dangerous.


As soon as they begin to grow those which come from the hotter parts of India should be put at the warmest end of the house ; but they should not have too much moisture at first. Those which come from more temperate regions should be kept at the coolest part of the house, care being taken not to allow any drip to fall upon them, which frequently rots the young shoots as soon as they appear.

Such plants as *Vandas*, *Saccolabiums*, *Aerides*, *Angræcums*, *Phalænopses*, should be fastened on blocks as soon as they are received, and so placed that the plants hang downward in order that no water may lodge about them till they begin to grow and form new roots.

In fine, the treatment is to keep the plants without excitement until they show signs of growth, then to stimulate gently until the growth is developing, then pot and treat as old established plants.

CHAPTER VI.

THE ORCHID HOUSE.

 THE construction of the house is a most important part of Orchid culture. The first conditions to be secured for the health and growth of the plants are a moist and warm atmosphere, and the house must be built with a special view to this end.

We often see collections of Orchids in greenhouses, where all the requisites for their growth are wanting, crowded with greenhouse plants, drenched at one time with water and then again allowed to dry up, subjected to cold draughts of air and exposed to a burning sun. Is it a wonder they never thrive? that year by year they dwindle and die till at last only a few of the hardiest species such as *Oncidiums*, *Stanhopeas*, and *Peristerias* survive, and these weak and sickly; and if they bloom at all they throw up such weak spikes of bloom that the owner in despair throws away the whole collection. The failure is not surprising; Orchids cannot be grown successfully with other plants, though in an Orchid house many of the beautiful variegated leaved plants, which like Orchids require a moist heat, may be grown with perfect success, and a collection of hot-house ferns adds to the Orchid house the foliage Orchids often want.

~~Orchids must then have a house to themselves. This need not, however, be a separate building; a portion of the greenhouse divided off by a glass partition in which~~

the requisite heat can be obtained, will answer perfectly well for most Orchids, and the plants may be rested in the greenhouse.

To grow Orchids with perfect success and where there is a large collection, we need three separate houses or apartments, — the Stove or East Indian House, the Intermediate or Mexican House, and the Resting House.

The best aspect for an Orchid house is north and south, that is, if span-roofed, the house should run east and west; if the house is "lean-to" let it face the south-east.

There has been much difference of opinion in regard to the adaptation of lean-to houses to Orchids. In England and the continent all the most successful growers use span-roofed houses, and we have no hesitation in pronouncing them better adapted to the growth of the plants. The one argument in favor of lean-to houses which is of any weight is, that they are more easily kept at the necessary temperature, which in our cold winters it is difficult to preserve. If however, we make our houses low, and an Orchid house should be only about thirteen feet high, a span-roofed house is easily heated.

2nd. A small house may be from thirty to fifty feet in length by twelve feet wide (~~or if span-roofed double this width~~). It should be built like a pit, the floor of the house being about three feet below the level of the ground. The walls should be brick or stone as high as the ground surface; on this a heavy frame should be laid, and then sashes with heavy uprights reach to the frame supporting the roof; the whole height from the ground inside to the slope of the roof should be about six feet. The whole of the front wall is often built of brick, which possesses

many advantages, the only objection being the obstruction of light. The pitch of the roof should be 30° to 33° . The glazing should be close, the larger the plates the better, but they should not be above a foot in width. The northerly end should always be of brick work as being warmer and affording a convenient place for the growth of climbing ferns and small Orchids. The southerly end should be glazed with smaller glass than the roof, say twelve to fifteen inches long by eight or twelve wide. In a lean-to house the back wall should be of brick, as being more durable, but wood may be used.

A table about a foot wide should extend along the front of the house. The pathway should be two or three feet wide, along the side of the house, if a lean-to; if a span-roof, it may be through the centre, with broad tables on each side, or, as we consider the best and most effective arrangement, a wide table may run all around the house, and the walk may be all round a wide central table. The side tables may be about three feet high; the centre should be a little lower if intended for large plants. Arrangements should be made for a large tank in the centre of the central table.

In the Orchid house at Glen Ridge, the shelves are of galvanized iron wire netting strained to angle irons and supported by iron standards fixed in the cement of the floor; these shelves are over the hot-water pipes, and are covered with sphagnum moss, on which the pots are placed. The moss is kept moist and thus a gentle warm moisture is always rising round the plants. Close to the glass, shelves of heavy plate glass are fitted, which afford an admirable place for small Orchids or small pots. The central table is of gray stone brick with marble capping,

and contains three tanks, the water of which is kept at different temperatures by hot water pipes. In these tanks the blue and red water-lilies (*Nymphaea caerulea* and *Devoniana*) grow and bloom profusely. The ends of the house are of coarse brick, wire netted; the space between the brick and the wire is filled with sphagnum in which ferns, *Pothos*, *Æschynanthus*, *Cissus*, and *Vanilla* grow luxuriantly; so the whole forms a wall of graceful green. In the whole house there is nothing that can decay from moisture: all is brick, iron, glass, or cement.

3rd. Ventilation should be afforded by openings in the front wall and sliding sashes in the roof; but care should always be taken to allow the air to pass over a heated surface before coming in contact with the plants. If we do not wish to paint or wash the glass, it will be necessary to provide a canvas awning so arranged as to be spread and removed at pleasure. It is also well in our more northern States to have wooden shutters fitted to the outside of the roof for the protection of the plants in cold winter nights.

A potting room should be provided connected with the house and heated in order that the plants when removed to it may not be chilled.

A larger house may be built on the same plan, only taking care not to increase the height. Orchids never do well in a high house. The interior arrangements may vary considerably according to the taste or fancy of the owner.

The material used for greenhouses is usually wood, but where it can conveniently be obtained, iron is far better. A house made of brick, iron, and glass would last an indefinite time and beyond an occasional coat of paint

and the replacing any broken glass would need no repairs. The constant moisture of an Orchid house rots wood-work very quickly, and a wooden house always affords many safe lurking-places for noisome insects. The only advantage of a wooden house is that the moisture condenses less rapidly.

Where the rafters are all made of iron, the condensation is very great, and the continual dropping may injure the plants; but by making a small groove in each sash bar to allow the water to run down to the bottom of the bar, where a small zinc gutter may be provided to receive it, this objection is removed. Even in a wooden house it is a good plan to channel the sash bars and provide in the same manner for carrying off the water.

Unless we design to have a number of houses for Orchid culture, it is best to divide the house in the middle by a glass partition; this will give us two houses, one for Orchids which come from the warmer parts of India, near the heating apparatus, and the other for those which come from cooler climates and which require less heat and moisture.

INTERIOR ARRANGEMENT.

The tables around the sides of the house are for the smaller pots. A slight trellis-work fastened to any back or side wall is useful for such plants as *Vanilla* and *Renanthera*; it should be set out a few inches from the wall, in order that the roots of the plants may not be chilled by a cold surface.

In the arrangement of plants care should be taken to place the largest and tallest growers in the centre of the table, and to grade down the plants to the sides, as thus

a symmetrical effect is produced. Some growers prefer stages or shelves, but the arrangement on tables seems preferable to all others.

The tables are often made hollow and filled in with moss or sand, through which a heating pipe passes, thus giving a gentle bottom heat ; the plants are either placed on the moss or the pots plunged in it. Some plants grow most luxuriantly under this treatment. Of course it is necessary to keep the moss constantly wet.

The tables should be of brick or slate laid on cement, or, as we prefer, of galvanized wire as in the house at Glen Ridge. Cisterns for water should be provided, supplied with rain-water from the roof of the house ; these should be warmed by the heating pipes being carried under them. A good place for these cisterns is all along the sides of the house ; then the pipes can run under them the whole length, and a shelf for plants may be placed on top of them. The best material for table is slate or wire ; the best for floors is soft flagging which will hold moisture, or cement.

All tables should be so arranged as to hold water or wet moss ; the pots should be placed on pebbles or moss, in the water during summer, but in winter the shelves should be dry.

Plants in baskets or hanging pots should be suspended to the rafters over the walks, as thus no drip comes upon plants below. The accompanying plate represents a very neat and convenient contrivance for suspending these plants. It should be made of iron, galvanized, and is so arranged that the plant may be turned round without removing it from the rafter.

A very pretty effect may be produced in an Orchid

house by entirely dispensing with shelves, staging, and tables, and fixing in the ground large branching trunks of trees with the bark on. The Orchids are fastened to these, nestle on the forks, climbing ferns and tropical plants are twined round the trunk, and terrestrial plants may be made to grow in the hollows of the trunk, and thus the interior of the house may resemble a tropical forest. The plants succeed perfectly under this treatment, and the effect produced is charming.

This mode of culture, however, requires great care, as the plants are thus more exposed to the attacks of insects and being fixed in position cannot, at the resting season, be removed to the cooler house.

However the plants are arranged they should not be allowed to touch or rub each other; there is nothing gained by crowding, but both the health of the plant and the general effect may be destroyed. It is better to grow a dozen plants well than a hundred poorly, and free light and air are essential to the health of Orchids.

HEATING.

There is nothing better for heating an Orchid house than hot water. The heat thus obtained is more equal, moister, and less exposes the plants to a change of temperature, than either steam or hot air. In these two latter methods the pipes lose their heat as soon as the fire goes out, while in the former, the heat is retained for several hours. A proper regulation of the heat is one of the requisites for the successful cultivation of Orchids.



During the winter season, the greater proportion of the plants are at rest ; it is not therefore necessary to maintain a high temperature. When the sun is in position to warm the houses, the heat should be slackened in the pipes, but should be again turned on just before the sun leaves the houses.

It is well to begin to put fires in the Orchid houses about the middle of September, for then the nights are cold ; but at this time also the supply of moisture should be reduced. In summer fire is only needed during long, cold storms. During the winter months, until the end of February, the heat should be rather dry than moist, and never excessive.

It is advantageous to have open water pans or basins, through which hot-water pipes pass, which give out vapor, which is beneficial to the plants. The water in these pans should be frequently renewed, as thus a pure, clean atmospheric moisture is preserved. Pipes are now made with these basins on top.

In heating with hot water, three rows of four-inch pipe should run round the house, and two round each centre table inside of the brick work on which the table rests, or the pipes may run through water cisterns which will always give a moist heat, and in cold weather or the resting season the water can be drawn from the tanks and a dry heat obtained. Small ventilators, made to open and shut, should be inserted into the brick work of the tables on each side, so as to allow heat and moisture to pass into the house when required. There should be means provided for going under all the tables by means of little doors in order to examine the pipes if at any time they are out of order.

A brick flue may be used for heating, with pans placed on the top for the evaporation of water, but care must be taken to prevent any escape of smoke or gas into the house.

VENTILATION AND TEMPERATURE.

A careful system of ventilation is of great importance. Let us bestow every care upon Orchids, all will be in vain if we allow cold air to pass among them: the plants will not thrive. Ventilators should therefore be provided near the ground in the front wall close to the heating pipes so that the air may be warmed as it enters the house; they may also be constructed in the brick-work at the north and south ends. These ventilating spaces may be closed by wooden shutters or by sliding slates; they should be two feet long and one foot wide, and should be left every twenty feet; if the house is span-roofed they should be on each side,

If the top lights are made to slide or rise, any ventilation desired may be easily afforded; but if not, ventilators should be placed in the ends of the house near the roof, which is a far better arrangement, but even with sliding sashes the ventilators on the front must not be dispensed with. As a general rule the air of the Orchid house should be changed once a day; this is best done by ventilating into other houses; therefore it is a good plan to have the Orchid house a central house. The temperature should be about 50° in the coldest weather; if allowed to fall much lower the plants will be chilled. During the season of rest, which with most Orchids is from November to February, the temperature should not be much higher. This season of rest is essential to the production of a

strong growth and fine flower. If the same heat is always maintained and constant moisture afforded, the plants will continue growing, or will produce weak second growths and either fail to flower or else produce weak and few blossoms.

A most ready way to secure this rest is to remove the East Indian Orchids to the cooler or Mexican house during their resting season, that is, after they have perfected their growth, and again to remove the Mexican Orchids to the greenhouse during their resting season.

There are some East Indian Orchids, such as *Phalenopses*, *Aerides*, and *Vandas*, which grow perpetually; these should always be kept in the hottest house, but the heat should be somewhat reduced lest the plants be forced into too active growth or bloom, as these plants often kill themselves by over-flowering.

The temperature thus must vary greatly at the different seasons of the year and at different times in the course of the twenty-four hours.

In this matter of temperature, the importance of "live" air cannot be too strongly impressed upon the Orchid-ist. A close, dead air is fatal to the health of many plants. Be the temperature what it may, the air should have a freshness and vitality. We know Orchid houses that resemble a vapor bath, and in this temperature some plants thrive, but it is unendurable to human lungs, and there is no satisfaction in visiting such a house. The plants do not need it, many die in it, and all will thrive better, make sturdier growth, and give more satisfaction, in a lower and fresher temperature.

In the Glen Ridge East Indian house, one can spend hours in examining the plants without inconvenience

from moist dead air, and the growth of such plants as *Vandas*, *Saccolabiums*, *Aerides*, and *Phalænopses*, is strong and vigorous, the foliage deep dark green, and the flower far finer and more enduring than upon plants grown upon the steam bath principle.

The following table may be useful :—

INDIAN HOUSE OR STOVE.	FAHRENHEIT.			
	Day with Sun.	Day with- out Sun.	Night.	Morning.
Spring	75	70	60	55
Summer	85 to 90	70	65	60
Autumn	70	65	60	55
Winter	65	60	55	50
MEXICAN OR COOL HOUSE.				
Spring	70	65	60	55
Summer	75	65	60	55
Autumn	60	55	50	50
Winter	55	50	50	45

CHAPTER VII.

SEASONS OF GROWTH AND REST.

ORCHIDS, like all other plants, have seasons of growth, flowering, and rest.

In Orchid culture, great care should be given to make the plants observe these seasons; in their native countries the change is produced by wet and dry seasons; but if in our Orchid houses we keep the same degree of heat and moisture, the plants will continue to grow, and at all seasons will put forth shoots and flowers. The result will be, the exhaustion of the plant, which will give weaker shoots and poorer flowers, and finally none at all.

At the close of the resting season, the time for growth will always be indicated by the pushing forth of the new shoots, or the development of eyes. It is then we must begin watering, and must increase the moisture according to the growth. This is the season to remove plants from the resting house to the stove.

The season which naturally follows that of growth, is that of flowering, but we see certain plants, particularly those of the *Vanda* tribe, send forth their flower-stalks at the time of the formation of the new bulbs. This is the case with *Oncidiums*, *Miltonias*, *Odontoglossums*, *Burlingtonias*, and others. The increase in the quantity of moisture afforded should always be gradual.

When the pseudo-bulbs and foliage have reached their

full development is with most plants the flowering season, and usually after the flowers fade comes the season of rest. The plants should then be placed in the resting house ; that is, the East Indian or Stove Orchids be removed to the Mexican house, and the Mexican Orchids to the greenhouse. Water should be gradually withheld, only enough being given to prevent the roots and pseudobulbs from shriveling. The season of the year during which the plants should rest, is from November to the middle of February. There are, however, some plants which will not conform to the general rule, but grow during the winter months ; such are many of the *Aerides*, *Vandas*, *Saccolabiums*, *Phalanopses*, *Zygopetalums*, and similar species. These will require water at the roots to keep them in growth, but care should be taken not to wet the young shoots, for they are apt to rot at this season of the year. Those that are growing should be placed at the warmer end of the house.

Certain species vary from the general rule : this is the case with *Dendrobiums*. The period of repose in these plants is known when the shoots have reached the usual size, and when the foliage on the old shoots assumes a yellow tinge. The season of growth is known by the appearance of swelling eyes, or flower buds around the stems at the base of the old leaves, or where the leaves have fallen, and the budding of eyes at the base for new shoots.

Then the plants should be started into growth that these buds may be fully developed, but care must be taken not to water the plants thus budding over much, or the flower-buds will not come out, or will produce unsightly leaf stalks, and the whole plant start into vigorous growth.

Some orchids are deciduous, losing their leaves after they have finished their growth. To this class belong *Cyrtopodiums*, *Barkerias*, *Cynoches*, *Phajus albus*, some *Dendrobiums*, *Cælogyne maculata* and *Wallichiana*, and many others. These should be placed so they may have as much light and air as possible, during their resting season. In this way the bulbs are ripened, which causes them to grow stronger, and to flower more freely. These flowers require but very little water when at rest. But when such plants as *Vandas*, *Angræcums*, *Aerides*, *Saccolabiums*, and *Phalaenopses*, are at rest, they should never be allowed to get too dry at the roots; the moss should always be kept a little damp, for the stems and leaves are very apt to shrivel if kept too dry, and this often causes them to lose their bottom leaves; they require but a short season of rest. Those which are growing on blocks, will require more water than those which are in pots or baskets, and should be watered about twice or three times a week if the weather is fine, but in cloudy weather not so often.

Water should be poured over the paths and walks every fine morning, in order to create a moist atmosphere in the house, but the degree of moisture must always be regulated by the weather outside; this is a most important care; if the weather is cloudy, the house should be kept dry.

During the resting season the glass and roof should always be perfectly clean, so that the plants may have plenty of light and sun; you can hardly at this season give too much. If awnings are used, they should be rolled up the greater part of the day, and if the glass has been painted or white-washed, it should be cleaned

off. Yet some discretion must be used in exposing the plants to direct hot sun, and at times an awning is necessary.

When the plants begin to grow, the temperature should be greatly increased, and may be raised by the sun during the summer to 90° or 100° without injury, but the plants must be shaded from the direct rays of the sun. In the Mexican house, however, the temperature should never be allowed to go above 80° to 85° .

Great attention should be paid to the state of the atmosphere as regards moisture, as at all times of the year this is of great importance to the successful growth of the plants, for they derive the greater part of their substance from the moisture of the air; so especially whenever any of the plants are growing, the atmosphere should be well supplied with moisture. To obtain this, water should be poured over the tables, walls, and paths of the houses; the slate tables if made with a rim may be filled with it, and evaporating pans may be placed on the flues or pipes. The hot water tanks should also be kept full, or a little water may be poured over the pipes if there is a gentle fire. Thus a gentle steam will rise, which is of great value while the plants are in a vigorous state of growth, especially as regards the East Indian Orchids, such as *Saccolabiums*, *Aerides*, *Vandas*, *Phalænopses*, *Dendrobiums*, and many others requiring a high temperature with a considerable degree of moisture.

The Mexican Orchids, most of which come from a cooler climate, not so saturated with moisture, of course require less heat and moisture, but they should have a much greater degree of warmth than when at rest. It should be greater during the months of May, June, July,

and August, ranging by night from 65° to 70° , and by day rising with the heat of the sun from 70° even to 85° .

During growth, with but few exceptions, Orchids should never be exposed to the full rays of the sun; during rest the more sun and light the better.

We cannot bring the plants to observe one rule and to conform to a day or even a month; constant watching is necessary to adapt treatment to the peculiar condition of each plant, and thus we see the necessity of providing houses to be kept at different temperatures, that the proper treatment for each plant may be afforded.



CATTELEYA SUPERBA.

CHAPTER VIII.

SHADING AND WATERING.

SHADING.

ORCHIDS, with but few exceptions, should be carefully guarded from the direct rays of the sun from March to October. The easiest and most economical way to do this is to whiten the glass. A preparation for this is made by mixing Spanish white in water, adding milk in the proportion of a pint of the latter to five pints of the former. This composition may be thrown over the glass with a syringe on a dry day and is sufficient to protect the plants from the sun and will for a time resist the rain. The coating should be renewed as it wears off, which may be five or six times a year.

Some growers paint the glass of Orchid houses ; the objection to this is, the paint cannot easily be removed, and the Orchids are kept in perpetual shade. There are objections to using any wash applied to the glass, the chief of which appears to be that the plants are shaded on cloudy as well as on sunny days, and often the light given is not sufficient for the health of the plants.

Another way is to place an awning over the glass when the sun strikes it. These, however, wholly deprive the plants of sun ; but as Orchids in their native woods grow upon the branches of large trees, they almost always receive some of the solar rays, though always so tempered by interposing leaves and branches as not to burn the

plant, and an occasional exposure, if not too prolonged or too hot, is not injurious.

Canvas may be used for this mode of shading. There should be blinds on each side of the house with a strong lath at the top to nail the canvas to with a roller at the bottom. The canvas must be nailed to the roller, but care should be taken in doing this that the awning roll up regularly from the bottom to the top. Such an awning is also useful in cold weather for covering the house in frosty nights, being a great protection to those plants that are near the glass. It is advisable to have a covering on the top of the house for the protection of the canvas when rolled up, in order to keep it from wet.

Another way which is to be recommended is the use of movable blinds rolling upon themselves in order to be easily removed. The bars of the blinds should be vertical and not horizontal, as thus there is less danger of burning the plants, the solar rays being more divided. These blinds are far more sightly than canvas and more durable.

WATERING.

This is an operation always requiring great care. No water impregnated with lime should be used, as it is injurious to the plants. The best is rain-water, to secure a supply of which, slate, brick, cement, or wooden cisterns should be provided in every Orchid house. The temperature of the water should always be that of the house; it may be warmer, but colder is injurious.

The water should be applied by means of a syringe with a flat nose pierced with very fine holes, so made as to throw the water in a continuous stream.

Water should not be indiscriminately applied to all;

we must discriminate between those at rest, those coming into growth, those in full growth, and those of which the pseudo-bulbs are nearly formed ; and some plants should never have the foliage wet. Those at rest should have little or no water, at the most only sufficient to keep the roots from shriveling and the earth or moss from being parched.

In the case of plants just starting into growth, only enough water should be given to keep the earth in which the plants grow, moist ; for, if watered too profusely, the young shoots are apt to be affected by the moisture of the house and are liable to damp off.

As the young bulbs grow, the supply of water should be increased ; and when the pseudo-bulbs are about half grown they may have a liberal supply.

When the plants begin to show bloom water should still be given liberally, but care must be taken not to allow it to rest upon the stalk or buds, for fear it may rot them. When plants are in bloom, no water should be given overhead, as every drop falling on the blossom will leave a spot, and cause it to wither.

Plants of the tribe *Epidendreae* need but little water at the roots ; the atmosphere should be moist enough for all their wants. On the other hand such plants as *Sobralia* and *Cyrtopodium* need a wet soil, water should therefore be generally given in the pot and but slightly on the foliage.

Watering should generally be regulated by the external temperature and the weather. In a cold, cloudy day it may be entirely dispensed with ; in hot, dry, sunny days water should be plentifully administered at night and morning.

It sometimes happens, during a long spell of rainy or cloudy weather, that the house becomes too wet and cold ;

this is easily known by the appearance of the pots and the plants ; in such cases a fire should be lighted to drive off superfluous moisture and to warm the plants.

When in cold weather the temperature is kept at about 50°, water should be almost entirely withheld ; if there is no sun, a little sprinkled on the pipes or on the paths may be sufficient, as thus a moist warm atmosphere is supplied to the house. The evening watering and syringing should be given about an hour or more before sunset, after the houses are closed for the night. The morning, after the sun has gained some power.

If possible, the house should be dried up once a day by means of ventilation.

In syringing great care must be taken not to wet young shoots or flower stems too much. Free syringing should only be given in warm weather, but separate plants may receive water overhead as they require it.

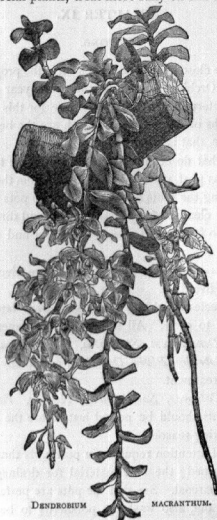
Those plants which are growing on blocks of wood should be syringed twice a day in summer. It is also a good method, during the growing season, to take the blocks down and dip them in water till the wood and moss are thoroughly soaked.

Plants in baskets should also be examined, and if they are dry, they also should be soaked. In this way also many hurtful insects may be destroyed, for floating on the water they are easily killed.

If rain-water cannot be had, pond water is the next best.

The regulation of syringing is one of the hardest things for the beginner to learn. In many houses it is wholly unnecessary, the wetting of the moss on the shelves and in the pots and the sprinkling of the paths being sufficient. It should never be profuse. Some plants, such as

Dendrobium Falconeri, need it daily; others, like most *Cattleyas*, a genus very impatient of wet on the foliage, never. In subsequent pages we shall, when prescribing the treatment of special plants, treat more fully on this subject.



DENDROBIUM

MACRANTHUM.

CHAPTER IX.

POTTING.

AT the close of the resting season is the proper time to pot Orchids ; but no season of the year can be absolutely determined as the proper one for this operation. The months of February and March are the best times to repot some, that is, after the resting season.

Those that do not need potting should be top-dressed with fibrous peat, removing the old soil from the top without breaking the roots of the plant. The pots should be thoroughly cleansed from mould, moss, and dirt, and this time is also favorable for searching after and destroying insects.

Plants, previous to potting, should not receive any water for four or five days.

Some species should be potted somewhat later, just as they begin to grow. All species of the genera *Phajus*, *Calanthe*, *Dendrobium*, *Stanhopea*, *Cyrtopodium*, *Brassia*, *Miltonia*, *Sobralia*, *Bletia*, *Oncidium*, and many others require this treatment.

Lælias, *Cattleyas*, *Saccolabiums*, *Aerides*, *Vandas* and similar plants should be potted just before the beginning of the growing season.

The chief attention requisite in potting is that the pots be well drained ; the best material for drainage is potsherds or charcoal. See that the pots are perfectly clean inside and out, also wash the potsherds to be used for drainage.

Let the pot be proportioned to the size of the plant; over-potting is injurious.

Some plants will require changing once a year; others once in two or three years. But if a plant becomes sickly and sodden with wet, the best way to bring it into a healthy state is to turn it out of the pot, wash the roots, cut off any which are dead or decayed: after repotting give but little water until the plant throws out fresh roots.

The best pots for Orchids are made of common clay; those with holes cut in the sides are very useful.

In potting large plants a small pot should be turned upside down on the bottom of the large one, the pot should then be filled with potsherds or bits of charcoal; about two inches square is the size for large plants, but somewhat smaller if the plants are small. Fill to within two inches of the rim, then put on a layer of moss (the white sphagnous moss of meadows is the best), to prevent the soil from choking the drainage, and to allow the water to pass off quickly. This is of great importance, for if it is not attended to, the water will become stagnant, the soil sour and sodden, which is fatal to the growth of the plant.

The great point to be observed in the potting of Orchids is to secure good drainage; without it, it is impossible to keep the plants in a healthy condition.

The best material for potting epiphytes is good, rough, fibrous peat and sphagnous moss; the peat should be broken into lumps about the size of a hen's egg; potsherds and charcoal should be mixed with the peat. The plant should be placed one or two inches above the rim of the pot; all pseudo-bulbs should be above the soil. A little peat should be put above the roots to cover them,

and the plant should be secured in position by pegs. If the plant is not steady a stake may be placed in the pot and the plant tied to it.

In repotting, all the old soil possible should be shaken off, without injuring the roots. Water should be sparingly given till the plants begin to make new roots, then more liberally.

The best potting material for plants in baskets is sphagnum moss and potsherds. The size of the basket should be proportioned to the size of the plant. A layer of moss should be placed at the bottom and then the basket filled with moss and potsherds. The plant should be placed about level with the top of the basket, and should be tied to a stick in the centre to keep it firm.

Those plants which are grown on wood should have moss attached to the blocks, if by experience they are found to require it; some do better on bare blocks, but they need more moisture, as they are then entirely dependent on what is obtained from the atmosphere. They should be firmly fastened to the block by copper wire secured to copper tacks driven into the block. When they make new roots they will cling to the blocks and the wire may be removed.

When the roots overrun the pot or the pseudo-bulbs become too numerous or the soil becomes sodden, the plant should be repotted. The chief precaution to take is not to injure the roots, as any such injury may check the growth of the plant, and weaken the flower.

In repotting small plants it is only necessary to turn the plant from the pot, allowing all the loose potting to which roots are not attached to fall away. If the roots are attached to the sides of the smaller pot and cannot be

disengaged without bruising, it may be well to carefully break the pot, allowing the potsherd to which roots are attached to remain. The plant should be carefully examined and all decayed or dead roots cut off with a sharp knife; then it should be placed in a pot about half larger than that it formerly occupied. More care is requisite in repotting very large plants, but the operation is performed in the same general manner.

Where Orchids have to be transplanted from wooden baskets or pots, it will usually be advisable to sacrifice the old basket, as the roots will generally be too firmly attached to the wood to be separated. The best way is to cut the old basket to pieces and dispose the pieces with the roots attached among the soil of the new basket. The roots very seldom fasten on to baskets of wire or metal; should they do so, they can be detached without injury, and therefore repotting from these baskets is very easy.

Such plants as *Stanhopea*, *Acropera*, *Acineta*, *Cirrhaea*, and others which send out many roots, should be transplanted at least once in five years. The matted roots form a thick mass, which should be separated with care, the dead ones cut out, and only those preserved which are alive and have spongioles. These dense masses of roots often prevent the descent of the flower stalk through the bottom of the pot or basket, and cause it to damp off.

When Orchids grown on blocks cover the wood with their roots, they may be repotted in two ways: the block may be placed in the centre of a basket filled with compost and supported there; the roots will soon extend over the basket, and the effect will be very pretty. Another way is to fasten new blocks to the old, covering the junction with moss; the roots will soon bind the old and new blocks firmly together.

The Orchids which should be grown in pots are those which throw up a flower-stalk from the base or top of the pseudo-bulb.

Those which have pendent flower-stems, or those which push the flower horizontally, or where the stem grows out underneath the pseudo-bulbs, should be cultivated in baskets or on wood.

In potting all Orchids the plant should be placed in the centre of the pot and should be, as it were, on the top of a mound, sloping up from the sides. The advantage of this is that there is less chance for the water to settle among the young shoots and to rot the tender roots, and should the drainage of the soil be imperfect, the water will usually drain off if it reaches the sides of the pot.



HUNTLEYA VIOLACEA.

CHAPTER X.

CULTURE OF TERRESTRIAL ORCHIDS.

THERE are comparatively few representatives of this numerous class cultivated in our hot-houses. As a general rule the flowers are by no means as showy as those of epiphytes, though no less curious.

Terrestrial Orchids are more generally natives of the more temperate climates, and our own woods and swamps furnish some very beautiful species ; among these we may mention *Cypripedium acaule*, the pretty Lady's Slipper so common in pine woods ; the rarer and more beautiful yellow species (*C. parviflorum*), the magnificent *Cypripedium spectabile*, one of our finest wild flowers, and the rare and curious Ramshead (*C. arietinum*). The wet meadows give us *Arethusa bulbosa*, a gem of a flower, and the kindred Adder's Tongue (*Pogonia ophioglossoides*), and the high colored and fragrant Cymbidium or Calopogon (*C. pulchellum*). And in the woods we may find the curious flowers of the Coralwort (*Corallorhiza odontorhiza*), and the beautifully variegated Goodyeras. The sunny fields will also give the species of Ladies Tresses (*Neotæa* or *Spiranthes*), while all through marshy woods and open meadows we find the beautiful representatives of the Orchis family.

Most of these may, with careful culture, become inhabitants of our gardens, and many of them are grown and treasured in England and on the continent as rare Orchids.

The terrestrial Orchids we should grow are the rarer exotic species, of which many are remarkable for gorgeous flowers.

As a general rule they require a stronger compost than the epiphytal species. It should be composed of turfy loam chopped into pieces about the size of a walnut, leaf-mould, and a little well rotted cow dung. These should be well mixed together.

They do not require as much drainage as epiphytes: two inches of potsherds, broken rather small, will be enough; on that put a layer of moss, then some of the rough peat and fill in with the compost.

The plant should be placed one inch below the rim of the pot.

Water should be sparingly given at first, but when the plants are about six inches high, they may have a good supply.

They should be potted just when they begin to grow after the resting season. During the season of rest they should have less water than epiphytes; in fact only enough to keep the earth damp that the plants may not dry up; and some species none at all.

The temperature at which these plants must be grown must be regulated by that of their native country. Some need the heat of a stove, others the Mexican house, and some flourish well in the greenhouse. Plants of the same genus may require different treatment; thus we find stove, cool house, and greenhouse *Cypripediums*.

These plants usually make a rapid growth, produce their flowers, and then go to rest. The foliage should be well grown, allowed to ripen gradually, and the plant only put to rest when it is withered. In growing these plants

the only way to secure vigorous shoots is by growing the foliage well ; therefore every attention should be given to producing stout growth, and large leaves. After once starting into growth the plants should never be allowed to flag for want of moisture.

Some species will endure more sun than others, some require a hot, shady location ; some, as *Anætochilus*, require to be grown under a bell-glass.

Some species are deciduous, others evergreen, and specimens of both classes often occur in one genus — as in *Cypripedia*.

One of the most splendid terrestrial Orchids is *Disa grandiflora*, a magnificent plant, which for years baffled all attempts at cultivation. The difficulty has been overcome, the mistake being in supposing that like most Orchids it should be allowed to wholly dry off ; which being done the plant never revived. The true treatment is to keep it watered ; it will continue to grow and thrive, and can be grown in any greenhouse from which frost is excluded, as in its native locality the thermometer often sinks to 32°. The spike is thrown up about eighteen inches high, and the beautiful and high colored flowers are freely produced.

Among terrestrial Orchids the genus *Anætochilus* is remarkable. The plants are of dwarf habit with beautiful variegated leaves, varying in height from two to six inches ; their leaves, which are well defined and generally obtuse in form, varying from two to four inches in length including the stalk, which, like the stem, is short and fleshy.

The foliage of all the species is remarkably singular and beautiful, on some of the varieties resembling the

richest olive or almost purple velvet veined in regular or curved lines with a net-work of gold. In other species the leaf is rich green marked with silver tracings.

The plants require to be grown in silver sand mixed with fine chopped sphagnous moss. The flowers are produced on short, upright spikes, but they are insignificant, and the buds should be nipped off as soon as they appear.

The plants should be grown in pots in the shadiest part of the East Indian house or stove under bell glasses. Potted in the compost before directed they should have good drainage.

They should not be planted in a large pot, as they do not produce many roots, but they succeed best in a small pot plunged in a large one so that the bell glass fits the outside pot, which will allow space for the leaves to grow within the glass. They should be repotted once a year, about the first of March.

The plants should be raised one or two inches above the rim of the pot; during their season of growth, which is in summer, they require an abundance of water at the roots. In winter they only need enough to keep the soil a little damp; they require only a short season of rest. The bell glasses must always be kept over them and should always be kept clean or the plants will not thrive. *Anæctochilus* are propagated by cutting the plants into pieces with a root attached to each piece. When there is only a single stem, the plant should be cut off just below the first root and potted; the old stump will soon throw up a young shoot which must be left till it has formed roots; then cut it off and pot it, leaving the old stock to throw up another shoot to form another plant.

It has been said they may be raised by planting the leaves in sand under a bell-glass, like Gloxinias and Begonias.

The following are the varieties:—

Anactochilus argenteus. A free growing plant of easiest cultivation, with bright clear green foliage and silver markings. Known also as *Physurus*. *A. argenteus pictus* is a fine variety.

A. intermedius. A pretty species with small foliage, with soft silky surface. Color dark olive, striped and veined with gold.

A. Lowii. The finest of the genus; grows six inches high, with leaves four inches long by three wide, resembling fine velvet. Color, rich dark green shading to mellow orange-brown, intersected lengthways by well defined deep golden lines, crossed by bars or lines of the same color.

A. Lobbii. A rare variety with dark foliage, with light markings.

A. maculatus. A variety resembling *A. argenteus*, but with more silvery foliage. Known also as *Physurus*.

A. setaceus. A fine species growing four inches high, foliage two inches long, resembling rich dark velvet covered with golden net-work. There are many varieties of this fine species.

A. striatus. A small and distinct species, with narrow green foliage and a white mark down the centre of each leaf.

A. xanthophyllus. A very beautiful species; grows four inches high, with foliage two inches long. The leaves are dark velvety with broad orange and green stripe down the centre, covered with beautiful golden net-work.

A. (Physurus) fimbriaris, a pretty species with dark green leaves streaked with silver.

A. (Physurus) nobilis, a large-growing species with dark green leaves, with silver veins.

A. Veitchii, a rare species, leaves large, light velvety green with lines and bars of the same color but lighter shade.

A. Turneri, a beautiful free-growing plant, leaves rich bronze marked with gold.

A. Petola, a fine species, leaves light velvet covered with bands of deep gold.

A. Bullenii, bronzy green foliage, marked with three lines of coppery red, varying to gold.

A. Dayi, dark green leaves veined with red.

A. Roxburghii, a distinct species with dark velvety green foliage, marked with well defined silver lines.

There are many other species, all interesting and pretty.

CHAPTER XI.

CULTURE OF EPIPHYTAL ORCHIDS.

THE greater part of the Orchids grown in our stoves are epiphytal, and are cultivated in pots, in baskets, or on wood, according to their nature.

We have already given, when treating the subject of potting, many hints upon the growth of these plants in pots. The chief points to be regarded are, to secure good drainage, to elevate the plant about one inch above the rim of the pot, and to support the plant if the roots are not long enough or too weak to sustain it.

The material to be used is peat, broken rather large, potsherds, and moss.

Directions as to the mode of growth of different plants will be given when we describe the plants.

It not unfrequently happens that different species of the same family require to be grown in a different manner, some having upright, and others pendent flower-stems. In this chapter we would more particularly treat of the growth of Orchids in baskets, or on wood.

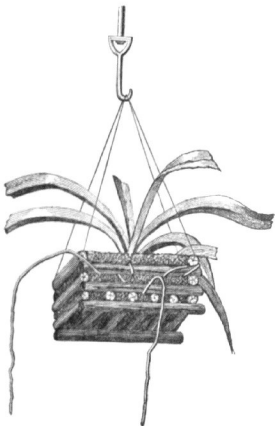
Baskets may be of wood, metal, or pottery. The best for the plants are made of round sticks of wood, about one to two inches in diameter.

The best wood for baskets is maple, apple, cedar, or oak, and the best baskets are those of a square shape.

The wood should be cut into such lengths as the size of the basket may require, but they should not be too

large — they take up too much room, are too heavy, and above all, the plants do not require much space.

After the wood is cut into proper lengths, the pieces should be bored within one inch from the ends, taking



care to have all the holes bored the same distance. There should be four lengths of strong copper wire, one for each corner; the wire should be put through each piece of wood, and brought up to form the handle of the basket.

The form of the baskets must vary according to taste. The following figures represent a few.

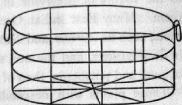
The distance between the pieces of wood or the wires, must be sufficient to allow the flower spike to pass down; earthen pots should also have spaces cut out for this same reason.

Baskets of wood or metal are much to be preferred to those of pottery, as they are much neater and ornamental, and plants can be removed from them with greater facility and without sacrificing the pot, and they are not so



heavy. Baskets of metal should be of galvanized iron, or of copper wire, the former are better, as being less likely to get out of shape.

In form, the top should be larger than the bottom, not only for artistic effect, but because they hold the earth better. In placing the plants in these baskets



it may be well to put a layer of moss in the bottom, to keep the finer earth from falling out; the baskets should not be filled as full as recommended for pots, but some six months after having set the plant in the basket, a light top dressing of rich earth may be heaped up around the plants.



The plants should be so disposed that the foliage shall not touch the metal chains, or wires, by which the basket is suspended. If a plant

sends out new shoots towards the wires, it is easy to give them another direction, by inserting a bit of cork between the pseudo-bulbs, and forcing the plant a little to one side. The drainage of baskets should not be like that of pots, but far lighter, in order that the flower-buds may easily push through it; sphagnous moss is the best.

This is particularly the case with *Stanhopeas*, *Acinetas*, and plants of like growth. It is also an object to have the basket as light as possible, for facility in suspending it.

It is not advisable to grow very large plants in baskets, both on account of the weight, and the difficulty of re-potting without destroying the basket and injuring the roots.

In choosing the baskets, some regard should be paid to the nature of the roots of the plants to be grown in them. Many East Indian Orchids which have large long roots, such as *Aerides* and *Saccolabiums*, should be placed in deep baskets, and the soil should be rather composed of peat and potsherds, than of moss and charcoal.

Those plants with descending flower-stems, such as *Stanhopeas* and *Acinetas*, should be placed in shallow baskets, and there should be nothing in the soil which could stop the descent of the flower-bud.

Baskets should be suspended where they will not shed drip upon the other plants. They should be frequently examined, and great care should be taken not to allow them to dry up.

The hook figured on page 57 is very useful for hanging baskets, as thus they can be turned round without lifting them from the nail.

CULTURE ON BLOCKS.

The selection of the wood on which the Orchids are to grow, is a matter of importance. We know that when plants are thus grown, we cannot change them as we can in pots and baskets, therefore we must choose wood the least liable to rot, or to be attacked by fungus.

The best kinds are cork, oak, apple, pear, plum, or with us, locust; as these stand best the warm moist temperature of an Orchid house. Rough, knotty pieces are the best, because the roots more easily cling to them.

In placing the plant upon the block we must inquire the nature of the roots, and always provide a piece ten to fifteen inches long and six to eight inches in diameter. A hook should be fixed to each extremity of the block, in a position to give it the requisite inclination.

The plant should always be placed in the centre of the block, upon a slight layer of moss, and be retained in its place by copper, lead, or zinc wire, until the roots cling to the block.

The block should be suspended so as to give the pseudo-bulbs an inclination of forty-five degrees.

The size above given for blocks, is of course not intended for such small growing plants as *Sophranites* and *Comparettias*. These should be grown on little branches or blocks, about five inches long by two in diameter. These little plants will thrive in small wooden baskets filled with sphagnum, and they thus require less attention to prevent their drying up, than when on wood.

It is not well to place more than one plant on a block, as the plants often have different times of growth and rest, and in supplying the wants of one, the other might suffer.

If the roots stretch away from the block, they may be confined to it with lead wire. After they have made spongioles on the wood, it is seldom they leave it. During the growing season, when the plant requires more moisture, it is well to surround the plant with moss to retain the water: this may be lessened or entirely removed, as may be best, during the season of rest.

Many species of the *Epidendreae* need very little moisture at the roots, drawing all from the air; for these it is sufficient to bind a little moss around the plant itself, leaving the roots free in the air.

When the plants become established on the block, and their roots are in good health, the inclination of the block should be changed from forty-five degrees to fifteen or twenty degrees, and in certain cases at the flowering season the plant should be perfectly straight, especially when the flower stalk is ascending.

The true air plants, such as *Vandas*, *Saccolabiums*, *Aerides*, *Angraecums*, *Phalænopses*, when planted in baskets or blocks, send out their roots much stronger into the air, and suck up the moisture, whereas if they are planted in pots and have their roots covered with soil, they are very apt to rot.

CHAPTER XII.

DISEASES AND INSECTS.

DISEASE.

THE only diseases which attack Orchids are rot and spot. During the damp months of winter, rot is very apt to affect those species with thick, fleshy bulbs.

It is caused by too much moisture in the house, or by cold drip falling from the roof into the crown of the bulb. During the winter, steam is injurious to Orchids with fleshy bulbs, such as *Cattleyas*, *Peristerias*, *Odontoglossums*.

If the rot is perceived when it has just begun, it is easily checked by cutting the diseased part entirely away with a sharp knife, leaving no portion of the decayed or diseased bulb; then fill the wound with flowers of sulphur, keeping it dry.

When the leaves begin to rot, the diseased part should be cut clean away, and a little sulphur rubbed on the parts that are cut, but the sulphur should not be allowed to get to the roots of the plant. When any part of a fleshy bulb becomes discolored, and the dark or discolored part appears moist or wet, especially if any fluid exudes from it on pressure, the wet or discolored part should be immediately cut out, or there is danger that the bulb will be destroyed, as the rot is often much more extensive within the bulb than the discolored appearance on the outside would seem to indicate. The plant should

also be removed to a drier and cooler place and water given with the utmost care.

At the beginning of the growing season the young shoots of Orchids often rot. This is caused by drip or by water settling upon them. At this season the greatest care is necessary to prevent this, and it should be especially seen that the water from the hanging plants does not fall on the young shoots of plants below. Young flower stalks often damp off from the same cause.

Orchids often suffer from a sour sodden soil, caused by imperfect potting or deficient drainage, the result of long deferred repotting. The remedy is to repot the plants.

Spot is a disease which attacks the foliage, and soon disfigures it. It is caused by too much moisture in cool weather, and by exposing the plants to draughts and sudden changes of temperature.

Prevention is far better than cure, and if the rules for potting and ventilation which we have prescribed are followed, there will be no trouble from spot. Fresh air, a sweet, moist temperature, clean, sweet, well drained potting material, are perfect preventives of this disease. Should a plant become infected it should be at once removed from the pot, thoroughly cleaned, all dead roots cut away, and repotted in fresh sweet material.

Spot is not necessarily fatal. If remedies are applied in time, the plants soon outgrow it, and the new leaves soon replace the injured foliage. We have found flowers of sulphur efficacious in preventing the spreading of the spot on the foliage.

INSECTS.

The insects destructive to Orchids are the wood-louse, the cockroach, the red spider, the white and brown scale, thrips, green fly, small ants, slugs, snails, and mealy-bug.

The wood-louse is found in every part of the Orchid house. It attacks every part of the plant, but chiefly feeds on the tender spongioles of the roots, the young shoots, and the flower buds.

Even plants in baskets are not safe from their attacks, for they will run along the rafters and drop upon the plants. They hide under the pots or in the drainage.

The common way to destroy them is to cut potatoes in halves, scoop them out, and lay them along the tables of the house. The insects will take refuge in these, and great numbers may thus be destroyed.

If, however, this means becomes insufficient on account of numbers, they may be destroyed by hot water. To do this allow all the plants to remain unwatered about thirty-six hours, that the soil may become dry. Have a pan of water heated to about 70° Fah. and into this plunge the pots about to the middle. All insects which have taken refuge in the drainage will seek to escape at the top and are easily destroyed as they fall into the water and perish. This operation should be performed upon all the plants in the house the same day. The hot water will not hurt the roots of the plants, but the pots should only remain plunged a few moments and the operation should not be often repeated.

Cockroaches are most destructive in an Orchid house, and in a few nights they may do a great deal of mischief. They feed upon the tender roots and flower stems. The

only way to keep them under is by constant search by day and night : by day, by moving the pots under which they conceal themselves, and by night, by lamplight. At dark they leave their hiding-places to seek food, and it is then they are most easily caught.

If damp moss is laid in the hottest part of the house, they may often be found hiding in it. A mixture of honey, lard, and arsenic, placed in oyster-shells round the house will poison them, or any of the vermin exterminators. Arsenic and tallow may be placed in the pots, but care must be taken that it does not touch the roots or shoots of the plant.

The red spider and thrips are destroyed by washing the leaves with a weak soap-suds to which flowers of sulphur has been added ; allow this to remain upon the foliage for a day and then wash with pure water. Every part of the pseudo-bulb should thus be treated, that all eggs and insects may be destroyed. A house thus infested should be well fumigated with tobacco every evening for three or four days till the insects are destroyed. This smoking will also destroy any green-fly that may infest the young shoots, but an Orchid house should always be smoked lightly, as many Orchids are injured by tobacco smoke.

Lime and sulphur mixed together and rubbed on the pipes in different parts of the house when they are warm is fatal to red spider. This remedy should be used with care, as too much would seriously injure the plants. At the time of its application there should be a moist atmosphere in the house, but not much heat.

The small ants are easily trapped by cutting apples as above directed for potatoes and placing them around the

tables: the ants will find them, and if the traps are often examined thousands may be destroyed.

The slugs and snails are often very destructive, attacking the flower-stem and young shoots. They leave a trail behind them and when this is perceived it must be followed up and the insect destroyed.

The brown and white scale and mealy-bug are very destructive: if not looked after, they increase rapidly and often kill the plants. *Cattleyas* are especially subject to their attacks. The following mixture rubbed over the plants two or three times will destroy the insects:—

To one gallon of rain water add eight ounces of soft-soap, one ounce of tobacco, and three table spoonfuls of turpentine; stir well and leave the mixture for forty-eight hours, then strain it through a cloth and bottle for use.

Or: Dissolve five ounces of camphor in half a pint of spirits of wine—the result will be an impalpable powder; add nine ounces Scotch snuff, nine ounces each of black pepper and sulphur. Keep the mixture in a well corked bottle.

If the plants infested are powdered with this preparation the insects will be destroyed.

As a general rule an Orchid house should be smoked twice a month. In the growing season this fumigation should be light, and plants in bloom should be removed from the house.

Orchids should be washed, foliage and pseudo-bulbs, at least once a month with a wet sponge.

The walls and rafters of an Orchid house should be painted once a year.

By adopting these rules the eggs of insects will be destroyed and the plants kept in good health.

CHAPTER XIII.

PROPAGATION AND IMPREGNATION

ORCHIDS in cultivation do not reproduce themselves like other plants. It is very rarely that we see them produce seed, and the seed obtained by fertilization is usually incapable of germinating, or is of species which increase far more rapidly by division.

The seed capsules of Orchids are filled with an impalpable powder; and the young plants the first year are exceedingly minute. In masses of imported bulbs we can see the regular gradations in size from very small to the large flowering bulb. We may often see a mass of forty or fifty bulbs one succeeding the other, of which only the last four or five have produced flowers, and if only one bulb is formed each year we can calculate the great age of the plant. This is particularly the case in plants of the genus *Epidendrea*.

The usual mode of propagation consists in separating the bulbs; there are different modes of performing this operation suited to different species.

Some are easily increased by dividing them into pieces or by cutting the old pseudo-bulbs from the plant after the latter have done blooming; such plants as *Dendrobiums* are increased in this way.

The best time for dividing the plants is just as they begin to grow or when they are at rest. They should be cut through with a sharp knife between the pseudo-bulbs

being careful not to injure the roots ; each piece should have some roots attached to it. After they are cut through they should be parted, potted, and put into some shady part of the house, and not receive much water at the roots until they have begun to grow and make new roots, when they may be liberally watered. *Dendrobium nobile*, *Pierardii*, *pulchellum*, *macrophyllum*, *Devonianum*, and varieties of similar growth are easily propagated. This is done by bending the old pseudo-bulbs round the basket or pot in which they are growing, or by cutting the old flowering bulbs away from the plant and laying them on some damp moss in a shady part of the house with a good supply of moisture. After they break and make roots they may be placed in pots or baskets. Such sorts as *Dendrobium Jenkinsii*, *aggregatum*, *formosum*, *speciosum*, and *densiflorum* and varieties of similar growth are increased by dividing the plants.

Aerides, *Vandas*, *Angræcums*, *Saccolabiums*, *Camarotis*, *Renantheras*, and plants of similar growth are propagated by cutting off the tops of the plant just below the first root or by removing the shoots which spring from the root or form in the axils of the leaves.

The young plants should be put on blocks or in baskets with some sphagnum moss, and kept in a warm damp place till they begin to grow, receiving little water at first.

Odontoglossums, *Oncidiums*, *Zygopetalums*, *Sobralias*, *Trichopilias*, *Stanhopeas*, *Schomburgkias*, *Mormodes*, *Lycaestes*, *Peristerias*, *Miltonias*, *Lælias*, *Leptotes*, *Epidendrums*, *Galeandras*, *Cyrtorchilums*, *Cymbidiums*, *Brassias*, *Cyrtopodiums*, *Cattleyas*, *Bletias*, *Cynoches*, *Coryanthes*, *Cælogynes*, *Barkerias*, *Calanthes*, *Aspasias*, are all propagated

by dividing them into pieces each having a portion of the roots attached to it and a young bulb on the pseudo-bulb.

Phajus albus is increased by cutting off the old pseudo-bulbs after the young ones have begun to flower; that is, just before the plant has made its growth. The pseudo-bulbs should be cut into pieces about six inches long, and put into a pot in some silver sand with a bell-glass over them till they strike root; then pot them in some fibrous peat, with good drainage, and give a good supply of water during the growing season.

Phalenopsis may be propagated by tying the flower stalk along the block and surrounding the nodes nearest the base with a little moss; of course the flower-buds showing themselves on this stalk should be picked off. *Oncidium Papilio* reproduces itself in the same way. Some of the *Epidendrums* such as *E. cinnabarinum* and *crassifolium* will also form plants on the top of the old flower-stalks. They should be allowed to make their growth, and then be cut off and potted; they will soon make good plants.

Some *Dendrobiums* will also form plants on the tops of the old pseudo-bulbs, and they should be treated in the same way.

We have said that it is seldom that Orchids naturally produce seed in our stoves, but artificial fertilization is very easy. We only have to lift up the end of the column which conceals the anther; then with small pincers to bring the pollen masses to the pistil; as soon as the pollen comes in contact with the stigma, it is drawn into it and disappears.

In this way a great many plants of *Vanilla* were a few years since obtained at the Jardin des Plantes at Paris. As soon as a flower is fertilized, it begins to fade, and ripening seed always exhausts the plant.

This subject of fertilization and, by means of it, of propagation, has within the last few years attracted much attention in Europe and much of interest has been written on the subject, in view of which we may conclude that our knowledge of Orchids and their peculiar adaptations is yet most imperfect, and that the future may yield rich developments.

There are many Orchids that will keep on growing year after year and yet produce only one flowering bulb each year; but if the plants are cut they will produce back-breaks, increasing and soon make fine specimens. Some plants are easier to increase than others, of which *Cattleyas* are an instance.

When a plant has four back bulbs, cut the plant in two between the bulbs, but do not disturb the plant; let the bulbs keep in the same place. The time of cutting and after treatment should as nearly as possible be the same as above recommended for propagation. The plant will make new shoots and roots from the back part and soon form a specimen. All Orchids having bulbs should be treated in the same way if it is desirable to increase them.

CHAPTER XIV.

FLOWERING.

EPIPHYTAL Orchids generally produce their flowers in a manner to be seen to the best advantage from below, while terrestrial Orchids produce theirs in a contrary way. In arranging the plants in the Orchid house, this fact should be considered. Some cultivators have a portion of a house for use as a show house to which they remove the plants when in bloom. This is arranged to display the plants to the greatest advantage, and can be kept at a low temperature. Thus the plants remain longer in bloom and are not affected by the damp atmosphere necessary for the Orchid house. Most Orchids with large flowers, such as *Cattleyas* and *Lælias* and above all *Phalenopsis*, are very much injured if drops of water fall upon or condense on the petals. Orchids are also seen with more comfort in a cool house, for the hot moist temperature of an Orchid house is not pleasant to a visitor.

Many Orchids, such as *Oncidiums*, throw up a flower stalk from two to three or more feet in length. Such stalks may need a support, which should be of light slender wood or of wire. These stalks continue to grow until they branch, and the branches are often ten inches long. In many of the species many months elapse between the showing of the flower bud and the expansion of the flowers. For example, *Oncidium pulvinatum* begins to throw up the flower stalk in January, but the flowers are not produced before the June or July following.

The supports for the flower stalks of Orchids should be as small and neat as possible, and if they can be dispensed with when the flowers expand, it will add much to the effect of the flower.

Some Orchids continue to produce flowers for months after the first have faded ; such flowers are always smaller than the first, and such a prolongation of the flowering season tends to exhaust the plant. It should be checked by allowing the plant to go to rest. *Phalænopses* are very prone to over-flower and thus exhaust themselves.

Oncidium Papilio, which produces only one flower at a time, will continue to bloom from the same shoot until the plant is exhausted. After the expansion of the third flower, the flower-stalk should be cut off close to the pseudo-bulbs.

The duration of the flowers of Orchids is in proportion to the time the plant takes from the shooting forth of the flower bud to the expansion of the flowers. Some plants bloom quickly, but keep the flowers in perfection only a few days ; of others, the flowers are ephemeral, as *Sobralia decora* ; others again produce flowers which succeed one another for a month, as certain *Maxillarias*, *Warrea Wallesiana*, while with such plants as *Phajus*, *Cyrtorchilum*, and *Cymbidium* for the most part, the flowers continue to expand on the same stem.

The greater number of Orchids are exquisitely fragrant ; and their beauty, their different nature, the peculiar modes of growth and shapes which they exhibit, furnish a vast field for observation, and one of ever increasing interest.

We can in this portion of the work only speak in general terms, referring the reader for special observations on

the peculiarities of each plant to the descriptive pages. The rules which have been given, are of general application, but many Orchids require a peculiar treatment; these we shall attempt to notice in the succeeding portion of the work.

We have spoken of the advantage of removing the plants during the season of bloom to a cooler house. Contrary to what might be expected, this will not injure the plants, but it must not be done too suddenly; the plants should be gradually accustomed to the change by being first put, for a few days, at the coolest end of the stove. Where there are two houses, those in the hotter should be moved to the cooler for a few days before being taken to the show house, and they should be allowed to get nearly dry and should receive very little water. The temperature of this exhibition house should be kept about 50° and the plants in it should be shaded from direct sunlight.

When the bloom begins to fade, the plants should be removed to the stove, where they should be placed in the coolest end with plenty of shade; they should be kept there for about ten days, for if they are exposed to the sun they are very apt to be scorched. By thus removing to a cool house, *Saccolabium guttatum* and *Aerides affine* may be kept in bloom five weeks. *Aerides odoratum* and *roseum* and *Dendrobium nobile* and *cœrulescens* may be kept four weeks. *Dendrobium moniliforme*, *macrophyllum*, *pulchellum*, *Ruckerii*, and *secundum*; *Brassias*, *Oncidium*s, *Epidendrum*s, *Odontoglossum*s, *Cyrtorchilum*s, *Trichopelia tortilis*, *Lycaste Skinnerii*, *aromatica*, *cruenta*, *Maxillaria tenuifolia*, and all the *Cattleyas*, do well in a cool house and last much longer in flower.

Lælia majalis will keep four or five weeks, and *Lælia flava* a long time.

When it is probable that plants will come into blossom earlier than is wished, the time of flowering may be successfully retarded, by taking them to the cooler part of the house or even to the greenhouse, keeping them slightly shaded during the brightest part of the day. *Dendrobiums* are very easy to keep back if they are wanted later in the season. *Dendrobium nobile*, *pulchellum*, *macrophyllum*, *densiflorum*, *Farmerii*, and *Picardii*, generally bloom in winter, but may be kept back till June, and by having a succession of plants, the Orchid house may be bright with *Dendrobiums* from January to June.

All the *Dendrobiums* will bear cool treatment while at rest, and all can be kept for late flowering. The treatment they require in a warm greenhouse is to have but little water, only enough to keep them from shriveling; the temperature should not go below 40°; and the bulbs of the plants must be kept dry or the flower buds are apt to rot. When plants are wanted to flower, move them into the Orchid house, and shade them from the sun. *Phajus Wallichii* and *grandifolius* may be kept back in the same way.

CHAPTER XV.

COOL TREATMENT OF ORCHIDS.

WITHIN the last few years, an entire change in the culture of Orchids has been advocated, and in many instances carried into practice in England, and with no inconsiderable degree of success. This new mode of culture, known as the "cool treatment," is directly opposed to the practice of the last thirty years, and to all the theories of Orchid culture. The proposition on which it is based is, that Orchid houses have always been kept too hot, and the plants grown on a "high pressure principle:" that the maintenance of such a temperature is not only very expensive, but injurious to the plants, and that any person having a heated grapery where the temperature is never allowed to fall below 40° Fahrenheit may grow most of the Orchids now in cultivation in great perfection, and withal ripen his grapes quite as well as when the house was exclusively devoted to them.

Now if this can be done, and it has in many cases been successfully accomplished, the culture of Orchids becomes easy, and much of the expense which has deterred so many from attempting it is saved. The experience of florists and horticulturists hitherto has shown that it is impossible to grow grapes and flowers successfully in the same house: in other words a grapery and greenhouse cannot be combined. But if our forcing houses can be

adorned by the gorgeous, fragrant, and curious flowers of Orchids, the discovery is one of greatest value to the florist and amateur.

We propose to condense from the latest English publications the experience of those who have put the new theory into practice, feeling that if farther trial proves the discovery to be of general adaptation, its value can hardly be estimated.

But first let us state, that while experience has shown that this mode of culture succeeds with most Orchids, it does not suit the nature of those species which come from the hot, damp jungles of the Eastern Continent, but is especially adapted to South American and Mexican species, particularly those which are natives of the great Andean range, where in fact the larger part of South American Orchids occur.

We learn from Humboldt that although Orchids are scattered throughout every part of the torrid zone, from the level of the sea to the height of 10,000 or 11,000 feet, yet it must be admitted that in the number of species, the coloring of their blossoms, delicious fragrance, rich foliage, and brilliant flowers, none can be compared to those that inhabit the Andes of Mexico, New Granada, Quito, and Peru, where the shade is moist, and the breezes mild, the mean temperature of the year at an elevation of between 4,800 and 6,600 feet being from 64° to 69°. In fact these most beautiful of plants, like those most beautiful of birds, the humming birds, seem to cling with a marvelous partiality to the vast Andean chain, which stretches from the frontiers of Mexico to the confines of Peru. These mountains are, — geologically speaking, — of recent date ; the Orchids, therefore, that inhabit them,

must likewise be comparatively recent: indeed no fossil Orchid has ever been discovered, although ferns, with which in these days Orchids are invariably associated, have been found in countless myriads in the paleozoic strata.

About ten years since continued failure in the cultivation of many new Granadian and Peruvian Orchids, led to the suspicion that both the theory and practice of culture was fundamentally wrong, and experiments were tried in varying the temperature, which met with partial success. The fault still was, that too much heat was given, and often too little moisture; consequently, the finest species dwindled day by day, flowering poorly, if at all, and finally were lost to cultivation.

It was in the collection of Linden that the first decided move was made towards cool treatment, and the first decided triumph achieved, and there it was that the rare and beautiful *Odontoglossums* figured in "Pescatoria," flowered for the first time.

In growing plants under the "cool treatment" the house should be low and small, and should be either a lean-to facing the north, or a well shaded span-roof. The temperature should be as equable as circumstances will permit, that is to say, during the day-time in winter it should not fall below 60° , while during the day-time in summer, the less it rises above 70° the better. In the night, of course, the temperature will fall considerably, and even if it sink below 50° no harm will be done, and many of the finest *Odontoglossums* will thrive at a minimum temperature of 35° .

Experience has shown that the East Indian house, or a temperature averaging from a winter minimum of 60°

to a summer maximum of 95° , is not the temperature suited to the well-being of a single known example of *Odontoglossum* or *Lycaste*. A Cattleya house, ranging from a minimum of 55° to a maximum of 85° , is not exactly suited to either of the plants named, though such species as *O. grande*, *citrosimum*, *Bidtonense*, *Phalaenopsis*, and *nebulosum*, will live and remain tolerably healthy under such a temperature, if accompanied with a proper degree of moisture. In fact, for such a collection and for such plants as *Epidendrum vitellinum*, *Lycastes* of all kinds, *Laelia cinnabarina*, *anceps*, and *flava*, *Cattleya Skinneri* and *citrina*, *Trichopelias* and *Anguloas* of all sorts, and many plants of kindred nature, a minimum of 43° and a maximum of 70° to 75° during the heat of summer, are of all temperatures best suited to the plants. Lower than 40° (except in a collection composed entirely of *Odontoglossum Pescatorei*, *cordatum*, *membranaceum*, *Ehrenbergii*, and *Cervantesii*, which will bear 35°) it had better never be, even in very cold weather, and some care must be taken to keep the plants during that time in a medium state of moisture. Higher than 50° at night during the dead of winter is not a good practice, although the house may be allowed to rise to such a height during the day, before giving air. Plenty of fresh air is of great importance during the summer and autumn, to consolidate the pseudo-bulbs and encourage free flowering. It must be borne in mind and carried out in practice, that in order to promote the health of the plants the temperature in doors must rise and fall with the temperature out of doors. A good proportion is from 5° to 8° during night, and from 8° to 12° during the day.

The plants themselves may be grown either on blocks,

or in pots; the *Odontoglossums* always preferring the latter, and *Epidendrums* the former. The general directions for potting given in a former chapter, apply perfectly to these plants. As a general rule they all delight to grow in good, rich, fibry matter, such as is to be had in swamps and peat meadows, where vegetable fibre largely predominates. As many of the particles of earthy matter as can be easily got rid of, should be separated from the turfs by beating.

If there is any inclination to soddenness, or a disposition of any kind to obstruct thorough aeration, a good quantity of sphagnum moss should be introduced, which counteracts any bad effects. There is nothing to be gained by impoverishing the semi-terrestrial species, and often cow or horse droppings, well dried, may be added to the potting material with beneficial results.

No *Odontoglot*, *Lycaste*, *Lalia*, or *Trichopelia*, as a general rule should be allowed to get *dry* at the roots. Nothing cripples their powers of action so much as drought, and it sometimes requires months or even years, for a plant to recover from a single "*drying off*." It must be borne in mind that many of these plants have watery bulbs, and make several growths in a year (such are *O. Pescatorei*, *crispum*, *odoratum*, and *gloriosum*), and if the bulbs are once allowed to dry up and shrivel, they seldom recover their former vigor.

Occasionally it is necessary, to induce floral development, to check the luxuriance of particular species which show little disposition to flower annually, unless thus wrought upon by the hands of the cultivator; but there is a particular time when such treatment is requisite (and each plant must make its own rule), and its duration

must not be extended for too long a period. During the growing season, no cessation of vigor must be encouraged; ample supplies of water both at the root and in the atmosphere, are what the nature of the plants demands. If the potting material be of the right kind, so porous as to allow air to pass freely, and so fibrous as not to become sodden, water may be given once a day without injury.

To promote a moist atmosphere the shelves of the Orchid house may be strewn with wet moss, from which the evaporation is highly beneficial.

Insects should be kept under by the means given in a former chapter. We must, however, remember that the fumes of tobacco are injurious to many of the *Odontogloss*s and other cool Orchids, causing them to shed their leaves; and as a general rule a miscellaneous collection of Orchids requires to be fumigated with great care and judgment.

We have said that experience has latterly tended to show that Orchids associate admirably with vines, and that they may be successfully flowered and a crop of grapes be grown in the same house. If we consider the ranges of temperature we have given above for the regulation of a cool Orchid house, we shall see they accord well with those required in a forcing grapery.

Experiments in England have shown that there are comparatively few Orchids worth growing, which cannot be cultivated under vines, and that many of the East Indian species which have always been kept in the greatest heat, do well under this régime. There are, however, some species of *Vandas*, *Aerides*, and *Phalenopsis*, which cannot be so cultivated, though these in summer will succeed in a grapery.

This experiment is certainly worth trying in this country. Its success is of course questionable, for the intensity and force of our summer's sun is so much greater than in England, that what may be a success in one country, may prove a disastrous failure in the other.

There is another advantage resulting from the discovery of the cool treatment system. It is not impracticable to grow Orchids in cities where only a very small space can be given; the house must be small, and the temperature need not be high. Both of these conditions could be realized with but little trouble and expense. An attic room, or a dark unsightly yard in the city, could with a very slight outlay be converted into a miniature Orchid house, and the magnificent Andean Orchids grown with very little trouble. In London and other European cities this has been successfully done, and there is no reason why success should not reward experiments of this kind in our own large cities. Some Orchids have been successfully grown in the house as parlor plants, as we shall show in another chapter, and *Odontoglossum grande* has even been bloomed in England in the open air, but as yet we are not very enthusiastic in regard to parlor gardening with Orchids, the result of all experiments in England showing that the only plant very successfully grown in the house was *Lycaste Skinneri*, which roots more freely in peat than any other Orchid, although we have been successful with others.

It only remains to give a list of those Orchids which experience has shown do well in a cool house.

First, all the *Odontoglossums* from New Granada for the coolest house, those from Mexico and Guatemala thriving with a little more heat, but doing well in a house

where the temperature is regulated as we have before prescribed.

The Indian *Cælogynes*, particularly the deciduous tribe of *Pleiones* which need plenty of water while growing, and which when well grown flower as freely as a pot of crocuses.

Lycastes in all the species, but particularly *Skinneri*, *cruenta*, and *aromatica*.

Maxillaria venusta.

Epidendrum aurantiacum, *vitellinum*, *macrochilum*, and *cinnabarinum*.

Anguloa Clowesii, *Ruckeri*, and *uniflora*.

Barkeria Skinneri and *spectabilis*.

Dendrobium speciosum.

Phajus albus and *grandifolius*.

Cypripedium caudatum and most other species.

Uropedium Lindenii.

Disa grandiflora. *Masdevilleas* in variety.

There are many other Orchids which grow and flower better with a moderate degree of heat and which do well in a cool house during the greater part of the year; such are *Lælias*, *Sophranites* and many others.

This mode of culture is as yet in its infancy, and we may reasonably hope that further experiments will show that Orchid culture, now confined to a few, may before many years be within the reach of the masses and the rich flowers of the *Lælias*, *Odontoglossums*, and *Cattleyas*, the fragrant blossoms of the *Aerides*, *Dendrobiums*, and *Stanhopeas*, and the curious blooms of the *Catesetums* and *Coryanthes* be as well known at our horticultural exhibition as the ever favorite roses, lilies, and violets.

CHAPTER XVI.

ORCHIDS FOR PARLOR CULTURE.

LYCASTE, ODONTOGLOSSUM, CYPRIPEDIUM, BLETIA, PHAJUS,
GOODYERA.

THE word "Orchid" conveys to most minds an idea of a plant which grows only in great heat, and requires a peculiar mode of culture. To some "Orchid" is synonymous with air plant; yet a large portion of Orchids are not air plants (epiphytal) and many thrive in a moderate temperature, and require no peculiar culture.

Some Orchids grow at such elevations that hoar frost is found upon the leaves, while others are natives of the hot jungles of the Indian Archipelago.

Formerly, all Orchids were grown in a hot steamy atmosphere, that being the treatment which theory recommended. The natural consequence was that many perished under such uncongenial culture.

The past few years have shown that Orchids from cool regions require cool culture, — a temperature somewhat resembling that of their native haunts. The only wonder is that horticulturists were thirty years in opening their eyes to this patent fact.

Experience has also shown that some few of the large class of cool Orchids can be successfully grown and bloomed in the parlor.

Many Orchids are remarkable only for their showy flowers, the foliage being sparse or deciduous. But these

Orchids, adapted to parlor culture, are all from genera having evergreen leaves, and the foliage of some is ornamental.

The general rules for potting Orchids are : give plenty of drainage ; no Orchids thrive in a close, sour soil. Many require plenty of water, but none thrive in standing water ; make the soil porous, lumpy, broken, not sifted ; give pure air, and light, and a decided season of rest ; keep the foliage clean and free from dust, and preserve the roots from their numerous insect enemies.

LYCASTE.

A family of some thirty species of terrestrial Orchids from South America. The leaves are large and plaited, the flowers borne usually on single scapes, large and very showy.

These plants should be potted in coarse peat and sphagnum moss with broken potsherds or bits of charcoal.

When growing, they need plenty of water, and even when at rest should never be allowed to become entirely dry.

L. Skinneri. This beautiful plant is a native of Guatemala. The flowers are large, from three to six inches in diameter ; sepals and petals white or rose, recurved, lip varying from pure white to deepest carmine. The growth is made in summer, the flowers are produced in winter ; they last six weeks in beauty and many are produced in succession.

Although a close moist atmosphere is best suited to this plant when in growth, it may be grown in the parlor ; give plenty of water and light without full sun, the object

being to grow the foliage as large as possible. When growth is complete, generally by October, reduce the water and give more sun. Those who have a vinery, can grow this plant in great perfection; keep them in the vinery from May to October, in the parlor from October to May. Figured in Bot. Mag., tab. 4445. Pax. Mag. 11, tab. 1.

L. Harrisonæ. A showy species which is easily grown in the parlor. The leaf is large and solitary, the flowers three inches in diameter, one or two in a spike, white or yellowish, waxy, lip rich rose, varying to lilac. This plant blooms constantly at all seasons. Bot. Reg., tab. 897.

ODONTOGLOSSUM.

A large genus of generally cool Orchids. Doubtless many of these beautiful plants could be grown in the parlor; we have, however, had experience with only one.

O. grande. A noble species with dark evergreen foliage. Flowers on erect racemes, five inches across, glossy yellow, beautifully barred with chocolate, — produced freely in autumn and early winter. Pot in sphagnum moss, coarse peat and charcoal. Treated as prescribed for *Lycaste Skinneri* it blooms freely.

CYPRIPEDIUM.

A very large genus, inhabiting in some species both continents, both in the temperate and torrid zones. The plants are commonly known as *Lady's Slipper*. We have in our woods beautiful species and among exotics many no less attractive.

Our native species, if potted late in the autumn, will bloom in the window in early spring.

The best species for parlor culture is *C. insigne*, a noble plant from Nepal, foliage narrow, dark green ; flowers solitary (rarely two), three inches broad, greenish, edged with white, wings long, purple and yellow. The flowers are very freely produced from November to February, and last two months in perfection.

We have now (January, 1876) a plant in the parlor window with thirty-six flowers, which has been in full beauty for four weeks. The pot is two feet in diameter, and this plant has been grown from a single small pot in two years. This, however, was in the greenhouse, but in the parlor the growth though slower is no less satisfactory.

Soil, rich peaty loam. This plant should never be allowed to get dry, and requires very little rest. Grow in full sunshine.

C. venustum. A pretty species with beautifully variegated foliage, flowers rich brown, green, and chocolate, but not very showy. Requires the same soil and general treatment as the last.

BLETIA.

A family of terrestrial Orchids of easy culture. The root stocks should be potted in autumn, and grown with plenty of sun and water. The flowers are produced in March on terminal spikes, and though transient are very pretty. Soil, rich loam. After blooming, the foliage dies away, and the roots go to rest.

B. hyacinthina. A delicate species with purple flowers, marked with white, somewhat resembling our wild *Calopogon*, easily grown.

PHAJUS.

These plants are tall growers, with large broad evergreen foliage, and tall scapes of large handsome flowers. They need a rich soil, plenty of water, and full light, and sun heat.

P. grandifolius. A native of China; grows and flowers well in the parlor. Although an Orchid, it will stand more hard usage than most plants. The flowers are white externally, purplish brown inside, lip white and brown. Blooms freely from January to March. A more showy plant, both in growth and flower, it would be hard to find. We have grown plants with forty scapes carrying more than five hundred flowers.

GOODYERA.

Pretty terrestrial Orchids of which two species, natives of shady woods, are very pretty parlor plants.

G. pubescens and *repens* are not rare plants, but if potted in rich leaf mould, they are very showy in window culture. The foliage is green with silver tracery, the flowers white, in erect spikes. Many rare exotics possess less beauty than these simple native plants.

CHAPTER XVII.

HYBRIDIZATION OF ORCHIDS.

AS we have before remarked, very few Orchids have the power of self-fertilization. This operation is generally performed by insect agency, and as in our Orchid houses insects are seldom found, so we seldom find Orchids producing seed. The plants that with us have most frequently seeded are *Epidendrum phænicium* and *aurantiacum*, *Cattleya Mossiæ*, *Cypripedium barbatum*, and *Dendrobium chrysanthum*; of these probably the *Dendrobium* was the only one which was self-fertilized. To effect fertilization, therefore, artificial means must be resorted to, and any mode of bringing the pollen masses into connection with the stigma will accomplish the result.

An explanation of terms may be appropriate in this connection.

In all common Orchids the stamen is confluent with the pistil, the two forming the *column*; the stamens carry the anther, and within the anther is the pollen. The anther is divided into two cells, generally very distinct.

In Orchids the pollen is not, as in other plants, a fine powder, but the pollen grains adhere in masses.

There are usually in Orchids three united pistils or female organs of which the upper part has its anterior surface viscid, which forms the stigma. The two lower stigmas often are confluent so as to appear as one; the stigma of the upper pistil in many Orchids presents no

resemblance to a stigma, and is called the *rostellum*. It includes or is formed of viscid matter, and in many Orchids the pollen masses are firmly attached to a portion of the exterior membrane. In the act of fertilization the stigma is penetrated by long tubes, which grow down from the pollen grains and carry the contents down to the ovary, thus impregnating the seeds.

To fertilize the flower we must lift up the end of the column and bring the pollen masses, with a pair of fine pincers, on to the pistil ; as soon as the pollen comes into contact with the stigma, it is drawn into it and the work is done.

Orchids vary much in the appearance of the organs of fertilization, but the general process in artificial impregnation is the same. A little practice will soon accustom one to the operation. As soon as the flower is fertilized it begins to fade, and the ovary begins to grow. Perhaps the reason why the flowers of Orchids are so persistent is that, seldom perfecting seed, the flowers endure in expectancy of fertilization ; when that is accomplished, the end of nature, the perpetuation of the species, being attained, the flower fades.

The seed-pods of Orchids mature slowly, and, as far as our experience has shown, are about a year in coming to perfection.

The seed is a fine, almost an impalpable, powder, and thus requires great care in sowing. It does not germinate readily, often requiring many months. The best place to sow it is on a potsherd or block on which some Orchid is growing, or upon a pot of rough peat. Wherever it is sown it must never be allowed to get dry. The plants at first look like a green mould, but soon attain in-

dividuality. As soon as large enough to handle they should be pricked off in small pots, but great care must be used, as they are very delicate.

They will bloom when strong enough, and this depends much upon the way they are grown; each succeeding growth should be stronger than the last; if so, we know the plant is in good health and will ultimately bloom. The process is necessarily slow, and will call for exercise of patient care. Those who are interested in Orchid fertilization, than which there is nothing more curious in the vegetable kingdom, should read Darwin's work on the fertilization of Orchids, published by Murray in 1862, but which has, we believe, been reprinted in this country.

A short quotation relating to the number of seeds produced by Orchids may not be uninteresting: "The final end of the whole flower, with all its parts, is the production of seed; and these are produced by Orchids in vast profusion; not that this is anything to boast of in the order, for the production of an almost infinite number of eggs or seeds is undoubtedly a sign of lowness of organization. That a plant not an annual should escape destruction at some period of its life simply by the production of a vast number of seeds or seedlings shows a poverty of contrivance or a want of some fitting protection against some danger. I was curious to estimate the number of seeds produced by Orchids; so I took a ripe capsule of *Cephalanthera grandiflora*, and arranged the seeds as equally as I could in a narrow hillock on a long ruled line; and then counted the seeds in a length accurately measured of one tenth of an inch. They were 80 in number, and this would give for the whole capsule 6,020 seeds, and for the four capsules borne by the plant 24,000 seeds.

"Estimating in the same manner the smaller seeds in *Orchis maculata* I found the number nearly the same, namely, 6,200; and as I have often seen above thirty capsules on the same plant, the total amount will be 186,300, a prodigious number for one small plant to bear. As this Orchid is perennial, and cannot in most places be increasing in number, one seed alone of this large number, once in every few years, produces a mature plant. I examined many seeds of the *Cephalanthera*, and very few seemed bad.

"To give an idea of what the above figures really mean, I will briefly show the possible rate of increase of *O. maculata*: an acre of land would hold 174,240 plants, each having a space of six inches square, which is rather closer than they could flourish together; so that, allowing twelve thousand bad seeds, an acre would be thickly clothed by the progeny of a single plant. At the same rate of increase the grandchildren would cover a space slightly exceeding the island of Anglesea, and the great-grandchildren of a single plant would nearly (in the proportion of 47 to 50) clothe with one uniform green carpet the entire surface of the land throughout the globe. What checks this unlimited multiplication cannot be told.

"The minute seeds within their light coats are well fitted for wide dissemination; and I have several times observed seedlings in my orchard and in a newly planted wood which must have come from some little distance.

"Yet it is notorious that Orchids are sparingly distributed; for instance, this district is highly favorable to the order, for within a mile of my house nine genera, including thirteen species, grow; but of these only one, *Orchis mario*, is sufficiently abundant to make a conspicuous fea-

ture in vegetation ; as is *O. maculata* in a lesser degree in open woodlands. Most of the other species, though not deserving to be called rare, are sparingly distributed ; yet if their seeds or seedlings were not largely and habitually destroyed, any one of them would, as we have just seen, immediately cover the whole land."

Any of us who has received Orchids collected on their native habitats will have noticed the remains of old seed-pods, and thus we must conclude that in their wild state tropical Orchids seed profusely.

The varieties obtained by collectors lead us to believe that hybridization is often effected by insect agency, and that many of the plants we receive are natural hybrids. This has been strikingly shown in the flowering of a large lot of imported *Phalenopsis* in England recently, in which the three species, *aurea grandiflora*, *amabilis*, and *Schilleriana* seem to be strangely mixed up.

In artificial hybridization, care should be taken to cross those species which, for beauty or novelty of flower, would be likely to give the best results. Although by seedlings from one species we may chance to get variations, yet the chance is rendered almost a certainty if we choose different species.

Seedlings may wholly resemble one parent, may have points common to both, or may be exactly intermediate. *Cypripedium Harrisianum*, a cross between *C. villosum* and *barbatum*, has the long foliage of the former, but spotted like the latter ; in fact, both in foliage and flower, is almost exactly intermediate. *Calanthe Veitchii*, a hybrid between *Calanthe vestita* and *Limatodes rosea*, shows marks of each parent, but is superior to both in every good quality.

It is a noticeable fact that these hybrids in some cases hybridize freely again ; thus *Cattleya exoniensis*, itself a hybrid between *C. Mossiæ* and *Lælia purpurata*, is the male parent of the new and beautiful *Cattleya Fausta*.

The first to raise hybrid Orchids in England was Mr. Dominy, foreman in Mr. Veitch's nursery, and it is from this establishment that most of the hybrids already introduced have been disseminated ; these are mostly *Cattleyas* and *Cypripediums*, but the wonderful results obtained have led many to make experiments, and the next few years will doubtless give us hundreds of hybrid Orchids.

Hybridization has already made a complete collection of any genus an impossibility. We do not know of any hybrid Orchids having been produced in this country ; but with the possibilities and many fine collections we see no reason why great results may not be attained.

The following is a list of the hybrid Orchids raised by Messrs Veitch : —

Cattleya exoniensis, from *C. Mossiæ* and *Lælia purpurata*.

Cattleya Dominiana, from *C. amethystina* and *C. maxima*.

Cattleya Dominiana alba, from *C. amethystina* and *C. maxima*.

Cattleya Dominiana lutea, from *C. amethystina* and *C. maxima*.

Cattleya Dominiana hybrida, from *C. granulosa* and *C. Harrisoniæ*.

Cattleya Sidneana, from *C. crispa* and *C. granulosa*.

Cattleya Brabantæ, from *C. Loddigesii* and *C. Acklandiæ*.

Cattleya quinquecolor, from *C. Acklandiæ*, and *C. Forbesii*.

Cattleya Devonensis, from *C. crispa* and *C. guttata*.

Cattleya Manglesii, from *C. Mossiæ* and *C. Loddigesii*.

Cattleya Veitchii, from *C. crispa* and *C. labiata*.

Cattleya hybrida maculata, from *C. guttata* and *C. intermedia*.

Cattleya Fausta, from *C. Loddigesii* and *C. exoniensis*.

Cypripedium Dominii, from *C. Pearcei* and *C. caudatum*.

Cypripedium Euryandrum, from *C. Stonei* and *C. barbatum*.

Cypripedium Harrisianum, from *C. barbatum* and *C. villosum*.

Cypripedium vexillarium, from *C. barbatum* and *C. Farricanum*.

Cypripedium Sedeni, from *C. Schlimi* and *C. longifolium*.

Cypripedium Marshallianum, from *C. concolor* and *C. venustum pardinum*.

Cypripedium Arthurianum, from *C. Farricanum* and *C. insigne*.

Cypripedium selligerum, from *C. lævigatum* and *C. barbatum*.

Cypripedium hybridum, from *C. Stonei* and *C. barbatum*.

Cypripedium tessellatum, from *C. concolor* and *C. barbatum*.

Calanthe Veitchii, from *C. vestita* and *Limnates rosea*.

Calanthe Dominii, from *C. Masuca* and *C. furcata*.

Phajus irroratus, from *P. grandifolius* and *Calanthe Veitchii*.

Anætochilus Dominii, from *A. xanthophyllus* and *Goodyera discolor*.

Goodyera Veitchii, from *G. discolor* and *Anætochilus Veitchii*.

Goodyera Dominii, from *Anætochilus Lowii* and *Goodyera discolor*.

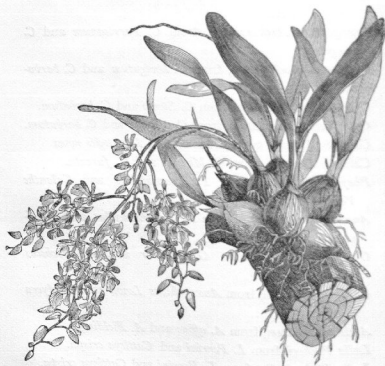
Aerides hybridum, from *A. affine* and *A. Fieldingi*.

Lælia Pilcheri, from *L. Perrini* and *Cattleya crispa*.

Lælia Pilcheri alba, from *L. Perrini* and *Cattleya crispa*.

Lælia flammea, from *L. cinnabarina* and *L. Pilcheri*.
Dendrobium Dominii, from *D. nobile* and *D. moniliforme*.
Zygopetalum Sedeni, from *Z. maxillare* and *Z. Mackayi*.
Chysis Chelsoni, from *C. bractescens* and *C. Limminghi*.

There are many other hybrids which have already been exhibited in England, but we have been unable to obtain trustworthy accounts of their parentage. We have however seen a fine seedling from *Cypripedium insigne*, named *C. Chantini*, of French origin ; it has the vigor of the parent, but the banner is almost pure white from a purple base, making it a remarkably beautiful flower.



ONCIDIUM PHOENICIUM.

CHAPTER XVIII.

ORCHIDS FOR HOUSE DECORATION AND FOR THE MARKET.

WE have in a former chapter referred to the length of time the flowers of Orchids remain in perfection. This quality admirably fits them for house decoration. It might be inferred, from the atmosphere necessary for their growth, that Orchids would suffer when removed to the far dryer air of the parlor, but such fortunately is not the case.

Most Orchids bloom when the growth is complete or just beginning, when in fact there is no immature growth, the pseudo-bulbs having become hard, or the growing bud being so young that a check does it no injury, so that a change of temperature is seldom injurious to the plant.

When kept in the close atmosphere of the Orchid house, the flowers of Orchids are short-lived compared with their duration when removed to a cooler and dryer air. Moisture in the air is injurious to most Orchid flowers, causing them soon to become spotted and unsightly. It is therefore the practice of all Orchid growers to remove Orchids in bloom to a cooler and dryer atmosphere, and many have an exhibition house where the Orchids are arranged with ferns, which supply the want of foliage in many of the species, and present a beautiful show.

Plants in flower add much to the attractions of the hall and parlor, and it is as easy to have choice exotics as a

mass of common plants. A very small Orchid house, if stocked with reference to a succession of bloom, will furnish plants in bloom sufficient to fill a table with choice flowering plants every day in the year. Some regard must be paid, however, to growing plants of which the flowers last long in perfection, and in this there is a great difference in Orchids.

The blossoms of some are almost ephemeral, and many are only of a few days duration. The many species of *Stanhopea*, than which no Orchids produce more curious or fragrant flowers, last only in perfection three or four days. *Sobralia macrantha*, one of the most glorious flowers the world produces, lasts only two days, a defect however somewhat compensated for by the successive production of several flowers from the same sheath. While some of the large family of *Dendrobiums* are very persistent in blossom, others have flowers of very transient duration.

Oncidium Papilio, the well known Butterfly Plant of the West Indies, and the allied but far more beautiful *O. Kramerianum*, last only three or four days in bloom, while the lovely *Phalenopses*, the East Indian Butterfly Plants, are almost imperishable in bloom.

We have in a former chapter indicated the duration of many Orchid flowers; suffice it here to say, that, with a good selection of *Cattleyas*, *Oncidiums*, *Laelias*, *Cypripediums*, *Calanthes*, *Aerides*, *Phalenopses*, *Saccolabiums*, and *Dendrobiums*, there need not be a day in the year when half a dozen plants cannot be found in bloom.

Perhaps, however, the best way to give an idea of what plants may be needed for such decoration will be to give a list of the flowering Orchids we have had in a large bay

window in our hall during the last year, premising that of most of these plants we have only two specimens in the Orchid house, most being plants with flowers of long duration.

JANUARY. *Cypripedium insigne*, *C. Harrisianum*, *C. biflorum*, *C. venustum*, *Angræcum eburneum*, *A. sesquipedale*, *Calanthe vestita* in variety, *C. Veitchii*, *Cattleya Trianae* in variety, *C. pumila*, *Lælia anceps*, *Ansellia africana*, *Brasavola venosa*, *Oncidium ornithorhyncum*, *Phalænopsis amabilis*, *Dendrobium Linwinianum*, *Cœlogyne cristata*, *Saccolabium grandiflorum*.

FEBRUARY. *Cypripedium Hookeri*, *C. biflorum*, *C. villosum*, *C. hirsutissimum*, *Phajus grandifolius*, *P. maculatus*, *Lælia peduncularis*, *Phalænopsis Schilleriana*, *Dendrobium macrophyllum*, *Vanda tricolor*, *Cattleya Trianae*, *Cirrhopetalum Medusæ*, *Epidendrum prismatocarpum*, *Zygopetalum Gauteri*, *Dendrobium nobile*, *Odontoglossum pulchellum*.

MARCH. *Dendrochilum glumacum*, *Cattleya amethystiglossa*, *Oncidium flexuosum* (in bloom every month in the year), *O. luridum guttatum*, *Phalænopsis grandiflora aurea*, *Epidendrum Stamfordianum*, *Lycaste Skinneri*, *Dendrobium chrysotoxum superbum*, *Brasavola glauca*.

APRIL. *Dendrobium chrysanthum*; *Epidendrum macrochilum* in variety, *Cattleya Skinneri*, *Vanda suavis*, *Cypripedium barbatum* in variety, *Phajus Wallichii*, *Chysis bractescens*, *Cypripedium purpuratum*, *Dendrobium Pierardii*, *D. albosanguineum*, *D. anosmum*, *D. Cambridgianum*, *Trichopilia suavis*.

- MAY.** *Aerides affine*, *A. Fieldingii*, *Cattleya Mossiæ* (many varieties, forty flowers at a time), *Cypripedium Lowii*, *Brassia verrucosa*, *Dendrobium Parishii*, *D. transparens*, *Oncidium divaricatum*, *Lælia cinnabarina*, *L. flava*, *L. purpurata*, *Odontoglossum citrosimum*.
- JUNE.** *Aerides odoratum*, *A. Lobbii*, *Cattleya labiata*, *C. amethystina*, *Cælogyne speciosa*, *Cypripedium superbiens*, *Dendrobium calceolare*, *D. Bensoniæ*, *D. Devonianum*, *Huntleya cerina*, *Oncidium obryzatum*, *Trichopilia tortilis*, *Vanda cærulescens*, *Zygopetalum maxillare*.
- JULY.** *Aerides testaceum*, *Cattleya Loddigesii*, *C. Harrisoniana*, *Dendrobium primulinum*, *D. Dalhousianum*, *D. Wardianum*, *Oncidium incurvum*, *Sobralia macrantha*, *Trichopilia Turrialvæ*, *Cypripedium superbiens*.
- AUGUST.** *Cattleya crispa*, *Dendrobium formosum giganteum*, *Miltonia spectabilis* and *Moreliana*, *Peristeria elata*, *Stanhopeas* in variety, *Oncidium hæmatochilum*.
- SEPTEMBER.** *Cattleya Loddigesii*, *Dendrobium infundibulum*, *Epidendrum cuspidatum*, *Lycaste aromatica* (always in bloom), *Peristeria elata*, *Stanhopeas* in variety, *Vanda Bensoniæ*.
- OCTOBER.** *Aerides suavissimum*, *Lælia Perrinii*, *L. alba*, *Miltonia candida*, *Oncidium leucochilum*, *Stanhopeas* in variety.
- NOVEMBER.** *Cattleya bulbosa*, *Cymbidium Mastersii*, *Oncidium crispum grandiflorum*, *Lælia acuminata*, *L. autumnalis*, *Maxillaria picta*, *Pilumna fragrans*, *Pleione maculata*, *humilis*, and *Wallichii*.

ana, *Saccolabium violaceum* and *Harrisianum*,
Vanda cœrulea.

DECEMBER. *Ansellia africana*, *Cypripedium insigne*, *Vanda tricolor*, *Calanthe vestita*, *Cattleya Chocoensis*, *Odontoglossum grande*, *Calanthe Veitchii*, *Zygo-petalum Mackayi* and *crinitum*, *Lælia Lindleyana*.

These are some of the plants which have been in bloom, and from time to time adorned the house during the last year, and not one has suffered from removal from the Orchid house.

This list is given especially to show the blooming seasons of the plants; the season of bloom may be advanced or retarded, and no plants endure these processes better than Orchids.

The treatment of Orchids while in the house is very simple. Do not let the plant dry up, and do not keep it very wet; occasionally sponge the foliage to remove dust, and do not expose the plants to cold draughts, to direct sunlight, or to a temperature below 50°. As soon as the flowers fade, return the plant to the Orchid house for growth.

ORCHIDS FOR MARKET.

There are some Orchids which can be profitably grown for flowers. The public taste is fast becoming educated, and people are learning that, however beautiful a rose or a pink may be, that there are rarer and more beautiful flowers in the floral kingdom, — flowers which excel in beauty, color, and fragrance.

Already Orchid flowers are in demand for choice bouquets, or as single flowers for vases.

The value of an Orchid for the market depends upon the qualities of durability, color, and fragrance, somewhat upon singularity of form. With the florist, it will also be a consideration how easily the plant can be grown, and how much flower it will produce.

Now while most Orchids must ever remain a luxury for the amateur, on account of their scarcity and consequent high cost, there are many which can be easily and profitably grown by the florist. Of these we mention a few.

Cypripedium insigne, valuable for blooming in December, when flowers are scarce ; a free bloomer, the flowers lasting many weeks in water.

Many of the other *Cypripediums*, as they become common will doubtless prove valuable, and much may be expected from the new hybrids.

Dendrobium nobile is already much in demand, the flowers selling freely at a good price ; valuable for color and fragrance.

D. Wallichianum, a closely allied species, has richer colored flowers. These plants, by a little care, may be had in bloom from November to June.

Cælogyne cristata, a lovely pure white flower with crested yellow lip, valuable for wreaths and bridal bouquets, free flowering and of very easy culture.

Calanthe vestita, in its many varieties, is a valuable plant with graceful flowers, valuable for fine work.

Lycaste Skinneri, of easy culture, producing freely its large showy flowers, which last long in perfection.

Cattleya Trianae — all the many varieties of this beautiful winter-blooming *Cattleya* are very handsome. The flowers are large, deliciously fragrant, and very durable.

There are many other Orchids, which as they become more common, will be generally grown ; in England there is a large trade in Orchid flowers, and doubtless in this country a market will create itself, at remunerative prices to the grower for all that can be produced.



ONCIDIUM INSLLEYI.

CHAPTER XIX.

HISTORY OF ORCHID CULTURE IN THE UNITED STATES.

ORCHID culture in the United States dates from an early day ; and the first Orchids were grown in Boston about the year 1838, when comparatively few Orchids were known in England, and those chiefly from the importations of Messrs. Loddige, in whose "Botanical Cabinet" they were first figured. Mr. James Boott, then resident in London, sent to his brother, John Wright Boott, a collection of Orchids.

Mr. Boott had a small greenhouse in the yard of his house on Bowdoin Square, which occupied the site where the Revere House now stands. He was an enthusiastic lover of flowers, and cared for his greenhouse personally as a recreation from business. During the next few years he imported more Orchids, and the more common species of *Cattleyas*, *Dendrobiums*, and *Epidendrums* were found in his collection, which, however, consisted chiefly of Orchids from the Western Continent, as previous to 1845 comparatively few of the East Indian Orchids had been introduced to cultivation.

Mr. Boott died about 1842, and bequeathed his collection of Orchids to John Amory Lowell, who at that time resided upon the old Lowell estate on Heath Street, Roxbury, which he had inherited from his father.

During the next ten years, the Orchids remained in the possession of Mr. Lowell, who built an Orchid house

for their accommodation, and increased the collection by importations. The first Orchids we ever saw were exhibited by Mr. Lowell before the Massachusetts Horticultural Society, one being an immense *Dendrobium Calceolus*, which was a magnificent specimen.

—About 1853, Mr. Lowell leasing his country residence, the Orchids were sold to the tenant, by whom they were neglected, and many perished. Some were sold, chiefly *Oncidium*s, we believe, and still exist in the greenhouses of the Misses Pratt, at Watertown.

The balance of the collection, comprising the larger plants, was about the year 1854 bought by Edward S. Rand, and removed to his greenhouses in Dedham, where a house was built for their reception.

Mr. Rand was enthusiastic in the culture of these plants, and added largely to the collection by importations from Messrs. Hugh Low & Son, of Clapton Nurseries, London.

About 1856, this collection probably contained the finest specimen Orchids in the country; among them we especially remember the grand plant of *Dendrobium Calceolus*, four feet high and at least three feet in diameter; and a plant of *Cattleya crispa*, as large as a small wash-tub.

About 1865 Mr. Rand, selling his country estate, presented his large collection of stove and greenhouse plants, including all the Orchids, to Harvard College; and they were removed to the greenhouses at the Cambridge Botanic Garden.

The greenhouses at Cambridge were not suitable for their cultivation, and they were crowded with other plants; the Orchids fared poorly, and most of the more

delicate perished. Within the past few years, however, considerable attention has been paid to Orchids at the Botanic Garden, and the collection, consisting of the plants presented by Mr. Rand, with additions, exchanges, and importations, has been greatly increased, so that now the Garden possesses the foundation for a fine collection. The species represented are chiefly those from the Western Continent, there being comparatively few of the East Indian Orchids.

The large specimen of *Dendrobium Calceolus* had been divided into two, and on the writer's beginning his collection of Orchids, Dr. Gray kindly gave him one of these plants, now a beautiful specimen with canes five feet long, which, every spring, is a mass of drooping racemes of fragrant buff flowers.

It is a little singular that one of Mr. Boott's original plants should survive the vicissitudes of thirty-five years, and to-day be represented by two of as fine specimen Orchids as can be found in the country.

In 1873 the first Orchids were grown at Glen Ridge, and since then the collection has been largely increased. Owing to careful culture and the perfect adaptation of the houses, the plants have thriven wonderfully, and there are now in the houses many very fine specimens.

It is, however, rather a *selection* than a collection of Orchids; all inferior species have been discarded, and only plants retained which are remarkable for beauty or fragrance of flower. Thus of the large genus *Epidendrum*, comprising many hundred species, less than a dozen are grown.

Preference has also been given to winter flowering Orchids, as during the months of July, August, and Sep-

tember, the writer's absence from Glen Ridge renders to him Orchids blooming in those months less desirable. The Glen Ridge Orchids are the finest in New England, and embrace plants of the most desirable kinds, though for number of specimens and for some of individual plants, they cannot vie with the magnificent collections of George Such of South Amboy, N. J., and of Erastus Corning and Gen. John F. Rathbone, of Albany.

Of other collections in the vicinity of Boston, we may mention that of Gardiner G. Hubbard, of Cambridge, in which are fine specimens of *Stanhopeas* and *Cyrtopodium*; a choice collection of *Cypripediums* of William Gray, Jr., Boston; a small sale collection of the Messrs. Hovey at Cambridge; and a very choice collection of rare species of Frederick L. Ames, of Easton.

In the vicinity of New York, the culture of Orchids was first attempted by Mr. Thomas Hogg, about the year 1850, or earlier, who at that time had an extensive collection; it consisted mainly of *Stanhopeas*, *Cattleyas*, *Oncidium*s, *Cynoches ventricosum* (a rare Orchid at present), and *Aerides odoratum*, which was its rarest plant then. Many years earlier, however, some few Orchids had been grown, although no collection was in existence. In September, 1840, the veteran florist Mr. Isaac Buchanan brought the first *Cattleya Mossie* from London, and soon after imported from Brazil a collection of Orchids, a part of which were sent to Messrs. Hugh Low & Son, of London. For the next fifteen years Mr. Buchanan cultivated a few Orchids, but it was not until the breaking up of Mr. Thomas Hogg's collection, in 1855-6, that he grew a great number.

The distribution of Mr. Hogg's collection gave an impetus to Orchid culture.

Dr. James Knight, of New York, built a small Orchid house, bought some of Mr. Hogg's plants, and imported an assortment from Messrs Low, by which means many plants already in cultivation in this country were correctly named. Dr. Knight was successful in Orchid culture, and grew and flowered many in perfection, among others the beautiful *Dendrobium Devonianum*, one of the loveliest of Orchids, for the first time in this country.

In 1856, Mr. Buchanan returning from Europe, brought with him a good assortment of the best kinds then grown, which formed the nucleus of his collection, to which he has ever since been adding, and from which more Orchids have been distributed than from any establishment in this country.

A portion of the collection of Mr. Hogg passed into the possession of Cornelius Van Voorst, of Jersey City, and another portion was purchased by Jesse Paulmerre, of the same city; still another part went to Mr. Baker, of New York, an amateur collector, who at one time had some fine Orchids. The collection of Mr. Paulmerre was soon merged in that of Mr. Van Voorst, so that about 1857 the houses of Mr. Van Voorst contained the finest collection in the country. The plants were under the intelligent care of Mr. John Fleming, who brought to the task rare knowledge and ardent love of floriculture, and who developed some wonderful specimens. To see these plants was worth a journey of many miles; we shall never forget one visit when one side of a house was a mass of bloom of *Cattleya Mossiæ* in its many varieties, and another when in mid winter a mass of *Calanthe vestita* grouped with *Adiantum*, formed a picture of unparalleled beauty.

At the present day these would not be wonderful, but at that time, probably, no Orchid house in the world could have shown a finer display. The collection of Mr. Van Voorst embraced about two hundred and fifty species, among which were nineteen species of *Aerides*, forty *Cattleyas*, fourteen *Odontoglossums*, ten *Anæctochiluses*, thirty *Dendrobiums*, sixteen *Lælias*, and was especially rich in fine plants of *Cattleyas*, *Aerides*, *Saccolabiums*, and *Dendrobiums*. There were specimens of *Cattleya crispa*, *Ansellia africana*, and *Aerides odoratum*, which two men could hardly lift.

In 1870, the whole of the Van Voorst collection was bought by Mr. M. Lienau, then of Jersey City. Mr. Lienau was one of the first who sent Orchids to Europe. As a young man, he was sent to South America, as supercargo in one of his uncle's vessels, and saw fine Orchids with Mr. Perrin, of Rio Janeiro. He bought of Mr. Perrin seventy pounds worth, *Lælia Perrinii* among the number, and sent them to his uncle in Germany. After his uncle's death, he brought a share of these plants to Jersey City, and these, with the large collection of Mr. Van Voorst and numerous importations, formed the largest and finest collection in the country.

In 1873 Mr. Lienau returned to Germany, taking with him many of his choicest plants to Hamburg, where he now resides, still an amateur in Orchids. The balance of the Lienau collection was sold at auction, October 4th, 5th, and 6th, 1873. This was the largest sale of Orchids ever made in this country. There were in all 917 lots, among which were 136 *Cattleyas*, 75 *Dendrobiums*, 30 *Cypripediums*, 12 *Selenicpeediums*, 41 *Stanhopeas*, 25 *Aerides*, 40 *Odontoglossums*, 70 *Oncidium*s, 28 *Vandas*, and 40

Lælias, besides large numbers of *Lycastes*, *Maxillarias*, *Miltonias*, *Catasetums*, *Brassias*, *Brasavolas*, *Zygopetalums*, *Epidendrums*, and a host of various Orchids. All these were established plants, many were splendid specimens, and there were many plants collected by Roezl, among which doubtless existed many fine and probably new varieties.

The dispersion of this collection was in one view a great misfortune, as many rare plants were without doubt lost by passing into the possession of careless or ignorant cultivators.

The collections of Orchids in New York and vicinity are not now numerous.

Mr. Isaac Buchanan still cherishes the love of his earlier days, and has at his greenhouses in Astoria very many choice plants.

John Cadness, of Flushing, Long Island, has a small sale collection. Mr. S. B. Dodd, of Hoboken, has a nice amateur assortment; John Patterson, of Newark, N. J. has a good private collection.

In Philadelphia, Robert Buist, one of our oldest florists, has a small Orchid house. Mention should also be made of a small assortment grown by Caleb Cope, in Philadelphia, about 1850, which was dispersed after his death. At South Amboy we find the splendid collection of Mr. George Such, in which still exist many of the Van Voorst plants, as at the Lienau sale Mr. Such was a large purchaser. Although a zealous amateur, Mr. Such sells surplus or duplicate plants, and it is from his Orchid houses that many of our present cultivators have first procured their plants. To visit Mr. Such's collection is enough to make one an Orchid amateur, and we are convinced such

a visit has been the first incentive to the construction of many an Orchid house. Such magnificent *Cattleyas*, *Aerides*, *Vandas*, *Dendrobiums*, *Cælogynes*, *Lælias*, *Zygotetalums*, and hosts of other choice Orchids, can be found nowhere except in the splendid collections at Albany of which we make mention hereafter.

Leaving New York by the Hudson, we find at many of the country seats small collections of Orchids. At Tarrytown, Mr. Mitchell has a beautiful Orchid house containing some nice plants. At his charming country seat Tioronda, Matteawan, Gen. Joseph Howland has an assortment of rare species under perfect culture.

At Rhinebeck, at the residence of the late William Kelley, there is a good assortment, containing fine plants, but generally of old and long known species.

In Albany exist the finest collections of Orchids in the United States. No lover of Orchids, in visiting Albany, should fail to spare a few hours for the green-houses of Mr. Louis Menand, an ardent lover of flowers, and especially of Orchids. We never fail to find with him choice and rare plants, which we see nowhere else. With Mr. Menand a flower is not valued for what it will bring in dollars and cents; a florist, and growing flowers for the market, he has all the love of an ardent amateur, and his love for his pet plants, which no money can buy, and his companionship with them, will be appreciated by all lovers of flowers, and is as rare as it is attractive.

At his country place Ta-wass-a-gun-shee, near Albany, Erastus Corning, Esq., has the most extensive collection of Orchids in the United States. There are about four hundred species and varieties, and many very fine speci-

mens. Mr. Corning began his collection about 1850, with thirty species brought by him from England, and has added to it ever since; we find seventeen species of *Aerides*, thirty-five of *Cattleya*, thirty of *Cypripedium*, twenty-eight of *Dendrobium*, twenty-one of *Lælia*, six of *Masdevallia*, twenty-seven of *Odontoglossum*, twenty-four of *Oncidium*, seven of *Phalænopsis*, and twelve of *Vanda*, and among these only the choicest kinds, many of which are almost unpurchasable in England. Among plants specially worthy of notice as large specimens are *Aerides odoratum purpurascens*, *Angræcum sesquipedale*, *Cattleyas labiata* and *Schilleriana*, *Lælia superbiens*, *Masdevallia Harryana*, *Odontoglossum Dawsonii*, *Phalænopses grandiflora* and *Schilleriana*, *Vandas tricolor*, *insignis*, and *suavis*, and *Saccolabium retusum*. This collection owes its perfection to the watchful care and intelligent culture of the head gardener, William Gray, who unites to an ardent love of these plants much scientific knowledge and great cultural experience.

The Orchid house of Gen. John F. Rathbone, in Albany, contains some of the finest plants in America. Although in species the collection of Mr. Corning is superior, there are, in General Rathbone's, single plants which, as specimens, are unsurpassed. The *Cattleyas*, *Vandas*, *Angræcums*, and *Phalænopses*, of this latter collection, have no equals in the country.

General Rathbone in 1860 imported from London his first Orchid, *Vanda suavis*. He writes: "I was so delighted with the plant and flowers that I caught the Orchid fever, which I am happy to say is now prevailing to considerable extent in this country, and which I trust will become epidemic; I purchased each year following a few

plants. In 1867, that I might successfully grow this charming family of plants, I built a house exclusively for Orchids; and now I have a collection that will compare favorably with any in America. As to my success in flowering, let me briefly say that I have flowered single plants: *Dendrobium nobile*, 476 flowers; *Phalænopsis amabilis*, 85 flowers; *Phalænopsis Schilleriana*, 156 flowers; *Angræcum eburneum*, 30 flowers; *Angræcum sesquipedale*, 12 flowers; *Odontoglossum grande*, 48 flowers; *Cælogyne cristata*, 216 flowers; *Cyrtorchilum maculatum*, 111 flowers; and numbers of *Cattleya Mossiæ*, with from fifty to seventy flowers each."

General Rathbone's collection contains now 686 plants, all of choice kinds, and many in superb specimens. We may mention ten species of *Aerides*, twenty-seven of *Cattleyas*, ten of *Cypripediums*, twenty-five of *Dendrobiums*, fifteen of *Odontoglossums*, fifteen of choice *Oncidiums*, six of *Saccolabiums*, four of *Phalænopses*, in splendid specimens, and eight of *Vandas*.

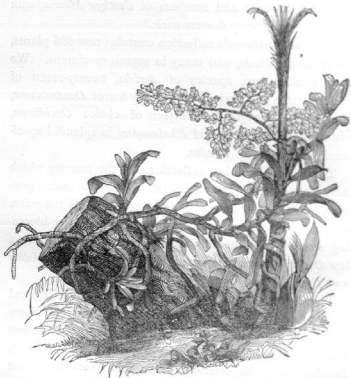
There may be other collections in the country which have not come to our notice. Orchids are becoming popular, and it is a common thing to partition off the warm end of the greenhouse and grow a few of the free-blooming species, and there is hardly a greenhouse where a few Orchids cannot be found, if only *Phajus grandifolius* and *Cypripedium insigne*.

The Orchids which have been imported from England have generally come from Messrs. James Veitch & Sons, King's Road, Chelsea, London, who have a fine collection, and Messrs. Hugh Low & Son of Clapton Nursery, London. Our importations have been from the latter house, which is one of the largest importers of Orchids,

employing many collectors, and they have sent us many plants, which have always arrived in fine order, both from careful selection and careful packing.

We trust the day is not far distant, when amateurs in this country will send out collectors, and bring home Orchids in quantity.

The Orchids of Mexico and South America are of easy access, and by the Pacific Railroad the Orchid homes of the East Indies are now very near to us.



AERIDES CRISPUM.

CHAPTER XX.

DESCRIPTIVE LIST.

A WORK on Orchids would be incomplete did it fail to give a descriptive list of the different species, and to point out those most worthy of cultivation. There are many Orchids which though curious have insignificant flowers and are not worth a place in a collection unless mere botanical research or curiosity are the objects. Again, in choosing plants an amateur is seldom able from a catalogue to select those which for brilliancy of color and size or singularity of flower are most desirable, and few possess the knowledge requisite to make a good selection.

In the following list the finest plants, which for brilliancy and abundance of flower or for fragrance are desirable, are marked with the letter A. Those which are well worth growing, but not as fine as the first class, by B. The less attractive plants, C. Those which for insignificant flowers should be rejected, R.

A small collection of choice Orchids will give more pleasure than a large house full of more common species; and it should be remembered that a good plant requires no more care and occupies no more room than a poor one. The general treatment needed for each plant is noted, and more especially any peculiar culture which individual varieties may require.

Where it has been possible the work where any species

or variety is figured is indicated, that any one having access to a Botanical Library may ascertain the appearance and study the description of the plant in a more extended form than we have been able to transfer to these pages.

Acanthophippium. *Blume.* Terrestrial.

Name obscure? ἐφίππια, a saddle cloth. Xenophon.

B. *Acanthophippium bicolor.* Ceylon . B. R., 1730.

Maud, Bot., 4, 200.

Flowers roundish, of a fine orange color tipped with purple and deep red.

B. *Acanthophippium javanicum.* Batavia. B. R., 32, 47.

B. M., 4492.

Blume, Orch., 49.

Lem. Jard., 35.

M. O. P., 1.

Petals and sepals pale yellow, striped and marked with purple. The lip is narrow and is of peculiar form and furnished with many recurved teeth; the ground color is pale yellow tinged with purple.

C. *Acanthophippium striatum.* Lindley. Nepaul,

B. R., 1838, 68.

Perianth pure white at the base, striped with delicate purple; the lip richly marked with purple.

R. *Acanthophippium sylhetense.* Sylhet . . G. & S., 177.

The perianth is creamy white, tinted with rose.

The flowers are produced plentifully at the base of the pseudo-bulbs on short peduncles. The plants should be

grown in well-drained pots, in a rich compost of peat and leaf mould, with a mixture of broken potsherds. They should be kept in the coolest part of the house, almost dry during the resting season. As soon as growth begins, water lightly, increasing the supply according to the strength of the shoots; if possible give bottom heat as soon as the plants begin to grow.

The flowers may by a little management be had at any season; they are rather pretty, somewhat fragrant, and remain a long time in bloom. There are, however, so many finer Orchids that except in a large collection none of the species are worth growing.

Acineta. Lindley. Epiphyte.

Name from *ἀκίνητος*, immovable.

- B. Acineta Barkeri*. Mexico . . Pax. Mag., 14, 145.
 B. R., 1843, 99.
 I. H., 44.

SYN. *Peristeria Barkeri*; Bateman. Mexico.

Flowers yellow, in spikes about a foot long, produced from the bottom of the basket, blooms in summer, and if kept dry will last a long time in perfection. There are several varieties differing in intensity of color.

- A. Acineta Humboldtii*. Venezuela . . B. M., 4156, var.
 SYN. *Peristeria Humboldtii*. Fl. des Ser., 992.
Anguloa superba. Lindley. B. R., 1843, 18.
 M. O. P., 1.

Flowers large, deep chocolate spotted with crimson. The spikes are produced in the same manner as in the former species but about a month earlier; they last only a short time in perfection.

A. Acineta longiscapa. Venezuela.

A species bearing great resemblance to *Acineta Humboldtii*, but with smaller flowers and blooming in winter.

Flowers large, on a long slender pendulous spike, ten to twenty in number, very fragrant. A free blooming plant of easy culture. This species is not found in European catalogues, but is not rare in American collections.

There are other species. *Acineta densa*, from Costa Rica, is remarkable for a close spike of deep yellow flowers, and is probably a variety of *Acineta Barkeri*; figured in Floral Magazine, pl. 16.

Acineta erythroxantha, *cryptodonta*, and *sella-turcica*, are figured in Reich. Xen., pl. 70.

These plants should be grown in baskets; they send their flower-stems down through the bottom, and care should be taken that nothing arrests the downward growth of the bud. All species are evergreen, with short pseudo-bulbs and leaves about a foot high.

They require a liberal supply of water at the roots during the growing season.

Acranthus. *Lindley.* Epiphyte.

Name from ἀήρ, the air, and ἀνθος, a flower.

C. *Acranthus arachnitis* B. M., 6034.

This is a curious plant from Madagascar. The foliage is broad, green; the flowers on very long peduncles, of very peculiar shape, yellowish green.

The plant may be grown on a block or in a pot, with fresh sphagnum and good drainage. It requires the hottest house.

Acranthus grandiflorus is figured B. R., 817.

Acropera. Lindley. Epiphyte.

Name from *ἄκρος*, the end, *πῆρα*, a pouch.

- A. *Acropera armeniaca.* Nicaragua . B. M., tab. 5501.
Bat. 2d Cen., 116.

Flowers very large, rich apricot color, in long, pendent racemes all summer. A rapid grower, of easy culture, and by far the best of the genus. As yet it is a rare plant.

B. *Acropera Batemanni.*

A species resembling that last described, but not so desirable.

C. *Acropera luteola.* Mexico.

SYN. *Acropera lutea.*

Flowers orange-yellow, very plentifully produced in hanging bunches ; very fragrant.

C. *Acropera Loddigesii.* Mexico B. M., 3563.

SYN. *Maxillaria Galleoti.*

Flowers pale yellow marked with purple.

There are also the sub-varieties, *Acropera aurantiaca*, *Loddigesii aurea*, *fusca*, *purpurea*, which differ only in intensity of color.

This species is very common and is a pretty free growing and free flowering plant of easy culture.

These plants are of easiest cultivation. The flowers are more curious than beautiful, and are plentifully produced in pendent bunches. Grow in pots or baskets,

giving abundant waterings during the formation of the bulbs. If grown in pots elevate the plant well above the rim.

Ada. Lindley. Epiphyte.

A complimentary name.

Ada aurantiaca. New Granada . . B. M., 5435.

Bat. 2d Cen., 113.

I. H., 3, 107.

A beautiful cool Orchid, native of high latitudes in New Granada. Foliage evergreen, broad, drooping. The flower spike terminal about ten inches long, drooping; flowers clear orange-yellow, somewhat distantly placed on the spike, never opening fully. It is a free-growing plant, requiring an airy situation and not close heat. With us it has done best when placed near the door of the Orchid house, where the frequent opening made a change of air. Pot in peat and moss, with good drainage, and never allow it to get dry. It is a good plan to have it grow in live sphagnum.

If well grown it freely produces its beautiful flowers at all seasons, which, from their rich and rare color, are very effective. There is but one species, and the plant is not common.

Aeranthus.

A name signifying air plant, formerly given to some species of *Angræcum*.

*Aerides. Loureiro. Epiphyte.*Name from *âêp*, the air.

- A. *Aerides affine*. Sylhet . . . Wallich.
 SYN. *Epidendrum geniculatum*. B. R., 1841.
 B. M., 4049, as *A. roscum*.
 Sert. O., 15.
 War. Orch., 21.

A free flowering but slow-growing plant. Foliage light green, a foot long; flowers white and pink, spotted with purple, blooming on long spikes in June and July, and lasting three or four weeks in perfection. Unfortunately it is destitute of fragrance.

Aerides affine superbum and *majus* are fine varieties, with larger and richer colored flowers.

Aerides ampullaceum. SYN. of *Saccolabium ampullaceum*.

Aerides Brookei. SYN. of *Aerides crispum*.

Aerides cornutum. SYN. of *Aerides odoratum*.

- A. *Aerides crispum*. Bombay . . Pax. Mag., 9, 145.
 SYN. *Aerides Brookei*. B. R., 1841, 126.
 Fl. des Ser., 1, 15.
 I. H., 123.
 B. R., 1842, 55.

The finest species. The stem is purple, foliage dark green, ten inches long. The perianth of the flower is white, delicately tinted with purple toward the middle; the labellum is striped with pale purple, shading to the

richest and loveliest hues. Flowers in June and July, and lasts two or three weeks in perfection.

The length of the flower spikes and size of the flowers distinguishes it from other species. This species should never be allowed to get entirely dry.

A. Aerides Lindleyanum. Coonoors . Wight, Ic., 1677.

A very fine variety, spike long and branching ; sepals and petals white ; lip large, rich rose.

A. Aerides Warneri. Bombay.

A variety of more slender habit, with smaller foliage. Flowers white, with rosy spots.

A. Aerides cylindricum B. M., 4982.

SYNS. *Cymbidium cylindricum.* Wight, Ic. 1744.

Epidendrum subulatum.

Aerides vandarum.

A singular and rare species, with long terete stems resembling *Vanda teres*. Flowers large, solitary or in pairs, from the axils of the leaves white or blush, the base of central lobe touched with yellow.

A. Aerides Dominicanum.

A garden hybrid between *Aerides affine* and *Fieldingii*. Flowers rich rose color. A rare plant.

Aerides Fieldingii. India Jen. Or., 20.

One of the finest Orchids in cultivation ; commonly known as the *Foxbrush Aerides*. The plant grows three or four feet high, and produces, in great profusion, long branching spikes of white rosy-spotted flowers, often clear bright rose. Blooms in May and June.

Aerides Huttoni. See *Aerides Thibautianum*.

B. *Aerides japonicum* B. M., 5798.

A dwarf, stiff-growing species; leaves about seven inches long and one inch broad; flower spikes six inches long. Flower greenish white, with dark violet blotch.

Aerides guttatum. See *Saccolabium guttatum*.

A. *Aerides Larpentæ*. East Indies.

SYN. *Aerides falcatum*.

A fine species. Flowers cream color, spotted with light rose, in June. Foliage rich and green.

A. *Aerides Lobbii*. Moulmein I. H., 559.

A free growing and blooming species, of which there are many varieties. Flower spikes long and slender; flowers rosy pink and white. One of the best of the genus. Blooms in June.

A. *Aerides maculosum*. Bombay Lem. Jard., 54.

B. R., 1845, 58.

Pax. Mag., 12, 49.

A dwarf, slow-growing species. Leaves close and compact; flowers from among the upper leaves in clusters; lip large; crimson sepals, and petals pale rose, spotted with purple. A strikingly beautiful plant.

A. *Aerides Schroderi*. Bombay Gard. Mag., 2, 121.

Pes., 33.

Apparently a natural hybrid, between *Aerides crispum* and *Aerides maculosum*.

A fine, free growing plant, with dark green foliage.

Flowers delicate white, tinged with lilac and spotted with rose ; lip, rose.

A. Aerides McMorlandi.

A rare species, producing long branching spikes of peach and white flowers.

A. Aerides margaritaceum. East Indies.

A pretty species with spotted leaves. Flowers pure white.

A. Aerides Mendeli. East Indies.

A rare species, with flowers the size and shape of *Aerides Larpentæ*, but pure white, tipped with rose.

Aerides mitratum. Moulmein B. M., 5728.

A rare species, allied to *Aerides cylindricum*. Flowers in short spikes, white, with purple lip.

A. Aerides nobile. Moulmein . . . War. Orch., 1, 11.

A fine species, probably a variety of *Aerides suavisimum*, blooming from June to September. Spikes two or three feet long, often branched ; flowers white, shaded and spotted with rose.

A. Aerides odoratum. India, China, and

Cochin China . B. R., 1485.

SYNS. *Aerides cornutum.* B. M., 4139.

Limodorum latifolium. Maund, Bot.,

Epidendrum Flos-aeris. 4, 180.

Fl. Cab., 75.

Lindley, Rox-

burg, 1485.

Foliage light green, blossoms white, stained and shaded

with pink ; very fragrant. Blooms in June and July, the flowers remaining three weeks in perfection.

Variety *majus* is a larger growing plant, with longer spikes of bloom.

Variety *purpurascens* has flowers of darker pink and broader foliage.

- A. Aerides quinquevulnerum.* Philippines. Pax. Mag., 8,
241.
Sert. O., 30.
Jen. Orch., 30.

The petals and sepals are white, spotted with purple ; at the end of each a spot of deep violet purple ; the top of the labellum is green, the sides are pink, and the centre is deep crimson ; foliage light green, about one foot long.

Blooms in July and August, and lasts about two weeks.

There are two varieties, one with lighter-colored flowers than the other.

Aerides Farmeri.

A rare variety with long spikes of white flowers.

- A. Aerides roseum.* India . . . I. H., 88.
Pax. Fl. G., 60.
B. M., 4049, as *affine*.
Lem. Jard., 200.

A fine dwarf species ; leaves a foot long, spotted with brown. Flowers rose-colored, with crimson spots, in June and July. This species requires less moisture than the other kinds.

This species is sometimes confounded with *Aerides affine*. A ready distinction is found in the jagged ex-

tremities of the leaves of the former, of which there is no sign in *Aerides roseum*.

Aerides roseum superbum.

A fine variety with much larger and more highly colored flowers.

Aerides rubrum. Madras Hills.

A pretty species with dark green foliage and pink flowers on short erect spikes.

A. *Aerides suavissimum*. Malacca . . Pax. Fl. G., 66.
Lem. Jard., 213.

Foliage ten inches long, light green spotted with small brown spots, sepals and petals white; the lip has a blotch of yellow in the centre edged with white; racemes long branched.

Blooms in July, August, and September, lasting in good condition three weeks.

Flowers delightfully fragrant.

Aerides tessellatum. See *Vanda Roxburghii*.

B. *Aerides testaceum*. Ceylon . . Fl. des Ser., 1452.
Syn. *Aerides Wightii*. B. M., 5138.

Flowers orange-yellow; lip beautifully particolored. There are, however, many varieties, varying from sulphur to white. In some the flower is pearly white with pink centre, as in a plant which has flowered beautifully with us for the last two years.

The habit of the plant is dwarf. It grows freely on a block of cork without moss.

A. *Aerides Thibautianum*. Java.

A handsome species with long spikes of rosy flowers

with bright amethyst lip. Also known as *Saccolabium Huttoni*.

B. *Aerides Veitchianum*. India.

A pretty little species with dark green leaves covered with small spots; flowers white and pink.

A. *Aerides virens*. Java . . . B. R., 1844, 41.

Maund, Bot., 14, 187.

A beautiful species, desirable for its light green foliage; the flowers are peach color or creamy white spotted with purple, very fragrant.

Blooms in May and June, lasting a long time in perfection.

Aerides virens Dayanum. East Indies.

A very fine variety, white and pink flowers on a long spike.

The varieties *purpurascens*, *grandiflorum*, and *superbum*, from Java, are all desirable.

This species is the earliest to bloom; the flowers are deliciously fragrant and very freely produced.

Aerides Wightianum. See *Aerides testaceum*.

Aerides Williamsii. India . . . War. Orch., 1, 21.

A rare species, with close, long, dark green foliage; flowers in immense long drooping spikes, pink and white.

These plants are all peculiarly beautiful, uniting rich evergreen foliage, graceful habit, and elegant flowers of exquisite fragrance. The stem of the plant is straight or slightly bent, with leaves attached on opposite sides; the plants have large fleshy roots shooting horizontally from the lower part of the stem. The racemes of flowers are

one to three feet in length, often branched. They are of easy growth.

They should have a good supply of heat and moisture in the growing season, which is from March to the latter part of October. At this season the day temperature should range from 70 to 80; the night temperature in March and April, 65 to 70, and afterward 70 to 75.

The plants may be grown in baskets, in pots, or on blocks. Sphagnum moss and broken potsherds are the best of potting materials. They should never be allowed to become wholly dry, as the roots are liable to shrivel and the bottom leaves to fall off. They require but a short season of rest, and the moss should always be kept damp, but during the resting season no water should be allowed to rest at the base of the leaves.

They are propagated by cutting them in pieces, having a root attached to each piece; some are, however, easier to increase than others. No collection of Orchids can be complete without some of these charming plants.

Aerobion.

An old name of *Angraecum*.

Aganisia. *Lindley*. Demarara. B. R., 26, 32.

Name from *ἀγάρη*, lovely.

A. *Aganisia pulchella* is a very pretty and rare Orchid.

The root stock is creeping, producing at intervals of about two inches small pseudo-bulbs, each supporting a single dark green leaf. The flowers are borne on a short erect scape from the base of the bulb; they are white with yellow blotch, with red eye in centre of the lip. It may be grown either in a pot with moss and peat, or on

a block, but requires at all seasons plenty of heat and water. Syringe the roots freely in the growing season.

Anæctochilus. Blume. Terrestrial.

Name from ἀνοικτός, open, and χεῖλος, lip.

These beautiful foliaged plants are not of easy growth, and are far oftener lost than preserved in good condition.

They require a short season of rest, during which water must be less freely given, and want of attention in this respect results in the loss of the plants. The stem and leaves should have plenty of light (not sun) and air, yet the plants must be grown under bell glasses, but these should be tilted so as to admit air and the condensed moisture be wiped off several times a day.

They are somewhat subject to the attacks of green fly, red spider, and thrips, for which *slight* fumigation must be given.

In Chapter X. we have given lists of the best species, with notes of our own experience in their culture.

Some of the species are figured as follows :—

- | | |
|---------------------------------|--|
| <i>A. Dawsonianus</i> | Fl. des Ser., 1800.
Jen. Orch., 43. |
| <i>A. Lobbii</i> | Fl. des Ser., 519. |
| <i>A. Lowii</i> | Fl. des Ser., 370,
as <i>Cheirostylis</i> . |
| <i>A. Reinwardtii</i> | Blume, Orch., 10.
Bel. Hort., 1861, 18. |
| <i>A. Roxburghii</i> | Blume, Orch., 12.
Bel. Hort., 1861, 18. |

A. setaceus B. M., 1208,

Fl. des Ser., 2, 15. var. 4123.

B. R., 2010.

A. Ordiana Jen. Orch., 43.

Angræcum. Du Petit Thouars. Epiphyte.

Name from the Indian name *Angræc*.

A. Angræcum bilobum. Cape Coast Castle. B. M., 4159.

SYN. *Angræcum apiculatum.* B. R., 27, 35.

A lovely small-growing Orchid with long drooping racemes of snow-white flowers, tipped with pink, and slightly fragrant.

The leaves are cloven at the point, whence the name. This species should have plenty of moisture at the roots; grow on a block or in a basket. Blooms in autumn.

B. Angræcum caudatum. Sierra Leone . . B. M., 4370.

B. R., 1844.

A desirable species with greenish-yellow, long tailed flowers; lip pure white. It is rather curious than beautiful, but remains long in bloom, and is always a conspicuous plant. Blooms all summer.

B. Angræcum Chailluanum. Sierra Leone. B. M., 5589.

A rare species, allied to and somewhat resembling that last described. Flowers white, with long, greenish tail, in pendulous spikes.

B. Angræcum citratum. Madagascar . . . B. M., 5624.

A pretty species with pale yellow flowers, of dwarf growth.

- C. Angræcum distichum.* Sierra Leone . B. M., 4145.
B. R., 1781.

Flowers snowy white with yellow lip. A charming little plant with compact foliage, unlike any other Orchid. It is not showy, but very curious. Should be grown on a block with moss.

- A. Angræcum eburneum.* Madagascar. B. R., 1522.
SYNS. *Limodorum eburneum.* B. M., 4761.
Acrobion eburneum. Bat. 2d Cen., III.
B. M., 5170, var.

This is a fine Orchid with light green leaves eighteen inches long; the flowers greenish white; lip of ivory whiteness. The flowers are produced in upright spikes, and when the plant is strong very abundantly. They have, at night, the fragrance of *Narcissus poeticus*. The plant is of stately growth, and ornamental when not in bloom. Lasts three months in full beauty.

- A. Angræcum eburneum virens.*

A very pretty variety with greenish-white flowers, on more slender spikes. A very free bloomer in mid-winter.

- A. Angræcum Ellisii.* Madagascar . Fl. Mag., 2, 191.

A rare Orchid; leaves ten inches long by two inches broad; dark green on the upper side, paler below.

Flower-spikes two feet long, arching, bearing from eighteen to twenty-four flowers; pure white and very fragrant; tail six inches long, light cinnamon color. The profile of the flower is an exact resemblance of a cockatoo.

Angræcum falcatum. China and Japan. B. R., 283.

SYN. *Limodorum falcatum*. Sert. Bot., vol. 7,
as *Limodorum*.
B. M., 2097.

A pretty little plant with narrow, dark green foliage. Flowers pure white, fragrant, with long tail and large for the size of the plant. With us this species grows freely in a block in the cool house.

B. *Angræcum pellucidum*. Sierra Leone . B. R., 30, 2.

A very pretty plant resembling a *Phalenopsis* in growth, with drooping racemes of delicate, crystalline, snow-white flowers.

May be grown in a basket.

B. *Angræcum pertusum*. Sierra Leone . B. M., 4782.

This species is in growth very much like an *Aerides*. The pure white flowers are produced in March, in close, drooping spikes, and are very graceful and elegant.

A. *Angræcum sesquipedale*. Madagascar. War. Orch., 31.

Bat. 2d Cen., 151. I. H., 475.

Jen. Orch., 3. B. M., 5113.

This magnificent plant was brought by Rev. Wm. Ellis from Madagascar, where it grows in great profusion, covering trees from top to bottom. The stems are three or four feet high, the foliage a foot long, dark glaucous green; flowers six inches in diameter, ivory white, with tail from *ten* to *eighteen* inches long. It is a very free-growing and flowering plant, blooming when very small. We have now (January, 1876) a plant only a foot high, with two breaks, producing seven spikes of bloom. The

flowers are powerfully fragrant, almost unpleasantly so, at night.

A. *Angræcum superbum*. Madagascar. Thouars, Or. Afri.

SYNS. *Angræcum virescens* (Lind). tab. 62, 63, 64.

Acrobion superbum (Sprengel).

This species differs from *eburneum* in being of stronger growth, the lip of the flower is more square, and the flowers are larger.

These plants require the same general treatment as *Aerides*. They must all, except *A. falcatum*, be grown in the hottest house, with plenty of moisture. If well treated, they never fail to flower freely, and are especially desirable as they mostly bloom in mid-winter. The flowers of all last long in perfection.

There are many other species, all natives of Africa, but a large portion have insignificant flowers.

Anguloa. *Ruiz and Pavon.* Epiphyte.

Dedicated to Francesco de Angulo.

A. *Anguloa Clowesii*. Colombia . . War. Orch., 33.

B. R., 1844, 63. Pes., 17.

B. M., 4313. M. O. P., 2.

A beautiful species, with bright yellow sepals and petals, and pure white lip.

Blooms in June and July, the flower lasting long in perfection, if kept in a cool house.

Anguloa macrantha.

A rare variety, with bright yellow flowers, spotted with red.

Anguloa eburnea. New Granada. . Bat. 2d Cen., 159.

Pseudo-bulbs dark colored, leaves bright green. Flowers large, pure white, lip spotted with pink. By some considered the same as *A. uniflora*.

A. *Anguloa Ruckerii*. Mexico . . M. O. P., 3.

B. M., 5384. War. Orch., 2, 10.

Bat. 2d Cen., 144. B. R., 1846, 41.

A fine species, flowering at the same time as the preceding. Perianth yellowish-green, thickly covered with small spots of deep crimson. The fragrance of the flower resembles *Lycaste aromatica*.

Anguloa sanguinea has flowers of rich blood color.

B. *Anguloa uniflora*. Colombia . M. O. P., 1.

Bat. 2d Cen., 159.

B. R., 1844, 60.

B. M., 4807.

This species produces in June and July a single large white flower, faintly marked with yellow, of an agreeable perfume, lasting two or three weeks in perfection.

A variety has white flowers, spotted all over with dark brown, and is sometimes called *Anguloa virginalis*. It is a handsome and rare plant.

The bulbs of these plants are about three inches high, with flag-shaped leaves a foot or more long; the flowers are produced from the base of the bulbs. They should be grown in pots, in fibrous peat, with good drainage. Place them during the growing season in the East Indian house, with moderate heat and moisture; afterwards remove to a cooler house. They should have a long rest,

during which they should be kept rather dry until growth begins. They are propagated by dividing the bulbs just before they begin to grow.

They require large pots and moderate heat, excess soon killing them.

In England they have been grown to great perfection under the shade of vines in a grapery, single plants having produced sixty flowers. They are very showy plants, but wholly wanting in delicacy and grace.

Ansellia. Lindley. Epiphyte.

A. Ansellia africana. Sierra Leone. Pax. Mag., 13, 241.

B. R., 1846, 30.

B. M., 4965.

A fine plant, growing three feet high. The flowers proceed from the top of the bulb, with sixty or seventy flowers on a spike.

The plant blooms in January, and keeps in perfection for months; it is one of the finest plants for winter blooming.

It requires the heat of the East Indian house, and may be grown on wood, but is far better grown in a large pot in rough peat with good drainage; the roots should be well watered two or three times a week, but the young shoots should not be wet. Propagated by dividing the bulbs after they have finished their growth. The color of the flowers is pale yellow, with deep purple spots. *A. africana gigantea* is a fine variety.

Ansellia lutea. Natal.

A variety with light yellow flowers, of more delicate habit, sometimes called *A. natalensis*.

Aporum. Blume. Epiphyte.

Name from ἀπόρϋξ, a running shoot, referring to the growth of the plant.

The following are the species, which possess little to recommend them :—

- Aporum anceps*. Manilla B. R., 1259.
 SYN. *Dendrobium anceps*. B. M., 3608.
 Lodd. Cab., 1895.
Aporum indivisum. Java. *A. lobatum*. Java.
A. incrassatum. Java. *A. Serra*. Singapore.
A. leonis. Lind. *A. sinuatum*. Lind.

Arachnis. Blume. Epiphyte.

Name from Arachne, who was turned into a spider.

B. *Arachnis moschifera*.

Is a rare and peculiar plant, resembling in growth a *Renanthera*. The flowers are large, creamy white or lemon, and resemble a spider; they have a delicate musky odor, and continue long in perfection. The old spike continues to produce flowers from the point for a long time. Native of Java.

This plant should be potted in peat and sphagnum, with good drainage, but is best grown in a basket, and also does well on a block.

Arpophyllum. La Llave. Epiphyte.

Name from ἀρπη, a scimeter, and φύλλον, a leaf.

B. *Arpophyllum cardinale*. Guatemala. . . Pes., 45.
 SYN. *Celia squarrosa*.

A very pretty species, with spikes of rosy flowers, with deep red lip. Flowers in summer.

- B. *Arpophyllum giganteum*. Mexico and
Guatemala. War. Orch., 39.

Flowers in compact spikes, from the top of the bulbs ; dark purple and rose, resembling little shells. The foliage is drooping, dark evergreen.

We have found this plant difficult to bloom. It is a free grower ; its blooming season is spring.

- C. *Arpophyllum spicatum*. Mexico . . . B. M., 6022.
Flowers dark red on an upright spike in winter.

Arpophyllum squarrosum = *Arpophyllum cardinale*.

These plants are all of easy culture in the Mexican house. They should be grown in pots, in peaty loam, and require frequent watering.

All are graceful in growth, and the pretty flowers last long in perfection. Propagated easily by division. They need generous culture, as the bulbs do not flower unless large.

Arundina. Blume. Terrestrial.

Name from *arundo*, a reed.

- C. *Arundina bambusifolia*. Nepal ; Chittagong.

SYNS. *Cymbidium bambusifolia*.

Blechnum graminifolia.

Flowers delicate rose with rich crimson purple lip.

- C. *Arundina densa*. Singapore . . B. R., 1842, 38.

Perianth rose with brown lip striped with yellow, of an agreeable perfume.

This species should always have a moist atmosphere.

These plants should be grown in pots, in the East Indian house, with plenty of heat and moisture.

Aspasia. Lindley. Epiphyte.

From ἀσπάζομαι, to cling to.

C. *Aspasia epidendroides*. Colombia . . Fl. Cab., 8.

SYN. *Aspasia fragrans*. B. M., 3962.

The sepals are yellow and brown, the petals light purple blending in the green of the outside, the lip white with purple in the centre.

This species needs little heat, and should have plenty of air.

B. *Aspasia lunata*. Rio Janeiro. Lindley. B. R., 1844, 49.

SYN. *Aspasia odorata*. Reich. Xen., 34.

Perianth greenish yellow with dots of vivid yellow barred with dark brown, lip white with a crescent violet spot in the middle.

Aspasia lunata superba is a fine variety.

C. *Aspasia variegata*. Panama B. R., 1907.

B. M., 3679.

Flowers greenish, variegated with dark brown: lip white tinted with rose with a deep purple spot. Very fragrant in the morning.

The plants should be grown in baskets or on wood with plenty of moss. They also succeed in well drained pots, are all of easy culture, and bloom freely.

Auliza.

Auliza ciliare is *Epidendrum ciliare*.

B.

Barkeria. *Knowles and Wescott.* Epiphyte.

Dedicated to George Barker.

- A. Barkeria elegans.* Mexico . . . Pes., 10.
 B. M., 4784.
 I. H., 23.
 Fl. Cab., 49.
 Fl. des Ser., 959.

Perianth delicate lilac rose; lip horn-shaped, white ground with purple spots, violet at the base, marked with golden yellow.

A rare plant, of difficult culture.

- A. Barkeria Lindleyana.* Costa Rica. Bat., 28.
 B. R., 1842, 5.
 Pax. Mag., 13, 193.
 B. M., 6098, as *Epidendrum*.
 Jen. Orch., 14.

Flowers rich purple with a blotch of white in the centre of the lip. Blooms in September and October, lasting a long time in good condition.

- A. Barkeria melanocaulon.* Costa Rica.

Flowers lilac pink, with a spot of green in the centre; blooms from June to September, continuing long in perfection.

- A. Barkeria Skinnerii.* Guatemala . . Pax. Mag., 15, 1.
 SYNS. *Epidendrum Skinneri.* B. M., 4094, 3951.
Epidendrum clavatum. B. R., 1870, 1881.

Flowers deep rose, produced from November to February, on a spike one and a half feet long.

This plant is usually known as a *Barkeria*, but is clearly an *Epidendrum*, since "the column is wingless and adnate to the labellum."

A. Barkeria Skinnerii superba. Venezuela.

Fl. Mag., 185.

War. Orch., 38.

A very fine variety, stronger in growth, with a longer spike, sometimes branched, and more brilliant flowers.

A. Barkeria spectabilis. Guatemala. Bat., 33.

B. M., 4094.

Pax. Mag., 10, 169.

Fl. des Ser., 124.

Flowers brilliant rosy lilac dotted with deep crimson, lip white at base. Blooms in June and July, lasting three or four weeks in perfection.

There is a wonderful variety in imported plants of this species, scarce two being exactly alike, and all beautiful.

These plants lose their leaves during the resting season. The flowers appear from the top of the slender bulbs, on many flowered peduncles. They are best grown on flat blocks without any moss, the fleshy roots clinging to the block; keep in the Mexican house, and give plenty of air during the growing season, and water once or twice a day; during the resting season give water only once or twice a week. Grow them near the glass in plenty of light and air, but little sun. All are very free bloomers.

Batemanian. Lindley. Epiphyte.

Dedicated to James Bateman.

C. Batemanian Beaumontii. Para.

C. A dwarf-growing plant, with light green foliage, flowers
 ge, light green marked with brown. Known also as
'alcottia, which see.

A. Batemanian Burtii. Costa Rica . B. M., 6003.

Fl. Mag., 2, 101.

War. Orch., 2, 35.

A very showy and rare plant, closely allied to *Bate-*
manian meleagris. It is a magnificent Orchid, both in lux-
 uriance of foliage and beauty of flower. Sepals and
 petals reddish brown with yellow spots and bases; lip
 white and brownish purple, with curious ciliated appen-
 dage. Flowers three inches in diameter on single stems.

C. Batemanian Colleyi. Demerara . . . B. M., 3818.

B. R., 1714.

Flowers purple inside, dashed with green on the out-
 side; the lip is white marked with purple and red.

B. Batemanian grandiflora. New Granada.

B. M., 5567.

Bat. 2d Cen., 172.

A very pretty species. The flower-spike comes up with
 the young growth, bearing several green and brown flow-
 ers, with a white lip with orange base.

A. Batemanian meleagris. Brazil . . Reich. Xen., 1, 66.

Maund, Bot., 3, 146.

B. R., 1839, 14.

A very showy species, with large yellow and brown flowers in summer. Lip white rayed with reddish purple. Generally known as *Huntleya meleagris*.

There are about half a dozen species of this genus, all with radical light green leaves and showy flowers. They should be grown in pots in sphagnum, with good drainage and plenty of water in the growing season.

The intermediate house is the best place for them. As they have no pseudo-bulbs, they must not become dry but care must be taken not to overwater when they are at rest.

Bifrenaria. Lindley. Epiphyte.

From *bis*, double, and *frenum*, a bridle.

C. Bifrenaria atropurpurea. Rio Janeiro.

SYN. *Maxillaria atropurpurea*. B. C., 1877.

Lodd. Cab., 1877.

Flowers dark purple, of a pleasant fragrance.

C. Bifrenaria aurantiaca. Demerara . . B. M., 3597.

B. R., 1875.

Flowers yellowish-orange, marked with brown.

C. Bifrenaria aureo fulva. Brazil . . . B. M., 3629.

SYN. *Maxillaria stenopetala* and *aureo* B. R., 1875.

fulva. Fl. Cab., 83.

Flowers large, orange, with bronze lustre.

A. Bifrenaria Hadwenii. Rio Janeiro. Fl. des Ser., 731.

B. M., 4629.

Lem. Jard., 232.

Perianth green, marked with deep brown; the lip white,

beautifully lighted with deepest rose. Known, also, and correctly, as *Scuticaria*.

Bifrenaria Harrisonia. See *Maxillaria Harrisonia*.

C. *Bifrenaria inodora*. Brazil . . . Reich. Xen., 94.
Flowers large green, with bright violet lip.

R. *Bifrenaria racemosa*. Brazil . . . Lodd. Cab., 1318.
SYN. *Maxillaria racemosa*. B. R., 1566.
B. M., 2789.

Flowers small, yellowish-green, crimson lip.

R. *Bifrenaria vitellina*. Brazil . . . B. R., 1839, 12.
SYN. *Maxillaria vitellina*.

Small, deep yellow flowers; the lip has a brown spot in the centre.

These plants are grown in pots like *Maxillaria*, to which family they are closely allied, and to which they were formerly given.

Some of the species, however, do well on blocks or in baskets. They require moderate heat and watering, and not full sun-light.

Bletia. Ruiz and Pavon. Terrestrial.

Dedicated to Louis Blet.

C. *Bletia acutipetala*. Carolina . . . B. M., 3217.

Flowers pale rose; lip purplish rose, yellowish at the base. Sometimes considered the same as *Bletia veracunda*.

B. *Bletia campanulata*. Mexico ; Peru.

Flowers deep purple, white centre. Blooms at different seasons, lasting a long time in perfection.

C. *Bletia coccinea*. Mexico.

Flowers deep red.

C. *Bletia florida*. Trinidad B. R., 1401.

SYNS. *Cymbidium floridum*.

Gyas florida.

Bletia pallida. Lodd. Cab., 629.

Flowers pale flesh color ; lip white, striped with yellow.

R. *Bletia gracilis*. Mexico Lodd. Cab., 1977.

B. R., 1681.

The perianth is yellowish brown ; the lip flesh-color veined with crimson on the upper part ; the other parts of the flower green.

R. *Bletia Guineensis*. Sierra Leone.

Flowers small purple.

R. *Bletia Havanensis*.

Flowers apricot color.

B. *Bletia hyacinthina*. China Lodd. Cab., 1968.

SYNS. *Limodorum striatum*.

B. M., 1492.

Epidendrum striatum.

Sert. Bot., 7.

Cymbidium striatum.

Cymbidium hyacinthinum.

Gyas humilis.

The flowers are beautiful rose purple, shading to lilac ; the lip pale red, marked with deep crimson.

This species should be grown in the greenhouse.

Bletia hyacinthina albo striata. Japan.

This variety is like the species, except that all the nerves are white, which makes a pretty variegation.

B. *Bletia Parkinsonii.* Mexico B. M., 3736.

Flowers small, rosy ; lip marked with red and yellow.

C. *Bletia patula.* St. Domingo B. M., 3518.

Flowers dark purple, with white lip. Blooms in March and April.

C. *Bletia Shepherdii.* Jamaica . . B. M., 3319.

Pax. Mag., 2, 146.

Flowers purple, with yellow marking down the centre. Blooms in winter, on a long spike, which keeps in perfection three or four weeks.

B. *Bletia Sherrattiana.* New Granada . B. M., 5646.

A very pretty species, with large rose-colored flowers.

Bletia Tankervilleæ. See *Phajus grandifolius*.

C. *Bletia verecunda.* West Indies . . B. M., 930.

SYNS. *Limodorum altum.* B. M., 1116.

Limodorum verecundum. Pax. Mag., 146.

Limodorum tuberosum.

Limodorum trifidum.

Limodorum purpureum.

Cymbidium verecundum.

Cymbidium altum.

Gyas verecunda.

Sepals rose, petals purple, lip purple with yellow rays and stripes.

Bletia Woodfordii. See *Phajus maculatus.* B. M., 2719.

These plants are easily grown if kept from frost. The foliage, which is long and narrow, proceeding from round flat bulbs, is deciduous. They should be grown in loam and leaf-mould, with good drainage. They need plenty of water when growing, and not much heat, and during the resting season very little moisture. Give a long rest.

In potting, it is best to plant several tubers in a pot, as thus they make more show when in bloom.

Bolbophyllum. Du Petit Thouars. Epiphyte.

Name from *βολβός*, a bulb, and *φύλλον*, a leaf.

C. *Bolbophyllum barbigerum*. Sierra Leone. B. M., 5288.

A dwarf species, with greenish brown flowers, the lip covered with dark hair, so loosely attached at base as to move by the slightest breath; remains long in perfection.

B. *Bolbophyllum Henshallii*. Java. Gard. Mag., 269.

Flowers large, solitary, deep yellow, marked with purple and spotted. Bloom in summer, lasting long in beauty. Known also as *Bolbophyllum Lobbii* and *Sarcopodium Lobbii*.

B. *Bolbophyllum maculatum*. East Indies.

A pretty species, of easy culture, with spotted flowers.

Bolbophyllum reticulatum. Borneo. Bat. 2d Cen., 190.

B. M., 5605.

Flowers in pairs, white, with purple stripes; lip spotted with purple. A pretty plant, and the best of the genus.

C. *Bolbophyllum saltatorium*. Africa. B. R., 1970.

Flowers greenish brown, produced at different seasons.

Bolbophyllum Siamense. Siam.

Flowers pale yellow, striped with purple.

These plants are small, and usually more curious than beautiful. They are grown on small blocks with a little moss, or in pots, in the warmest parts of the house; they need much heat and moisture. The following are species:—

Bolbophyllum apiferum, *bicolor*, *bracteolatum*, *calamaria* (B. M., 4088), *Careyanum* (B. M., 4166), *cupreum*, *coccineum* (B. R., 1964), *cylindricum*, *Dayanum* (B. M., 6119), *flavidum*, *leopardinum*, *lemniscatum* (B. M., 5961), *recurvum*, *setigerum*, *sordidum*.

Bollea. *Reichenbach*. Epiphyte.

This new genus contains only two species, *Bollea Patini* (Fl. Mag., 2, 147) and *Bollea Lalindei*. Both are natives of New Granada, and are showy plants, with radical foliage, from the base of which the flowers proceed, drooping, on single stalks.

They are pink, with deeper shading, and bright yellow lip, somewhat resembling a *Huntleya* in shape.

They require to be grown in the intermediate house, in pots, somewhat elevated above the rim, that the flowers may show to advantage, in moss; never to dry up, but not to be over-watered.

Bollea violacea. See *Huntleya violacea*.

Brasavola. *Lindley*. Epiphyte.

Dedicated to Antonio M. Brasavolas.

B. Brasavola acaulis. Central America.

A species with rush-like foliage, and large creamy white flowers in autumn; a compact growing and desirable plant.

C. *Brasavola cucullata*. West Indies . R. Brown.

SYN. *Epidendrum cucullatum*. B. M., 15, 543.

Cymbidium cucullatum (Schwartz).

Flowers ochre-yellow, with white lip, very fragrant.

A. *Brasavola Digbyana*. Honduras . B. M., 4474.

B. R., 1846, 53.

Fl. des Ser., 237.

A species much resembling a *Cattleya* in habit.

Flowers white, six to seven inches across ; lip white, streaked with purple, and beautifully fringed ; solitary ; produced from top of bulb during the winter ; exhaling a delicious perfume.

Brasavola Gibbsiana.

A rare plant, described by Williams. Spikes three-flowered ; leaves broad and thick ; flowers large, white, spotted with chocolate.

B. *Brasavola glauca*. Mexico . . . B. M., 4033.

B. R., 1840, 44.

Bat., 16.

Flowers pale green, with large white lip, with pink mark on upper part ; very fragrant. Care should be taken not to water the flower-stalk before the appearance of the bud, as it is easily injured.

Blooms in February and March.

Brasavola lineata. Guatemala . . . B. M., 4734.

A plant with long pendulous terete foliage ; flowers large ; sepals and petals creamy white ; lip pure white ; fragrant at night. Grow on a block with moss.

- C. Brasavola nodosa.* Jamaica B. M., 3229.
 SYNS. *Epidendrum nodosum* (Lin.). B. R., 1465.
Cymbidium nodosum (Schwartz).

Flowers large; petals and sepals yellowish white; lip snow white; very fragrant.

A very common species, often sent from Jamaica. When the plant is large it is very showy.

- C. Brasavola venosa.* Honduras . . B. M., 4021.
 B. R., 1840, 39.

Flower greenish; lip white; very fragrant.

The following varieties, though less showy than those enumerated, produce pretty, fragrant flowers:—

Brasavola angustata.

B. cordata. B. R., 1914; B. M., 3782.

B. cuspidata. B. M., 3722.

B. elegans. B. M., 3098.

B. fragrans. I. H., 180.

B. Martiana. B. R., 25, 5.

B. Perrinii. B. R., 1564; B. M., 5761.

B. subulifolia.

B. tuberculata. B. M., 2878.

These plants may be grown in baskets, but do best on blocks, with a little moss.

They should be grown in the warmest house, and are very ornamental when the plants are strong enough to produce plenty of flowers.

Brassia. *Brown.* Epiphyte.

Named for Brass, a botanist.

C. Brassia brachiata. Guatemala . . . B. R., 1847, 29.

SYNS. *Brassia Wrayæ* . . . M. O. P., 2.

Oncidium Wrayæ . . . Pes., 31.

The sepals and petals are very long and narrow, greenish yellow, with brown spots; the lip is large, yellow, marked with green. Flowers from May to August.

C. Brassia caudata. West Indies . . . B. R., 832.

SYNS. *Epidendrum caudatum* (Linn.). B. M., 3451.

Malaxis caudata (Willd). Sert. Bot., 7.

Hook. Ex., 179.

Flowers green, petals longer than the sepals, often reaching five or six inches; lip yellow, spotted with brown.

Brassia Gireondiana. Costa Rica . Reich. Xen., 1, 32.

A pretty species, producing spikes of large bright yellow flowers, spotted with red.

C. Brassia Lanceana. Demerara . B. M., 3577, 3794.
B. R., 1754.

Flowers greenish yellow, marked with brown; very fragrant; grow in the warmest house.

B. Brassia Lawrenceana. Jamaica . B. M., 5748.

M. O. P., 1.

B. R., 1841, 18.

A fine fragrant Orchid, blooming from June to August. Flower yellow and green, spotted with brown; the lip yellow, shading to white at the base. There are many varieties of this handsome species.

C. Brassia macrostachia. Jamaica . . . Sert. O., 6.
Flowers clear yellow, delicately marked with brown;
lip chocolate.

C. Brassia maculata. Jamaica . . . Pax. Mag., 6, 5.
B. M., 1691.

Perianth greenish yellow, marked with reddish brown;
lip white, marked with purple. Flowers in May and
June.

C. Brassia odorata. Guiana.

Flowers green, delicately marked with brown; lip white,
dotted with green; very fragrant.

B. Brassia verrucosa. Mexico . . . Bat., 22.

Upper part of flowers pale green; lip white, marked
with green warts.

Blooms in May and June.

A variety, *major*, has larger and lighter-colored flowers.

Brassia Wrayæ. See *Brassia brachiata* . B. M., 4003.

The following are species:—

Brassia angusta.

B. Henchmani.

B. bidens.

B. Hendersoni.

B. cochleata

B. peruviana.

B. guttata.

These plants should be grown in pots or baskets; in
the latter the long flower-stalks show to greatest advan-
tage.

Soil, rough fibrous peat, with good drainage; may be
grown in the stove or the cooler house. In the growing

season water freely, but at other times only give enough moisture to keep the bulbs from shriveling.

Propagated by dividing the plants when they begin to grow.

Bromheadia. *Lindley.* Epiphyte.

In honor of Sir Edward F. Bromhead.

- C. *Bromheadia palustris.* Sumatra . . B. R., 30, 18.
B. M., 4001.

Flowers dull white; lip pale yellow and violet, purple tipped.

Grow in pots, in moss; East Indian house.

Broughtonia. *Brown.* Epiphyte.

In honor of the botanist Broughton.

Broughtonia lilacina of Gard. Mag., 201, and Lem. Jard.,
is *Laeliopsis domingensis*.

- A. *Broughtonia sanguinea.* Jamaica . Lodd. Cab., 793.
SYNS. *Satyricum parasiticum* . . B. M., 3076.
(Brown). . . B. M., 3536.

Broughtonia coccinea.

Dendrobium sanguineum (Schwartz).

Epidendrum sanguineum (Schwartz).

Flowers crimson. The flowers are produced from the top of the bulb, during the summer, and last long in perfection. Propagated by division.

These plants should be grown on blocks with a little moss, and plenty of light and sun. It is a lovely plant, which is too little grown.

Burlingtonia. *Lindley*. Epiphyte.

Dedicated to the Countess of Burlington.

Burlingtonia Batemanii. Brazil.

A handsome species, with drooping spikes of flowers which are white with a beautiful mauve lip.

Burlingtonia candida. Demerara . . . B. R., 1927-29.
Fl. Mag., 548.

Flowers in long pendulous racemes, like a *Bignonia* in shape, snow white; lip touched with yellow, with a charming citron-like fragrance. Flowers freely twice a year. The roots of this species should never be allowed to get dry. Perhaps identical with *Burlingtonia fragrans*.

B. *Burlingtonia decora*. Brazil . . . B. M., 5419, var.
B. M., 4834.
Bat. 2d Cen., 110.
Lem. Jard., 188.
Fl. des Ser., 716.

Flowers pink, spotted with crimson, in erect racemes. A pretty plant.

A. *Burlingtonia fragrans*. Rio Janeiro. B. R., 1927, 1929.

Flowers large, snow white; lip white with a golden yellow line in the centre. Blooms in June and July; very fragrant, scented like jonquils.

B. *Burlingtonia Knowlesii*.

Resembles *Burlingtonia venusta* in habit; flowers white in long racemes, tinged with pinkish lilac. Blooms in the autumn, continuing a long time in perfection.

- B. Burlingtonia maculata* M. O. P., 1.
B. R., 1839, 44.

A fine species, throwing a flower-stalk with fifteen to twenty flowers of delicate yellow marked with dark brown. There are varieties with upright and with slender drooping flower-stalks.

- B. Burlingtonia rigida.* Brazil . . . Pax. Mag., 8, 193.
Sert. O., 36.
Fl. des Ser., 1, 2.

Flowers in a bunch at the end of the stalk ; white, veined with purple ; lip white, fragrant.

- C. Burlingtonia rubescens.* Peru.
Flowers white, marked with rose.

- C. Burlingtonia venusta.* Bahia I. H., 188.
Sert. O., 2.

The flowers much resemble *Burlingtonia fragrans*, but are smaller and without fragrance.

The plants of this genus are all small, of compact growth, with beautiful evergreen foliage. They should be grown in baskets with sphagnous moss and potsherds, and a good supply of heat and moisture while growing ; they also succeed well on blocks with a little moss.

Burlingtonia maculata should be grown in a pot. They require but little rest, and should not be allowed to get dry at the root. Propagated by division.

C.

Calanthe. *Brown*. Terrestrial.

Name from *καλός*, beautiful, and *ἔνθος*, a flower.

B. *Calanthe bicolor*. Java.

Flowers brilliant yellow inside, orange red outside.

B. *Calanthe curculigoides*. Malacca ; Singapore.

B. R., 1847-8.

B. M., 6104.

A rare and beautiful species. Flowers on a large, long spike, bright orange. Foliage dark green, plaited. Grow in constant heat of East Indian house.

B. *Calanthe discolor*. Java M. O. P., 3.

B. R., 1840, 55

Flowers violet red, lip white with lilac markings round the base. A very floriferous species.

A. *Calanthe Dominiana* B. M., 5042.

A garden hybrid between *Calanthe furcata* and *Calanthe Masuca*. Sepals and petals lilac ; lip deep purple.

C. *Calanthe flavicans*. Mauritius.

Sepals white and twice the size of the pale rose petals ; lip bluish with a dark line down the centre.

Calanthe furcata. East Indies.

A well known free-flowering species, blooming on tall spikes, and producing an abundance of creamy white flowers in summer.

- B. *Calanthe Masuca*. Nepaul . . . M. O. P., 2.
 B. M., 4541.
 B. R., 1844, 37.
 Lem. Jard., 62.
 Bat. 2d Cen., 139.

Sepals white outside, deep violet inside, petals lilac ; lip heart-shaped, violet purple. The flowers are large, produced on a spike two feet long, in June, July, and August, lasting six weeks in perfection.

Distinguished from *Calanthe purpurea* by the raceme being open instead of close, the lip broad instead of narrow, and the spur longer than the pedicel, instead of shorter.

Calanthe Masuca grandiflora is a very fine, strong-growing variety.

Calanthe Sieboldii. Japan. Revue Horticole, 1855, 20.

A distinct species, which may be grown in a cool house. Foliage dark green, flowers yellow, on erect spikes.

- A. *Calanthe Veitchii*. Garden hybrid. Bat. 2d Cen., 106.
 B. M., 5375.
 Jen. Orch., 48.
 Fl. Mag., 280.

This is a true hybrid between *Calanthe vestita* and *Limatodes rosea*. Flowers beautiful rose color, of different shades, on spikes often three feet long, and continuing in bloom for months.

It is a deciduous plant, like its parents, producing the flower spike from the base of the matured bulb in November. For winter decoration this plant has no equal.

B. *Calanthe veratrifolia*. Java . . . Lodd. Cab., 958.

SYNS. *Flos triplicatus*. (Rumph.) B. R., 720.

Orchis triplicata. (Willimet.) B. M., 2615.

Limodorum veratrifolium. (Willd.)

Amblyglottis flava. (Blume.)

Flowers snow white ; lip olive-green with blood-red centre. The flower-spikes, which are produced from May to July, are often two feet long. The plant should have plenty of air, but should be grown in heat.

A. *Calanthe vestita*. Moulmein . . B. M., 4671.

B. R., 720.

Pax. Mag., 16, 129.

Fl. des Ser., 816,

1308.

Lem. Jard., 333.

War. Orch., 29.

Flowers produced from October to February, on long drooping spikes rising from the base of the silvery green bulbs when the latter are destitute of leaves. The sepals and petals are snow white ; lip white with a blotch of rich crimson or yellow (according to the variety) in the centre, or pure white.

The varieties are known as *rubro oculata*, *cuprea*, *luteo oculata*, *nivalis*, and *Turneri*. Of these, that with the red eye is the more common, and the pure white the rarest. *Turneri* is a late bloomer, with large white flowers with red eye. A collection can hardly have too many of these charming plants. The only defect they have is the want of foliage in the blooming season ; but this want is easily supplied by placing them among ferns, thus forming a

combination which for grace and beauty is unsurpassed. We have large pans of this plant, which are a constant pleasure all through the dull months of winter.

For house decoration this plant is unrivaled, the flowers remaining in perfection for many weeks, and for cut flowers there is nothing better. A little weak liquid manure is beneficial to the bulbs when growing; for the stronger we can grow the bulbs, the better the flower. After blooming, let the bulbs rest awhile till the shoots show at the base, then repot and grow them in good heat.

The foliage of these plants is evergreen, except *Calanthe vestita* and *Calanthe Veitchii*. They generally make their growth after the flowers have faded. They should be grown in large pots, with loam, leaf mould, and rotten dung; the plant should be set about level with the brim of the pot; good drainage should be provided.

Grow in the Indian house, and never allow the plant to get dry during the growing season. They need but little rest, during which period the soil should be kept damp, except *Calanthe vestita* and *Calanthe Veitchii*, which must be kept dry. Propagated by division. They are very subject to the attacks of brown and white scale.

All the species are best grown in pots; the varieties of *Calanthe vestita*, however, do well in baskets.

Camaridium. Lindley. Epiphyte.

Name from *कादपा*, an arched roof.

Camaridium ochroleucum B. R., 844.

See *Cymbidium*.

Camarotis. Lindley. Epiphyte.

Name from *καμάρα*, an arched roof; alluding to the shape of the lip.

B. *Camarotis obtusa.* East Indies.

Flowers pale rose, with yellow lip.

B. *Camarotis purpurea.* Sylhet . . Pax. Mag., 7, 25.
Sert. O., 19.

Perianth lilac-purple; lip deep purple; flower spikes produced from the side of the stem, in pendulous racemes, in March and April. It is a neat-growing, free-flowering, and attractive plant.

These plants should be grown in the Indian house, in a moist heat, on blocks, in pots or baskets, in moss. The plants should always have heat and moisture at the roots and need very little rest.

Catasetum. Richard. Epiphyte.

Name from *κατά* (down), and *σέτα*, a bristle.

C. *Catasetum atratum.* Brazil M. O. P., 3.
B. R., 24, 63.
B. M., 5202.

Perianth purple-brown, petals marked with brown, the lip dull green broken with yellow; a floriferous species.

C. *Catasetum callosum.* La Guayra . . . B. M., 4219.
B. R., 27, 5.
M. O. P., 5.

Perianth dull reddish-brown; lip green, with a yellow swelling and a spot of same color.

- C. Catasetum cornutum.* Demerara . . . M. O. P., 5.
B. R., 27, 5.

Flowers green, marked with dark purple; lip light-green, marked with darker shade; very floriferous.

- C. Catasetum integerrimum.* Guatemala B. M., 3823.
M. O. P., 1.

Large flowers with powerful odor; perianth marked with purple; lip yellow, richly marked inside.

This species should have plenty of moisture at the period of the formation of the flower-buds.

- C. Catasetum Naso.* Caracas B. M., 4792.
B. M., 2559.

Perianth almost white; delicately shaded with greenish-yellow, plentifully spotted with crimson-purple. The lip is lengthened into the shape of an elephant's trunk.

- C. Catasetum tridentatum.* Brazil . B. M., 2559, 3329.
SYNS. *Catasetum macrocarpum* Hook. Ex., 90, 91.
(Richard). B. R., 840.
C. Claveringii (Lodd. Sert. Bot., 7.
Cab., 1344).
C. floribundum (Hooker).

Sepals yellowish-green; petals green, more or less marked with purple, and sometimes wholly purple; the tip of the lip egg-yellow, inner part spotted. This plant varies much according to its vigor.

The flowers of this genus are remarkable for singularity of form, and some are very beautiful. The same plant will frequently produce what seem to be totally dif-

ferent flowers, and there is no genus of plants so given to "sports."

The plants are not favorites with cultivators, as they are generally wanting in richness of color, but their curious flowers should give them a place in every large collection of Orchids. The following are species : —

Catasetum abruptum. B. M., 3929.

C. barbatum. M. O. P., 5; B. R., 1778.

SYNS. *Catasetum proboscidium*. B. R., 27, 5.

C. spinosum.

Myanthus barbatus. B. R., 1778.

Myanthus spinosus. B. M., 3802.

C. Cartoni.

C. cernuum. B. M., 5399; B. R., 1721.

C. citrinum.

C. cristatum. B. R., 966 and 1951.

C. deltoideum. B. R., 1896.

SYN. *Myanthus deltoideus*. B. R., 1896; B. M., 3923.

C. discolor. B. R., 1735; Reg. Bot., 83.

SYNS. *Myanthus discolor*.

Myanthus Bushmani.

Myanthus roseo albus. Hooker.

C. fimbriatum.

C. fuliginosum.

C. globiferum. B. M., 3942.

C. Herbertii.

C. Hookerii. Lindley.

C. intermedia variegata.

C. laminatum. Sert. O., 38; var., B. R., 27, 5; M. O. P., 5.

C. lauciferum. M. O. P., 5.

C. Landsbergii.

C. longifolium. Sert. O., 31; Ref. Bot., 82.

C. luridum. B. R., 1667; B. M., 3590.

SYNS. *Catasetum abruptum*.

Anguloa lurida.

- C. maculatum*. B. R., 26, 62; Bat., 2.
C. ochraceum.
C. planiceps. M. O. P., 2; B. R., 29, 9.
C. poriferum.
C. purum. B. M., 3388.
C. Russellianum. B. M., 3777.
C. semiapertum. B. R., 1708; Hook. Ex., 213.
C. saccatum. Sert. O., 41.
C. sanguineum. Pes., 14.
C. squalidum.
C. trifidum. B. M., 3262; B. R., 1721.
C. Trulla. M. O. P., 4; B. R., 27, 34.
C. tabulare.
C. trimerochilum. I. H., 374.
C. Wallisii. B. M., 3937.

These plants should be grown in pots, in peat and potsherds, with good drainage. They should have plenty of light and sun; should be kept dry during the resting season. When the young shoots begin to push, the watering should be light, but as the growth advances it should be increased, and when the bulbs are forming should be copious. Care should be taken not to wet the flower stalks, as they easily damp off, and during the flowering season the soil should be only moist. Many are very large plants, and the room they would occupy is so much better filled by more showy plants, of more recent introduction, that few care to grow *Catasetums*. The flowers of many species are "uncanny" in appearance and unpleasant to look at.

Cattleya. Lindley. Epiphyte.

Dedicated to Wm. Cattley.

- A. Cattleya Acklandiae.* Bahia . . Pax. Mag., 9, 1.
 B. R., 1840, 48.
 Fl. des Ser., 674.
 B. M., 5039.
 I. H., 565.
 Bat. 2d Cen., 119.

Perianth olive-green, marked with dark-brownish yellow; lip velvety purple, violet, or rose; very fragrant. This species has rounder and more fleshy foliage than others. A beautiful but rare species, which is not very free-blooming. Blooms in June and July.

A. Cattleya amabilis. Brazil.

A very beautiful and rare species. Sepals and petals pink; lip large, rich crimson. The plant makes two growths a year, and blooms from the one formed in the spring, with from three to five flowers on the spike. Blooms in summer.

A. Cattleya amethystina. Brazil . . . Lem. Jard., 379.

A free growing and blooming species, much resembling *C. Loddigesii*, and like it a summer bloomer. It grows about a foot high, with strong pseudo-bulbs, and two thick dark green leaves. Flowers two to five, pink, with amethyst lip. Very pretty, but not as showy as most species.

- A. Cattleya amethystiglossa* B. M., 5683.
 War. Orch., 2.
 I. H., 538.

Stems one to three feet high, with two long leaves on

the top ; flowers in fine heads, two to seven in number, thick and fleshy, three inches in diameter, rosy blush, spotted with rich purple ; lip rich, rosy violet. A magnificent species, blooming freely from January to March, and often again in the autumn. There are many varieties, all good. We have now (January, 1876) a magnificent plant in bloom. The flowers last four weeks in perfection if kept from damp. For rich color of the lip this plant has no equal.

Cattleya amethystiglossa sulphurea.

A remarkable variety, color pure lemon, spotted with purple ; lip broad, rich cream color.

A. *Cattleya AreMBERGII.* Bahia.

Perianth rose lilac, lip bright rose, very fragrant. The flowers resemble in form those of *C. Harrissoni*.

Cattleya Bassetti. SYN. of *C. speciosissima*.

A. *Cattleya bicolor.* Brazil B. M., 4909.

Sert. O., tab. 5.

Lem. Jard., 379.

A large flower, often four inches across, with pale green perianth, marked with brownish yellow ; lip rich purple or magenta, with yellow or white fringe. Blooms in September, often having eight or ten flowers on a spike.

Cattleya biflora. SYN. of *C. Lawrenceana* and *Lælia crispilabia*.

Cattleya Boothiana. SYN. of *C. lobata*.

A. *Cattleya Brabantæ* Fl. Mag., 360.

A hybrid between *C. Acklandiæ* and *C. Loddigesii*,

dwarf-growing, sepals and petals pinkish white, spotted with purple; lip white and purple. A very handsome, but as yet a rare plant.

Cattleya Brysiana. See *Lælia Brysiana*.

Lem. Jard., 275-6.

A. *Cattleya bulbosa* B. R., 33, 42.

SYN. *Cattleya Walkeriana*. Pes., 41.

Pax. Mag., 15, 49.

Pax. Fl. G., 3.

Flowers violet-rose, lip flat, shovel-shaped, deep carmine, the lateral lobes crimson, bordered with carmine. This species needs very little water during the resting season. It is best grown on a block with a little moss. Flowers delightfully fragrant, scenting the whole house; they are produced on a separate spike, without leaves. A lovely species.

A. *Cattleya candida*. Brazil.

Perianth beautiful white, with violet shadings and a yellow ray on the lip.

Blooms from July to November. The plant makes two growths in the year, and blooms from both, producing three or four flowers on a spike.

This plant is only a light colored variety of *Cattleya Loddigesii*.

A. *Cattleya Chocoensis*. Mexico. I. H., 3, 120.

A very choice species, closely allied to *C. Trianae*. It is one of the most beautiful of *Cattleyas*. Plant about a foot high, pseudo-bulbs long, crowned with one dark green leaf; sepals and petals transparent white; lip

white, with a slight orange marking in throat, and all suffused with rosy light; exquisitely fragrant. A very free-flowering species, blooming from November to January. Plants vary much in the yellow on the lip, some nearly approaching *C. Trianae*.

- A. Cattleya citrina.* Oaxaca . . . Fl. des Ser., 1689.
Pes., 9.
B. M., 3742.

A species with large yellow fragrant flowers, produced one or two together from May to August.

This species should be grown on the under side of a block, the leaves hanging down, in the coolest house.

Cattleya coccinea.

An old name for *Sophranitis grandiflora*.

- A. Cattleya crispa.* Rio Janeiro . . . Sert. Bot., 7.
SYN. *Lalia crispa.* Pax. Mag., 5, 5.
B. R., 1172.
B. M., 3910.

Sepals and petals pure transparent white, the latter having wavy edges; lip white outside, inside rich crimson or violet stained; perfume delicious. Flowers from July to September. We have plants producing forty flowers at a time.

A. Cattleya crispa purpurea.

Only differing from the species in the color of the lip, being brilliant purple.

A. Cattleya crispa superba . . . War. Orch., 2, 91.

A fine large-flowered variety, with crimson lip beautifully fringed.

Cattleya domingensis. See *Laliopsis domingensis*.

A. *Cattleya Dawsoni*. Brazil War. Orch., 16.

A beautiful and rare species intermediate between *C. labiata* and *C. Mossiæ*. Foliage very thick, dark green; flowers seven inches in diameter; sepals and petals rosy blush; lip large, purple, yellow, and rose throat, and beautifully fringed. A very rare plant.

A. *Cattleya Devoniensis*.

A beautiful garden hybrid between *C. crispa* and *gut-tata*. Sepals and petals white, tipped with rose color; lip dark crimson. Blooms in autumn.

A. *Cattleya Dominiana*.

A beautiful species, hybrid between *Cattleya maxima* and *C. amethystina*, in habit resembling *Lalia elegans*. Sepals and petals white delicately shaded with blush; lip purple, margined with white; interior deep yellow.

A. *Cattleya Dominiana alba* F. M., 367.

A hybrid from the same source as the last described; sepals and petals white, shaded with lavender; lip pure white, with deep lavender blotch.

A. *Cattleya Dominiana lutea*.

Another fine hybrid; sepals and petals blush; lip white, marked with yellow and rose.

All these hybrids are as yet very rare.

- A. Cattleya Dowiana.* Costa Rica. Jen. Orch., 33.
 B. M., 5618.
 I. H., 525.
 Fl. des Ser., 1709.
 War. Orch., 2, 27.
 Bat. 2d Cen., 191.

A magnificent species. Flowers five or six together, of a peculiar beautiful nankeen color ; lip large, crisped, purple crimson, with deep orange gold veins. In growth this plant resembles *C. labiata* ; it requires more heat than most of the genus.

- A. Cattleya Edithiana.* Brazil.

A rare species, resembling *C. Mossia* in growth ; flowers six to seven inches in diameter ; sepals and petals light mauve ; lip mauve, striped with white, upper part buff.

- A. Cattleya Eldorado.* Rio Negro. Fl. des Ser., 1826.

Flowers large, delicate white and rose ; lip deep golden, margined with white ; violet tip. Blooms in early autumn.

- A. Cattleya Eldorado splendens.* Rio Negro . I. H., 3, 7.

A very fine variety of the last ; flowers very large, clear rose ; throat of lip deep orange, with circle of pure white, and edge deep violet purple.

- Cattleya elegans.* See *Lælia elegans* . B. M., 4700.
 Bat. 2d Cen., 156.
 I. H., 402
 Pes., 23.

- A. *Cattleya exoniensis* Jen. Orch., 1.
F. M., 269.
War. Orch., 2, 36.

A garden hybrid between *Cattleya Mossiae* and *Lalia purpurata*, in which the beauties of both parents are preserved. Sepals and petals delicate lilac; lip deep rich purple, with bright orange throat; the whole flower beautifully crisped.

- B. *Cattleya Forbesii*. Brazil . . . B. R., 953.
SYNS. *Cattleya isopetala*. B. M., 3265.
C. vestalis. Lodd. Cab., 1152.

Perianth greenish yellow; lip white, with rays of carmine. This is the least beautiful of the genus, but nevertheless, on account of the number of its flowers, which are freely produced on a strong plant, is worthy of cultivation.

- A. *Cattleya Fausta* F. M., 2, 189.

This is another of the beautiful hybrids for which the establishment of Messrs. Veitch is so famous. It is exactly intermediate between its parents, *Cattleya Loddigesii* and *C. exoniensis*.

Flowers rich lilac; lip white, with large yellow disk, tipped with crimson. Blooms about the end of November.

- A. *Cattleya Gigas*. New Granada . . Jen. Orch., 18.
I. H., 3, 178.
Fl. Mag., 2, 144.

A magnificent species of recent introduction. Flowers of immense size, rosy pink; lip very large and broad,

with large white spots, and marked on the side with yellow and white.

Cattleya Grahmi. An old name of *Lælia majalis*.

A. *Cattleya granulosa*. Guatemala . B. M., 5048.
B. R., 1842.
Fl. des Ser., 199.

Perianth greenish brown, marked with brownish yellow; lip orange yellow at base, white at tip, richly marked with yellow and crimson.

Blooms in August and September. This species needs but little heat.

There are many varieties of this species which differ only in the markings of the perianth, and in brilliancy of the color of the lip.

Cattleya grandis. See *Lælia grandis*.

B. *Cattleya guatemalensis* F. M., 61.

A species much resembling in habit *C. Skinneri*, with large clusters of small flowers; sepals and petals rosy purple and buff; lip reddish purple and orange. Not very showy, but valuable for its peculiar colors.

A. *Cattleya guttata*. Brazil Lodd. Cab., 1715.
B. R., 1406.

Flowers greenish yellow, spotted with crimson; lip purple and white. Blooms in October and November. A free blooming and desirable species.

A. *Cattleya guttata Russelliana*. Organ Mountains.
B. M., 3693.
B. R., 1849, 59.

The flowers of this variety are larger than the species,

but less spotted ; the lip is short and tipped with deep violet red.

- A. *Cattleya guttata Leopoldii*. Bahia . . . I. H., 69.
Pes., 43.

Perianth greenish bronze, spotted with purple ; lip rich velvety purple, very fragrant ; spike often carrying seven to nine flowers.

- A. *Cattleya Harrisonia*. Rio Janeiro. Pax. Mag., 4, 247.
B. M., 1919.

Flowers lilac rose, with slight tinge of yellow on the lip, which is marked with violet purple at the base. 'Very floriferous, blooming from July to October.

- A. *Cattleya Harrisonia alba*. Rio Janeiro.
Flower white, with lilac lip.

- A. *Cattleya Harrisonia violacea*. Rio Janeiro.

A taller growing variety, with sepals and petals violet purple ; lip same color, with yellow centre. This plant makes two growths in the year, flowering on both from July to October.

- A. *Cattleya hybrida*.

A garden hybrid between *Cattleya granulosa* and *C. Harrisonia*.

Flowers rose, with darker spottings. A pretty variety.

- A. *Cattleya intermedia*. Brazil . . Maund, Bot., 4, 195.
B. R., 1919.
Pax. Mag., 1, 151.
Sert. Bot., 7.

A very neat growing species. Flowers, sepals lilac or rose-colored ; lip rich purple.

It is a free-growing plant, often producing seven or eight flowers on a spike. Blooms in spring.

There are many varieties of this species. We mention *alba*, with nearly white flowers; *pallida* (Pax. Fl. G., 48), perianth violet and white; lip with rays of crimson, bordered with white; *variegata*, perianth lilac-purple; lip white, with yellow centre and red markings; *superba*, perianth delicate rose; lip broad, rich purple. This variety makes two growths a year, but only flowers on that made in spring; *violacea*, perianth delicate rose; lip with rich purple spot in centre.

Cattleya amethystina is by some considered a form of this species, and the name is also applied to a white form of *Cattleya Loddigesii*, and *Lalia Perrinii* is sometimes called *Cattleya intermedia angustifolia*.

Cattleya irrorata. See *Lalia irrorata*.

Cattleya Karwinskii, an old name of *Cattleya citrina*.

A. *Cattleya labiata*. Brazil . Lodd. Cab., 1956.

Hook. Ex., 157.

B. R., 1859.

B. M., 3998.

Pax. Mag., 4, 121; 7, 73.

Pax. Fl. G., 24.

Jen. Orch., 45.

Fl. des Ser., 1895.

One of the finest species. Flowers rose-colored, with rich crimson lip; of a delicious fragrance. The flowers, which are produced from July to November, are often five inches across, and three or four on a spike.

The variations of color in the lip of this species are al-

most infinite — every shade of crimson, purple, and violet, with darker or lighter lines; the whole flower lustrous and sometimes with a crystalline appearance. The flower lasts long in perfection.

A. *Cattleya labiata atropurpurea*. La Guayra.

Perianth paler than the species, but lip of deep purple color. Nearly allied to *Cattleya Mossiæ*.

A. *Cattleya labiata pallida*. Brazil.

Sepals and petals light pink; lip crimson. A fine variety blooming in August.

A. *Cattleya labiata Pescatorei*.

Sepals and petals light rose-colored; lip rich crimson. A very distinct variety.

Cattleya labiata picta Fl. des Ser., 660.

Sepals and petals pure white; lip rich crimson, beautifully fringed.

Cattleya Lawrenceana. SYN. of *Lælia crispilabia*.

A. *Cattleya Lemoniana*. Caracas . . . B. R., 32, 35.

A pretty species allied to *Cattleya Mossiæ*. Flowers pale pink with centre of lip yellow. A summer bloomer.

Cattleya Leopoldii. SYN. of *Cattleya guttata*.

Cattleya Lindleyana. SYN. of *Lælia Lindleyana*.

B. M., 5449.

B. *Cattleya lobata*. Brazil.

SYNS. *Lælia lobata*.

Lælia Boothiana.

Cattleya Boothiana.

Flowers deep, uniform rose color ; a shy flowering plant.

Cattleya lobata superba.

Has larger spikes of bloom and flowers more freely.

A. *Cattleya Loddigesii*. Brazil . Hook. Ex., 186.

SYN. *Epidendrum Loddigesii*. C. B., 37.

Lodd. Cab., 337.

B. M., 2851, as

Cattleya intermedia.

Perianth delicate lilac ; lip same color, but a deeper shade, delicately marked with purple and yellow. Blooms in August and September, producing many flowers on a spike. When well grown this is a very showy plant.

Cattleya Lowii. See *Cattleya speciosissima*.

Cattleya Luddemaniana. See *Cattleya speciosissima*.

B. *Cattleya luteola*. Brazil . . . Reich. Xen., 83.

SYNS. *Cattleya epidendroides*. B. M., 5032.

C. Holfordii.

C. flavida.

C. Meyeri.

C. modesta.

Epidendrum Cattleya.

Flowers yellow, of a lighter shade than *Cattleya citrina*, produced three or four together.

A. *Cattleya McMorlandii*. Brazil.

The plant resembles *Cattleya Mossiae*. Flower six inches in diameter ; sepals and petals light rose ; lip yellow and fringed. Blooms in June and July.

- A. *Cattleya marginata*. Rio Janeiro. Pax. Mag., 10, 265.
I. H., 193.

A beautiful dwarf species. Sepals and petals rosy crimson; lip deep rose, bordered with white; very fragrant. Should be grown on a block or in a basket. Blooms in September.

This plant is by some considered a *Lalia*, and by others as identical with *Cattleya pumila*. It seems to us to be a very distinct species, differing in habit, in size in its two-leaved pseudo-bulb, and in flower. There are many varieties, all charming.

- A. *Cattleya maxima*. Guayaquil and Colombia.
Syn. *Cattleya Quindos*. Bat. 2d Cen., 131.
B. R., 32, 1.
I. H., 3, 29.
B. M., 4902.
Fl. des Ser., 2136.

A tall-growing species with long channeled pseudo-bulbs. Flowers in mid-winter, opening pale pink, but deepening daily in color; lip variegated with deep crimson net-work, yellow at base. There are varieties called *alba* and *violacea*, which only differ in shades of color.

- A. *Cattleya Mendeli*. New Granada . . . F. M., 2, 32.

A very rare species. Flowers large; sepals and petals lavender blue; lip deep brownish crimson and yellow. Probably allied to *Cattleya Trianae*.

- A. *Cattleya Mossiae*. La Guayra . . . B. R., 1840, 58.
B. M., 3669.

Flower lilac-rose ; lip richly marked with yellow and purple. This is a magnificent species, the flowers often being five to eight inches across, and produced three or four on a spike. Blooms from March to August.

This species is nearly allied to *Cattleya labiata*, the chief distinction being in the markings of the lip, the lip of *labiata* being comparatively plain.

In a collection scarce two plants will bear flowers alike, and there is great opportunity for selection, yet the poorest are splendid flowers.

In our own collection we could name almost as many varieties as there are plants, but it seems useless to multiply names, and for the same reason we refrain from describing the many varieties which appear in European catalogues. All are worth growing, and the number to grow must only be limited by the space which can be given them. By a little care they may be in bloom from May to August, and as the flowers last in perfection six weeks a splendid show may be maintained. They do well removed to the parlor when in bloom, and fill the whole house with their exquisite fragrance.

Cattleya Perrinii. B. R., 24, 2.

See *Lælia Perrinii*.

Cattleya Pinelli. SYN. of *Cattleya pumila*.

A. *Cattleya pumila*. Rio Janeiro . . B. R., 30, 5.

SYN. *Lælia pumila*.

B. M., 3656.

War. Orch., 2, 32,
as *Lælia*.

Perianth rosy lilac ; lip lilac-rose, with rich purple-violet spot.

A dwarf species, resembling *Cattleya marginata*; the flowers are very large in proportion to the size of the plant. Grow on a block. A very free bloomer, and a charmingly beautiful plant.

Cattleya pumila major. SYN. of *Lalia præstans*

A. *Cattleya quadricolor*. New Granada. B. M., 5504
Bat. 2d Cen., 108.
I. H., 514.

A beautiful plant with long, narrow pseudo-bulbs, producing its flowers on the young growth, in early summer; sepals and petals rosy white; lip curled, crimson, edged with white, and yellow centre.

Cattleya Quindos. See *Cattleya maxima*.

A. *Cattleya quinquecolor* F. M., 511.

A hybrid between *Cattleya Forbesii* and *Acklandia*. Sepals and petals light olive-green, spotted with brown and chocolate; lip white, with large yellow blotch, veined with rose.

Cattleya Regnellii. SYN. of *Cattleya Schilleriana*.

Cattleya Ruckerii. See *Cattleya Trianae*.

Cattleya Russelliana. See *Cattleya guttata*.

A. *Cattleya Schilleriana*. Brazil . . . B. M., 5150.
Jen. Orch., 25.

A species with the growth of *Cattleya Acklandia*, and the flowers of *Cattleya guttata*, and a handsomer plant than either. Foliage marbled with black; flowers deep rosy mahogany color; lip with darker stripes and shadings.

edged with pink. Blooms in summer from the young growth.

A. *Cattleya Schilleriana Regnellii*. Brazil.

War. Orch., 2, 22.

A very fine variety with olive-green flowers, spotted with purple; lip amethyst shaded with purple and bordered with white; base yellow. Blooms twice a year, in June and September. Should be grown on a block and kept warm and shaded.

Cattleya Schomburgkii. SYN. of *Cattleya superba*.

A. *Cattleya Sedeniana*.

A garden hybrid between *Cattleya crispa* and *Cattleya granulosa*. A plant of tall habit, with large, handsome flowers. Sepals and petals light-rose, shaded with green; lip white margin, purple centre, with dark veins.

A. *Cattleya Skinnerii*. Guatemala. B. M., 4270.

Pax. Mag., 11, 193.

Bat., 13.

B. M., 4916.

Flowers violet-rose with crimson lip; white centre; very large. A fine and easily grown variety, blooming in March, April, and May. If well grown there are often twelve flowers on the spike. One of the best of the *Cattleyas* for general culture.

A. *Cattleya speciosissima*. Caracas.

SYNS. *Cattleya Bassettii*.

C. *Luddemania*.

Evidently a form of *Cattleya labiata*. Flowers large, rosy white; lip amethyst.

A. Cattleya speciosissima Lowii. Venezuela.

A very fine variety with large lip with white markings and lines of yellow.

A. Cattleya superba. Eng. Guiana . Pax. Mag., 9, 265.

SYN. *Cattleya Schomburgkii.* Sert. O., 22.

B. M., 4083.

War. Orch., 24.

Fl. des Ser., 926.

Flowers deep rose, with rich crimson lip. A beautiful but slow-growing species, blooming in June and July.

This species requires more heat than the other *Cattleyas*. It should never suffer for want of water.

A. Cattleya superba splendens. Rio Negro . I. H., 605.

A magnificent variety, with larger flowers. Sepals and petals bright rose ; lip, base white, violet rose, with golden lines.

A. Cattleya Trianae. New Granada.

A beautiful winter-blooming *Cattleya*, of which there are a vast number of varieties, all good. The type has white sepals and petals, which do not expand fully ; lip white, with yellow throat more or less suffused with blush ; flower delightfully fragrant ; blooms from December to February, the flowers lasting four weeks, if kept from damp. Fine varieties are figured in the Floral Magazine, 2d series, pl. 66 and 176.

A. Cattleya Trianae Daisy.

A very fine variety, superior to any we have seen. The plant was sent us by Messrs. Low, in the large mass as just imported, it not having flowered in England.

The growth resembles the strongest varieties of *Cattleya Mossiae*, but the foliage is broader, more massive, and of a darker green.

The flowers measure more than five inches in diameter, are produced three on a spike, and are of great substance; petals rosy white, beautifully crimped, sepals white, with lavender tinge, both expanding fully; lip very large, throat bright orange shading through rose to white and tipped with amethyst, and crimped; flowers very fragrant.

The only plant is in the Glen Ridge collection.

A. Cattleya velutina. Brazil.

A rare species, resembling *Cattleya bicolor* in growth, with pale orange fragrant flowers; lip velvety, orange streaked with violet.

Cattleya Wagneri Reich. Xen., 13.

A very rare species, with large flowers resembling *Cattleya Mossiae*. Sepals and petals white; lip white with rich yellow centre.

Cattleya Walkeriana. See *Cattleya bulbosa*.

Cattleya Warneri. Brazil F. M., 516.

War. Orch., 8.

A species resembling *Cattleya labiata* in growth. Scapes three to five flowered; blossoms six inches across; sepals and petals mauve, clouded with rose, and fringed; lip orange yellow, at base rosy crimson.

Cattleya Warszewiczii Reich. Xen., 3, 1.

War. Orch., 4.

This plant, and its varieties *delicata* and *superba*, seem to be only varieties of *Cattleya Trianae*, which, as we have before remarked, sports into innumerable forms.

The flowers vary greatly in color, much in form, and the plants somewhat in habit. They are all winter blooming, and it is only a question of preference whether to regard *Cattleya Warscewiczii* as a variety of *Cattleya Trianae*, or *vice versa*.

Be this as it may, we cannot have too many of these charming plants, and the variety the several specimens exhibit will prove a constant source of pleasure.

This genus of Orchids are general favorites ; they combine elegance of form and color and agreeable fragrance with easy culture and profusion of flowers. Most of the species should be grown in pots, with good drainage, in peat and moss. The plants should always be elevated above the rim of the pot. *Cattleya marginata*, *bulbosa citrina*, *Regnelli*, and *pumila* should be grown on blocks with moss, or in baskets. All the species, except *Cattleya citrina* and *granulosa*, should be grown in the East Indian house, with a good supply of heat, but not too much water while they are growing. Water at the roots once or twice a week will be sufficient for those in the most vigorous growth, and water should never rest on the foliage. Too much water causes the bulbs to rot. As long as the soil is moist, no water is required ; when it becomes dry, water the soil, not the bulbs.

As soon as the plants have made their growth, they should have a long season of rest, during which they should be kept cool, rather dry, with just water enough to prevent them from shriveling. *Cattleyas* generally make

their growth after flowering, but *Cattleya bulbosa* and *C. superba* flower while making their growth. The plants preserve their flowers in perfection for many weeks, if kept in a cool, dry house. Propagated by division. The foliage of *Cattleyas* should be frequently sponged, to remove any dust, and care should be taken to remove scale, to which the plants are subject. *The plants should never be syringed.*

Ceratochilus.

An old name of *Stanhopea*.

Cheirostylis.

A genus to which *Anætochilus Lowii* and *Lobbii* are sometimes referred.

Chrysobaphus.

Chrysobaphus Roxburghii is *Anætochilus setaceus*.

Chysis. Lindley. Epiphyte.

Name from *χῆσις*, a stream, or anything melted.

A. *Chysis aurea*. Venezuela B. R., 1937.
B. M., 3617.

Flower white, lined with yellow, marked with crimson.
Blooms at different seasons, and often twice a year.

C. *Chysis aurea maculata*. Colombia. B. M., 4576.
Fl. des Ser., 671.
Lem. Jard., 121.

Petals and sepals golden yellow, with a large orange-red spot; lip white, with violet rays. A very beautiful and well marked variety.

A. Chysis bractescens. Oaxaca . . . B. M., 5186.

Fl. des Ser., 675.

B. R., 1841, 23.

Bat. 2d Cen., 138.

Flowers large, white, with large blotch of yellow on the lip; very fragrant. Blooms in April and May. A beautiful and free-flowering species, of easy culture.

A. Chysis laevis. Oaxaca . . . I. H., 365.

Bat., 31.

War. Orch., 2, 14.

Flowers cream-color, with yellow on the lip; produced from base of young growths, on long pendulous spikes. The finest of the genus, and a very rare plant.

A. Chysis Limminghei. Tobasco . . I. H., 240.

B. M., 5265.

War. Orch., 34.

Petals white, heavily tipped with pink; lip beautifully marked with carmine and yellow, flower large. This may be considered a variety of *Chysis aurea*.

The flowers appear with the young growth in spring, and, while not as large and showy as in other species, are charmingly pretty.

Chysis undulata.

A rare species; flowers orange yellow, with cream-colored lip lined with pink.

These plants are deciduous, losing their leaves during the resting season. The flowers are produced with the young growth. They should have a liberal supply of heat

and moisture during the growing season, but very little of either when at rest.

They may be grown in pots, with peat, moss, and potsherds, and with good drainage, or in baskets, in same material, or on blocks with moss. Propagated by division, just as the plants begin to grow. The swollen pseudo-bulbs are curious.

Cirrheæ. Lindley. Epiphyte.

Name from *cirrus*, a ringlet or tendril.

B. *Cirrheæ atropurpurea*. Rio Janeiro.

Flower purple, with richer purple lip.

C. *Cirrheæ Loddigesii*. Brazil B. R., 1538.

Flower greenish yellow; sepals marked with red; lip sharp and long, green, marked with red.

C. *Cirrheæ picta*. Rio Janeiro.

Flower clear yellow, marked with brown; lip greenish, marked with red.

The flowers of these plants resemble insects. They are of easy culture, very floriferous, and should be in every collection. Treat like *Acropera*. The following are species:—

Cirrheæ fusco lutea. B. M., 3726. *C. rubro purpurea*.

C. saccata.

C. bractescens.

SYN. *C. fusco lutea*.

C. immaculata.

C. tristis. B. R., 1889.

C. lævis.

C. viridis-purpurea. Lodd.

C. obtusata. B. R., 2005.

Cab., 1967.

C. pallida.

C. Warreana. Lodd. Cab., 1999.

C. Russelliana.

Cirrhopetalum. Lindley. Epiphyte.

Name from *κίρρος*, tawny, and *πέταλον*, a petal.

- C. *Cirrhopetalum auratum*. Singapore. B. R., 1843, 61.
M. O. P., 4.

The flowers are fan-shaped, yellow ground, marked with crimson; the upper sepal and the petals are drawn out into golden hairs; the lateral sepals are slightly marked with purple.

- C. *Cirrhopetalum chinense*. Manilla . . M. O. P., 2.
B. R., 29. 49.

The upper sepal and the petals are purple, the lateral sepals greenish yellow. The flowers are the largest of the species. One of the lobes resembles a chin, and has a tongue which is in perpetual motion.

- B. *Cirrhopetalum Cumingii*. Philippines . B. M., 4996.

A pretty species; flowers in regular circles; sepals large, rich red.

- B. *Cirrhopetalum Medusæ*. Singapore. M. O. P., 1.
B. R., 1842, 12.
B. M., 4077.
Bat. 2d Cen., 148.

The sepals and petals are prolonged into long hairs, which give the flower the appearance of a head with the hair hanging down. The interior of the flower is marked with violet.

This is a very curious plant. How the slender hair-like sepals untwist themselves from the bud is a mystery. It is easily grown, and kept in the hottest part of the

house, and never allowed to dry up, our plants bloom freely every January.

Cirrhopetalum Pahudii. Java.

SYN. *Bolbophyllum Pahudii.*

Flowers in an umbel, large, reddish brown, with bright red dots.

C. Cirrhopetalum Thouarsii. Manilla.

SYNS. *Bolbophyllum longiflorum.*

B. R., 24, 11.

Cymbidium umbellatum.

B. M., 4237.

Epidendrum umbellatum.

M. O. P., 3.

Zygopetalum umbellatum.

The sepals are long; the petals yellow, deeply marked with red, serrate, and bordered with hairs.

The following are other species:—

Cirrhopetalum auratum.

C. Macraei. B. M., 4422.

B. R., 29, 61.

C. nutans. B. M., 4418.

C. cœspitosum.

C. picturatum.

C. candelabre.

C. umbellatum.

C. cornutum. B. M., 4753.

C. vaginatum.

C. fimbriatum. B. M., 4391.

C. Wallichii.

These plants should be grown on blocks, or in pots, with a little moss, in the East Indian house. They need much heat and moisture in the growing season. All the species are very curious, and as they are small-growing and occupy but little room, a few should find place in every collection. All are rather scarce plants.

Cleisostoma. Blume. Epiphyte.

Name from κλειστός, closed, and στόμα, a mouth.

This genus is chiefly only interesting to the botanist, though some of the species are pretty plants and of easy culture. *Cleisostoma Dawsonianus* resembles a *Renanthera*. The flowers are yellow and brown, on branching spikes.

Cleisostoma crassifolium (Pax. Fl. G., 99 ; Lem. Jard., 397), and *Cleisostoma ionosmum* (B. R., 33, 41), are other species.

All are natives of India, and are of easy culture, requiring the same treatment as *Aerides*.

Cœlia. Lindley. Epiphyte.

Name from κοίλος, hollow.

Cœlia asperata. See *Cœlogyne Lowii*.

B. Cœlia macrostachia. Mexico . . B. M., 4712.
B. R., 1842, 36.
Lem. Jard., 423.
Fl. des Ser., 900.

Flowers small ; sepals lively rose outside ; petals white, forming long points.

The plants should be grown in pots, well drained, in peat, moss, and potsherds. They need but little heat during the resting season, but a hot, moist atmosphere in growth.

Cœlogyne. Lindley. Epiphyte.

Name from κοίλος, hollow, and γυνή, a woman, or stigma.

Cœlogyne asperata. See *Cœlogyne Lowii*.

B. *Cælogyne barbata*. Bengal.

Flower white; lip white, striped with yellow and delicately tinted with violet at the base.

A. *Cælogyne cristata*. Nepaul . . . Pes., 25.

SYN. *Cymbidium strictum*.

B. R., 1841, 57.

War. Orch., 35.

Jen. Orch., 7.

Fl. des Ser., 1807.

Flowers large, entirely white, with a blotch of yellow on the lip; produced on a drooping spike, six or eight together, from the bottom of the bulb, from January to March.

This is a magnificent species, which any one having a greenhouse can grow. Of late years it has been grown in great perfection, and it is as easy to have plants a foot or more in diameter, producing hundreds of flowers, as it is to grow verbenas. Give plenty of water when growing, free circulation of warm air, and not too much heat; pot in peaty loam.

There are varieties which differ only in intensity of yellow on the lip.

This plant is one of the most beautiful of Orchids.

B. *Cælogyne Cumingii*. Singapore. Fl. des Ser., 8, 764.

B. M., 4645.

B. R., 1840, 29.

M. O. P., 3.

Lem. Jard., 337.

Sepals and petals white; lip bright yellow, divided by three white ridges tipped with deep orange.

- B. Cælogyne elata.* Sylhet . . . B. M., 5001.
B. R., 1839, m. 151.

Flowers white, shaded with yellow.

- C. Cælogyne fimbriata.* China . . Lodd. Cab., 1425.
SYN. *Broughtonia linearis.* B. R., 868.

Flowers greenish yellow ; lip flesh-color, with two small orange-yellow crests.

- C. Cælogyne fuliginosa.* East Indies . . Lem. Jard., 7.
B. M., 4440.

Flowers transparent, creamy white ; lip richly marked with deep brown, and ribbed.

- B. Cælogyne Gardneriana.* East Indies. Pax. Mag., 6, 73.
G. and S., 41.

Flowers white, delicately tinted with yellow, produced in winter, on a drooping spike. A very pretty species.

- B. Cælogyne Goweri.* Assam.

A pretty and rare species ; flowers in pendulous racemes, white, with yellow blotch on the lip.

Cælogyne humilis. See *Pleione*.

- B. Cælogyne interrupta.* East Indies.

Flowers entirely white.

Cælogyne Lagenaria. See *Pleione*.

- A. Cælogyne Lowii.* Borneo . . . Pes., 7.

Pax. Mag., 16, 225.

A large-growing species, blooming in summer ; flowers ten or more, in long drooping racemes, very large, pale yellow and chocolate. A very handsome plant.

Cælogyne maculata. See *Pleione*.

A. *Cælogyne media*. Khasya.

A pretty, dwarf, winter-blooming species, with creamy white flowers ; lip yellow and brown.

A. *Cælogyne odoratissima* Wight, Ic., 1640.
B. M., 5462.

A dwarf species, producing pretty, white, fragrant flowers in winter.

B. *Cælogyne ochracea*. East Indies . M. O. P., 2.
B. R., 1846, 69.
B. M., 4661.
Lem. Jard., 342.
Bat. 2d Cen., 145.

Perianth brilliant yellow ; lip whitish, with two deep purple rays.

A. *Cælogyne pandurata*. Borneo . . Reich. Xen., 121.
B. M., 5084.
Fl. des Ser., 2139.
Bat. 2d Cen., 160.

Flowers vivid green, marked with black. A very showy plant, and very remarkable in color. Should be grown in the hottest house.

Cælogyne Parishii. Moulmein B. M., 5323.

A species much resembling the last, but smaller in all its parts ; a very pretty plant, with curious pseudo-bulbs ; flowers green and black.

Cælogyne præcox. See *Pleione*.

Cælogyne Reichenbachiana. See *Pleione*.

Cælogyne Schilleriana. See *Pleione*.

A. *Cælogyne speciosa.* Java M. O. P., 5.

SYN. *Chilonanthera speciosa.* B. R., 1847, 23.

Angræcum nervosum. B. M., 4889.

Perianth yellowish white; lip grayish brown outside, yellow inside. A very pretty, free blooming, and desirable species.

Cælogyne Wallichiana. See *Pleione*.

The following are desirable species: —

Cælogyne ciliata.

C. corrugata. Wight, Ic., 5, 1639; B. M., 5601; Bat. 2d Cen., 188.

C. flaccida. B. R., 1841, 31; B. M., 3318.

C. fuscescens. B. M., 5494; Bat. 2d Cen., 104.

C. lentiginosa. B. M., 5958.

C. longicaulis.

C. nitida.

SYN. *C. ocellata.* B. M., 3707.

C. ovalis. B. R.

C. prolifera.

C. punctulata.

C. rigida.

C. testacea. B. M., 4785.

C. undulata.

These plants are evergreen (the deciduous species being now known as *Pleione*). The flowers appear with the young growth.

They should be grown in well drained pots, with peat and moss, in the East Indian house, with abundance of

water during the growing season, but when at rest should be placed in a cooler house with but little water.

Though but few species are generally grown, almost all of the genus are desirable. The flowers last long in perfection, if kept from damp, and the plants are so easily grown they should be in every collection. Of *Cælogyne cristata*, *speciosa*, *Gardneriana*, and *Lowii* one can scarce have too many. All species are propagated easily by division.

Colax. *Lindley.* Epiphyte.

Name from κολαξ, a parasite.

- A. *Colax jugosus*. Brazil . . . Reich. *Xen.*, 41.
 B. M., 5661.
 I. H., 3, 96.

A rare plant, with dark green foliage, and spikes of two or more cream-colored and white flowers, with rich purple stripes.

These plants should be potted in peat and moss, and be grown in moderate heat.

Formerly many plants now known as *Lycaste* were called *Colax*, and as such are figured in early botanical works. See *Lycaste aromatica*, *Harrisonii*.

Comparettia. *Poeppig and Endlicher.* Epiphyte.

Dedicated to Professor Comparetti.

- B. *Comparettia coccinea*. Rio Janeiro. Maund, *Bot.*, 4, 186.
 B. R., 24, 68.
 M. O. P., 1.
 I. H., 472.

This delicate little plant has reddish leaves, the flowers

are produced in winter in little bunches on a long stalk, color reddish scarlet.

B. *Comparettia falcata*. Mexico. B. M., 4980.

P. and E., 1, 44, tab. 73.

Flowers rosy purple, the lip lightly veined with darker tints of the same color.

B. *Comparettia rosea*. Mexico . . . Fl. des Ser., 2, 45.

Pax., 1843, 1.

A species somewhat resembling the last. Flowers small; perianth rose, the upper part white, edged with carmine; lip deep rose.

These plants should be grown on a piece of cork, with a little moss. The pseudo-bulbs of all the species are small. Water should be carefully given, and during the resting season the plants should be kept almost dry, but never allowed to dry up. The flowers last long in beauty. They should be grown in the shade.

Coryanthes. *Hooker.* Epiphyte.

Name from *κόρυς*, a helmet, and *ἄνθος*, a flower.

B. *Coryanthes eximia*. Bahia Portf., 1847.

Sepals and petals greenish yellow, tipped with brownish purple; lip forming a basin, purple outside, and purple marked with yellow and rich purple.

B. *Coryanthes Albertinea*. Venezuela. Fl. des Ser., 755.

Sert. Bot., 7, as

Gongora.

M. O. P., 1.

Flowers large, perianth yellow, marked with purple; basin lively purple outside, yellowish green, regularly marked with purple inside.

- A. *Coryanthes macrantha*. Caracas . M. O. P., 29.
 Pax. Mag., 5, 31.
 Pes., 30.
 B. R., 1841.

Flowers as large as the last; perianth yellow, spotted with brown; lip ochre-yellow, inside of the basin marked with pale crimson. Blooms in May, June, July, and is the best of the genus.

- B. *Coryanthes maculata*. Demerara . B. R., 1793.
 Maund, Bot., 228.
 B. M., 3102, 3747.

Perianth greenish yellow, spotted with brown; basin of the lip marked with dull crimson inside. Blooms in summer.

- B. *Coryanthes Parkerii*. Demerara . . . B. M., 3747.

This species differs little from the last, except in the color of the spots, which are brownish purple.

- B. *Coryanthes Fieldingii*. Lindley . Fl. des Ser., 364-5.

Flower brownish yellow, lightly spotted with cinnamon yellow.

The flowers of this plant are very large, and differ from the other species in having a shaggy fringe which surrounds the casque which conceals the column.

- B. *Coryanthes speciosa*. Demerara Bat., 36.

SYN. *Gongora speciosa*. Hooker.

Flowers pale yellow, in April or May.

The flowers of this genus are among the most curious of Orchids. The flowers have two glands, from which proceed two fleshy horns, which continually distil a honeyed liquid, which falls into a basin formed by the lip. The flowers fade when this dropping stops, and seldom continue in perfection more than four days. The plants are evergreen, producing the flowers on a spike from the bottom of the bulb. They should be grown in baskets in peat and moss, with plenty of water and heat during the growing season. Keep rather dry during rest. Propagate by division.

These plants are sometimes referred to *Gongora*.

Cynoches. *Lindley.* Epiphyte.

Name from κύκνος, a swan, and ἀξήν, a neck.

- A. *Cynoches aureum*. Central America. Pax. Fl. G., 75.
Lem. Jard., 264.

A handsome species, with long racemes of light yellow flowers.

- B. *Cynoches barbatum*. New Granada . . B. M., 4479.

A dwarf species; sepals and petals and lip greenish white, spotted with pink. Blooms in June and July.

- B. *Cynoches chlorochilum*. La Guayra . . Sert. O., 16.

Flowers greenish yellow; lip pale yellow, with a large spot of emerald-green at the base of the column.

- B. *Cynoches Egertonianum* . . . Bat., 40.

B. R., 32, 46, var.

Flowers purple, inside green, outside purplish, and marked with rich violet.

- A. Cynoches Loddigesii.* Surinam . . . Lodd. Cab., 2000.
 Fl. Cab., 15.
 B. R., 1742.
 B. M., 4215.
 B. M., 3855.

Perianth brownish green, marked with yellowish brown ; lip white, marked with red ; very fragrant.

The flowers are four inches across, and resemble the expanded wings of a swan. Blooms in July and August, continuing long in perfection.

- A. Cynoches leuchochilum.* Guiana . . . B. M., 3853.

Perianth greenish yellow, marked with brown ; lip white, marked with greenish yellow. Flowers very large and fragrant.

- C. Cynoches maculatum* Maund, Bot., 4, 156.
 I. H., 3, 143.
 Sert. O., 33.

A small species, with long flower-spikes, bearing a profusion of pale brown flowers, marked with yellowish brown.

- B. Cynoches pentadactylon.* Brazil . . . B. R., 29, 22.
 Flowers very large, yellow and brown.

- B. Cynoches ventricosum.* Guatemala. Maund, Bot., 2, 54.
 B. M., 4054.
 Bat., 5.

Flowers pale, whitish yellow ; lip yellow, edged with white. Flowers fragrant, in June, July, and August.

These plants are all deciduous, losing their leaves as

soon as they have completed their growth; the flowers are produced nearly from the top of the bulb. They should be grown in the East Indian house in rough, fibrous peat, with good drainage, and a good supply of water. When at rest they should receive but little water, should be kept in the cooler house, near the glass, in full light. Care must be taken not to allow water to collect on the flower shoots or buds, as they easily damp off. Propagated by dividing the bulbs just as they begin to grow.

Though not popular with Orchid growers they are well worthy of culture, being showy, curious, lasting long in bloom, and in some species fragrant.

Cymbidium. *Schwartz.* Epiphyte and Terrestrial.

Name from κύμβος, a cup or boat.

B. *Cymbidium aloefolium.* East Indies. Terrestrial.

SYN. *Aerides Borasii.* G. and S., 165.

Epidendrum aloefolium. Lodd. Cab., 967.

Sepals and petals pale purple, marked down the centre with a dark line. The flower stalk is drooping, many flowered. A well known Orchid.

C. *Cymbidium bicolor.* Ceylon. Epiphyte.

Flowers like the last, but marked with yellowish brown. They also differ in the form of the sac, which is at the base of the lip.

Cymbidium caniculatum. Australia . . . B. M., 5851.

A pretty species with drooping racemes of deep purple flowers, with white and pink lip.

A. *Cymbidium Dayanum*. Assam.

A distinct species resembling *Cymbidium eburneum*, but with pendulous flower-spike. Flowers yellowish white and purple. Requires the hottest house.

B. *Cymbidium Devonianum*. Epiphyte. Pax. Mag., 10, 97.

Perianth creamy white, with purple rays ; lip rich crimson purple. Should be grown in a basket with rotten wood and leaf mould.

A. *Cymbidium eburneum*. India. Terrestrial.

B. R., 33, 67.

Pax. Mag., 15, 145.

B. M., 5126.

Jen. Orch., 16.

War. Orch., 21.

Bat. 2d. Cen., 177.

Sepals and petals pure white ; lip of same color, with yellow blotch in centre, or in the variety with rosy spots. Blooms in February and March. This is a very rare Orchid ; a good plant always commands an extravagant price. Handsome as it is we hardly think it worth the money it costs, as there are so many more beautiful Orchids.

B. *Cymbidium ensifolium*. China. Terrestrial.

B. R., 1976.

B. M., 1751.

Perianth yellowish green, marked with brown ; lip marked with purple.

Cymbidium giganteum. Nepaul. Epiphyte.

Sert. O., 4.

Pax. Mag., 12, 241.

B. M., 4844.

A large-growing species producing, during the winter, brown and purple flowers on long spikes. A showy plant, worth growing where there is room.

Cymbidium Hookerianum. Himalaya Mountains.

Bat. 2d Cen., 187.

B. M., 5574.

A species resembling the last described in growth, bearing large, green, straw-color, yellow, and purple flowers, on long upright spikes. This plant requires very little heat.

Cymbidium Huttoni. Java B. M., 5676.

A rare Orchid. Flowers in long racemes, brown, spotted with chocolate ; lip green, with chocolate stripes.

A. *Cymbidium Mastersii*. India. Epiphyte.

B. R., 31, 50.

Pax. Fl. G., 78.

Lem. Jard., 289.

Flowers white with yellow centre in winter. This is a very beautiful free-blooming species, in growth much like *Cymbidium eburneum*; the flowers are of long duration and have a delicious almond-like fragrance.

B. *Cymbidium pendulum*. Sylhet. Epiphyte.

B. R., 26, 25 ; 30, 24.

A large-growing plant, producing spikes, one or two feet long, of brown flowers, with a red lip striped with white ; in July and August.

A. *Cymbidium atropurpureum*. Java . . . B. M., 5710.

Flowers on spikes nearly three feet long ; sepals and petals dark purple, margined at the tip with green ; lip

recurved, pale purple ; centre white, tinted with rose and spotted with purple.

B. *Cymbidium pubescens*. Singapore. Epiphyte.

B. R., 1841, 38.

A species somewhat resembling *Cymbidium bicolor*. The flowers are small, of a rich purple, edged with brilliant yellow.

Cymbidium sinense. China Lodd. Cab., 37.

Sert. Bot., 7,

as *Epidendrum*.

A plant long in cultivation but now seldom seen. The flowers are dull colored and possess little beauty, but are delightfully fragrant, and for this alone it should always be grown.

A. *Cymbidium tigrinum*. Moulmein . . B. M., 5457.

A dwarf grower with roundish pseudo-bulbs. Flowers three or more on short spikes, greenish yellow, spotted with red ; lip large, white, barred with purple.

B. *Cymbidium triste*. Japan. Terrestrial. B. M., 3648.

Flowers yellowish purple ; lip large, of rich, deep purple.

There are more than fifty species of this genus. The following are good species : —

Cymbidium chloranthum. B. M., 4907.

C. dependens. Lodd. Cab., 936.

SYN. *Cirrhaea dependens*.

C. Finlaysonianum.

C. Gibsonii.

C. iridifolium. B. R., 1839.

C. lancifolium. Hook. Ex. 51; Lodd. Cab., 927.

C. marginatum. B. R., 1530.

C. ochroleuchum. B. R., 4141.

C. virescens.

C. xiphifolium. B. R., 529.

Though these plants are in many instances epiphytal, they succeed much better in cultivation if treated as terrestrial Orchids, and grown in pots, in a rich compost of lumpy peat, through which the large roots can readily penetrate. They require, when in growth, an abundance of water, a moist heat, and sun; but when at rest should be kept in a dryer atmosphere, but the soil must never dry up. They are generally of large habit, with stately foliage. The flowers are showy but generally not high-colored. In a large collection a good assortment should be grown, but for a small one *Cymbidium Mastersii* is the best, *Cymbidium eburneum* being still a very rare plant. When well grown the plants rapidly attain a large size and flower freely every year. All are propagated by division.

Cypripedium. *Linnaeus.* Terrestrial.

Name from *Κύπρις*, Venus, and *πόδιον*, a little foot.

- B. *Cypripedium acaule* (or *humile* of English catalogues). North America . . . Lodd. Cab., 130.
 M. O. P., 7.
 B. M., 192.

Perianth pale, dull brown; lip large, bright pink, veined with darker lines, or rarely pure white. This is our most common species, native of dry woods; it is hardy, but of somewhat difficult domestication.

A. *Cypripedium Argus*. Philippines . . B. M., 6175.

A very handsome species, allied to *Cypripedium barbatum*; foliage with rich tessellated markings; sepal broad, white, with many veinings of dark green and purple; petals greenish white, rose-colored at tip, studded with dark purple spots; lip dull purple and white; flower very large. A rare plant.

A. *Cypripedium barbatum*. Mt. Ophir. B. R., 28, 17.

B. M., 4234.

M. O. P., 8.

Fl. des Ser., 1453.

Fl. des Ser., 190.

Sepals greenish white, violet-purple below; upper sepal white, rayed with purple; lip slipper-shaped, violet-purple; foliage beautifully spotted.

This species is easily distinguished by the purple, heavy, and shining warts which border the upper margin of the petals. It is a very handsome species, free-flowing and of easy culture.

A. *Cypripedium barbatum nigrum*.

A showy variety producing very large flowers; lip dark purple.

A. *Cypripedium barbatum superbum*.

A variety with brighter-colored flowers and more white in the sepal.

There are many other varieties, all good, among which we may mention *giganteum*, *Crossii*, *majus*, *multiflorum*, and *pictum*, which only differ in size of plant and color of flower.

A. *Cypripedium biflorum*. Mt. Ophir.

This is one of the *barbatum* group, and is by some considered only a variety of that species. The flowers are produced two on a stem, are very bright in color, and last long in perfection. We have a plant that for two years has never been out of bloom.

B. *Cypripedium Bullenianum*. Borneo.

A small-growing species with very bright spotted foliage, which indeed is its chief merit, for the flowers are dull-colored.

Cypripedium Chantinii.

A seedling from *C. insigne*. Free growing; flower resembling its parent, but with more white and brighter. A rare plant.

A. *Cypripedium caricinum*. Peru. . B. M., 5466.

Fl. des Ser., 1648.

This plant, which is also called *Cypripedium Pearcei*, is very distinct from all others; the root-stocks are creeping, the foliage long and grassy. The flowers are green, purple, and white, in two to five-flowered spikes, and though small are very pretty.

This species is very easily grown in a cool house, and is very desirable.

A. *Cypripedium caudatum*. Lima. Fl. des Ser., 566.

War. Orch., 2, 1.

Pax. Fl. G., 9.

Pes., 24, as *Selenipedium*.

Foliage light green; flowers pale yellow and green, produced several together on a spike; the petals are prolonged into two tails, which hang from each flower, about twenty inches long. Blooms in March, April, and May.

This is one of the most extraordinary of Orchids. When the flowers expand, the petals are only about an inch long, but in a few days they extend to two feet in length, so that they trail on the ground, unless the plant is placed on a stand. The sepals and petals are yellowish brown; the lip reddish brown.

Care must be taken not to over-water this plant, as it makes but few roots; it does not require much heat. It blooms from the last year's growth in early spring.

Called also *Selenipedium caudatum*.

Cypripedium caudatum roseum.

A variety with brighter flowers, and more desirable.

Cypripedium concolor. Moulmein . B. M., 5513.

I. H., 429.

Bat. 2d Cen., 153.

A dwarf species, found growing on limestone rocks, and of somewhat difficult culture; foliage green and white on upper surface, reddish purple below; flowers in pairs, light yellow, speckled with crimson, on short hairy stems. Grow in the warmest house, with plenty of moisture, and add bits of chalk to the soil.

Cypripedium cruciforme. SYN. of *C. Lowii*.

A. *Cypripedium Dayanum*. Borneo. Fl. des Ser., 1527.

A very beautiful, strong-growing species of the *barbatum* growth, with elegant mottled foliage.

Flowers large ; sepals white and green ; lip purplish green.

Flowers in spring, and lasts long in perfection.

A. *Cypripedium Dominicanum*. Hybrid . . F. M., 499.

A cross between *Cypripedium caricinum* and *C. caudatum*. Spike three-flowered ; petals yellowish green, very long ; lip purple, green, and yellow.

The flower has the colors of *C. caudatum*, the shape of *C. caricinum*, and seems intermediate between the two.

A. *Cypripedium Fairrieianum*. Assam. Fl. des Ser., 1244.

Reich. Xen., 133.

B. M., 5024.

Bat. 2d Cen., 140.

A beautifully marked species. Flowers pale yellow, lined with purple and green ; hood large, white, veined with green and purple. Blooms in autumn.

B. *Cypripedium guttatum*. Europe and North America.

Fl. des Ser., 573.

Flowers small, violet carmine, spotted with white ; a cold frame species.

Cypripedium grandiflorum. SYN. of *C. superbiens*.

A. *Cypripedium Harrisianum*. Hybrid . . F. M., 431.

A fine cross between *Cypripedium villosum* and *C. barbatum*, combining all the good qualities of both species.

Flowers large, shining, dark purple, brown, green, and yellow ; foliage long, mottled. This is a very free-growing plant, and will make a superb specimen. It blooms freely in November. We consider it one of the best of the family.

- A. *Cypripedium hirsutissimum*. Java. Fl. des Ser., 1430.
 Bat. 2d Cen., 149.
 B. M., 4990.
 War. Orch., 15.

Flowers large, very hairy; lip light green, with brownish shadings; hood greenish, with dark purple; petals violet, with black dots.

A very desirable species. Blooms in spring, sometimes producing two-flowered spikes.

- B. *Cypripedium Hookerae*. Borneo. B. M., 5362.
 Fl. des Ser., 1565.
 Bat. 2d Cen., 123.

Perianth purplish, marked with green, and spotted with black; lip greenish and yellowish purple; hood cream-color and green; foliage variegated and very beautiful.

- A. *Cypripedium insigne*. Sylhet. . . Hook. Ex., 34.
 Fl. des Ser., 1564.
 B. M., 3412.
 Lodd. Cab., 1321.

Perianth pale green; sepals large, white, marked with brownish purple; lip brownish yellow; flowers solitary, nearly three inches in diameter; foliage long, light green.

This old species is one of the most useful of plants for house decoration or for cut flowers. It is of free growth, and soon forms a large plant. The flowers last six weeks in beauty. We have specimens bearing forty to sixty flowers.

Cypripedium insigne Mauii F. M., 57.

A variety with the dorsal sepal at least half white, making the flower much brighter.

There is also a variety bearing two flowers on the scape.

A. *Cypripedium Irapeanum*. Mexico. B. R., 32, 58.

Fl. des Ser., 3, 186.

M. O. P., 4.

Petals and sepals almost the same size, of a brilliant yellow, hairy ; lip of the same color, spotted with scarlet.

C. *Cypripedium Javanicum*. Java . Fl. des Ser., 703.

Flowers green ; tips of the petals rosy and marked with purple ; lip green, marked at the base with purple.

A. *Cypripedium lævigatum*. Philippines.

Fl. des Ser., 1760.

F. M., 298.

B. M., 5508.

Bat. 2d Cen., 101.

Leaves glossy ; petals chocolate, purple, and green, narrow, twisted, five inches long ; lip yellow, small ; dorsal sepal striped with purple ; scape two to four-flowered. This species requires strong stove heat. It is a very stately plant.

B. *Cypripedium longifolium*. Costa Rica . B. M., 5970.

SYN. *Cypripedium Reichenbachianum*.

This is not a showy species, but is desirable as never being out of flower. The flowers are greenish white and brown, many on a spike ; foliage long, dark green.

- A. *Cypripedium Lowii*. Borneo . . . Fl. des Ser., 375.
Gard. Mag., 297

Sepals pale yellow, marked with green at the tips, and violet at the base; petals several inches long, pale yellow, regularly spotted with violet or wholly violet; lip rich violet-shining purple, edged with greenish yellow. Flowers on a spike of two to five. A very fine species, blooming in summer. In its native habitat this species grows on the tops of high trees.

- A. *Cypripedium niveum*. Siam Jen. Orch., 28.
F. M., 543.
I. H., 3, 83.
B. M., 5922.

A very dwarf plant; foliage dark green, with minute white spots, purplish-red below; flowers porcelain white, spotted with violet-purple.

- A. *Cypripedium pardinum*. East Indies . . F. M., 2, 51.

A rare species; foliage mottled with green, purple below; flowers medium size, yellowish green and black, hairy on the edge; lip greenish yellow.

- A. *Cypripedium Parishii*. Moulmein . . B. M., 5791.

A species of stately growth, with broad coriaceous, dull green foliage; flowers greenish white and purple, not showy, but very enduring. A strong plant of this species will seldom be out of bloom.

Cypripedium Pearceii. See *Cypripedium caricinum*.

- B. *Cypripedium purpuratum*. Java . . B. M., 4901
B. R., 1991.
Fl. des Ser., 1158.

Foliage beautifully spotted. The flowers resemble *Cypripedium barbatum*, except the upper petal is whiter. It is a dwarf-growing, pretty species.

Cypripedium Reichenbachianum. See *Cypripedium longifolium*.

A. *Cypripedium Roeslii*. South America . I. H., 3, 138.
F. M., 2, 119.

This rare species is one of the best of the genus ; foliage long, arching, bright green ; scape many-flowered, the blossoms being produced in succession, but only one at a time. Flowers greenish-brown and purple, medium size, not very showy. This plant is a perpetual bloomer.

Cypripedium Schlimii. New Granada. Pes., 34.
Fl. des Ser., 1917.
I. H., 3, 183.
B. M., 5614.
Bat. 2d Cen., 200.

A beautiful little plant, bearing branching spikes of delicate flowers. Sepals and petals white, inner surface marked with rosy purple ; lip white and crimson.

There are several varieties of this pretty plant. It is not an easy plant to import or to grow, and we have never seen it in good condition. It requires moderate heat and plenty of water.

Cypripedium Sedeni. Hybrid Jen. Orch., 4.

A cross between *Cypripedium longifolium* and *Cypripedium Schlimii*. Flowers white and pink ; very beautiful. As yet a very rare plant.

A. Cypripedium spectabile. North America.

M. O. P., 3.

Lodd. Cab., 697.

B. R., 1666.

Fl. des Ser., 430.

Perianth rosy white ; lip beautiful deep rose, with white markings. This is our finest native species, and when well grown is very beautiful. We grow it out of doors in a Rhododendron bed where it has formed a tuft which produces stalks nearly three feet high, with three or four flowers on a spike. If grown in a pot it should be wintered in a cold frame, and brought into gradual heat in spring.

A. Cypripedium Stonci. Borneo . . . I. H., 355.

B. M., 5349.

Jen. Orch., 12.

Fl. des Ser., 1792.

Bat. 2d Cen., 141.

Petals light brown, spotted with chocolate ; very long ; lip whitish, with red lines, marbled with light purple ; hood white ; scape two or three-flowered. A magnificent species.

A. Cypripedium superbiens. Assam . . . War. Orch., 2, 12.SYN. *Cypripedium Veitchianum.* I. H., 429.

Fl. des Ser., 1966.

A free-growing species with beautifully variegated foliage ; lip beautifully shaded with purple ; sepals and petals white, with stripes of green and spots of purple. A very beautiful plant.

A. *Cypripedium vexillarium*. Hybrid.

A cross between *Cypripedium barbatum* and *C. Farria-num*. Sepals white, mottled with purple, greenish at base ; petals purple ; lip light brown, streaked with green. A rare and beautiful plant.

A. *Cypripedium venustum*. Nepaul. Sert. Bot., 7.

Hook. Ex., 35.

B. M., 2129.

B. R., 788.

War. Orch., 2, 24.

An old inhabitant of our greenhouses, but none the less to be valued. Foliage rich, shaded green, purple underneath ; flower greenish white ; lip yellowish green ; petals fringed ; very free-flowering, of easy culture, and soon makes a large specimen. Blooms all winter. There are varieties which differ slightly in color.

A. *Cypripedium villosum*. Moulmein. Fl. des Ser., 1475.

Pes., 48.

War. Orch., 2, 30.

I. H., 126.

One of the best of the genus. Foliage long, light green ; flowers very large, glossy amber-brown, with purple lines ; lasting six weeks in beauty. Blooms from January to May. This makes a beautiful specimen.

All the *Cypripediums* are worth growing, and a selection is indispensable in every collection of Orchids.

The following are species : —

Cypripedium arietinum. B. M., 1569 ; Lodd. Cab., 1240 ; M.

O. P., 6.

- C. calceolus*. Schwartz. Lodd. Cab., 363; M. B., 247; Fl. des Ser., 1563.
C. candidum. Willd. Fl. des Ser., 962.
C. japonicum. Thunberg. F. M., 2, 171.
C. macranthum. Schwartz. B. R., 1534; B. M., 2938; L. H., 147.
C. monteanum. Douglas.
C. parviflorum. B. M., 911; Lodd. Cab., 414; B. M., 3024; M. O. P., 1.
C. passerinum. Richardson.
C. pubescens. Lodd. Cab., 895; M. O. P., 2; I. H., 64.
C. ventricosum. Schwartz. M. O. P., 5; Sweet, Fl. G., 2, 1.

The species *Cypripedium acaule*, *arietinum*, *calceolus*, *pubescens*, *parviflorum*, *spectabile* may be grown in peat, earth, and sand, in the open air, in a shady place. All the others are greenhouse or stove plants. The soil should be peat with a little silver sand, loam, and leaf mould; water well during growth; they need but little rest, and the evergreen species should never be wholly dry. Propagate by division.

Cyrtochilum. Kunth. Epiphyte.

Name from *κυρτός*, arched, and *χέλος*, lip.

- B. *Cyrtochilum bickoniense* Bat., 6.
 See *Odontoglossum*.

- A. *Cyrtochilum cornutum*. Mexico.

Perianth yellowish green, marked with dark purple; lip sulphur-yellow, with red edges at each side of its base.

- Cyrtochilum leucochilum*. Guatemala. Fl. des Ser., 522.

Perianth greenish yellow, marked with brown and pur-

ple; lip white. This plant is often confounded with *Oncidium leucochilum*, which it nearly resembles.

B. *Cyrtochilum maculatum*. Mexico. Sert. O., 25.

B. R., 24, 44.

B. M., 3880, 3836.

F1, Cab., 57.

Flowers large ; perianth greenish yellow, marked with purple ; lip white, with rich red spots.

A. Cyrtochilum Russellianum. Guatemala. B. M., 388o.

A beautiful variety of *Cyrtocilum maculatum*. Flowers richly marked with purple.

B. *Cyrtochilum stellatum*. Rio Janeiro . . Sert. O., 7.

Perianth creamy white; lip of the same color, striped and spotted with rich purple.

There is a variety from Bahia with pure white perianth, and of a delicious fragrance.

Cyrtochilum flavescens B. R., 19, 1627.

Seems to be a variety of *stellatum*, of a pale yellow color. The two last species have been classed by Dr. Lindley with *Miltonia*.

These plants should be grown in pots, in coarse peat, sphagnum, and potsherds, with good drainage.

Cyrtopera. *Lindley*. Terrestrial.

Name from *κυρτός*, arched, and *πήρα*, a sack.

A. Cyrtopera flava. India.

A pretty plant, resembling a *Bletia* in growth. Flower rich yellow, with paler lip.

B. Cyrtopera sanguinea. Sikkim . . . B. M., 6161.

Flowers red, purple, and brown, with rosy lip. A showy plant.

These plants should be grown in pots, in the East Indian house, with plenty of water when in growth. They require the general treatment of *Bletias*.

Cyrtopodium. Brown. Epiphyte.

From *κυρτός*, arched, and *πούς*, a foot.

B. Cyrtopodium Andersonii. St. Vincent. Lodd. Cab., 121.

SYN. *Cymbidium Andersonii.* B. M., 1800.

B. R., 27, 8.

The flower stalks grow three feet high, branched, and are covered with fragrant yellow flowers; perianth greenish yellow; lip golden yellow.

B. Cyrtopodium cupreum. Brazil.

Flowers copper-color, with yellow bracts, marked with red.

B. Cyrtopodium punctatum. Rio Janeiro. Sert. O., 12.

SYNS. *Epidendrum punctatum.* B. M., 3507.

Cyrtopodium speciosum.

Sepals yellowish green, closely marked with red and purple; petals yellow; lip edged with rich purple; bracts large, of the same color and marking as the sepals.

B. Cyrtopodium Willmorei. Venezuela. . Fl. Cab., 4.

Flower stalk like *Cyrtopodium Andersonii*, with many flowers nearly two inches long; perianth greenish yellow, marked with brown; lip yellow, bordered with red.

- B. *Cyrtopodium Woodfordii*. Trinidad . B. M., 1814.
B. R., 1508.

Flowers green ; lip purple. This species is not easy to bloom, and should be kept shaded.

These plants should be grown in pots in a compost of rich peat, moss, charcoal, and potsherds, with good drainage. Just before they begin their growth they should be potted and placed in the cooler end of the hot-house, and gently watered ; the supply of water and heat should be increased as the foliage grows. The plants should be entirely dry during the season of rest. The flower spikes come up with the young growth in spring.

D.

Dendrocoryne.

SYN. of *Dendrobium densiflorum*.

Dendrobium. Schwartz. Epiphyte.

Name from δένδρον, a tree, and βίος, life.

- C. *Dendrobium aduncum*. East Indies . B. R., 32, 15.

Flowers, produced in little racemes from the nodes of the stems, transparent white ; column with rays of reddish purple. Grow in a pot in peat.

There is a variety, *Dendrobium aduncum roseum*, with brighter flowers.

- B. *Dendrobium aggregatum*. East Indies.

SYN. *Dendrobium Lindleyi*. B. M., 3643.

B. R., 1695.

Pax. Mag., 6, 145.

Flowers pale yellow, in short spikes, in March and April. Grow in a pot, or on a block, with peat. The variety *Dendrobium aggregatum majus* is a larger plant, with larger flowers, and is more generally grown.

Dendrobium Ainsworthii. Garden hybrid. F. M., 2, 196.

A cross between *Dendrobium heterocarpum* and *D. nobile*, and a very beautiful plant. Pseudo-bulbs stouter than *D. nobile*. Flowers produced in pairs, as in that variety, very large; sepals and petals white; lip white, with large violet-purple blotch.

A. *Dendrobium albosanguineum*. India. Pax. Fl. G., 57.
 Fl. des Ser., 721.
 Bat. 2d Cen., 173.
 Lem. Jard., 203.
 B. M., 5130.

Flowers very large, creamy white, with a rich crimson blotch on the centre of the lip, produced from the top nodes of the pseudo-bulbs. Blooms in May. Grow in a pot with moss, or in a basket, with plenty of light and heat. This is a magnificent and very distinct species. Our plants are grown in baskets, suspended near the apex of the roof, and thrive wonderfully, and are yearly a mass of bloom.

B. *Dendrobium amœnum*. Nepaul. Wallich.
 SYN. *Dendrobium aphyllum* (Rox- B. M., 6199.
 burg). Fl. Cab., 117.

Flowers white, with a small violet spot at the top of the segments; lip yellow-green at the base inside.

B. *Dendrobium amboinense*. Amboyna. B. M., 4937.

Fl. des Ser., 1211.

Bat. 2d Cen., 179.

Flowers produced from the naked stem; petals very long, white; lip egg-yellow, with reddish centre.

Dendrobium amethystiglossa. Philippines. B. M., 5968.

A remarkable tall-growing species, producing from the old stems dense pendulous racemes of ivory-white flowers, with amethyst-purple lip. Rare and handsome.

A. *Dendrobium anosmum*. Philippine Islands.

Pax. Mag., 15, 97.

Flowers delicate lilac; lip deep purplish crimson, edged with pure white. This species should be grown in a hanging basket, or on a block of wood, with moss, and requires plenty of heat and moisture in the growing season.

It resembles *Dendrobium superbum* in growth, but is smaller, more floriferous, and the blossoms have no rhubarb scent.

Sometimes called *Dendrobium anosmum Dayanum*, in which (by some called a species), and also in *D. macrophyllum Dayanum*, we can see no difference.

Dendrobium Aphrodite. SYN. of *Dendrobium nodatum*.

Dendrobium aureum. SYN. of *Dendrobium heterocarpum*.

Dendrobium barbatulum. Bombay.

Flowers in long pendulous racemes, pure white, with green spur. Grow on a block.

The plant generally grown under this name is *Dendrobium Fytcheanum*, a native of Moulmein, and a handsome plant. In the true *barbatulum* the sepals are not circular, the racemes are long and pendulous, and the base of the stems is swollen. The figure in B. M., 5918, is the true species, that of B. M., 5444, and Bat. 2d Cen., 102, is *D. Fytcheanum*.

A. *Dendrobium Bensoniæ*. Moulmein . B. M., 5679.

F. M., 355.

Jen. Orch., 32.

A lovely species with white flowers ; lip with orange disk, and two black spots at the base. A free-growing and very handsome plant. Grow in pot.

Dendrobium bicolor. SYN. of *Dendrobium Palpebræ*.

A. *Dendrobium bigibbum*. Tropical northeast coast of Australia Fl. des Ser., 1143.

War. Orch., 28.

B. M., 4898.

Bat. 2d Cen., 169.

A rare and beautiful species, with long slender stems, producing the flowers in erect racemes of five or more from the ends of the old stems. Blossoms rich rosy purple, in autumn. Grow in the sun, with plenty of warmth and moisture, and never allow the stems to shrivel.

Dendrobium Boxalli. Martaban . . F. M., 2, 114.

Jen. Orch., 19.

Habit semi-pendulous ; flowers in clusters of three from the swollen joints of the old stems ; sepals and petals white, tipped with purplish violet ; lip with fine orange disk. A rare plant.

B. *Dendrobium Bullerianum*. Moulmein . B. M., 5652.

A pretty plant, with white flowers, tinged with rose ; lip with a large yellow spot. It may be described as having flowers of *Dendrobium Devonianum* (but not so bright), with habit of *D. crepidatum*.

A. *Dendrobium Calceolaria*, or *calceolus*, but not of Roxburg. India (in many localities).

Pax. Mag., 2, 241, as *moschatum*.

Hook. Ex., 184.

B. M., 3837.

An old inhabitant of our Orchid houses ; stems three to five feet high, clothed with evergreen leaves ; flowers in racemes of five to twelve, from near top of old stems, which continue to bloom for years. Sepals and petals bright yellow ; lip a little darker ; delightfully fragrant. Blooms in June, but only lasts three days. Pot-culture in moss and peat.

There are several varieties, some more deeply marked than others.

A. *Dendrobium Cambridgianum*. Northern India.

Pax. Mag., 6, 265.

B. M., 4450.

A deciduous species ; flowers produced on the young growth in March and April. Sepals and petals bright orange ; lip with deep velvety crimson blotch, hairy.

Grow in a basket, with moss. When out of bloom, as ugly a plant as one can find ; when in bloom it would be difficult to find a handsomer.

B. *Dendrobium capillipes*. Moulmein.

A very dwarf-growing species, producing bright golden yellow flowers. Should be grown on a block.

Dendrobium chlorops. SYN. of *Dendrobium barbatulum.*

A. *Dendrobium chrysanthum.* Nepaul . . B. R., 1299.

Perianth yellow; lip of the same color, with two brownish red spots, the edges delicately fringed. Blooms at different seasons, along the stem at the same time it is making its growth. A very beautiful plant, which is seldom out of bloom during the summer. Should be grown in a basket, to display the pendulous shoots to best advantage.

Dendrobium chrysotis. SYN. of *Dendrobium Hookerianum.*

Dendrobium chrysocrepis. Moulmein . . B. M., 6007.

A singular plant, with bulging pseudo-bulbs, producing single yellow flowers, with rich orange lip, from nodes of old bulbs.

A. *Dendrobium chrysotoxum.* Moulmein.

Bat. 2d Cen., 124.

B. M., 5053.

B. R., 33, 36.

I. H., 164.

Flowers pale yellow, produced on a spike from the top of the bulb during the winter.

Grow in a pot, with peat, or on a block, in full sunlight. It is a handsome, free-growing plant, and soon makes a specimen. We find it thrives better on a block than any other *Dendrobium*.

Dendrobium chrysotoxum superbum.

Is a larger growing and better variety.

Dendrobium clavatum. India.

Flowers from the summit of the long pseudo-bulbs in spikes of five ; bright yellow, with a double rich crimson blotch, very large. A free grower, blooming in May. Pot culture.

B. *Dendrobium cœrulescens*. East Indies. Sert. O., tab. 18.

Perianth yellowish white, bordering on rose ; points of the segments violet ; lip has a dark purple-violet spot on a yellowish ground, edged with a light lilac border.

This species should not be confounded with *Dendrobium nobile*.

A. *Dendrobium crassinode*. Burmah . . B. M., 5766.

A remarkable species, with very handsome flowers ; stems ten to twenty inches long, having large swollen joints or internodes. Flowers from the upper nodes, very large, in clusters, pure waxy white, tipped with purple ; lip with rich yellow centre.

A. *Dendrobium crepidatum*. India . B. M., 4933, 5011,
variety.

B. M., 4933.

Bat. 2d Cen., 129.

Somewhat allied to *Dendrobium cretaceum*, but with larger and more highly colored flowers. Perianth white, tinged with pink ; lip orange-yellow, tipped with pink. With us it succeeds best grown in a basket suspended in the apex of the roof, with plenty of light and heat.

C. *Dendrobium cretaceum*. Khasia . Fl. des Ser., 818.

B. R., 1847, 62.

B. M., 4686.

Lem. Jard., 344.

Flowers white ; lip marked with crimson, in June and July. Grow in a pot or basket, with peat or moss.

B. Dendrobium crumenatum. Ceylon . B. M., 4013.

SYNS. *Angraecum crumenatum* B. R., 1839, 22.
(Rumphius).

Onychium crumenatum (Blume).

Flowers white, tipped with rose ; lip yellow, fragrant.

A. Dendrobium crystallinum. Burmah.

A pretty plant, with fragrant flowers, stems thick and strong ; flowers white, tipped with purple, with orange lip. Blooms in summer.

Dendrobium cumulatum. Moulmein . . . B. M., 5703.

Stems one to two feet long. Flowers in close clusters, from nodes of old stems, rosy pink, with white lip. A rare plant.

Dendrobium cucullatum. See *D. Pierardii.* Sert. Bot., 7.

B. M., 2242.

B. R., 748.

A. Dendrobium Dalhousianum. East Indies.

Pax. Mag., 11, 145.

B. R., 1846, 10.

Fl. des Ser., 698.

War. Orch., 22.

Flowers lemon-color, edged and veined with rose ; lip marked with purple and with two spots of dark rich violet-purple, fringed. A beautiful and desirable species. Blooms from the old growth very freely in April and May. Grow in pot, with moss.

Dendrobium Dayanum. See *Dendrobium anosmum.*

A. *Dendrobium densiflorum.* East Indies.

B. M., 3418, 5780.

Pax. Mag., 5, 121.

I. H., 101.

B. R., 182, 8.

Flowers rich yellow, produced from the side of the bulb near the top, in dense bunches. Blooms in March, April, and May. Grow in pot, with peat. A very fine species.

Dendrobium densiflorum album. East Indies. F. M., 102.

A magnificent variety; flowers pink and white, with yellow lip. Called also *Dendrobium Schroderi*.

A. *Dendrobium Devonianum.* Khasya Hills.

I. H., 145.

Pax. Mag., 7, 169.

B. M., 4429.

Fl. des Ser., 647.

War. Orch., 2, 11.

Lcm. Jard., 11.

This species blooms along the stem, which is often several feet long. The flowers measure two inches across; the ground color is white, the sepals tipped with violet-rose; petals larger than the sepals, pink, with vivid violet spot at their base; lip white, with two bright yellow spots at the base, and a rich violet spot at the tip, beautifully fringed. Blooms in May and June. Grow in a basket, in moss. Should have plenty of water, and be freely syringed, as it is very liable to be attacked by red spider.

A. *Dendrobium dixanthum*. Moulmein. B. M., 5564.

Bat. 2d Cen., 197.

A very pretty species, of upright, slender growth, producing freely all summer its showy yellow flowers. Grow in pot or basket.

B. *Dendrobium eburneum*. Moulmein. B. M., 5459.

Bat. 2d Cen., 166.

A pretty, free-blooming species, with ivory-white, fragrant flowers. Pot culture.

A. *Dendrobium Falconerii*. Bootan. Bat. 2d Cen., 137.

B. M., 4944 ; var.,

5058.

Fl. des Ser., 1197.

Flowers very large, stem slender ; sepals pale purple, tipped with violet ; petals white, with deep violet tip ; lip also violet-tipped, and centre of deepest violet, surrounded by a deep orange band shading to straw-color. Should have plenty of water. We grow this plant in a basket suspended over a lily-tank, and syringe it twice a day.

B. *Dendrobium Farmerii*. East Indies.

Fl. des Ser., 741. Bat. 2d Cen., 132.

B. M., 4659. Pax. Mag., 15, 241.

B. M., 5451, var. Jen. Orch., 24.

Pes., 4. Lem. Jard., 307.

Flowers rosy white ; lip yellow, with greenish-white edge. This species grows and flowers like *Dendrobium densiflorum*, and requires the same treatment.

The varieties *Dendrobium Farmerii album*, *aureo-flavum*, and *roseum* only differ in intensity of color.

- B. *Dendrobium fimbriatum*. Nepaul. Pax. Mag., 2, 172.
 Pax. Fl. G., 84.
 I. H., 151.
 Hook. Ex., 71.

Flowers deep golden yellow, fringed. Blooms in the spring. Flowers are produced from the old bulbs for years. Grow in a pot, with moss. The flowers last only a few days.

- A. *Dendrobium fimbriatum oculatum*. Nepaul.
 B. M., 4160.
 War. Orch., 2, 19.

Flowers like the last, but larger, with deep purple crescent in centre of the lip. Sometimes mistaken and sold for *Dendrobium Paxtoni*, a very different plant.

- A. *Dendrobium formosum*. East Indies.
 Fl. des Ser., 226.
 B. R., 1839, 64.
 Pax. Mag., 6, 49.

Flowers large, white, the lip marked by a bright orange-yellow band; produced from top of the stem; very fragrant, lasting six weeks in perfection. Grow in moss or peat, in a pot.

- A. *Dendrobium formosum giganteum*. Moulmein.
 Fl. des Ser., 1633.

If anything can be handsomer than the species, it is this variety, which differs only in being of larger growth and having flowers five inches in diameter.

D. Dendrobium Fytcheanum. Moulmein.

B. M., 5444.

Bat. 2d Cen., 102,

both as *barbatulum*.

A slender-growing species, producing delicate clusters of flowers, which are dazzling white, with faint tinge of crimson at base of lip. Should be grown on a block, with moss. See *Dendrobium barbatulum*.

A. Dendrobium Gibsonii. Khasya . Pax. Mag., 5, 169.

A species flowering on the ends of the old bulbs. Sepals and petals rich orange; lip bright yellow, with two dark spots on the upper part. Blooms during the autumn. Treat as *Dendrobium formosum*. Distinguished from *Dendrobium fimbriatum* by the petals not being toothletted.

A. Dendrobium Griffithianum. Burmese Empire.

A species resembling *Dendrobium densiflorum*, "but double the size in all its parts," bearing immense drooping spikes of richest golden yellow. A rare plant.

B. Dendrobium heterocarpum. Ceylon. B. M., 4708.

B. R., 1844, 62.

Fl. des Ser., 842.

Bat. 2d Cen., 150.

B. M., 4970, *var.*

Perianth pale yellow; lip golden yellow, marked with orange-red; very fragrant. This species is also known as *Dendrobium aureum* in one of its varieties.

A. *Dendrobium Heyneanum*. Bombay. Wight, Ic., 909.

A pretty species, with spikes of white flowers from the top of the stems at different seasons. Block culture.

A. *Dendrobium hedyosmum*. Moulmein.

B. M., 5515.

Bat. 2d Cen., 155.

A plant allied to *Dendrobium formosum*. Flowers greenish white, changing to pure white; lip marked with orange; deliciously fragrant. A rare plant.

B. *Dendrobium Hillii*. Australia . B. M., 5261.

Bat. 2d Cen., 195.

A stout-growing species, allied to and sometimes considered a variety of *Dendrobium speciosum*, producing from the tops of the stems long clustered spikes of creamy white flowers. Grow in a pot, and do not keep it very warm.

A. *Dendrobium Hookerianum*. Assam . . B. M., 6013.

I. H., 155.

A slender-growing species, with tall stems; flowers large, deep yellow, on slender spikes, with dark spots on the disk. A beautiful plant, commonly called *Dendrobium chrysotis*.

A. *Dendrobium infundibulum*. Moulmein.

B. M., 5446.

I. H., 3, 172.

Bat. 2d Cen., 122.

Flowers four inches across, pure white, with deep orange in the centre of the lip. A lovely plant, allied

to *Dendrobium formosum*, and almost its equal. Known also as *D. moulmeinense*.

Dendrobium Jamesianum. Moulmein.

A rare species with pure white flowers resembling *Dendrobium formosum*, but smaller; lip cinnabar red. Blooms in spring and summer. Pot culture.

Dendrobium japonicum. See *Dendrobium moniliforme*.

A. *Dendrobium Jenkinsii*. India . . B. R., 25, 37.

War. Orch., 2, 28.

A fine dwarf evergreen species about two inches high. Flowers very large for the size of the plant; pale buff, edged with yellow. Blooms in mid-winter. Grow on a bare block of wood suspended from the roof.

C. *Dendrobium Johannis*. Australia . . B. M., 5540.

A species with twisted petals, brown and yellow, streaked with orange and fragrant. May be grown in a cool house.

C. *Dendrobium Kingianum*. East Indies.

Pax. Mag., 12, 97.

B. R., 1845, 61.

B. M., 4527.

Lem. Jard., 143.

Flowers small; perianth pale purple; lip beautifully marked with blood red.

B. *Dendrobium lasioglossum*. Burmah . . B. M., 5825.

Stems pendulous; flowers produced with the foliage on the young growth, white with purple markings.

A. *Dendrobium Linawianum*. India. B. M., 4153.

SYNS. *Epidendrum moniliforme* Maund, Bot., 4194.

(Linn). B. R., 1314.

Limodorum moniliforme. Pax. Mag., 3, 77.

Flowers rosy-red and white, produced at the side of the two year old bulb, during the winter. Grow in a basket or in a pot, with peat and moss. Commonly known as *Dendrobium moniliforme*, which is the proper name of *Dendrobium japonicum*.

A. *Dendrobium lituiflorum*. India . B. M., 6050.

War. Orch., 2, 3.

A pendulous species, with flowers resembling *Dendrobium nobile*, but larger and deeper colored; lip white, purple edged. A showy and rare species.

A. *Dendrobium Lowii*. Borneo . . Bat. 2d Cen., 189.

B. M., 5303.

Flowers two inches across, in dense racemes, yellow, with six red lines on the lip, with long crimson fringes. Allied to *Dendrobium formosum*. A very beautiful and rare plant.

A. *Dendrobium luteolum*. Moulmein. Bat. 2d Cen., 185.

B. M., 5441.

Flowers pale primrose, with a few reddish streaks on the lip, measuring two inches across.

A. *Dendrobium McCarthiae*. Ceylon. B. M., 4886.

Bat. 2d Cen., 158.

A very beautiful plant, producing bright, cherry-red flowers, which last long in perfection; lip white and

purple. It is a free grower and produces abundance of flowers.

- A. Dendrobium macranthum*. Manilla. Fl. des Ser., 757.
 B. M., 3970.
 Sert. O., 35.
 Pes., 40.
 Pax. Mag., 8, 97,
 as *macrophyllum*.

A pendent species of large growth. Flowers produced two or three together from nodes of stems, after the leaves have fallen; rosy, pinkish purple, very large, with a strong scent of sweet rhubarb. Blooms in spring and lasts long in perfection. Should be grown in a basket. We have seen this plant with hundreds of flowers, and no finer sight could be wished.

Dendrobium macranthum giganteum. . . War. Orch., 26.

Flowers five or six inches in diameter, rosy, with purple eye. A large-growing variety. This plant is commonly found under the name of *Dendrobium macrophyllum*, which is a very different plant, and a native of Java. It is also called *Dendrobium superbum*. The variety *Dayanum* is *Dendrobium anosmum*.

Dendrobium macranthum Huttoni.

A magnificent and very rare variety, with pure white sepals and petals, and deep purple lip.

Dendrobium macrophyllum. Java . . . B. M., 5649.

A distinct species with clavate stems bearing three or four leaves. Racemes of flowers erect; sepals yellow shaded with green; petals white; lip yellowish green,

streaked with purple. Also known as *Dendrobium Veitchianum*. The plant usually grown as *Dendrobium macrophyllum*, is *Dendrobium macranthum*.

Dendrobium moniliforme. Japan . . . B. M., 5482.

SYN. *Dendrobium japonicum*.

A species growing about a foot high, with pure white, fragrant flowers, with purple spots on the lip. A cool house plant. The plant usually grown under this name is *Dendrobium Linawianum*.

A. *Dendrobium moschatum*. Pegu . M. B., 241.

SYN. *Epidendrum moschatum*. B. M., 3837.

Maund, Bot., 1, 37.

Flowers orange-yellow, marked with creamy white; lip yellow, with rich crimson rays or chocolate. Grow as *Dendrobium Calceolaria*, with which it is often confounded.

A. *Dendrobium nobile*. China . . . Pax. Mag., 7. 7.

Sert. O., tab. 3.

B. M., 5003, var.

Sepals and petals rosy white, with purple tips; lip white or yellowish, with large crimson spot in the centre; margined with lilac. Blooms in winter and spring. Grow in pot or basket, in moss or peat, or on a block. This is one of the most useful plants for winter decoration and for cutting. It is of easy culture and makes fine specimens. There are many varieties, which differ in mode of growth, size, and color of flower. The best are *Dendrobium pendulum*, *majus*, and *intermedium*.

- B. *Dendrobium nodatum*. Moulmein. Fl. des Ser., 1582.
B. M., 5470.

Flowers primrose, with orange lip marked with purple. A very pretty but not a free-blooming species, though very easy to grow.

- B. *Dendrobium Palpebræ*. Moulmein.

A species somewhat resembling *Dendrobium densiflorum* in habit. Flowers white, with deep yellow stain at base of the velvety lip, which is fringed at the base with long hairs.

- A. *Dendrobium Parishii*. Moulmein. B. M., 5488.
Bat. 2d Cen., 126.
Jen. Orch., 39.

A dwarf plant with thick drooping stems. Flowers two together, dark purple and rose. Blooms in summer. A handsome, free-growing plant. We find basket culture suits it best.

- B. *Dendrobium Paxtonii*. Khasya . Pax. Mag., 6, 169.

Flowers orange-yellow; lip with dark spot at the base, and fringed. Blooms at different seasons on a spike from near the top of the old bulb. Treat as *Dendrobium nobile*. Differs from *D. chrysanthum* in having petals serrated and surface and margin of lip hairy.

- B. *Dendrobium Picardii*. East Indies. Hook. Ex., 9.
SYN. *Dendrobium cucullatum*. Lodd. Cab., 750.
B. M., 2584.
B. R., 1756.

Flowers rosy white ; lip yellowish. Treat as *Dendrobium macranthum*. Flowers in winter and spring.

Dendrobium Pierardii latifolium.

Flowers twice as large as the species, in April and May.

A. *Dendrobium primulinum*. India.

A free-growing, deciduous, pendulous species. Flowers white and pink, very delicate, in two rows along the stem, in spring. Grow in basket.

Dendrobium primulinum giganteum.

A variety with larger flowers and stouter growth.

B. *Dendrobium pulchellum*. Sylhet. Maund, Bot., 1, 5.

Lodd. Cab., 1935.

B. M., 5037.

Sepals white, marked with yellowish green ; petals rosy ; lip beautifully fringed, with an orange blotch in the centre. Flowers show in February or March, after the leaves have fallen. A free bloomer.

Dendrobium pulchellum purpureum.

Only differs from the species in the spot on the lip being purple. These plants do best on blocks, without any moss.

B. *Dendrobium Ruckeri*. Manila . . B. R., 1843, 60.

Perianth beautiful nankeen-yellow, almost white outside ; lip deep orange, bordered with white.

B. *Dendrobium sanguinolentum*. India . B. R., 1843, 6.

The bulbs and leaves are violet-colored ; the flowers

are produced from the ends of the old bulbs for years ; sepals and petals fawn color, tipped with deep violet, and a scarlet spot in the middle. Blooms during the summer and autumn. Grow in pot or basket, with moss or peat.

Dendrobium sanguinolentum superbum has larger creamy-white flowers, tipped with dark purple.

Dendrobium Schroderi. See *Dendrobium densiflorum*.

C. *Dendrobium secundum*. Malacca . . B. R., 1291.
B. M., 4352.
Sert. Bot., 7.

A pretty little pink-flowered species.

A. *Dendrobium senile*. Moulmein . . B. M., 5520.
Bat. 2d Cen., 147.

A very small grower ; stems and leaves all covered with white hairs ; flowers large, in pairs, bright yellow.

Grow on a block. A very curious and pretty plant.

C. *Dendrobium speciosum*. New South Wales.
B. M., 3074.
B. R., 1610.

A common plant of easy culture ; flowers from ends of pseudo-bulbs in erect spikes, yellowish white. Does well in a cool house. Pot culture.

B. *Dendrobium sulcatum*. Khasya . . B. R., 1838, 65.
Resembles *Dendrobium densiflorum*.

Flowers yellow in racemes from near the top of the flat furrowed pseudo-bulbs. Pot culture.

Dendrobium superbum. See *Dendrobium macranthum*.

B. Dendrobium Tattonianum. Australia . B. M., 5537.

A little plant, only growing a few inches high, with long flower-stem; flowers yellowish white, with blush lip. Pot culture.

A. Dendrobium taurinum. India . B. R., 1843, 28.

Fl. des Ser., 1904.

Pax. Mag., 10, 217.

A tall species; sepals pure white; petals reddish brown; lip violet-white. Pot culture.

B. Dendrobium tetragonum. Moreton Bay. B. M., 5956.

A remarkable plant, with long pendent stems, producing from the apex a single flower; sepals and petals greenish white; lip white, with crimson marks. Block culture.

Dendrobium thyrsiflorum. Moulmein.

Allied to *Dendrobium densiflorum*. Flowers white and yellow, in dense clusters. Pot culture.

B. Dendrobium tortile. Java B. M., 4477.

Blooms like *Dendrobium nobile*, and requires the same treatment. Flowers pale yellow, almost white, produced in May and June.

Dendrobium tortile roseum.

White flowers, shaded with rose, very handsome. Basket or pot culture.

B. Dendrobium transparens. India . . B. M., 4663.

Pax. Fl. G., 27.

Lem. Jard., 68.

Blooms in the same way as *Dendrobium nobile*. Flowers pale, transparent, pinkish lilac, with blotch of deep crimson in the middle of the lip. Blooms in June and July. Grow in a pot, with peat and moss; it also does well on a block.

B. *Dendrobium triadenium*. India . . . B. M., 5285.
B. R., 33, 1.

Flowers pink and white, produced on a small spike, from the side of the old bulb, in panicles of ten or twelve, at different seasons. Grow in pot, with peat.

Dendrobium Veitchianum. See *Dendrobium macrophyllum*.

B. *Dendrobium Wallichianum*. India.

This species resembles *Dendrobium nobile*, but has taller bulbs, darker foliage, and richer-colored flowers. Blooms at the same time, and requires similar treatment. By some it is considered only a variety of that species, and by others as the same as *Dendrobium cœrulescens*.

Dendrobium Wardianum. Assam . . . Jen. Orch., 2.
War. Orch., 2, 19.

A rare plant, with long, pendulous, knobby stems; flowers three inches in diameter, white and purple; lip rich orange, white, and crimson.

Should be grown in a basket. With us it blooms freely, and lasts long in beauty. One of the finest of *Dendrobiums*.

B. *Dendrobium Williamsoni*. Assam.

An upright grower. Flowers large, ivory-white, with large blood-red spot in centre of lip. Pot culture.

B. Dendrobium xanthophlebium. Moulmein.

SYN. *Dendrobium marginatum.* Bat. 2d Cen., 105.

Flowers in pairs on old stems; sepals and petals white; lip spotted with orange, bordered with white. Block or pot culture.

The following are species : —

Dendrobium aciculare.

D. album. See *Camaridium.*

D. æmulum. B. M., 2906.

D. amplum. Lindley. Pax. Mag., 7, 121.

D. aqueum. B. R., 29, 54; B. M., 4640.

D. brevifolium.

D. calamiforme.

D. caniculatum.

D. compressum. B. R., 30, 53.

D. cupreum. B. R., 1779.

D. cucumerinum. B. R., 59, 37; B. M., 4619; Lem. Jard., 358.

D. denudans.

D. discolor. B. R., 27, 52.

D. elongatum.

D. herbaceum.

D. linguiforme. Hook. Ex., 11.

D. longicornu. B. R., 1315.

D. macrostachium. B. R., 1865.

D. plicatile.

D. revolutum.

D. teres.

D. undulatum.

D. vaginatum.

This family, entirely from the East Indies, is one of the most beautiful of orchidaceous plants. The species with

long stiff bulbs are best grown in pots, well drained, in peat, moss, charcoal, and potsherds; they should generally have large pots.

The species with drooping bulbs should be grown in baskets in moss or peat.

Those with short bulbs should be grown on blocks, with moss during the growing season, but bare when at rest.

To flower these plants well, they must have a good season of rest and growth.

They should be grown in the East Indian house, with plenty of heat and moisture, and water at the roots during growth; the moss or peat should then never be allowed to dry. After they have finished growing, give them a good season of rest, moving them into a cooler house, and only give water enough to keep the bulbs from shriveling. They generally grow after the flowers have faded. The plants are propagated by division or from plants which form on the old pseudo-bulbs, as we have described in the chapter on propagation. If these plants are kept growing they will give plenty of shoots but few flowers.

Of all the many *Dendrobiums*, and new species are discovered each year, there is hardly one which is not worth growing, though some are not very showy.

Dendrochilum. Blume. Epiphyte.

Name from *δένδρον*, a tree, and *χείλος*, a lip.

B. *Dendrochilum filiforme*. Manilla.

A pretty, low-growing plant, with neat foliage, and graceful, drooping, yellowish flowers, in summer.

A. *Dendrochilum glumaceum*. Philippines.

B. M., 4853.

Bat. 2d Cen., 134.

A very elegant plant, and one of the most graceful of Orchids, of neat habit, so that when out of bloom the foliage is attractive. The flowers are in close drooping spikes, coming out of the young foliage, whitish and deliciously fragrant. Blooms in February and lasts long in beauty. We consider this plant one of the most desirable of Orchids. Our specimen plant is a foot in diameter, and is a mass of graceful pendent spikes.

Other varieties are, *Dendrobium aurantiacum*, *longifolium*, *latifolium*, *oculatum*, and *pallidiflavens*, all natives of the East Indies.

These plants require plenty of water when in growth, less when at rest, but must never be dry; the pseudo-bulbs are small, and if allowed to shrivel the plants would be lost. All the species should be grown in pots in rather strong soil, peat and moss, with a preponderance of the former, and good drainage. They require the warmest house.

The following genera are to be recommended to those desiring a great variety:—

Dichæa. Lindley. Epiphyte.

Name from $\delta\chi\eta$, in two, alluding to arrangement of the leaves.

Dichæa dubia.

D. graminoides.

D. glauca.

D. ochracea.

Dicrypta. *Lindley.* Epiphyte.

Name from *δῖς*, double, and *κρύπτω*, to conceal, alluding to structure of the pollinia.

Dicrypta crassifolia.

D. discolor.

D. bicolor.

D. iridifolia.

Dienia. *Lindley.* Epiphyte.

Name from *δῖς*, two, and *ήνία*, a strap, alluding to attachment of pollen masses.

Dienia cordata.

Dinema. *Lindley.* Epiphyte.

Name from *δῖς*, two, and *νέω*, to spin, alluding to the two thread-like horns of the column.

Dinema paleaceum. *Lindley.*

D. polybulbon. *Lindley.* B. M., 4067.

Dipodium. *Brown.* Terrestrial.

Name from *δῖς*, two, and *ποὺς*, a foot, referring to the threads of the pollinia.

Dipodium punctatum. B. R., 23, 1980. Maund, Bot., 2, 66.

D. flavum. See *Cyrtopera flava.*

Disa. *Bergius.* Terrestrial.

Origin of name unknown.

A. *Disa grandiflora.* Cape Pes., 18.

B. M., 4073. Sert. Bot., 7.

Sert. O., 49. Jen. Orch., 40.

F. M., 69, 223. B. R., 926.

Large flowers, of deep scarlet crimson; petals tipped

with white and green, pale yellow inside. The soil for this plant should be rich fibrous peat and loam. It should have but little heat, and never be allowed to dry off. We have treated more fully of this plant in the early part of this book. The great trouble in its culture appears to be want of water; if there is good drainage it can hardly have too much water. It does not need much heat, and should be grown with a good circulation of air, and not full sun.

Disa grandiflora superba is a very showy variety, figured in Warner's Orchids, 36.

The genus is a large one, exclusively South African and Abyssinian. Some of the species are attractive, many having rosy flowers, while in others there is a charming mixture of blue, white, green, and purple.

Disa Barelli, figured in F. M., 2, 104, is a showy species. Other species are *Disa bracteata*, B. R., 324; *D. cornuta*, B. M., 4091; *D. prasinata*, B. R., 210; *D. pulchella*, *scutellifera*, *fasciata*, *melaleuca*, and *spathulata*.

Drymoda. *Lindley.* Epiphyte.

Name from *δρυμός*, a forest.

This genus contains the smallest Orchids; the pseudobulbs are less than an inch in diameter, and the whole plant is infinitesimal.

Drymoda picta. Moulmein Sert. O., 8.
B. M., 5904.

Foliage none; flowers in long scapes from the minute

bulbs ; very bright purple and white. Very curious. Grow on a block in East Indian house.

E.

Epidendrum. *Linnæus.* Epiphyte.

Name from ἐπί, upon, and δένδρον, a tree.

C. *Epidendrum acriforme.* Rio Janeiro.

Perianth green, tinted with brown ; lip white or rosy flesh color ; flowers in a panicle.

C. *Epidendrum alatum.* Guatemala . . Bat., 18.

B. R., 33, 53.

Perianth greenish yellow ; lip marked with purple.

There are many varieties, of which *majus* is the best.

Epidendrum aloefolium. An old name of *Cymbidium*.

See B. M., 11, 387.

B. *Epidendrum alifolium.* Guatemala . . . Bat., 25.

A pendulous species, with narrow, pointed leaves ; flowers large, greenish yellow and brown, with pure white lip, produced during the summer. Grow in a basket in moss.

Epidendrum amabile. See *Epidendrum dichromum*.

C. *Epidendrum asperum.* Mexico.

Perianth brownish yellow ; lip yellow, veined with red.

Epidendrum atropurpureum. See *Epidendrum macrochilum*.

B. *Epidendrum aurantiacum.* Guatemala . . Bat., 12.

This species nearly resembles, in its bulbs and growth,

Cattleya Skinnerii; the flowers, which are bright orange, with crimson stripes on the lip, are produced from a sheath at the top of the bulb in March, April, and May. There is a variety which never expands its flowers, and another of which the color is very dark.

- A. *Epidendrum bicornutum*. Trinidad. Pax. Mag., 5, 245.
B. M., 3332.
Jen. Orch., 21.

Flowers large, white, and very fragrant; blooms in April and May.

This is a beautiful species; may be grown on a block or in a pot. The flowers are the largest of the genus.

- C. *Epidendrum biforatum*. Rio Janeiro.

Flower greenish, with white lip. The flowers are in panicles and are very fragrant.

- C. *Epidendrum Boothianum*. Cuba . . . B. R., 1838.

Flowers yellow, with brownish red transverse bands.

- A. *Epidendrum Brasavola*. Central America.

B. M., 5664.

A very showy plant, with large flowers; sepals and petals long, orange-yellow; lip white, tipped with mauve; spike long, many-flowered, lasting long in beauty. Allied to *Epidendrum prismatocarpum*, but a far handsomer plant.

- C. *Epidendrum calocheilum*. Guatemala . B. M., 3898.

Perianth yellow, slightly greenish, tipped with purple; lip crimson, veined and edged with yellow.

- Epidendrum caudatum*. SYN. of *Brassia caudata*.

C. Epidendrum ciliare. Guatemala . . . Lodd. Cab., 9.

B. R., 784.

B. M., 463.

Perianth greenish yellow; lip white, cut into long fringes.

Epidendrum ciliare minor.

Only differs in the size of the flowers, which are more fragrant. This is a common free-blooming species.

B. Epidendrum cinnabarinum. Bahia . . . B. R., 1842, 25.

Perianth cinnabar-red; lip orange-yellow, fringed; flowers produced in panicles, in May, June, and July. It differs from *Epidendrum Schomburgkii* in the shade of the flowers, which are deeper crimson.

B. Epidendrum cnemidophorum. Guatemala. B. M., 5656.

Flowers light yellow and brown inside, pure white outside; lip white, shaded with rose, deeply divided. A tall-growing plant.

A. Epidendrum Cooperianum. Brazil . . . B. M., 5654.

A tall-growing species; flowers in large terminal racemes; brownish yellow, with large, rose lip.

C. Epidendrum crassifolium B. M., 3543.

Flowers rose-colored, in April, May, and June. Probably the same as *Epidendrum ellipticum*. Very free-blooming, indeed seldom out of bloom if the plant is large.

B. Epidendrum criniferum. South America. B. M., 6094.

Sepals and petals yellow, spotted with rich brown; lip white, with red marking.

- C. *Epidendrum cochleatum*. Guatemala. Lodd. Cab., 22.
B. M., 152, 572.
Sert. Bot., 7.

Sepals and petals long, narrow, of a greenish yellow; the lip rounded in the shape of a shell, and greenish white, striped with yellow and purple.

Epidendrum cochleatum majus, from Mexico, has the flower and bulbs larger. A very common Orchid.

- C. *Epidendrum coriaceum*. Demerara . . B. M., 3595.

The stalk bears seven or eight flowers about an inch across, white, marked with deep red.

- A. *Epidendrum cuspidatum*. Tropical America.

B. R., 783.

A very pretty plant, producing in September a five-flowered spike of large white flowers, with fringed lip, which scent the whole house by their fragrance. *Epidendrum ciliare* is often sold for this plant. The true plant is very rare. The figure in the Botanical Register has yellow flowers, a color the flowers assume before fading.

- A. *Epidendrum dichromum*. Bahia . . . B. R., 1843.

Flowers large, perianth clear rose; lip deep crimson; very fragrant. The flowers of this species vary much in size and color.

- A. *Epidendrum dichromum amabile* . B. M., 5491.

Bat. 2d Cen., 112.

A very beautiful variety, with large flowers, color pink or white; lip purple.

- B. *Epidendrum eburneum*. Panama . . . B. M., 5643.

A species growing two feet high. Flowers in terminal spike, pure white, with large ivory lip.

- B. *Epidendrum erubescens*. Mexico . . . Bat., 32.

A very distinct plant, of creeping habit, making bulbs at intervals on the woody root-stock. Flowers of two shades of mauve. Grow on long blocks of wood, in a cool house, with plenty of moisture.

- A. *Epidendrum evectum*. New Granada . B. M., 5902.

A very fine species, of tall growth, producing from the tops of the bulbs long dense spikes of rich, rosy purple flowers, with beautifully fringed lip. The whole spike much resembles an orchis, but is looser.

- C. *Epidendrum fragrans*. Jamaica . Pax. Mag., 2, 217.

B. M., 1669.

Lodd. Cab., 1039.

Flowers green, lip striped with red. Only desirable for its fragrance.

- B. *Epidendrum Frederici Guilielmi*. South America.

Reich. Xen., 51.

I. H., 3, 48.

A tall species, producing showy flowers. Sepals and petals claret color, contrasting finely with the pure white lip.

- C. *Epidendrum glumaceum*. Brazil . . M. O. P., 9.

B. R., 1840, 6.

Flowers white, sepals marked with yellow and striped with violet.

B. *Epidendrum Hanburyanum*. Mexico.

Perianth purplish brown ; lip rose, with crimson veins. Flowers large ; vanilla-scented.

B. *Epidendrum Ibaguense*. Ecuador . . . F. M., 390.

Flowers in rich terminal clusters, scarlet-orange, with deep yellow lip. A winter bloomer.

C. *Epidendrum ionosmum*. Brazil . . B. R., 1838, 87.

Flowers dull red ; lip striped with lilac ; violet-scented.

C. *Epidendrum lacertinum*. Guatemala. Fl. des Ser., 376.

Perianth brilliant green ; lip tinted with purple.

C. *Epidendrum lancifolium*. Mexico . B. R., 1842, 50.

Flowers resemble those of *Epidendrum cochleatum*, but are larger ; lip pale yellow : slightly fragrant.

A. *Epidendrum macrochilum*. Guatemala.

Bat., 17.

B. M., 3534.

Pes., 26.

Pax. Mag., 11, 243.

Flower large ; perianth greenish brown ; lip large, pure white, with purple spot at the base. Blooms from March to June. Called also *Epidendrum atropurpureum*.

A. *Epidendrum macrochilum roseum* . Fl. des Ser., 372.

I. H., 541.

Perianth deep violet ; lip very large, deep rose. A very beautiful plant. *Epidendrum macrochilum atropurpureum* has dark purple lip. This species lasts three months in bloom, is delightfully fragrant, and is the best of the family.

A. *Epidendrum myrianthum*. Guatemala.

B. M., 5556.

Bat. 2d Cen., 163.

A rare plant, but very beautiful. Flowers in dense branching spikes, magenta color, somewhat reminding us of the lilac, but far more beautiful.

A. *Epidendrum nemorale*. Mexico. Bat. 2d Cen., 135.

B. R., 1844, 51.

B. M., 4606.

Pax. Mag., 13, 101.

all as *verrucosum*.

A very desirable species. Pseudo-bulbs about four inches long, with long drooping panicles of rosy flowers; lip striped with violet.

A. *Epidendrum nemorale majus* . . . War. Orch., 13.

A fine variety, with larger panicles and deeper colored flowers. This is a very graceful plant.

B. *Epidendrum oncidoides*. Central America.

B. R., 1623.

Flowers very fragrant; perianth deep yellow and brown; lip deep yellow. Bears some resemblance to *Oncidium luridum*.

B. *Epidendrum paniculatum*. Peru . . . B. M., 5731.

Stems three feet high. Flowers in large drooping panicle, branched, pale rose-color.

C. *Epidendrum papillosum*. Oaxaca . . . B. M., 3631.

Flowers large, greenish yellow; lip white, with three deep violet stripes.

B. *Epidendrum phœniceum*. Cuba. Pax. Mag., 9, 87.

Sert. O., 46.

Fl. des Ser., 47, 306.

Perianth rich violet-purple; lip large, pale rose, with carmine markings. Blooms during the summer.

A. *Epidendrum prismatocarpum*. Central America.

Reich. Xen., 123.

B. M., 5336.

Bat. 2d Cen., 109.

War. Orch., 9.

A very remarkable plant, of free growth and easy culture, soon forming a fine specimen. Foliage clear green. Flowers in close spikes of five to fifteen, greenish yellow, with blackish spots; lip pinkish or white, marked with crimson. This plant is somewhat difficult to bloom; it seems to require more heat than most species. There are many varieties, a large proportion not worth growing. A specimen plant of this species in our collection, imported from England at a cost of many guineas, proves utterly worthless on blooming. It is not safe to buy this species without seeing the flower.

C. *Epidendrum radiatum*. Mexico . . B. R., 1844, 45.

The flowers resemble *Epidendrum cochleatum* in form: are of a pale green, with rays of deep purple on the lip, and have a strong cinnamon perfume.

C. *Epidendrum raniferum*. Mexico . B. R., 28, 42.

Perianth greenish yellow, marked with brown; the lip has a swelling at its base shaped like a frog.

B. *Epidendrum rhizophorum*. Gautemala . B. R., 1840.

Resembles *Epidendrum cinnabarinum*. This plant is a half climber, growing many feet high. The flowers last long in beauty.

B. *Epidendrum roseum*. Bahia . . . Portf., tab. 2.

Flowers large, rose ; lip with a large purple spot, edged with white.

B. *Epidendrum Schomburgkii*. Guiana.

Maund, Bot., 165.

B. R., 34, 23.

Pax. Mag., 10, 121.

Flowers resemble *Epidendrum cinnabarinum*, but are distinguished by numerous brown spots on the stalk. Flowers scarlet ; deep orange lip, fringed.

C. *Epidendrum selligerum*. Mexico.

Flower inconspicuous, but tuberosc scented.

A. *Epidendrum Skinnerii*. Guatemala.

Pax. Mag., 15, 1.

B. M., 3951, 4094.

B. R., 1870-1881.

Flowers a beautiful rose. Generally known as *Barkeria Skinneri*, which see.

A. *Epidendrum Stamfordianum*. Guatemala.

Bat., 11.

B. M., 4759.

Lem. Jard., 251.

Flowers greenish yellow, spotted with brownish purple, produced very abundantly in April and May. This

plant should be treated like a *Cattleya*, only it needs more moisture.

There are two varieties, differing in the shades of the flowers and in shape of the pseudo-bulbs. This plant produces its flowers on a spike from the *base* of the bulb.

B. *Epidendrum syringothyrsus*. Peru . . B. M., 6145.

Flowers in branching panicles ; light purple ; lip white and pink.

C. *Epidendrum tessellatum*. Guatemala . B. M., 3638.

Perianth greenish yellow outside, brown inside, regularly marked with a darker shade, like a checker-board ; lip plentifully striped with purple.

Epidendrum verrucosum.

An old West Indian species of which the name was by mistake given to *Epidendrum nemorale*. The true *verrucosum* is figured in Lodd. Cab., 1084.

A. *Epidendrum vitellinum*. Mexico . I. H., 4.

M. O. P., 1.

Pax. Mag., 11, 49.

B. M., 4107.

B. R., 26, 35.

Sert. O., 45.

Flowers orange, with brilliant yellow lip. Blooms during the winter.

Epidendrum vitellinum majus . . . F. M., 261.

Jen. Orch., 31.

Differs from the species in having larger flowers and sometimes blooming during the summer. This species needs a cool house.

The following are additional species :—

- Epidendrum æmulum.* B. R., 1898.
- E. altissimum.*
- E. ambiguum.* I. H., 606 ; M. O. P., 5.
- E. anceps.* Lodd. Cab., 887.
- E. angustifolium.* Schwartz.
- E. Arbuscula.*
- E. armeniacum.* B. R., 1867.
- E. aromaticum.* Bat., 10 ; Ref. Bot., 89.
- E. articulatum.*
- E. auritum.*
- E. bifidum.* B. R., 1879.
- E. bractescens.*
- E. Candollei.*
- E. Catillus.* I. H., 3, 162.
- E. cepiforme.* B. M., 3765.
- E. clavatum.* B. R., 1870.
- E. conopseum.* B. M., 3457. The Florida species.
- E. conspicuum.* I. H., 592.
- E. cucullatum.* B. M., 543.
- E. densiflorum.* B. M., 3791.
- E. elongatum.* B. M., 611 ; Lodd. Cab., 986.
- E. falcatum.*
- E. ferrugineum.*
- E. floribundum.* B. M., 3637.
- E. fuscatum.* B. R., 67 ; Lodd. Cab., 472 ; B. M., 2844.
- E. gracile.* B. R., 1765.
- E. Grahmi.* B. M., 3885.
- E. glutinosum.*
- E. Harrissonia.* B. M., 3209.
- E. imbricatum.* Lindley.
- E. inversum.*
- E. latilabrum.*
- E. lentiginosum.*
- E. longicolle.* B. M., 4165.

- E. macrostachyum.* Lindley.
E. nocturnum. Lodd. Cab., 713; B. M., 3298; B. R., 1961.
E. nutans. B. R., 1, 17; Lodd. Cab., 645; Maund, Bot., 226.
E. ochraceum. B. R., 24, 26; M. O. P., 2.
E. odoratissimum. B. R., 1415.
E. pachyanthum.
E. pallidiflorum. B. M., 2980.
E. pictum.
E. plicatum. M. O. P., 4.
E. polyanthum. Bat., 34.
E. pseudepidendrum. B. M., 5929.
E. pterocarpum. M. O. P., 3; B. R., 30, 34.
E. punctatum. Linn.
E. pyriforme. M. O. P., 7.
E. stenophyllum.
E. tigrinum.
E. tripunctatum. Lindley.
E. umbellatum. B. R., 80; B. M., 2030; Lodd. Cab., 26.
E. variegatum. B. M., 3151; B. R., 25, 11; M. O. P., 8.
E. virgatum.
E. viviparum.

Most of the *Epidendrums* we have described are evergreen and compact in their habit. *Epidendrum cinnabarinum*, *E. crassifolium*, *E. cnemidophorum*, *E. paniculatum*, and others, are tall-growing, with long, slender bulbs, with leaves from top to bottom. *E. aurantiacum*, *E. bicornutum*, and *E. Stamfordianum* resemble *Cattleyas* in their growth, having two or three short leaves on the top of an upright bulb.

Most of the others have short, round bulbs, with long, narrow leaves. They usually produce their flowers from the top of the bulb; in *E. Stamfordianum* they rise from the bottom. They should be grown in the Mexican

house, on blocks of wood, or in pots, in peat. They should be treated as *Cattleyas*, but with less heat. Propagated by division.

Many plants were formerly known as *Epidendrums* which belong to totally different genera. It was formerly the custom to call every unknown Orchid an *Epidendrum*. Botanists seem to have adopted the meaning of the name, and everything "growing on a tree" was referred to this genus.

Epiphora.

See *Polystachya*.

Epistephium. Lindley. Terrestrial.

Name from *ἐπί*, upon, and *στέφανος*, a garland.

Epistephium Williamsii. Bahia . . B. M., 5485.

Bat. 2d Cen., 103.

A very pretty plant bearing reedy stems, from the top of which are produced the showy flowers; petals purple-red; lip white, margined with red.

This genus is closely allied to *Sobralia*. The plants should be grown in rich, peaty loam, well drained, and have plenty of water.

Eria. Lindley. Epiphyte.

Name from *ἑριον*, wool, alluding to wooliness of the flower.

These are not showy plants; the following are the best:—

Eria bractescens. B. R., 30, 29.

E. bipunctata.

- E. cochleata*.
E. convallaroides. B. R., 27, 62 ; 33, 63.
E. densiflora.
E. ferruginea. B. R., 25, 35.
E. multiflora.
E. obesa. B. M., 5391.
E. paniculata.
E. pubescens. See *Polystachya*.
E. vestita. B. R., 31, 2 ; B. M., 5807.

Eria stellata B. R., 9041.
 B. M., 3605.

This is a pretty plant with tall spikes of yellowish-white very fragrant flowers. Blooms freely with us every January, and is worth growing where there is room.

All the species are East Indian plants, and require the hottest house. Grow in pots, in peat and moss, and water freely when in growth.

Eriopsis. Lindley. Terrestrial.

Name from *Eria*, and *opsis*, resemblance.

- Eriopsis biloba*. South America . . . Pes., 20.
 B. R., 33, 18.

A small Orchid with dark green foliage, and spikes of flowers from the base of the pseudo-bulb ; sepals and petals yellow and orange ; lip whitish orange and brown.

- Eriopsis rutidobulbon*. New Granada . . B. M., 4437.
 Flowers purplish yellow.

Grow in a pot with peat, and plenty of light and water. Increase by division.

Eulophia. *Brown.* Terrestrial.

Name from εὐλόφος, a handsome crest.

There is nothing interesting to amateurs in this genus. The following are species :—

Eulophia euglossa. B. M., 5561.

E. gracilis. B. R., 742; Lodd. Cab., 1178, is referred to *Galeandra*.

E. lurida. B. R., 1821.

E. streptopetala. B. M., 2931; B. R., 1002.

E. virens. B. M., 5579.

Many plants formerly called *Eulophia* are now referred to *Zygopetalum*.

F.**Fernandezia.** *Ruiz and Pavon.* Epiphyte.

Name for George Garcias Fernandez, a Spanish botanist.

The flowers of these plants appear in the axils of the leaves, and are small and without beauty.

Fernandezia acuta. B. R. 1806.

F. elegans. Lodd. Cab., 1214.

Fieldia.

A name proposed for *Vanda gigantea*, and *Batemani*

G.

Galeandra. Lindley. Terrestrial.

From *galea*, a helmet, and *anther*, an anther.

- B. *Galeandra Baueri*. Guiana . . Pax. Mag., 14, 49.
 B. R., 1840, 49.
 Bat., 19.
 B. M., 4701.

Perianth greenish brown ; lip deep purple. Blooms in June, July, and August on a drooping spike.

- B. *Galeandra Blanchetti*. Bahia.

Perianth greenish brown ; lip rose outside, white inside, bordered with purple-violet.

- B. *Galeandra cristata*. Cayenne.

The flowers resemble *Galeandra Devoniana*, but are smaller and not so highly colored.

- A. *Galeandra Devoniana*. Rio Negro. Bat. 2d Cen., 152.
 War. Orch., 37.
 Sert. O., 37.
 Pax. Mag., 8, 145.
 I. H., 176.
 B. M., 4610.

This species is epiphytal. Perianth orange-brown ; lip large, curiously marked and striped with deep purple, on a ground of lilac, white, and yellow. Blooms in April and May.

The terrestrial species should be treated like *Bletias*, the bulbs being kept nearly dry during the resting season.

Galeandra Devoniana should be grown in a pot, with

peat, and good drainage, in the East Indian house. The plants are deciduous, producing their flower-spikes from the top of the bulb just after they have finished their growth. During growth they need shade, a moist heat, and plenty of water.

Galeottia. Lindley. Epiphyte.

Name in honor of Galeotti.

C. Galeottia Beaumonti. Bahia. Lindley.

Perianth green, with brown rays; lip drawn up into a horn, white, lighted and striped with rose, edge fringed. Known also as *Batemannia*. This plant may be grown on wood or in a basket, with peat and moss. See also *Batemannia*.

Gomezia.

An old name of *Rodriguezia*.

Gongora. Ruiz and Pavon. Epiphyte.

Name in honor of Antonio Gongora, Viceroy of New Granada.

C. Gongora atropurpurea. Demerara. Hook. Ex., 178.

B. M., 3220.

Maund, Bot., 108.

Flowers deep purple. There are many varieties, differing in the size of the flowers.

C. Gongora bufonia B. R., 1841, 2.

Flowers dark wine color, with brownish yellow spots; edges of petals dull yellowish white.

C. Gongora fulva. Demerara B. R., 25, 51.

Flowers beautiful yellow, spotted.

- C. Gongora leucochila.* Guatemala . Fl. des Ser., 1, 37.
B. R., 33, 17.

Resembles *Gongora bufonia*, except the lip is wholly white.

- C. Gongora maculata.* Demerara . . Gard. Mag., 73.
B. M., 3687.
B. R., 1616.

Sepals brown, spotted with purple ; petals pale purple, marked with deep purple ; lip green, spotted.

Gongora maculata alba.

Flowers white, spotted on the lip with rose.

- C. Gongora maculata tricolor.* Peru . B. R., 1847, 69.

Flowers clear yellow ; petals banded with sienna ; sepals marked with same color ; lip white. There are many varieties of *Gongora maculata*, differing in the shade of the spots.

- C. Gongora nigrita.* Demerara.

The flowers are very deep brown.

- Gongora portentosa.* South America . . I. H., 3, 61.

Flowers very pretty ; sepals yellow ; petals and lip purplish.

- C. Gongora truncata.* Mexico . . . B. R., 31, 56.

Perianth creamy white ; lip yellow and white.

- C. Gongora vitellina.* Mexico.

Flowers brilliant yellow, slightly spotted.

These plants are all very curiously formed, the flowers resembling a string of grasshoppers. They should be grown in hanging baskets, in moss and peat. The flower-spikes are very long, pendent, and freely produced. When in growth they should be kept moist and warm, but should have a long rest. Bloom during the summer.

Goodyera. Brown. Terrestrial.

Dedicated to the botanist Goodyer.

A. Goodyera Dawsoniana. Malay Islands.

Fl. des Ser., 1830.

Leaves blackish green, glossy above, with lines of golden purple curving from base to apex; below, dull purple. Flowers white, very pretty. Called also *Anæctochilus*.

C. Goodyera discolor. Brazil . . . Lodd. Cab., 143.

B. R., 4, 271.

B. M., 46, 2055.

Flowers in spikes, white and yellow, produced during the winter. Foliage dark evergreen, velvety.

B. Goodyera Dominii. Hybrid.

Leaves velvet-bronze, with white lines.

B. Goodyera macrantha. Japan . Fl. des Ser., 1779-80.

Leaves dark green, bordered and lined with white; flowers pink. A very pretty species.

B. Goodyera picta or maculata.

Leaves light green, with paler markings.

B. *Goodyera rubrovenia*. Brazil.

Foliage velvet-bronze, with bands of red. A pretty and distinct species.

B. *Goodyera Veitchii*. Hybrid.

A cross between *Goodyera discolor* and *Anæctochilus Veitchii*. Leaves deep reddish brown, with silver markings.

B. *Goodyera velutina*. Japan . . Fl. des Ser., 1779-80.

Foliage purplish green, marked with silver; flowers pink.

Grow in pots, with leaf-mould and peat, in either house.

Give plenty of water at the roots during growth.

There are many other species, some of which are hardy.

These plants are sometimes called *Hæmeria*.

Govenia. Lindley. Terrestrial.

Dedicated to I. R. Gowan.

B. *Govenia fasciata*. Mexico B. R., 1845, 67.

Flowers clear yellow; petals and sepals beautifully marked with crimson bands.

C. *Govenia Gardneri*. Brazil B. M., 3660.

Flowers pale yellow. Of easy culture, floriferous.

C. *Govenia liliacæa*. Mexico Fl. Cab., 68.

B. R., 24, 13.

Flowers sulphur-white, striped with reddish purple.

The Mexican name of this plant is *Iztactepctzacuxochitl icohucyo*.

- C. Govenia superba*. Mexico . . . Fl. Cab., 41.
 Lodd. Cab., 1709.
 B. R., 1795.

Flowers orange, marked with blood-red, of an agreeable perfume.

The plants of this genus lose their leaves and stalks annually. It is well, when the stalks decay, to take up the bulbs and keep them dry for three months. Plant them in peat, leaf-mould, and potsherds, with good drainage, regulating water according to the degree of growth.

Grammatophyllum. *Blume*. Epiphyte.

Name from γράμμα, a letter, and φύλλον, a leaf.

- A. Grammatophyllum Ellisii*. Madagascar.
 Fl. des Ser., 1488.
 B. M., 5179.
 Bat. 2d Cen., 176.

Flowers tawny yellow, outside ; dull yellow, banded with brown, inside ; lip white, marked with pink.

- A. Grammatophyllum multiflorum*. Philippines.
 Pax. Mag., 6, 217.
 B. R., 1835, 65.

Perianth beautiful brown, edged with green ; lip yellow, marked and striped with brown.

- A. Grammatophyllum tigrinum*. East Indies.
 B. R., 28, 69.
 Pax. Mag., 6, 217.

Perianth pale green, richly marked with yellowish brown ; lip yellow, striped with vermilion. The flowers last long in perfection.

A. *Grammatophyllum speciosum*. East

Indies G. and S.

SYNS. *Angræcum scriptum* Pax. Fl. G., 69.

(Rumphius). B. M., 5157.

Cymbidium scriptum Lem. Jard., 235.

(Schwartz). Fl. des Ser., 1386.

Epidendrum scriptum Bat. 2d Cen., 181.

(Linn.).—

Gabertia scripta (Gaudichaud).

Flowers greenish, orange-yellow, marked with brown.
Plant six feet high.

This genus should be grown in well-drained pots,
with no mixture of moss, in peat, in the East Indian
house. They need a hot place. Propagated by division.

Grobya. Lindley. Epiphyte.

Dedicated to Lord Grey, of Groby.

C. *Grobya Amherstiae*. Brazil B. R., 1740.

Flowers yellowish green, marked with brown. The
clear color of the flowers and their profusion render the
plant desirable.

G. *Grobya galeata*. Brazil B. R., 1740.

Flowers green, marked with purple.

These plants should be grown in well-drained pots,
and should go to rest after flowering.

H.

Habenaria. *Willdenow.* Terrestrial.

Name from *habena*, a rein.

These plants were formerly a part of the genus *Orchis*. There are many species, but none particularly desirable for house culture. Many are hardy.

The following are species : —

Habenaria gigantea. B. M., 3374.

H. goodyeroides. B. M., 3397.

H. macroceras (Schwartz). B. M., 2947.

H. marginata. Hook. Ex., 136.

H. membranacea.

H. procera. B. R., 1858.

Hæmeria.

See *Goodyera*.

Hartwegia. *Lindley.* Epiphyte.

Dedicated to Mr. Hartweg.

The two species, *Hartwegia purpurea* and *H. angustifolia*, are not desirable, except in a large collection; the former, however, is a pretty little plant, with spotted foliage and long slender spikes of purplish pink flowers; it takes but little space, grows freely on a block, and is always in bloom. Both species are natives of Mexico. Figured in Ref. Bot., 94.

Helcia. *Lindley.* Epiphyte.

Name from *helcium*, a horse collar.

Helcia sanguinolenta. Peru . . . Reich. Xen., 2, 131.

I. H., 3, 31.

A handsome plant, resembling both *Trichopilia* and *Aspasia*. Pseudo-bulbs small, smooth, terminated by one broad leaf; flowers in profusion on single stalks from the base of the bulbs; sepals and petals yellowish, beautifully ocellated with reddish brown; lip large, white, marked with purplish crimson.

Should be grown in the cool house, in the shade, in a pot, with peat and moss. Propagated by division.

Houlletia. *Brongniart*. Epiphyte.

Dedicated to Houllet, a French gardener.

B. *Houlletia Brocklehurstiana*. Brazil. Pes., 36.

Pax. Mag., 9, 49.

B. M., 4072.

Sert. O., 43.

Perianth richly checkered with brown; lip yellow, marked with purple; very fragrant.

Houlletia chrysantha. Brazil I. H., 71.

A beautiful species, with golden-yellow flowers.

Houlletia odoratissima. New Granada . . Pes., 3.

I. H., 3, 12.

A fine species, with orange-brown flowers and white lip.

Houlletia odoratissima antioquiensis.

A variety with blood-red sepals and petals; lip long, white, tinged with yellow.

B. *Houlletia stapeliaeflora*.

Differs but little from *Houlletia Brocklehurstiana*, of which it is probably a variety.

Houlletia tigrina. Colombia I. H., 612.

Flowers yellow and brown; lip white, dotted with brown, and barred with light purple.

B. *Houlletia vittata*. Brazil B. R., 27, 69.

Perianth yellow, striped with brown; lip yellow, striped with orange.

These plants should be grown in well-drained pots, in peat, and need plenty of moisture and frequent watering when in full growth. During the resting season they should be kept in the cold house, nearly dry.

The genus seems to be neglected by Orchid growers, but for no good reason. All the species are of easy culture, bloom freely, and are very handsome.

Huntleya. Lindley. Epiphyte.

Name for Rev. Mr. Huntley, a zealous amateur.

A. *Huntleya albidofulva*. Brazil I. H., 556.

A distinct and strong-growing species; flowers very large, on single scapes, from base; sepals and petals white, tipped with tawny yellow; lip white, with red tip. A very showy plant.

Huntleya candida. SYN. of *Warscewiczella candida*.

A. *Huntleya cerina*. Costa Rica . . Fl. des Ser., 1815.

F. M., 2, 93.

B. M., 5598.

Bat. 2d Cen., 183.

Flowers straw-color and yellow in spring. A very showy and desirable species.

Known also as *Pescatorea* and *Zygopetalum*.

Huntleya cochlearis. See *Warscewiczella*.

Huntleya marginata. See *Warrea quadrata*.

Huntleya Meleagris. See *Batemanian Meleagris*.

A. *Huntleya violacea*. Brazil . . . Pax. Mag., 8, 1.

Fl. des Ser., 678.

Sert. O., 26.

Perianth violet ; lip striped with violet, and edged with delicate gray. Blooms at different seasons.

Known also as *Bollea violacea* and *Pescatorea violacea*.

B. *Huntleya Waitesii*. Brazil.

Flowers white and purple in the autumn.

Huntleya Wallisii. Ecuador . . . Fl. des Ser., 1828, as

Pescatorea.

A fine species, resembling *Huntleya cerina*, but with larger flowers.

Sepals and petals cream-color, tipped with violet ; base of column dark violet.

These plants have no pseudo-bulbs ; the foliage is evergreen, the blossoms large. They should be grown in pots in peat, well-drained ; should have but a short season of rest ; should be kept in the shade ; in growth have a liberal supply of moisture, and of water at the roots, and should never be allowed to be wholly dry. The flowers are fragrant.

I.

Ionopsis. *Humboldt and Kunz.* Epiphyte.

Name from *ion*, a violet, and *opsis*, resemblance.

Ionopsis paniculata. Brazil . . . B. M., 5541.

Bat. 2d Cen., 184.

A plant of delicate growth, with small leaves and pseudo-bulbs. The flower spikes are large, the flowers vary much in color, from pure white to yellowish white, and are often marked with blush and violet. It is a very free bloomer, and will exhaust itself if some of the flowers are not removed. The flowers are shaped like a violet. Grow upon a block, with moss, in a cool house, near the glass.

Ionopsis tenera B. R., 1904.

Is same as the last.

Ionopsis utriculoides, or *Gardneriana* . . Hook. Ex., 39.

Ionopsis rosea is a variety of *Ionopsis paniculata*.

Ipsea. *Lindley.* Terrestrial.

Name unexplained.

Ipsea speciosa. Ceylon B. M., 5701.

A charming and rare plant, with very large, bright, golden flowers; lip streaked with carmine. Resembles a *Bletia* in habit, and requires similar treatment.

Isochilus. *Brown.* Epiphyte.

Name from *isos*, equal, and *χελος*, lip.

All plants of this genus are inconspicuous.

Isochilus graminoides. Hook. Ex., 196.

I. linearis. B. R., 745.

I. proliferus. B. R., 825.

Lacæna. *Lindley.* Epiphyte.

A name of Helen, applied because of the beauty of the plant.

B. *Lacæna bicolor*. Guatemala . . . B. R., 1844, 50.

A plant with the general aspect of a *Gongora*, but with long pendulous racemes of large greenish white flowers, with white lip, with rich purple markings. Should be grown in a basket, with peat and moss.

Lælia. *Lindley.* Epiphyte.

A complimentary name.

B. *Lælia acuminata*. Guatemala . . . B. M., 4905.

Pax. Mag., 10, 49.

B. R., 1844, 24.

Fl. des Ser., 9.

Perianth rosy white ; lip white, with dark purple spot. Blooms in December and January. A very pretty, free-growing plant, easily bloomed ; does equally well in a pot or on a block. The variety *L. acuminata violacea* has rosy violet flowers. Called in its native country *Flor de Jesu*.

C. *Lælia albida*. Mexico B. M., 3957.

B. R., 1839, 54.

Flowers white, tinted with yellowish ; lip white, with yellow markings and purple spots near base. Blooms in December and January.

Lælia albida superba has larger flowers.

Lælia albida Mariana has flesh-colored petals and mauve lip.

Lælia albida rosea (F. M., 335) is a charming plant with delicate, rosy white flowers.

This is a beautiful winter-blooming plant, valuable for its color and the delightful fragrance of the blossoms. It is the best of the *Lælias* to grow for cut flowers. Care must be taken not to keep it too hot; it thrives best with cool culture.

- A. *Lælia anceps*. Mexico. . . . Pax. Mag., 4, 73.
 B. R., 1751.
 B. M., 3804.
 Jen. Orch., 6.

Perianth lilac-rose; lip rich velvety purple outside, marked with crimson and veined with yellow inside. The flowers, which are produced in December and January, two to five, on long stems, are three or four inches across.

- B. *Lælia anceps Barkeriana*. . . . Fl. des Ser., 1100.
 B. R., 1947.

This plant differs from the last in having narrower petals, and a narrower and shorter lip.

- Lælia anceps Dawsoniana*. . . . Fl. Mag., 530.
 War. Orch., 2, 34.
 Jen. Orch., 6.

A magnificent variety, with creamy white flowers, and large purple mark on the lip. Very few plants were discovered, and it will long be a scarce plant.

Lælia anceps delicatum.

A variety producing many flowers on a stalk. Flowers purplish white.

There are many other varieties, the difference being merely shades of color. This is a very useful plant, easily grown, free-blooming, and of neat habit. If removed to the parlor when in bloom it will last in full beauty six weeks, and the flowers, if cut, last long in water. Our best plants are grown in baskets, but it does well with pot culture.

A. *Lælia autumnalis*. Guatemala . Pax. Mag., 6, 121.

SYN. *Bletia autumnalis* (La Bat., 9.

Llave). B. R., 1839, 27.

B. M., 3817.

Fl. des Ser., 17.

Perianth delicate rosy purple ; lip almost white, tipped with rosy lilac ; centre not yellow. Blooms in December and January, producing from five to fifteen flowers on a spike. The plant bears a great resemblance to *Lælia anceps*, but the flowers are very different ; they have a peculiar glistening vitreous appearance which is very beautiful. They are fragrant, but not agreeably so.

Lælia Boothiana. SYN. of *Cattleya lobata*.

A. *Lælia Brysiana*. Brazil I. H., 134.

A strong-growing species, with dark evergreen foliage. Flowers three or four on a spike, very large ; light rose, with darker markings ; lip deep crimson. A very distinct plant from *Lælia purpurata*, with which it is often confounded.

Lælia caulescens. SYN. of *Lælia flava*.

A. *Lælia cinnabarina.* Rio Janeiro. Sert. O., tab. 28.

B. M., 4302.

Pax. Mag., 7, 193.

Sepals and petals long and narrow, of cinnamon-red; lip orange-yellow, striped with red. Blooms in March, April, and May.

Lælia cinnabarina aurantiaca.

Merely differs from the species in the shade of the perianth. This is a very beautiful Orchid. The flowers are graceful and of long duration, and the color remarkable.

Lælia crispa. See *Cattleya crispa*.

B. *Lælia crispilabia.* Brazil . . . War. Orch., 2, 6.

A delicate species, with narrow pseudo-bulbs, crowned by a single dark green leaf, and bearing a spike of three to six pretty purple flowers. Called, also, *Lælia Lawrenciana*.

A. *Lælia elegans.* Caracas . . . Pes., 22.

I. H., 402.

B. M., 4700.

War. Orch., 6, 12.

War. Orch., 2, 29,

variety.

Sepals and petals pale rosy purple, suffused with lighter or darker shades; lip brilliant purple. This is a very beautiful species, varying much in color of the flowers, but all beautiful. Known, also, as *Cattleya elegans*.

Lælia erubescens. See *Lælia rubescens*.

A. *Lælia flava.* Mexico B. R., 28, 62.

SYN. *Lælia caulescens*.

A very pretty plant, bearing in March a profusion of bright canary-colored flowers. A desirable species, growing freely and always giving good bloom.

C. *Lælia furfuracea.* Oaxaca B. M., 3810.

B. R., 1839, 26.

A species resembling *Lælia autumnalis*, but with less brilliant flowers. It differs in the leaves also, which, instead of being two or more together, are often solitary, and are erect and straight, instead of being curved and bent. The scape, also, bears but one flower, which has no perfume.

A. *Lælia gigantea.* Brazil War. Orch., 6.

SYN. *Lælia grandiflora*.

A fine species with very large flowers, delicate lilac, marked with rosy purple. It is one of the most showy of the *Lælias*.

A. *Lælia grandis.* Bahia B. M., 5553.

Bat. 2d Cen., 136.

Perianth nankeen-yellow ; lip white, striped with crimson. Flowers very large and of long duration. A summer bloomer.

Lælia harpophylla. Brazil F. M., 2, 70.

A species resembling *Lælia cinnabarina*. Flowers reddish orange ; very large ; lip peculiarly notched.

A. *Lælia irrorata*. Brazil. . . . Reich. Xen., 2, 115.

A very beautiful and rare species. Flowers rosy white; lip crimson-purple. Blooms in summer.

Lælia Fongheana. Brazil. . . . F. M., 2, 177.
B. M., 6038.

A dwarf-growing plant, similar in habit to *Cattleya bulbosa*, but easily distinguished by its olive-green pseudo-bulbs, which are without stripes. The flowers are also borne in a different manner. Color crimson-purple; lip same color, crimped and marked with yellow.

Lælia Lawrenceana.

A name of *Lælia crispilabia*.

B. *Lælia Lindleyana*. Brazil. . . . Bat. 2d Cen., 175.

A delicate and pretty species, not very showy, but well worth growing. Flower white, clouded with purple; lip white, with purple base. Blooms in winter, and often again in autumn. Also known as *Cattleya Lindleyana*.

Lælia lobata. SYN. of *Cattleya lobata*.

A. *Lælia majalis*. Oaxaca. . . . Bot., Reg. 30, 30.

SYN. *Cattleya Grahamii* (Lind-

ley). Bat., tab. 23.

Pax. Mag., 12, 1.

B. M., 5567.

Jen. Orch., 41.

I. H., 573.

Flowers four inches across, delicate rosy purple; lip striped and spotted with chocolate. This plant is difficult to flower. The most successful cultivators grow it on a block, in a well-aired cool house, and give very little

water in winter. The flower springs from the centre of the new bulb.

Lælia marginata. SYN. of *Cattleya marginata.*

A. Laelia peduncularis. Guatemala. . B. M., 4099.
B. R., 1845, 69.

Flowers delicate rosy purple, with a deep purple spot on the centre of the lip. A very neat-growing species, flowering freely in February. Our best plants are grown in baskets suspended in full light.

A. Lælia Perrinii. Brazil . . . Pax. Mag., 13, 5.
B. R., 1842, 62.

Perianth rosy lilac ; lip delicate purple, white, and yellow, with crimson tip. The plant grows and blooms like a *Cattleya*. The flowers are large, procured in October and November. A beautiful species.

B. *Lælia Pilcheri*. Hybrid F. M., 340.

A cross between *Laelia Perrinii* and *Cattleya crispa*.
Sepals and petals rose; lip purple, with white throat.

A. Lalia præstans. Brazil . . . Fl. des Ser., 1900.
Bat. 2d Cen., 128.
I. H., 193,
as *Cattleya pumila*.
B. M., 5498.

A dwarf free-blooming species, producing its solitary flowers twice a year. Flowers lilac-rose, with deep crimson-purple lip. Grow on a block or in a basket.

Lælia pumila. SYN. of *Cattleya pumila.*

- A. *Lælia purpurata*. Brazil . Pes., 37.
 I. H., 83.
 War. Orch., 40.
 Pax. Fl. G., 96.
 Fl. des Ser., 1138, 1494.

A large-growing plant, one of the most magnificent of Orchids. The flowers are produced from a long spathe, resembling *Cattleya labiata*, on a scape bearing from one to six flowers, five inches in diameter, varying in color from rose to pure white; lip very large, crimson-purple, but varying much in intensity. A summer bloomer, lasting long in perfection. There are many varieties, but we have never seen a poor one.

- B. *Lælia rubescens* Fl. des Ser., 742.
 B. R., 26, 41.

Perianth white, delicately tipped with green at the outer edge of the segments; lip white, with a yellow centre and a deep purple spot at the base.

- A. *Lælia Schilleriana*. Brazil.

A species resembling *Lælia elegans*. Flower white, with deep crimson lip. A showy plant.

Lælia Schilleriana splendens.

Is a very fine variety, with large rosy blossoms; lip magenta, with yellow throat. This plant blooms twice a year.

- Lælia Stelzneriana* Fl. des Ser., 1494.

Is a variety of *Lælia purpurata*.

- A. *Lælia superbiens*. Guatemala . . . Bat., 38.
 Pax. Mag., 11, 97.
 B. M., 4090.
 War. Orch., 20.

Perianth violet-rose, striped with deeper shades; lip rich crimson, striped with yellow. The flowers are produced ten to twenty on a spike, each measuring three or four inches across, during the winter, on a spike four or five feet long.

- A. *Lælia Turneri*. Brazil . . . Bat. 2d Cen., 156.
 War. Orch., 12.

A fine species with large highly-colored flowers, often six inches across. Color deep rosy pink, with white and magenta lip.

- B. *Lælia violacea*. Guatemala.
 A species resembling *Lælia rubescens*.

Lælia Wolstenholmæ.

A very distinct variety of *Lælia elegans*, with light amethyst flowers, with deep purple lip. Figured in Warner's Orchids, second series, 29.

- B. *Lælia xanthina*. Brazil . . . Bat. 2d Cen., 180.
 B. M., 5144.

Flowers dull orange-yellow; lip whitish, shaded with orange-red lines.

These plants require the same treatment as *Cattleyas*. They should be grown in the Mexican house. *Lælia cinabarina*, *L. flava*, *L. peduncularis*, *L. superbiens*, *L. Per-*

rinii, *L. purpurata*, and others in well drained pots; the dwarf species on blocks. *L. Perrinii* requires a little more heat than other species. All *Lalias* like plenty of light. They are of very easy culture and seldom fail to bloom freely.

The genus is closely related to *Cattleya*, being distinguished by having eight instead of four pollinia, and many species are known indiscriminately by either name. Although some species are much more showy than others, and many are among the most beautiful of orchidaceous plants, there is not, in the whole family, a plant which is not worth growing.

Læliopsis. *Lindley.* Epiphyte.

Name from *Lalia*, and *opsis*, resemblance.

Læliopsis domingensis. St. Domingo. Pax. Fl. G., 105.
Gard. Mag., 211.
Lem. Jard., 172,
as *Broughtonia*.

A very beautiful plant, closely allied to *Cattleya*. It is of dwarf habit, producing the flower-spike from the top of the two-leaved pseudo-bulb. The flowers are lilac, with a pink crimped lip, and white throat with yellow lines.

It is best grown on a block, with a little moss, with plenty of heat, but rather dry when at rest.

These plants are easily grown and flower freely. Its botanical place was for a while a puzzle. It is not a *Lalia*, because it has only four pollen masses; not a *Broughtonia*, for it has no long external spur and dicur-

rent sepal ; not an *Epidendrum*, for it wants the unguiculate lip, more or less united to the column ; not a *Cattleya*, for the flowers are membranous, the veins of the lip bearded, and the habit different. So a new genus was constituted to which this plant and those known as *Laelia Lindenii*, *Epidendrum cubense*, and *Broughtonia chinensis* will belong.

Leptotes. *Lindley.* Epiphyte.

Name from λεπτός, slender.

B. *Leptotes bicolor*. Brazil B. R., 1625.
Flowers white, with purple spot on lip. Blooms in winter. A charming little plant.

C. *Leptotes bicolor glaucescens*. Brazil . . B. M., 3734.
Only differs from the species in having glaucous leaves.

C. *Leptotes concolor*.
Flower white, purple shade at base of lip.

B. *Leptotes serrulata*. Brazil Sert. O., 11.
A species resembling *Leptotes bicolor*, but of larger growth ; the spot on the lip is a deeper purple. Blooms in April and May.

These plants will thrive in either house, on blocks with moss, or in pots with peat. They need liberal waterings in the growing season. Propagated by division. They are remarkable for having the sepals and petals nearly linear. They are very pretty and bloom freely. The foliage is thick and rush-like, channeled on the upper side.

Limatodes. Blume. Terrestrial.

Name unexplained.

- A. *Limatodes rosea*. Moulmein . . . B. M., 5312.
Pax. Fl. G., 81.

A very pretty plant, allied to *Calanthe*, with long fusiform pseudo-bulbs. The flowers, which are of every shade, from pure white to deepest pink, are produced on a tall spike, from the base of the bulb, after the foliage has died away.

This is one of the parents of the beautiful hybrid *Calanthe Veitchii*. Blooms from December to March.

These plants require the same general treatment as *Calanthe vestita*; to be potted in peat and leaf mould, with good drainage, have plenty of water and heat during growth, and a rest after flowering.

Limodorum. Tournefort.

A name formerly given to many Orchids, which are now referred to other genera; for instance:—

Limodorum altum, verecundum, trifidum, and tuberosum are *Bletia verecunda*.

L. eburneum is *Angræcum eburneum*.

L. ensatum is *Cymbidium ensifolium*.

L. falcatum is *Angræcum falcatum*.

L. hyacinthinum and *striatum* are *Bletia hyacinthina*.

L. Incarvilleæ and *Tankervillæ* are *Phajus grandifolius*.

L. latifolium is *Aerides odoratum*.

L. longifolium is *Cymbidium giganteum*.

L. pendulum is *Cymbidium pendulum*.

L. purpureum is *Epidendrum atropurpureum*.

- L. retusum* is *Saccolabium guttatum*.
L. unguiculatum is *Sarcochilus unguiculatus*.
L. ventricosum and *veratrifolium* are *Calanthe bicolor*.

Liparis. *Richard.* Epiphyte and Terrestrial.

Name from *λίπαρος*, oily, shining.

These plants are of little interest to the amateur.
 There are some fifty varieties. We give a few.

EPIPHYTES.

- Liparis anceps*.
L. cæspitosa.
L. elata. B. R., 1175; B. C., 1558.
L. longipes. Lindley.
L. pendula.

TERRESTRIAL

- L. bituberculata*.
L. elegans.
L. flavescens.
L. foliosa. B. R., 882; B. M., 2709; Lodd. Cab., 1097.
L. guineensis. B. R., 20, 1671.
L. nepalensis.
L. purpurescens.
L. Walkeriana. B. M., 66, 3770.

Lissochilus. *Brown.* Terrestrial.

Name from *λίσσος*, smooth, and *χείλος*, lip.

- A. *Lissochilus Horsfallii*. Old Calabar. B. M., 5486.
 Bat. 2d Cen., 121.

A tall-growing plant, resembling *Phajus grandifolius*,
 producing a tall spike of brown and white flowers, with
 purple and green lip.

A. *Lissochilus Krebsii*. Natal B. M., 5861.

Sepals green, barred with chocolate ; petals bright yellow ; lip yellowish white, marked with crimson.

B. *Lissochilus macranthus*. Cape of Good Hope.

A. *Lissochilus roseus*. Sierra Leone . . . B. R., 30, 12.

Petals brilliant rose , sepals velvety brown ; lip yellow.

B. *Lissochilus speciosus*. Cape of Good Hope.

Pax. Mag., 4, 25.

B. R., 573.

B. *Lissochilus streptopetalus*.

Sepals green, marked with purple ; petals and lip egg-yellow.

These plants are grown like *Bletia*.

Luddemannia. *Reichenbach*. Epiphyte.

Complimentary to M. Luddemann.

B. *Luddemannia Pescatorei*. South America.

SYNS. *Cynoches Pescatorei*. Reich. Xen., 1, 70, as

Cynoches Lindleyi. *Acineta cryptodonta*.

Pes., 1, 23.

A plant much resembling *Acineta Barkeri* in habit, but with flowers resembling a *Lacæna*. The flower spike is pendulous, very long, producing thirty or more rather small flowers, with brownish yellow sepals and clear yellow petals ; lip yellow, with green base. Culture the same as *Acineta*, in baskets in moss and peat. A rare plant.

Luisia. *Lindley*. Epiphyte.

Name not explained.

Luisia Psyche. Burmah B. M., 5558.
Bat. 2d Cen., 174.

A singular plant, resembling in growth *Vanda teres*. Flowers two or three together, on a very short spike; sepals and petals pale yellowish green; lip dark violet purple, on green ground.

There are other species, mostly with inconspicuous flowers. *Luisia volucris* has flowers which are said to resemble birds with narrow, outspread wing. They may all be grown on blocks, in the hottest house.

Lycaste. *Lindley*. Epiphyte.From *Lycaste*, mythological.

B. *Lycaste aromatica*. Mexico . . . Hook Ex., 219.
B. R., 1871.

Perianth greenish yellow; lip golden yellow; very fragrant and desirable.

C. *Lycaste Barringtoniæ*. Jamaica . Lodd. Cab., 1824.

SYNS. *Epidendrum Barringtoniæ*. B. R., 1206.

Colax Barringtoniæ.

Dendrobium Barringtoniæ.

Maxillaria Barringtoniæ.

Maxillaria ciliata.

Dendrobium ciliatum.

Flowers variegated white, yellow, and brown; lip pure white, with yellow base. This species needs plenty of heat.

Lycaste Barringtoniæ grandiflora B. M., 5706.

A very fine variety, with large white flowers.

Lycaste citrina.

A species resembling *Lycaste Harrisoniæ*. Sepals and petals lemon color ; lip white and lilac.

A. *Lycaste cruenta*. Guatemala . . . B. R., 1812, 13.

Perianth apple-green ; lip yellow, with dark spot. Flowers very freely in March and April. A desirable species. *M. aromatica* is often sold for this, but the species are very distinct.

B. *Lycaste cruenta major*.

Has larger flowers.

B. *Lycaste Deppei*. Xalapa . . . B. M., 3395.

Pax. Mag., 2, 268.

Lodd. Cab., 1612.

Sepals green, marked with purple ; petals white, marked with crimson inside ; lip brilliant orange, marked with crimson. Blooms in winter and spring.

C. *Lycaste gigantea*. St. Martha . . B. R., 31, 34.

B. M., 5616.

Bat. 2d Cen., 198.

A tall-growing species, producing in summer dark olive-green flowers, with purple lip.

B. *Lycaste Harrisoniæ*. Brazil . . B. M., 2927.

SYNS. *Colax Harrisoniæ*

B. R., 897.

(Lind).

Pax. Mag., 2, 196.

Dendrobium Harri-

Sert. Bot., 7, as

soniæ. (Hooker).

Colax.

Perianth creamy white ; lip purple ; fragrant.

B. *Lycaste Harrisoniæ alba*. Brazil.

Perianth pure white, tipped with violet.

A very free-blooming plant of easiest culture. It will do well, and bloom in the parlor.

A. *Lycaste lanipes*. South America.

Flowers creamy white, with fringed lip, in autumn.

C. *Lycaste macrophylla*. Colombia . P. and E., 64.

B. R., 1840, 191.

Perianth green, tinted and spotted with brown; lip whitish, variegated with yellow and violet. This species has a disagreeable odor, and is always found on the ground under the shade of trees.

B. *Lycaste plana*. Colombia B. R., 29, 35.

This species resembles the last, but the flowers are of a richer color. It needs heat, and the bulbs should never be at all covered with soil, as they rot very easily.

B. *Lycaste Schilleriana*.

A pretty species. Sepals yellowish brown; petals white; lip white, with yellow base.

A. *Lycaste Skinneri*. Gautemala. F. M., 24, 192.

Jen. Orch., 9.

B. M., 4445.

War. Orch., 10.

Pax. Mag., 11, 1.

Bat., 35, as *Maxillaria*.

Fl. des Ser., 303, 304.

Pes., 39.

F. M., 2, 35.

Perianth pure white; sepals lightly tipped with rose; petals rosy at the base; lip spotted with brilliant carmine. Flowers large and fragrant. Blooms in winter.

There are many varieties, differing in intensity of color, and some with yellow instead of red on the lip ; there is a pure white variety.

This plant should not be allowed to dry up during the resting season. All the varieties are beautiful. The plant is very free blooming, and the flowers are almost imperishable.

C. Lycaste tetragona. Brazil B. R., 1428.
B. M., 3146.

The flowers are yellowish green and purple, with the fragrance of violets.

B. Lycaste tyrianthina. Brazil.

Perianth clear wine-color ; lip golden yellow, striped and marked with vivid purple. Flowers large, fragrant.

This genus was separated from *Maxillaria*. The species are of the easiest growth in pots, with peat, with good drainage ; give plenty of water in the growing season, but very little during that of rest.

Macodes.

A name for some species of *Anætochilus*.

Macodes marmorata. See *Anætochilus Lowii*. Reich. Xen., 1, 96.

Macodes Petola. See *Anætochilus Petola* or *imperialis*.

Macrochilus.

Macrochilus Fryanus was a name given to *Miltonia spectabilis*. (Fl. Cab., 45.)

Masdevallia. *Ruiz and Pavon.* Epiphyte.

Name for Joseph Masdevall, a Spanish botanist.

The plants of this genus were formerly more remarkable for their singularity than their color, but late years have given us some wonderful discoveries, so that now it comprises some most attractive plants.

Masdevallia candida. SYN. of *Masdevallia towarensis*.

Masdevallia Chimæra. New Granada . . F. M., 2, 149.
B. M., 6152.

A most singular plant. Flowers yellow, spotted with blood-red, eight inches from tips of sepals, produced from base of pseudo-bulbs, on arched flower-stalks.

The plant figured in "L'Illustration Horticole," 3, 117, is *Masdevallia nycterina* with the coloring of *M. Chimæra*.

Masdevallia coccinea. Pamplona . . Reich. Xen., 1, 74.

A beautiful little species, with bright-red flowers.

A. Masdevallia Davisii. Peru B. M., 6190.

A newly-discovered species, bearing rich golden flowers, but probably, if descriptions are to be depended upon, very variable in color. Very free-blooming; flowers four inches in diameter.

Masdevallia Denisoni. New Granada . . F. M., 2, 79.

Flowers very large, on tall stalks, deep purple, with white base.

Masdevallia Ephippium. SYN. of *Masdevallia Trochilus*.

Masdevallia Estradæ. New Granada . . B. M., 6171.

A very pretty little species, of neat habit and delicately

colored flowers, which are violet-purple, tipped with white, and with yellow tails.

Masdevallia Harryana. New Granada . . F. M., 555.
I. H., 142.

Flowers very large, violet-mauve, with yellowish base. A beautiful and free-flowering species.

Masdevallia Houtteana. Venezuela . Fl. des Ser., 2106.

Flowers white, spotted with carmine, with long red tails; very curious.

Masdevallia ignea. New Granada . . . F. M., 2, 15.
B. M., 5962.

Flowers orange-scarlet, shaded with crimson, but varying much in different plants.

Masdevallia Lindeni. New Granada . . F. M., 2, 28.
B. M., 5990.
Jen. Orch., 17.
I. H., 3, 42.

Flowers on tall stalks, brilliant magenta. A very fine species.

Masdevallia maculata. Colombia . . Fl. des Ser., 2150.

Flowers with long tails, yellowish, with rose and purple spots.

Masdevallia nycterina. New Granada . . F. M., 2, 150.

An extraordinary species. Flowers triangular, with long tails, dark rosy purple, spotted with darker shade; lip white and yellow. The old stalks continue to produce flowers for a long time.

Masdevallia Peristeria. New Granada . . B. M., 6159.

Flowers yellow, deeply spotted with amethyst-crimson.
Not as showy as the other species.

Masdevallia towarensis. Colombia . . B. M., 5505.

Bat. 2d Cen., 120.

A very neat and pretty plant. Flowers white, in pairs.

Masdevallia Trochilus. New Granada . . I. H., 3, 180.

SYNS. *Masdevallia Colubri*.

M. Ehippium. B. M., 6208.

Flowers hooded, with long tails, color purple, suffused
with brown, tails bright yellow.

Masdevallia Veitchii. Peru F. M., 481.

B. M., 5739.

War. Orch., 2, 33.

Fl. des Ser., 1803.

Flowers six inches in diameter, bright orange-scarlet.
A very showy species.

Masdevallia Wagneriana. Central America.

Bot. Mag., 4921.

A small-growing species, with yellow and red flowers.

All the species are free-growing and free-blooming, but
are soon destroyed if kept too hot. They are natives of
high tropical mountains, and require cool treatment and
free air. They should be grown in pots, in peat and
moss, with good drainage, and must never be allowed to
dry up. They flower almost continuously.

At present many of the species are very rare, but they
will soon be attainable.

Maxillaria. *Ruiz and Pavon.* Epiphyte.

Name from *maxilla*, a jaw-bone.

B. *Maxillaria Brocklehurstiana.* Brazil.

Flowers citron, marked with brown, large and fragrant.

A. *Maxillaria cristata.* SYN. of *Paphinia cristata.*A. *Maxillaria grandiflora.* Peru I. H., 3, 14.

A cool Orchid, of easy culture, and very showy. Flowers pure white ; lip purple and yellow.

Maxillaria Harrisonæ. See *Lycaste Harrisonæ.*B. *Maxillaria leptosepala.* New Granada . B. M., 4434.

Flowers large, very fragrant ; perianth clear yellow ; lip almost white.

Maxillaria luteo alba. Merida.

SYN. *Maxillaria punctata alba.*

Flowers large, creamy white.

Maxillaria nigrescens. New Granada.

Flowers dark wine-color ; lip purple. There are many varieties.

Maxillaria picta. Brazil B. R., 1802.
B. M., 3154

Flowers yellow, marked with purple, fragrant. Very freely produced.

Maxillaria picta major.

A larger flower, banded with purple ; fragrance of almonds and jasmine.

- C. *Maxillaria rufescens*. Brazil B. R., 1848.
 SYN. *Maxillaria fucata*. R. F., 79.

Perianth reddish, a little brown; lip yellow, marked with crimson. The flowers are small and solitary, and only desirable for their vanilla-like perfume.

Maxillaria Skinneri. See *Lycaste Skinneri*.

Maxillaria splendens. Peru.

Sepals and petals white; lip orange, margined with rose.

- C. *Maxillaria tenuifolia*. Vera Cruz. Maund, Bot., 140.
 B. R., 1839, 8.

Flowers beautiful purple, marked with yellow, smelling like an apothecary's shop.

Maxillaria Turneri. South America.

Flowers cinnamon-brown and crimson; very fragrant. Should be grown in a cool house.

- A. *Maxillaria venusta*. New Granada. Pes., 38.
 B. M., 5296.
 Bat. 2d Cen., 118.

Flowers large; white lip, marked with yellow and with two red spots resembling large eyes. A most curious and beautiful plant.

This genus has been much changed, and the finest species have been given to *Bifrenaria*, *Lycaste*, *Paphinia*, *Warrea*, *Colax*, *Promenæa*, and *Scuticaria*.

All *Maxillarias* should be grown as prescribed for *Lycaste*.

The species are all free-flowering plants of easy culture, generally blooming in the spring. They are well worth growing for their fragrance and the persistency of the flowers, which in some species seem almost imperishable. None require much heat, and they like light, but not full sun.

Megaclinium. *Lindley*. Epiphyte.

Name from μέγας, great, and κλίση, a bed.

This genus is more curious than beautiful. The flowers have the peculiarity of moving and closing the lip very rapidly.

C. Megaclinium Bufo. Sierra Leone. B. R.

The flowers resemble a number of toads on a spot of green.

C. Megaclinium falcatum. Sierra Leone . B. R., 989.

Flowers yellow and red.

C. Megaclinium oxypterum. Sierra Leone.

Flowers green.

Megaclinium oxypterum maximum . . . B. R., 1959.

B. M., 4028.

The lip is not movable.

These plants should be grown in hanging baskets, like *Acropera*.

Mesospinidium. *Reichenbach*. Epiphyte.

A. *Mesospinidium sanguineum*. Peru. Bat. 2d Cen., 196.

B. M., 5627.

A beautiful little cool-house Orchid, from the Andes

of Peru, bearing branching spikes of lovely rose-colored flowers. It is a most desirable plant, but not very common.

A. *Mesospinidium vulcanicum*. Upper Amazon.

B. M., 6001.

This plant resembles an *Epidendrum*. Flowers in spikes from the lower leaf of the pseudo-bulb, rosy red, with a little yellow on the lip.

These plants may be grown in pots or on blocks; they do not need much heat, and are impatient of too much water, but must not dry up even when at rest.

Miltonia. *Lindley*. Epiphyte.

Dedicated to Viscount Milton, Earl Fitzwilliam.

B. *Miltonia anceps*. Brazil . . . B. M., 5572.

Reich. Xen., 1, 21.

A rare species. Flowers dark olive; lip reddish purple, on white ground.

A. *Miltonia bicolor*.

This plant is probably a variety of *Miltonia spectabilis*, which it much resembles; flowers large, white; lip white, with violet mark.

A. *Miltonia candida*. Brazil . . . Sert. O., tab. 21.

Pax. Mag., 6, 241.

B. M., 3793.

Perianth yellow, richly marked with reddish brown; lip pure white, marked with violet. Blooms in autumn.

A. *Miltonia candida grandiflora*.

A larger and finer plant, and much more richly marked.

A. *Miltonia candida flavescens*. Brazil. B. R., 1845, tab. 8.

Only differs in the lip being yellowish white.

Miltonia cereola. St. Catharine I. H., 446.

This plant much resembles *Miltonia Regnelli*, of which it may be a variety. The flowers are large, white; lip white, shaded with delicate purple.

A. *Miltonia Clowesii*. Brazil . . . B. M., 4109.

SYNS. *Brassia Clowesii*. Sert. O., tab. 34.

Odontoglossum Clowesii. Pax. Mag., 9, 241.

Sepals and petals pale yellow, barred with chocolate; the lip is purple and white. Blooms in September and October.

Miltonia Clowesii major is larger and finer.

A. *Miltonia cuneata*. Rio Janeiro . . M. O. P., 2.

B. R., 1845, 8.

I. H., 237.

Flowers large; sepals reddish brown, with yellow tips; petals of same color, barred with golden yellow; tips clear yellow; lip pure white, very large.

Miltonia festiva. Brazil.

Flowers in pairs, dark ochre; lip lilac, with purple markings.

A. *Miltonia Karwinskii*. Mexico . Fl. des Ser., 7.

Pax. Mag., 16, 162.

Sepals and petals pale yellow, barred with brown ; lip white at tip, violet at base and reddish in the centre. Blooms in winter.

Known also as *Odontoglossum Reichenheimii*.

A. *Miltonia Loddigesii*. Rio Janeiro.

Flowers large ; deep rose perianth ; carmine lip.

A. *Miltonia Moreliana*. Bahia . . . F. M., 2, 143.

SYN. *Miltonia purpurea violacea*. Jen. Orch., 37.
Gard. Mag., 41.
War. Orch., 32.

Perianth violet ; petals curled at the tip ; lip rose. Flowers large and fragrant. Blooms in September and October. There are many varieties, which differ in intensity of color of the lip.

Miltonia odorata. See *Aspasia lunata*.

B. *Miltonia Pinellii*. Rio Janeiro.

Perianth yellow ; lip white, marked with carmine ; very fragrant.

A. *Miltonia Regnelli*. Brazil . . . Reich. Xen., 47.

B. M., 5436.

F. M., 490.

Bat. 2d Cen., 182.

Flowers white, with rosy purple lip ; scape many-flowered. A fine species ; some of the varieties have an intense crimson lip.

B. *Miltonia Russelliana*. Rio Janeiro . Pax. Mag., 217.

B. R., 1830.

Perianth purple-brown, edged and striped with greenish yellow ; lip lilac, white tipped.

- A. *Miltonia spectabilis*. Brazil . . . I. H., 71 and 216.
 Pax. Mag., 7-97. M. O. P., 1.
 I. H., 524, *var. rosea*. B. M., 4204, 4425.
 Lem. Jard., 108. B. R., 1992.

Perianth greenish white ; lip large, violet-purple, edged with dull white.

There are many varieties, only differing in size of flower, intensity of the purple of the lip, and purity of the white.

Miltonia stellata. See *Cyrtochilum stellatum*.

Miltonia Warneri. SYN. of *Miltonia spectabilis rosea*.

- A. *Miltonia Warscewiczii*. Peru . . . B. M., 5843.
 SYNS. *Odontoglossum Warscewiczii*. Fl. des Ser., 1831.
 I. H., 3, 158.

Odontoglossum Weltoni.

Oncidium fuscatum.

Oncidium Weltoni.

A very beautiful plant, bearing a nodding panicle of flowers, cinnamon-brown, with tips golden yellow ; lip violet-purple, with cream-white margin and pale yellow-brown blotch. A cool Orchid.

These plants are usually grown in pots, with peat. *Miltonia Clowesii* does well in a hanging basket. They will thrive in either house ; during their season of rest they should be kept cool and have but little water, and water should always be carefully given, as too much injures the plants. They should be grown in the shade. The foliage of most of the species is yellowish green.

Mormodes. Lindley. Epiphyte.Name from *mormo*, a goblin.

- C. Mormodes aromatica*. Guatemala . M. O. P., 2.
B. R., 1836, 56.

Flowers dirty, greenish white, tinted and spotted with chocolate purple. Fragrant.

- C. Mormodes lineata*. Guatemala. M. O. P., 2.
B. R., 1842, tab. 43.

Perianth yellow, striped with vermilion; lip white, marked with violet; flower fragrant. The plant needs a gentle heat.

- B. Mormodes citrina*. Mexico.
Flowers yellow, in July and August.

- B. Mormodes luxata*. Mexico . . . M. O. P., 3.
B. R., 29, 33.

Flower pale citron; lip with brown stripes in the centre; very fragrant. Blooms in July.

- C. Mormodes pardina unicolor*. Mexico . B. M., 3879,
3900.
Bat., 14.
Fl. Cab., 113.
I. H., 25.

Flowers beautiful yellow, barred and spotted with deep red.

These plants are cultivated like *Catasetum*, but they are not popular, and are seldom found in collections.

Other species are: —

Mormodes igneum. Pax. Fl. G., 93 ; Lem. Jard., 330.

M. Colossus, B. M., 5840.

M. Cartoni. B. M., 4214.

M. Greenii. B. M., 5802.

M. Hookeri. Lem. Jard., 118.

Myanthus. Lindley. Epiphyte.

Name from *μύα*, a fly.

C. Myanthus cernuus. Brazil . . . B. R., tab. 1721.

Flowers yellowish green, plentifully marked with dark purple. Cultivated like *Catasetum*.

Myanthus barbatus. Pax. Mag., 2, 124 ; B. R., 1778 ; B. M., 3514.

M. spinosus. B. M., 3802.

M. deltoideus. B. R., 1896 ; B. M., 3923.

Myrobroma.

An old name of *Vanilla*.

N.

Nanodes. Reichenbach. Epiphyte.

Name from *νανώδης*, pigmy.

B. Nanodes Medusæ. Ecuador . . Fl. des Ser., 1771.
B. M., 5723.

A singular plant, with stout flattened stem, pale glaucous foliage, and lurid purple fringed flowers. Grow on a block, in the cool house. A rare plant, more curious than beautiful.

Nasonia. *Lindley*. Epiphyte.Name from *naso*, a nose.*Nasonia punctata*. Peru. B. M., 5718.

A dwarf-growing plant without pseudo-bulbs, and with small green alternate leaves. Flowers large, from axils of leaves on short scapes; bright cinnabar-red, with centre of lip yellow; very pretty.

Neottia. *Linnaeus*. Terrestrial.Name from *νεοσσίδ*, a nest.

C. Neottia orchiodes. Brazil B. M., 1036.
B. R., 701.

Flowers rose.

The plants of this genus, except the above, are not sufficiently showy for the Orchid house.

The following are species : —

Neottia aphylla. B. M., 2797.

N. bicolor. B. R., 794.

N. calcarata. B. M., 3403.

N. elata. Schwartz. B. M., 2026; Lodd. Cab., 343.

N. grandiflora. B. M., 2730, 2956.

N. picta. B. M., 1562.

N. plantaginea. Hook. Ex., 226.

N. pudica. Sweet.

N. tortilis. Schwartz.

They should be grown like *Bletia*.

Notylia. *Lindley.* Epiphyte.

Name from *νωτος*, the back, and *τέλος*, a lump.

This genus has little to recommend it.

The following are the best species: —

Notylia Barkeri.

N. bicolor. B. M., 5609; Bat. 2d Cen., 199.

N. incurva.

N. micrantha.

N. punctata. B. R., 759.

SYNS. *Pleurothollis punctata.* B. R.,

Gomeza tannifolia.

N. tenuis.

Cultivate as directed for *Burlingtonia*.

O.**Octomeria.** *Brown.* Epiphyte.

Name from *οκτώ*, eight, and *μέρος*, a part.

There is nothing remarkable in this genus.

Octomeria graminifolia. B. M., 2764; Lodd. Cab., 1891.

O. serratifolia. B. M., 2823.

Octomeria convallaroides, *O. flava*, *O. rosea*, *O. stellata*, and *O. pubescens*, are now all referred to *Eria*.

Odontoglossum. *Humboldt and Kunth.* Epiphyte.

Name from *ὀδούς*, a tooth and *γλῶσσα*, a tongue.

Odontoglossum affine. SYN. of *Odontoglossum Reichenheimii*.

- Odontoglossum Alexandræ*. Bogota. Jen. Orch., 26.
 SYNS. *Odontoglossum Bluntii*. Bat. Odon., 14, 19.
O. crispum. B. M., 5691, 5697,
 5736.
 F. M., 343.
 Fl. des Ser., 1652.
 War. Orch., 2, 23.

A very beautiful species, sporting in many varieties. The type seems to be pure white with bright golden spots on the lip, but the markings vary to red, rose, purplish brown, and many shadings, varying also greatly in the size of the spots and markings. The flower-spike is about twelve inches high, gracefully arching, and bearing from six to twelve large flowers, often three inches or more in diameter, but in fine varieties the spike is often much longer, and bears many more flowers. It is a free bloomer, but requires to be kept very cool.

Odontoglossum anceps I. H., 128.

SYN. of *Miltonia anceps*.

Odontoglossum Andersonianum. New Granada.

F. M., 2, 45.

A beautiful plant, probably a natural hybrid between *Odontoglossum Alexandræ* and *O. præstans* or *O. gloriosum*. The flower is the shape of the former, but sepals and petals are a little narrower. It is creamy white (not milk white), the inferior halves of the sepals and petals are adorned internally with reddish brown dots and streaks, and some such blotches are to be found on the disk of the anterior lip, whose superior part is yellowish. This is a very rare plant.

B. *Odontoglossum angustatum*. Peru . Bat. Odon., 26.

Flowers on tall branching stalks. Sepals and petals narrow, white, with purple spots ; lip white, very short.

Odontoglossum apterum. SYN. of *Odontoglossum Rossii*.

B. *Odontoglossum astranthum*. Ecuador.

A species bearing tall spikes of large flowers, yellowish marked with purplish brown ; lip white, spotted with pale rose.

Odontoglossum auréo-purpureum. SYN. of *Odontoglossum luteo-purpureum*.

A. *Odontoglossum Bictonense*. Guatemala.

B. R., 26, 66.

Bat. Odon., 18.

I. H., 449, and 3, 91.

Fl. des Ser., 1502.

This tall-growing and free-blooming species sports into many varieties, some of which are infinitely superior to the type. The flower-stems are erect, often two feet high. The flowers are about an inch in diameter, yellow banded or spotted with brown ; lip purple, often nearly white. This plant is figured as *Cyrtochilum* in "Bateman's Orchids of Mexico and Guatemala," plate 6, and as *Zygopetalum africanum* in the "Botanical Magazine," tab. 3812. It is a pretty species of easy culture. The varieties *Odontoglossum Bictonense grandiflorum*, *roseum*, and *splendens* differ only in intensity of color and size of flower.

A. *Odontoglossum blandum*. Ocaña . . Bat. Odon., 28.

A very pretty plant, resembling a dwarf form of *Odontoglossum nævium*. Flowers white, speckled with brownish

crimson, on short spikes; exhaling a honey-like fragrance. Requires rather more heat than most species.

Odontoglossum Bluntii. SYN. of *Odontoglossum Alexandra*.

A. *Odontoglossum brevifolium*. Peru . . I. H., 3, 170.

This plant is remarkable for the shortness of the single leaf which surmounts the short pseudo-bulb. The flowers are very large, on a close spike, rich cinnamon-brown, with small bright yellow lip.

Odontoglossum candelabrum. SYN. of *Odontoglossum coronarium*.

B. *Odontoglossum cariniferum*. Central America.

Bat. Odon., 10.

A tall-growing and free-blooming plant, but not very showy. Flowers brownish, with white lip.

A. *Odontoglossum Cervantesii*. Western Mexico.

B. R., 1845, 36.

M. O. P., 4.

Pax. Mag., 12, 193.

Pes., 7.

F. M., 294.

Pax. Fl. G., 15.

I. H., 12.

A delicate little plant. Flowers two inches in diameter, of very delicate texture, rosy pink, with semicircles of rosy crimson; lip white.

A. *Odontoglossum citrosmum*. Mexico. Fl. des Ser., 633.

SYN. *Oncidium Galeottianum*.

B. R., 1842, 3.

M. O. P., 8.

Lem. Jard., 90.

I. H., 59.

Gard. Mag., 261.

War. Orch., 28.

Flowers in pendulous spikes, in spring, measuring two inches across ; perianth rosy white, or pure white ; lip every shade from light pink to purple. There are many varieties, of which *Odontoglossum citrosmum roseum* is the best. The flowers last long in perfection if kept dry, and have a rich lemon fragrance.

B. Odontoglossum constrictum. Caracas.

Flowers yellow, marked with brown ; lip white, tipped with yellow, with two rose-colored spots near the centre. Flowers small but numerous.

B. Odontoglossum cordatum. Mexico.

Fl. Cab., 100.

Pax. Mag., 13, 147.

Bat. Odon., 25.

Pes., 27.

B. M., 4878, as *mac-*

Bat. 2d Cen., 167.

ulatum.

Perianth yellowish green, richly marked with brown ; lip white and purple, marked with brown, sometimes with amber and crimson.

B. Odontoglossum coronarium. Peru . Bat. Odon., 27.
Pes., 47.

A very fine species, with stout, erect flower-spikes, bearing often thirty to forty large blossoms. Sepals and petals reddish brown, edged with bright yellow ; lip golden. The flowers remain long in perfection.

B. Odontoglossum crispum. SYN. of *Odontoglossum Alexandrae*.

B. Odontoglossum cristatum. Peru.

A pretty little species, with creamy yellow flowers, spotted with purplish brown.

The variety *Odontoglossum cristatum* Dayanum or *Argus* (I. H., 3, 21) is remarkable for large flowers and rich color.

B. *Odontoglossum crocidipterum*. New Granada.

A species resembling *Odontoglossum naevium* and *O. odoratum*, but structurally different, the wings of the column being fringed. Flowers pale yellow, spotted with chestnut brown, fragrant.

A. *Odontoglossum Denisonæ*. New Granada. F. M., 2, 26.

Supposed to be a natural hybrid between *Odontoglossum Alexandræ* and *O. luteo purpureum*. Flowers large, pure white, with a few brownish spots; lip white, with citron centre. A strong-growing plant, with branching flower-spikes.

B. *Odontoglossum Ehrenbergii*. Mexico. Fl. des Ser., 846.
I. H., 33.

Sepals white, barred with brownish red; petals white; lip slightly undulate, golden yellow. Flowers not solitary. A very pretty dwarf species, free blooming; flowers almost imperishable.

Odontoglossum epidendroides.

Probably the same as *Odontoglossum Lindleyanum*.

B. *Odontoglossum Galleottianum*. Mexico.

Possibly a hybrid between *Odontoglossum nebulosum* and *O. Cervantesii*. Flowers white; petals brown at base; lip yellow at base.

B. *Odontoglossum gloriosum*. New Granada.

Bat. Odon., 12.

A strong-growing plant, producing tall branching spikes of yellowish white flowers, ocelated with brown, fragrant.

A. *Odontoglossum grande*. Guatemala. Bat., 24.

B. M., 3955.

Fl. des Ser., 21.

Pax. Mag., 8, 49.

Bat. Odon., 8.

Jen. Orch., 13.

Flowers very large, produced on an upright spike, in the autumn. Flowers mottled, banded with brown and yellow; lip white, and light brown. A splendid plant. The variety *Odontoglossum grande superbum* has larger flowers. There is also a spring-blooming variety.

A. *Odontoglossum Hallii*. Ecuador . Reich. Xen., 63.

Bat. Odon., 21.

I. H., 3, 58.

F. M., 2, 378.

Flowers more than three inches in diameter, yellow, blotched with brown; lip white, with purplish crimson markings, delicately fringed.

B. *Odontoglossum hastilabium*. Santa Martha.

B. M., 4272, 4919.

Bat. Odon., 7.

Pes., 11.

A species of easy culture, producing in summer long spikes of white, green, and purple flowers, which remain long in perfection.

Odontoglossum Hookerianum. SYN. of *Odontoglossum cordatum*.

Odontoglossum hystrix. SYN. of *Odontoglossum luteo-purpureum*.

- B. *Odontoglossum Insleayi*. Mexico . Bat. Odon., 4.
War. Orch., 2, 25.

This plant resembles a small variety of *Odontoglossum grande*. The markings of the flower are similar, but it is by no means as showy a plant. It flowers freely in winter, continuing long in beauty. There are many varieties.

Odontoglossum Karwinskii. SYN. of *Odontoglossum Reichenheimii*.

- A. *Odontoglossum Kramerii*. Costa Rica. Bat. Odon., 24.
B. M., 5778.
F. M., 2, 406.

The flowers of this species are among the loveliest of the genus. Sepals and petals violet white; lip pale violet red. Should be grown in a basket, as the flower-spikes are pendulous. This is not a cool Orchid.

Odontoglossum læve. SYN. of *Odontoglossum Reichenheimii*.

Odontoglossum Lawrencianum. SYN. of *Odontoglossum Insleayi*.

- A. *Odontoglossum Lindleyanum*. Ocaña. Reich. Xen., 71.
Bat. Odon., 11.

Flowers pale yellow, with large chestnut bands; lip white and yellow. A cool Orchid, found only on great elevations.

- A. *Odontoglossum luteo-purpureum*. New Granada.
Bat. Odon., 17.
I. H., 3, 73.

A species sporting into many varieties. Flowers of medium size, plentifully produced, bright purple-brown,

margined with golden yellow, with golden fringe on the lip. This plant is found at an elevation of eight thousand feet.

- A. *Odontoglossum maculatum*. Mexico. B. R., 1840, 30.
 Pes., 28.
 Bat. Odon., 20.
 F. M., 348, as
maculosum.

Flowers large, on arching spike, deep yellow, marked with rich brown; lip large. A fine species, of which there are fine varieties. This species is often confounded with *Odontoglossum cordatum*; as for instance, in the plate in the "Botanical Magazine," 4878.

- A. *Odontoglossum maxillare*. Mexico. . . B. M., 6144.
 I. H., 3, 200.

A beautiful species, allied to *Odontoglossum Cervantesii*. Flower two inches in diameter, white, with reddish brown spot at base of petals and purple-brown spot at base of sepals; lip white, with broad orange blotch. A very rare plant.

- B. *Odontoglossum membranaceum*. Guatemala.
 B. M., 4923.
 Pes., 5.
 M. O. P., 5.
 B. R., 32, 34.

Sepals and petals white; lip barred with brown. Blooms during the winter. A very pretty and delicate plant, with delightfully fragrant flowers. There are many varieties, all good.

- A. *Odontoglossum naevium*. New Granada. *Pes.*, 13.
Pax. Fl. G., 18.
Bat. Odon., 9.
Fl. des Ser., 594.

Flowers pure white, marked with rosy wine-color ; lip yellow. A charmingly graceful plant.

- A. *Odontoglossum nevadense*. New Granada. *I. H.*, 3, 45.

A pretty and rare species. Sepals and petals dark brown, bordered and tipped with bright yellow ; lip white, with crimson markings.

- A. *Odontoglossum nebulosum*. Mexico . *Bat. Odon.*, 1.

A species from very cold mountains at an altitude of ten thousand feet. Flowers large, on arching spike, white and rose-color. A beautiful plant, but of very difficult culture ; it is almost always killed by heat. Blooms in spring.

- Odontoglossum nobile*. SYN. of *Odontoglossum Pescatorei*.

- A. *Odontoglossum odoratum*. New Granada. *I. H.*, 3, 39.

This plant bears fragrant flowers, on branching panicles, color bright yellow, blotched with brown. A winter bloomer.

- B. *Odontoglossum pardinum*. Peru . . . *B. M.*, 5993.

SYN. *Cyrtochilum pardinum*.

A rare species, producing large branching panicles of pale golden yellow flowers, marked with a few orange red spots.

A. *Odontoglossum Pescatorei*. New Granada.

Pes., 1.

Bat. Odon., 5.

Pax. Fl. G., 90.

Fl. des Ser., 1624.

War. Orch., 25.

F. M., 241.

Lem. Jard., 331.

One of the noblest of the genus, bearing large branching spikes of rosy white flowers, with a patch of yellow on the lip.

It is a beautiful plant, of which there are many varieties, all worth growing.

Odontoglossum pendulum. SYN. of *Odontoglossum*

citrosimum Bat. Odon., 6.

A. *Odontoglossum Phalanopsis*. Ecuador. War. Orch., 30.

Bat. Odon., 3.

Pes., 44.

A dwarf species, with large, showy flowers; foliage light green, very narrow; flowers in clusters of two or three, about two inches in diameter, white, painted with rose.

A distinct species, which should have more heat than any of the family.

B. *Odontoglossum platyodon*. Colombia.

This plant often produces a hundred flowers on a stem; color yellow, very showy. Requires very cool culture, as it grows naturally in a region of snow, and where water freezes at night.

Odontoglossum pretiosum. SYN. of *Odontoglossum Schlieperianum*.

- A. *Odontoglossum pulchellum*. Mexico. B. M., 4104.
 B. R., 1844, 48.
 M. O. P., 8.
 War. Orch., 2, 13.

Flowers white ; crest of lip crimson. Blooms in winter. A very fragrant and pretty plant of neat habit. The varieties differ in size of flower and in foliage.

Odontoglossum radiatum. SYN. of *Odontoglossum luteo-purpureum*.

- Odontoglossum Reichenheimii*. Mexico. I. H., 213.
 SYNS. *Miltonia Karwinskii*. Bat. Odon., 15,
Cyrtochilum Karwinskii. 16, as *lave*.
 War. Orch., 2, 16.
 Pes., 19.

A plant for which there have been many synonyms, and of which the flowers vary much in different plants. The spike is tall and branching, the flowers are yellow, clouded with green, and barred with purplish brown ; lip purple, of different shades in different individuals.

- B. *Odontoglossum roseum*. Ecuador . Bat. Odon., 22.
 I. H., 3, 66.
 B. M., 6084.

A pretty little species, with racemes of bright rosy flowers.

Called also *Mesospinidium roseum*.

- B. *Odontoglossum Rossii*. Mexico . B. R., 1830, 48.
 Fl. des Ser., 2110. M. O. P., 3.
 Lind. Sert., 25. Maund, Bot., 222.
 Fl. Cab., 129.

Sepals greenish yellow, marked with brown; petals white, with purple spots; lip white. Blooms in winter.

This species resembles *Odontoglossum Ehrenbergii*, except that the flowers are solitary.

The varieties *Odontoglossum Rossii majus* and *superbum* are very superior forms, the flowers being three inches in diameter and often more than one on a spike; the colors are richer, and the lip is sometimes purple.

- A. *Odontoglossum Roezlii*. Colombia. Bat. Odon., 30.
 B. M., 6085.
 F. M., 2, 164,
var. album.
 F. M., 2, 90.

A species allied to *Odontoglossum vexillarium* and *Phalænopsis*.

Flowers very large, pure white; base of petals purple; lip white, yellow, and brown.

- B. *Odontoglossum rubescens*. Nicaragua.

A pretty little species; sepals and petals blush, spotted with crimson; lip white.

- B. *Odontoglossum retusum*. Ecuador.

A dwarf plant, bearing a branching spike of orange and yellow flowers.

- A. *Odontoglossum Schlieperianum*. Costa Rica.

SYN. *Odontoglossum grande pallidum*. F. M., 2, 461.

A species resembling *Odontoglossum Insleayi* in growth, but distinct in flowers, which are self-colored amber and almost without spots. A summer bloomer.

A. *Odontoglossum tripudians*. Peru . . . B. M., 6029.

A rare species. Sepals and petals yellowish green outside ; clear maroon-brown, with gold markings inside ; lip white, marked with pink, with rich amethyst blotch in the centre.

A. *Odontoglossum triumphans*. New Granada.

I. H., 609.

Bat. Odon., 23.

Pes., 46.

A magnificent species. Flowers very large, in racemes ; golden yellow, blotched with bright cinnamon ; lip pure white, with yellow centre, and tip light rose.

B. *Odontoglossum Uro Skinneri*. Guatemala.

Bat. Odon., 2.

Flowers yellowish green, with brown spots ; lip white.

A. *Odontoglossum vexillarium*. New Granada.

Jen. Orch., 36. I. H., 3, 113.

B. M., 6037. Fl. des Ser., 2058.

Bat. Odon., 29. War. Orch., 2, 38.

F. M., 2, 73.

Flowers very large, with heart-shaped lip ; white, tinted with rose and yellow at the base ; sepals and petals of same color, in some flowers, having a long purple line in the centre. A free bloomer.

This magnificent plant will be scarce for some time, as it is very difficult to import.

B. *Odontoglossum Wallisii*. New Granada. I. H., 3, 56.

A pretty plant, with yellow flowers, marked with brown ; lip white, marked with violet.

A. Odontoglossum Warnerianum. Mexico.

Bat. Odon., 3.

War. Orch., 2, 20.

B. R., 33, 20.

A rare and elegant species ; sepals and petals pure white, with a few brown spots ; lip white, shaded with rose, with yellow blotch at the base. Scape three to five-flowered.

A. Odontoglossum Warscewiczii. Costa Rica.

B. M., 6163.

Reich. Xen., 81.

A species of wonderful beauty, and the rarest of all.

Flowers white, with deep crimson-pink centre ; large, three to five on a spike.

Beautiful as are the former species, this last discovery bids fair to excel them all.

Odontoglossum Weltoni. See *Miltonia Warscewiczii*.

The *Odontoglossums* are by no means plants of easy culture ; most of them are cool Orchids, and perish if kept hot. The heat of our summers is an almost insuperable obstacle to the successful cultivation of the cool species, and as yet no means has been found to overcome this difficulty. Exposure to our summer sun is certain death to the delicate species. Perhaps the best way to attempt their culture would be in houses facing the north, from which during the hottest weather the lights could be removed and replaced by canvas on rollers. They all need free air, clean potting, and are impatient of sour soil.

All are evergreen, and produce the flower-stems from the base of the pseudo-bulbs. Some of the species, such as *Odontoglossum grande*, *Insleayi*, *citrosium*, *Phalenopsis pulchellum*, will grow well in any intermediate or Mexican Orchid house. Most of the species do best in pots, with peat and moss, with good drainage. The small-growing kinds, such as *O. Ehrenbergii*, do well on blocks. Some of the tall growers require a good peat soil, but all soil must be fresh and sweet. They must never be allowed to dry up, but water must at all times be given judiciously.

Recent years have added to the genus (in 1833 there were but five known species), and every year gives us new discoveries; latterly it would seem as if each new-comer was more beautiful than any we had before known. To attain success in the culture of this beautiful genus of plants is worth any labor, which will be well repaid by the stately grandeur of some of the species, the delicate beauty and the charming fragrance of others.

Ceoclares. Lindley. Epiphyte.

Name from *οικέω*, to inhabit, and *κλάδος*, a branch.

There is little to recommend in this genus.

Ceoclares maculata has curiously marbled foliage. It is also known as *Trichocentrum maculatum*.

Oncidium. Schwartz. Epiphyte.

Name from *ὄγκος*, a tubercle, and *εἶδος*, appearance.

A. *Oncidium acinaceum*. Peru.

A very pretty cool house species. Flowers of medium

size, white and violet, bordered with white; lip violet, shaded with carmine.

- A. *Oncidium æmulum*. New Granada . . B. M., 5980.
 SYN. *Oncidium superbiens*.

Another cool house species and a plant of great beauty, well meriting its name, whichever we adopt. Flowers cinnamon and yellow in immense branching panicles, many feet in length, and often bearing a hundred blossoms.

- B. *Oncidium altissimum*. Panama . B. R., 1651, 1851.
 SYNS. *Epidendrum altissimum* B. M., 2990.
 (Jacquin).

Perianth yellow, edged and spotted with brown; lip yellow. The flower-stalks are several feet long, very much branched and covered with flowers.

- B. *Oncidium ampliatus*. Mexico . . . B. R., 1699.

Perianth yellow, slightly marked with yellowish brown; lip brilliant yellow; back white.

- A. *Oncidium ampliatus majus*. Guatemala. . .
 Fl. des Ser., 2140.

Perianth like the last; lip very large and pale yellow. Blooms on a long branching spike from April to August, and often continues in bloom for two months when the spikes are strong.

- Oncidium aurosum* I. H., 3, 34.
 SYN. of *Oncidium excavatum*.

- B. *Oncidium barbatum*. Bahia . . . B. R., 1842, 74.
 Perianth golden yellow, spotted and marked with

blood-purple; lip very short, of brilliant yellow, with fringed wings; the column yellow marked with purple. A brilliant flower. This species may be grown on blocks. There are many varieties.

- A. *Oncidium Barkeri*. Mexico . . Sert. O., 48.
 SYN. *Oncidium tigrinum*. B. R., 1651.
 Pax. Mag., 14, 97.
 I. H., 2.

Flowers large; perianth rich brown, barred with yellow; lip bright yellow, an inch or more across. Blooms in winter.

- B. *Oncidium Batemanii*. Brazil . . . Fl. Cab., 137.
 SYNS. *Oncidium racemosum*.
O. spilopterum.
O. stenopetalum.

A rare species, and not free-flowering, but worth growing, as the flowers are a very bright yellow and showy.

- C. *Oncidium Baueri*. Mexico . . . B. R., 1651.
 Perianth yellow, striped and margined with yellowish brown; lip yellow. This species strongly resembles *Oncidium altissimum*.

- A. *Oncidium bicallosum*. Guatemala . B. R., 1843, 12.
 B. M., 4148.
 I. H., 458.

Flowers brilliant yellow, slightly fragrant. Sepals and petals cinnamon-brown. A better plant than *Oncidium Cavendishii*, which it much resembles and with which it is often confounded. It is one of the most showy of winter-blooming Orchids.

B. *Oncidium bicolor*. Spanish Main . . . B. R., 29, 66.

Perianth deep yellow, marked with crimson; lip yellow, white underneath. Blooms in September. Grow on a block.

Oncidium bicornutum B. M., 3109.

B. R., 1007.

See *Oncidium pubes*.

A. *Oncidium bifolium*. Monte Video. Lodd. Cab., 1845.
B. M., 1491.

The perianth, which is small, is brown; the lip is very large, of a beautiful yellow. This plant is rather difficult to grow; it succeeds best in a pot, with moss, suspended from the roof, close to the rafters.

A. *Oncidium bifolium majus*.

A variety with larger and brighter flowers, and very superior to the species.

B. *Oncidium calanthum*. Ecuador. . . . F. M., 384.

A cool species, with brilliant yellow flowers; that of the lip being deeper than the petals and sepals, with red in centre. A free grower and bloomer in winter and early spring.

Oncidium candidum. SYN. of *Palumbina candida*.

C. *Oncidium Carthaginense* Lodd. Cab., 662.

SYNS. *Epidendrum undulatum*. B. M., 1491, 20,

E. Carthaginense (Jacquin). 777.

Oncidium Henchmanii.

Perianth olive, marked with brown; lip yellow, marked with red. Flower-spikes very large.

- A. *Oncidium Cavendishii*. Mexico. Bat., 3.
B. M., 3807, as

O. pachyphyllum.

Flowers large greenish yellow, marked with purple ; lip vivid yellow. Foliage large, rich green. Blooms in winter.

- B. *Oncidium chrysothyrsus*. Brazil . War. Orch., 2, 5.

A very pretty species. Flowers on a branching panicle ; greenish, streaked with red ; lip bright yellow.

- C. *Oncidium Cebolleta*. Demerara . . . B. M., 3568.

SYNS. *Epidendrum Cebolleta* (Jacquin). B. R., 1994.

E. juncifolium (Linn.).

Cymbidium juncifolium (Willd.).

Oncidium juncifolium (Lindley).

Flowers yellow, the perianth slightly marked with yellowish brown at the base. May be grown on blocks.

- B. *Oncidium ciliatum*. Brazil B. R., 1660.

The flowers of this species vary ; they are yellow, sometimes marked with red, sometimes with orange-brown ; the wings of the lip are fringed ; the lip is larger than in *Oncidium barbatum*, but in this latter species the flowers are abundant, while in *O. ciliatum* it is rare to find more than seven or eight on a stalk. This species will do well with block culture. Also known as *O. fimbriatum*.

- C. *Oncidium concolor*. Organ Mountains . B. M., 3752.

Flowers yellow ; lip large.

Oncidium comosum. SYN. of *Cyrtopodium Andersonii*.

- A. *Oncidium cornigerum*. New Granada . B. R., 1542.
B. M., 3486.

A very pretty species, bearing dense panicles of curious red-spotted, yellow flowers. Blooms very freely in spring. It does well either in a pot or on a block, and the flowers last long in perfection. This is one of the best of the small-flowering class.

- A. *Oncidium Cræsus*. Brazil F. M., 2, 40.

A charming dwarf free-blooming species. The flowers are clear yellow, and dark purple-brown, and bear some resemblance to a pansy.

- A. *Oncidium crispum*. Brazil . . . B. M., 3499.
Fl. des Ser., 2148. Lodd. Cab., 1854.
F. M., 485. B. R., 1920.
War. Orch., 2, 26. Maund, Bot., 26.
Fl. Cab., 64.

Perianth copper-color; lip yellow, with lighter yellow spots. Flowers large. There are many varieties differing only in shading and markings. Grows well on a block. This is a very showy plant when well grown. The color is peculiar and the flowers are very attractive. No illustration reproduces the bronzy lustre of the flower.

- C. *Oncidium cryptocopis*. Peru B. M., 5858.

A very peculiar species with chocolate-brown flowers, edged with yellow, and crimped, on very long peduncles. More curious than beautiful.

B. *Oncidium cruentum*. Mexico . . . B. R., 33, 70.

SYN. *Oncidium pelicanum*.

A pretty little species. Flowers yellow, barred with brown ; lip paler yellow.

A. *Oncidium cucullatum*. Colombia . Pax. Fl. G., 87.

SYN. *Leochilus sanguinolens*. Lem. Jard., 317.

Fl. des Ser., 835.

Perianth green, marked with large brown bands ; lip very large, rosy lilac, with deeper markings. This species needs but little heat.

There are many varieties ; in *macrochilum* the sepals and petals are violet-crimson ; the lip mauve, spotted with violet.

Oncidium cuneatum. SYN. of *Oncidium luridum*.

Oncidium cyrtochilum. SYN. of *Oncidium leucochilum*.

C. *Oncidium deltoideum*. Peru . . . B. R., 2006.

Perianth vivid yellow ; lip triangular, yellow, richly marked with red.

Oncidium diadema. SYN. of *Oncidium serratum*.

C. *Oncidium divaricatum*. Brazil . Pax. Mag., 3, 4.

Sert. Bot., 7.

B. R., 1050.

Lodd. Cab., 1212.

Flowers greenish yellow, marked with red ; fragrant. The single flowers have little beauty, but their profusion renders the plant desirable. Blooms in summer.

C. *Oncidium digitatum*. Guatemala. Fl. des Ser., 1853.

Flowers green and white, like *Oncidium leucochilum*.

B. *Oncidium euxanthinum*. Brazil.

A dwarf species, which is best grown on a bank. Flowers yellow and brown, with yellow lip.

A. *Oncidium excavatum*. Honduras . . I. H., 3.

SYN. *Oncidium aurosum*. B. M., 52.

Perianth rich golden-yellow, with rich cinnamon spots on tall spike. A very handsome plant.

Oncidium filipes. SYN. of *Cyrtorchilum filipes*.

Oncidium fimbriatum. SYN. of *Oncidium ciliatum*.

A. *Oncidium flexuosum*. Brazil . . Lodd. Cab., 424.

Sert. Bot., 7.

B. M., 2203.

The flowers are brilliant yellow, on a long, slender stalk. This is one of the most useful of the genus, free blooming, of easiest culture, always bright and pretty, and lasting long when cut. Does equally well in a pot or basket.

A. *Oncidium Forbesii*. Organ Mountains . B. M., 3705.

Flowers very large, chocolate-color, edged with brilliant yellow. A rare plant.

A. *Oncidium Forkeli*. Mexico.

Sepals greenish yellow, marked with crimson; petals violet.

Oncidium fuscatum. SYN. of *Miltonia Warscewiczii*.

Oncidium Galeottianum. SYN. of *Odontoglossum citreum*.

Oncidium glaucum. SYN. of *Oncidium Cebolleta.*

B. *Oncidium Harrisoni.* Brazil . . . Lodd. Cab., 1917.
B. R., 1569.

Perianth yellow, marked with brown ; lip clear yellow.

Oncidium hians. SYN. of *Oncidium maxilligerum.*

A. *Oncidium hæmatochilum.* New Granada.

Pax. Fl. G., 6.

Sepals and petals greenish yellow, blotched with chestnut ; lip rich crimson and rose. This is one of the most magnificent of Orchids ; the flowers are large, indescribably rich in markings, and exquisitely fragrant. A plant in our collection lasted in perfection for two months.

Blooms in summer. Slugs prefer the roots and flower-stalks of this plant to any other Orchid, and if there is a slug in the house he will find this plant. A very rare Orchid.

Oncidium hastatum. SYN. of *Odontoglossum hastatum.*

Oncidium Henchmani. SYN. of *Oncidium Carthaginense.*

A. *Oncidium holochrysum.* Peru.

A very dwarf plant, with spotted bulbs. Flowers rich golden yellow. A rare Orchid. Our plant cost us ten times its weight in gold.

Oncidium Huntianum. See *Oncidium sanguineum.*

B. M., 3806.

A. *Oncidium hyphæmaticum*. Ecuador.

A small species requiring cool treatment ; flowers purplish, shaded brown, blood-red outside ; lip clear yellow.

- A. *Oncidium incurvum*. Mexico . . . I. H., 49.
 B. R., 31, 64.
 Bat., tab. 29.
 B. M., 4824.

Flowers pale lilac, marked with white, produced during the winter. A very pretty plant.

Oncidium Insleayi. SYN. of *Odontoglossum Insleayi*.

C. *Oncidium iridifolium*. Mexico . . . B. R., 1911.

Flowers yellow, striped with red. This species requires a dry, sunny situation.

Oncidium janeirense. SYN. of *Oncidium longipes*.

Oncidium juncifolium. SYN. of *Oncidium Cebolleta*.

Oncidium Karwinskii. SYN. of *Odontoglossum Reichenheimii*.

A. *Oncidium Kramerianum*. Central America.

- Jen. Orch., 11.
 Fl. des Ser., 1956.
 F. M., 465.

A species much resembling *Oncidium Papilio*, of which it is probably a variety ; the foliage is handsomely spotted. Flowers rich yellow, with dark brown markings ; lip beautifully crimped.

The flower-stalk continues to produce flowers for months.

- A. *Oncidium Lanceanum*. Guiana . Pax. Mag., 4, 169.
 B. R., 1887.
 Fl. Cab., 79.

Foliage beautifully variegated ; perianth yellow, irregularly marked with crimson ; lip rich violet. Flower very fragrant. Grow in pot or basket, with peat. The plant figured in Fl. des Ser., 1842, seems to be neither *Oncidium Lanceanum* or *hæmatochilum*, but to have characters of both.

There is a species with a white lip.

- C. *Oncidium Lemonianum*. Havana . . B. R., 1789.

Flowers yellow, marked with red ; lip vivid yellow, same markings.

- C. *Oncidium leopardinum*. Peru.

Flowers yellow, spotted with brown.

- A. *Oncidium leucochilum*. Mexico . Bat., 4.
 Pax. Mag., 7, 241.
 Fl. des Ser., 522, as
Cyrtochilum.

Perianth greenish yellow, marked with brown ; lip white, slightly tinted with rose.

This plant is easily mistaken for *Odontoglossum candidum*, which it much resembles.

- A. *Oncidium Limminghei*. Brazil . Fl. des Ser., 1827.

A minute species, resembling a *Sophronitis*. Pseudobulbs flat and roundish ; root-stalk creeping ; flowers large, bright golden, with crimson-spotted lip. A little gem of a plant.

C. *Oncidium longifolium*. Mexico . . . B. R., 28, 4.

Perianth yellow, marked with brown; lip entirely yellow, except a spot at the base. This species resembles *Oncidium Cebolleta*, but is a stronger plant. May be grown on blocks.

A. *Oncidium longipes*. Rio Janeiro . . . B. M., 5193.
Bat. 2d Cen., 165.

A small free-flowering species, blooming all summer; flower brown and yellow; lip bright, almost golden yellow, with blood-colored rim at base.

C. *Oncidium lunatum*. Demerara . . . B. R., 1929.

Flowers sulphur-yellow, rich brown spots; lip white, marked with pale brown.

C. *Oncidium luridum*. Jamaica . . . B. M., 3603.
Fl. Cab., 97.

Flower stems often nine feet long. Flowers about an inch and a half in diameter, brown and spotted.

B. *Oncidium luridum guttatum*. West Indies.

SYNS. *Epidendrum guttatum* (Linn.). B. R., 25, 16.

Cymbidium guttatum (Willd.).

Oncidium Boydii.

Flowers yellowish brown, beautifully marked with red; the shade deeper toward the base of the lip. A single stem has borne with us two hundred and eighty flowers.

A. *Oncidium macranthum*. New Granada.

Jen. Orch., 42.

B. M., 5743.

F. M., 386.

War. Orch., 2, 17.

A magnificent plant, with very long scandent stems, producing a profusion of flowers, three to four inches in diameter ; sepals purplish brown, tipped with yellow ; petals golden, with blood-red markings ; lip crimson-purple, with white crest. Blooms in spring and summer.

Oncidium macranthum hastiferum.

A fine variety, with olive-yellow sepals, bright yellow petals, and crimson lip.

Oncidium maculatum. SYN. of *Odontoglossum maculatum.*

A. *Oncidium Marshallianum.* South America.

B. M., 5725.

Flowers golden yellow, with rich crimson-brown spots. A large-flowered, magnificent species.

C. *Oncidium maxilligerum.* Brazil.

SYN. *Oncidium hians.*

A species resembling *Oncidium Harrisonii*. Lip of a more vivid yellow ; crest of the column bent back, and forms with the top of the lip some resemblance to a jaw-bone.

C. *Oncidium microchilum.* Guatemala.

B. R., 1843, tab. 23.

Sepals greenish red ; petals red and yellow ; lip white and yellow.

C. *Oncidium monoceras.* Brazil . . . B. M., 3890.

Sepals greenish ; petals yellow, marked with brown ; lip yellow, tinted with red at the base, having a horn at the top.

A. *Oncidium nubigenum*. Ecuador . . . B. M., 5708.

A lovely little plant, growing at a greater elevation than any other Orchid, — fourteen thousand feet above the sea. It somewhat resembles *Odontoglossum Phalenopsis*. Flowers brownish, shaded with crimson; lip white, marked with violet. The markings of the flowers vary much in different plants. Requires the coolest treatment.

A. *Oncidium oblongatum*. Guatemala.

Flowers large, bright yellow in winter.

A. *Oncidium obryzatum*. New Granada.

A beautiful and deliciously fragrant species, free flowering, and one of the best of the genus. Flowers small, but bright golden, and very beautiful. Blooms in July. There are many varieties, all good.

A. *Oncidium ornithorhyncum*. Guatemala.

B. R., 1840, 10.

B. M., 3912.

Bat., 4.

Fl. Cab., 136.

Flowers beautiful lilac, fragrant, all the autumn. If grown on wood, it needs care to prevent its becoming dry during the growing season. It shows to best advantage in a basket.

A. *Oncidium Papilio*. Trinidad . . Lodd. Cab., 1086.

Jen. Orch., 11. B. M., 2795.

Sert. Bot., 7. B. R., 910.

Maund, Bot., 10.

Sepals very long, rich brown, marked with green; petals and lip (which is very large) are marked with beautiful yellowish brown, with a large pale yellow spot in the middle of the lip. The flowers are solitary, and resemble a butterfly. Grows on blocks or in pots. There are many varieties, differing in size and color of the flowers.

Oncidium pelicanum. SYN. of *Oncidium cruentum*.

B. R., 33, 70.

A. *Oncidium Phalænopsis*. Peru I. H., 3, 3.

A plant resembling *Oncidium cucullatum*, but of stronger habit. Flowers large, cream-color, marked with violet; lip white, marked with crimson, and with golden-yellow crest. Requires cool culture.

A. *Oncidium phymatochilum*. Rio Janeiro. Pes., 35.

B. M., 5214.

Sepals and petals long and narrow, brilliant yellow, marked with brown; the lip is large at the base, swollen at the summit. Blooms in May and June, very profusely.

C. *Oncidium Pinelianum*. Rio Janeiro.

Perianth yellow, with large brownish red spots; lip clear yellow. The flower-stalk is long, not branched, producing seven or eight flowers. Perhaps same as *Oncidium Batemani*.

C. *Oncidium pubes*. Brazil B. R., 1007.

B. M., 3926, var.

Flowers orange-yellow, marked with brown; the perianth is half unclosed, and does not spread itself out, as in other *Oncidiums*.

B. *Oncidium pubes flavescens*. Brazil.

A variety with yellow ground, with copper-colored spots; flower-stalk tall, branched and floriferous.

C. *Oncidium pulchellum*. Demerara. B. R., 1787.

Lodd. Cab., 1984.

B. M., 2773.

Flowers white, with orange mark at the base of the lip, and a rosy shade round the column. Blooms profusely, in a panicle.

B. *Oncidium pulvinatum*. Brazil . . . B. R., 25, 42.

Flowers yellow, marked with brown; an enlargement of the top of the lip is covered with down, and resembles a cushion. The flower-stalks are long and many-flowered.

C. *Oncidium ramosum*. Brazil.

Flowers greenish yellow, richly spotted with brown; the lip is curiously formed.

C. *Oncidium raniferum*. Brazil . . . B. M., 3712.

B. R., 1838, 48.

Flowers yellow; the upper part of the lip forms a brownish red swelling which bears a slight resemblance to a frog.

B. *Oncidium reflexum*. Mexico . . Maund, Bot., 116.

Flowers yellow; differing little from *Oncidium altissimum*, but with brighter flowers. An autumn bloomer.

C. *Oncidium retusum*. Brazil . . . B. R., 1920.

Flowers yellow; sepals and petals marked with brown; lip entirely yellow.

B. *Oncidium Rigbyanum* . . . Pax. Mag., 16, 257.

Flowers paniced ; sepals and petals brilliant citron-yellow, with deep brown spots in the centre ; lip vivid yellow, spotted with brown and edged with little indentures. By some this is considered the same as *Oncidium sarcodes*.

A. *Oncidium Rogersii*. Brazil . . . Jen. Orch., 29.

F. M., 477.

War. Orch., 2, 31.

A very beautiful winter-blooming species, with large rich golden flowers on a tall branching spike. One of the best species ; probably a variety of *Oncidium varicosum*.

B. *Oncidium roseum*. Honduras. Lindley.

Flowers rosy white, spotted with red or crimson. This is a rare and pretty species.

Oncidium rupestre. Peru.

A pretty cool-house species. Flowers on a many-branched spike, flame-color, spotted with brown.

C. *Oncidium sanguineum*. La Guayra. Sert. O., tab. 27.

Flowers pale yellow, marked with blood-red.

A. *Oncidium sarcodes*. Brazil . . . War. Orch., 23.

I. H., 3, 165.

Flowers yellow and crimson, on large panicles, producing thirty flowers or more. A very showy and rare plant.

B. *Oncidium serratum*. Peru . . . Bat. 2d Cen., 194.

B. M., 5632.

Flowers bright chocolate-color, tipped with yellow. A singular plant, more curious than beautiful.

B. *Oncidium sessile*. Santa Martha . . Pax. Fl. G., 21.

Flowers yellow, spotted in the centre with pale cinnamon.

B. *Oncidium sphacelatum*. Mexico . . B. R., 1842, 30.

Flowers yellow and brown, resembling *Oncidium altissimum* and *O. reflexum*. A good old Orchid, always blooming, and lasting long in beauty.

B. *Oncidium spilopterum*. Mexico . . B. R., 31, 40.
Pax. Mag., 15, 200.

Perianth deep purplish lilac, slightly marked with yellow; lip large, deep yellow inside, cream-color outside, deeply undulate. Should be grown in a pot, with turfy peat and potsherds, and elevated above the rim of the top. Keep in a shady place. Perhaps a variety of *Oncidium Batemani*.

A. *Oncidium splendidum*. Guatemala. Fl. des Ser., 1825.

A very fine species. Flowers large; sepals and petals small, greenish yellow and brown; lip large, bright clear yellow.

C. *Oncidium Sprucii*. South America.

A species resembling *Oncidium Cebolleta*, with bright yellow flowers.

C. *Oncidium Suttoni*. Guatemala . . . B. R., 1842, 8.

Perianth deep olive-brown, with yellow tips; lip yellow, with deep olive-brown spot in the centre.

B. *Oncidium tricolor*. Jamaica B. M., 4130.
 Perianth yellowish green striped and spotted with red ;
 lip white, striped with red.

C. *Oncidium triquetrum*. Jamaica B. M., 3393.
 SYNS. *Cymbidium triquetrum* (Willd.).
Epidendrum triquetrum (Schwartz).

Flowers greenish white, marked with reddish purple.
 Grow on blocks.

C. *Oncidium trilingue*. Peru Pax. Fl. G., 63.
 Lem. Jard., 217.

A species much resembling *Oncidium serratum*. Flow-
 ers chocolate-brown, edged with yellow.

C. *Oncidium trulliferum*. Brazil B. R., 1839, 57.
 Perianth yellow, marked with reddish brown ; lip yel-
 low, having in the centre the form of a trowel.

Oncidium unicorne. See *Oncidium monoceras*.

C. *Oncidium uniflorum*. Rio Janeiro . . B. R., 1843, 43.
 Flowers vivid yellow, marked with dull brown ; lip bril-
 liant yellow ; very fragrant. In spite of the name each
 bulb produces a flower-stalk, carrying two or three flow-
 ers.

C. *Oncidium unguiculatum*. Guatemala.
 Flowers large, yellow, on a long branching spike, pro-
 duced in winter.

Oncidium varicosum Lem. Jard., 207, 7.
 See *Oncidium Rogersii*.

- C. *Oncidium variegatum*. West Indies. Lem. Jard., 99.
Pax. Fl. G., 33.

A pretty species, with rosy-pink blossoms.

- Oncidium Weltoni*. SYN. of *Miltonia Warscewiczii*.

- C. *Oncidium Wentworthianum*. Guatemala . Bat., 39.
Flowers yellow, richly marked with crimson.

- C. *Oncidium Wrayæ*. Mexico B. M., 3854.
Perianth brilliant yellow, marked with brown; lip deep yellow; flowers large.

- B. *Oncidium xanthodon*. Ecuador . . . B. M., 5756.
A fine-blooming species allied to *Oncidium serratum*; flower-spike very large, bearing a profusion of rich brown and yellow flowers.

- A. *Oncidium zebrinum*. Venezuela . . . B. M., 6138.
A very beautiful species, producing long branching (12 feet) spikes; perianth pure white, with red-purple bars; lip barred with gamboge-yellow. A rare plant.

These plants are all evergreen. Those having large leaves or tall flower-stalks should be grown in pots, with peat and moss, with good drainage. Those with small leaves, except *Oncidium uniflorum*, which does best in a pot, should be grown on blocks, with a little moss. All species will succeed well, however, with pot culture. They require plenty of heat and moisture in the growing season, but afterwards only just enough water to keep the leaves and bulbs from shriveling. The plants will thrive in either house. Propagated by division. *Oncidi-*

ums should be grown in every collection. They are very showy, of easy culture, and give abundance of gay bloom.

Ornithidium. *Salisbury.* Epiphyte.

Name from *ὄρνις*, a bird, and *εἶδος*, resemblance.

C. Ornithidium album. Trinidad . . . B. M., 3306.

Flowers solitary, clear transparent white, the upper stigma in the form of a beak.

C. Ornithidium coccineum. Martinique . Hook. Ex., 38.
B. M., 1437.

Flowers of same shape as the last; color clear red.

These plants are more curious than ornamental. They may be grown on blocks or in pots, well drained; too much moisture speedily rots the roots.

Ornithocephalus. *Hooker.* Epiphyte.

Name from *ὄρνις*, a bird, and *κεφαλή*, a head.

This genus affords no plants of special interest.

Ornithocephalus gladiatus Hook. Ex., 127.

P.

Palumbina. *Reichenbach.* Epiphyte.

Name from *palumba*, a dove.

Palumbina candida. Mexico B. M., 5546.

A charmingly pretty plant allied to *Oncidium*, and formerly known as *Oncidium candidum*. Flowers waxy

white, with yellow centre, on delicate spikes. This plant does well under cool treatment. Care must be taken not to over-water. Blooms in summer.

Paphinia. *Lindley.* Epiphyte.

Name from *Paphos*, a shrine of Venus, or from *Paphia*, a surname of Venus.

A. *Paphinia cristata.* Trinidad . . B. M., 4836.

Fl. des Ser., 335.

Bat. 2d Cen., 117.

Sepals chocolate purple, marked with pure white; petals blood-purple, evenly margined with white. The outside of the perianth is a dull purplish white; lip white, barred with purple, and fringed. The flowers are large, produced at different seasons, one or two together.

Paphinia tigrina. SYN. of *Houlletia tigrina.*

Grow plants of this genus in a pot, with rough fibrous peat, well drained, or in a hanging basket, as directed for *Gongora*, in East Indian house.

Paxtonia. *Lindley.* Terrestrial.

Dedicated to Sir Joseph Paxton.

C. *Paxtonia rosea.* Manilla . . Maund, Bot., 5, 210.

B. R., 1838, 60.

M. O. P., 1.

Flowers lilac-rose.

Treatment same as *Bletia*.

Peristeria. Hooker. Epiphyte.Name from *περιστέρα*, a pigeon.

Peristeria Barkeri B. M., 4203.
See *Acineta*. Bat., 8.

B. *Peristeria clata*. Panama B. M., 3116.
SYN. *Espiritu Sancto*. Jen. Orch., 44.

Flowers wax-white, with lilac blotches at the base of the lip, and of an exquisite fragrance. They are produced on long stalks from the base of the pseudo-bulbs. The interior of the flower somewhat resembles a dove with outspread wings.

C. *Peristeria cerina*. Demerara B. R., 1953.

Flowers dull yellow, with a strong odor of juniper; produced in bunches, close to the bulb, in June and July.

C. *Peristeria guttata*. Rio Janeiro Fl. Cab., 7.

Flowers yellow, plentifully marked with reddish brown, produced in short bunches in September.

Peristeria Humboldtii B. R., 29, 18.
See *Acineta*. B. M., 4156.

B. *Peristeria pendula*. Demerara B. M., 3479.
SYN. *Peristeria maculata*.

Flowers greenish white outside, and delicate blue inside, marked with purple, the lip dull white marked with purple; slightly fragrant.

C. *Peristeria stapelioides*. Guiana. Lindley.

Flowers pale, yellowish brown, covered with blotches of dark brown; very fragrant.

These plants should be grown in pots in a strong compost of loam, peat, and leaf mould. During their season of growth they should have abundance of water, but in the resting season should be allowed to become almost dry.

They need a long rest ; the species last described needs less water than the others.

Pescatorea. Reichenbach.

A genus proposed for some plants now referred to *Huntleya*.

Pescatorea cerina is *Huntleya cerina*, a very different plant from *Peristeria cerina*, with which it is sometimes confounded.

Pescatorea fimbriata is a synonym of *Pescatorea Wallisii*.

Pescatorea violacea is *Huntleya* or *Bollea violacea*.

Pescatorea Wallisii is *Huntleya Wallisii*.

Phajus, or *Phaius. Louriero. Terrestrial.*

Name from *φαῖος*, dusky.

- A. *Phajus albus.* Nepaul. . . . B. R., 1838, 33.
 B. M., 3991.
 Pax. Mag., 5, 125.
 Fl. Cab., 125.

Flowers large, pure white ; lip tinged with purple, in July and August.

This is a deciduous species, losing its leaves after growth. It should be grown in a pot, with rough, fibrous

peat and good drainage, with plenty of water in the growing season.

It requires a long rest, and should then be kept cool and almost dry. Propagated as directed on a former page, by cuttings of the pseudo-bulb.

This plant is now known as *Thunia alba*.

Phajus Bensoniæ. See *Thunia Bensoniæ*.

B. *Phajus bicolor*. Ceylon Sert. O., tab. 23.

B. M., 4078.

Wight, Ic., 1659.

Perianth deep chocolate; lip pale yellow, tinted with rose.

B. *Phajus Blumei*. India Blume Orch., 5.

A species differing from *Phajus grandifolius* in having sepals and petals acuminate, tip of lip acute, spur short and thick, while in the former the sepals and petals are acute, tip of lip notched, spur short and thick, and in *Phajus Wallichii* the spur is long and slender.

It is a stout growing plant, resembling *Phajus grandifolius* in habit.

A. *Phajus Blumei Bernaysii*. Queensland.

B. M., 6032.

Is a very beautiful plant, with tall spikes of flowers, white outside, bright yellow inside; lip yellow, edged with white.

B. *Phajus grandifolius*. China. . . B. M., 1924.

SYNS. *Limodorum Tankervilleæ* Lodd. Cab., 20.

(Schwartz). Sert. Bot., 7.

L. Incarvilleæ (Persoon). Fl. des Ser., 738.

Bletia Tankervilleæ.

Perianth white outside, brownish inside; lip white and dull purple.

Blooms in winter and spring. One of the longest known Orchids, and a very showy and useful plant, growing freely and always blooming. We have every year plants with hundreds of flowers.

B. *Phajus intermedius*. China.

Perianth white outside; yellow, tinted with rose, inside; lip white, with flame-colored spot at the base.

A. *Phajus irroratus* F. M., 426.

A beautiful hybrid, between *Phajus grandifolius* and *Calanthe vestita*. Sepals and petals rosy white; lip white, with yellow base. In form the flower is intermediate between the parents; spike erect; foliage evergreen. A very beautiful and scarce plant.

B. *Phajus maculatus*. Bombay . . Lodd. Cab., 1803.

SYNS. *Bletia flava* (Wallich). B. M., 2719, 3960.

Bletia Woodfordii. Sert. Bot., 7.

Flowers yellow; lip edged and spotted with purple. Foliage dotted with white spots. A showy plant.

A. *Phajus Wallichii*. Bombay . . Pax. Mag., 6, 193.
B. R., 1839, 58.

Perianth white outside, orange inside; lip white, slightly shaded with yellow and red. A tall-growing plant, with very handsome flowers.

These plants should be grown in large pots, with loam, leaf mould, and rotten cow dung. Care should be taken not to allow water to touch the young shoots, as they easily damp off.

Give plenty of water at the roots during the growing season, and weak liquid manure, but when at rest keep the plants almost dry.

Re-pot just before they make their growth. Propagated by division.

Phalænopsis. Blume. Epiphyte.

Name from *φάλαινα*, a moth, and *opsis*, resemblance.

A. *Phalænopsis amabilis*. Manilla . B. M., 4297.

SYNS. *Angræcum album majus* B. R., 1838, 34.

(Rumphius). Fl. des Ser., 36.

Epidendrum amabile Pax. Mag., 7, 49.

(Linn.). M. O. P., 1.

Perianth pure white ; sepals narrower than the petals ; lip white at the tip, the lateral lobes very much enlarged, richly streaked with red and pink. Each flower is about three inches across.

A. *Phalænopsis amethystina*. Sunda Islands.

A pretty little species, rarely seen in cultivation ; flowers small ; sepals and petals white, spreading ; lip white, tinged with yellow at the base ; centre rich amethyst, suffused with purple ; foliage dark green, slightly wavy at edges ; spikes short, branched.

B. *Phalænopsis Cornu-cervi*. Moulmein.

SYN. *Polychilus Cornu-cervi*. B. M., 5570.

Bat. 2d Cen., 178.

A peculiar species ; the flower-stalk flat and thick, the flowers springing from notches in the margin ; flowers greenish yellow, with transverse spots of cinnamon-red ;

foliage pale green. Continues to flower from the old spike for a long time.

Phalænopsis equestris. SYN. of *Phalænopsis rosea*.

A. *Phalænopsis grandiflora*. Borneo. B. M., 5184.

Bat. 2d Cen., 114.

Perianth white ; sepals a little greenish ; the lip white, striped with purple and yellow. This species much resembles *Phalænopsis amabilis*, differing only in the flowers being larger, of a purer white, and in having yellow on the lip ; in foliage this species is of a lighter green ; that of *amabilis* is reddish on the under side.

A. *Phalænopsis grandiflora aurea*. Tamelan Islands.

War. Orch., 2, 7.

A magnificent variety, with very large white flowers, with bright golden markings ; very free blooming.

A. *Phalænopsis intermedia*. Manilla . Lem. Jard., 4, 44.

A very rare and lovely plant ; foliage pale green ; flowers medium size, white, shaded with rose ; lip a deeper shade of the same color.

A. *Phalænopsis leucorrhoda*. East Indies. F. M., 2, 166.

A new species, possibly a natural hybrid between *Phalænopsis amabilis* and *Schilleriana*, having the foliage of the latter ; the petals are rosy ; there is much yellow over the lip, the lateral partitions of which are brownish, not purplish ; lateral sepals, with brownish dots ; tendrils of lip long, and thin like *P. amabilis*. A very rare plant.

A. *Phalænopsis Lobbii*. SYN. of *Phalænopsis Portei*.

A. *Phalænopsis Lowii*. Moulmein . B. M., 5351.

Bat. 2d Cen., 168.

War. Orch., 2, 15.

Petals white, delicately tinted with rose ; lip resembling the beak of a bird. Allied to *Phalænopsis rosea*. Flowers of medium size ; foliage dark green, delicate in texture. Requires sunlight and abundance of moisture when growing. It loses its leaves in the resting season.

A. *Phalænopsis Luddemania*. Philippine Islands.

Bat. 2d Cen., 133.

Fl. des Ser., 1636.

B. M., 5523.

A plant resembling *Phalænopsis rosea*, but with lighter foliage. Racemes about twelve inches long ; flowers two inches across, blush, barred throughout with amber and amethyst, varying to bright rose color.

B. *Phalænopsis Mannii*. Sikkim.

A rare species, resembling in foliage *Phalænopsis Cornu-cervi*. Flowers yellowish buff.

A. *Phalænopsis Parishii*. Burmah . . . R. F., 85.

B. M., 5815.

A charming dwarf plant. Leaves oblong lanceolate ; flowers in short racemes of six to ten ; sepals and petals milk white ; lip white and crimson amethyst.

Phalænopsis Portei. East Indies. . . F. M., 2, 162.

War. Orch., 2, 2.

This plant is probably a natural hybrid, between *Pha-*

lænopsis amabilis and *P. rosea*, the former of which it resembles in habit. It bears a long drooping and branching spike of pure white flowers; lip bright rosy-red, tinted with orange. Only two plants of this species are known to have been imported, and these differ somewhat in intensity of color.

A. *Phalænopsis rosea*. Manilla . . . B. M., 5212.

Fl. des Ser., 1645. Pax. Fl. G., 72.

Lem. Jard., 283. Jen. Orch., 27.

A small-flowering species. Flower white, tinged with pink; lip violet or ruby, with yellow at base, upper part intense violet, without the tendrils which occur in *Phalænopsis amabilis* and *P. grandiflora*. A very free bloomer, and continuing long in beauty.

A. *Phalænopsis Schilleriana*. Philippine Islands.

Bat. 2d Cen., 171. B. M., 5530.

Jen. Orch., 15. Fl. des Ser., 1559.

War. Orch., 1. I. H., 348.

Leaves very large, dark green, mottled with gray or white. Flower stems from one to three feet long, much branched, covered with multitudes of lovely flowers from two to three inches in diameter, of delicate shades, mauve, edged with white, yellow, with reddish cinnamon spots. No two plants have flowers exactly alike, and all are lovely. In attempting to describe this flower one feels how poor words are to convey an idea of its beauties. Very free-flowering; plants have borne more than three hundred flowers.

A. *Phalænopsis Sumatrana*. Sumatra. B. M., 5527.

Bat. 2d Cen., 146.

Fl. des Ser., 1644.

A species resembling *Phalænopsis Luddemania* in growth, but with pointed leaves very bright green. Flowers on a short spike, yellowish white, barred with broad streaks of rich reddish brown; lip white, with orange spots, and four lines of violet or lilac.

These plants should be grown in the East Indian house, with liberal waterings during growth, and even in winter they should be kept damp at the roots. They may be grown in pots, with sphagnum moss, but appear to much better advantage on blocks or in baskets, in which they thrive equally well, only requiring more attention to keep them from becoming dry. They should be hung near the glass. The flowers are produced on a slender, flexible stalk, which continues to grow and produce flowers; but after two months it is well to cut off the flower-stalk, unless the plant is very strong, as the plant will exhaust itself. These plants are very difficult to increase. If they send out young shoots they should be left on the plant till they make roots, when they may be removed. Plants may be produced by bending down the flower-stalk upon the block, covering each node with moss, first cutting off the end of the shoot. *Phalænopsis Luddemania* produces young plants on the flower-stalk more freely than any other species. The growing season of all is from March to October.

"*Phalænopsids* are interesting from the ease with which the flowers may be artificially fertilized, and from the curious phenomena which attend the reception of the pollinia by the stigmatic cavity. Before the pollinia are communicated the cavity gapes widely; in the course of a few hours the sides draw together, and eventually the

pollinia are held so fast that they can only be removed by tearing or with the knife."

If the plants get unhealthy, shake them out, cut off all decayed roots and place them on blocks with fresh sphagnum, in the warmest house, keeping them moist. These plants will always command high prices, yet no collection should be without *Phalenopsis amabilis*, *P. grandiflora*, and *P. Schilleriana*.

Pholidota. *Lindley.* Epiphyte.

Name from *φολίς*, a spot, and *ὄψ*, an ear.

C. Pholidota articulata. East Indies . B. R., 1839. 57.

Flowers white ; lip white, with slight yellow tinge at base.

C. Pholidota conchoidea. Manilla.

The flowers resemble the last described species, but are larger.

C. Pholidota imbricata. Nepaul . . Hook. Ex., 138.

SYN. *Pholidota pallida* (B. R., B. R., 1777, 1213.

14, 1213).

Lodd. Cab., 1934.

Flowers brown and white.

C. Pholidota undulata. East Indies.

Flowers brown ; lip pale brick red.

These plants should be grown upon blocks, and need plentiful waterings during the season of growth.

Physosiphon. *Lindley.* Epiphyte.

Name from *φύσα*, an inflated bladder, and *σίφων*, a tube.

There is little to recommend this genus.

Pilumna. Lindley. Epiphyte.

Name from *πῖλον*, a cap.

- A. *Pilumna fragrans*. Popayan . B. M., 5035.
 SYN. *Trichopilia fragrans*. Bat. 2d Cen., 164.
 F. M., 2, 21.
 Jen. Orch., 38.
 I. H., 3, 94.

A charming plant, resembling a *Trichopilia* in general appearance, but with very different flowers. Sepals and petals greenish white; lip pure white, with rich golden centre; flowers in spikes of three to five; deliciously fragrant.

This plant should be grown in a pot, with peat and moss in the cool house. It is one of the most fragrant of Orchids, flowering freely in winter. Propagated by division.

Pilumna laxa B. R., 32, 57.

SYN. of *Trichopilia laxa*.

Pleione. Don. Terrestrial and Epiphytal.

The name of a nymph.

- Pleione humilis*. Upper Nepal . . B. M., 5674.
 Pax. Fl. G., 51.
 Lem. Jard., 158.

Flowers white; lip with orange and crimson veins, beautifully fringed. A mountain species found growing on the trunks of trees, at an elevation of eight thousand feet.

- Pleione Lagenaria.* Himalaya . . B. M., 5370.
 Bat. 2d Cen., 107. Jen. Orch., 47.
 Pax. Fl. G., 39. War. Orch., 17.
 Lem. Jard., 93. I. H., 510.

Allied to *Pleione maculata*. Perianth deep purplish pink; lip white, marked with crimson blotches, yellow centre. A beautiful little plant.

- A. *Pleione maculata.* East Indies . . B. M., 79, 4691.

Flowers white; lip beautifully marked and spotted with various colors. The plant blooms in October and November, without the foliage, being deciduous. It should be potted level with the pot rim, and some silver sand mixed with the peat.

- B. *Pleione præcox.* East Indies. . . Pax. Mag., 14, 7.

This species much resembles *Pleione Wallichiana*. Flower beautiful light purple; lip with blackish spots, shading to pure white.

- A. *Pleione Reichenbachiana.* Arracan . . B. M., 5688.

Flowers very large, rosy lilac; lip rich purple and magenta.

- Pleione Schilleriana.* Moulmein . . . B. M., 5027.

Pseudo-bulbs very small; flowers tawny yellow; lip large, orange-white and crimson.

- Pleione Wallichiana.* Bengal . . . Lem. Jard., 153.

B. R., 1840, 24. M. O. P., 6.
 B. M., 4496. Pax. Mag., 6, 25,
 Jen. Orch., 47. all as *Calogyne*.

Flowers rosy purple; lip with a dash of white, very large; sometimes two on a spike and fragrant.

These lovely little plants were formerly known as *Cælogyne*. They are all deciduous, producing the flowers in autumn, just before they begin to grow. As soon as growth begins, or the buds at the base of the pseudobulbs begin to start, the plants should be repotted in leaf mould and silver sand, and be given plenty of light and heat. When growth is completed dry them off gradually, but they must not be neglected and allowed to become dust dry in the summer. They are well worth growing; are charmingly pretty.

Pleurothallis. *Brown*. Epiphyte.

Name from *πλευρά*, the side, and *θάλλω*, to bloom.

This genus contains a great number of species and varieties, and very many of great botanical interest; but the flowers are generally small, without fragrance, and not to be recommended to amateurs.

Polychilus.

SYN. of *Phalænopsis Cornu-cervi*.

Polycynis. *Linden and Reichenbach*. Epiphyte.

Name from *πολύς*, many, and *κύκνος*, a swan.

B. Polycynis lepida. New Granada . . . I. H., 3, 19.

A plant with the general aspect of a *Gongora*, producing arching spikes of yellowish brown flowers, spotted with carmine; lip large, pale yellow, spotted with red.

Polycynis barbatus and *musciferus* are referred to *Cynoches*.

Requires to be grown in a basket, to display it to best advantage, in peat and moss, in the Mexican house.

Polystachya. *Hooker.* Epiphyte.

Name from *πολύς*, many, and *στάχυς*, a spike.

This genus contains few plants of interest.

Polystachya pubescens.

From South Africa, is a pretty plant, with bright golden yellow flowers, with purple lines. It should be grown in peat and moss, with plenty of water and not much heat.

Other species are: —

Polystachya bracteosa. B. M., 4161.

P. carnea. Fl. des Ser., 1521.

P. grandiflora. B. M., 3707.

P. luteola. Hook. Ex., 103.

Ponthieva. *Brown.* Terrestrial.

Dedicated to M. de Ponthieu, a West Indian merchant.

The plants of this genus are more curious than beautiful; the only species worth the attention of the amateur is: —

C. Ponthieva maculata. New Granada. . . . Portf., 2.

Flowers white, irregularly marked with gray, and spotted with purple; lip deep yellow.

Ponthieva petiolata Lodd. Cab., 760.
B. C., 1190.

These plants should be grown in peat, leaf mould, and potsherds, with good drainage.

In the resting season they should be removed to the cooler house, and have very little water.

Preptanthe.

A name proposed for the deciduous species of *Cal-anthe*.

Prescottia. Lindley.

Name in honor of John Prescott, a botanist of St. Petersburg.

There is nothing desirable in this genus.

Prescottia colorans. B. R., 22, 1916.

P. plantaginia. Lodd. Cab., 990.

P. plantaginifolia. Hook Ex., 115.

Promenæa. Lindley. Epiphyte.

For Προμηνεΐα, a prophetess of Dodona.

B. *Promenæa citrina*. Brazil.

Flowers rich yellow, with dark crimson at base of the lip.

C. *Promenæa Rollinsonii*. Brazil.

Flowers pale yellow, produced in autumn.

C. *Promenæa stapelioides*. Brazil.

Flowers green and yellow ; lip blackish purple, in July, August, and September.

These plants are more curious than showy. They may be grown in pots in peat in either house with the same treatment as *Paphinia*.

R.

Renanthera. Loureiro. Epiphyte.

Name from *ren*, a kidney, and *anthera*, an anther.

C. *Renanthera arachnitis*. Japan. Lindley.

SYNS. *Epidendrum Flos aeris* (Linn.).

Limodorum Flos aeris (Schwartz).

Aerides arachnitis (Schwartz).

Arachnis moschifera (Blume).

Flowers creamy white and purple, somewhat resembling a spider.

This species is more correctly *Arachnis moschifera*, which see.

B. *Renanthera coccinea*. Cochin China.

Sert. Bot., 7.

B. M., 2997, 2998.

War. Orch., 2, 37.

B. R., 1131.

Pax. Mag., 4, 49.

Sepals pale scarlet, irregularly marked with deeper scarlet; petals vivid scarlet, banded with white; lip yellow, marked with scarlet. A very showy plant, but very difficult to bloom; it does not flower until very strong, and seems to require much light and sun.

B. *Renanthera Lowii*. Borneo . .

Bat. 2d Cen., 161.

War. Orch., 2, 4.

B. M., 5475.

A rare Orchid, with broad, dark green foliage, thick, fleshy roots, and flower-spikes six to twelve feet long,

with two kinds of flowers, two at the base of the spike tawny yellow, spotted with crimson; the others reddish brown, with lines of greenish yellow. This species does not bloom until it becomes large.

C. Renanthera matutina. Manilla . . B. R., 1843, 41.
Pes., 12.

Flowers small, scarlet, shaded with yellow; very bright and pretty, looking like some gorgeous insect.

These plants are long growing, and should be grown on long blocks.

They should have plenty of light, the stem and leaves be kept almost dry, and the roots moist, and should have plenty of heat.

They are all somewhat difficult to bloom; and the secret seems to be to give the plant violent changes in treatment, and thus force it to break into bloom.

Restrepia. *Kunth.* Epiphyte.

Meaning unknown.

Restrepia antennifera. Colombia . . . I. H., 641.

A pretty little plant, with curious, many-colored flowers, and well worthy of cultivation.

Upper sepals white, streaked with purple; lower, reddish crimson, dotted with blackish purple; petals like antennæ.

Restrepia elegans. Caracas . . . Fl. des Ser., 743.
B. M., 5966.

Another pretty species, with small bright flowers, marked somewhat like the last, but with more yellow.

Restrepia punctata. SYN. of *Restrepia elegans*.

These plants are of easy culture in the cool house ; they should be potted in peat and moss, and kept moist. All bloom in summer very freely.

Rodriguezia. *Ruiz and Pavon.* Epiphyte.

Dedicated to the botanist Rodrigues.

C. Rodriguezia planifolia. Brazil . . . B. M., 3504.

Flowers yellow, shaded with green ; very fragrant.

B. Rodriguezia secunda. Trinidad : . . B. M., 3524.

SYNS. *Rodriguezia lanceolata*. B. R., 930.

Pleurothallis coccinea (Hooker). Lodd. Cab.,
676.

Flowers on a slender stalk ; color beautiful scarlet red.

Rodriguezia secunda carnea has less brilliant flowers.

The following are species : —

Rodriguezia Barkerii. B. M., 3497.

R. crispa. B. R., 26, 54.

R. lanceolata. Ruiz and Pavon. Lodd. Cab., 676.

R. laxiflora.

R. maculata.

R. recurva. SYN. *Gomezia recurva*. Lodd. Cab., 660.

These plants should be grown in well-drained pots, except *secunda*, which does better on a block with moss. They require a moist, hot temperature.

Saccolabium. Lindley. Epiphyte.

Name from *saccus*, a bag, and *labium*, a lip.

- A. *Saccolabium ampullaceum*. Sylhet. Lind. Sert., 17.
 B. M., 5595.
 Bat. 2d Cen., 186.
 Pax. Mag., 13, 49.

A slow-growing species, but of easy culture. Foliage about five inches long and very thick. Flower-stalks erect, shorter than the leaves; flowers rosy pink, very close set. Blooms in May.

- A. *Saccolabium ampullaceum Moulmeinense*. Moulmein.
 F. M., 393.

A very beautiful variety. Foliage spotted with brown on the under side. Flowers rich deep rose.

- B. *Saccolabium bigibbum*. Aracan . . . B. M., 5767.

A pretty small-growing species. Flowers on a short drooping spike, twelve or fifteen in number, pale yellow; lip white, with fringed edge. Blooms in autumn.

- A. *Saccolabium Blumei*. Java Pes., 21.
 Sert. O., 47.
 I. H., 545.

Sepals and petals beautiful violet and white; lip a deeper shade of the same color, with white tip.

Saccolabium Blumei majus, a variety with larger flowers and of stronger growth. Blooms in August and September.

Saccolabium Blumei Dayi is a very free-flowering variety, with longer spikes. Flowers white, spotted with purple.

B. *Saccolabium Calceolaria*. East Indies.

SYN. *Aerides Calceolaria* (Smith). Pax. Mag., 6, 97.

Perianth yellow, marked with round purple spots; lip white, marked with yellow and crimson at the base.

A. *Saccolabium curvifolium*. Java . B. M., 5326.

B. R., 1847, 58.

Bat. 2d Cen., 130.

I. H., 49, 3.

Flowers bright vermilion. Will thrive on a block without moss. A charming little plant, with very rich flowers. It requires more heat than most of the species. We grow it in a basket, in the hottest part of the house. Known also as *Saccolabium miniatum*.

The varieties *Saccolabium curvifolium luteum*, *aurantiacum*, and *splendens* differ only in color or intensity of color of flower. All bloom in early spring.

Saccolabium Dayanum. SYN. of *Saccolabium Blumei Dayi*.

A. *Saccolabium denticulatum*. Sylhet. B. M., 4772.

Pax. Mag., 7, 145.

Perianth greenish yellow, plentifully marked with brown; lip large, yellow, edged with white.

A. *Saccolabium furcatum*. Java.

A pretty but rare species, resembling *Saccolabium guttatum*. Flowers white, spotted with rose.

A. *Saccolabium giganteum*. Burmah. B. M., 5635.

Jen. Orch., 8.

Fl. des Ser., 1768, as

Vanda densiflora.

Flowers very large, in long, close, pendent racemes, delightfully fragrant, creamy white, spotted with amethyst; lip rich purple. A plant of slow growth, but very free-blooming when it gets to any size. The flowers last two months in perfection, and perfume the whole house. Blooms from December to March.

- A. Saccolabium guttatum.* East Indies . B. M., 4108.
 SYNS. *Aerides retusum* (Swartz). B. R., 1443.
Aerides guttatum (Roxburg). Wight, Ind.,
Epidendrum retusum (Linn.). 1745.
Limodorum retusum (Swartz).
Sarcanthus guttatus (Lindley).

Perianth white, marked with violet-rose; lip rosy crimson. The racemes are often fifteen inches long, densely set with the rich blossoms.

Saccolabium guttatum giganteum is a very fine variety of a beautiful plant. The foliage is longer and the flowers of more decided colors and larger.

Saccolabium guttatum Holfordianum . War. Orch., 2, 18.

A magnificent variety, with very long leaves and racemes. Flowers blush, spotted with purple; lip rich crimson. This lovely species is of very easy culture, and seldom fails to bloom freely.

A. Saccolabium Harrisonianum. Pulo Copang.
 B. M., 5433.

Flowers pure white, very fragrant. A fine species, allied to *Saccolabium violaceum*; free-blooming, and very desirable, blooming in midwinter, the flowers lasting two months in perfection.

A. *Saccolabium Huttoni*. Java B. M., 5681.

A new species, much resembling *Saccolabium ampullaceum*. Flowers large, on erect spikes, bright rosy purple, with lip of a deeper shade.

C. *Saccolabium micranthum*. Sylhet.

Perianth violet; lip deep rose. The flowers are small, but pretty.

Saccolabium miniatum. SYN. of *Saccolabium curvifolium*.

B. *Saccolabium papillosum*. Malabar . . B. R., 1552.

SYN. *Aerides undulatum* (Smith).

Cymbidium præmorsum (Swartz).

Epidendrum præmorsum (Roxburg).

Vanda congesta.

Perianth creamy white, with purple rays; lip small, white. Flower fragrant.

A. *Saccolabium præmorsum*. East Indies.

SYN. *Aerides præmorsa* (Willd.).

Flowers white, beautifully marked with delicate rosy lilac.

A. *Saccolabium retusum*. Java . . Fl. des Ser., 1463.

A stout-growing species, producing in early spring long spikes of white flowers, spotted with delicate rose.

Saccolabium rubrum. SYN. of *Saccolabium ampullaceum*.

A. *Saccolabium violaceum*. Manilla . . War. Orch., 14.

A beautiful plant, of free growth, blooming about Christmas, and bearing a profusion of long racemes of

white flowers, spotted with mauve and rose ; lip dark mauve. This species is delightfully fragrant, and lasts in beauty two or three months. We grow it in a basket, as thus the drooping spikes show to better advantage. It is one of the most beautiful of Orchids.

Saccolabium Wightianum. SYN. of *Aerides Wightii*.

These plants should be grown like *Aerides*, either on blocks or in pots or baskets. They demand the same general treatment ; are propagated in the same way. The foliage is very ornamental. All the species are worth growing, and a collection can hardly have too many *Saccolabiums*.

Sarcanthus. Lindley. Epiphyte.

Name from σαρξ, flesh, and ἄνθος, flower.

Sarcanthus erinaceus. Moulmein . . Bat. 2d Cen., 193.
B. M., 5630.

A very pretty little species, with pink and white flowers ; lip with purple markings. The flowers are freely produced, on drooping spikes, but the plant is very slow-growing, and does not bloom well until of some size.

C. *Sarcanthus paniculatus*. China . . . B. R., 220.

SYNS. *Aerides paniculatum*.

Vanda paniculata.

Flowers yellow, with two blood-red rays along the centre of the petals and sepals ; lip yellow.

C. *Sarcanthus rostratus*. China . . . B. R., 981.

SYN. *Vanda recurva* (Hooker).

Perianth orange, edged with blood-red ; lip violet.

C. Sarcanthus teretifolius. China . . . B. M., 3571.

SYN. *Vanda teretifolia* (Lindley).

Perianth yellowish green, with three blood-red rays along the segments; lip white, edged with violet.

These plants may be grown in pots, on blocks, or in wooden baskets. They need plenty of heat and copious waterings. During the resting season they should be removed to the cooler part of the house, and kept almost dry.

Sarcochilus. *Brown.* Epiphyte.

Name from σάρχξ, flesh, and χείλος, a lip.

C. Sarcochilus unguiculatus. Manilla.

Flowers pale yellow; the lateral lobes of the lip are white, striped with crimson, the middle lobe spotted with crimson; cultivated as prescribed for *Burlingtonia*.

Sarcopodium.

This genus is now referred to *Bolbophyllum*.

The only showy species is *Sarcopodium Lobbii*, known also as *Bolbophyllum Lobbii*, and *B. Henshalli*, which see.

Gard. Mag., 269.

M. O. P., 3.

B. M., 4532.

Sauroglossum. *Lindley.* Terrestrial.

Name from σαῦρος, a lizard, and γλῶσσα, a tongue.

Sauroglossum elatum B. R., 1618.

Scaphiglottis. Poeppig. Epiphyte.

Scaphiglottis violacea B. R., 1901.

B. M., 4071.

Scaphiglottis pendula P. and E., 98.

There is nothing to recommend to the amateur in these two genera.

Schomburgkia. Lindley. Epiphyte.

Dedicated to Schomburgk.

B. *Schomburgkia crispa*. Demerara . B. R., 30, 23.

Sert. O., tab. 10.

Flowers brownish yellow ; lip white, marked with lilac and edged with sulphur-yellow.

B. *Schomburgkia Lyonsi*. Jamaica . Fl. des Ser., 2130.

B. M., 5172.

Flower white, marked with reddish purple ; lip edged with yellow.

B. *Schomburgkia marginata*. Surinam . B. M., 3729.

Sert. O., 13.

Flowers deep orange, edged with yellow ; lip delicate lilac.

A. *Schomburgkia tibicinis*. Honduras.

B. M., 4476.

B. R., 31, 30 var.

Bat., tab. 11.

Fl. des Ser., 49 var.

Perianth lilac outside ; chocolate inside ; lip white outside ; inside edged with lilac ; lateral lobes shaded yel-

low, and marked with lilac ; the middle lobe has a yellow spot, very delicately marked with lilac.

A. Schomburgkia undulata. La Guayra.

Pes., 32.

War. Orch., 2, 21.

B. R., 1845, 53.

Perianth beautiful purple ; edges wavy ; lip small ; purple-violet.

This species resembles *crispa*, but differs in the size and deeper color of the flowers.

These plants are best grown on blocks well covered with moss. They require a good supply of heat and moisture in the growing season, but during the long period of rest require to be kept cool. They must be well grown or they will not flower.

Scuticaria. Lindley. Epiphyte.

Name from *scutica*, a whip.

B. Scuticaria Dodgsoni. Demerara.

Leaves dark green, terete ; spike two-flowered ; flowers brown and yellow ; lip white, marked with rose and yellow. A rare plant.

A. Scuticaria Hadwenii. Rio Janeiro. Fl. des Ser., 731.
B. M., 4629.

Very much resembles *Scuticaria Steelii*, but the flowers are more erect and a few inches higher ; lip white, lighted with deep rose.

Known also as *Bifrenaria Hadwenii*.

C. Scuticaria Steelii. Demerara B. R., 1986.

The flowers proceed from the bottom of the bulb, and are creamy yellow, spotted with brownish crimson.

These plants are best grown on blocks, with a little moss; they are of easy culture, but require to be kept warm and moist. The flowers, which are more curious than beautiful, are freely produced. Propagated by division.

Selenipedium. *Lindley*.

A proposed genus for *Cypripedium caricium* (Pearcei), *caudatum*, *levigatum*, and *Schlimmii*.

Sobralia. *Ruiz and Pavon*. Terrestrial.

For F. M. Sobral, a Spanish botanist.

B. *Sobralia decora*. Guatemala . . . Bat, tab. 26.

Reich. Xen., 30.

Flowers small, but produced for a long time.

A. *Sobralia dichotoma*. New Granada. Ruiz and Pavon.

Flowers pure white, in bunches; they are large and of great substance.

B. *Sobralia fragrans*. New Granada . . B. M., 4882.

Flowers pale yellow; lip brighter yellow; very fragrant.

A. *Sobralia liliastrum*. Bahia . . . Sert. O., tab. 29.

Perianth white; lip deep rose.

There is a variety with lip golden yellow, and perianth deep rose.

- A. Sobralia macrantha.* Guatemala. M. O. P., 2.
 B. M., 4446.
 Pax. Mag., 14, 241.
 Bat., tab. 37.
 Fl. des Ser., 669.

Perianth violet-purple ; lip large, of same color, with yellow spot, edged with white. The flowers are six inches across.

Sobralia macrantha splendens

Has darker flowers than the species, but not so large. This is often called "Woolley's variety ;" it is of dwarf growth, and the flowers are among the most showy of Orchids. We have a plant two feet in diameter, which is magnificent when in bloom.

- Sobralia Ruckeri.* New Granada . . Reich. Xen., 142.

Flowers large ; sepals and petals dark mauve ; lip crimson, with white centre. This species produces four flowers in a spike, which, unlike those of other species, all expand at the same time. A rare plant.

- C. Sobralia sessilis.* Guiana B. M., 4570.
 B. R., 1841, 17.
 M. O. P., 1.

Perianth rose ; lip of a deeper shade. Flowers remain in perfection only a few hours.

These plants should be grown in large, deep, well-drained pots, in either the East Indian or the Mexican house, in rough peat, with copious waterings during growth, but very little when at rest. Propagated by division.

Sophronitis. *Lindley.* Epiphyte.

Name from *σώφρονα*, modest.

C. Sophronitis cernua. Rio Janeiro . . B. M., 3677.

B. R., 1129.

Flowers carmine; lip same color; yellow shading, small, in bunches, in winter.

Sophronitis coccinea. Brazil.

Flowers three inches in diameter; sepals and petals brilliant scarlet; lip yellow, with vermilion bars.

A. Sophronitis grandiflora. Rio Janeiro.

B. R., 1919, as *Cat-* M. O. P., 1.

tleya. Fl. des Ser., 19, 1716.

Jen. Orch., 5. Sert. O., tab. 5.

F. M., 329. B. M., 3709.

Flowers large, bright scarlet, the lateral lobes tinted with yellow. Blooms in November and December.

C. Sophronitis violacea. Rio Janeiro . B. R., 1840, 18.

Flowers violet, marked with lilac. Easily distinguished by its numerous dry and scaly bracts.

The two first species should be grown on blocks, with moss; care must be taken not to keep them too wet or dry; the plants are small, and need constant attention.

During the resting season they should have but very little water, but should never be allowed to dry. The last-named species may be grown in a pot with moss.

Specklinia. *Lindley.* Epiphyte.

Name for Rudolph Specklin.

There is nothing to recommend in this genus.

Stanhopea. *Hooker.* Epiphyte.

Dedicated to Earl Stanhope.

B. Stanhopea aurea. Guatemala.

Sepals clear orange, marked with purple; petals a deeper shade of the same color marked with deeper purple; lip deep orange, with a purple spot on each side. Flowers large and fragrant.

B. Stanhopea Barkerii.

This is a variety of *Stanhopea Wardii*, without the eyes; the lip is delicate white; flower very fragrant.

B. Stanhopea Bucephalus. Quito . . M. O. P., 2.

SYNS. *Epidendrum grandiflorum* B. R., 1845, 24.
(Humboldt and Bonplan). B. M., 5278.

Anguloa grandiflora.

Flowers pale yellow, with two black eyes at the base of each petal; crimson marking on the sepals; lip deep yellow; very fragrant.

B. Stanhopea Cavendishii. Peru.

Flowers white, marked with purple.

B. Stanhopea Devonensis. Mexico . Fl. des Ser., 974.

SYNS. *Stanhopea maculosa* Sert. Orch., 1.
(Lodd. Cab.).

Anguloa Hernanderii (Kunth).

Flowers yellow, with brownish crimson spots ; lip white, with deep purple blotches.

B. Stanhopea ecornuta. Central America. Fl. des Ser., 181.
B. M., 4885.

Sepals and petals white, delicately spotted with yellowish red at the top ; petals much smaller than the sepals ; lip orange-yellow, shading to pure white, without the horns so prominent in other species.

B. Stanhopea eburnea. Brazil . . B. M., 3359.
SYN. *Stanhopea grandiflora* B. R., 1529.
(Lindley). I. H., 531.
Maund, Bot., 4, 176.

Perianth ivory white ; lip varies in color ; very fragrant.

Stanhopea grandiflora. Trinidad.

Perianth and lip pure white ; whole flower very large.

B. Stanhopea graveolens. Peru . . Fl. des Ser., 69, 70.
Perianth delicate pale yellow ; lip beautiful egg-yellow, shading to ivory white, delicately marked with purple. The perfume of this species is so strong as to be disagreeable.

B. Stanhopea guttulata or *guttata*. Peru. Lem. Jard., 309.
Perianth nankeen-yellow, covered as well as the lip with small crimson dots.

Stanhopea inodora. Mexico . . . B. R., 1845, tab. 65.
M. O. P., 1.

Flowers pale straw color ; upper part of lip deep

orange-yellow. Flowers without perfume. *Stanhopea amana* is probably a variety of this species.

- B. *Stanhopea insignis*. Brazil . . . B. M., 2948, 2949.
 B. R., 1837.
 Lodd. Cab., 1985.
 Sert. Bot., 7.

Sepals pale yellow, marked with purplish red; petals pale yellow, with brownish spots; lip white, marked with blood-red.

The following are good varieties of this species: —

Stanhopea insignis atrorubens.

S. insignis leucochila.

S. insignis major.

S. insignis punctata.

S. insignis speciosa.

S. insignis superba.

- B. *Stanhopea maculosa*. Mexico . . . Fl. Cab., 121.

This plant is only a variety of *Stanhopea tigrina*, with smaller flowers and different markings.

- B. *Stanhopea Lindleyana*. Brazil.

Flowers white, slightly rosy, plentifully marked with rings of crimson and brown.

- A. *Stanhopea Martiana*. Mexico . M. O. P., 5.

Bat., 1, 27.

Fl. des Ser., 2112.

Sepals and petals straw-colored, spotted with red; lip ivory-white.

- A. *Stanhopea Martiana bicolor*. Oaxaca. B. R., 1843, 44.

Flowers pure white, richly but sparsely marked with crimson; large and fragrant.

- B. *Stanhopea oculata*. Mexico B. M., 5300.
 SYN. *Ceratochilus oculatus*. B. R., 1800.

Flowers yellow, spotted with small purple rings; lip with a large spot somewhat resembling an eye on each lobe.

Stanhopea oculata Barkeriana.

This plant resembles *Stanhopea insignis*, with the lip of *Stanhopea oculata*.

- B. *Stanhopea quadricornis*. Central America.

M. O. P., 3.

B. R., 1838, 5.

Sepals yellow, marked with red; lip rose-carmine at the base, shading through greenish white to a yellow tip.

- B. *Stanhopea Ruckeri*. Mexico . . . Lem. Jard., 375.

This species resembles *Stanhopea Wardii*, but is paler in color, has much more white, and is spotted.

- B. *Stanhopea saccata*. Guatemala Bat., 15.

Perianth pale greenish yellow; lip ivory-white at the tip, the centre drawn into the form of a sack, of a deep orange-yellow. The odor is even stronger than *Stanhopea graveolens*.

- B. *Stanhopea saccata violacea*. Bahia.

This is a fine variety of the preceding. The sack, instead of being yellow, is a beautiful deep violet; perfume pleasant.

- A. *Stanhopea tigrina*. Mexico . . . M. O. P., 4.

B. M., 4197.

B. R., 1839, 1.

Bat., 7.

Sepals large, deep, nankeen yellow ; petals narrow, the same color ; both covered with large, irregular orange-red spots ; lip yellow, with deep purple, chocolate spots. Flowers very large and fragrant.

Stanhopea tigrina lutescens. A fine variety from Guatemala. Flowers brilliant yellow or orange, barred with deep chocolate.

Stanhopea tigrina superba . . . Fl. des Ser., 713-715.

A variety with deeper colors than the species, and spotted with reddish violet, producing the largest flowers of the genus.

A. *Stanhopea virginalis*. Bahia.

Flowers large, pure white, smelling like orange-blossoms, and remaining long in perfection.

B. *Stanhopea Wardii*. La Guayra . Fl. Cab., 90.

B. M., 5289.

Sert. O., tab. 20.

Perianth dull yellow, with brown spots ; lip red, yellow, and orange.

All the plants of this genus are worthy of a place in a collection. The flowers are produced several together, on spikes from the bottom of the bulbs. The plants should be grown in shallow hanging baskets filled with coarse peat, moss, and charcoal, with plenty of space between the bars of the baskets for the flower-stalks to push out.

Care should be taken not to rot the young shoots by water, which from their shape they easily retain.

During the long rest which they require, they should

be kept almost dry at the roots. The flowers are usually produced in summer and autumn, and remain only a few days in perfection. These plants should not be repotted oftener than once in three or four years; but when the masses of pseudo-bulbs grow large, the plants flower better if they are broken up.

Stenia. Linden and Reichenbach. Epiphyte.

Name from στενός, narrow, from the form of the pollinia.

A. *Stenia fimbriata.* New Granada . . . I. H., 3, 80.

A very showy plant (without pseudo-bulbs), with long, narrow, dark-green leaves. Flowers on slender scapes from base of foliage, bright yellow, with paler lip, beautifully fringed and spotted with carmine. Blooms in summer.

Stenia pallida. Demerara . . . B. R., 24, 20.

Flowers yellowish white, spotted with red.

These plants require the same treatment as *Masdevallias*.

Stelis, Stenocoryne, Stenorhynchus.

These genera (all except *Stenorhynchus* epiphytes) offer little worthy the attention of the amateur.

Thunia. Reichenbach. Terrestrial.

Name in compliment to Von Thun.

A. *Thunia alba.* India . . . Pax. Mag., 5, 125.

SYN. *Phajus albus.* B. R., 1838, 33.

B. M., 3991.

This plant has already been described under its former name, *Phajus*. It is a deciduous plant, producing terminal racemes of pure white flowers, with lines of lilac, just as growth has finished. The foliage is glaucous green, and when well grown the flowers are large, making it a most effective plant.

A. *Thunia Bensoniæ*. Moulmein . . . Jen. Orch., 35.
B. M., 5694.

This is a stouter-growing species than *Thunia alba*, but not so tall. It resembles it in foliage, but the flowers are lilac-purple; lip rich purple, crested with bright yellow. A very beautiful Orchid.

Thunia nivalis is a pure white variety of *Thunia alba*.

These plants should be potted in coarse fibrous peat, with a little silver sand, and with good drainage, when the buds swell at the base of the pseudo-bulbs. They should then be placed in the warmest house, and have an abundance of water. After blooming, gradually reduce the supply of water until the leaves fall; then remove the plants to the cooler house, and only give enough water to keep the stems from shriveling.

They are easily propagated by division or by cutting up the stem just when growth is completed, and rooting the pieces in slight bottom heat, like ordinary cuttings.

Trichocentrum. *Poeppig and Endlicher.* Epiphyte.

Name from *θρίξ*, a hair, and *κέντρον*, a spur, from the long, narrow spur of the labellum.

A. *Trichocentrum atropurpureum.* Rio Negro.

B. M., 5688.

An exceedingly pretty plant. Petals maroon-brown inside, yellowish green outside ; lip large, white with two bright purple spots. There are two varieties, one with very broad, the other with a narrow lip.

C. *Trichocentrum fuscum*. Mexico . . . B. M., 3969.
B. R., 1951.

A species with very dark foliage ; brownish yellow flowers, with white lip, marked with dull red.

A. *Trichocentrum tigrinum*. Brazil.

A rare species. Flowers very large, maroon purple ; lip very large, white, with orange base.

There are many other species, chiefly interesting to the botanist. These plants should be grown on blocks or in small baskets, in a moderate temperature ; they bloom freely, and require little care.

Trichopilia. Lindley. Epiphyte.

Name from *τρίχ*, hair, and *πίλον*, a little hat.

B. *Trichopilia candida*. Mexico.

Flowers wholly white ; lip drawn out into a long horn ; very fragrant. *Pilumna fragrans* is sometimes called *Trichopilia candida*.

B. *Trichopilia coccinea*. New Granada. Pax. Fl. G., 54.
Gard. Mag., 185.
Fl. des Ser., 1490.
Lem. Jard., 184.

Sepals and petals brownish and yellow ; lip deep crimson, with a narrow edge of white.

- A. *Trichopilia crispa*. Costa Rica . War. Orch., 5.
 B. M., 4857, as
coccinea.
 Bat. 2d Cen., 115.
 Fl. des Ser., 1925.

A larger plant than the last, but resembling it in growth. The spike is pendulous, producing two or three flowers, rich port wine color, sometimes edged with white ; lip crisped, deeply lobed, rosy crimson inside, but white outside. The same bulb produces two crops of flowers. There are fine varieties.

Trichopilia fragrans. SYN. of *Pilumna fragrans*.

- B. *Trichopilia Galeottiana*. Mexico.

Flowers large, white or straw-color ; lip light pink, suffused with yellow, and margined with white ; sepals and petals not twisted.

- Trichopilia hymenantha*. New Granada . Reich. Xen., 7
 B. M., 5949.

This is the most delicate of the genus. The foliage is long, narrow, recurved, the raceme six to eight-flowered ; sepals and petals white ; lip broad white, speckled with blood-red.

- C. *Trichopilia laxa*. Mexico B. R., 1846, 57.

A species with dark green foliage, mottled with brownish spots, and half erect spikes of three to five flowers, which are greenish white, tinged with purple, with creamy white lip.

A. *Trichopilia lepida*. Costa Rica . . . F. M., 2, 98.

A species of recent introduction and very rare. The plant bears a strong resemblance to *Trichopilia crispa*, the flowers are pale lilac-pink, margined with white, the centre of the lip orange.

Trichopilia marginata. SYN. of *Trichopilia coccinea*.

C. *Trichopilia picta*. Chiapas . . . I. H., 225.

Flowers pale yellow, spotted with brown.

A. *Trichopilia suavis*. Central America. Bat. 2d Cen., 164.

Pax. Fl. G., 11.

B. M., 4654.

Fl. des Ser., 761.

I. H., 200.

Lem. Jard., 227.

Flowers large, perianth pale nankeen-yellow; lip white, very large, richly marked with clear lilac, with delicate transverse yellow line in the centre. A beautiful plant, very fragrant. Blooms in March and April. There are many varieties varying much in color; of our plants scarce two are alike.

B. *Trichopilia tortilis*. Mexico . . Maund, Bot., 122.

B. M., 3739.

B. R., 1863.

Fl. Cab., 101.

Perianth brownish yellow, twisted like a corkscrew; lip white, spotted with red. There are two varieties — *Trichopilia punctata* and *T. rubra* — both worthy a place in collections. This species blooms at different seasons,

and by having several plants flowers may be had all the time.

B. Trichopilia Turialvæ. Costa Rica. Bat. 2d Cen., 162.
B. M., 5550.

This species somewhat resembles in color *Trichopilia picta*. The flower is yellowish white ; lip deeper yellow, spotted with red.

There are other species and new are constantly discovered. Some are dull-colored and small-flowered, but most are well worthy of cultivation.

These plants should be grown in the cool house, in well drained pots, with peat, with not much water at the roots at any time. They will also do well on cork, with moss. If grown in pots they should be well elevated above the rim, as thus the drooping flowers appear to better advantage.

Trigonidium. Lindley. Epiphyte.

Name from *τρίγωνον*, a triangle, and *εἶδος*, resemblance.

Trigonidium obtusum B. R., 1923.

This genus affords no plants of interest.

Uropedium. Lindley. Terrestrial.

Name from *ὀὐρά*, a tail, and *πέδιον*, slipper.

A. Uropedium Lindenii. Colombia Pes., 2.
Reich. Xen., 15.

This plant somewhat resembles *Cypripedium caudatum*. The colors are generally dull yellowish white or green,

with veins of purple. The remarkable feature of the plant is the prolongation of the petals and lip to the extraordinary length of eighteen inches. The plant requires the same general culture as *Cypripedium*, but must at times have plenty of water. Its resting season is very short, and it must never be allowed to dry up. The flower comes from the centre of the leaves, after growth is completed.

Vanda. Brown. Epiphyte.

The Indian name.

- A. *Vanda Batemanii*. Philippines . M. O. P., 1.
B. R., 1846, 59.
Fl. des Ser., 1921.

A magnificent plant. The flowers are yellow, sprinkled with crimson spots; the back of the sepals and petals beautiful purple-rose shading to violet. Blooms in summer.

- A. *Vanda Bensoniae*. Rangoon . . Bat. 2d Cen., 192.
B. M., 5611.

A very pretty species, producing flowers of medium size, white outside, olive-green, dotted with red, inside; lip white and purple; flower-spikes many-flowered; blossoms peculiarly fragrant. The roots of this species are thicker than any other.

- B. *Vanda Cathcartii*. India . . . Fl. des Ser., 1251.
F. M., 2, 66. Jen. Orch., 10.
I. H., 187. B. M., 5845.

Flowers large and fleshy, chocolate-brown and yellow. A plant of rambling growth, and inferior to many of the genus.

- A. Vanda cœrulea.* East Indies . . Fl. des Ser., 609.
 I. H., 246. Pax. Fl. G., 36.
 Lem. Jard., 102. M. O. P., 2.
 War. Orch., 18. Jen. Orch., 34.
 Pes., 29.

Flowers large, four inches in diameter, delicate blue ; lip short, of a deeper blue. Blooms in autumn. This is one of the loveliest of Orchids. Well executed as the pictures of it are, they fail to give a just idea of its beauty, which indeed no words can describe. No collection should be without this charming plant. It blooms freely and grows well, but does not require as much heat as the other species. We grow our plants in baskets, in preference to pots. Large plants are very scarce.

- A. Vanda cœrulescens.* Burmah . . B. M., 5834 (very badly colored).

A little gem of a plant. Foliage narrow. Flowers on a very long spike, lilac-blue, with rich deep-blue lip. The individual flowers are small, but the spike is many-flowered, and the colors are very attractive. Grow in a basket suspended from the roof, in the warmest house.

Vanda congesta. See *Saccolabium pappillosum*.

- A. Vanda cristata.* Nepaul B. R., 28, 48.
 B. M., 4304.
 M. O. P., 3.

Perianth white, tinted with green ; lip very large, yellowish white, striped with brownish purple. Blooms from March to July.

- A. *Vanda Denisoniana*. Burmah . . . B. M., 5811.
I. H., 3, 150.

The flowers are produced on short racemes, are five or six in number, very fleshy, about two inches in diameter, pure white, tinged with green, with faint orange at the base of the lip.

Vanda densiflora. SYN. of *Saccolabium giganteum*.

- C. *Vanda furva*. East Indies . . . B. R., 1844, 42.
SYNS. *Angræcum furvum* (Rumphius). B. M., 3416, as
Cymbidium furvum (Willdenow). *V. unicolor*.
Epidendrum furvum (Linn.).

Flowers brownish copper-color, with rose lip.

- A. *Vanda gigantea*. East Indies. Lindley.
SYN. *Vanda Lindleyana*. Bat. 2d Cen., 142.
B. M., 5189.
I. H., 277.

Flowers large, deep yellow, with cinnamon-brown blotches. The leaves of this plant are very thick and massive, and the whole effect is majestic. As the plants get larger, they will prove the most imposing of Orchids.

- B. *Vanda Griffithii*. East Indies. Griffith.

Flowers yellowish brown inside, checkered; lip lilac, marked at the base with deep yellow spots. Flowers small, in a corymb.

- A. *Vanda helvola*. Java. Blume.

Flowers large, wine-red, shading to pale purple, with lateral lobes of a deeper purple.

Vanda Hookeri. India.

A plant resembling a small form of *Vanda teres*. It is in cultivation, but has not yet bloomed.

A. *Vanda insignis*. Moluccas Jen. Orch., 46.
B. M., 5759.

Flowers copper-brown, spotted with rich red, yellowish on the outside; lip large, white, with rich purple red centre. A very beautiful and fragrant species.

R. *Vanda lamellata*. Philippines . . B. R., 1838, 125.

Flowers pale yellow, striped with dull red.

A. *Vanda limbata*. Java B. M., 6173.

A species nearly related to *Vanda insignis*, but distinct in foliage, form of lip, and color of flower. Spike erect, of medium length, ten or twelve flowered. Flowers two inches in diameter, cinnamon-color, tessellated with golden border; lip pale lilac. A rare species.

Vanda Lowii. SYN. of *Renanthera Lowii*.

Vanda parviflora. SYN. of *Aerides Wightii*.

A. *Vanda Roxburghii*. East Indies. B. M., 2245, 3416,

SYNS. *Vanda tessellata*. var. *unicolor*.

Cymbidium tessellatum. SYN. *V. furva*.

B. R., 506.

Fl. des Ser., 2, 11.

Sert. Bot., 7.

Flowers white, but varying much in color; lip purple. There are two varieties, one having a much deeper colored lip.

- A. *Vanda suavis*. East Indies . . . Pes., 8.
 Bat. 2d Cen., 125. B. M., 5174.
 Fl. des Ser., 1604. Jen. Orch., 23.

Perianth white outside, tinted with rosy carmine ; lip lilac, tipped with white. Flowers very fragrant. A very beautiful plant. It blooms generally in spring, but often at other seasons. Of free growth, easy culture, and exquisitely beautiful, it is a most desirable plant. There are many varieties, all good.

- A. *Vanda teres*. Sylhet . . . B. M., 4014.
 Pax. Mag., 5, 193. B. R., 1809.

Flowers blood-red, bordered with white ; lip veined with yellow and spotted with crimson. This species is difficult to flower. It should be kept almost dry during the winter. Does best on a block of wood plunged in a pot. The stems look like green quills. Flowers four inches in diameter, and exquisitely beautiful.

Vanda teres Andersoni. A variety with richer colored flowers, and more free in producing them.

Vanda tessellata. SYN. of *Vanda Roxburghii*.

Pax. Mag., 7, 265.

- A. *Vanda tricolor*. Manilla . . . Pes., 42.
 Pax. Fl. G., 42. B. M., 4432.
 War. Orch., 2, 30. B. R., 1847.
 Lem. Jard., 136. Fl. des Ser., 641.

Perianth white outside, pale yellow or white, richly spotted with purple, inside ; lip deep violet, marked with white ; flowers large. Of this lovely plant there are many varieties, some of surpassing beauty, and all good. We know of fifteen well defined. They differ in shades of

color, intensity of lip and size, and profusion of flower. The most distinct are *Vanda tricolor* *Dodgsoni*, *superba*, *multiflora*, and *Russelliana*.

Our largest plant is never out of bloom, and has this last year had forty flowers at a time.

Vanda violacea. SYN. of *Saccolabium violaceum*.

These plants require to be treated like *Aerides*. Their season of rest is ordinarily in the winter, when they should be kept cooler and have less water than during the growing season. They thrive well in large, deep wooden baskets, in moss and potsherds. We grow the small plants in hanging baskets, the larger in Orchid pots. Being natives of hot countries, they need the hottest house, but we find they do not require as high a temperature as most growers give them, and in our warmest house the thermometer frequently falls to fifty at night, the plants seeming to thrive better for this same cool treatment.

Vanilla. Plumier. Epiphyte.

Name from the Spanish.

Lodd. Cab., 733.

The species, *Vanilla aromatica* and *planifolia*, are grown not so much for the flowers, which are insignificant, as to obtain the fruit by artificial impregnation, which is easily performed. The plants are best grown in pots in peat and leaf mould, and should be trained to wires and allowed to droop from the rafters. They should have heat and moisture during the growing season.

Vanilla lutescens. La Guayra . . . Fl. des Ser., 2218.

A newly introduced and very rare plant; petals and

sepals greenish yellow ; lip very bright yellow ; flowers large, two or more together, from axils of leaves, resembling somewhat in general appearance *Cattleya citrina*.

Vanilla Phalænopsis. Madagascar . Fl. des Ser., 1769.

Flowers large, white, with rich orange lip ; produced in large bunches from the axils of the leaves. A very beautiful plant.

W.

Warrea. Lindley. Epiphyte.

Name for Mr. Frederic Warre.

Warrea candida. SYN. of *Warscewiczella candida*.

B. *Warrea cyanea*. Colombia . . Fl. des Ser., 1, 51.
B. R., 1845, 28.

Perianth white ; lip most beautiful blue.

Warrea digitata. SYN. of *Warscewiczella candida*.

Warrea Lindeniana. New Granada . Gard. Mag., 177.

A tall-growing species ; flowers on tall spike from base of pseudo-bulbs, large, yellowish white ; lip lilac at the base, streaked with purple.

Warrea marginata and *Warrea quadrata*. SYNS. of
Warscewiczella quadrata.

B. *Warrea tricolor*. Brazil B. M., 4235.

Perianth pure white ; lip white, marked with purple and yellow.

Warrea Wailesiana. SYN. of *Warscewiczella Wailesiana*.

These plants do well with moderately warm culture in pots in peat and moss. They must not be allowed to dry up, and are impatient of bad drainage. All are neat in habit, and showy in flower; they require no rest, and bloom freely.

Warscewiczella. Reichenbach. Epiphyte.

In honor of Von Warscewicz.

A. *Warscewiczella candida.* Bahia Pes., 15.

Perianth pure white; lip white, with a rich purple spot.

A. *Warscewiczella cochleata.* Trinidad . . B. R., 1857.

SYN. *Zygopetalum cochleare.* B. M., 3585.

Perianth white; lip blue, veined with red.

Warscewiczella discolor. Costa Rica . . B. M., 4830, as
Warrea.

Flowers pale lemon color, tinged with purple; lip dull purple.

Warscewiczella marginata. SYN. of *Warscewiczella quadrata.*

Warscewiczella quadrata. Central America.

B. M., 4766. I. H., 552.

Bat. 2d Cen., 127. Pes., 6.

Flowers white; lip very large, white, with bright red margin. Known also as *Huntleya marginata.*

Warscewiczella velata. New Granada . . B. M., 5582.

Leaves in tufts of about five, usually with four single flowered peduncles; sepals and petals yellowish white; lip same color, but with crimson margin, with purple lines; flower very large.

B. *Warscewiczella Wailesiana*. Rio Janeiro.

A species much resembling *Warscewiczella candida*, and perhaps the same; the spot on the lip is violet; flowers fragrant.

Z.

Zygopetalum. Hooker. Epiphyte.

Name from ζυγός, a yoke, and πέταλον, a petal.

Zygopetalum aromaticum. Central America.

Reich. Xen., 73.

A rare species; sepals and petals light green; lip large, deep blue, margined with white; very fragrant.

A. *Zygopetalum brachypetalum*. Brazil.

Sepals and petals violet, marbled with green and deep blush violet; lip veined with white.

Zygopetalum cerinum. See *Huntleya cerina*.

Zygopetalum cochleare. SYN. of *Warscewiczella cochleata*.

A. *Zygopetalum crinitum*. Brazil. . Lodd. Cab., 1687.

Perianth yellowish green, marked with brown; lip white, with longitudinal rays and velvety purple spots.

A variety of *Zygopetalum Mackayi*, but with larger and better colored flowers.

Zygopetalum crinitum cæruleum.

A variety of *crinitum*, with white or cream-colored lip, barred with bright blue. Flowers large and fragrant.

Zygopetalum Gautieri. Brazil I. H., 535.

A pretty plant, by some considered a form of *Zygopetalum maxillare*.

Flowers very large; sepals and petals green, barred with brown; lip white, with intense purple blotch. Blooms in spring.

Zygopetalum gramineum.

Leaves narrow, light green; flowers white and purple. two or three on a spike.

B. *Zygopetalum intermedium.* Brazil. B. R., 1844.

SYN. *Zygopetalum velutinum* Lodd. Cab., 1136.
(Loddiges).

This plant is a variety of *Zygopetalum Mackayi*, but differs in having a pubescent and downy lip. It also blooms in autumn.

A. *Zygopetalum Mackayi.* Brazil. Lodd. Cab., 1674.

Pax. Mag., 3, 97. Sert. Bot., 7.

B. M., 2748.

Perianth greenish yellow, spotted with brown; lip white, marked with purple.

There are varieties differing in the color of the lip.

A. *Zygopetalum maxillare.* Brazil . Lodd. Cab., 1776.

B. M., 3686.

Pax. Mag., 4, 271.

Perianth yellow-green, barred with chocolate; lip beautiful deep blue. Flowers on drooping spikes.

A. *Zygopetalum rostratum*. Demerara . . B. M., 2819.

Perianth yellowish-green ; lip white, veined with rose.

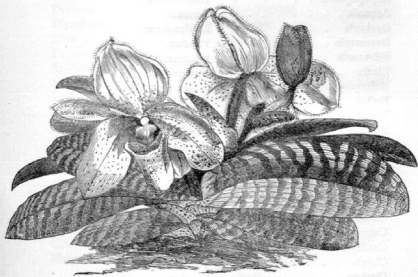
This species requires more heat and moisture than the others.

B. *Zygopetalum stenochilum*. Brazil . Lodd. Cab., 1923.

B. M., 2819.

This appears to be a smaller variety of *Zygopetalum Mackayi*.

These plants will do well in either house in pots with peat and good drainage, and plenty of water at the roots. They need a rest of about two months, but should never be allowed to become wholly dry. They mostly bloom in autumn. Propagated by division.



CYRTOPTALUM CONCOLOR.

ALPHABETICAL TABLE

Of the Genera, with the Tribe to which they belong.

GENERA.	TRIBE.
Acanthophippium	Vandææ.
Acineta	Vandææ.
Acropera	Vandææ.
Ada	Vandææ.
Aerides	Vandææ.
Acranthus	Vandææ.
Aganisia	Vandææ.
Anæctochilus	Neotteæ.
Angræcum	Vandææ.
Anguloa	Vandææ.
Ansellia	Vandææ.
Aporum	Malaxidææ.
Arachnis	Vandææ.
Arundina	Epidendrææ.
Arpophyllum	Epidendrææ.
Aspasia	Vandææ.
Barkeria	Epidendrææ.
Batemanina	Vandææ.
Bifrenaria	Vandææ.
Eletia	Epidendrææ.
Bolbophyllum	Malaxidææ.
Bollea	Vandææ.
Brasavola	Epidendrææ.
Brassia	Vandææ.
Bromheadia	Vandææ.
Broughtonia	Epidendrææ.
Burlingtonia	Vandææ.
Calanthe	Vandææ.
Camaridium	Vandææ.
Camarotis	Vandææ.
Catasetum	Vandææ.
Cattleya	Epidendrææ.
Chysis	Vandææ.
Cirrhæa	Vandææ.

GENERA.	TRIBE.
Cirrhopetalum	Malaxideæ.
Cleisostoma	Vandeæ.
Cœlia	Malaxideæ.
Cœlogyne	Malaxideæ.
Colax	Vandeæ.
Comparettia	Epidendreæ.
Coryanthes	Vandeæ.
Cynoches	Vandeæ.
Cymbidium	Vandeæ.
Cypripedium	Cypripedeæ.
Cyrtochilum	Vandeæ.
Cyrtopera	Vandeæ.
Cyrtopodium	Vandeæ.
Dendrobium	Malaxideæ.
Dendrochilum	Malaxideæ.
Dichæa	Vandeæ.
Dicrypta	Vandeæ.
Dienia	Malaxideæ.
Dinema	Epidendreæ.
Dipodium	Vandeæ.
Disa	Ophrydeæ.
Drymoda	Vandeæ.
Epidendrum	Epidendreæ.
Epistephium	Arethuseæ. Vandeæ. Lind.
Eria	Malaxideæ.
Eriopsis	Epidendreæ.
Eulophia	Vandeæ.
Fernandezia	Vandeæ.
Galeandra	Vandeæ.
Galeottia	Vandeæ.
Gongora	Vandeæ.
Goodyera	Neotteæ.
Govenia	Vandeæ.
Grammatophyllum	Vandeæ.
Grobya	Vandeæ.
Habenaria	Ophrydeæ.

GENERA.	TRIBE.
Hæmaria	Neottææ.
Hartwegia	Epidendreæ.
Helcia	Vandææ.
Houlletia	Vandææ.
Huntleya	Vandææ.
Ionopsis	Vandææ.
Ipsea	Epidendreæ.
Isochilus	Epidendreæ.
Lacæna	Vandææ.
Lælia	Epidendreæ.
Læliopsis	Epidendreæ.
Leptotes	Epidendreæ.
Limatodes	Vandææ.
Liparis	Malaxideæ.
Lissochilus	Vandææ.
Luddemannia	Vandææ.
Luisia	Vandææ.
Lycaste	Vandææ.
Masdevallia	Vandææ.
Maxillaria	Vandææ.
Megaclinium	Malaxideæ.
Mesospinidium	Epidendreæ.
Miltonia	Vandææ.
Mormodes	Vandææ.
Myanthus	Vandææ.
Nanodes	Vandææ.
Nasonia	Epidendreæ.
Neottia	Neottææ.
Notylia	Vandææ.
Octomeria	Malaxideæ.
Odontoglossum	Vandææ.
Œceocladus	Vandææ.
Oncidium	Vandææ.
Ornithidium	Vandææ.
Ornithocephalus	Vandææ.
Palumbina	Vandææ.
Paphinia	Vandææ.

GENERA.	TRIBE.
Paxtonia	Vandææ.
Peristeria	Vandææ.
Phajus	Epidendrææ.
Phalænopsis	Vandææ.
Pholidota	Malaxidææ.
Physosiphon	Malaxidææ.
Pilumna	Vandææ.
Pleione	Malaxidææ.
Pleurothallis	Malaxidææ.
Polycynis	Vandææ.
Polystachia	Malaxidææ.
Ponthieva	Neottææ.
Prescottia	Neottææ.
Promenæa	Vandææ.
Renanthera	Vandææ.
Restrepia	Malaxidææ.
Rodriguezia	Vandææ.
Saccolabium	Vandææ.
Sarcanthus	Vandææ.
Sarcochilus	Vandææ.
Sauroglossum	Neottææ.
Scaphiglottis	Vandææ.
Schomburgkia	Epidendrææ.
Scuticaria	Vandææ.
Sobralia	Arethuseæ.
Sophronitis	Epidendrææ.
Specklinia	Malaxidææ.
Stanhopea	Vandææ.
Stelis	Malaxidææ.
Stenia	Vandææ.
Stenocoryne	Vandææ.
Stenorhynchus	Neottææ.
Tetrapeltis	Vandææ.
Thunia	Epidendrææ.
Trias	Malaxidææ.
Trichocentrum	Vandææ.

GENERA.	TRIBE.
Trichopilia	Vandææ.
Trigonidium	Vandææ.
Uropedium	Cypripedææ.
Vanda	Vandææ.
Vanilla	Arethuseæ.
Warrea	Vandææ.
Warszewiczella	Vandææ.
Zygopetalum	Vandææ.



HOULLERTIA BROCKELHURSTIANA.

LIST OF PRINCIPAL ORCHIDS

GROWN AT GLEN RIDGE.

<i>Acineta Humboldtii.</i>	<i>Calanthe veratrifolia.</i>
<i>Acineta longiscapa.</i>	<i>Calanthe vestita.</i>
<i>Ada aurantiaca.</i>	<i>Calanthe vestita cuprea.</i>
<i>Aerides affine.</i>	<i>Calanthe vestita luteo oculata.</i>
<i>Aerides crispum.</i>	<i>Calanthe vestito rubro oculata.</i>
<i>Aerides Fieldingii.</i>	<i>Calanthe vestita Turneri.</i>
<i>Aerides Lobbii.</i>	<i>Camarotis purpurea.</i>
<i>Aerides Lindleyanum.</i>	<i>Cattleya amethystina.</i>
<i>Aerides maculosum.</i>	<i>Cattleya amethystiglossa.</i>
<i>Aerides odoratum.</i>	<i>Cattleya candida.</i>
<i>Aerides odoratum majus.</i>	<i>Cattleya Chocoensis.</i>
<i>Aerides suavissimum.</i>	<i>Cattleya citrina.</i>
<i>Aerides testaceum.</i>	<i>Cattleya crispa.</i>
<i>Aerides virens Dayanum.</i>	<i>Cattleya Dowiana.</i>
<i>Angræcum eburneum.</i>	<i>Cattleya guttata Leopoldii.</i>
<i>Angræcum falcatum.</i>	<i>Cattleya Harrisoniæ.</i>
<i>Angræcum sesquipedale.</i>	<i>Cattleya labiata (in variety).</i>
<i>Ansellia africana.</i>	<i>Cattleya Loddigesii.</i>
<i>Arpophyllum giganteum.</i>	<i>Cattleya marginata.</i>
	<i>Cattleya maxima.</i>
<i>Bletia hyacinthina.</i>	<i>Cattleya Mossiæ (in variety).</i>
<i>Brasavola Digbyana.</i>	<i>Cattleya pumila.</i>
<i>Brasavola glauca.</i>	<i>Cattleya Schilleriana.</i>
<i>Brasavola venosa.</i>	<i>Cattleya Skinnerii.</i>
<i>Brassia Lanceana.</i>	<i>Cattleya superba splendens.</i>
<i>Brassia verrucosa.</i>	<i>Cattleya Trianæ (in variety).</i>
<i>Broughtonia sanguinea.</i>	<i>Cattleya Walkeriana.</i>
	<i>Chysis bractescens.</i>
<i>Calanthe Veitchii.</i>	<i>Cirrhopetalum Medusæ.</i>

- Cœlogyne cristata.*
Cœlogyne speciosa.
Cymbidium giganteum.
Cymbidium Mastersii.
Cymbidium tigrinum.
Cypripedium barbatum (in variety).
Cypripedium biflorum.
Cypripedium caudatum.
Cypripedium Harrisianum.
Cypripedium hirsutissimum.
Cypripedium Hookerii.
Cypripedium insigne.
Cypripedium Lowii.
Cypripedium niveum.
Cypripedium Parishii.
Cypripedium purpuratum.
Cypripedium Roezlii.
Cypripedium Stonei.
Cypripedium Veitchii.
Cypripedium venustum.
Cypripedium villosum.
Cyrtochilum maculatum.
Cyrtochilum stellatum.
Cyrtopodium Andersonii.

Dendrobium aggregatum majus.
Dendrobium albosanguineum.
Dendrobium anosmum Dayanum.
Dendrobium Bensoniæ.
Dendrobium Calceolaria.
Dendrobium Cambridgianum.
Dendrobium chrysanthum.
Dendrobium chrysotoxum superbum.
Dendrobium crepidatum.
Dendrobium Dalhousianum.

Dendrobium densiflorum.
Dendrobium Devonianum.
Dendrobium dixanthum.
Dendrobium Falconerii.
Dendrobium fimbriatum.
Dendrobium formosum giganteum.
Dendrobium Gibsonii.
Dendrobium heterocarpum.
Dendrobium Hillii.
Dendrobium infundibulum.
Dendrobium japonicum.
Dendrobium Jenkinsii.
Dendrobium luteolum.
Dendrobium macranthum.
Dendrobium McCarthyæ.
Dendrobium moniliforme.
Dendrobium moschatum.
Dendrobium nobile (in variety)
Dendrobium Parishii.
Dendrobium Paxtonii.
Dendrobium Pierardii.
Dendrobium Pierardii latifolium.
Dendrobium primulinum.
Dendrobium pulchellum.
Dendrobium pulchellum purpureum.
Dendrobium senile.
Dendrobium speciosum.
Dendrobium tortile roseum.
Dendrobium transparens.
Dendrobium Wardianum.
Dendrochilum filiforme.
Dendrochilum glumaceum.

Epidendrum atropurpureum.
Epidendrum atropurpureum roseum.

- Epidendrum aurantiacum.*
Epidendrum ciliare latifolium.
Epidendrum crassifolium.
Epidendrum cuspidatum.
Epidendrum dichromum amabile.
Epidendrum macrochilum.
Epidendrum nemorale majus.
Epidendrum phœniceum.
Epidendrum prismatocarpum.
Epidendrum Stamfordianum.
Epidendrum Stamfordianum gracile.
Epidendrum vitellinum majus.
Eria stellata.

Galeandra Devoniana.
Gongora atropurpurea.

Hartwegia purpurea.
Houlletia Brocklehurstiana.
Huntleya cerina.
Huntleya violacea.

Lælia acuminata.
Lælia albida.
Lælia anceps.
Lælia autumnalis.
Lælia cinnabarina.
Lælia crispilabia.
Lælia flava.
Lælia Lindleyana.
Lælia majalis.
Lælia peduncularis.
Lælia Perrinii.
Lælia Perrinii major.
Lælia præstans.
Lælia purpurata.
Lælia superbiens.
- Leptotes bicolor.*
Leptotes serrulata.
Limatodes rosea (in variety).
Lycaste aromatica.
Lycaste cruenta.
Lycaste Harrisonii.
Lycaste lanipes.
Lycaste Skinnerii (in variety).

Maxillaria picta.
Maxillaria tenuifolia.
Maxillaria venusta.
Miltonia candida.
Miltonia Moreliana.
Miltonia spectabilis.
Miltonia Warscewiczii.

Odontoglossum citrosum.
Odontoglossum cordatum.
Odontoglossum Ehrenbergii.
Odontoglossum grande.
Odontoglossum Insleayi.
Odontoglossum nebulosum.
Odontoglossum Phalænopsis.
Odontoglossum pulchellum.
Oncidium altissimum.
Oncidium ampliatus majus.
Oncidium aurosum.
Oncidium bicallosum.
Oncidium Cavendishii.
Oncidium crispum grandiflorum.
Oncidium cornigerum.
Oncidium divaricatum.
Oncidium flexuosum.
Oncidium hæmatochilum.
Oncidium holochrysum.
Oncidium incurvum.
Oncidium Kramerianum.

<i>Oncidium Lanceanum.</i>	<i>Stanhopea Bucephalus.</i>
<i>Oncidium leucochilum.</i>	<i>Stanhopea Devoniensis.</i>
<i>Oncidium Limminghei.</i>	<i>Stanhopea eburnea spectabilis.</i>
<i>Oncidium luridum guttatum</i> (in variety).	<i>Stanhopea grandiflora.</i>
<i>Oncidium obryzatum.</i>	<i>Stanhopea graveolens.</i>
<i>Oncidium ornithorhyncum.</i>	<i>Stanhopea guttata.</i>
<i>Oncidium Papilio.</i>	<i>Stanhopea inodora.</i>
<i>Oncidium phymatochilum.</i>	<i>Stanhopea insignis.</i>
<i>Oncidium sphacelatum.</i>	<i>Stanhopea Martiana.</i>
<i>Oncidium sphacelatum majus.</i>	<i>Stanhopea oculata.</i>
<i>Peristeria elata.</i>	<i>Stanhopea Ruckeri.</i>
<i>Phajus grandifolius.</i>	<i>Stanhopea saccata.</i>
<i>Phajus maculatus.</i>	<i>Stanhopea tigrina.</i>
<i>Phajus Wallichii.</i>	<i>Stanhopea tigrina superba.</i>
<i>Phalænopsis amabilis.</i>	<i>Stanhopea Wardii.</i>
<i>Phalænopsis grandiflora aurea.</i>	<i>Thunia alba.</i>
<i>Phalænopsis Luddemanniana.</i>	<i>Thunia Bensoniæ.</i>
<i>Phalænopsis Schilleriana.</i>	<i>Trichopilia coccinea.</i>
<i>Pilumna fragrans.</i>	<i>Trichopilia crispa.</i>
<i>Pleione humilis.</i>	<i>Trichopilia Galleotiana.</i>
<i>Pleione Lagenaria.</i>	<i>Trichopilia suavis.</i>
<i>Pleione maculata.</i>	<i>Trichopilia tortilis.</i>
<i>Pleione Wallichiana.</i>	<i>Trichopilia Turialvæ.</i>
<i>Saccolabium Blumei majus.</i>	<i>Vanda Bensoniæ.</i>
<i>Saccolabium curvifolium.</i>	<i>Vanda cœrulea.</i>
<i>Saccolabium giganteum.</i>	<i>Vanda cœrulescens.</i>
<i>Saccolabium guttatum.</i>	<i>Vanda Denisoniana.</i>
<i>Saccolabium Harrisonianum.</i>	<i>Vanda gigantea.</i>
<i>Saccolabium retusum.</i>	<i>Vanda suavis.</i>
<i>Saccolabium violaceum.</i>	<i>Vanda teres.</i>
<i>Schomburgkia undulata.</i>	<i>Vanda tricolor (in variety.)</i>
<i>Scuticaria Steelii.</i>	<i>Vanilla aromatica.</i>
<i>Sobralia macrantha splendens.</i>	<i>Vanilla Phalænopsis.</i>
<i>Sophronitis grandiflora.</i>	
<i>Stanhopea amœna.</i>	<i>Warscewiczella cochlearis.</i>
<i>Stanhopea aurea.</i>	

Zygopelatum crinitum.	Zygopelatum Mackayi.
Zygopelatum crinitum cœruleum.	Zygopelatum maxillare.
	Zygopelatum rostratum.

LIST OF THIRTY CHEAP ORCHIDS FOR GENERAL CULTIVATION.

Aerides odoratum.	Epidendrum macrochilum.
Brasavola glauca.	Lælia anceps.
	Lycaste Skinnerii.
Calanthe Veitchii.	
Calanthe vestita (any variety).	Odontoglossum grande.
Cattleya labiata.	Oncidium flexuosum.
Cattleya Loddigesii.	Oncidium Papilio.
Cattleya crispa.	
Cattleya Mossiæ.	Phajus grandifolius.
Cattleya Skinneri.	
Cattleya Walkeriana.	Saccolabium violaceum.
Cœlogyne cristata.	Stanhopea tigrina.
Cymbidium Mastersii.	
Cypripedium barbatum.	Trichopilia tortilis.
Cypripedium insigne.	
Dendrobium chrysanthum.	Vanda suavis.
Dendrobium Devonianum.	Vanda tricolor.
Dendrobium nobile.	
Dendrobium Pierardii.	Zygopetalum crinitum.

LIST OF TROPICAL ORCHIDS WITH CURIOUS FLOWERS, OR RESEMBLING INSECTS, ETC.

Acranthus arachnitis.	Angræcum Ellisii.
Arachnis moschifera.	Angræcum sesquipedale.
Angræcum caudatum.	

<i>Barkeria elegans.</i>	<i>Masdevallia elephanticeps.</i>
<i>Bolbophyllum barbigerrum.</i>	<i>Masdevallia nycterina.</i>
<i>Bolbophyllum Henshallii.</i>	<i>Masdevallia Trochilus.</i>
<i>Bolbophyllum saltatorium.</i>	<i>Mormodes igneum.</i>
<i>Brassia caudata.</i>	<i>Mormodes luxatum.</i>
<i>Brassia guttata.</i>	<i>Myanthus cernuus.</i>
	<i>Myanthus cristatus.</i>
<i>Catasetum atratum.</i>	
<i>Catasetum barbatum.</i>	<i>Nanodes Medusæ.</i>
<i>Catasetum intergerrimum.</i>	
<i>Catasetum Naso.</i>	<i>Oncidium Kramerianum.</i>
<i>Catasetum Trulla.</i>	<i>Oncidium ornithorhyncum.</i>
<i>Cirrhopetalum Medusæ.</i>	<i>Oncidium Papilio.</i>
<i>Coryanthes macrantha.</i>	<i>Oncidium raniferum.</i>
<i>Cynoches Loddigesii.</i>	<i>Oncidium pelicanum.</i>
<i>Cynoches musciferum.</i>	
<i>Cypripedium caudatum.</i>	<i>Paphinia cristata.</i>
	<i>Peristeria elata.</i>
<i>Epidendrum raniferum.</i>	
<i>Gongora maculata.</i>	<i>Renanthera matutina.</i>
<i>Gongora portentosa.</i>	<i>Restrepia antennifera.</i>
<i>Luisia Psyche.</i>	
<i>Masdevallia Chimæra.</i>	<i>Stanhopea ecornuta.</i>
	<i>Stanhopea tigrina.</i>
	<i>Stanhopea Bucephalus.</i>
	<i>Uropedium Lindeni.</i>

LIST OF THE CHOICEST ORCHIDS COMBINING
BEAUTY OF FLOWER, ELEGANCE OF
GROWTH, AND FRAGRANCE.

(FOR A SMALLER COLLECTION THOSE MARKED WITH A STAR
ARE PREFERABLE.)

<i>Acineta Barkerii.</i>	<i>*Aerides crispum.</i>
<i>Ada aurantiaca.</i>	<i>Aerides Fieldingii.</i>
<i>Aerides affine.</i>	<i>*Aerides Huttonii.</i>

- **Aerides Lobbii*.
- Aerides maculosum*.
- **Aerides odoratum majus*.
- Aerides quinquevulnerum*.
- Aerides Schroderi*.
- **Aerides suavissimum*.
- Aerides virens Dayanum*.
- **Angræcum eburneum*.
- Angræcum Ellisii*.
- **Angræcum sesquipedale*.
- Ansellia africana*.

- Barkeria elegans*.
- Barkeria Skinneri*.
- Barkeria spectabilis*.
- Batemannia meleagris*.
- Brasavola Digbyana*.
- **Broughtonia sanguinea*.
- Burlingtonia candida*.
- **Burlingtonia fragrans*.

- **Calanthe Veitchii*.
- **Calanthe vestita (in variety)*.
- Cattleya Acklandiæ*.
- **Cattleya amethystiglossa*.
- **Cattleya Chocoensis*.
- Cattleya citrina*.
- **Cattleya crispa*.
- Cattleya Dowiana*.
- Cattleya Eldorado splendens*.
- Cattleya exoniensis*.
- Cattleya Gigas*.
- Cattleya guttata Leopoldii*.
- Cattleya marginata*.
- Cattleya maxima*.
- **Cattleya Mossiæ (in variety)*.
- Cattleya speciosissima*.
- **Cattleya Skinneri*.
- **Cattleya superba*.

- **Cattleya Trianæ (in variety)*.
- Cattleya Warneri*.
- **Cattleya Walkeriana*.
- Chysis aurea*.
- **Chysis bractescens*.
- **Cœlogyne cristata*.
- Cœlogyne Gardneriana*.
- Cœlogyne Lowii*.
- Cœlogyne speciosa*.
- Colax jugosus*.
- Comparettia coccinea*.
- Coryanthes macrantha*.
- **Cymbidium eburneum*.
- **Cymbidium Mastersii*.
- **Cypripedium barbatum (in variety)*.
- Cypripedium biflorum*.
- Cypripedium caudatum*.
- Cypripedium Dayanum*.
- Cypripedium Dominicanum*.
- Cypripedium Fairrieianum*.
- **Cypripedium Harrisianum*.
- **Cypripedium insigne*.
- Cypripedium lævigatum*.
- **Cypripedium Lowii*.
- Cypripedium niveum*.
- Cypripedium Parishii*.
- Cypripedium Roezlii*.
- Cypripedium Schlimii*.
- Cypripedium Sedeni*.
- **Cypripedium Stonei*.
- **Cypripedium superbiens*.
- **Cypripedium villosum*.

- Dendrobium aggregatum majus*.
- **Dendrobium albosanguineum*.
- **Dendrobium Bensoniæ*.

- **Dendrobium Calceolaria.*
- Dendrobium cambridgianum.*
- **Dendrobium chrysanthum.*
- Dendrobium chrysotoxom* superbum.
- Dendrobium crassinode.*
- Dendrobium crepidatum.*
- **Dendrobium Dalhousianum.*
- **Dendrobium densiflorum.*
- Dendrobium densiflorum* album.
- **Dendrobium Devonianum.*
- **Dendrobium Falconeri.*
- **Dendrobium formosum* giganteum.
- Dendrobium Griffithianum.*
- Dendrobium Hookerianum.*
- **Dendrobium infundibulum.*
- Dendrobium lituiflorum.*
- Dendrobium Lowii.*
- Dendrobium luteolum.*
- **Dendrobium macranthum.*
- **Dendrobium McCarthyæ.*
- **Dendrobium nobile* (in variety).
- Dendrobium Parishii.*
- Dendrobium Wardianum.*
- **Dendrochilum glumaceum.*
- **Disa grandiflora.*
- **Epidendrum atropurpureum.*
- Epidendrum bicornutum.*
- **Epidendrum cuspidatum.*
- Epidendrum dichromum* amabile.
- **Epidendrum macrochilum.*
- Epidendrum nemorale* majus.
- **Epidendrum Stamfordianum.*
- **Epidendrum vitellinum* majus.
- Galeandra Devoniana.*
- **Houlletia Brocklehurstiana.*
- Huntleya cerina.*
- Huntleya violacea.*
- Ionopsis paniculata.*
- **Lælia albida.*
- **Lælia anceps.*
- Lælia anceps* Barkeriana.
- **Lælia autumnalis.*
- **Lælia cinnabarina.*
- Lælia elegans.*
- Lælia grandis.*
- **Lælia majalis.*
- **Lælia Perrinii.*
- **Lælia præstans.*
- **Lælia purpurata.*
- **Lælia superbiens.*
- **Limatodes rosea.*
- **Lycaste cruenta.*
- Lycaste lanipes.*
- **Lycaste Skinneri.*
- **Masdevallia Chimæra.*
- Masdevallia elephanticeps.*
- **Masdevallia Harryana.*
- Masdevallia ignea.*
- Masdevallia towarensis.*
- **Masdevallia Veitchiana.*
- Maxillaria venusta.*
- Mesospinidium sanguineum.*
- **Miltonia candida.*
- Miltonia Clowesii.*
- **Miltonia Moreliana.*
- Miltonia Regnellii.*
- **Miltonia spectabilis.*
- **Miltonia Warscewiczii.*

- **Odontoglossum* Alexandræ.
- Odontoglossum* Andersoni.
- **Odontoglossum* citrosum
- roseum*.
- Odontoglossum* coronarium.
- **Odontoglossum* grande.
- Odontoglossum* Hallii.
- Odontoglossum* Krameri.
- Odontoglossum* nævium.
- **Odontoglossum* Pescatorei.
- **Odontoglossum* *Phalænopsis*.
- **Odontoglossum* pulchellum.
- Odontoglossum* Roeslii.
- **Odontoglossum* triumphans.
- Odontoglossum* vexillarium.
- **Oncidium* ampliatus majus.
- Oncidium* Barkeri.
- Oncidium* bifolium majus.
- **Oncidium* bicallosum.
- **Oncidium* hæmatochilum.
- Oncidium* incurvum.
- **Oncidium* Kramerianum.
- **Oncidium* Lanceanum.
- **Oncidium* leucochilum.
- Oncidium* macranthum.
- **Oncidium* macranthum hastiferum.
- **Oncidium* obryzatum.
- **Oncidium* ornithorhyncum.
- Oncidium* *Phalænopsis*.
- Oncidium* phymatochilum.
- **Oncidium* sarcodes.
- Oncidium* superbiens.
- **Peristeria* elata.
- **Phajus* grandifolius.
- Phajus* irroratus.
- **Phajus* maculatus.
- **Phajus* Wallichii.
- **Phalænopsis* amabilis.
- **Phalænopsis* grandiflora aurea.
- **Phalænopsis* Luddemanni-ana.
- **Phalænopsis* Schilleriana.
- **Pilumna* fragrans.
- **Pleione* Lagenaria.
- **Pleione* maculata.
- **Pleione* Wallichiana.
- **Saccolabium* ampullaceum
- roseum*.
- Saccolabium* curvifolium.
- **Saccolabium* giganteum.
- **Saccolabium* Harrisonianum.
- Saccolabium* præmorsum.
- **Saccolabium* retusum.
- **Saccolabium* violaceum.
- **Sobralia* macrantha splendens.
- Sophronites* grandiflora.
- **Stanhopea* eburnea spectabilis.
- Stanhopea* insignis.
- Stanhopea* Martiana.
- Stanhopea* oculata.
- Stanhopea* Ruckeri.
- **Stanhopea* tigrina.
- **Stanhopea* Wardii.
- **Thunia* alba.
- **Thunia* Bensoniæ.
- **Trichopilia* crispa.
- Trichopilia* suavis.
- Uropedium* Lindenii.

Vanda Batemanni.	*Vanda tricolor (in variety).
Vanda Bensonii.	
*Vanda cœrulea.	Warrea Lin leniana.
*Vanda cœrulescens.	Warscewiczella velata.
*Vanda Denisoniana.	
Vanda gigantea.	Zygopetalum crinitum.
Vanda limbata.	*Zygopetalum crinitum cœruleum.
*Vanda insignis.	Zygopetalum maxillare.
*Vanda suavis.	*Zygopetalum rostratum.
Vanda teres.	

SIGNIFICATION OF THE NAMES APPLIED TO ORCHIDS.

“Botanical or scientific names have usually been given for some good reason. As a rule they are generally intended to point out something remarkable or characteristic in the plant, and are no more than classical ways of stating facts identically the same in nature as those expressed in ‘blue-bell,’ ‘white-thorn,’ and ‘dandelion’ or ‘*dent-de-lion*.’ To persons acquainted with Greek and Latin their meaning is obvious; but as many lovers of Orchids are unversed in those languages, we subjoin the interpretation of every classical name and epithet which occurs in the preceding pages. Many of the names bestowed upon Orchids, as upon other plants, are of the kind termed commemorative and complimentary. They are the names, that is to say, of persons who deserve our respect or admiration, converted into Latin by the addition of the necessary final letters. *Brassia*, for example, *Cattleya*, and *Broughtonia*. When it is the *specific name* of the plant that is so derived, the rule is that if the name be that of the discoverer or introducer it shall end in *æ* or *i*, as *Wrayæ* or *Pierardi*. When, on the other hand, the name has been bestowed purely in compliment, it ends after the manner ex-

emplified in *Morelianus*, *Schilleriana*, *Dalhousianum*, the termination agreeing, like that of all other adjectives, with the gender of the generic name. But this rule, unhappily, is often disregarded, and the names have to be accepted as they stand. Whether a specific name shall end in *i* or in *ii* is perfectly optional. It rests upon our preferring to say, in pseudo-Latin, *Humboltus* or *Humboltius*, *Farmerus* or *Farmerius*, either being right. A similar freedom pertains to the accentuation of the names which end in single *i*. That is to say, they may be pronounced either *Hook'eri* or *Hooke'ri*, *Far'meri* or *Farme'ri*. The ancients had no such names, and therefore there is no classical rule. A few other names have been adopted from the vernacular of their native countries (*Vanda*, for example), and, when necessary have been Latinized, as in the case of *Angræcum*. A few others, again, appear devoid of meaning.

"The question is often asked, why cannot these glorious flowers have 'English names?' In one point of view to give them English names is impracticable; on the other hand they are already possessed of English names! Appellations rhyming with daisy and buttercup they never can possess. To attempt to bestow such appellations would prove a useless and thankless task, for no one would be willing to accept them; and in the presence of *fuchsia* and *rhododendron*, *iris* and *chrysanthemum*, *crocus* and *narcissus*, and a thousand others of corresponding fabric (which are as thoroughly un-English as *Calanthe* and *Epidendrum*), would be simply absurd, since it would be to attempt to supply a want which no one really feels.

"The people who talk of lilies and roses, yet complain of *Calanthe* and *Lalia*, belong to the school of M. Jourdain, in 'Molière,' who 'had spoken prose all his life without knowing it,' for in the former names they are quite as free from Saxon as in the latter, lily and rose and violet being themselves nothing more than Latin words with the endings

slightly altered. Here and there, after the same manner, we may shorten a Latin orchidaceous name, saying *Dendrobe*, *Oncid*, *Cypripede*, instead of *Dendrobium*, *Oncidium*, and *Cypripedium*, following, too, in that procedure, the plan recommended by Mr. Bentham with regard to the names of certain English wild flowers ; but there are many names which cannot be so abbreviated without sacrifice of euphony, and these will be adopted by all sensible people without a murmur, just as, a little while ago, they accepted *fuchsia* and *rhododendron*, and the hundreds of similar names which have virtually become the English ones. A little time only is wanting, and *Calanthe* will slide into every day speech, just as '*polyanthus*' has done ; that is to say, with every one who cares to know what a *Calanthe* is, our own experience leading us to the belief that those who object to 'Latin' names do not want to learn the English ones either.

"The above argument of course places the matter upon its lowest platform. There is no need to point out anew that without scientific names there could not possibly be any reciprocal understanding, or any uniformity of action among florists and botanists, especially those residing in different countries, every geographical change implying a new set of vernacular terms.

"The exotic vernacular, were it adopted as a whole, would scarcely be an improvement upon the Latin, if we may judge from the Mexican names of two Orchids figured by Hernandez, for instead of *Stanhopea* we should have to say *Coatzonte Coxochitl*; and instead of *Lalia majalis*, *Chichilitic Tepe-tlavhxochitl*.

"The bestowal of the names of the genera of Orchids we owe to many different writers from Tournefort onwards. Ordinarily the genus has been defined by the contriver of the name it bears, but to this there are exceptions. What share the botanists who have dealt with Orchids have had in estab-

lishing the genera, the names of which appear in this volume, may be judged from the following summary : "¹—

Tournefort. Limodorum, Orchis.

Bergius. Disa.

Linnaeus. Cypripedium, Epidendrum, Neottia.

Swartz. Cymbidium, Dendrobium, Oncidium.

Ruiz and Pavon. Anguloa, Bletia, Fernandezia, Gongora, Masdevallia, Maxillaria, Rodriguezia, Sobralia.

Poeppig and Endlicher. Comparettia, Scaphyglottis, Trichocentrum.

Plumier. Vanilla.

Loureiro. Aerides, Phajus, Renanthera.

Humboldt, Bonpland, and Kunth. Cyrtochilum, Ionopsis, Odontoglossum, Restrepia.

D. Don. Pleione.

Ad. Brongniart. Houletia.

La Llave. Arpophyllum.

Salisbury. Ornithidium.

Willdenow. Habenaria.

Blume. Acanthophippium, Anætochilus, Aporum, Arachnis, Arundina, Cleisostoma, Dendrochilum, Grammatophyllum, Limatodes, Macodes, Phalænopsis.

Knowles and Wescott. Barkeria.

Du Petit Thouars. Angræcum, Bolbophyllum.

L. C. Richard. Catasetum, Liparis, Physurus.

Robert Brown. Brassia, Broughtonia, Calanthe, Cyrtopodium, Dipodium, Eulophia, Goodyera, Isochilus, Lissochilus, Octomeria, Pleurothallis, Ponthieva, Sarcochilus, Vanda.

¹ For this introduction to the Glossary, which so fully and concisely states the subject, the writer is indebted to Mr. Leo Grindon, Lecturer on Botany at the Royal School of Medicine, Manchester, England, by whom it was written for a little volume called *Fairfield Orchids*, to which reference has already been made.

Hooker. *Coryanthes*, *Peristeria*, *Polystachya*, *Stanhopea*, *Zygopetalum*.

Lindley. *Acranthus*, *Acineta*, *Acropera*, *Ada*, *Aganisia*, *Ansellia*, *Batemanian*, *Bifrenaria*, *Brasavola*, *Bromheadia*, *Burlingtonia*, *Camaridium*, *Camarotis*, *Cattleya*, *Chysis*, *Cirrheæa*, *Cirrhopetalum*, *Cœlia*, *Cœlogyne*, *Colax*, *Cynoches*, *Cyrtopera*, *Dichæa*, *Dicripta*, *Dienia*, *Dinema*, *Drymoda*, *Eria*, *Eriopsis*, *Galeandra*, *Galliotia*, *Govenia*, *Grobya*, *Hartwegia*, *Helcia*, *Huntleya*, *Ipsæa*, *Lacæna*, *Lælia*, *Læliopsis*, *Leptotes*, *Lycaste*, *Luisia*, *Megaclinium*, *Miltonia*, *Mormodes*, *Myanthus*, *Nasonia*, *Notylia*, *Ceoclares*, *Paphinia*, *Paxtonia*, *Pholidota*, *Physosiphon*, *Pilumna*, *Prescottia*, *Promenæa*, *Saccolabium*, *Sarcanthus*, *Sauroglossum*, *Schomburgkia*, *Scuticaria*, *Sophronitis*, *Specklinia*, *Trichopilia*, *Trigonidium*, *Uropedium*, *Warrea*.

Reichenbach fil. *Bollea*, *Luddemannia*, *Mesospinidium*, *Nanodes*, *Palumbina*, *Pescatorea*, *Polycycnis*, *Preptanthe*, *Selenipedium*, *Stenia*, *Thunia*, *Warscewiczella*.

GLOSSARY.

A.

- Abruptus**, -a, -um. Broken off.
- Acanthophippium**. Name obscure? From *ephippia*, a saddle-cloth, alluding to the formation of the flower.
- Acaulis**, -e. Having no stem.
- Acicularis**, -e. Pointed, needle-like.
- Acinaceus**, -a, -um. Hooked, scimeter-shaped.
- Acine'ta**. Immoveable, referring to the union of the base of the labellum with the column.
- Acklan'diæ**. In compliment to the late Lady Ackland, wife of Sir Thomas D. Ackland, of Killerton, near Exeter, by whom the *Cattleya* so named was introduced from Brazil.
- Acranthus**. Altered from the Greek *aer*, the air, and *anthos*, a flower.
- Acropera**. From *akros*, the end, and *pera*, a pouch, alluding to the shape of the flower.
- Acuminate**. } Drawn out into a long and tapering
Acuminatus, -a, -um. } point.
- Acutipetalus**, -a, -um. Having acute petals.
- Acutus**, -a, -um. Sharp pointed.
- Ada**. Named by Dr. Lindley, probably in compliment to some lady.
- Aduncus**, -a, -um. Hooked.
- Æmulus**, -a, -um. Rivaling, thence superior, very handsome.
- Aerial** plants are such as grow upon others, as opposed to having their roots in the earth, or being aquatic.

- Aerides.** From *aer*, the air, signifying air plant.
- Aeriformis, -e.** Resembling an *Aerides*.
- Affinis, -e.** Related to, but used in the sense of doubtful or ambiguous.
- Africanus, -a, -um.** Native of Africa.
- Aganisia.** From *agánōs*, lovely.
- Aggregatus, -a, -um.** When many parts, such as flowers or fruits, are placed side by side in such a way that not one can be removed without impairing the symmetry of the mass.
- Ainsworthii.** Complimentary to Dr. Ainsworth, of Broughton, Manchester, who raised *Dendrobium Ainsworthii*.
- Alatus, -a, -um.** Winged.
- Albertineæ.** A complimentary name.
- Albido-fulvus, -a, -um.** Yellow and white.
- Albidus, -a, -um.** Whitish.
- Albo-sanguineus, -a, -um.** Whitish blood color, or a combination of these two colors.
- Albo-striatus, -a, -um.** Striped with white.
- Albus, -a, -um.** Clear, but not shining, white.
- Alexandræ.** Complimentary to the Princess Alexandra.
- Alifolius, -a, -um.** Winged-leaved.
- Aloefolius, -a, -um.** Aloe-leaved.
- Alpine.** } Growing upon mountains in cold countries. Also, by usage, any delicate and mossy plants, whatever their native habitat.
- Alpinus, -a, -um.** }
- Altissimus, -a, -um.** Very tall, or tallest of its congeners.
- Amabilis, -e.** Lovely.
- Ambiguus, -a, -um.** Doubtful.
- Amboinensis, -e.** Native of Amboyna.
- Amethystinus, -a, -um.** Pale violet.
- Amethystoglossus, -a, -um.** Having an amethyst-colored lip.
- Amherstiae.** In honor of Lady Amherst, a zealous patron of botany.

- Amictus**, -a, -um. Frilled.
- Amœnus**, -a, -um. Charming.
- Ampliatu**s, -a, -um. Enlarged.
- Amplus**, -a, -um. Large and thus fine, noble.
- Ampullaceus**, -a, -um. Flask or bottle-shaped.
- Anæctochilus**. From *anoiktos*, open, and *cheilos*, a lip.
- Anceps**. Two-edged.
- Andersoniæ**. Complimentary to several of the name, especially the late Dr. Thomas Anderson, superintendent of the Calcutta Botanic Garden. Ob. Oct. 26, 1870.
- Angræcum**. When Rumphius first went to Amboyna, nearly two centuries ago, he found the Malayan name for any epiphytal Orchid to be *angrec*. This word Latinized he used in the *Herbarium Amboynense* for the dozen species he describes and figures therein.
- Angulo'a**. Complimentary to Francis de Angulo, Director of the Spanish Mines in Peru.
- Angustus**, -a, -um, }
Angustatus, -a, -um. } Narrow, applied to parts of the flower.
- Angustifolius**, -a, -um. Narrow-leaved.
- Annual**. Living only one year or less.
- Anosmus**, -a, -um. Scentless.
- Ansellia**. Commemorative of Mr. John Ansell, who discovered the plant in Africa.
- Antennifera**. Bearing antennæ.
- Anther**. The terminal and hollow portion of the stamen, usually a distinct case, and usually of two cells or compartments, each containing pollen.
- Antioquiensis**, -e. Native of Antioquia, a district of New Granada.
- Aphrodite**. A name of Venus, and thence beautiful.
- Aphyllus**, -a, -um. Leafless; destitute at all times of true leaves, a condition of many Orchids.
- Apiferus**, -a, -um. From *apis*, a bee, and *fero*, to bear; literally bearing bees, alluding to the shape of the flowers.

Aporum. From *aporux*, a running shoot, referring to the growth of the plant.

Apterus, -a, -um. Wingless.

Aqueus, -a, -um. Watery, thence thin; applied to petals of a flower.

Arachnis, } In mythology, Arachne was very skillful with
Arachnites, } her needle. She was changed by Minerva
 into a spider, which the plants resemble.

Arbuscula. Resembling a little tree.

Arembergii. In honor of Prince d'Aremberg.

Argenteus, -a, -um. Silvery.

Argus. Was the hundred-eyed keeper of Io.

Arietinus, -a, -um. Shaped like a ram's head.

Armeniacus, -a, -um. Apricot-colored.

Arpophyllum. Having leaves shaped like a scimeter; from *harpe*, a scimeter, and *phyllon*, a leaf.

Articulated. Jointed and capable of readily separating without tearing, so as to leave a clean scar.

Articulatus, -a, -um. Jointed.

Arundina. From *arundo*, a reed.

Aspasia. From the Greek *aspazomai*, to cling to.

Asper, -a, -um. Rough.

Asperatus, -a, -um. Roughened.

Astranthus, -a, -um. Starry.

Atratus, -a, -um. Blackish.

Atropurpureus, -a, -um. Dark purple.

Atro-rubens. Deep reddish.

Aureo-purpureus, -a, -um. Purple and gold.

Aurantiacus, -a, -um. Orange colored.

Aureo-flavus, -a, -um. Golden yellow.

Aureo-fulvus, -a, -um. Tawny yellow.

Aureus, -a, -um. }

Aurosus, -a, -um. } Gold colored.

Auratus, -a, -um. }

Auritus, -a, -um. Having ears.

Autumnalis, -e. Autumn flowering.

Axil. The cavity or angle between the stem and the inner base of the leaf or petiole. Flowers, etc., arising from this point are "axillary."

B.

Bambusifolius, -a, -um. Bamboo-leaved.

Barbatus, -a, -um. Bearded, *i. e.*, provided or beset with long weak hairs or terminating in a mass of hairs, usually more or less straight and parallel. The negative expressed by *imberbis*.

Barbatulus, -a, -um. Thinly bearded.

Barbigerus, -a, -um. Bearded or bearing a beard, alluding to the fringed lip of many plants.

Barelli. In honor of Mr. Barell, a botanist at Cape of Good Hope.

Barkeri.

Barkeria.

Barkerianus, -a, -um.

Barringtoniæ. Dedicated to Lady Barrington.

Batemannia. } In compliment to James Bateman, the distin-
Batemani. } guished orchidologist.

Baueri. In honor of the botanical draughtsmen, Messrs. Francis and Ferdinand Bauer.

Beaumontii. Commemorative of Beaumont.

Bensoniæ. In compliment to Lieutenant-colonel Benson, of Rangoon. Several species are also named in compliment to Mrs. Benson.

Bernaysii. In honor of Mr. A. Bernays, of Queensland.

Bicallosus, -a, -um. Having two calluses, or hard projections on lip.

Bicolor. Two colored.

Bicornutus, -a, -um. Two horned.

Bictoniensis, -e. Refers to Bicton, the seat of Lord Rolle, near Sidmouth.

- Bidens.** Two-toothed.
- Biennial Plants.** Such as spring from the seed one year blossom the following year, and then die.
- Bifidus, -a, -um.** Cleft half-way to the base.
- Biflorus, -a, -um.** Two-flowered.
- Bifolius, -a, -um.** Having two leaves, neither more or less.
- Biforatus, -a, -um.** Having two holes.
- Bifrenaria.** From, *bis*, double, and *frenum*, a bridle.
- Bigibbus, -a, -um.** Having two small protuberances.
- Bilobus, -a, -um.** Two-lobed, as a leaf, petal, or lip.
- Bipartite.** Cleft nearly to the base.
- Bipunctatus, -a, -um.** Having two punctures.
- Bituberculatus, -a, -um.** Having two tubercles or prominences.
- Blanchetti.** In honor of Mr. Blanchette.
- Blandus, -a, -um.** Pleasing, charming.
- Bletia.** Dedicated to Louis Blet.
- Blumei.** Complimentary to Dr. Blume, the writer on East Indian Botany.
- Bluntii.** In memory of Mr. Blunt, who in 1862-64 collected plants in Brazil and New Granada, for Messrs. Low.
- Bolbophyllum.** From *bolbos*, a bulb, and *phyllon*, a leaf, literally bulb-leaf.
- Boothianus, -a, -um.** Complimentary to Mr. W. B. Booth, an English gardener, about 1838.
- Boxalli.** Complimentary to Mr. Boxall, an employee of Messrs. Low.
- Brabantiae.** In honor of the Duchess of Brabant.
- Brachiatus, -a, -um.** Branched or having arms; in *Brassia brachiata* it refers to the very long tails.
- Brachypetalus, -a, -um.** Having petals like arms.
- Bracteatus, -a, -um.** Having bracts.
- Bracteolatus, -a, -um.** Bearing bracts.
- Bracts.** Leaves much diminished in size and more or less altered in form, usually standing very near to the flowers

or their peduncles ; often petaloid and gayly colored. In Orchids they are never absent, though occasionally deciduous, and sometimes add greatly to the beauty of the inflorescence.

Bractescens. Having very large bracts or a strong tendency to the development of bracts.

Brasavola. In honor of Antonio Musa Brasavola, a noble Venetian, one of the most enlightened botanists of his day.

Brasavolæ. Like a *Brasavola*.

Brassia. Commemorative of Mr. Brass, a botanist who about 1790 collected plants in Africa, for Sir Joseph Banks.

Brevifolius, -a, -um. Short-leaved.

Brocklehurstianus, -a, -um. Complimentary to the late Thomas Brocklehurst, a distinguished Orchid amateur near Manchester. Ob. Nov. 7, 1870.

Bromheadia. In honor of Sir Edward French Bromhead, a zealous botanist.

Brookei. Complimentary to Sir Richard Brooke, Norton Priory, near Runcorn. Ob. Nov. 11, 1865.

Broughtonia. In memory of Arthur Broughton, a botanist in Jamaica.

Brysianus, -a, -um. Complimentary to the Belgian botanist, Mr. Brys.

Bucephalus. A horse of Alexander the Great.

Bufo. } Resembling a toad.

Bufonius, -a, -um. }

Bulbosus, -a, -um. Having bulbs. Applied to abnormal stems of similar shape.

Bulleni. } Complimentary to Mr. R. Bullen, for
Bullenianus, -a, -um. } many years a foreman at Messrs.
 Lows.

Burlingtonia. Complimentary to Blanche Georgiana, Countess of Burlington. Ob. April 27, 1840.

Burtii. Commemorative of Mr. Burt, so Mr. Endres of Costa Rica named *Balemannia Burtii*.

C.

- Cærulescens.** Having a tendency to blue.
Cæruleus, -a, -um. Pale indigo blue.
Cæspitosus, -a, -um. Growing in tufts.
Calamaria. Reed or quill-stemmed, from *calamus*, a reed.
Calamiformis, -e. Shaped like a reed.
Calanthe. } Lovely flower.
Calanthum. }
Calcaratus, -a, -um. Chalky — dead white color.
Calceolaria. Resembling a Calceolaria.
Calceolus. Shaped like a little shoe.
Calocheilus, -a, -um. Having a beautiful lip.
Callosus, -a, -um. Having a thick skin or covering.
Calyx. The outermost of the two sets of leafy pieces which constitute a perfect flower or "perianth," the corolla (constituted of petals) being interior to it.
Camaridium. From *kamara*, an arched roof or chamber.
Camarotis. Chambered flower, in reference to the form of the lip.
Cambridgianus, -a, -um. Complimentary to Augusta Louisa, first Duchess of Cambridge, who was on a visit to Chatsworth in 1838, when *Dendrobium Cambridgianum* first flowered.
Campanulatus, -a, -um. Bell-shaped.
Candelabre. In form of a candelabrum.
Candidus, -a, -um. Pure, lustrous white.
Candollei. In honor of De Candolle, the distinguished botanist.
Caniculatus, -a, -um. Channeled, generally referring to the foliage.
Capillipes. Hairy-footed.
Cardinalis, -e. Cardinal color.

- Careyanum.** In compliment to Dr. Carey, of Serampore, India.
- Caricinus, -a, -um.** Sedge-leaved.
- Cariniferus, -a, -um.** Having a keel.
- Carneus, -a, -um.** Flesh-colored.
- Carthaginense.** From Carthage.
- Cartoni.** Complimentary to Mr. Carton, gardener to the Duke of Northumberland, at Lyon House.
- Catasetum.** From *kata*, downwards, and *seta*, a bristle, alluding to direction of bristles in the flowers.
- Cathcartii.** In honor of the late Judge Cathcart.
- Catillus.** From Catullus, a Roman emperor.
- Cattleya.** In honor of Wm. Cattleya, of Barnet, Hertfordshire, one of the earliest amateur growers of Orchids.
- Caudatus, -a, -um.** Having long tails.
- Caudicle.** } A little tail; applied to the minute stalks
- Caudiculus.** } which sustain the pollen mosses of Orchid flowers.
- Caulescens.** Having a tendency to develop stems.
- Caulescent.** Possessed of a more or less obvious stem.
- Cavendishii.** Complimentary to Wm. Spencer Cavendish, sixth Duke of Devonshire. Ob. Jan. 17, 1838.
- Cebolleta.** The leaves of the *Oncidium*, so called, resemble those of the chive (*Allium Schoenoprasum*), the French name of which is *ciboulle*.
- Cepiformis, -e.** Onion-shaped.
- Ceratochilus.** Horn lip, alluding to the polished lip of the Stanhopea.
- Cereolus, -a, -um.** Waxy.
- Cerinus, -a, -um.** Wax-colored.
- Cernuus, -a, -um.** Somewhat pendulous, drooping.
- Cervantesii.** In compliment to the Spanish botanist, Vicente Cervantes.
- Chaillainum.** Commemorative of the African traveller Chaillau.

- Chantinii.** In compliment to Chantin, a French horticulturist.
- Cheirostylis.** From *cheir*, a hand, and *stylos*, a style.
- Chinensis, -e.** From China.
- Chloranthus, -a, -um.** Having greenish-yellow flowers.
- Chlorops.** Pale green.
- Chlorochilus, -a, -um.** Green-lipped.
- Chocoensis.** Natives of the province of Choco, in New Granada.
- Chimæra.** A mythological monster, that spouted fire.
- Chrysanthus, -a, -um.** Golden-flowered.
- Chrysoprepis.** Golden-shoed.
- Chrysothyrus.** Golden-racemed, a thyrse of golden flowers.
- Chrysotis.** Golden eared.
- Chrysotoxus, -a, -um.** Golden-arched.
- Chysis.** Anything melted, the pollinia seeming to be fused together.
- Ciliaris, -e.** Fringed.
- Ciliated.** }
- Ciliatus, -a, -um.** } Minutely and very delicately fringed.
- Cinnabarinus, -a, -um.** Vermilion-colored.
- Cirr hæa.** From *cirrus*, a ringlet or tendril.
- Cirrhopetalum.** From *kerros*, tawny, and *petalon*, a petal.
- Citratus, -a, -um.** Of orange color, or smelling like orange.
- Citrinus, -a, -um.** Lemon-colored.
- Citrosmus, -a, -um.** Citron-scented.
- Clavatus, -a, -um.** Club-shaped; solid cylindrical, slender at the base and gradually thickening upwards.
- Cleisostoma.** From *kleistos*, closed, and *stoma*, a mouth.
- Clowesii.** Commemorates the late Rev. John Clowes, of Manchester, ob. Sept. 28, 1846, bequeathing his magnificent collection of Orchids to Kew Gardens.
- Cnemidophorus, -a, -um.** Having spaces between two knots. Sheathed.

- Coccineus**, -a, -um. Bright scarlet.
- Cochleatus**, -a, -um. Spoon-shaped, usually in reference to the lip of a flower.
- Cœlia**. From *kailos*, hollow.
- Cœlogyne**. Hollow stigma.
- Colax**. From *kolax*, a parasite.
- Colleyi**. Commemorative of Mr. Colley, a collector of Orchids in Demarara for James Bateman.
- Colorans**. Colored.
- Colossus**. Colossal, large.
- Column**. In an Orchid flower a composite body consisting of three styles and four stamens, the whole welded into a solid mass.
- Comosus**, -a, -um. Hairy. With long hair.
- Comparettia**. Dedicated by Poeppig and Endlicher to Professor Comparetti.
- Compressus**, -a, -um. Compressed, constricted, alluding to shape of parts of a flower.
- Conchoideus**, -a, -um. Resembling a shell.
- Concolor**. Uniformity of hue in sepals and petals.
- Congestus**, -a, -um. Thick, full.
- Connivent**. Drawing together, so as to form an arch.
- Conopseus**, -a, -um. Resembling a gnat.
- Constrictus**, -a, -um. Drawn together, contracted.
- Convallaroides**. Resembling a *Convallaria*.
- Cooperianum**. Complimentary to Mr. Cooper, of Alpha House, an amateur in Orchids.
- Cordate**.
Cordatus, -a, -um. } Heart-shaped.
- Coriaceous**, -a, -um. Leathery, usually applied to thick leaves.
- Cornigerus**, -a, -um. Bearing horns.
- Corolla**. The circle of floral pieces intermediate between the calyx and stamens, the pieces when free being called petals. Never wanting in Orchids, though sometimes, as in *Masdevallia*, much inferior in size to the sepals.

- Coronarius**, -a, -um. Resembling a crown or garland, or adapted for chaplets.
- Cornu-cervi**. Stag's horn; flattened like an antler.
- Cornutus**, -a, -um. Horned.
- Corrugatus**, -a, -um. Rough, wrinkled, usually as to appearance of pseudo-bulbs.
- Coryanthes**. Name from *koros*, a helmet, and *anthos*, a flower.
- Crassifolius**, -a, -um. Thick-leaved.
- Crassinodis**, -e. Having remarkably swollen joints.
- Crepidatus**, -a, -um. Shaped like old-fashioned sandals.
- Cretaceus**, -a, -um. Chalky white.
- Criniferus**, -a, -um. Hairy.
- Crinitus**, -a, -um. Having hairs upon the surface.
- Crispilabius**, -a, -um. Crispy-lipped.
- Crispus**, -a, -um. Crisped along the margin.
- Cristatus**, -a, -um. Crested.
- Crocidipterus**, -a, -um. Having crocus or saffron-colored wings.
- Cræsus**. A king of Lydia, famous for his wealth; *Oncidium Cræsus* is so named for its rich golden color.
- Cruciformis**, -e. Shaped like the heraldic Greek cross, or with the four arms all of equal length.
- Cruentus**, -a, -um. Blood-color, or with blood-colored spots.
- Crumenatus**, -a, -um. Purse-shaped.
- Cryptocopis**. Having long sepals.
- Crystallinus**, -a, -um. Resembling ice in solidity or translucency.
- Cucullate**. } Shaped like the cowl or hood worn by
Cucullatus, -a, -um. } monks.
- Cucumerinus**, -a, -um. Resembling a cucumber.
- Cuneate**. }
Cuneatus, -a, -um. } Wedge-shaped.
- Cumingii**. In memory of Mr. Hugh Cuming, who introduced many fine Orchids, especially *Phalænopsis amabilis*.

- Cupreus**, -a, -um. Copper-colored.
- Curculigoides**. Resembling a *curculigo*.
- Curvifolius**, -a, -um. Curving-leaved.
- Cuspidatus**, -a, -um. Pointed, or tapering to a point.
- Cyaneus**, -a, -um. Bright blue, azure.
- Cynoches**. From *kuknos*, a swan, and *auxēn*, a neck.
- Cylindricus**, -a, -um. Long and slender, the horizontal section circular.
- Cymbidium**. Boat-shaped, in allusion to the form of the lip. From *kumba*, a boat.
- Cypripedium**. Literally "Venus's slipper," *Cypris* having been one of the names of that goddess. In conformity with the custom that prevailed after the revival of learning many things originally dedicated to Venus were transferred to "Our Lady," Notre Dame, the Virgin Mary. Hence we find the European *Cypripedium* formerly bearing the name of *Calceolus Marianus*, "the slipper of our Lady," of which the modern "Ladies' slipper," instead of Lady's slipper, is an erroneous writing.
- Cyrtochilum**. From *kurtos*, arched, and *cheilos*, a lip.
- Cyrtopera**. From *kurtos*, arched, and *pera*, a sack or bag.
- Cyrtopodium**. From *kurtos*, arched, and *pous*, a foot.

D.

- Daisy**. A complimentary name.
- Dalhousianus**, -a, -um. In compliment to the late Countess of Dalhousie.
- Davisii**. In memory of Mr. W. Davis, a botanical collector in Peru.
- Dawsoni**. } In compliment to Thomas Dawson,
- Dawsonianus**, -a, -um. } Meadow Bank, Uddington, near Glasgow, a celebrated grower of Orchids.
- Dayanus**, -a, -um. } In compliment to John Day, High Cross,
- Dayi**. } Tottenham, who has a magnificent collection of Orchids.

Deciduous. Applied to organs of any kind, which after fulfilling their functions, detach themselves bodily from the part they were attached to.

Decorus, -a, -um. Comely.

Delicatus, -a, -um. Neat and tender.

Deltoideus, -a, -um. Delta-shaped, alluding to form of the lip or petals.

Dendrobium. From *dendron*, a tree, and *bios*, life.

Dendrochilum. From *dendron*, a tree, and *cheilos*, a lip, a lip-flowered epiphyte.

Denisonianus, -a, -um.	} In compliment to Lady Londesborough, wife of W. H. F. Denison, Baron Londesborough.
Denisoni.	
Denisonæ.	

Densiflorus, -a, -um. Having the flowers densely clustered.

Densus, -a, -um. Thick; may allude either to the habit of the plant, or to the texture of foliage or flower.

Dentatus, -a, -um. Toothed, dentate.

Denticulatus, -a, -um. Minutely toothed, denticulate.

Denudans. Unclothed, naked, referring to parts of the flower.

Dependens. Drooping.

Deppei. In honor of Mr. Deppe, a collector in Mexico.

Devonianus, -a, -um. Complimentary to William Spencer Cavendish, sixth Duke of Devonshire, who at Chatsworth so liberally promoted the science of Botany.

Diadema. Like a diadem, which was formerly an ornament spanning the front of the head.

Diandrous. Having two stamens, neither more nor less.

Dichœa. From *diche*, in two, alluding to arrangement of the leaves.

Dichotomus, -a, -um. Dividing or forking into two branches.

Dichromus, -a, -um. Two-colored.

Dicrypta. From *dis*, double, and *krupto*, to conceal, alluding to structure of the pollinia.

Dienia. From *dis*, two, and *enia*, a strap, alluding to attachment of pollen masses.

- Digbyanus**, -a, -um. Complimentary to Edward St. Vincent Digby, Minterne, Dorsetshire, with whom, in 1846, *Brasavola Digbyanus* first flowered.
- Digitatus**, -a, -um. Digitate, with narrow, deep cut lobes.
- Dimorphism**. The curious phenomena in orchidous plants of two or more shapes of flower being developed upon the same plant or upon individuals of the same species.
- Dinema**. From *dis*, two, and *neo*, to spin, alluding to the thread-like horns of the column.
- Dipodium**. From *dis*, two, and *pous*, a foot, referring to the threads of the pollinia.
- Disa**. Meaning unknown. Linnæus adopted this name from Bergius.
- Discolor**. When the two surfaces of a leaf or petal are of two different colors.
- Distichus**, -a, -um. } Converged in two vertical ranks, so as
Distichous. } to present a flat front.
- Divaricatus**, -a, -um. Straggling, spreading irregularly in various directions.
- Dixanthus**, -a, -um. Having flowers of two shades of yellow.
- Domingensis**. Native of St. Domingo.
- Dominianum**. In compliment to Mr. Dominy, foreman at James Veitch's, whose hybrid Orchids have immortalized his name.
- Dorsal**. Behind, as at the back of anything.
- Dowianus**, -a, -um. Complimentary to Captain J. M. Dow.
- Drymoda**. From *drumos*, a forest.
- Dubius**, -a, -um. Doubtful, uncertain, applied to plants of uncertain affinities.

E.

- Eburneus**, -a, -um. Ivory like.
- Ecornutus**, -a, -um. Without horns.
- Edithiana**. Complimentary.
- Egertonianus**, -a, -um. Complimentary to Mr. Egerton;
Cynoches Egertonianum.

- Ehrenbergii.** Dedicated to Charles Ehrenberg, the naturalist.
- Elatus, -a, -um.** Tall, taller than the parts or organs of the plant would lead us to expect, or tall in comparison with its near allies.
- El Dorado.** The Golden, the name of the fabulous country described by Francis Orellana, the companion of Pizarro. Well applied to that splendid *Cattleya*, whose lip seems to hold a plate of burnished metal.
- Elegans.** Very choice and attractive, worthy of being chosen.
- Ellisii.** In honor of Rev. William Ellis, the Madagascar traveller.
- Elongatus, -a, -um.** Lengthened.
- Emarginatus, -a, -um.** Having a little notch in the rounded extremity; emarginate.
- Ensatus, -a, -um.** Sword-shaped.
- Ensifolius, -a, -um.** Leaves sword-shaped.
- Ensiformis, -e.** Sword-shaped, ensiform.
- Ephippium.** A side-saddle.
- Epidendroides.** Resembling an *Epidendrum*.
- Epidendrum.** From *epi*, upon, and *dendron*, a tree, referring, like *Dendrobium*, to the habitat. Originally it was the generic name of nearly all tree Orchids. It should be written *Epidendron*.
- Epistephium.** From *epi*, upon, and *stephanos*, a garland.
- Equestris, -e.** Knightly, courteous, very handsome.
- Eriopsis.** From *Eria* and *opsis*, resemblance.
- Erinaceus, -a, -um.** Like a hedgehog, bristly.
- Erubescens.** Blushing, growing rosy red.
- Estradæ.** In honor of Doña Estrada, of New Granada.
- Euglossus, -a, -um.** Having a handsome tongue.
- Eulophia.** From *eulophos*, a handsome crest.
- Euxanthinus, -a, -um.** Beautiful yellowish brown.
- Evectus, -a, -um.** Exalted, proud, stately.
- Excavatus, -a, -um.** Hollowed.

Exoniensis, -e. Raised at Exeter by the celebrated nursery-men, Messrs. James Veitch & Sons.

F.

Fairrieanus, -a, -um. Complimentary to Mr. Fairrie, of Liverpool, an amateur.

Falcatus, -a, -um. Sickle-shaped, or curved.

Falconeri. Complimentary to Dr. Hugh Falconer, distinguished for his services to East Indian botany.

Family of Plants. The equivalent of "natural Order," the "Orchis family," being the same as Orchids or Orchidaceæ.

Farmeri. Complimentary to the late W. G. Farmer, a celebrated Orchid amateur.

Fasciatus, -a, -um. Swathed, banded, flattened, applied to stems and branches.

Fausta. A complimentary name.

Fernandezia. Name in honor of George Garcias Fernandez, a Spanish botanist.

Ferrugineus, -a, -um. Rusty, dull-colored.

Festivus, -a, -um. Beautiful.

Fieldingii. Complimentary to the late W. B. Fielding.

Filiformis, -e. Very long, slender, and flexible.

Filipes. Slender-footed.

Fimbriatus, -a, -um. Fringed.

Finlaysonianum. In memory of Mr. Finlayson?

Flaccidus, -a, -um. Weak, drooping, usually applied to flower-stems.

Flaveo oculatus, -a, -um. Yellow-eyed.

Flavescens. Yellowish.

Flavicans. Approaching to yellow.

Flavidus, -a, -um. Yellow.

Flavus, -a, -um. Yellow.

Flexuosus, -a, -um. Slightly zig-zag, applied to stems.

Flora. The total of the species of plants indigenous to a

given country or district. When for a very small area, the term *Florula* is employed. In the secondary sense, a book in which the vegetation of a country or province is described and classified.

Floridus, -a, -um. Literally flowering and thence flourishing; gay, bright.

Foliaceus, -a, -um. Leaf-like in texture, foliaceous.

Foliosus, -a, -um. Leafy.

Forbesii. Commemorative of Mr. Forbes, collector in Brazil for the Royal Horticultural Society.

Forkeli. Dedicated to Mr. Forkel.

Formosus, -a, -um. Very beautiful in shape, therefore, strikingly ornamental.

Fragrans. Sweet-scented.

Frederici Guilielmi. In honor of Frederic William, King of Prussia.

Fuliginosus, -a, -um. Sooty, dull-colored.

Fulvus, -a, -um. Tawny.

Furcatus, -a, -um. Forked or two-horned.

Furfuraceus, -a, -um. Scurfy.

Furvus, -a, -um. Dusky, dull-colored.

Fuscatus, -a, -um. Brownish flowered.

Fuscescens. Reddish brown.

Fusco-luteus, -a, -um. Brownish yellow.

Fusiformis, -e. Spindle-shaped; fusiform.

Fytcheanus, -a, -um. Complimentary to Colonel Fytch, who discovered *Dendrobium Fytcheanum*.

G.

Galeandra. From *galea*, a helmet, and *anēr*, an anther, alluding to the crested anther.

Galeatus, -a, -um. Resembling a helmet.

Galeottianus , -a, -um.	} In memory of M. Galeotti, who collected Orchids in Mexico, in 1839, an author of a work on Orchids.
Galeottia .	
Galeottii .	

- Gardnerianus**, -a, -um. } Complimentary to the botanical
Gardneri. } traveller, George Gardner, who
 introduced many plants from Brazil in 1836-1841. He
 died as superintendent of Botanic Garden at Peradenia,
 Ceylon, March 10, 1849.
- Gautieri**. In honor of Hypolito Gautier, collector in South
 America for Ambrose Verschaffelt.
- Gibbsianus**. In honor of Mr. H. Gibbs, an English ama-
 teur.
- Gibsoni**. Complimentary to Mr. John Gibson, who collected
 plants in the East Indies for the Duke of Devonshire.
- Giganteus**, -a, -um. Greatly exceeding its congeners in size
 and stature.
- Gigas**. A giant, in allusion to size, either of plant or flower.
- Gireoudiana**. Complimentary to Mr. Gireoud. A species of
Brassia was so named by Professor Reichenbach.
- Glabrous**. Smooth and perfectly destitute of down or hair.
- Gladiatus**, -a, -um. Having sword-shaped foliage.
- Glaucescens**. Having a tendency to be glaucous.
- Glaucus**, -a, -um. Green, with the addition of a peculiar
 bluish white as in the foliage of carnations.
- Globiferus**, -a, -um. Globe-bearing, in allusion to the round-
 ness of the flowers.
- Gloriosus**, -a, -um. Renowned, illustrious, very beautiful.
- Glumaceus**, -a, -um. Chaffy in texture or resembling the
 awns of wheat.
- Glutinosus**, -a, -um. Sticky.
- Gongora**. In honor of Antonia Gongora, Viceroy of New
 Granada.
- Goodyera**. In memory of John Goodyer, an old Hampshire
 botanist mentioned in Gerard's "Herbal," p. 228.
- Goodyeroides**. Resembling a Goodyera.
- Gowenia**. In honor of J. R. Gowen.
- Goweri**. Complimentary to Mr. J. R. Gower, for many years
 a collector in Assam.

- Gracilis**, -e. Slender and thence graceful.
- Grahami**. In honor of Dr. Graham, an amateur.
- Graminoides**. Resembling grass.
- Grammatophyllum**. From *gramma*, a letter, and *phullon*, a leaf.
- Grandifolius**, -a, -um. Having leaves larger than those of its congeners.
- Grandiflorus**, -a, -um. Having flowers large in comparison with others of the genus.
- Grandis**, -e. Grand, great, imposing.
- Granulosus**, -a, -um. Covered with grains or roughness.
- Graveolens**. Strong smelling.
- Greenii**. Complimentary to Charles Green, gardener to Mr. Wilson Saunders.
- Griffithianus**, -a, -um. } Complimentary to the late William
Griffithii. } Griffith, superintendent of the
 Calcutta Gardens from 1841. Ob. Feb. 7, 1845.
- Grobya**. Dedicated to Lord Grey of Groby.
- Guatemalensis**. Native of Guatemala.
- Guineensis**, -e. Native of Guinea.
- Guttatus**, -a, -um. Spotted with color as if by falling drops.

H.

- Habenaria**. From *habena*, a rein.
- Hæmaria**. Blood colored.
- Hæmatochilus**, -a, -um. Bloody lipped.
- Hadweni**. In memory of Isaac Hadwen, of Liverpool, a cultivator of Orchids.
- Halli**. Commemorates the discovery of the *Odontoglossum* so named, by Colonel Hall, in the valley of Lloa, near Chimborazo.
- Hanburyanum**. In honor of Mr. Hanbury.
- Harpophylla**. Having sickle-shaped leaves.
- Harrisonianus**, -a, -um. Applied to a beautiful *Saccolabium*, this name is complimentary to Mr. C. H. Harrison, of Singapore, an eminent Orchid amateur.

- Harrisoniæ.** Commemorates the Liverpool family, to three members of which — Wm. Harrison (resident at Rio Janeiro), Richard Harrison, and Mrs. Arnold Harrison — the Orchidology of Brazil and the Orchid cultivators of thirty years ago, are so greatly indebted.
- Harryana.** In honor of Mr. Harry Veitch.
- Hartwegia.** Complimentary to Theodore Hartweg, a collector of Mexican Orchids.
- Hastilabius**, -a, -um. Spear-lipped.
- Hastiferus**, -a, -um. Spear-shaped, having some portion of the plant of this shape.
- Havanensis**, -e. Native of, or brought from, Havana.
- Hedysmum.** Sweet-smelling.
- Helcia.** From *helcium*, a horse-collar.
- Helvolus**, -a, -um. Pale red, yellowish.
- Henchmani.** In memory of Mr. Henchman.
- Hendersonii.** Complimentary to Henderson, several of which name have been eminent in floriculture.
- Henshallii.** Commemorative of John Henshall, collector of the Messrs. Rollinson in Java.
- Herbaceus**, -a, -um. Green, succulent, in contradistinction to woody.
- Herberti.** In honor of Rev. William Herbert, a distinguished botanist.
- Heterocarpus**, -a, -um. Having variable or various kinds of seed pods.
- Heyneanum.** Complimentary.
- Hians.** Gaping, opening wide.
- Hillii.** Dedicated to Walter Hill, superintendent of Botanic Garden at Moreton Bay.
- Hirsutissimus**, -a, -um. Very hairy.
- Holfordianum.** Complimentary to R. S. Holford, of Gloucestershire, who first bloomed the variety of *Saccolabium guttatum*, bearing his name.
- Holochrysus.** All golden.

Hookeræ. In compliment to Lady Hooker, widow of the late W. J. Hooker, and mother of Dr. J. D. Hooker, the present director of Kew Gardens.

Hookerianum. Complimentary to Dr. Hooker.

Horsfalli. Complimentary to J. B. Horsfall, of Staffordshire.

Houlletia. Complimentary to M. Houllet, superintendent of the greenhouses of the museum of Paris.

Houtteana. In honor of Van Houtte, the well known horticulturist.

Humboldti. } In memory of Humboldt, the
Humboldtianus, -a, -um. } great botanical traveller and
 scientific naturalist.

Humilis, -e. Low-growing.

Huntianum. In memory of Mr. Hunt.

Huntleya. Complimentary to Rev. John S. Huntley, cotemporary as an Orchid grower with Mr. Cattley and the Liverpool Harrisons.

Huttoni. In memory of Mr. Henry Hutton, who died while collecting Orchids in Java for Messrs. Veitch.

Hyacinthinus, -a, -um. Resembling a Hyacinth.

Hybridus, -a, -um. A hybrid variety.

Hymenanthus, -a, -um. Wedding-flower, alluding to delicate beauty.

Hyphæmaticus, -a, -um. Blood red underneath.

Hypnum. A genus of little green plants, usually called mosses.

Hystrix. A porcupine.

I.

Ibaguensis, -e, or }
Ybaguensis, -e. } From Ibagua.

Igneus, -a, -um. Fiery color, red.

Imbricatus, -a, -um. So disposed that the edges overlap; imbricate.

Immaculatus, -a, -um. Spotless.

- Incrassatus**, -a, -um. Thickened.
- Incurvus**, -a, -um. Crooked, bent.
- Indivisus**, -a, -um. Undivided.
- Infundibulum**. A funnel.
- Inodorus**, -a, -um. Scentless.
- Insignis**, -e. Noble, admirable, conspicuous.
- Insleayi**. Complimentary to T. Insleay, of Birmingham, formerly gardener to Mr. Barker, of Springfield.
- Intergerrimum**. Whole-lipped, applied to a species of *Catasetum*.
- Intermedius**, -a, -um. Half way between two other things.
- Internodes**. The portions of the stem that extend from joint to joint.
- Interruptus**, -a, -um. Having regularity of outline partly destroyed.
- Inversus**, -a, -um. Turned up.
- Ionopsis**. From *ion*, a violet, and *opsis*, resemblance.
- Ionosmus**, -a, -um. Scented like violets.
- Irapeanum**. From Irapeo (Mexico).
- Iridifolius**, -a, -um. Iris-leaved.
- Irroratus**, -a, -um. Dewy, moistened, sprinkled with dew.
- Isochilus**. From *isos*, equal, and *cheilos*, a lip.

J.

- Jamesianum**. In honor of the late Mr. James Veitch.
- Janeirense**. From Rio Janeiro.
- Japonicus**, -a, -um. Native of Japan.
- Javanicus**, -a, -um. Native of Java.
- Jenkinsi**. Complimentary to the late Captain Jenkins, an Indian friend and correspondent of Dr. Wallich.
- Johannis**. In honor of Mr. John G. Veitch.
- Jongheana**. Dedicated to Mr. De Jonghe, of Brussels, an orchidologist.
- Jugosus**, -a, -um. Furrowed, lipped, also mountainous.
- Juncifolius**, -a, -um. Rush-leaved.

K.

Karwinski. Dedicated to Count Karwinski.

Kingianum. In honor of Captain King, of the royal navy, who commanded an exploring expedition in the South Sea in 1828.

Knowlesii. In honor of Mr. Knowles.

Krameri.

} The *Oncidium* so named refers to
Kramerianus, -a, -um. } the skill of an old Orchid grower,
 M. Kramer, now of Hamburg. The *Odontoglossum* is
 named after his son, formerly a collector for Messrs.
 Veitch, and now living in Japan.

Krebsii. Complimentary to Mr. Krebs, a collector of plants in Natal.

L.

Labiatus, -a, -um. Large-lipped.

Lacæna. A name of Helen of Troy, applied because of the beauty of the plant.

Lacertinus, -a, -um. Resembling a lizard.

Lælia. Lælia was the eldest daughter of Caius Lælius, a noble Roman, B. C. 141. She was celebrated for the purity with which she spoke her native language, and for pleasing and attractive qualities. The beautiful genus of Orchids bearing her name is remarkable for all pleasing qualities.

Læliopsis. From *Lælia* and *opsis*, resemblance.

Lævigatus, -a, -um. Having a smooth, polished surface; applied to stems.

Lævis, -e. Free from asperities and any kind of unevenness.

Lagenaria. Flask or bottle-shaped.

Lamellæ. Very small, and thin vertical plates.

Laminatus, -a, -um. Covered with plates or scales.

Lanceanus, -a, -um. Complimentary to John Henry Lance, who about forty years ago brought many fine Orchids from Surinam.

- Lanciferus**, -a, -um. Having lance-shaped foliage.
- Lancifolius**, -a, -um. Having narrow tapering leaves.
- Landsbergii**. In honor of Landsberg.
- Lanipes**. Having woolly stalks or peduncles.
- Larpentæ**. In compliment to Lady Larpent, wife of Sir George Larpent, Roehampton, Surrey.
- Lassioglossus**, -a, -um. Woolly tongued.
- Latilabrus**, -a, -um. Broad lipped.
- Latifolius**, -a, -um. Broad leaved, in comparison with others of the genus.
- Lawrenciana**. In honor of Mrs. Lawrence, who formerly had one of the finest collections of plants in England, and who first bloomed many rare species.
- Laxus**, -a, -um. Loose, usually applied to flower-spikes.
- Lemoniana**. In honor of Sir Charles Lemon.
- Lentiginosus**, -a, -um. Freckled, covered with spots, scurfy.
- Leochilus**. From *leios*, smooth, and *cheilos*, a lip.
- Leonis**. Of a lion, in the sense of strong, stout.
- Leopardinus**, -a, -um. Tawny or perhaps spotted like a leopard.
- Leopoldii**. Complimentary to Leopold I., King of the Belgians, whose garden at Lacken was noted for splendid Orchids.
- Lepidus**, -a, -um. Neat, pretty, pleasing.
- Leptosepalus**, -a, -um. Having slender sepals.
- Leptotes**. Slender.
- Leucochilus**, -a, -um. White lipped.
- Leucorrhodus**, -a, -um. Rosy white.
- Liliaceus**, -a, -um. Resembling a lily.
- Liliastrus**, -a, um. Lily like.
- Limbatus**, -a, -um. Having a distinct border of some other color.
- Limminghii**. In memory of the distinguished Belgian orchidologist Count Alfred de Limminghe.
- Linawianus**, -a, -um. ?

- Lindeni.** Complimentary to Mr. Linden, the celebrated horticulturist.
- Lindleyanus, -a, -um.** In memory of the late Dr. Lindley, the distinguished orchidologist. Ob. Nov. 1, 1865.
- Linearis, -e.** Linear, slender, of the same breadth throughout, except at the extremities.
- Lineatus, -a, -um.** Penciled with fine lines.
- Linguiformis, -e.** Tongue-shaped.
- Limatodes.** Indian name.
- Liparis.** From *liparos*, shining.
- Lissochilus.** From *lissos*, smooth, and *cheilos*, a lip.
- Lituiflorus, -a, -um.** Like the Roman lituus, a slightly curved trumpet.
- Lobatus, -a, -um.** Having deep indentations.
- Lobbi.** In memory of Messrs. Thomas and William Lobb, collectors for Messrs. James Veitch and Sons.
- Loddigesii.** In honor of Conrad Loddiges and Sons, owners of the famous Hackney nurseries. In 1844, their catalogue of Orchids numbered 1916 names.
- Longicollis, -e.** Having a long neck.
- Longicornu.** Having a long horn.
- Longifolius, -a, -um.** Long leaved.
- Longiscapus, -a, -um.** Having a long flower-stalk.
- Lowii.** In honor of the well-known nursery firm of Hugh Low and Sons, sometimes referring to Hugh Low himself, sometimes to his eldest son, of the same name; sometimes to Mr. Stuart H. Low.
- Luddemannia.** } Complimentary to Mr. Ludde-
Luddemannianus, -a, -um. } mann, once director of the
 celebrated Orchid establishment of M. Pescatore, Celle
 St. Cloud, Paris.
- Lunatus, -a, -um.** Crescent-shaped.
- Luridus, -a, -um.** Dismal colored, yellowish brown.
- Luteolus, -a, -um.** Pale yellow.
- Luteo-purpureus, -a, -um.** Yellowish purple or yellow and purple.

- Lutescens.** Yellowish.
- Luxatus, -a, -um.** Disjointed.
- Lycaste.** The name of a celebrated beauty who is said to have lived at Drepanum, in Sicily.
- Lyonsi.** In memory of Mr. Lyon, a collector of West Indian Orchids.

M.

- M'Carthiæ.** Complimentary to Mrs. M'Carthy, wife of Hon. C. J. M'Carthy, who in 1855 was Colonial Secretary in Ceylon.
- Mackayi.** Complimentary to the late J. T. Mackay, of Trinity College, Botanic Garden, Dublin.
- McMarlandi.** Complimentary to E. McMarland, an amateur orchidologist.
- Macodes.**
- Macraei.** In honor of Mr. M'Rae, a Ceylon collector.
- Macranthus, -a, -um.** Broad or large flowered.
- Macroceras.** Long-horned.
- Macrochilus, -a, -um.** Broad or large lipped.
- Macrophyllus, -a, -um.** Broad or large leaved.
- Macrostachius, -a, -um.** Having long tails like an ear of corn.
- Maculatus, -a, -um.** } Spotted.
- Maculosus, -a, -um.** }
- Majalis.** Flowering in May.
- Major.** Larger than its congeners.
- Majus.** Large compared with others of the same genus.
- Mannii.** In honor of Mr. Mann, of the Calcutta Botanic Garden.
- Margareticeus, -a, -um.** Pearly or spotted with pearly dots.
- Marginatus, -a, -um.** When a flat surface has the edge of a different color so as to appear bordered.
- Mariana.** A complimentary name.
- Marmoratus, -a, -um.** Marbled.

- Marshallleanus**, -a, -um. In honor of Mr. W. Marshall, who first bloomed the *Oncidium* so named.
- Martiana**. In memory of Dr. Von Martius, the Brazilian explorer.
- Masculus**, -a, um. Male or masculine, thence robust in contradistinction to delicate.
- Masdevallia**. In honor of Joseph Masdevall, a Spanish botanist.
- Mastersii**. In honor of Mr. Masters, one of the principal assistants in the Calcutta Botanic Garden.
- Masuca**. An Indian name.
- Matutinus**, -a, -um. Flower of the morning.
- Maulei**. Complimentary to the Bristol nurseryman and Orchid grower, Mr. William Maule.
- Maxillaria**. So named from fancied resemblance of parts of the flower to the jaws or maxillæ of insects.
- Maxillaris**, -e. Resembling jaws.
- Maxilligerus**, -a, -um. Bearing a jaw-bone.
- Maximus**, -a, um. The largest of its family.
- Medius**, -a, -um. Intermediate, between two species.
- Medusæ**. Medusa was one of the Gorgons whose locks Minerva changed into serpents.
- Megaclinium**. From *megas*, great, and *kline*, a bed.
- Melaleucus**, -a, -um. Blackish.
- Melanocaulon**. Black-stalked, from *melas*, black, and *kaulos*, a stalk.
- Meleagris**. Resembling or spotted like a Guinea hen.
- Mendeli**. Complimentary to Samuel Mendel, of Manley Hall, owner of one of the finest collections of orchids in England. It was dispersed in 1874.
- Membranaceus**, -a, -um. Thin, dry, flexible, and semi-transparent.
- Microchilus**, -a, -um. Small lipped.
- Miltonia**. Complimentary to Viscount Milton, Earl Fitzwilliam of Wentworth House, Yorkshire, where Orchids were beautifully grown.

- Miniatus**, -a, -um. Vermilion-colored.
- Mitratus**, -a, -um. Wearing a mitre, alluding to the shape of the flower.
- Moniliformis**, -e. Necklace-like.
- Monoceras**. One-horned.
- Monteanus**, -a, -um. } Inhabiting mountains.
- Montanus**, -a, -um. }
- Morelianus**, -a, -um. In honor of M. Morel, of Paris.
- Mormodes**. From *mormo*, a goblin.
- Moscifera**. Bearing flies, from *musca*, a fly, and *fero*, to bear, alluding to the resemblance of some flowers to a fly.
- Moschatus**, -a, -um. Musk-scented.
- Mossiæ**. Complimentary to Thomas Moss, of Liverpool, who grew fine Orchids forty years ago.
- Moulmeinense**. Native of Moulmein.
- Multiflorus**, -a, -um. Many-flowered.
- Myanthus**. From *muia*, a fly.
- Myrianthus**, -a, -um. Innumerable-flowered.

N.

- Nævius**, -a, -um. Freckled.
- Nanodes**. From *nanodes*, a pigmy.
- Naso**. Having a nose.
- Nasonia**. From *naso*, a nose.
- Nebulosus**, -a, -um. Clouded; when in flowers a dingy hue pervades a bright one; also, applied to a plant growing at a lofty elevation.
- Nemoralis**, -e. Growing in groves.
- Neottia**. From *neottia*, a nest.
- Nepalensis**, -e. Native of Nepaul.
- Nevadense**. From Sierra Nevada.
- Niger**, *nigra*, -um. Black.
- Nigrescens**. Blackish.
- Nigritus**, -a, -um. Blackish.

- Nitidus**, -a, -um. Shining.
- Nivalis**, -e. Snow white.
- Niveus**, -a, -um. Snowy white.
- Nobilis**, -e. Eminent ; remarkable for fine qualities.
- Nocturnus**, -a, -um. Night-blooming.
- Nodatus**, -a, -um. } Having many joints or nodes.
- Nodosus**, -a, -um. }
- Notylia**. From *notos*, the back, and *tulos*, a lump.
- Nubigenum**. Cloud born.
- Nutans**. Nodding.
- Nycterinus**, -a, -um. Dusky.

O.

- Obesus**, -a, -um. Fat, fleshy ; applied to thick pseudo-bulbs.
- Oblongatus**, -a, -um. Drawn out, oblong.
- Obryzatus**, -a, -um. Pure gold color.
- Obtusatus**, -a, -um. } Blunt.
- Obtusus**, -a, -um. }
- Ochraceus**, -a, -um. } Yellowish.
- Ochroleucus**, -a, -um. }
- Oculatus**, -a, -um. Eyed, having one or more dark spots like eyes.
- Odontoglossum**. From *odontos*, a tooth, and *glossa*, a tongue.
- Odoratus**, -a, -um. Fragrant.
- Odoratissimus**, -a, -um. Very fragrant.
- Octomeria**. From *octo*, eight, and *meros*, a part.
- Oeceoclades**. From *oikeo*, to inhabit, and *klados*, a branch.
- Oncidium**. From *ogkos*, a tubercle, and *eidos*, appearance, in allusion to the protuberances on the lip.
- Oncidioides**. Resembling an *Oncidium*.
- Orchid**. A plant with flowers like those of an orchis.
- Orchis**. From the Greek *orchus*. Formerly every Orchid was called an orchis. The name is now restricted to a definite growth of terrestrial species.
- Ordiana**. In compliment to Lady Ord.

- Ornithidium.** From *ornis*, a bird, and *eidos*, resemblance.
- Ornithocephalus.** From *ornis*, a bird, and *cephalus*, a head.
- Ornithorhynchus**, -a, -um. Resembling the beak of a bird.
- Ovalis**, -e. Of oval shape.
- Ovate.** A flat surface, having the outline of the vertical section the shape of an egg.
- Ovoid.** A solid in the form of an egg.
- Oxypterus**, -a, -um. Sharp-winged.

P.

- Pachyanthus**, -a, -um. Thick-flowered.
- Pachyphyllus**, -a, -um. Thick-leaved.
- Pahudii.** In memory of Pahud?
- Paleaceus**, -a, -um. Chaffy.
- Pallidiflorus**, -a, -um. Pale-flowered.
- Pallidus**, -a, -um. Pale.
- Palumbina.** From *palumba*, a dove.
- Palustris**, -e. Growing in marshes.
- Palpebræ.** The eyelashes; applied to a flower with fringed lip.
- Paniculatus**, -a, -um. Branching irregularly.
- Panduratus**, -a, -um. Shaped like a violin.
- Paphinia.** From Paphia, one of the surnames of Venus.
- Papilio.** A butterfly.
- Papillosus**, -a, -um. Covered with teat-like protuberances.
- Parasites.** Plants which subsist by the absorption of the juices of some other plant on which they fix themselves.
No epiphytal Orchid is a parasite.
- Pardinus**, -a, -um. Panther-spotted.
- Parishii.** Complimentary to Rev. C. S. P. Parish, of Moulmein, who has discovered so many splendid Orchids.
- Parkeri.** Commemorative of Mr. C. S. Parker, an amateur in Orchids.
- Parkinsonii.** Commemorative of Mr. Parkinson, the English consul-general in Mexico, about 1839.

- Parviflorus**, -a, -um. Small-flowered.
- Passerinus**, -a, -um. Resembling or marked like a sparrow.
- Patini**. In honor of Mr. C. Patin, a Belgian collector in New Granada.
- Patulus**, -a, -um. Spreading, broad, flat.
- Paxtonia**. Dedicated to Sir Joseph Paxton.
- Paxtoni**. Complimentary to the late Sir Joseph Paxton.
- Pearcei**. In honor of Mr. Pearce, the discoverer of many new plants.
- Peduncularis**, -e. Having long peduncles or flower-stalks.
- Pelicanus**, -a, -um. Like a pelican.
- Pellucidus**, -a, -um. Transparent or bright.
- Pendulus**, -a, -um. Drooping.
- Pentadactylus**, -a, -um. Five-fingered.
- Perianth**. The calyx and corolla, or sepals and petals taken together.
- Peristeria**. A dove.
- Peristeria**. Resembling a *Peristeria*.
- Perrinii**. In memory of the gardener who, forty years ago, had charge of Mr. Harrison's Orchids at Liverpool, as applied to *Brasavola Perrinii*; also, as applied to *Lalia Perrinii*, complimentary to Mr. Perrin, of Rio Janeiro.
- Pertusus**, -a, -um. Perforated; having an aperture.
- Pescatorea**. } Complimentary to the late M. Pescatore, whose
Pescatorei. } collection of Orchids at Château Celle St.
 Cloud, near Paris, was at one time the finest in Europe.
- Petiolatus**, -a, -um. Furnished with petioles.
- Petola**. In Amboyna the name of a very precious silk vestment of many colors, and applied thence by the natives to *Anæctochilus Petola*.
- Phajus**. Dusky; applied to *Phajus grandifolius*, in reference to the dusky color of the inside of the flowers.
- Phalænopsis**. From *phalæna*, a moth, and *opsis*, resemblance.
- Phceniceus**, -a, -um. Purple-red.

- Pholidota.** From *pholis*, a spot, and *ous*, an ear.
- Phymatochilus**, -a, -um. Having a swelling on the lip.
- Physosiphon.** From *phusa*, an inflated bladder, and *siphon*, a tube.
- Physurus.** Refers to the peculiarly inflated spur of the flower.
- Picturatus**, -a, -um. Variegated.
- Pictus**, -a, -um. Painted.
- Pierardii.** In memory of the botanical traveler, M. Pierard, who discovered *Dendrobium Pierardii*.
- Pilcheri.** Complimentary to Mr. Pilcher, gardener to S. Rucker, of Wordsworth,
- Pilumna.** From *pilion*, a cap.
- Pinelli.** In honor of Mr. Pinel, of Brazil, an introducer of some fine Orchids.
- Planiceps.** With flat or even head without protuberances; applied to the flower.
- Plantagineus**, -a, -um. Resembling a plantain (*Plantago*).
- Planus**, -a, -um. Level; without protuberances.
- Platyodon.** Broad-toothed.
- Pleione.** The name of a mythological sea-nymph.
- Pleurothallis.** From *pleura*, the side, and *thallo*, to bloom.
- Plicatilis**, -e. Folded.
- Plicatus**, -a, -um. Folded or rolled together.
- Polyanthus**, -a, -um. Many-flowered.
- Polybulbon.** Having many bulbs.
- Polychilus.** From *polus*, many, and *cheilos*, a lip.
- Polycynis.** From *polus*, many, and *kuynos*, a swan.
- Polymorphous.** Assuming many different forms or appearances.
- Polystachya.** From *polus*, many, and *stachus*, a spike.
- Ponthieva.** Dedicated to M. de Ponthieu, a West Indian merchant.
- Poriferus**, -a, -um. Bearing pores or having small punctures.

- Portei.** In honor of Mr. Porte, who discovered *Phalænopsis Portei*.
- Portentosus, -a, -um.** Monstrous.
- Præcox.** Early blooming.
- Prasinatus, -a, -um.** Wearing a leek-green garment.
- Præmorsus, -a, -um.** Gnawed or bitten; applied to the extremity of anything which is thus ragged or torn-looking.
- Præstans.** Standing in front, excelling.
- Preptanthe.** Worthy or honorable flower.
- Prescottia.** In honor of John Prescott, a botanist of St. Petersburg.
- Pretiosus, -a, -um.** Valuable, excellent.
- Primulinus, -a, -um.** Resembling a primrose.
- Prismatocarpus, -a, -um.** Having prism-shaped seed-pods, or three flat sides and three sharp angles.
- Proboscidius, -a, -um.** Having a snout or proboscis, as in *Catasetum*.
- Procerus, -a, -um.** Tall, long.
- Proliferus, -a, -um.** Fruitful; applied to a flower from which another is produced.
- Promenæa.** The name of a prophetess of Dodona.
- Pseudo.** Mock or imitation.
- Psyche.** The soul; mythologically, the innamorata of Cupid, thus anything spirituelle.
- Pterocarpus, -a, -um.** Having winged seed.
- Pubes.** Down, downy.
- Pubescens.** Downy, or with a tendency to become so.
- Pudius, -a, -um.** Modest.
- Pulchellus, -a, -um.** Fair, pretty.
- Pulvinatus, -a, -um.** Formed like or resembling a cushion, especially through close contact of many little parts.
- Punctatus, -a, -um.** Spotted.
- Punctulatus, -a, -um.** Covered with pricks, points, or dots.
- Pumilus, -a, -um.** Dwarf, or low-growing.
- Purpurascens.** Purplish.

Purpuratus, -a, -um. Arrayed in purple so as to carry a certain queenliness.

Purpureus, -a, -um. Red, with a mixture of blue.

Purus, -a, -um. Spotless; of one color.

Pyriformis, -e. Pear-shaped.

Q.

Quadratus, -a, -um. Square, or approaching that shape.

Quadricolor. Four-colored.

Quadricornis, -e. Four-horned.

Quindos. A native name of *Cattleya maxima*.

Quinquecolor. Five-colored.

Quinquevulnerus, -a, -um. Having five wounds, or blood-red spots.

R.

Raceme. A form of inflorescence, very common in Orchids, in which the flowers provided with pedicels are disposed more or less closely along a usually drooping stalk.

Racemosus, -a, -um. Branching, or having flowers in a raceme.

Radiatus, -a, -um. Arranged in a star-like manner or like the spokes of a wheel.

Radical. Appearing to rise directly from the *radix* or root, owing to the extreme shortness of the stem.

Raniferus, -a, -um. Bearing frogs.

Reichenheimii. In memory of Reichenheim.

Recurvus, -a, -um. Bent back, recurved.

Regnelli. In memory of M. Regnell, who collected Orchids in Brazil, and sent home the *Miltonia*, so named.

Reinwardtii. Commemorative of Dr. Reinwardt.

Renanthera. From *ren*, a kidney, and *anthera*, an anther.

Restrepia. Meaning unknown.

Resupinate. Twisted half round, so that the bottom is made the top.

- Reticulatus**, -a, -um. Having reticulate lines.
- Retusus**, -a, -um. A flat surface, rounded at the end, but with a broad and shallow notch in the centre.
- Revolutus**, -a, -um. Rolled backwards, applied to leaves, petals, and lips of flowers.
- Rigbyanus**, -a, -um. In honor of Mr. Rigby, a plant-grower at Brompton.
- Rigidus**, -a, -um. Stiff, applied to leaves and flower-stems.
- Rhizoma**. An underground creeping stem, usually thick and fleshy.
- Rhizophorus**, -a, -um. Bearing or producing roots.
- Rodriguezia**. Complimentary to Emanuel Rodriguez, a Spanish botanist.
- Roezlii**. In honor of M. Roezl, who has discovered and introduced many rare American Orchids.
- Rogersii**. In honor of Mr. Rogers.
- Roseus**, -a, -um. Rosy, delicate pink.
- Rossii**. Commemorative of Mr. John Ross, who collected Orchids in Mexico.
- Rostratus**, -a, -um. Having a projection like the beak of a bird.
- Roxburghii**. Complimentary to Dr. William Roxburgh, superintendent of the Calcutta Botanic Garden, from 1793-1814.
- Ruber**, rubra, -um. Red.
- Rubescens**. Rosy red, or suffused with rose, blushing.
- Rubro-oculatus**, -a, -um. Red-eyed.
- Rubro-purpureus**, -a, -um. Reddish purple.
- Rubrovenia**. Having red veins.
- Ruckerii**. Complimentary to Sigismund Rucker, West Hill, Wandsworth, whose collection of Orchids was the finest in England.
- Rufescens**. Reddish brown.
- Rupestris**, -e. Growing in rocky places.
- Russellianus**, -a, -um. In compliment to Lord Russell.
- Rutidobulbon**. Having wrinkled bulbs.

S.

Saccatus, -a, -um. Having a sack or pouch, alluding to the shape of certain flowers, as *Catasetum*, *Stanhopea*.

Saccolabium. From *saccos*, a bag, and *labium*, a lip.

Saltatorius, -a, -um. Dancing, alluding to the movement of the lip of some Orchid flowers.

Sanguineus, -a, -um. Blood-colored.

Sanguinolens. Approaching blood-color.

Sanguinolentus, -a, -um. Having blood-red spots or veins.

Sarcanthus. From *sarx*, flesh, and *anthos*, a flower.

Sarchochilus. From *sarx*, flesh, and *cheilos*, a lip.

Sarcodes. Of flesh-like substance.

Sarcopodium. From *sarx*, flesh, and *podium*, a projecting portion.

Sauroglossum. From *saura*, a lizard, and *glossa*, a tongue.

Secundus, -a, -um. One-sided.

Sedeniana. Complimentary to Mr. Seden.

Selenipedium. From Selene, a name of Diana, thus Diana's slipper.

Selligerus, -a, -um. Saddle-shaped.

Semi-apertus, -a, -um. Half open, alluding to a flower.

Senilis, -e. Like an old man, applied to plants with white hairs.

Sepals. The pieces of the calyx or outer portion of the flower in Orchids petaloid and colored, three in number, and usually quite free and distinct.

Serra. Like a saw.

Serratus, -a, -um. A flat margin, notched like a saw, serrate.

Serrulatus, -a, -um. Delicately or finely notched, denticulate.

Sesquipedalis, -e. A foot and a half long.

Sessilis, -e. Destitute of individual stalk, sessile.

- Setaceus**, -a, -um. Bristle-like or shaped.
- Setigerus**, -a, -um. Bearing bristles, from *seta*, a bristle, and *gero*, to bear.
- Scape**. A leafless flower-stem.
- Schillerianus**, -a, -um. Complimentary to the late consul G. W. Schiller, of Hamburg, a celebrated Orchid grower.
- Schlieperianus**, -a, -um. Complimentary to M. Adolphe Schlieper, of Uderfeld, a zealous cultivator of Orchids.
- Schlimii**. In memory of Mr. Schlim, who collected Orchids in Central America for Mr. Linden,
- Schomburgkia**, } In honor of Mr. Schomburgk, the collector
Schomburgkii, } of many South American Orchids.
- Schroderi**. Complimentary to J. H. Schroder, Stratford Green, Essex, a celebrated cultivator of Orchids.
- Scuticaria**. From *scutica*, a whip.
- Scutilliferus**, -a, -um. Shield-bearing.
- Sherattiana**. In compliment to Mr. Sherratt, gardener to the late Dr. Lindley.
- Siamensis**, -e. Native of Siam.
- Sieboldtii**. In honor of Sieboldt, the Japan traveller.
- Sinensis**, -e. Chinese.
- Sinuatus**, -a, -um. }
Sinuosus, -a, -um. } Bent, crooked.
- Skinnerii**. In memory of the late George Ure Skinner, who collected and introduced many valuable Guatemalian Orchids.
- Sobralia**. In memory of F. M. Sobral, a Spanish botanist.
- Sophronitis**. From the Greek, modest, unassuming.
- Sordidus**, -a, -um. Dirty, but usually meaning dull-colored.
- Sphagnum**. The moss of wet meadows. When alive and wet, bright green; whitish when dry.
- Spathe**. A large, solitary bract.
- Spathulatus**, -a, -um. Spoon-shaped, round at summit and narrow at base.
- Speciosissimus**, -a, -um. Eminently handsome, uniting elegance of form and brilliancy of color.

- Speciosus**, -a, -um. The preceding in a subordinate degree.
- Specklinia**. In honor of Rudolph Specklin, who drew the wood cuts in Fuch's "Historia Plantarum."
- Spectabilis**, -e. Deserving especial notice by reason of intrinsic worth.
- Sphacelatus**, -a, -um. Scorched; some part looking as if withered, as the pseudo-bulbs of *Oncidium sphacelatum*.
- Spicatus**, -a, -um. Bearing the flowers on spikes.
- Spike**. A form of inflorescence in which many flowers without pedicels are closely set upon a vertical spike.
- Spilopterus**, -a, -um. Having spotted wings.
- Spinous**, -a, -um. Having spines.
- Splendens**. Showy and handsome, with the idea of *shining*.
- Sprucei**. In honor of Mr. Spruce.
- Squalidus**, -a, -um. Dirty; usually applied to flowers of dull color or repulsive appearance.
- Squarrosus**, -a, -um. Covered with scurf.
- Stamfordianus**, -a, -um. Commemorative of Mr. Stamford.
- Stanhopea**. In honor of Philip Henry, Earl Stanhope, President of the Medico Botanical Society of London.
- Stapelæiflorus**, -a, -um. Flowers like a *Stapelia*.
- Stapelioides**. Resembling a *Stapelia*.
- Steelii**. In honor of Mr. Steel, who introduced *Scuticaria Steelii*.
- Stelis**. Application unknown.
- Stellatus**, -a, -um. Star-shaped, or giving the effect of a star.
- Stelznerianus**, -a, -um. Complimentary to Mr. Stelzner, of Van Houttes' gardens.
- Stenia**. From *stenos*, narrow.
- Stenocoryne**. From *stenos*, narrow, and *korune*, a horn.
- Stenophyllus**, -a, -um. Narrow-leaved.
- Stenorhyncus**. From *stenos*, narrow, and *rugchos*, a beak.
- Sternochilus**, -a, -um. Narrow-lipped.
- Stonei**. Complimentary to Mr. John Stone, gardener to Mr. J. Day.

- Streptopetalus**, -a, -um. Twisted petals.
- Striatus**, -a, -um. Striped.
- Suavis**, -e. Sweet-scented or tasting.
- Suavissimus**, -a, -um. Very fragrant.
- Subulifolia**. Having foliage shaped like an awl; from *subula*, an awl.
- Sulcatus**, -a, -um. Furrowed.
- Sulphureus**, -a, -um. Sulphur-colored, light-yellow.
- Superbiens**. Becoming grand and stately.
- Superbus** -a, -um. Excellent, commanding.
- Sumatrana**. Native of Sumatra.
- Suttoni**. In honor of Captain Sutton of the royal navy.
- Sylhetense**. Native of Sylhet.
- Syringothyrsus**, -a, -um. With trusses of flowers like a lilac.

T.

- Tabularis**, -e. Having a flat surface.
- Tankervillæ**. In honor of Emma, wife of the Fourth Earl Tankerville, of Chillingham Castle, Northumberland.
- Tattonianum**. In honor of Lord Egerton of Tatton.
- Taurinus**, -a, -um. Having horns like a bull.
- Tener**, -era, -erum. Delicate.
- Tenuifolius**, -a, -um. Slender-leaved.
- Tenuis**, -e. Slender; delicate.
- Teres**. Long and cylindrical; terete.
- Teretifolius**, -a, -um. Having terete leaves.
- Tetragonus**, -a, -um. Having four angles.
- Tesselatus**, -a, -um. Tessellate, checkered.
- Testaceus**, -a, -um. Covered with spots the color of tiles.
- Thibaultianus**, -a, -um. Complimentary to Thibault de Berneaud, a French horticulturist, and secretary of the Linnean Society of Paris.
- Thouarsii**. In memory of the botanist Du Petit Thouars.
- Thunia**. Complimentary to Von Thun.
- Thyrse**. A kind of panicle, broadest in the middle.

- Thyrsiflorus**, -a, -um. Having flowers in a thyrse or branched raceme.
- Tibicinis**, -e. Resembling a trumpet; the old pseudo-bulbs of *Schomburgkia* are used as horns.
- Tigrinus**, -a, -um. Tiger or panther-spotted.
- Tortilis**, -e. Twisted.
- Tovariensis**. Native of Tovar, in Colombia.
- Transparens**. What can be seen through; but used often in the sense of translucent, allowing the passage of light.
- Triadenium**. Having three glands or three knobs on the lip, as in *Dendrobium triadenium*.
- Trianæ**. Complimentary to the botanist Signor Triana, who collected plants in New Granada.
- Trichocentrum**. From *thrix*, a hair, and *kentron*, a spur, from the long narrow spur of the labellum.
- Trichopillia**. From *thrix*, a hair, and *pilion*, a little hat.
- Tricolor**. Three-colored.
- Tridentatus**, -a, -um. Three-toothed.
- Trifidus**, -a, -um. Three-cleft.
- Trigonidium**. From *trigona*, a triangle, and *eidos*, resemblance.
- Trilinguis**, -e. Three-tongued.
- Trimerochilum**. Having the lip cleft into three parts.
- Triumphans**. Conquering, excelling all others.
- Tripudians**. Dancing.
- Tripunctatus**, -a, -um. Three-spotted.
- Triquetrus**, -a, -um. Three-cornered.
- Tristis**, -e. Dull-colored.
- Trochilus**. Resembling a humming bird.
- Trulla**. Trowel-shaped.
- Trulliferus**, -a, -um. Trowel-bearing.
- Truncatus**, -a, -um. Terminating abruptly, as if shortened by removal of the extremity.
- Tuberoulatus**, -a, -um. Bearing tubercles; applied to plants with little protuberances on some portion of the flowers.

Turneri. In honor of James A. Turner, of Pendlebury, Manchester, a zealous amateur in Orchids.

Turialvæ. Native of the mountain of Turialva.

Tyrianthina. Bright violet color.

U.

Undulatus, -a -um. Wavy; applied to crimped petals of flowers.

Unguiculatus, -a, -um. Having claws.

Unicornis, -e. One-horned.

Uniflorus, -a, -um. One-flowered, or having single-flowered peduncles.

Umbellatus, -a, -um. Having flowers in an umbel.

Umbonate. More or less flattened and with a base in the centre, like a shield.

Uropedium. From *uron*, a tail, and *pedion*, a lip.

Uro-Skinnerii. In memory of George U. Skinner. See *Skinnerii*.

V.

Vanda is in Sanskrit the sacred mistletoe of the oak, the oak being *Vandaca*. Thus the name was extended to parasites and epiphytes in general, but always with an addition, as *Amaravanda*, a tree Orchid.

Vaginatus, a, -um. Having sheaths.

Vanilla. Altered from the Spanish *Vaynilla*, which is a diminutive of *vaina*, a sheath, alluding to the seed-pod.

Variegatus, -a, -um. Variegated.

Veitchianus, -a, -um. } In honor of the distinguished horti-
Veitchii. } culturists of Exeter and Chelsea,
 the late Messrs. James and John G. Veitch, and Mr.
 Harry Veitch.

Velatus, -a, -um. Veiled.

Velutinus, -a, -um. Velvety; soft.

Venosus, -a, -um. Veined.

Ventricosus, -a, -um. Distended; swelling in the middle.
 Applied to the pouches of plants.

- Venustus**, -a, -um. Comely, graceful, ladylike.
Veratrifolius, -a, -um. Having leaves like *Veratrum nigrum*.
Verecundus, -a, -um. Modest.
Verrucosus, -a, -um. Warty.
Vestitus, -a, -um. Clothed, *i. e.*, with soft hairs.
Vexillarius, -a, -um. Bannered or showy, like a banner.
Villosus, -a, -um. Shaggy; clothed with long, soft hairs.
Violaceus, -a, -um. Violet-colored.
Virens. Fresh-looking, lively green.
Virescens. Greenest; having a tendency to grow green.
Virgatus, -a, -um. Twiggy.
Virginalis, -e. Maidenly; pure white.
Viridipurpureus, -a, -um. Greenish purple.
Vitellinus, -a, -um. Yolk of egg color.
Vittatus, -a, -um. Banded; marked with bands.
Viviparus, -a, -um. Multiplying easily.
Vulcanicum. Growing on the sides of a volcano.

W.

- Wagneriana**, } In honor of M. Wagner, a German collector
Wagneri. } in La Guayra.
Waillesii. In honor of G. Wailles, of Newcastle, an amateur
in Orchids.
Walkeri. } Complimentary to Mr. Edward Walk-
Walkerianus, -a, -um. } er, who first discovered *Cattleya*
Walkeri in Brazil.
Wallichii. } In honor of Dr. N. Wallich, the dis-
Wallichianus, -a, -um. } tinguished East Indian botanist.
Wallisii. In honor of Mr. Wallis, of Rio Alvala, New Gra-
nada, the introducer of many fine South American Or-
chids.
Wardii. } In honor of several of the name of Ward. *Den-*
Wardianum. } *drobium Wardianum* was named for Thomas
Ward, of Southampton, who first flowered it.
Warneri. } Complimentary to Mr. Robert War-
Warnerianus, -a, -um. } ner, whose collection of Orchids at

Chelmsford is one of the finest in existence. Also, as to *Odontoglossum Warneri*, in honor of his brother, Mr. C. B. Warner.

Warrea, } In honor of Mr. Fred Warre, an ama-
Warreanus, -a, -um. } teur collector in Brazil.

Warscewiczella. } Complimentary to M. Von Warscewicz,
Warscewiczii. } well known as a collector in Central
 America.

Weltoni. Commemorates the discoveries of Mr. Welton, a collector of Orchids in South America.

Wightianum, } In compliment to Robert Wight, the East
Wightii. } Indian botanist and author.

Williamsii. In compliment to B. S. Williams, author of the "Orchid-growers' Manual."

Willmorei, } Complimentary to John Willmore, of Oldford,
Willmoreana. } near Birmingham.

Wolstenholmæ. Complimentary to Mrs. Wolstenholm, sister of John Day, of Tottenham, an amateur in Orchids.

Woodfordii. In memory of E. A. J. Woodford, of Brazil.

Wrayæ. Complimentary to Mrs. Wray, of Oakfield, Cheltenham, an amateur in Orchids.

X.

Xanthinus, -a, -um. Yellowish, amber.

Xanthodon. Yellow-toothed.

Xanthophebius, -a, -um. Yellow-veined.

Xanthophyllus, -a, -um. Yellow-leaved.

Xiphifolius, -a, um. Iris-leaved.

Y.

Ybaguensis, -e. Native of Ybagua or Ibagua.

Z.

Zebrinus, -a, -um. Striped.

Zygopetalum. From *zugos*, a yoke, and *petalon*, a petal.