SANDERS' ORCHID GUIDE

REVISED (1927) EDITION

CONTAINING

ALL THE BEST KNOWN SPECIES, VARIETIES, AND NATURAL HYBRIDS

OF

ORCHIDS

IN CULTIVATION.

THEIR NATIVE COUNTRIES, DESCRIPTIONS, SEASONS OF FLOWERING, BEST METHODS OF CULTIVATION, TEMPERATURES, &c.

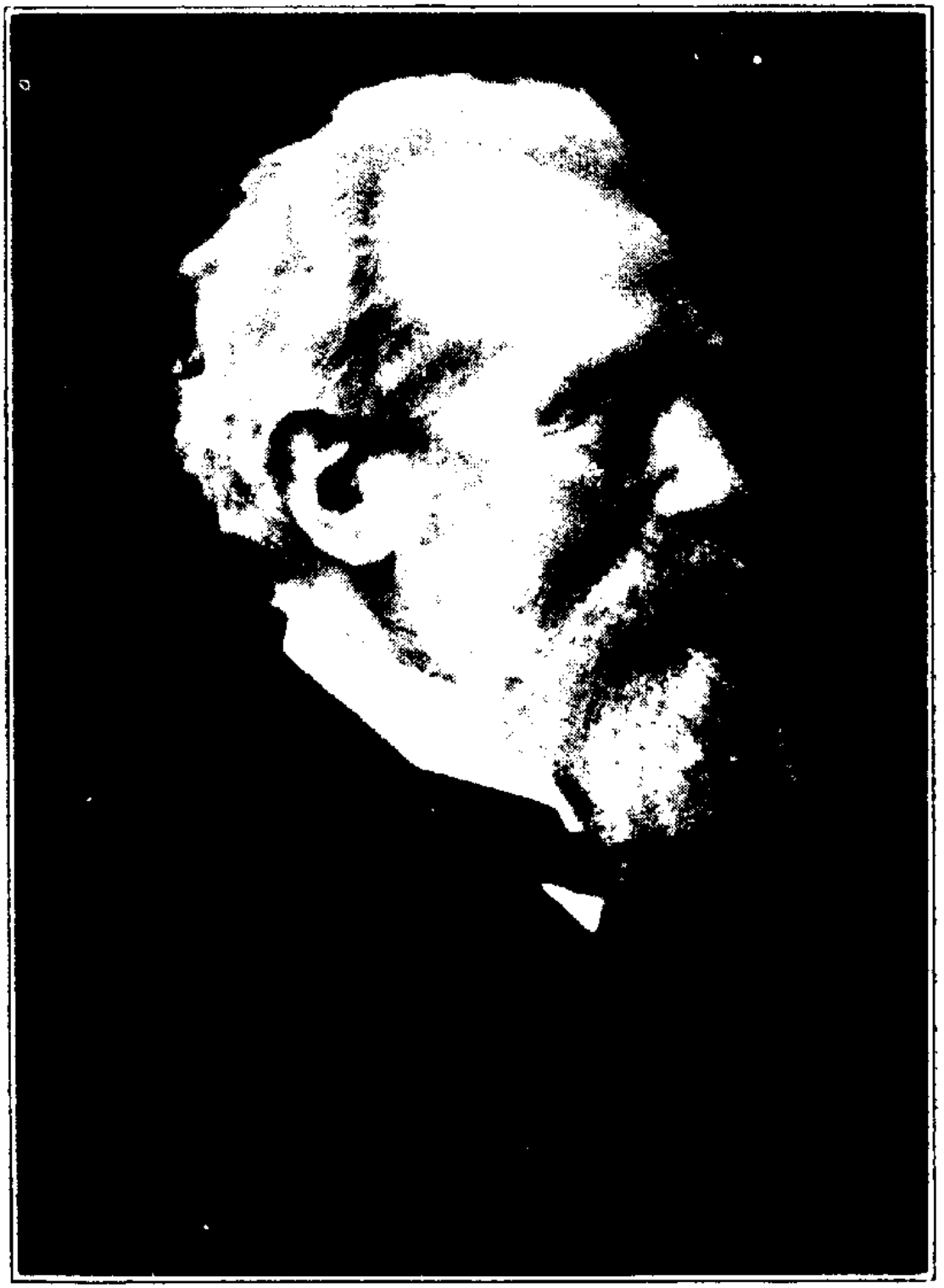
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SANDERS
ST. ALBANS.

DEDICATED TO THE MEMORY OF THE LATE

H. F. C. SANDER, V. M. H.



FOUNDER OF OUR FIRM.

INTRODUCTION

This present work is an improved and enlarged edition of our well known ORCHID GUIDE. The great success achieved by that work and the increasing demand for a yet more comprehensive and descriptive book on Orchids of a similar nature, has induced us to republish our Orchid Guide in the present form.

As in the original edition, the work is arranged alphabetically. The descriptions are brief but sufficiently comprehensive to enable the reader to distinguish the species and varieties. Hybrids, with the exception of those which occur naturally, are, in all their myriads, classified in Sanders' List of Orchid Hybrids and are therefore not included in this book.

In this present edition, the cultural notes are extended. All the essential points of the earlier work are retained.

A considerable number of Species unknown when the Orchid Guide was published are hereinafter described.

It gives us much pleasure to record the help rendered by Edward William Cooper in the compilation of this Work.

Thanks to his knowledge of orchids, acquired during 4 decades since his boyhood, at Kew in 1893/4 and with us to the present, we are able to publish what we believe will prove the most useful work ever issued on Orchids.

SANDERS
C. F. Sander
F. K. Sander
L. L. Sander

St. Albans, England
and
Bruges, Belgium

January 1st, 1927.

FOREWORD

BY

SIR FREDERICK MOORE, M.A., F.L.S., V.M.H.,
Keeper of the Glasnevan Botanic Gardens
from 1879 to 1922.

« Both in class room and garden libraries various books of reference are a necessity, and cannot be dispensed with. These are divided into two sets, one set comprising books which have constantly to be referred to, the other books to which only occasional reference has to be made, but which are none the less essential for accurate work on that account. The former set of books is generally located in a convenient place where they can readily be got, if possible where work is being carried on. In gardens, the garden office, or a compartment of the potting shed, are suitable places. In garden libraries place must be found for such works as the Kew Hand Lists, Nicholson's Dictionary of Gardening. Massee's Diseases of Plants. Bean's Trees and Shrubs, the Year book of various Societies, such as the National Rose Society, a good manual on Fruit, and one on Vegetables, some of the Royal Horticultural Society's special lists, such as the Classified List of Daffodil Names, the Report of the Tulip Committee, List of most desirable varieties of fruits, etc., a good reference manual on Herbaceous plants, and one on Rock Gardens and Alpines. These are some of the essential books to which amateurs and professional gardeners will constantly have to refer, to clear up small points, of detail, and to ensure accurary in labelling. Other books will be found necessary for the specialists, and these can be added as required.

Orchid Grower's requirements have been well provided for. Since Williams Orchid Grower's Manual entered on a 4th Edition in 1885, various publications have appeared, some, owing to size of volume, and price, are not readily available for general reference, others, such as the Book of Orchids by W. H. White 1902 ; Orchids, their Culture and Management, by W. Watson 1903 ; Orchids by James O'Brien in Present Day Gardening Series N° 5 ; and Manual of Orchidaceous Plants by James Veitch & Sons, 1894 ; are within reach of all, which may also be said of Sander's Orchid Guide, a much more comprehensive work which appeared in 1901. No garden library can be considered complete without a copy of this most useful work. The smaller works, owing to considerations of size and price, can only be considered as compendiums, giving selections of names only, and an epitome of general information about Orchids. « Sander's Orchid Guide » aspires to something far more comprehensive, far more useful, and apparently success has attended the efforts of the compilers. The advances made in Orchid growing, the better understanding of their requirements, the additions to the species and varieties, since the first edition was published, rendered it necessary to bring the « Orchid Guide » up to date, if it were to maintain its position as a leading work on Orchid lore. The new edition which now appears accomplishes all this.

I have always considered that the most useful, and informative writings on garden subjects emanate from practical workers, who are in constant touch with their plants, who have to study their little peculiarities, and gratify their individual little whims, if success is to be attained. The pages on cultivation, imported Orchids, diseases and seed raising, although condensed, indicate that they have been written by one who knows.

The great feature of this new edition of the « Orchid Guide » is the very complete, and largely extended, list of species and varieties of Orchids which have been, and now are, in cultivation, giving the habitat and a short description of each. No less than 71 species and varieties of Bulbophyllum, and 33 of Cirrhopetalums are enumerated, and of these I have seen all but four of the Bulbophyllums, and all but one of the Cirrhopetalums in flower in the collections at Glasnevin. Correspondingly extensive lists are given of the other genera.

Although a scrutiny of these lists awakens many pleasant memories, and enables clear mind pictures of many remarkable Orchids to be visioned, as one first saw them in flower, species such as Coelogyne pandurata, Ærides Lawrenceae, Vanda Sanderiana, Coryanthes Bungerothii, Arachnanthe Lowii, Lueddemannia Pescatorei, Cymbidium Humblotii, a feeling of sadness also arises as one realises that many of the once favourite species have disappeared from cultivation. So, alas, also have left us many of those who loved Orchids so dearly, and who so generously helped and encouraged beginners.

The firm of « Sanders » merits, and will receive, the thanks of Orchids growers for its energy and enterprise in bringing Sanders Orchid Guide up to date. »

F. W. Moore

Dublin, September 1926

GENERAL CULTURE

The letters S. (Stove) I. (Intermediate) and C. (Cool) opposite each plant refer to the respective greenhouses or divisions most suitable for the plants. The temperatures for which should approximate as follows:—

Stove. During the Summer 65 to 70 deg. Fahr. (18 to 21 Cent.) by night, 70 to 80 deg. Fahr. (21 to 27 Cent.) by day, rising higher during sunshine. Winter 60 to 65 deg. Fahr. (16 to 18 Cent.) by night and 65 to 70 deg. Fahr. (18 to 21 Cent.) by day

Intermediate. During the Summer 60 to 65 deg.Fahr.(16 to 18 Cent.) by night and 65 to 70 deg. Fahr. (18 to 21 Cent.) by day, rising higher during sunshine. In Winter 55 to 60 deg. Fahr. (13 to 16 Cent.) by night and 60 to 65 deg. Fahr. (16 to 18 Cent.) by day. On sharp frosty or windy nights the temperature may fall 5 or 6 degrees provided there is no undue moisture present.

Cool. This division should be kept as near 60 deg. Fahr. (16 Cent.) as possible by day and night during Summer. In Winter the night temperature may fall to 50 deg. Fahr. (10 Cent.) or even less, without injury to the plants but should be increased to 55 to 60 deg. Fahr. (13 to 16 Cent.) during the day.

For the three divisions the foregoing temperatures must, however, only be regarded as averages, the maximum temperatures may often exceed those given above during the Summer, but care is necessary to keep them as steady as possible and no attempt should be made to increase the maximums by forcing the pipes. In each division, could a chart be made of the temperatures, the ideal would be one delineating an elliptic arc, ascending regularly from January, attaining its maximum in August and falling in a shorter curve to Christmas.

In practise it is impossible to attain such an ideal and even in their homes plants are subjected to considerable fluctuations. Under glass, temperatures often run up considerably on hot sunny days, but if plenty of moisture and a buoyant atmosphere, be maintained, with judicious use of shading, no harm will follow. Extra sun heat is if anything beneficial.

The divisions to which each orchid is assigned will be found to give the best results under cultivation. They will not always agree with the temperatures which occur in the habitats of the plants. Probably owing to the more confined atmosphere many orchids succeed better, when cultivated, at a slightly lower temperature than under natural conditions.

In studying temperatures, hot water pipes must always be regarded as a necessary evil — necessary because frost or a damp cold is death to an orchid under cultivation, but present methods of obtaining artificial temperatures are really antagonistic to all plant life ; hence whenever possible take full advantage of the sun's warmth to raise temperatures. In Winter, particularly during cold windy weather, it is better to have the houses slightly below the given temperatures and dryer than usual, rather than have the hot water pipes too warm. Hot water piping should always be rather in excess of its requirements so that a genial warmth may be maintained without making the pipes fiercely hot. Nothing is more inimical or productive of insect pests than a dry arid atmosphere in which as gardeners say they can « smell the pipes ».

Ventilation. Coming as nearly all orchids do from hilly and mountainous countries, fresh air is vital to them and should be freely admitted on all possible occasions, particularly in the cool and intermediate sections. In the Stove and East Indian house, so called from the class of orchids grown in it, with its high temperatures, air cannot be so fully given, as harm would result from a lowered temperature. Care must be taken to admit air without causing draughts which are, if anything, more detrimental than fresh air is beneficial.

It is extremely difficult to formulate hard and fast rules, so much depends on the position, aspect, structure and means of ventilation in the house. Where a professional gardener or orchid grower is kept, matters are simplified because details are attended to as they arise, but with amateurs, particularly with those who are away from home all day, general rules only can be followed. We sincerely hope the following hints will be found of service, but success will be gained more by common-sense study of the greenhouse, the requirements of the plants, and the weather, than by worrying over rules.

Pre-supposing that the house is fitted with both top and bottom ventilators, a few experiments, with observation of the wind, will soon show how and when air can be admitted.

Top ventilators should never be opened sufficiently wide and for a long enough period, to allow the atmosphere to become dry. On moist days, provided the outside temperature is high enough, top ventilators may be opened throughout the day, especially in the cool section. Whenever a house must be left throughout the day, top ventilation may often be given early in the morning, greatly reduced throughout the day and

applied again more or less freely during the evening. Bottom ventilators, unless wind is directly impinging on them, may be open all day and reduced more or less at night. In summer both the cool and intermediate sections benefit by top and bottom air at night, but the amount, if any, can only be gauged by observation and an intelligent study of the conditions.

In any case top air requires greatest care in its use until the middle of, and late Summer. Then more air must be given than in Spring to ensure ripening of the plants and hardening them to withstand the Winter. Briefly put — air must be admitted whenever possible, provided that draughts are avoided and temperature and moisture are not unduly affected both in Winter and Summer.

Whenever top and bottom ventilators are open at the same time care should be taken that a draught is not caused. Often it will be found advisable to open only the top and bottom ventilators on one (the leeward) side of the house at the same time. Stages etc. then intervene and prevent direct air currents, often if the top ventilators are open the atmosphere is benefited if the bottom are kept closed and vice versa.

In Winter top air can practically never be given to the East Indian house and but very seldom to the Intermediate and there are many days, unfortunately, in our climate, when the houses must be kept practically closed.

Shading is most convenient in the form of roller blinds made of canvas netting or wooden laths, the latter are perhaps the better as they admit sunlight but not sufficient to damage the plants. Whatever material is used it is better left in position all the year and should be so arranged as to be easily run up or down. Blinds are as useful in keeping out the cold on a winter's night as in keeping sun from the plants in Summer.

An air space between the glass and the blinds is desirable, especially for Cool House Orchids, as this tends to keep a more even temperature in the house and allows a free circulation of air over the outer surface of the glass. It should always be remembered that orchids with very few exceptions require and enjoy light and sunlight, but not the sun's direct rays and hence the great superiority of roller blinds over permanent shading. In a climate such as we have in Britain, in Spring and Autumn blinds may be wanted but twice in a week, to prevent the sun rays injuring the plants. A command therefore over the shading is a distinct advantage to the cultivator.

Where it is not desired to fix roller blinds, permanent shading must be used, whitewash or any of the patent preparations answer the purpose and plants grow well under them but their disadvantages are that the glass becomes unduly hot under the sun's rays and the house is rendered dull on sunless days.

Blinds should be in position certainly by the end of February or early in March and washes must also be applied then if used.

An alternative attended with considerable success is to have small blinds, worked on spring pulleys, inside the house, one to each light. A cushion of air, which absorbs and breaks the heat rays of the sun is thus kept between the glass and the plants, to their advantage.

In very sunny positions, blinds and permament shading may be used in conjunction particularly in the Summer.

More shading is required in the Spring and early Summer than in late Summer and Autumn. In Autumn as much sunlight as possible, without risk of scorching, should be given, Combined with air, it is an important factor in ripening the season's growths.

Mexican orchids and any with hard pseudo bulbs, particularly if covered with a membrane, delight in and should be given more sunlight then the pseudo bulbless or softer growthed kinds.

Should any house catch the early morning sun, blinds may, in Summer, be left down over night or a screen may be erected some little distance off to break the rays, otherwise the temperature becomes high too early in the day, particularly in the cool division.

Where absence from the house is unavoidable during the day, a certain amount of risk is worth taking during the early Spring and Autumn but as the sun gains power leave the blinds down throughout the day. For this reason permanent shading is often preferable to the Amateur.

Damping. In their habitats many orchids grow in positions where at all, or certain, seasons, or at certain times of the day, vapour rises from the damp ground or foliage plants beneath them. Much of their nourishment is probably extracted from this vapour, absorbed by their leaves and the aerial roots which so many orchids produce. To imitate these conditions, water is sprayed on the floors, walls and stagings of the houses. The process is known as damping and is very helpful, indeed necessary to their well being.

The operation must be performed according to the temperature and the season of the year. All dry corners or odd places should be thoroughly sprayed, as apart from the moisture given off, such, if neglected, become breeding spots for insects.

It should be understood that a house should not be flooded with water, the greater good results from light but frequent dampings.

On hot days a house may require damping 3 or 4 times, on dull days once in the morning. In Winter, according to the fire heat, once a day, or less frequently, is sufficient. Excepting in the great heat of Summer the warm and intermediate houses hardly require damping in the late afternoon or evening, but the times can only be regulated by observance. None of the divisions should be unduly moist in the early mornings. In Autumn and Winter the warm and intermediate divisions should then be on the dry side, but never aridly so.

Watering. Rain water is preferable for all plants, especially orchids and should always be stored in sufficient quantity for use all the year round. To conserve this rain water, hard water can be used for damping.

The actual watering of plants can only be determined by observation, the condition and nature of the plants. It must be remembered that many species — and hybrids more or less follow their parents — are at certain seasons deluged with rain, hence broadly speaking, all orchids may be heavily and frequently watered when in full root action. The appearance of new healthy roots is a certain sign that water may be given frequently, if drainage is good.

Pseudo bulbless varieties, such as Cypripediums and Masdevallias require watering throughout the seasons but naturally less frequently in dull weather.

With careful damping, and thought as to the season of the year and the condition of the plants as to growth, watering is but little trouble. If the plants are rooting freely err on the liberal side but if the plants are dormant, water infrequently, but whenever water is given soak the compost. When plants are not rooting or growing err, if at all, on the dry side.

Resting. In many localities from which Orchids are obtained, the seasons are well, and often sharply, defined. Torrential rains may be abruptly terminated by dry weather, or so to speak, Summer may follow Winter, orchids obtained from those districts are adapted to withstand

extremes and to a great extent have become analagous to bulbs in their nature. Many Cattleyas, Epidendrums, Laelias, Oncidiums, Dendrobiums, Calanthes, etc. exhibit well defined pseudo bulbs (false bulbs) which act as food reservoirs, conserving moisture and nourishment as do true bulbs and as in most instances these pseudo bulbs spring from a common rhizome, extending and forming a new growth which eventually flowers and matures, the young growth can and does obtain much of its vigour from all healthy pseudo bulbs behind it.

Terrestrial orchids often develop underground tubers or thick tuber-like roots answering the same purpose.

Again other pseudo bulbless orchids, Ærides, Angraecums, Saccolabiums, Vandas, etc., show by their stout, coriaceous or terete foliage, that they can subsist without water for considerable periods. Even such genera as Masdevallias and Cypripediums are possibly subjected to occasional droughts in their habitats and though the foliage is ruined, if the drought be not too prolonged, growths are again produced from their rhizomes.

In nature during such hot and dry, or cold and dry periods the plants simply exist on their conserved nutriment. Neither roots nor growths are active, the whole plant being quiescent but possibly heavy dews and moisture — certainly so in some localities — help to maintain vigour in the plant.

Before so many hybrids were raised and cultivated, resting an orchid was a recognised practise by cultivators, every endeavour being made to grow the plants so that their dormant season concured with our Winter and dull season. The plants thus obtained full advantage from our Summer and Autumn weather.

With young hybrids, often growing through all seasons of the year, the practise has, unfortunately to the detriment of larger plants, lapsed considerably. The resting season of a hybrid is often at variance with that of its parents and being kept and treated with growing plants premature growths and ultimate exhaustion result.

Hybrids which have attained their full size and vigour, require rest as do their parents and though their dormant season may not endure as long as that of some species, they will undoubtedly benefit by similar treatment, modified as to length and season, according to the requirements of the individual plant.

A resting house or division should be an adjunct of any large collection and to it any hard bulbed orchid can be removed after growth is matured. There with more light and air, a slightly lower temperature, a rather dryer atmosphere, fewer dampings and only occasional waterings it should remain until signs of growth are seen. It will be noticed that occasional waterings are advocated. Conditions under glass are not quite similar to those in the open and the evil of hot water pipes has to be combatted, hence occasional soakings will be found beneficial, but in each case the grower must be guided by the state of the plant, and the condition of the house. Exposed to a drought too prolonged, or too much dry heat, the plant may unduly shrivel, and this should be avoided.

For Cattleyas, Epidendrums and similar plants the temperature should never be raised by pipe heat to more than 60° during the resting period but exception must be made with the warm growing species, such as Cattleya Lawrenceana.

Where a separate resting house is not possible and a mixed collection is grown, much may be done by intelligent « dodging », usually one end of the house is cooler than the other, one place gets a little more sunlight and the larger plants can be removed to such positions and water withheld or the smaller plants can be suspended near the glass or placed on convenient shelves.

In the cool house most of the Oncidiums can be so rested. Odontoglossums with one or two exceptions need never be rested in the same sense as advised for Cattleyas etc. The resting treatment of tuberous rooted Orchids — as with the bulbous forms — depends on the climatic conditions of their habitats. African species would in general, require a dry period but Disa grandiflora must be damp at all times.

Potting. Remarks are given with each genus as to their general culture and the compost required but the following can be broadly applied.

The best materials are the cheapest in the end and they should always be « clean » that is free from extraneous matter. Good fibrous peat could still form the base were it procurable but the supply seems practically exhausted in England, fortunately Osmunda fibre can be and is imported in quantity. Its lasting qualities make it more economical than peat and its coarser fibres render it more suitable for all the stronger rooting kinds. For finer rooting plants — Masdevallias, Odontoglossums, etc., it can be pulled and cut to a suitable texture and so may be regarded as a good base for all composts.

The better time to pot any orchid is just as root action commences. If possible before the roots actually appear, but in any case as soon as they are seen. Injury to young fleshy roots is then avoided. Whenever possible potting should be done in the early Spring months as plants then have the benefit of some months of growing weather. Determinate rules cannot be given, everything depends on the individual plant, its state of health, compost, etc.

Cypripediums may be potted in the Winter months. Cattleyas will be noticed to have usually two rooting seasons, one early in the season just as the new growth appears and again later from that growth when nearing maturity. If possible the earlier occasion should be chosen as by so doing two sets of new roots can enter the compost.

Orchids need not be potted every year provided the compost remains sweet and good and the pot is large enough to allow growths to expand. Every orchid should be overhauled and repotted every second year.

Never give too large a pot. With the exception of Cymbidiums, Phaius and a few large fleshy rooting terrestrial or semi-terrestrial kinds the smaller the pot the better, provided the plant has room to grow. For this reason Cattleyas, Odontoglossums and plants which similarly grow forward, should have the oldest bulb placed near to and touching the pot so that the growing point has the greatest space between it and the pot edge. Such orchids as Vandas etc., should however be placed in the centres of the pots.

Many scandent growing orchids such as Cœlogyne pandurata, Eulophiella Elizabethæ, Odontoglosum coronarium, some Oncidiums are better if placed on rafts, which may be extended as required and ascending plants such as Oncidium flexuosum, Zygopetalum maxillare are better accomodated by fixing the end of a narrow raft or board of suitable length thinly covered with compost, in a pot, placing the base of the plant in the pot and inclining it towards and on the raft or board. As such plants grow old they may be either shortened basally or the rafts lengthened.

Odontoglossums are usually better potted in September or March ; as the plants are then more or less rooted into the compost before the extremes of heat and cold.

The following are good general composts :—

For Cattleyas, Laelias, Dendrobiums.

Three parts Osmunda, one part sphagnum.

For seedling Cattleyas and small growing genera, Bulbophyllums etc, the same proportions but cut and pulled more finely.

For Odontoglossums, as for seedling Cattleyas but with a half part of sphagnum added, a little silver sand and if procurable a quarter part of clean dry beech or oak leaves, rubbed small.

For Cypripediums, with mottled leaves.

Two parts Osmunda, one part loam fibre and two parts sphagnum.

For Cypripediums, green leaved.

Three parts fibrous loam, one part Osmunda, and one part sphagnum.

For Cymbidiums.

As for greenleaved Cypripediums but use the loam in larger pieces and add finely broken crocks. The Osmunda may be left out entirely.

For Calanthes (deciduous).

Four parts fairly fibrous loam, one part sand, leaf mould and finely chopped sphagnum.

For Ærides, Vandas, etc.

Two parts of sphagnum, one parts Osmunda fibre with pieces of pot sherd or broken red brick.

Osmunda fibre, at present, appears to be the best medium but apparently any good vegetable fibre would answer, provided it allows the free passage of water and air.

To all composts, pot sherds broken to dust and very small pieces, may be added.

The actual operation of potting though simple is difficult to describe without demonstration. The better way to learn is to visit an Orchid Nursery or obtain a practical lesson form an expert.

In the case of Cattleyas, Dendrobiums and nearly all epiphytal orchids, potting need only be done when the plant has grown too large for its receptacle, or the old compost has become sour or decayed. The plant should be removed from its present pot, which may be broken if any roots adhere to its sides. Then remove all old crocks, all old sour material, all dead roots, and trim back decayed roots to a healthy base. Have the new pot ready crocked and place a portion of the compost on the crocks, take another portion and insert beneath the rhizome, or centre of the roots of the plant, which should then be placed in the new pot, the rhizome being just level with or below the rim of the pot. Then place a quantity of the compost within the rim of the pot and press in position evenly and consistently with a bluntly pointed stick. Superfluous compost may be trimmed off with a pair of scissors. Should any space be left under or near the rhizomes such places must be made good by pushing in small portions of compost.

Cattleyas and Dendrobiums should be potted very firmly. Odontoglossums and softer growing plants more lightly.

With terrestrial orchids, Cypripediums, Phaius, etc., the compost may be worked in with the fingers but even then the bluntly pointed stick will be found a useful adjunct.

Drainage is an important factor. Epiphytal orchids should have one third or more of their pots filled with crocks (broken pot sherds) placed more or less upright. If the hole at the bottom of the new pot is small, break it into a larger aperture. Terrestrial and strong rooting kinds, e.g. Cypripediums, Cymbidiums, Phaius etc, less according to the habit of the plant.

Heating. Control of heating is most essential. As we have said pipe heat is unfortunately a necessary evil, but the evil is greatly modified if the pipes while keeping up the required temperature, are never allowed to become too warm. Except on rare occasions, a hand placed on a hot water pipe should be able to remain there comfortably. The

pipes should never be too hot to touch. It is better to have an excess of piping in the house so that a gentle heat is distributed to all parts. If possible two separate circuits should be placed in each house, with strong screw-down valves to each, so that each circuit can be used together or independently. Where a house is in one or more divisions control pieces should be inserted so that the further division can be cut off if required. The pipes should be at least 12 inches from the ground so that the soil beneath them can be kept clean.

No Orchids should be grown in close proximity to the hot water pipes. Where an open stage is used there should be between it and the pipes a second (dummy) stage covered with coke, cinders, gravel or any other moisture holding material. Epiphytal Orchids delight in such open staging which allows air more freely to reach the roots.

The whole branch is however so technical that it is better to consult an expert on the subject if alterations or installations are contemplated.

If possible the beginner should visit any well known Orchid Growing Establishment whereby he will quickly understand the best methods of the arrangement of an Orchid Greenhouse. At all times we shall be most pleased to welcome visitors and show them our installations both at our St. Albans Establishment as also in our Continental Nurseries at Bruges, Belgium.

IMPORTED ORCHIDS

When first received, whether directly from abroad, or through home agents, each plant should be examined and any dead and decayed parts, broken leaves etc. cut cleanly away.

In the case of a few plants only, each plant should be placed in a suitably sized pot, which should be filled with broken crocks, the plant being kept in position by crocks or by a stick. The plants should then be placed in a warm or intermediate house, in a moist, rather shady position. Water should not be given too frequently, but effort should be made to keep the crocks moist. As soon as roots appear the plants should be potted and placed in their respective temperatures.

If a quantity of plants is received, after cleaning, they may be hung upside down in the warm or intermediate house — a good position will often be found beneath the middle stage. In such a position the plants can absorb atmospheric moisture and water cannot lodge in or on them. As soon as roots appear they may be potted in the ordinary way, but for some little time care must be taken that excess of moisture does not collect in any parts and shading must be rigorously attended to.

Careful examination for any imported insects should always be made and if present the usual remedies applied.

It is essential that though atmospheric moisture should be abundant water does not collect and remain on any part of the plant.

ORCHID DISEASES

It might be expected that from the polymorphic nature of the order and the many Countries and localities from which they are collected that orchids would be liable to many diseases and strange insect pests. Such however is not the case. There are a few — a very few — insects peculiar to some genera but on the whole orchids under cultivation are less subject to insect attacks than many other plants.

Thrips, aphis, red spider and several species of scale (coccus) insect are among the more common.

Thrips are particularly fond of the young growths of Odontoglossums, Cypripediums, Miltonias and apparently all flowers, in which they find both shelter and food. Attacks are the more prevalent in the Early Spring and Summer, but no season is really free from them. They delight in dry heat, and breed rapidly at all seasons, unless checked. The insects are so minute that often their presence is not suspected until the effects are seen in contorted flower buds, disfigured flowers and growths. Usually the first indications can be seen on the young growths of Oncidiums, Odontoglossums and similar growing plants and by holding a plant up to the light small circular semi-transparent spots will then be noticed.

In Cypripediums, particularly the mottled leaved kinds, a rusty patch is evidence on either surface of the leaves. On flowers the edges of the segments usually where they overlap show rusty, whitish and often blackish discoloration.

Such evidences are the effects of thrips and as prevention is better than cure every effort should be made to detect these and all other insects

as soon as possible before they obtain a hold and give too evident proof of their existence.

Red Spider seldom attacks orchids as seriously as do thrips ; but it will attack all orchids given favourable conditions. Its presence may be detected by leprous white patches on the foliage. The arid atmosphere which red spider revels in is antipodal to that which the orchid loves, hence where the orchid luxuriates, red spider cannot obtain a hold.

Scale insects. Numerous forms attack orchids both under cultivation and in their own homes. They are often present on imported orchids, particularly Brazilian species, which should always be examined on arrival for these and other insects.

Cattleyas and allied plants are peculiarly liable to injure from scale, as the insects find hiding places beneath the membraneous sheaths. For a small collection the old fashioned remedy, sponging with soft soap and water is still effective, the old membraneous sheaths must be stripped from Cattleyas and the rhizomes carefully examined and cleaned. When insects are not present nor suspected the membranes should never be stripped off. They are nature's protection against extremes of heat and cold. A painter's small sash brush is useful for this and also for such sheathing leaved plants as Ærides, Vandas etc. Lycastes, Zygopetalums, Phaius and similar broad leaved orchids are liable to a species of scale often confounded with mealy bug due to the insect covering its eggs with a white mealy substance. The most effective remedy is sponging taking care that the eggs are not distributed to other parts of the house or plants.

Ants though not injurious to orchids do an immense amount of harm by carrying scale insects from one plant to another, placing them in awkward positions and endeavouring to conceal them by covering them with small pieces of compost. Probably no insect is harder to destroy ; they escape fumigants and sprays and usually make their nests in some inaccessible place. Their numbers may be diminished by traps ; small bottles containing a little linseed or olive oil. Fresh putty attracts them and numbers may be killed by re-rolling the putty as soon as covered by ants. Bones, bacon rinds, etc. may be laid down and as often as the ants are attracted, destroyed. Salt and boracic powder may be placed in odd corners, provided that when dissolved they cannot contaminate the water. Search should be made for their nests and these destroyed.

Woodlice or Slaters do considerable damage to small plants and the tips of roots. Boracic powder may be scattered in their haunts but the most effective remedies are traps ; potatoes cut in halves and slightly

hollowed, with a nick cut in them to allow ingress to these pests, may be laid on the stages and examined each day. Pots partially filled with hay, answer the same purpose as do flat pieces of wood laid on the ground but the better method is prevention by cleanliness and the absence of any rubbish etc. which serve as hiding places to them.

Slugs and small snails gain entrance to the houses chiefly as eggs in the sphagnum. They are particularly fond of the tender spikes of Odontoglossums etc. Such spikes may be protected by a small piece of cotton wool wrapped round their base, so preventing these molluscs climbing to the tender part. Traps of cabbage, lettuce and Iris leaves may be used, or bran placed on convenient receptacles and frequently examined, or they may be looked for by lamplight in the evenings.

Cockroaches and crickets are very fond of Cattleya flowers, particularly albinos. They may be hunted at night, trapped by means of sweetened beer placed in the bottom of glass jars, or poisoned by any of the advertised beetle pastes or arsenic and lard, arsenic and bread. Arsenic and lard is also poisonous to ants. As with woodlice, cleanliness is the best deterrent to cockroaches. The latter prefer dry warm places near hot water pipes to shelter in while the crustaceans like cool and damp but not wet corners.

Mealy bug is very infrequent on orchids. Rodriguezias are probably more susceptible to this pest than other orchids, but Vandas, Ærides and similar growing plants offer convenient shelter and breeding places. The presence of this insect is usually due to neglect, spasmodic outbursts do not occur with it as with thrips and red spider.

Green fly may occasionally be noticed but is easily exterminated by light fumigations or sprayings.

Cattleya fly. (Isosoma orchidearum) This pest, probably the most insiduous of all the insects which attack orchids, appears to have been imported with Cattleya labiata. Probably all Cattleyas, Laelias and their hybrids are liable to be attacked. It has been noted in Laelia anceps under cultivation but the labiata section is peculiarly liable. The mature insect is a small blackish fly, one eighth of an inch in length, but the mischief is caused by its larvae. Eggs are deposited in the plant and the larva — one or several — find a congenial hiding place and food in the centre of the young growth, causing premature activity and an apparently vigorous growth, the interior of which is eventually eaten away to

an extent and a stunted abortive pseudo bulb is the result, on which may be seen the holes through which the insects have escaped.

Imported Cattleyas should be carefully scrutinized, if the larva's presence is suspected, the plants should be carefully cleaned and left for 8 hours thoroughly immersed in coolly tepid water. Should premature growths appear, and particularly if they are swollen at the base and appear more pointed than normal, such growths may be cut off or surrounded with fine muslin to catch the insect as it emerges. If by the presence of small round holes in the new growths or pseudo bulbs it is suspected that the insects have matured, light and frequent fumigations may be resorted to, or at night a lighted candle placed in a receptacle of water will often attract the perfect insect. With the diminution of species it is probable that this fly will give less and less trouble.

Root-fly. An insect with similar habits, frequently attacks Cattleya roots and forms a swelling just below the root tip. Only those roots on the surface of, or outside, the compost are as a rule attacked and unless in great numbers but little harm results, as the absorbent portion of the root gains increased size. The effective remedy is cutting off the infected portions.

Boring insects. Imported Dendrobiums particularly those of the phalaenopsis section are sometimes infected by boring beetles and grubs. The species most prevalent but fortunately infrequently met with is said to be Xyleborous perforans. Effects of its ravages are fortunately easily seen in imported plants and when suspected, portions of the pseudo bulbs may be cut off and the grub or perfect insect destroyed. Larger species are occasionally met with but none have succeeded in doing appreciable damage or obtaining a serious hold in orchid collections.

On the whole orchids with few exceptions are, from their mode of growth, less liable to insect attacks than many other plants and if attention is paid to the admission of air and occasional fumigations or spraying with some deterrent compound serious outbreaks can be avoided. Pure nicotine is probably one of the best spraying materials as it can be easily broken down to any strength.

Spraying should always be carried out on a clear day or with pipes sufficiently warm to dry up any excessive moisture before night. In spraying, if possible, use an automatic sprayer as by its use a more even distribution can be gained than by a syringe.

SYRINGING AND SPRAYING.

This is a particularly difficult matter to give definite ruling on. Many growers use the syringe freely during warm weather and with benefit to the plants under their charge. Properly used there can be no doubt of the beneficial results that accrue. Odontoglossums undoubtedly are helped on warm days as the whole atmosphere can be cooled and freshened by the syringe. On the other hand much harm can be done by its injudicious or too heavy usage. Young growths and sheathing membranes may be surcharged with moisture and decay in consequence.

Spraying should be indulged in rather than syringing and in any case not too late in the day, so that any superfluous moisture may be dried from the plants by night.

In nature the greatest moisture is usually present in the early morning and is absorbed by the sun's rays. Under cultivation spraying with a syringe or automatic machine may be practised during the warm weather preferrably in the morning and afternoon, but always with consideration of the immediate weather. Leaves often receive damage by large drops of water lodging on them and acting as a focus to the sun's rays. Flaws in the glass have the same effect, careful shading is the preventive.

Plicate leaved plants such as Calanthe, Phaius, Anguloas, Lycastes should never be syringed until foliage is matured, the infolded leaves are susceptible to damp, nor should any of the membranes or sheaths on Cattleyas and similar plants be allowed to become full of moisture.

HYBRIDISING and SEED RAISING.

Enormous strides have of late years been made in this branch of Orchid culture and without doubt it forms a most interesting study and where conveniences exist and time allows — a delightful hobby.

Many hybrids — fine ones too — have been raised by Amateurs but on the whole the raising of seedlings requires more time and attention than many gardeners and amateurs can spare.

Full details hardly come within the scope of this book. The successful raiser has and is following the lines by which success has been gained but to those who wish to enter this branch and enrich their own or other collections we would suggest careful thought.

The actual fertilization of the flowers, particularly those of Cattleyas and Odontoglossums is comparatively simple, but of the multitude of hybrids raised many unfortunately are altogether inferior to their parents or the original species.

Hence careful study of the respective flowers to be crossed is necessary, as to the probable shape, size, colouring and constitution of the prospective hybrid and to possible difference and superiority on existing forms.

Colour must be combined with contour and size or brighter and different colouring aimed for.

Without doubt experience is the best teacher but much may be gathered from a study of the parents already used, and the results obtained ; particularly as to the dominating influence of certain species and the effect of combining certain colours. However carefully the subject is studied there still remains an entrancing speculation until results are seen.

Much yet remains to be done in the crossing of genera, or attempts in that direction. So far no hybrid from Eastern and Western species has been obtained, and attempts to cross different sections of the same genus together often fail, e.g. Dendrobium phalaenopsis with Dendrobium infundibilum but repeated efforts may yet achieve success.

The actual seed raising depends largely on the time and care that can be lavished on the seedlings.

Special departments are devoted to them in all the large orchid Nurseries and with some amateurs a small division is kept separate.

Where such conveniences do not exist all seeds may be sown on the parents or other similar plants and kept in the same house in which the pod ripened but special attention must be paid to airing, consistency of temperature, cleanliness, careful potting etc.

In any case 3 to 6, or more, years must lapse before results can be seen. Where space is limited this is a long time in which to forego flowers and to devote to plants which may or may not be pleasing eventually.

GENERAL REMARKS

We shall be glad at all times to answer any enquiries and send experts on any point which may arise connected with orchids or to give advise as regards the adaption, alteration or rebuilding of existing houses or the construction of new. The whole order is so polymorphic that it is impossible to give minute details and explanations on every point in a book of this description.

More orchids are probably killed through mistaken kindness than actual neglect. If their great vitality, their resistance to disease, vitiated atmospheres, changes of temperature, were more fully recognised and common sense principles adopted with them, a far greater number of amateurs than there are at present, would derive pleasure, with very little trouble, from this beautiful family.

Once the essentials of their culture are mastered and the kinds acquired to suit the house or houses devoted to them, it will be found that they require far less attention than many other plants and give far better results.

A small collection forms a delightful hobby for the business man away from home all day. Often he has a conservatory or glass-house from which he derives no pleasure, simply because so many plants require attention while he is absent, and failing to obtain it, exist but cannot grow and flower. A few alterations may or may not be required in such a house, but it is certain that properly selected, there are many beautiful orchids which would grow and flourish with intermittent attention, but with due regard to the essential rules.

Consideration must be given to the fact that many orchids in their own homes are subjected to frost but that such plants under cultivation are injured, often fatally, should the temperatures under glass fall to freezing point. The explanation, probably, lies in the difference between the humidity and density of the English atmosphere and that to which they have been accustomed.

Vanda coerulea, the Mexican orchids, and some of the Oncidiums are examples. Oncidium cucullatum which is difficult to keep for any length of time under artificial conditions, grows at an elevation of 10,000 feet. Its temperature can be easily imitated in England but not the rarity of the atmosphere and in consequence a fall in temperature means its death, while Vanda coerulea which in some districts sustains 7 deg. Fahr. of morning frost, should in England be kept warm by day and night in the Winter, simply because we cannot maintain it cold and dry.

Hence within reason, if conditions, in adapting plants, are different to those which the plants have been subjected to abroad, it may be that the very differences may attain the required end.

ORCHIDS FOR THE OUTDOOR GARDEN

Comparatively minor use only can be made of Orchids in England. In the warmer parts, and in certain localities in Ireland and Scotland, the true Cypripediums, Bletias, Calopogons, Calypso and some of the Ophrys and Orchis can be used to advanagte, particularly in Rock and Bog Gardens. In one or two specially favourable spots, where the probability of frost is remote, Cymbidiums and Cypripedium insigne can be used, but such places are the exception with our variable climate and humid heavy atmosphere.

Abroad the case is quite different. Many Eastern orchids may be grown in the West Indies and vice versa. e. g. Phaius grandifolius has been aclimatised in the West Indies and in places has become a popular garden flower, growing, flowering and reproducing itself freely.

So far, however, a very insufficient use has been made of such plants but it is to be hoped that in the future, residents in warmer countries will endeavour to enrich their gardens by the use of adaptable orchids from other parts of the globe. Our correspondent, the late Mr. Eugene André writing from Trinidad says «Even where no other orchids are kept, Vanda teres and Vanda Agnes Joaquim can be grown as garden plants stuck in shrubs and hedges, or on the top of arbours. They are of great use for cut flowers. Some pieces of Vanda teres sent years ago to H. Nehrling of Florida have done quite well in the open. »

In Madeira, and in Sydney, Cymbidiums grow and flower well in the open and no doubt other orchids would readily adapt themselves — Vanda coerulea, the Mexican species, and probably the cooler growing Dendrobiums. Sobralias, etc.

To naturalize orchids some idea of the climate and conditions in their own habitat is perhaps necessary,but more certain success can be obtained by experimenting with one or two plants, watching as to which grow the better and then obtaining plants which have been successfully cultivated with them under glass.

If well defined seasons occur where it is desired to naturalise orchids the limits of such seasons should be stated and as far as possible plants procured which more or less grow and flower in somewhat similar seasons.

In Ceylon the weather conditions vary in different parts and apart from orchids peculiar to the Island, representatives of Dendrobiums, Vandas, etc. are found there. Where native species exist it should be easy with a little care to grow the finer species and possibly in the cooler districts Maxillarias, Cymbidiums, Oncidiums, etc. and some Odontoglossums could be adapted.

Odontoglossum crispum and similar orchids which grow under peculiar local conditions should only be attempted in the open air where such conditions are fairly well represented or can be more or less closely imitated by natural shelters. Probably in many mountainous countries there are localities where the atmosphere, elevation, etc. are quite in agreement with those of the crispum country.

Considerable progress is being made in the culture of orchids in many parts of the world. Given the required temperatures certain orchids can be grown as garden plants while others require but little artificial protection, and certainly far less attention than is given them in England.

The following letters from a few of our correspondents, not only show the interest taken in the orchid family but also the diverse conditions and localities in which they are grown.

Mr. F. A. E. Price of the Agricultural Company of Ceylon Ltd. author of a most useful and interesting book of orchids grown in Ceylon, has kindly forwarded us the following interesting letter.

« Messrs. Sanders, the world-known Orchidists of St. Albans have asked me to write a few lines on the culture of orchids imported into the East from the New World, and their treatment, for the latter naturally differs in many respects from that accorded them in Europe, where they are cultivated in glass houses in which the temperature can be controlled throughout the year.

I have much pleasure in according to their request, and my only claim to writing this is that I have been a keen amateur collector and grower for several years and have imported several species of S. American and West Indian orchids from Messrs. Sanders, (several of which have, I believe, never been introduced into the Island before) and that I once perpetrated a short work on the culture of the Orchid in Ceylon, having grown them at various altitudes, with necessarily varying temperatures. With our wet climate, the rainfall in some localities frequently exceeds 200 inches — it is obvious that some sort of protection is needed during the wet season for the S. American and Central American Orchids, of which I may perhaps instance the well known families Cattleyas and Laelia, with their numerous hybrids and allies, for they would otherwise

fail utterly to become ripened thoroughly after reaching maturity, with a resultant loss of bloom. I have found that it has been quite sufficient to move the plants into the shelter of an overhanging eave to prevent their becoming sodden and remaining so for months. As regards temperature I have found they appear to thrive at practically all elevations, provided of course they are not exposed to the low frosty night temperatures of the highler elevations (over 5500 ft) and that they are kept out of the heavy Monsoon rains. I have a case in mind in which a fairly well-known and comprehensive collection of Cattleyas in the Island has gradually dwindled away to a few weakly specimens, due entirely to this last point being neglected, but I am glad to say that they are now, on my recommendation, being given another chance. This sort of thing is almost always bound to occur if the plants be left entirely to the native « garden cooly », whose job it frequently is to attend to the Orchids as well as the other plants, for most Ceylon residents grow a few at least, if only of the indigenous species. In the Low country say from sea level to 2500 ft., it is of course an easy matter to grow the really tropical species in the open, provided of course that they are given adequate protection from the high Monsoon winds and that they are not exposed to the sea breeze, but at an elevation over 3000 ft, where the night temperature may drop to something like 55 deg., and seldom rises to much over 75 deg. (except of course in the sun) it is necessary to provide some sort of real protection for those species in order to maintain the night temperature even with that of the day, for our greatest difficulty lies in the enormous variations of temperature in the 24 hours, and for this a glass-house of some sort is really necessary. The house may be kept wide open, and with all ventilators open, from about 8 a.m. until 3.30 p.m. when they should be closed down for the night. During the Monsoon months very little shading is necessary; if required however, a little whitewash may be painted on the under side of the roof glass ; but during the hot dry weather (December-April) denser shading is necessary, and it must be borne in mind that frequent dampings down are necessary to compensate for the rapid evaporation which takes place throughout the day.

The side lights, if giving directly on the plants or pots, should of course be painted with some washable distemper to prevent sun-scorching. It will be noted that the hot season is practically the reverse of the European summer, and this must be borne in mind when attempting to « grow on » or « rest » the plants. With regard to a rooting medium — sphagnum being out of the question, (there is only one small patch of

it in Ceylon at an elevation of over 7000 ft.). I have used shredded fern roots with great success, mixed of course with fine gravel or finely broken crocks. Peat is also unprocurable in Ceylon, and in its place I have frequently substituted a little good jungle leaf-mould. At my present elevation — 3000 ft. — I have just constructed a small glass-house with 2 compartments, one of which I keep open day and night, and I find that most Cymbidiums flourish in it, while the other, which is regulated by closing side and roof lights, I can successfully flower Angraecum sesquipedale, Cypripedium bellatulum and several Vandas and Ærides, but I fear that the temperature is scarcely high enough for the lovely Vanda Sanderiana. Undoubtedly the most important point in the successful culture of orchids in Ceylon is the regulation of moisture during the hot dry weather and adequate protection from the heavy Monsoon rains.

As I write I have a strong bud coming on on a small plant of Zygopetalum Wendlandii which I imported some 4 months ago from Messrs. Sanders, and which is, I believe, the only plant of its kind in Ceylon, while I have just removed the spike from a very fine Phalaenopsis Schilleriana which has been a magnificent sight for a long period. Strangely enough however I find it extremely difficult to induce Dendrobium nobile to flower, whereas at an elevation of 4500 ft. it thrived out in the open, growing on an old wild mulberry tree.

With regard to the indigenous orchids of Ceylon, Dendrobium McArthiæ must, of course hold pride of place. Its flowering season is May and the plant is know as « Wesak mal » by the Singalese (Wesak flower) whose big annual Wesak festival is held in May, and who utilise the flowers very largely at that time to decorate their temples etc. The plant is only found in a very limited area in the dense jungles near the small town of Ratnapura, which bears a most unenviable reputation for heat, but I have however succeeded in inducing it to flower in the open at 3500 ft. Another well know indigenous Orchid is Dendrobium aureum, and strangely enough it is only found at the higher elevations, 4500 to 7200 ft., and in the latter the temperature frequently drops to a degree or so above freezing point, and I have, on one occasion, seen ice within 100 yards of a very fine flowering specimen in the jungle : This plant is well worth seeing in the Up-Country jungles, as is also the fragrant Coelogyne odoratissima which literally covers the huge, lichen-hung jungle giants over the 5000 ft. mark.

Another beautiful orchid — endemic in Ceylon — is Ipsea speciosa with its daffodil-yellow flowers set gracefully on tall wiry stalks, spring-

ing from the thick « mana » grass in the open Up-Country patnas, (open grassy glades). Many keen persons have attempted to cultivate this plant, with, alas ! little success, due I feel sure to their having planted the tubers in too rich a compost, for in a natural state it appears to luxuriate in the very poorest patches of quartzy gravelly soil.

Mention must, of course, be made of the handsome Phaius bicolor, which rears its stately head and glossy leaves by the side of many jungle streams at elevations of 2500 ft. and over, also of the delicate Calanthes, purpurea and veratrifolia, which grow to perfection in the rich leaf-mould of the Up-Country jungles, where little sunshine reaches them. A fine Cirrhopetalum — grandiflorum — can rarely be seen at the higher elevations, but, when discovered is really worth finding, with its twin-flowered scape of tawny-yellow and purple flowers.

Two Vandas are worthy of mention, V. Roxburghii and V. spathulata, the latter with its 6 to 10 ft. long branching racemes of deep yellow flowers, and the former (which inhabits the hottest and driest parts of the Island) with its spikes of olive-grey, blue-lipped, scented flowers.

A quaint Orchid sometimes met with is Acanthophippum bicolor, which is well worth cultivating en masse for its swollen 2 leaved pseudo-bulbs and fleshy yellow, claret-tipped, cupped flowers, while of Habenarias we can boast 2 pretty species — H. pterocarpa and H. plantaginea.

I have recently discovered a tuberous rooted Orchid, which has, as yet, not been identified. It is now bearing a score or more of whitish-purple flowers (in which the reverse of the sepals and petals is a deep purple) on a 3 ft. spike. Leaves are similar to those of Spathoglottis, while the inflorescence is totally unlike that family. »

In a previous letter Mr. Price says — «The treatment of orchids in this Country differs in general, very little from their treatment in England, save that it has to be modified according to the varying elevations.

The native Dendrobium aureum for example is only found at elevations of over 4500 ft. where the temperature is fairly constant at about 60 deg. (in the cold weather it frequently goes down to 50 deg.). This orchid will not succeed if brought down to the low country and grown with D. Wardianum etc. In my new orchid house the day temperature runs up to 83 deg. by sun heat and falls to 60 deg. at night, elevation is 3000 ft. and I have no artificial heating. Cattleyas and allied genera are very successful with me, also some Phalaenopsis. I have not yet tried Anguloas or Lycastes in my cool house, temperature 60 to 70 deg. and

Maxillaria Sanderiana is not yet in my collection, but should succeed well. I have not yet attempted to grow Cattleya citrina but think it might do well. »

Mr. Edwin Baxter Cox of Adelaide, South Australia kindly contributes the following, but incidentally it may be remarked that success, in the growing and flowering of Bletia hyacinthina and Dendrobium speciosum, has often been obtained in this Country by placing those plants out of doors during the late Summer particularly in the Southern Countries.

« The cultivation of orchids in South Australia differs but little from that in England. The summer here is very hot while the winter is mild. The temperature in the shade during the Summer is frequently over 100 deg. Fahr. and sometimes as high as 114 deg. Fahr. while in the sun over 160 deg. Fahr. is common. The night temperatures are frequently very high. The lowest temperature recorded was 32 deg. Fahr. some thirty years ago but 40 deg. Fahr. is rarely reached during the winter nights. It is possible to grow quite a number of orchids without artificial heat whatever and I have grown Cypripediums insigne, villosum, barbatum, and venustum, Crossianum and Harrisianum as well as Dendrobiums speciosum and Kingianum and some of the Cymbidiums in an ordinary greenhouse entirely without fire heat while I have seen Cattleya intermedia also grown successfully under the same conditions. A neighbour of mine experimented with Dendrobium Moschatum and Vanda gigantea leaving them suspended in a shade house throughout the winter during which period they received no artificial watering but only the rain which fell upon them and the plants did not seem to be injured by this treatment. I know that this has also been done in the neighbouring State of Victoria without injurious results.

Fire heat I find however is necessary for the best results and as a rule I start firing at the end of March and run the boiler every night until the beginning of September but only in the middle of winter is the fire going through the day.

During September there are a few nights that the fires can be discontinued and the following month quite a number of the nights are warm enough to do without artificial heat while at the beginning of November firing can be entirely discontinued until the end of March.

In this country the sun is almost always shining but I find the lath roller blinds quite sufficient protection with the addition of extra shading

over the Angraecums, Phalaenopsis, Cypripediums and other shade loving orchids.

The atmosphere is extremely dry and necessitates a tremendous amount of damping down in summer — in fact it is impossible to keep the atmosphere really moist without closing up the house and as that would mean an unbearable heat a compromise has to be effected. As it is the temperature of the house frequently runs over 100 deg. Fahr. with full ventilation on and the lowest temperature at night is often 80 deg. Fahr. The plants in the smaller pots have to be watered both morning and night during a heat wave. I have tried open lath stagings during the summer but found them a failure. An understage covered with broken coke and kept saturated with water is absolutely necessary. In fact a half a dozen of such understages would be ideal but the hot water pipes prevent this being done.

My experience is that the majority of the cool orchids cannot be grown successfully here owing to the high temperatures during the sum mer both day and night. The soft leaved plants are especially difficult as thrip and red spider soon weaken the plants.

I have however succeeded with Odontoglossums citrosmum and pulchellum but their leaves are somewhat hard.

Cattleyas, Dendrobium, Vandas, Phalaenopsis and other heat loving orchids grow splendidly.

As regards the other States in the Commonwealth of Australia the above remarks more or less apply. Western Australia has almost identically the same climate but Victoria is much cooler in summer and the atmosphere more humid.

Tree ferns grow there in the open but they cannot be grown successfully here even in a shadehouse. New South Wales is half tropical and a great number of orchids could be grown there without any heat whatever while in Queensland the orchids flourish in shade houses — glass and artificial heat being unnecessary which is not surprising since quite a large number of epiphytal orchids are indigenous to that State.

Bletia hyacinthina is growing in our Botanic Gardens in the open and flowers every year although the flower stems are very short. I also have seen Dendrobium speciosum growing in shade houses in the same gardens, while Vanda teres seems to be flourishing under the same conditions. I noticed Dendrobium speciosum in the Melbourne Botanic Gardens growing amidst a thick clump of trees in a hollow and well sheltered spot. It was quite healthy and vigorous but evidently had but rarely flowered. In Sydney according to the Orchid Review the Cymbidi ums

grow freely as ordinary garden plants which is what I would expect as the climate is sub-tropical.»

The progress of and the interest taken in Orchids in Japan is exemplified by the following notes from Viscount M. Ijuin of Tokyo.

« The cultivation of Orchids in Japan is quite old. The varieties of Orchids in our country are mostly Cymbidiums, and also Angraecum and a few Dendrobiums are grown. Their handsome foliage and delicate perfume is liked by every one. They are sometimes grown outside in the rural district of the country. As they can stand a quite cold climate, they are easily grown without the aid of greenhouses.

About 30 years ago the first greenhouse was built in Japan. Since then tropical and sub-tropical plants as well as many kinds of Orchids have been cultivated in them and it has become known that orchid culture is worth while because of the beauty of its flowers. In the last few years, orchid cultivation has been developed to a great extent. Two years ago we organized « Airankai » (Society of Orchid lovers) to foster and increase our knowledge of orchid cultivation.

Japan consiste of a long island lying from the North to the South. Its climate varies, some districts being cold while others are hot in the same season. Tokyo is situated in the central part of the islands. Its climate is mild. Its sunshine is stronger and its moisture more plentiful than that of your country in some seasons. The method of our orchid cultivation is still in the transient stage. In Japan we cannot follow closely the method described in your orchid guides. If we adapt all to your methods, we will undoubtedly have many failures. It is well for us to follow your methods as far as possible allowing for differences of climate etc. We should pay attention to the regulation of sunshine, temperature and moisture in order to get the best results for the growing of orchids. I think that the climate of Japan is suitable for the cultivation of orchids. Such plants as Odontoglossum crispum which may be kept cooler are not well grown well in Tokyo and its neighbourhood, but the tropical and sub-tropical orchids are grown almost perfectly, namely, Ærides, Cattleyas, Laelia and their hybrids, Cymbidium, Cypripedium, Dendrobium and Vanda etc. I believe that Cymbidium will undoubtedly become the most popular in Japan. We like its foliage very much. For example Cymbidium Tracyanum is easily grown and blooms in a house without special heating apparatus at a certain Nursery in Tokyo. I think it shows its easy growing nature. The demand for this kind of orchid will greatly increase. One variety of Cymbidium grows wild, even over

the neighbouring hills of Tokyo and pretty flowers bloom in the Spring. If this Cymbidium can be crossed with another kind, its hybrid will become a better kind, one of easy culture. Several kinds of Cymbidium which are natives of Japan and China are generally cultivated. Many florists already are very skilful in the raising of these plants.

The temperature of Tokyo may range from more 33 C. in Summer and to 10 C. below zero in Winter. Generally speaking those orchids which like to be kept cooler are frequently stricken down by the summer heat and in consequence they are not suitable to grow here. I do not doubt that the cool loving orchids are well grown in the coolest districts of Japan. I am told that in the Hokkaido, the North part of Japan, several kinds of orchids are produced in very good condition.

We have started to raise hybrids from seed in the last few years and have been getting very good results. The art of hybridization in Japan is thought to be hopeful. I expect that it will be greatly developed in the near future.

About 30 years ago, the late Viscount H. Fukuha started the cultivation of exotic orchids in the Imperial Household Garden in Shinziku, Tokyo. Since then many prominent persons are strongly interested in orchid cultivation. I am one of them.

Last year Viscount. T. Soma travelled Oriental orchid districts for collecting orchids. Prince Shimadzu is a member of a certain Orchid Society in your country. Count. K. Hayashi (President - Airankai) made a trip through Europe and America to study the method of orchid cultiva tion, last year. »

The late Mr. Eugene André of Port-of-Spain, Trinidad who has for many years been a collector and cultivator of orchids, contributes the succeeding article, particularly interesting, as showing the conditions and variations of a tropical climate and the success which has attended the culture of orchids from tropical countries of the Eastern hemisphere.

Unfortunately, we are unable to reproduce here the photographs he has forwarded and to show the luxuriance of the plants he speaks of.

« I may say, that while it will be a pleasure for me to produce something of interest in the way of notes on the growing of Orchids in this country for the new edition of your Orchid Guide, the writing of an instructive, yet concise article, on the cultivation of these interesting plants, as cultivation is understood in England, is not likely to be an easy matter ; nor would anything I may write do more than deal with the particular conditions in and around the town of Port of Spain which is at sea-level a little above the 10th paralell of latitude north of the

equator, with a temperature ranging from about 70 deg. Fahr., in the morning, to 87 deg. Fahr., at two o'clock in the afternoon, and a rainfall averaging in the normal seasons about 60 inches.

Taking a month of the year in the order in which they stand, it may be said of January that it is the last month in which occasional rainy days occur as reminders of the departing wet season. February, March and April are dry months with bright sunshine and persistent easterly winds. In May there are showers getting more and more frequent as the days go by, until we realize, sometime in June, that the rainy season has come again. July, August and September are wet months. There may be a break in October when sunny days occur. In November it rains at least as much as in July, August and September, December is a doubtful month with yet a goodly proportion of rainy days. January sees the last of the departing rainy season, as has already been remarked.

If I have gone into these details regarding the wet and dry seasons, it is because success in growing orchids under the shade of trees or some other form of shade, such as an arrangement of slats on poles like a pergola, the system usually followed here, is largely dependant on the season being fairly regular. And while it is easy, if somewhat expensive, to water the plants during the dry season, in accordance with their needs, it is not possible to guard against the evil effects of a weeks persistant down-pour, except glass or some waterproof shading be used, which is beyond the meansof the majority of our orchid lovers. For which reason any system of planting that might result in a sodden condition of the roots is to be avoided. However, notwithstanding the uncertainties of the weather, a considerable measure of success has been achieved by growers, some doing better with certain varieties than with others which, on the other hand flourish with rival cultivators. This would appear to be largely a matter of location, in respect of which many orchids are quite fastidious.

The question of watering during the dry season, and occasionally at other times, is one over which there is considerable difference of opinion. In theory most orchids coming from tropical countries with a rainfall and temperature similar to that of Trinidad, not to speak of native ones, should be able to get along without assistance. In practice any rigid adherence to the theory is likely to have injurious results. For while the rainfall and the temperature remain the same, to give one set of reasons only, the plants are found in their haunts under conditions widely different from those in the gardens and backyards of Port of Spain and its suburbs. Some are on the branches or high up on the trunks of forest giants far from the ground ; others prefer those trees of stunted growth,

gnarled and moss-covered, which eke out a hard resistance where rocks abound ; others again are found on the rocks themselves, and these may be of granite, sandstone, or limestone as in the case of Diacrium bicornutum which covers the rocks on the islets that guard the entrance to the Gulf of Paria, growing in luxuriant abundance within a few feet of the sea.

From the above it will be gathered that plants taken from such diverse conditions cannot be brought under the shade of a few trees or that of an arrangements of slats where, put on to blocks or into baskets of wood, they are hung up at a height of 6 or 8 feet from the ground, not infrequently in places subject to strong breezes or currents of air causing rapid evaporation, and be expected to look after themselves. The observant grower, keeping these facts in mind, will study his plants, and, as their principal want is moisture, which should be supplied when the plants need it, he should, within a comparatively short space of time, be able to devise a system of watering suitable to the requirements of his collection. For this purpose a grouping of the kinds that have to be treated in a similar manner is advisable. And while this would have to be done on general principles to start with, there should be no hesitation in moving about those plants that are not doing so well as the others until an improvement is observed.

The plants are grown, as has already been said, under the shade of trees or of that of slats of wood, which are from an inch and a half to two inches in width, nailed at distances of an inch or so apart upon strong timber runners supported on poles planted in the ground, the runners being also turned to account to hang the plants from. In many cases branches of the cocoanut palm are used instead of slats and they are replaced as they get rotten and begin to fall to pieces, but they last quite a while before this happens. In making use of trees for shade, preference is given to umbrella-shaped kinds with small leaves, allowing of a general distribution of light. So far as this country is concerned there is no better tree for the purpose than the wide-spreading Saman (Calliandra Saman), but it takes up a lot of room which only those who have fairly extensive grounds can afford. However where there are such trees, as at Government House and some of the larger residences, they are made use of for giving partial shade to the more delicate tropical plants, including orchids.

Whatever the shade, the system of growing the plants is to affix them to blocks of wood by means of copper wire and tacks, or to put them into wooden baskets with such material as peat or osmunda fibre, moss,

pieces of wood, charcoal, crocks and cocoanut husk. In blocking our orchid growers use by preference pieces cut from branches of the Calabash tree (Crescentia Cujeta) from one foot to eighteen inches long and from two to four or even five inches in diameter. The bark is left on and if they be rounded at the ends the appearance of the blocks is neater and the plants cling better to them as the roots are apt to shoot off sharp edges into space where they get broken.

The plants are given such waterings as the grower thinks necessary. From time to time they are kept under water in a tub for several minutes at a time as the cosmopolitan cockroach is common in this island and where it is allowed to take posession of an orchid collection the plants will never be vigorous.

The above describes the methods generally followed in growing orchids here. Personally I have tried all kinds of ways not excepting the pot system with peat, sphagnum moss and broken crocks. When Osmunda fibre came into fashion I tried osmunda in the place of peat. I have also used leaf-mould in pots and for some time got good results. When everything is fresh and while the drainage remains perfect the plants do well, but the pot system is not suited in the long run to the heavy and continuous rains we experience at times and the frequent handling required in a place where there is but little skilled garden labour. There is one grower, a doctor, who claims that he has obtained very good results by the pot system employed in England, but he attends to his plants himself and probably has the leisure to do so in a thorough manner.

Even before I had made over whatever orchids I had to my wife who now looks after them herself, not excepting the watering which she does with a hose and nozzle, the basket and block methods had been adopted thoughout and the latter was being replaced by the former. At present, with but very few exceptions, all the orchids are in baskets.

The baskets used are made of wallaba, a timber wood that is an article of trade in British Guiana where it is put to many purposes, it is also exported. It can be obtained in the form of rough staves 6 to 7 feet long, 4 inches wide, 2 inches in thickness on one side, tapering to 1 1/2 on the other : this is the form in which I bought some of the wood when I was in Georgetown in 1896. The pieces for the sides of the baskets are generally an inch square, the bottom pieces are 2 inches wide by 3/4 of an inch thick and they are nailed on from below and clenched. The holes for nails and wire are bored with a small drill, for, while wallaba is a hard and most durable wood it splits easily. Some of the baskets are made throughout of pieces 1/2 inches wide by 3/4 of an inch thick : in fact

the wood is utilized in the most economic manner. All sharp edges are rounded.

Very good results have been obtained by combining in a way the block and basket methods. A block of wood, preferably calabash with the bark on, is wedged in between the sides of the basket affording a firm centre of support to which the plant is affixed. The blocks are usually from 2 to 3 inches in diameter and in the cases of large baskets two blocks are used. The bottom of the basket is paved with broken crocks. Above this, mixed with a few crocks or lumps of charcoal, moss freshly gathered from old cocoa-trees is put, filling up the spaces between the blocks and the sides of the basket. With a little care at the start the moss produces a healthy growth which soon attaches itself to the block and to parts of the basket. In these conditions the majority of the epiphytal orchids in my wife's collection do well and some kinds like Phalaenopsis — Stuartiana and Schilleriana — not only grow rapidly, but propagate themselves in a remarkable manner, in addition to flowering abundantly. I have been informed by our Department of Agriculture that the particular cocoa-moss we have in our baskets is neteorium nigrescens and that there are several varieties of so-called cocoa-moss, all of which are looked upon as a noxious parasite by those interested in cocoa growing. The calabash, the gourds of which are so largely used for household utensils in the houses of the peasantry, is a remarkable tree not only on account of its appearance but because of its extraordinary vitality. Almost any part of the tree put into a hole in the ground will grow.

My wife's collection is a small one but it comprises several genera including Cattleyas, Dendrobiums, Oncidiums, Phalaenopsis and Vandas. Of the last named Vanda teres and Vanda Agnes Joaquim grow like weeds and they are of the greatest use for cut flowers. They are put into slow growing shrubs like Murraya exotica or in hedges and topiary work of Malpighia coccigera where they thrive amazingly. There is also a pergola entirely covered with these Vandas and a larger one is being built to accomodate their ever increasing numbers.

The collection itself is housed in what used to be a large aviary where, years ago, we kept hundreds of bright coloured birds from all parts of the tropical world. It is an oblong construction of wire netting on second hand boiler tubes in a low concrete wall. For shade medium sized culms of the solid bamboo with the side shoots left on are placed on top of the netting and this has been laid on in such manner that the shade varies. There is a small stand covered with glass in the centre of the house. Here are put whatever orchids there are in bloom. »

Name.	*Country.*	*Description.*	*Season of flowering*

ACACALLIS — A monotypic genus allied to and formerly included with Aganisia. The culture accorded should be similar to that given that genus.

S **cyanea** — Brazil

Rhizome creeping, pseudo bulbs ovate 1 to 2 inches high, bearing a single leaf 4 to 8 inches long. Scapes taller, 3 to 7 flowered. Flowers 1 to 2 inches in diameter, sepals and petals mauve, shading to white, deeper behind ; petals similar but broader and darker, lip whitish basally, passing into indigo blue, concave, apiculate, crest, deep ochre yellow, bearing 4 or 5 ridges, column winged, wings streaked with red. A rare but charming plant. Summer

ACAMPE — Epiphytal orchids with Vanda like habit and requiring similar culture to that genus. They are not so particular as to temperature and will often thrive in the intermediate division. The flowers last well and are usually of a fleshy character, the name meaning inflexible.

S **dentata** — India

Height 9 to 18 inches, flowers carried on branched panicles, small, yellowish white, with brown blotches. Distinguished by four fleshy teeth-like tubercles at base of lip. Summer

S **longifolia** — India

Height 1 to 2 ft. Leaves often 18 inches long. Flowers sweet scented, carried in corymbs on stiff spikes, very fleshy, dull yellow, barred with red, lip white, hairy inside. Summer

S **multiflora** — China and India

About 12 inches high. Flowers yellow, red spotted, small, on erect branching panicles. Autumn

S **papillosa** — India

About 12 inches high. Leaves 4 to 6 inches long,præmorse.Spikes short, nearly sessile. Inflorescence almost a corymb. Flowers small, sepals and petals yellow, marked with red, lip white, tongue shaped, very papillose, white with occasional spots of red and yellow, fragrant. Summer and various

S **Wightiana** — India and Ceylon

Height 9 to 18 inches, raceme nearly sessile. Flowers about an inch in diameter. Yellow barred with crimson, lip nearly white. Sparsely purple spotted. Summer

ACANTHOPHIPPIUM

A genus of terrestrial orchids allied to Phaius with stout fleshy pseudo bulbs and strongly ribbed plicate leaves. The flowers are produced with the young growths, clustered on short erect scapes and if not particularly showy are interesting from their quaint ventricose shape and remarkable structure. They are of good size, very fleshy, the sepals, connivent the greater part of their length, hide the basal portions of the petals and lip, which is articulated much as in Anguloa. The flowers are bluntly spurred, last some time and in all the known species are produced in Spring and early Summer.

The plants succeed in the Stove or Cattleya House and require a well drained compost of Osmunda and, in equal parts, sphagnum with a little fibrous loam. They should have a decided rest in Winter.

I **bicolor** India and China

Leaves and pseudo bulbs about 18 inches high or less. Flowers 3 to 6 in clusters, pale yellow, marked with red, the spreading sepal and petal tips more deeply marked, lip clear yellow. Early Summer

I **javanicum** Java

Very similar to preceding. Distinguished by its more quadrangular pseudo bulbs, the irregularly toothed sides of the lip and the brighter colours of the flowers. The upper surface of the sepals and petals is usually flushed with rose pink. Spring

I **striatum** North India

Slightly smaller than the other species in the genus and the scapes are usually but three flowered. Flowers whitish, streaked and roughly striated with dull red. The lip is often spotted with purple and warted on the central parts. Spring

I **sylhetense** North India

Flowers creamy white, marked and spotted with purple, darkest at tips of sepals and petals, lip wax like in texture, tongue shaped.

ACHROCHÆNE

At present but two species are known in the genus. Both are epiphytal and bear a general resemblance to Bulbophyllums in their growth etc. but botanically are quite distinct. Their cultural requirements are similar to, and like Bulbophyllum benefit by a decided rest.

I **punctata** Sikkim

Pseudo bulbs comparatively small, bearing a thick coriaceous leaf. Flower scapes about the same height, few flowered. Flowers pale yellow spotted with red. Dorsal sepal erect, lateral sepals triangular, petals smaller, fimbriated. Lip three lobed with the anterior lobes recurved, side lobes erect. Summer

ACHROCHÆNE—cont.

I **Rimanni** North India

Flowers about an inch in diameter. Sepals lilac purple, the lateral two connate, petals smaller, whitish, oblong, denticulated, lip dark purple; anterior lobe triangular, side lobes rounded and denticulate. Summer

ACINETA

Epiphytal orchids allied to Peristeria but with the structure of the lip somewhat resembling that in Stanhopea, to which genus, under cultivation, they should receive similar treatment.

The species described have stout, lightly furrowed ovoid or subconical pseudo bulbs bearing 2 or 3 large plicate leaves, 12 to 24 inches long, broad in proportion. Flowers sub-globose, large, 1 to 4 inches in diameter, usually fragrant. Spikes long, pendent.

The mode of flowering renders baskets more suitable than pots. The spikes produced from the base of the bulbs are sometimes thrown over the edge of the pot or basket but more frequently descend directly through the basket. Drainage must be carefully placed to allow a free passage.

Cattleya compost with the addition of a very little loam fibre will be found to suit them.

Hang the plants near the glass and give a decided rest. As with Stanhopeas effort should be made to have the pseudo bulbs thoroughly matured by the Autumn so that the plants may be kept dormant during the Winter. Winter growths exhaust the plants.

The pseudo bulbs and leaves are very liable to «spot» usually the result of condensed moisture and a fall in the temperature.

I **Barkeri** Mexico

Flowers 15 to 30. Golden yellow. Early Summer

I **chrysantha** Mexico

Resembling Barkeri but the lip is whitish and bears a blunt horn-like process on the hypochil. Summer

I **densa** Central America

Sepals and petals bright yellow, petals crimson spotted. Lip marked with deeper red. Spring

erythroxantha **syn. densa.**

I **Hrubyana** Colombia

Racemes laxflowered. Flowers ivory white, lip purple spotted, with narrow erect side lobes. Summer

ACINETA—cont.

I **Humboldtii** Colombia

Sepals chocolate purple, petals rose to crimson, lip marked with yellow.

superba **syn. Humboldtii** Spring

Warscewiczii **syn. densa.**

ACRIOPSIS

Intermediate or warm house orchids. The cultivated species of which resemble small Cymbidiums in their pseudo bulbs and leaves. The bulbs are usually only one to two inches high and the leaves, two, 2 to 3 inches long, but the branched panicles are much taller, 12 to 18 inches and though the individual flowers are small, they are charmingly marked. The plants succeed better when grown with — and treated more or less as — Bulbophyllums. A similar compost with the addition of a little loam fibre should be given. A decided rest benefits the plants.

S **densiflora** Borneo

Sepals and petals greenish brown, lip prettily marked with pink. Flowers more thickly set than in the other species. Summer

I **indica** Burma

Produces small inconspicuous pale greenish flowers.

I **javanica** Burma

Habit rather less than in the proceeding species but producing elegant panicles of light green and whitish flowers, marked with purplish red at the tips of the segments, lip purple violet, bordered with white. Summer

picta **syn. javanica**

ACROPERA **syn. Gongora**

ADA

Allied to Odontoglossum, the genus is remarkable for the beautiful cinnabar-orange of its flowers, which are set closely on the spikes and are somewhat campanulate in shape. There are but two species known so far, both requiring exactly the same general treatment as Odontoglossums. One hybrid has already been obtained between the two genera and doubtless more will follow.

C **aurantiaca** Colombia

Height 10 to 15 inches, pseudo-bulbs sheathed with leaves. Flowers showy, cinnabar-orange, sometimes black spotted in erectly curving spikes.

Winter to Spring

C **Lehmanni** Colombia

Habit as in proceeding species but more rigid, less in height, leaves marbled with grey, sepals and petals cinnabar-orange, lip white excepting a deep orange velvety callus. Summer Early

ADAGLOSSUM

To designate hybrids between Ada and Odontoglossum.

ADENONCIS **syn. Sarcochilus**

ADIODA

Hybrids between Ada and Cochlioda.

ÆRANGIS **syn. Angraecum**

ÆRANTHES

A small genus found in Madagascar and apparently confined to that Island. The species are without the woody stem developed by many Angræcums, hence though requiring similar treatment to Angræcums, greater attention must be paid to the watering and the plants should not be dried for any length of time.

The flowers are remarkable. Each segment is elongated into a straight ribbon-like point, much longer than the basal portion, longest on the sepals. The lip is produced into a blunt spur.

S **grandiflora** Madagascar

Height of leaves 6 to 12 inches. Flowers solitary on rather short stalks, bright green, sepals about 5 inches long from base to tip, petals and lip shorter. Summer

Leonis **syn. Angraecum Leonis.**

S **membranaceum** Madagascar

Habit as in grandiflora. Flowers green, membranous, about 2 inches in diameter, borne at end of a long wire-like peduncle. Height 9-12 inches. Summer

trichoplectron South Madagascar

Leaves about 6 inches long, narrow, bidentate apically. Flowers white, solitary, axillary, petals narrow, lip broad with a long filiform spur. Early Spring

ÆRIDES

Handsome epiphytal orchids with erect, sometimes branching, stems on which the foliage is arranged distichously, and thick fleshy roots are produced at irregular intervals.

The species are distributed from Bombay to Japan and, as may be imagined, vary greatly in size and appearance, In the wild state many of them form dense masses, the stems attaining a considerable height ; others remain quite dwarf. The heights given in this work apply to cultivated plants.

The flowers are usually borne on pendent racemes. The individual flowers are of good size often strongly scented, wax like in texture, with the lip prolonged into a spur usually curving upwards beneath the front lobe.

Given the correct temperature and a moist atmosphere

ÆRIDES—cont. the greater number of species are of easy culture. The plants may be placed in pots, teak wood cylinders or orchid baskets, half filling same with crocks or broken red bricks and surfacing with a mixture of two parts Osmunda fibre and two parts sphagnum, which should be renewed whenever necessary with as little root disturbance as possible. Unless the plants have absolutely outgrown their receptacles they should not be repotted.

In Ærides, as with Vandas, there is a tendency for old plants to develop « leggy » stems, in which case they must be carefully reduced, when root action commences, unless basal growths, which should always be encouraged, have been produced.

The plants should not have too sunny a position but are the better for judicious exposure to ripen them in the Autumn. Water must be given with discretion during the dull months.

From the wide distribution enjoyed by Ærides it is very probable that many of the plants described here are not true species but rather geographical forms of one or two type species, highly modified by environment or possibly natural hybrids between two so-called species.

The genus has been confused by earlier Botanists with Sarcanthus, Vanda, Sarcochilus, Saccolabiums, etc., but is so well defined that we do not think it necessary to give all the generic synonyms.

I **affine** India

Height 9 to 18 inches, spikes often branching. Flowers deep rose, lip with darker spots. Leaves 7 to 10 inches long, often nearly one inch broad, thick. Summer

S - **var. roseum** Sylhet

Flowers darker and richer than in the type. Summer

S - **var. superbum** Sylhet

Flowers larger and richer in colour. Summer

S **Augustianum** Philippines

Height 1 to 3 feet. Leaves 6 to 9 inches, dark green. Racemes arched, 8 to 12 inches. Flowers about an inch long, light rose in color, including the long (for the genus) spur. The colour, is deepest at the bases and points of the segments. Autumn

Ballantineanum **syn. suavissimum var.**
Brockesii **syn. crispum.**
Brookei **syn. crispum.**
cornutum **syn. odoratum.**

ÆRIDES—cont.

S **crassifolium** Burma

Habit dwarf. Flowers amethyst purple, fragrant, over an inch in vertical diameter, spikes often 12 inches long, drooping. Leaves 6 to 9 inches long sometimes 2 inches broad, coriaceous. Summer

S **crispianum** Philippines

A tall growing species allied to and somewhat resembling A. Savageanum. Spikes long, arching, 12 to 18 inches. Flowers dark rosy purple, medium size. Early Summer

S **crispum** Bombay

Height 2 to 5 feet. Leaves nearly 2 inches broad, dark green, seldom 9 inches long. Racemes long 1 to 2 feet. Flowers large, nearly 2 inches vertically, the upper sepal the larger, white flushed with rose and rose tipped, the mid lobe of lip rosy purple, spreading, with serrated edges. Scented.

S - **var. Lindleyanum** Bombay

Resembling the type but with a rose pink lip. Summer

S - **var. Warneri** Bombay

A very handsome variety. Spikes lateral, 1 to 2 feet long, sepals and petals white, slightly rose flushed, lip deep purple with a fringed white border. Summer

difforme **syn. Ornithochilus fuscus**

cylindricum **syn. Vandarum**

dasypogon **syn. Saccolabium dasypogon.**

S **Emerici** Andaman Islands

Height 1 to 2 feet or more. Leaves 9 to 12 inches long, 1 to 1 ½ inches broad. The habit much as in virens. Racemes rather short, the peduncle sticky. Flowers about 1 inch long. Sepals and petals white tipped with pale purple and, typically, with a central pale purplish stripe ; lip with the mid-lobe small, narrow, deep purple. Summer

expansum **syn. falcatum var.**

S **falcatum** India

Height 2 to 5 feet. Racemes drooping, closely set with flowers, 12 to 18 inches long. Leaves 6 to 12 inches long, over an inch broad. Flowers over an inch vertically. Sepals and petals creamy white, crimson tipped, mid lobe of lip deep rose, white and rose edged, ciliated. Summer

S - **var. expansum** Burma

Sepals and petals creamy white, purple marked, lip blotched with amethyst and purple.

S - **var. Leonæ** Burma

Flowers larger than in the type, raceme more lax, the colours throughout the flowers are broken.

Farmeri **syn. quinquevulnerum**

ÆRIDES—cont.

I **Fieldingii** India and Assam

Height 2 to 3 feet. Leaves stout, 6 to 12 inches long, nearly 2 inches broad or more. Racemes often 2 feet long occasionally branched at base, crowded with flowers, 1 ½ inches in vertical diameter, white suffused and mottled with rosy purple, lip rose purple. A very handsome species. Early Summer

I - **var. rubrum**

More richly coloured flowers.

I - **var. Williamsii**

A handsome variety producing racemes rather longer than in the type with pinkish white flowers.

flavidum **syn. suavissimum**

S **Godefroyanum** Cochin - China

Height 2 to 3 feet. Leaves 7 to 12 inches long, about 1 broad, leathery. Flowers about 1 inch vertical diameter, sepals and petals, rose, amethyst spotted and streaked, lip nearly white with an amethyst disc. Summer

S **Houlletianum** Cochin - China

Distinct and handsome, 2 to 4 feet high. Leaves 7 to 10 inches long about 1 inch broad. Spikes 12 inches or more long, occasionally branched. Flowers about 1 inch vertical diameter. Sepals and petals light buff, magenta tipped, lip creamy white with central magenta blotch, lip slightly fringed. Spring & Summer

Huttonii **syn. Thibautianum.**

Hystrix **syn. Ornithochilus fuscus.**

C **japonicum** Japan

Dwarf habit, the smallest growing species known. Leaves 3 to 4 inches long, narrow. Spikes about 6 inches long, 1 to 12 flowered. Flowers fragrant, white marked with red, lip with median purple ridge and spots. Summer

Larpentiæ **syn. falcatum.**

S **Lawrenceæ** Philippines

A very handsome species. Height 1 to 4 feet or more. Leaves 9 to 13 inches long, nearly 2 broad. Racemes arching 9 to 18 inches long. Flowers very wax like, fragrant, often nearly 2 inches vertical diameter, sepals and petals white tipped with crimson purple, mid-lobe of lip crimson purple, the colour sometimes diffused in the side lobes, lip horn like, tipped with green. Autumn

S - **var. Amesianum** Malaysia

Racemes longer than in the type. Flowers orange yellow instead of white, but tipped with purple. Autumn

S **Leeanum** East Indies

Habit resembling that of quinquevulnerum. Racemes 12 to 15 inches. Flowers densely set about 1 inch long, amethyst coloured, scented. Winter

ÆRIDES—cont.

S **lepidum** India

Resembling Emerici in habit. Leaves 9 to 12 inches long, narrow. Racemes longer than leaves. Flowers whitish, the segments and long slender spur, tipped with purple magenta. Summer

Lindleyanum **syn. crispum var.**

S **Lobbii** Moulmein

Height 1 to 2 feet. Leaves closely set, 6 to 9 inches long, nearly 1 broad. Flowers nearly an inch long, showy, white flushed with rose, lip violet tinted. Spikes long, often branched. Summer

S **- var. magnificum** Moulmein

Flowers larger more richly coloured. Summer

S **- var. rubrum** Moulmein

Flowers much darker. Summer

S **maculosum** Bombay

Dwarf habit. Leaves seldom exceeding 9 inches in length but broader than in most species. Flowers over an inch long, carried on drooping branched racemes, light rose, purple spotted, lip rose purple, spur short. Fragrant. Summer

S **- var. superbum** Bombay

A superior variety, having larger flowers. Summer

S **McMorlandii** India

A rare handsome species. Compact habit, medium height. Leaves 8 to 10 inches long. Racemes much longer, branching. Flowers white spotted with peach colour. Summer

S **marginatum** Philippines

Allied to and resembling A. quinquevulnerum in habit, but with broader, more strongly keeled leaves. Sepals and petals light straw yellow edged with purple. Lip with toothed, deep orange side lobes, the mid-lobe, also toothed, is oblong, ligulate, yellow changing to deep sepia brown. Spur conical, light green. Summer

Mendelii **syn. Houlletianum.**

S **Micholitzii** Annam

Habit dwarf. Leaves 6 to 9 inches long, spikes about 12 inches ascending. Flowers crowded, smaller than in odoratum, wholly of a light rose purple, spur short. Summer

S **mitratum** East Indies

Habit dwarf. Leaves often 12 to 15 inches long, deeply channelled above. Racemes short, dense flowered, erect and semi-erect. Flowers rather small, sepals and petals waxy white, flushed with light purple apically, lip rose purple, spur short. Summer

multiflorum **syn. affine.**

ÆRIDES—cont.

S **nobile** India

Habit as in suavissimum. Flowers in pendent often branched racemes, 18 to 30 inches long. Creamy white, spotted and shaded with rose. Scented.

Summer

S **odoratum** India and China

One of the most popular species. Height 1 to 4 feet often forming large dense specimens. Leaves 6 to 9 inches long, 1 to 2 broad. Racemes arched, 9 to 15 inches long. Flowers large, strongly scented : creamy white, tipped and sometimes blotched and shaded with magenta. Usually there is a central line of magenta on the lip. Summer and various

S - **var. majus** India

Flowers larger and borne in longer racemes.

S - **var. purpurascens** India

Flowers white pink tipped.

Ortgiesianum **syn. Roebelinii.**

S **pachyphyllum** Burma

Distinguished by its short thick fleshy leaves and short few flowered racemes. Flowers, as large, or nearly so, as those of quinquevulnerum, of a light crimson, mid-lobe of lip deep purple, spur and column white. Summer

Picotianum **syn. Houlletianum.**

S **platychilum**

Differs from Ærides Houlletianum in its more dwarf habit, its flat lip, the side lobes of which are not divided to the base. Flowers about 1 inch across. Sepals and petals light buff, faintly tinged apically with purple, lip straw yellow shaded white, barred with purple on the side lobes and tipped with purple.

Early Summer

S **quinquevulnerum** Philippines

A very handsome species. Height 2 to 5 feet. Leaves 12 inches long by 1 ½ broad. Racemes 12 to 18 inches long pendent. Flowers about 1 inch across, resembling odoratum in structure. Sepals and petals white, tipped with amethyst purple and more or less spotted with same colour. Lip white, the mid-lobe deep amethyst purple, spur horn shaped, tipped green. Late Summer

S - **var. Farmeri**

A distinct form with white flowers and slightly longer racemes than in the type.

Summer

S **radicosum** South India

Habit comparatively dwarf. Leaves 7 to 10 inches long, about 1 broad. Scapes ascending. Flowers about 1 inch or rather less, vertically. Sepals and petals light rose purple with deeper spots, lip three lobed, similarly coloured, but with a deep rose purple mid-lobe. Spur horn-like. Summer

Reichenbachii **syn. suavissimum.**

ÆRIDES—cont.

S **Roebelinii** Philippines

Allied to Ærides quinquevulnerum of which species it may be a variety. It differs in having the sepals and petals quite white or shaded with green basally, the petals are usually denticulated, lip rose colour, the side lobes yellow and like the mid-lobe coarsely fringed. Spur short. Summer

Rohanianum **syn. suavissimum var.**

roseum **syn. affine var.**

rubrum **syn: radicosum.**

Sanderæ **syn. virens var. Sanderæ.**

S **Sanderianum** Philippines

Very showy. Height 1 to 4 feet. Spikes 2 feet long. Flowers large, waxy. Sepals and petals creamy white, crimson magenta tipped : lip large, yellow, crimson-magenta and creamy white. A splendid species. Summer

S **Savageanum** Philippines

Height 1 to 3 feet. Leaves 6 to 9 inches long, densely flowered. Flowers rather small less than 1 inch vertically, purplish crimson in colour, lighter on the sepal bases. Late Summer

S **suavissimum** East Indies

Height 2 to 4 feet. Leaves 6 to 10 inches long by 1 to 1 ½ broad. Racemes 15 to 18 inches or more in length. Flowers very fragrant. Sepals and petals white, tipped rosy pink : lip lemon-yellow spotted with rose purple. Late Summer

S - **var. Ballantineanum**

A distinct variety, at first accorded specific rank. The racemes are shorter and the flowers slightly smaller than in the type. Sepals and petals white tipped with purple, lip buff yellow, purple spotted, front lobe wholly purple, spur white dotted with purple. Summer

C **Vandarum** India

In habit this species stands quite apart from the other known Ærides, strongly resembling Vanda teres. Height 2 to 4 feet. Leaves cylindrical, 4 to 9 inches long, slightly channelled on upper surface. The tips lengthening in one year and thickening the second. Flowers in short racemes, 3 or less flowered, about 2 inches in vertical diameter. Sepals and petals rather narrow much undulated or twisted, front lobe of lip spreading. Spur nearly an inch long, terete. All pure white, very fragrant. Principally Autumn and Winter

S **Thibautianum** Java

A variable handsome species, somewhat resembling Ærides quinquevulnerum but producing longer racemes with the flowers set at longer intervals. Sepals and petals clear rose, lip bright amethyst. Summer

Veitchii **syn. affine var.**

ÆRIDES—cont.

S **virens** Java

Strongly resembling Ærides odoratum. Height 1 to 3 feet. Leaves 7 to 10 inches long, 1 or more broad. Racemes 12 to 18 inches long. Flowers about 1 inch vertically, fragrant, white, more or less purple spotted, tipped with purple : lip crimson spotted, the front lobe sometimes wholly purple, sometimes nearly white, spur horn-like, green tipped. Early Summer

S - **var. Ellisii** Java

Flowers larger than in type. Sepals and petals flushed with rose, lip faintly streaked with amethyst. Summer

S - **virens var. Sanderae** Java

A beautiful form, typical in habit but with pure white flowers. Summer

Warneri **syn. crispum var.**

Williamsii **syn. Fieldingii var.**

ÆRIDIUM **syn. ÆRIDES.**

Aeridovanda—Hybrids between Ærides and Vanda

ÆROBIUM **syn. ANGRÆCUM.**

AGANISIA

Comparatively few species are known in this genus and those are seldom met with in cultivation. All are natives of tropical America and are allied to Zygopetalum. Of epiphytal or semi-epiphytal habit, the species known are impatient of too much compost around their roots and succeed better when grown in small baskets or on rafts.

A compost of finely shredded Osmunda, to equal proportions of sphagnum moss, and a very little loam fibre, kept open with finely broken crocks suits them. It must never be allowed to become stale or sodden but a moist, buoyant atmosphere is essential, particularly when the plants are growing.

The plants are impatient of moisture lodging around the pseudo bulbs, hence the syringe must be very carefully manipulated, if used at all. Blue or violet blue is such a rare color in flowers of the orchideæ, that both this genus and Acacallis are worth growing because the prevailing color in their flowers may well be termed blue and with the increased cultural facilities of today, there should not now be the difficulty in growing the plants, that obtained in past years.

AGANISIA—cont

cœrulea **syn. Acacallis cyanea**

cyanea **syn. Acacallis cyanea**

S **conoptera** Eucador

Pseudo-bulbs clustered, 1 to 2 inches high. Leaves narrow, pointed, 6 to 9 inches high, Scapes erect, about 12 inches high, several flowered. Flowers about an inch across, rounded, sepals whitish or suffused with violet, variable, petals violet blue shading to white, lip spreading, white striated with violet purple, the fleshy crest similarly coloured. Summer

S **lepida** Brazil

Habit resembling that of A. conoptera but more robust. Leaves narrower and taller. Flowers about 1 ½ inches across, creamy white with the column violet and the base of the lip suffused with deep violet. Summer

S **pulchella** British Guiana

Rhizome creeping, pseudo-bulbs at intervals, about an inch high. Leaves 4 to 6 inches long. Spikes erect, few flowered. Flowers about an inch across, white, the basal half of the lip concave spotted with red; disc of the outer half, yellow, column spotted with red. Various

ANCISTROCHILUS see Pachystoma.

ANGRAECUM

A large and very polymorphic family of plants distributed chiefly throughout Africa. Botanically the plants described here are divided into three distinct genera, Angraecum, Mystacidium and Listrostachys, but the differences are so strongly Botanical that we think it much better, in a book of this description, to keep the plants under their popular name : by which they have been known and grown in gardens.

The members of this family are all epiphytal and pseudo-bulbless but vary greatly in habit and size. A few species are leafless or practically so, others form tufts of minute plants, each but an inch or two high while in A. sesquipedale and eburneum, the giants of the genus, we have plants which attain a height of several feet.

The prevailing colour of the flowers is white. The flowers are produced on spikes proceeding from the axils of the leaves, which are usually evergreen and opposite. The distinguishing feature of the flowers is the long usually curved spur, often flattened vertically or club shaped.

ANGRAECUM—cont.

The chief differences are :— In Angraecum, the pollen masses (2) are attached to a single stipes and gland. In Mystacidium there are two glands and two stipes, that is a separate stipes to each pollen mass, while in Listrostachys there are two stipes attached to one gland. There is a somewhat close resemblance between a few of the Angraecums and some species of Saccolabium, but on the whole Angraecums may be readily recognised by their white, somewhat star shaped flowers and their peculiar spur.

The culture of the genus as a whole is not difficult. The majority enjoy a tropical temperature and a moist atmosphere when growing. The smaller growing species should be hung near the roof and in the case of the thicker leaved kinds, like Sanderianum, articulatum, etc., as much sun light and air as is consistent, with a moist warm atmosphere, should be given them in the Autumn. During the growing periods, the young leaves are impatient of direct sun light and at all times of direct draughts. In winter the plants should be allowed to get dry between waterings but water should not be withheld for long periods.

A good general compost consists of one part Osmunda fibre and one part or more of sphagnum moss. For the larger growing species, a few good sized pot sherds or small pieces of old brick may be added. In the smaller growing kinds, the Osmunda should be shredded more finely and still more moss incorporated.

Good drainage is most important, and often the old compost may be carefully removed, when stale, and new substituted.

apiculatum **syn. bilobum.**

S **arcuatum** *(Lind)* Cape Colony

Dwarf habit. Leaves leathery about 4 inches long, bilobed apically, nearly an inch broad. Racemes 4 to 6 inches long, few flowered. Flowers white, starry, about an inch across, pedicels very short, sheathed with a brownish bract, spur much longer then the segments, horn like. Spring

arcuatum **syn. Chailluanum.**

ANGRAECUM—cont

S **articulatum** Madagascar

Dwarf habit. Leaves leathery 4 to 6 inches long, 1 ½ broad. Racemes stout, pendulous, apparently nodose at intervals of about ½ an inch, 9 to 15 inches long. Flowers pure white, 1 to 1 ½ inches across, the lip larger than the other segments. Spur filiform, 3 to 4 inches long. Both pedicels and peduncle are often pale brown-red. Spring

S **avicularium** West Africa

Dwarf habit. Leaves about 4 inches long, 2 to 2 ½ inches broad, bilobed apically. Spike about 10 inches, arching, carrying up to 15 white flowers, rather small, but remarkable for their whiteness and their long, 4 to 5 inch, filiform spur. Winter

S **bilobum** West Coast of Africa

Dwarf habit. Leaves 4 to 5 inches long, 2 broad, unequally bilobed. Racemes about 9 inches long, drooping, several flowered. Flowers white, slightly fragrant, about 1 inch across, segments nearly equal, the lip broader than the sepals, spur slender, orange-red. Winter

S - **var. Kirkii**

Leaves narrower than in the type, spurs longer, pale brown.

Brongniartianum **syn. eburneun var. virens**

capense **syn. filicornu.**

carinatum **syn. Eulophia virens.**

S **caudatum** Sierra Leone

Height 9 to 18 inches. Leaves 12 or more inches long, rarely 2 inches broad. Peduncles 12 to 14 inches long, more or less drooping, zig-zagging from node to node, 5 to 10 flowered. Flowers fairly large, 3 inches vertically, greenish yellow tinged with brown, column cap with a distinct beak, lip white, spur 8 to 10 inches long, pale greenish brown. Autumn

S **Chailluanum** West Coast of Africa

Height 6 to 12 inches. Leaves 5 to 8 inches long, two lobed at apex. Racemes about 12 inches, 6 to 10 flowered. Flowers white with similar segments. Spur greenish, slender, about 4 inches long. Summer and Autumn

I **chiloschristae** Natal

A small leafless epiphytal species, producing several slender many flowered racemes at a time, 3 to 9 inches long. Flowers very small, white, lip with a short rounded saccate spur. Summer

S **Christyanum** ?

Somewhat resembling A. arcuatum but more compact in habit. Peduncles shorter, 3 to 4 flowered. Flowers smaller than those of arcuatum, greenish white, lip three lobed with a funnel shaped, retrorse, spur with an inflated fusiform end at right angles. Summer

ANGRÆCUM—cont.

S **citratum** Madagascar

Dwarf compact habit. Leaves 3 to 6 inches long, 1 to 2 inches broad. Racemes pendulous 12 to 18 inches long, often produced in two's and three's, many flowered. Flowers about ¾ of an inch in diameter, sepals broader than petals, white and creamy yellow, spur 1 to 1 ½ inches long. A charming species with deliciously scented flowers. Usually arranged in two rows. Spring

S **cryptodon** Madagascar

Dwarf habit. Leaves about 3 inches long. Racemes pendulous about 9 inches long. Flowers 1 ½ inches in diameter on reddish pedicels, the peduncle is similarly coloured but more dull. Flowers white excepting the sepals which are coloured much as the pedicels and the slender spur 4 to 5 inches long, which is tinted with orange. Spring

S **distichum** West Coast of Africa

A tufted epiphyte, producing numerous, ascending stems, 3 to 6 inches high, leaves short bright green, closely imbricated. Flowers small, pure white, borne singly but freely produced from the axils of the leaves. Summer

S **eburneum**

Height 1 to 4 feet or more. Leaves 1 to 2 feet long, stiff. Spikes stout, ascending, 2 to 3 feet long, 6 to 12 flowered. Flowers large, 3 to 4 inches in diameter. Sepals and petals greenish white, lip spreading pure white with a green tinted spur, nearly 3 inches long. Summer

- **var.** *superbum* **syn. superbum**

S - **var. virens** Bourbon Isles

Similar to type but the flowers are tinted with green and usually slightly less in size. Summer

S **Eichlerianum** West Coast of Africa

Habit scandent, stems ascending, eventually reaching a considerable height, and developing aerial clinging roots. Leaves opposite, alternate, light green, thick, 2 to 3 inches long, about 2 broad, bilobed apically. Flowers 2 to 3 inches vertical diameter, borne singly or in twos. Sepals and petals 1 ¼ to 1 ½ inches long, equal, starry. The petals slightly reflexed, greenish white, slightly tinted with brown. Lip white, shaded with green basally, about 1 inch across with a short descending, triangular apiculus in front. Spur greenish, about 1 inch long, slender, roughly parallel with the pedicels. Various

ANGRAECUM—cont.

S **Ellisii** Madagascar

Height about 12 inches. Leaves 5 to 10inches long, nearly 2 broad, coriaceous, unequally bilobed apically. Racemes 1 to2 feet, arched or drooping, 9 to 20 flowered. Flowers scented, pure white, about 2 inches across, lip broader than sepals and petals developed into a slender brownish spur, often 7 inches long.

Winter

C **falcatum** Japan

A neat growing species, 3 to 6 inches high, with narrow keeled leaves, 2 to 3 inches long. Spikes short, 3 to 5 flowered. Flowers about ¾ of an inch in diameter, on long pedicels, white, with a slender curved spur, 2 inches long, fragrant. fragrant. Summer

C - **var. variegatum** Japan

Differs only in having variegated foliage. Summer

S **fastuosum** Madagascar

Dwarf habit, with broad deep green coriaceous leaves, 2 to 3 inches long. Spikes short, 2 to 4 flowered. Flowers over an inch in diameter, pure white, ending in a slender spur, 3 inches long. Fragrant. Summer

S **filicornu** Madagascar

A neat, small growing species with small fleshy channelled leaves. Flowers about an inch across, segments somewhat starry, pure white. The slender spur is 4 inches in length white tipped with green. Summer

S **forcipatum** Cameroons

Dwarf habit, spikes erect. Flowers clustered, glistening white.

Fournieriæ **syn. stylosum.**

S **Fournierianum** Madagascar

A strong growing species with strap shaped leaves, often 2 feet long by 2 inches broad, from the axils of which are produced the several flowered racemes. Flowers 2 inches or more across, white, fleshy, resembling those of A. Eichlerianum in shape but with the apiculus of the lip produced into a tongue shaped process. Spur 2 inches long, shaded with green as are the backs of the sepals.

Summer

S **fragrans** Mauritius

Flowers produced singly, pure white 2 inches across, lip grooved centrally, spur 1 to 2 inches long, tinted green. Very fragrant, as are the dried leaves. Leaves 3 and 4 inches long, nearly an inch broad, deeply bilobed. Height 6 to 12 inches.

Summer

funale **syn. Dendrophylax funalis**

S **fuscatum** Madagascar

A dwarf species, allied to A. Ellisii and A. articulatum. Leaves 4 to 5 inches long, more or less bilobed. Racemes drooping 6 to 10 inches, brownish in colour. Flowers between 1 and 2 inches in diameter, creamy white, the sepals sometimes ochre tinted, spur slender, about 2 inches long, often brownish.

Autumn

ANGRAECUM—cont.

S **Germinyanum** Madagascar

Resembles A. Eichlerianum in habit but is not so robust. Stem scandent 1 to 2 feet. Leaves 2 and 3 inches long, unequally bilobed. Flowers produced singly from the stem. Sepals and petals very narrow, the petals slightly shorter, lip broad, shell like, ending in a filiform reflexed tail, all pure white, spur 2 to 3 inches long, greenish white. Summer

S **gracilipes** Madagascar

Leaves 12 to 15 inches long by 1 ½ broad. Flowers from base of plants, freely produced, solitary on slender pedicels 6 inches or more high. Flowers pure white starry, the lip larger than the other segments, pretty. Autumn

S **Humblotii** Madagascar

A very distinct handsome species, dwarf growing with fleshy equitant leaves, often 10 inches in length, spikes sub-erect several flowered. Flowers pure white, sepals and petals keeled, more or less reflexed, lip spreading somewhat heart shaped, prolonged into a slender spur, 5 or 6 inches in lenght, tipped and tinted with green. Autumn

S **hyaloides** Madagascar

A dainty plant very minute in all its parts. Leaves spreading 5 to 7 in number. Racemes short, 10 and 15 flowered, all the segments resembling each other and with the spur, pure glistening white. Summer

S **ichneumoneum** West Coast of Africa

Leaves strap shaped, dark glossy green, 12 inches or more long, 2 inches broad. Flowers numerous on long drooping spikes of which several are often produced at a time. Flowers small ochreous white with a curious club like spur. The individual flowers are not very conspi cuous but in the mass are both interesting and attractive. Summer and Autumn

S **imbricatum** West Coast of Africa

Habit resembling that of A. Eichlerianum but more robust. Leaves leathery, bluntly bilobed, usually 2 to 3 inches long. Flowers carried in short dense flowered axillary racemes. White or greyish white, the lip changing to ochre yellow with age, spur short and blunt. Scented. A curious species and though not showy by no means unattractive. Summer

S **infundibulare** West Coast of Africa - Uganda

A strong growing species, after Eichlerianum in habit. Leaves 3 to 6 inches long, 1 to 2 broad. Flowers produced from a node on the opposite side to a leaf. Fragrant and very handsome. Large, white, the sepals and spur often tinted with green. Lip 2 inches or more across, assuming a funnel like shape, four inches long. Favours a shady position. Summer

ANGRAECUM—cont.

S **Kotschyi** East Tropical Africa

Medium habit. Leaves 5 to 7 inches long, coriaceous. Spikes hanging, sometimes 12 flowered. Flowers about 1 ½ inches in diameter, pure white. Remarkable for the long slender twisting spur, 8 or 9 inches long, tinted, with the flower pedicels, a pale reddish brown. Late Summer

Leonis **syn. Humblotii.**

maculatum **syn. Eulophia maculatum.**

S **mirabile** West Coast of Africa

A gem. Leaves 2 to 3 inches long, strap shaped, pointed, 1/3 of an inch broad. Spikes 6 to 8 inches long : 6 to 8 flowered. Flowers an inch across, sepals and broader petals flat. Lip more than twice as large as petals, flat, all segments rounded, all pure white, column intense scarlet. Spur slender 1 ¼ inches long, white, tipped green. See rhodostictum. Winter

S **modestum** Madagascar

A neat growing species, with narrow coriaceous leaves 4 to 6 inches long, Flowers pure white about an inch across, produced on hanging racemes, 12 to 20 flowered, spur slender nearly 3 inches long. Summer

- **var.** *Sanderianum* **see Sanderianum**

S **Moloneyi** Africa

Height 1 to 2 feet, leaves 3 to 4 inches long, leathery about 1 inch broad, midrib deeply channelled, irregular at apex. Spikes short stiff, ascending, about 5 flowered. Flowers 1/3 of an inch in breadth, slightly longer. Petals smaller than sepals, pointed, white tipped with brown, lip 3 lobed, side lobes rounded and prominent, mid lobe larger, the point developed into a small apiculus, pointing downward, and tinted with brown. Spur short, clavate, green, the funnel, ochre yellow externally and internally. Summer

S **Mooreanum** Madagascar

Leaves about 4 inches, dark glossy green, leathery. Flowers, on pendent spikes, about an inch across, pure white, spur red-brown. Fragrant. Summer

S **O'Brienianum** Uganda

A handsome species, 6 to 12 inches high. Leaves coriaceous, 5 to 8 inches long, 1 to 2 broad. Flowers fragrant about 1 ½ inches in diameter, pure white, segments equal, pointed. Spur curved, pointed, about 1 ½ inches long. Spikes stout, arching, about 6 inches long. Early Autumn

S **pellucidum** West Coast of Africa

Height 6 to 12 inches. Leaves 9 to 18 inches long, about 2 ½ broad, keeled beneath. Racemes pendulous varying in length, 12 to 20 flowered. Flowers an inch across, the dorsal sepal larger, spreading. Lip roughly triangular, half an inch across, minutely fringed. Flowers wholly of a deep ochreous yellow, glistening and semi transparent. Spur very short. Summer and Autumn

ANGRAECUM—cont.

S **pertusum** West Coast of Africa

Height 6 to 12 inches. Leaves strap shaped, 6 to 9 inches long, narrow. Flowers white about ½ an inch across, closely set, spur small decurved, greenish, spikes semi pendent. Summer and various

rhodostictum Probably the correct name for **mirabile** which see.

S **Rothschildianum** Uganda

Dwarf habit, height 3 to 6 inches. Leaves 4 to 8 inches long, 2 to 3 broad. Scapes pendulous 4 to 12 flowered. Pedicels short. Flowers nearly 2 inches in diameter, closely set. Sepals and petals nearly equal, the latter shorter and broader, white shaded with green along their centres. Lip rounded, white, green centrally, shading to black purple in the funnel of the spur. Spur nearly an inch long, compressed or recurved at the tip. Early Autumn

S **Sanderianum** Comoro Islands

Height 6 to 15 inches. Leaves 4 to 6 inches long, tinged with brown marginally. Spikes about 12 inches long, drooping, many flowered. Flowers about 1 ½ inches across, snow white, spur 3 to 4 inches long, a very handsome species. Early Summer and various

S **Scottianum** Comoro Islands

A very distinct species, with cylindric stems and tufted habit 4 to 5 inches high. Leaves 3 to 4 inches long, terete. Peduncles 1 to 3 flowered. Flowers pure white, nearly 2 inches across. Lip large, spreading. Spur slender about 4 inches long, tinged with brown. Summer

S **sesquipedale** Madagascar

Height 1 to 3 feet or more. Leaves dark glaucous green, 10 to 15 inches long, 1 to 2 inches broad, sheathing at base. Peduncles 2 to 5 flowered. Flowers fleshy, large, 5 to 7 inches across, ivory white, sepals and petals nearly equal, spur about a foot long. Winter

superbum Madagascar

Much confusion exists between this species and eburneum of which it is often called a variety. It strongly resembles that species but is distinguished by a lip as broad or broader than long and a larger spur. The flowers on the whole are rather larger than those of A. eburneum. Winter

virens **syn. eburneum var.**

ANGULOA.

A genus of large handsome flowered orchids, remarkable for the curious structure of the blooms. In each case the fleshy sepals and petals assume a tulip like form encircling the column and lip, which latter organ is so hinged that it oscillates backwards and forwards between the front of the column and the angle made by the inner edge of the two lateral sepals, the apices of which are pro-

ANGULOA—cont.

longed into slightly divergent, somewhat curved points, the curve being strongly pronounced in A. Cliftonii. The stout erect scapes are sheathed in bracts and carry a single flower, but strong bulbs often produce several scapes, contemporary with the young growths from the base of the bulb.

The large plicate leaves are nearly decidous, but those on the last made bulb often persist through the Winter.

The culture should be similar to that accorded Lycastes — A decided rest when growth is finished and a temperature rather below that given Cattleyas. A cool end in a Cattleya house may suit them permanently, but if unavailable they may be grown with Odontoglossums in the Summer months and rested in a slightly warmer and more dry atmosphere.

The maximum of water should be given when the root action is greatest and as with all plicate leaved orchids, moisture must be kept from the centre of the young growths and air freely admitted when possible, but draughts must be avoided.

A compost of 3 parts good fibrous loam, 1 ½ parts of finely shredded Osmunda fibre and ½ a part of dried leaves and finely broken crocks with a little sphagnum suits them well.

There is a strong family likeness, particularly when out of flower, between the members of this genus. All have stout, more or less ovoid pseudo-bulbs, six or more inches tall in Clowesii, Cliftonii etc., surmounted by broad plicate leaves 18 to 24 inches high.

I **brevilabris** Peru

At first sight very much resembles A. Ruckeri. The flowers are slightly smaller than in that species and the colour is more dull, the great distinguishing difference lies in the formation of the lip, which has very broad side lobes and a small oblong front lobe. Summer

I **Cliftonii** Peru

Flowers large and very handsome, lemon and golden yellow, more or less marked with purple-brown, chiefly at the base, but splashes and marks of the same colour extend nearly to the upper edges of the segments in some cases. Beside differing in the shape of the lip, the species is readily recognised by the strongly marked curves taken by the apices of the two lateral sepals. Summer

ANGULOA—cont.

I **Clowesii** Colombia

Flowers large, very fragrant, golden yellow, lip whitish. Spring

I **eburnea** Colombia

Flowers large, pure white with the exception of the lip which is usually pink spotted and sometimes marked with transverse bars of pink. Summer

I **Rolfei** Peru

Natural hybrid, at first supposed to be between Ruckeri and Cliftonii, but when brevilabris flowered there can be no doubt that that species is the correct parent, in place of Ruckeri. Shape and colour intermediate between the two parents and naturally showing more purple brown than Cliftonii. Summer

I **Ruckeri** Colombia

Sepals and petals yellow, shaded with green, more or less flushed and spotted with crimson red, lip crimson. Summer

I **var. sanguinea** Colombia

Flowers much more richly coloured than in the type, the crimson red extending over a greater surface. Summer

superba **syn. Acintea superba.**

I **uniflora** Colombia

Flowers not quite as large as in Clowesii, Ruckeri, etc., and as though slightly compressed giving the sepals a slightly pinched appearance at their apices. Colour soft white, spotted and flushed with pink. Summer

I **- var alba.** Colombia

Flowers white. Summer

I **- var. Turneri** Colombia

Flowers profusely pink spotted. Summer

ANGULOCASTE

The above name designates hybrids between Lycaste and Anguloa. First raised by M. de Bievre in the collection of the late King Leopold of Belgium.

ANOECTOCHILUS

Jewel orchids, so termed from their exquisitely marked foliage, which in many of the species baffles description, so varied are the shades and so daintily are they marked and reticulated.

The flowers are in erect spikes, usually but a few inches high, in no way showy. The plants have the reputation of being difficult to grow, but the real difficulty lies in finding a spot which gives them the conditions they require. Once such a position is found, the plants can be rapidly increased by propogating the side growths as they root. This propogation should be carried on as

much as possible as it is from the young strong growths that the finest foliage is obtained. In most cases the plants appear to succeed better in a South Western or Westerly aspect and as they are very impatient of draughts, should be kept under a bell glass, or small handlight. During the Spring and Summer they prefer a shady position and must be protected from sunlight.

A compost of sphagnum moss and fibre, in equal portions mixed with finely broken crocks and a few leaves suits them. Drainage must be carefully attended to and dead or decaying leaves removed.

Most of the species are of dwarf habit, producing fleshy pointed stems, tuber like in their nature, often partially deciduous and hence requiring very careful watering during the dull months. Probably in their habitat several species are subjected to occasional droughts.

Hard and fast rules cannot be laid down in regard to their cultivation, but attention to watering, sweet compost and the avoidance of draughts, with a temperature which should never fall in Winter below 60° and during the growing season never below 70°, is essential.

Note. — For the sake of convenience we have included under Anoectochilus the allied genera Macodes, Dossinia, Goodyera, Haemaria, Physurus, Zeuxine, etc., they are quite distinct botanically but, like Anoectochilus their value rests in their beautifully marked foliage. Their culture is the same and by including the plants under one heading, comparison, selection and reference can be more easily made. The correct names will be given in the proper genera. The true Anoectochilus are entirely confined to the Old World and are far brighter in their colours and more beautifully marked than those of the allied genera found in the Americas etc.

albo-lineatus syn. brevilabris.

S **argenteus** Brazil

Leaves nearly 2 inches broad, rather longer, green with silvery markings.

- var. pictus syn. pictus.

ANOECTOCHILUS—cont.

S **argyroneurus** Java

Foliage light green, mottled with dark green, veined and reticulated with silver.

aureus **syn. setaceous.**

S **Bohnhofianum** New Guinea

Magnificent, with lustrous golden reticulations on a dark olive ground. Leaves 4 inches long, nearly as broad.

S **Boylei** India

Leaves about 2 inches long, nearly as broad, pointed, olive green, reticulated and dashed with old gold.

S **brevilabris** Assam

Ground color of the leaves deep purplish green, with a central band of white beautifully veined with gold reddish beneath.

S **Bullenii** Borneo

Foliage 2 to 3 inches long, bronze green with 3 longitudinal stripes of gold, shaded copper-red.

S **concinnus** Assam

Leaves 2 to 3 inches long, neat growing, pointed, rounded basally, netted and striped with gold shaded copper red on a dark olive copper ground.

Dayi **syn. marmorata var.**

S **Dawsonianus** Malaya

Very fine. Leaves about 4 inches long, ovate, dark velvet like green, or brown green, shaded with olive with usually seven longitudinal copper coloured veins, reticulated on both sides of the mid rib with the same colour.

S **- var. splendens** Malaya

A grand form of stronger habit and with foliage of a deep almost black olive green with bright red longitudinal veins and numerous hieroglyphic markings of the same colour.

S **Eldorado** Central America

Leaves dark green shaded and feathered with light silvery green, deciduous.

S **Frederici-Augusti** Ceylon

Very handsome. Leaves 2 to 3 inches long, 1 to 2 broad, dark velvety green, striped with orange and green down the centre and netted with gold.

S **Godseffianus** New Guinea

A splendid species, robust habit with foliage of a soft bronzy green thickly reticulated with pinkish red veins and with a broad stripe of light green through the centre, edges slightly serrulated.

S **Heriotii** India

Leaves 3 to 4 inches long, 2 to 3 broad, dark brownish red in colour, reticulated with gold.

S **hieroglyphicus** Assam

Small growing. Foliage dark green prettily marked with silver grey in irregular patches.

ANOECTOCHILUS—cont.

S **intermedius (Hort.)** Ceylon

Leaves 2 to 3 inches long, about half as broad, dark olive green, striped and veined with gold.

S **Japonica** Japan

Foliage of a soft velvet like green, shaded with olive brown with a stripe of silvery white down the centre.

S **Javanicus** Java

Foliage dark olive green blotched with lighter green and faintly marked with gold, pinkish beneath.

latimaculatum **syn. Roxburghii.**

S **Leopoldii** New Guinsa

The largest of all known kinds with splendidly marked foliage as large as one's hand, of a rich, lustrous green, veined with copper red, gold and ornamented with broad green stripes.

S **lineatus** Ceylon and Borneo

Very distinct, foliage dark green with a broad central band of pale lilac, shading to white.

Lobbianus **(Planch) syn. Roxburghii**

Lobii **syn argyroneurus**

Lowii **syn. marmorata.**

C **macrantha** Japan

Leaves bordered with yellow, centrally dark green with pale green veins.

S **marmorata** Borneo

Leaves 4 to 5 inches long by 3 broad, of a dark velvet like green, shading to orange brown, with longitudinal and latidudinal lines of gold.

S **- var. Dayi** Borneo

Dark velvety green leaves, veined copper red.

S **Nevillianus** Borneo

Small growing foliage dark green, shaded with copper and bronze and marked with two rows of pale blotches.

S **Ordianus** Java

Really a variety of Dawsonianus but more brightly coloured.

S **Ortgiesii** New Guinea

Dwarf habit, foliage dark green, velvet-like, with darker spots and in the centre a whitish band.

S **petola** Java and Borneo

A very handsome and one of the most popular species. Leaves 3 inches long by 2 inches broad, olive green with longitudinal and cross vein of bright yellow, the cross veins extending between two of the long veins.

ANOECTOCHILUS—cont.

S - **var. ornatus** Java and Borneo

Foliage with the ground colour much darker than in the type, the yellow cross veins brighter and more irregular.

picta **(Goodyera) syn. macrantha.**

S **pictus** Brazil

Foliage dark green, with a broad silvery band and netted with silver veins centrally.

C **pubescens (R. Br.)** North America

Foliage dark green with a central silvery band and silvery reticulations.

S **querceticolus** New Orleans

Foliage light green, blotched with silver grey on each side of the mid rib.

S **regalis (Blume)** Ceylon

Very handsome. Leaves dark velvety green, shaded with bronze, with regular and netted golden veins.

S - **var. cordatus** Ceylon

Foliage rounder than in the type and with broader golden veins.

S - **var. grandifolius** Ceylon

The green colour in the foliage is lighter than in the type, and the leaves are banded with a network of gold.

regalis **(Low) syn. setaceus.**

S **Reinwardtii** Malaya

Foliage of a deep velvet like green, reticulated with golden veins.

S **Rollissoni**

Foliage 4 inches or more long, 2 to 3 broad, rich dark green, often shaded with bronze, margined, striped and blotched with pale yellow ; purple beneath.

S **Roxburghii** Java, India, Singapore, etc.

Foliage dark bronzy-green, reticulated with copper ; the centre of each leaf bright green netted with gold.

S **Sanderianus** New Guinea

Very distinct and handsome. Leaves 4 inches long by 2 broad, dark green, velvet like with broad, bright green,longitudinal veins and cross veins of bright copper red, strongest at the apex, edges grey, serrulated.

S **setaceus (Blume)** Java

Foliage of a dark velvet like green with still darket markings.

setaceus **(Lindley) syn. regalis (Blume)**

striatus **syn. lineatus.**

Veitchianus **syn. petola.**

I **velutina** Japan

Neat habit. Foliage deep velvety green: shaded with purple, with a central purple stripe.

xanthophyllus **syn. Frederici-Augusti.**

ANÆCTOMARIA

Hybrids between Anœctochilus and Hæmaria.

ANSELLIA

A genus of handsome strong growing epiphytal and semi-epiphytal orchids. Confined to Africa, chiefly on the South East and West.

They are of easy culture and though the individual flowers are but of medium size, the long branching panicles produced by strong plants, more than compensate for any lack of size, while the prevailing colours, shades of yellow and brown, give a pleasing variety to the usual orchid colours.

The genus is distinguished by tall cylindrical ribbed pseudo-bulbs, usually of a tawny hue, surmounted and sheathed on the upper parts by Cymbidium like foliage. The spikes are produced from the apices of the bulbs.

A well drained open compost of 3 parts fibre, crocks, one part moss, a few leaves and a little fibrous loam suits them and careful potting and watering is essential as the plants are impatient of root disturbance, most of them making quantities of aerial roots, just above the pots.

The general treatment should be much the same as that given Cymbidiums excepting that a higher temperature must be maintained and a decided rest given when growth is matured. All the species here given are classed as « Stove «, but unless the plants have been obtained from very hot localities, they will succeed well in a intermediate house.

It is quite possible that all the known forms are but sub varieties of one or two species.

S **Africana** Sierra Leone and Fernando Po

Height 2 to 3 feet. Leaves 6 to 12 inches. A variable species both in habit and floral colouring. Small plants and probably certain varieties may have comparatively few flowers on a spike, 8 to 20, but as many as 170 have been seen, on a singe branching raceme. Sepals and petals nearly equal, fleshy about 1 inch or more long, by one third broad ; yellow, transversely marked with heavy red brown spots often fused into irregular bars. Lip three lobed, the side lobes marked as the sepals and petals, the mid lobe bright yellow, with two prominent yellow keels, the margin slightly upturned and gophered. Externally, the lip is light yellow. Column reddish. Winter

ANSELLIA—cont.

S - **var. lutea** Natal

Habit considerably less than in the type. Flowers lighter in colour and more sparsely spotted. Autumn and Winter

- **var.** *nilotica* **syn. nilotica.**

S **confusa** West Africa

Habit exceeding that of Africana, with longer, more drooping and more narrow foliage. The flowers are slightly smaller than those of Africana and less highly coloured. It is more epiphytal in habit and requires a warm moist atmosphere throughout the year. Winter

S **Congoensis** West Africa

Pseudo-bulbs cylindrically clavate 24 to 30 inches high, ribbed, closely sheathed with whitish brown tipped membrane. Leaves from the upper portion, strapshaped 10-15 inches long, ribbed. Spikes 2 feet or more, branched carrying 50 to 100 flowers. Sepals and petals over 1 inch long, the petals slightly the broader. Lip three lobed, front lobe clear yellow with undulated margin. Side lobes erect, edges level with column, pinkish white, striped with light purple edged with yellow. Sepals and petals light greenish yellow, nearly covered with spots and blotches, often confluent, of red brown. Spring

S **gigantea** Natal

Differs from Africana in the paler colour of its flowers which are also slightly smaller and with narrower segments. The lip carries three keels, the front lobe flat. A. gigantea, or as it is often called A. Natalensis, hardly requires so much heat as do the West African species and will grow freely with Cattleyas. Autumn and Winter

S **humilis** East Africa

Dwarf habit. Flowers much as in Africana, if anything slightly larger, pale yellow, blotched with red brown. Winter

Natalensis **syn. gigantea.**

S **nilotica** East Africa

Often regarded as a variety of A. Africana. It strongly resembles that species in habit, but seldom attains the same dimensions. The inflorescence is shorter, but the flowers are much brighter in colour, more so than in any of the known species. Winter

AOPLA **syn. Habenaria.**

ARACHNANTHE

A genus closely allied to Vanda but differing chiefly in the fact that the lip is not fixed as in Vanda : but is articulated to the base of the column and capable of motion. The species are well worth cultivating on account of the size, curious structure and remarkable colouring of the flowers. A. Lowii, the giant of the genus,

ARACHNANTHE— cont. is probably, when in flower, the most remarkable of all orchids. Their culture should be similar to that accorded Vanda suavis, insignis etc.

S **Annamensis** Annam

A most remarkable species. Rare. Habit somewhat resembling that of A. Clarkei, but with the leaves, more narrow and stiff. The inflorescence is carried on an ascending scape, 4 to 8 flowered. Flowers large, 5 to 6 inches in height by nearly 4 inches in breath. Segments narrow almost equal. The upper sepal erect, ending in a roughly shaped hoop, the point touching or nearly so. Petals strongly arched, with the sepals heavily and irregularly blotched with deep red-brown on a yellowish ground. Lip very small, pointed, whitish, striped and flushed with purple.

Summer

I **bilinguis** Burma

Habit resembling that of A. Clarkei. Leaves 4 to 8 inches long, ½ an inch or more broad, stout. Scape 4 to 6 flowered. Flowers about 1 ½ inches in diameter. Segments nearly equal, yellowish, blotched, marked and suffused with red brown, particularly at the margins. Lip small yellowish. Summer

S **Cathcartii** Himalaya

Height 2 to 4 feet or more. Leaves 6 to 8 inches long, about 1 inch broad, leathery. Scapes short 4 to 5 flowered. Flowers large, 3 inches or more in diameter, fleshy, sepals and petals yellowish, the yellow nearly obscured with thin bands of red, lip white, yellow and red. Column greenish. The lip is curiously constructed and like the same organ in A. Clarkei bears a fanciful resemblance to the frog and under side of a horse's hoof. The resemblance being the most vivid in this species. Summer and Autumn

S **Clarkei** Himalaya

Habit similar to that of A. Cathcartii, but less. Foliage slightly longer and more pointed. Flowers usually 4 on short spikes, slightly smaller than in Cathcartii. Sepals and petals yellow thickly barred with chestnut brown, lip chesnut brown and whitish. Autumn

S **Lowii** Borneo

A magnificent species. Height 2 to 12 feet. Foliage dark glossy green, 24 inches or more long, 2 to 3 inches broad, often acquiring a brownish tint in Summer. Spikes flexuous 6 to 12 feet long, produced from axils of leaves, as many as 25 spikes have been produced on a single plant in England. All in flower at the same period. Flowers about 3 inches in diameter, carried at regular distances on short hairy pedicels : yellow blotched with rich chocolate red, lip rather small, contracted, pointed : light yellow, spotted and marked with purple. The basal pair of flowers on each spike are yellow spotted with crimson and borne at greater intervals, occasionally the 3 or 4 basal flowers are similarly coloured or so marked as to show a transition colour state between the two forms of flowers.

Late Summer

ARACHNANTHE—cont.

S **moschifera** Malaya

Habit much as in A. Cathcartii but taller with more substantial texture to the foliage. Flowers as in Annamensis,shaped very similarly but considerably smaller. Flowers greenish white or yellowish, blotched with reddish chocolate, musk scented, produced in succession, the spike continuing to produce them for a considerable period. Summer

S **Rohaniana** Borneo

A companion to A. Lowii, possibly a variety of that species, resembling it in habit but the flowers are lighter in colour and usually produce 4 orange yellow flowers at the base with a longer interval between them and the normally coloured flowers. The plant apparently attains the same dimensions as A. Lowii, but the foliage is more ascending and shorter. The species is extremely rare.

Early Autumn

ARACHNIS MOSCHIFERA **syn. Arachnanthe moschifera.**

ARETHUSA CILIARIS **syn. Bartholina pectinata.**

ARGYORCHIS JAVANICA **see Anœctochilus Javanicus.**

ASCOCHILUS **syn. Geodorum.**

ARPOPHYLLUM

A small genus with slender stem-like compressed pseudo bulbs bearing a coriaceous narrow leaf at the junction of which with the pseudo bulbs are produced dense, cylindrical racemes of flowers. Individually these are very small but in the aggregate are quite conspicuous owing to their bright colour. Their culture is simple, resembling that given to Cattleyas with which they may be grown with advantage. All the species have a strong resemblance to each other, differing chiefly in size and colour of the flowers. Their thick leaves with the hard texture of the pseudo bulbs denote the need of a decided rest.

I **cardinale** Colombia

Height of stem and leaf about 2 feet, sometimes more. Spikes 6 to 12 inches. Flowers light rose colour, lip deeper in colour than the sepals and petals.

Summer

I **giganteum** Mexico

Height 20 to 30 inches. Spikes 6 to 12 inches. Flowers with rose purple sepals and petals and a deep red purple lip. Spring

I **medium** Guatemala

Very similar to giganteum but usually less in habit and with smaller spikes. Flowers rose purple. Spring

ARPOPHYLLUM—cont.

I **spicatum** Mexico

Height 12 to 18 inches. Spikes 6 to 9 inches long. Flowers slightly larger than in the other species with a more prominent lip. Sepals and petals pale rose purple, lip bright purple. Early Spring

squarrosum **syn. Epidendrum.**

ARUNDINA

A genus of terrestrial orchids, confined to the Old World. They resemble Sobralias in habit and though not so strong growing require similar treatment and compost. The flowers are not unlike those of Sobralias or Cattleyas. They are not produced, as in Sobralias, consecutively, but at the termination of the stronger stems, the apices of which become bracteate.

Affine syn. chinensis.

S **bambusæfolia** Tropical Asia

Stems slender, reed like, 2 to 4 feet high. Leaves 6 to 10 inches. Flowers 2 to 3 inches across. Sepals and petals nearly equal, light rose. Lip slightly lobed, rose colour, the front lobe deep rose purple, throat white, orange lined.

Late Summer

S **Chinensis** China

Habit less and with smaller narrower leaves than A. bambusaefolia. Flowers seldom reaching 2 inches in diameter, pale lilac with a crimson blotch on the lip.

Summer

S **densa** Singapore

Height 1 ½ to 3 feet. Flowers about as large as those of bambusaefolia but produced in cluster like form. Rose violet in colour, the lip bordered with crimson, fragrant. Summer

ASPASIA

A small genus of medium sized epiphytal orchids. The flower spikes are produced from the base of the usually compressed pseudo bulbs at the edge between it and the sheathing basal leaves.The habit somewhat resembles that of Brassias or Miltonias of the spectabilis section and the flowers are not unlike those of a small Zygopetalum in shape, carried on erect, often solitary, or few flowered, scapes. All the species require a compost as for Odontoglossums and when resting should not be dried too severely. A moist atmosphere and a rather shady position are essential to them when growing.

All the species bear a strong family resemblance.

ASPASIA—cont.

I **epidendroides** Central America

Height of pseudo bulbs and leaves 9-12 inches. Flowers 2 inches or more in diameter, sepals and petals narrow, creamy white, lip faintly marked with lilac. Spring

I **lunata** Brazil

Height 9 to 12 inches. Scapes usually several flowered. Flowers green and white, sepals and petals irregularly barred with chocolate, lip white, marked centrally with a roughly marked crescent shaped violet blotch. Early Spring

I **odorata** Brazil

Height 6 to 12 inches. Flowers white spotted with chocolate, lip whitish marked centrally with violet. Spring

I **principissa** Central America

Height 8 to 15 inches. Scapes 2 to 3 flowered. Flowers large. Sepals and petals greenish marked with brown chocolate, lip white marked with light mauve. Spring

AULIZA **syn. Epidendrum.**

BARKERIA

elegans **syn. Epidendrum elegans**
Lindleyanum **syn. Epidendrum Lindleyanum**
Skinneri **syn. Epidendrum Skinneri**
spectabilis **syn. Epidendrum spectabilis.**

BARTHOLINA

Burmanniana **syn. pectinata**
Lindleyana **syn. pectinata.**

C **pectinata** Cape of Good Hope

A beautiful terrestrial orchid producing from a tuberous root-stock, a single leaf and a flower scape about 9 inches high, bearing a single, rather large flower with small white, violet shaded, sepals and petals and a broad, expanded lip, rounded in outline, beautifully fimbriated, in colour a shade of violet with a green centre. The plant should be grown in a cool house, potted in fibrous loam, with an addition of sand and leaf mould and kept moderately dry when resting.

BATEMANNIA

A genus allied to and somewhat resembling Zygopetalum.

Burtii **syn. Zygopetalum Burtii.**

I **Colleyi** British Guiana

Pseudo bulbs 2 to 3 inches high, light green roughly four angled. Leaves 6 to 9 inches long. Racemes pendulous, 1 to 5 flowered. Flowers 2 to 3 inches across, sepals and petals purplish-brown, lip white marked with red basally. The treatment except for temperature should be that given Colax jugosus. Spring

BATEMANNIA—cont.

grandiflora syn. Zygopetalum grandiflorum.

meleagris **syn. Zygopetalum meleagris.**

Wallisii **syn. Zygopetalum Wallisii.**

BIFRENARIA

A genus allied to Maxillaria and Lycaste and requiring similar culture but benefiting by a more severe rest than that given Maxillarias. Usually the species have stout four angled rather pointed pseudo bulbs, bearing a thick coriaceous leaf and producing, with the exception of aurantiaca and its allies, large flowers, solitary or in twos, on short stout scapes, from the base of the bulbs. Of the species here enumerated, atropurpurea, Harrisoniæ, inodora, pubigera, tyrianthina and tetragona, might well be classed under Lycaste. The other section in which aurantiaca may be selected as typical is distinguished by its arching several flowered scapes and smaller, different shaped pseudo bulbs.

S **atropurpurea** Brazil

Pseudo bulbs, 2 to 3 inches high, monophyllous. Leaves 6 to 10 inches long. Scapes 1 to 3 flowered. Flowers 2 inches in diameter, sepals and petals dull red, lip white nearly suffused with rose, fragrant. Spring

S **aurantiaca** British Guiana

Pseudo bulbs, flattish, overlapping. Leaves 5 to 8 inches long. Scapes about 12 inches long. Flowers about 1 inch in diameter, deep yellow, orange spotted. Autumn

bella **syn. Cœlia bella.**

S **Charlesworthii** Brazil

Near aurantiaca. Scapes about 12 inches long, arching, pseudo bulbs, roughly four angled. Leaves 6 to 9 inches long. Flowers yellow, lip spotted with red brown, hairy. Autumn

Hadwenii **syn. Scuticaria Hadwenii**

Dallemagne **syn. tyrianthina**

I **Harrisoniæ** Brazil

The most common of the species. Pseudo bulbs, four angled, ovoid, 2 to 3 inches high, monophyllous. Leaves coriaceous, 9 to 12 inches long, 2 to 4 broad. Scapes short, stout, erect, 1 to 2 flowered. Flowers large, fleshy about 3 inches across. Sepals and petals varying from cream white to ochreous yellow, lip hairy, reddish purple with deeper veins. Spring

- var. pubigera **see pubigera**

BIFRENARIA—cont.

I **inodora** Brazil

Resembling B. Harrisoniae in habit. Sepals larger than the petals, greenish yellow, petals brighter in colour. Lip yellowish white sometimes rose tinted, front lobe haired. Spring

I **pubigera** Brazil

Sometimes considered a variety of Harrisoniæ but distinct in its smaller and more rounded pseudo bulbs and its more compact, but altogether, smaller habit. Flowers as in Harrisoniae, 2 to 3 inches across, more expanded, rounded in outline, sepals and petals white flushed with rose, lip deeper rose with still deeper veins and short whitish hairs. The side lobes with deep purplish rose veins on a yellow ground. Summer

S **racemosa** Brazil

Allied to aurantiaca and Charlesworthii. Pseudo bulbs small, clustered. Leaves 4 to 6 inches. Scape longer, racemose. Flowers about 1 to 1 ½ inches across, pale straw yellow, the lip lighter, marked with crimson specks. Summer

S **bicornaria** Peru

Allied to aurantiaca but with erect or semi erect spikes, 10 to 15 flowered. Flowers bright yellow spotted with brown purple. Early Summer

I **tetragona**

Habit as in Harrisoniae, but slightly in excess. Pseudo bulbs, yellowish, wrinkled, strongly four angled, bearing a single leaf 6 to 9 inches long 3 to 4 broad. Scapes lateral and recurving 3 to 5 flowered. Sepals 1 inch broad basally by 1 ½ long, acuminate. The two lower connect at base forming a chin and with the dorsal partially enclose the narrower petals. Colour greenish yellow striped irregularly and suffused with fuscous red, column white, greenish beneath. Lip 3 lobed, fleshy, deep purple above, whitish beneath. Late Summer

I **tyrianthina** Brazil

Resembling Harrisoniae in habit. Scapes 1 to 3 flowered. Flowers large, often more than 3 inches in diameter. Flowers wholly of a reddish purple varying in density of colour, lip with deeper veins. Spring

S **vitellina**

Pseudo bulbs clustered, four angled, 1 to 2 inches long, single leaved. Leaves 9 to 12 inches long, Scapes few flowered 6 to 10 inches long. Flowers about 1 inch across, orange yellow with a deep brown crimson blotch on the lip. Summer

BLETIA

A genus of terrestrial orchids allied to Phaius, chiefly distributed through Central America. The oldest species cultivated — B. hyacinthina — a native of China,

BLETIA—cont.

differs slightly from the American species in that the column is enfolded by the side lobes of the lip.

All the species are distinguished by round flattish corm like pseudo bulbs and tall plicate grasslike deciduous, or nearly deciduous, foliage. The slender flower stalks are equally tall or taller, erect or arching by their own weight. The flowers are carried on the terminal portion and though not large are effective from their bright colouring.

A compost of fibrous loam, leaf mould, sand and broken crocks, well drained suits them. They naturally go to rest in the Winter.

B. hyacinthina may be grown out of doors in the extreme South of England, but a warm south border or nook should be selected for it and even in such a position a little protection is often necessary in Winter.

The individual flowers are from 1 to 2 inches in diameter, the sepals and petals nearly equal : the lip usually laminated and gophered, 6 to 12 flowers are borne on the scapes.

The genus is well marked but formerly included a great number of species from other genera, Brassavola, Laelia, Phaius, Spathoglottis etc. so distinct that there appears to be no need to give a full list of all the synonyms here.

S **campanulata** Mexico

Height 2 to 3 feet. Flowers 6 to 10, bell shaped, deep purple, with a white central stripe and suffusion. Summer

S **catenulata** Peru

Height about 3 feet. Spikes 6 to 10 flowered. Flowers deep rose purple, lip strongly ridged. Summer

S **coccinea** Mexico

A distinct species, less in habit than the majority. Flowers of medium size. Sepals and petals orange yellow, lip yellowish with purple streaked side lobes. Summer

I **florida** West Indies

Height 2 to 3 feet. Spikes 6 to 10 flowered. Flowers lilac rose. Late Summer

I **Godseffiana** Central America

Height 3 feet. Flowers smaller than in many of the species, light purple rose, darkest on the lip. Summer

BLETIA—cont.

C **hyacinthina** China and Japan

Height about 2 feet. Spikes 6 to 12 flowered. Flowers light purple, lip with deeper purple ridges. The side lobes enfold the column. Nearly hardy. Early Summer

pallida **syn. florida.**

S **patula** Hayti

Height 2 to 3 feet. Foliage narrow. Spikes sometimes branched. Flowers deep purple, well expanded. Summer

pulchella **syn. verecunda.**

purpurea **syn. verecunda.**

sanguinea **syn. catenulata**

S **Shepherdii** Jamaica

Height 2 to 3 feet. Spikes often branched, several flowered. Flowers fairly large, rich purple, with white ridges on the lip. Summer

S **Sherrattiana** New Granada

Height 3 to 4 feet. Spikes 8 to 15 flowered. Flowers rather closely set, warm rose purple in colour, the petals much broader than the sepals. The lip carries 3 yellow ridges on a lighter white ground. Summer

S **verecunda** West Indies, etc.

Height about 4 feet. Scapes several flowered. Flowers light rose, lip deeper in colour, the side lobes streaked with yellow and purple basally. Early Summer

S **Watsonianum** Central America

Height 3 to 4 feet. Spikes about 9 flowered. Flowers large, 2 inches across. Sepals and petals magenta, lip magenta shaded with blue, with a yellow disc on a whitish ground. Summer

BLETILLA **syn.** BLETIA.

BOLBORCHIS **syn.** CŒLOGYNE.

BOLLEA **syn.** ZYGOPETALUM.

BONATEA

A genus of terrestrial orchids, allied to Habenaria and requiring similar treatment under cultivation. The flowers have not the bright colour which distinguish many of the Habenarias but their remarkable appearances renders them both interesting and attractive.

All the species are very similar in appearance and have fairly large flowers evidently highly modified for the purpose of fertilization. The labellums have 3 narrow lobes, and at first sight appear to be much divided, but in reality the additional lobes are divisions of the petals which are united to the base of the column, the stigmatic

BONATEA—cont.

lobes are elongated and the side lobes of the rostellum are also lengthened. The column is hooded and the lip ends in a long cylindrical spur.

The habit is that of Habenaria.

I **antennifera** Rhodesia

Height, when in flower, about 3 feet or more. Leaves 4 to 6 inches long, passing into bracts as they reach the inflorescence. Several flowered. The flowers are rather larger than those of B. speciosa, the front lobe of the lip being about 1 ½ inches long and the spur nearly 2 inches. The parts are more narrow. Colour green and white. Autumn

C **speciosa** South Africa

Habit less than in B. antennifera with slightly smaller flowers but broader segments. Colour green and white. Late Autumn

I **Ugandæ** Uganda

Resembling speciosa in habit but with flowers more contorted in appearance and with longer segments. Spur nearly 5 inches long. Colour green and white.

BOTHRIOCHILUS **syn.** CŒLIA.

BRASSAVOLA

A genus of epiphytal orchids, distributed chiefly through Central America. There can be no doubt but that they really form a sub section of Epidendræ. They are distinguished by usually white or greenish white flowers, solitary, coriaceous leaves, small pseudo bulbs, often cylindrical or compressed, and an elongated « beak » to the ovary.

Many species grow downward, hence are often better accomodated on a raft or tile. Treatment and compost as for Epidendrums, the majority of the species preferring a decided rest and a light airy position in the house.

B. Digbyana and B. glauca have been frequently used for hybridizing with Cattleyas and Laelias and at one time were included with Laelias, but are now referred back to Brassavola. Although their characters are slightly different to the typical Brassavola, they conform better with this genus than with Laelias.

BRASSAVOLA—cont.

S **acaulis** Central America

Compact habit, short thin pseudo bulbsand narrow rush like leaves, 6 to 12 inches long. Flowers 2 to 3 inches across, with narrow white, green tinged sepals and petals, the lip heart shaped, pure white, the base of the tube spotted with red.

Autumn

cordata **syn. subulifolia.**

cucullata Trop. America

Height of pseudo bulbs and narrow rush like foliage, about 12 inches. Flowers about 2 inches across, sepals and petals white, shaded green, lip white, cucullate. Autumn

cuspidata **syn. cucullata.**

Digbyana Honduras

Habit resembling that of Cattleya and Laelia. Pseudo bulbs, stout, compressed slightly, 3 to 8 inches, bearing a fleshy, rigid, glaucous leaf, 4 to 8 inches long, both leaf and bulb, covered with a white mealy flour, which gradually fades from the older bulbs and leaves. Flowers usually one, large, 4 inches or more across, slightly fragrant. Sepals and petals narrow in proportion, white shaded green, lip creamy white, broadly rounded, with a heavy fringed margin, which forms the distinguishing feature of this species and is usually reproduced in its hybrids.

Various

elegans **syn. Tetramicra rigida.**

I **fragrans** Brazil

Habit tufted, usually drooping, with short narrow pseudo bulbs and terete coriaceous foliage, 6 to 9 inches long. Flowers usually in threes, 1 to 2 inches across, white, with cordate attenuated lip, very fragrant. Early Autumn

I **glauca** Mexico

Habit as in Digbyana but much less. Flowers large but smaller than in Digbyana, slightly fragrant, sepals and petals white, often tinted with green, lip white sparsely marked with pink and purple or entirely white, fringeless.

Spring

grandiflora **syn. nodosa**

I **lineata** Central America

Habit much as in cucullata but with more slender foliage, deeply channelled above and tapering. Flowers with creamy white sepals and petals, lip pure white.

Summer

I **nodosa** Central America

Habit as in cucullata but the foliage is more stout. Flowers about the same size, white, lip spreading, rounded. Autumn

odoratissima **syn. cucullata.**

I **Perrinii** Brazil

Resembles B. fragrans in habit, but has shorter pseudo bulbs and fleshier leaves. Flowers medium size, sepals and petals greenish white, lip pure white, sometimes tinted green basally. Summer

BRASSAVOLA—cont.

I **subulifolia** West Indies

Habit resembling cucullata but less, with smaller white fragrant flowers,which are carried 2 or more on short spikes, lip porcelain white, heart shaped, the tube like base marked with dull purple. Summer

I **tuberculata** Brazil

Possibly a form of fragrans, but producing larger flowers which are further distinguished by purple spots on the sepals and petals. Summer

I **venosa** Honduras

A pretty compact habited species, less in growth than cucullata and producing smaller flowers with creamy white sepals and petals and a white, veined lip. Summer

BRASSIA

Epiphytal American orchids allied to Oncidiums and resembling that genus, Miltonias and Odontoglossums in general appearance. The flowers, carried on a simple spike, produced from the base of the pseudo bulbs, are remarkable in that the sepals and petals, particularly the former, are greatly attenuated, giving the inflorescence a fantastic but attractive appearance. The pseudo bulbs are usually flatly compressed or ovoidly conical in shape, carried at intervals on the rhizome.

The culture should be that accorded to Oncidiums, but the resting season should not be so pronounced. The plants are impatient of too much compost around them, and like Laelia anceps have a tendency to raise themselves and extend beyond the pot, or pan rim. Drainage should be good and the compost, similar to that given Oncidiums, kept open by the addition of finely broken crocks. A moist atmosphere when growing is essential.

angusta **syn. Lawrenceana.**

I **antherotes** Trop. America

Bulbs compressed, 2 to 4 inches high. Leaf 8 to 10 inches. Spike 6 to 12 flowered, arching 12 to 18 inches long. Flowers about 6 inches diameter, sepals much longer than the petals, lip about 1 inch broad, slightly constricted basally, produced into a decided apiculus. Color orange yellow, all the segments spotted or heavily blotched with deep brown on their basal halves. Summer

aristata **syn. verrucosa.**

BRASSIA—cont.

I **brachiata** Guatemala

A strong growing species with stout roughly ovoid pseudo bulbs, 3 to 5 inches long. Leaves stout, 9 to 12 inches long. Spikes 2 to 3 feet long, 6 to 12 flowered. Flowers 6 inches long, green, tinted with yellow, lip yellowish, all the segments spotted basally, with brownish green spots., the petals more so than the sepals. Those on the lip, more or less, wart like. The crest slightly marked with orange. Early Summer

I **caudata** West Indies

Pseudo bulbs flattish, 3 to 4 inches high. Leaves about 3 times as long. Scapes 6 to 10 flowered, about 18 inches high. Sepals and petals narrow, tail like, the lower sepals about 6 inches long, the upper sepal about half as long, the petals short in comparison even to the dorsal sepal, lip narrow, extended into a long tip. Colour of flowers light green, tinted yellow, spotted with dark brown on the basal portions of the sepals and petals and red brown on the lip, which is of a brighter yellow than the sepals and petals. Summer

cinnamomea **syn. Kieliana.**

cochleata **syn. Lawrenceana.**

Cowanii **syn. verrucosa.**

coryandra **syn. verrucosa.**

I **elegantula** Mexico

Dwarf habit. Foliage stiff, glaucous, about 4 inches high, pseudo bulbs very small. Flowers carried 2 to 5 on a short raceme 4 to 5 inches long. Flowers nearly 1 inch across, sepals and petals nearly equal, greenish, marked transversely with brown bars. Lip whitish with a few basal brownish spots. Summer

I **Forgetiana** Peru

A distinct species resembling maculata in habit but with taller pseudo bulbs and longer foliage. Spikes more erect, bearing the flowers closely set on the upper half. Sepals narrow, about 3 inches long, spreading, petals much smaller, inclined inwards, greenish white with chocolate purple markings, almost concentric on the basal portions. Lip broader than the sepals, but narrow in proportion to its length, apiculate, lighter in colour than the other segments, crest orange yellow. Winter

I **Gireoudiana** Costa Rica

Pseudo bulbs broad, flattish, 3 to 4 inches high. Leaves 6 to 12 inches long. Scapes 15 to 24 inches, about 9 flowered. Sepals and petals yellow, green tinted. The two lower sepals about 5 inches long. Upper sepal shorter, petals 2 inches long, heavily spotted or covered with brown on the basal half, the sepals spotted brown basally, lip sharply pointed, light yellow, the base and centre spotted with brown, crest shaded with orange. Summer

guttulata **syn. maculata.**

BRASSIA—cont.

/ **Kieliana** Colombia

A rather small growing but handsome species. Pseudo bulbs flattish about 2 inches high, somewhat clustered. Leaves 6 to 9 inches. Scapes 12 to 18 inches, several flowered, with a large bract beneath each flower. Sepals nearly 3 inches long, petals about half their length, yellowish green, spotted basally with brown, the lip yellowish white, with a few brown spots on the crest, developed into a sharp tail. Summer

/ - **var. tristius**

Sepals and petals deep amber brown, lip lemon yellow, with a longer tail than in the type.

S **Lanceana** Guiana

Pseudo bulbs, often 5 inches high, diphyllous, much flattened. Leaves 6 to 12 inches long. Spikes about 18 inches long, several flowered. Flowers much resembling those of Kieliana, but the lip is more undulate and not produced into such a decided tail. Summer

S **Lawrenceana** Demerara

A strong growing species, in habit resembling Lanceana. The flowers are slightly larger than those of Kieliana and Lanceana, the lip is more expanded and the colors brighter. Summer

S - **var. longissima** Costa Rica

Flowers much larger. The sepals, drawn out to a length of 7 inches or more, with the petals, are a bright orange yellow, both have large red purple brown spots on the basal portions: the lip is bright yellow with a few purplish spots at the base. Summer

/ **Lewisii** Colombia

Pseudo bulbs, very flattened, 2 to 3 inches high. Leaves 5 to 7 inches long, rather broad. Racemes 12 to 18 inches. 6 to 12 flowered. Lower sepals nearly 3 inches long. the upper about half their length, Petals less than an inch, all narrow, pointed, yellow, spotted basally with dull brown. Lip about 1 inch long, pointed, coloured as the sepals but marked with white and orange on the crest. Summer

longiloba **syn. verrucosa.**

I **maculata** Jamaica

Pseudo bulbs, 3 to 4 inches high, much compressed. Leaves 6 to 9 inches long. Scapes 12 to 18 inches, 6 to 12 flowered. Sepals about 3 inches long, petals shorter, greenish yellow, spotted basally with brown, lip spreading, whitish, spotted with purple and brown centrally. Early Summer

I - **var. guttata** Jamaica

Spikes somewhat longer but flowers less in size than the type and more heavily spotted. Summer

macrostachya **syn. Lanceana.**

BRASSIA—cont.

odontoglossoides **syn. verrucosa.**

I **picturata** Central America

Pseudo bulbs, 2 to 4 inches high. Leaves 6 to 9 inches. Spikes often 18 inches long, arching. Flowers much as in Lewisii, ochre yellow, shaded with green and barred with chocolate brown. Summer

I **signata** ?

Habit much as in verrucosa. Pseudo bulbs, 3 to 5 inches long, sometimes 3 leaved. Leaves 9 to 12 inches long. Spikes 12 to 15 inches long. 6 to 10 flowered. Sepals about 2 inches long, the petals much smaller, light green, the basal halves spotted with brown, lip slightly concave, whitish, sparingly marked with brown basally. Summer

I **verrucosa** Guatemala

Pseudo bulbs, flatly ovoid, 3 to 4 inches high. Leaves 6 to 12 inches. Scapes arching, 1 to 2 feet long, bearing 6 to 15 flowers. Flowers spreading, the segments narrow, pointed. Sepals nearly 4 inches long. Petals half their length, greenish spotted with black-purple. Lip white, warted with black-green.

Spring and Early Summer

BRASSOCATTLEYA

A name compounded to designate hybrids between Brassavola and Cattleya. The free use made of B. Digbyana in particular, by hybridists has given birth to a most beautiful section of orchids, combining the fringe of B. Digbyana with the size, and to a certain extent the colour, and formation of the Cattleya or Laelia parent used. B. glauca has also given good results, but the remaining Brassavolas, from the comparatively small size of their flowers, are not so effective, though several pretty but not large flowered hybrids have resulted.

Before hybridists had taken the two genera in hand, a plant imported from Brazil, and termed Laelia Lindleyana, had long been known in orchid collections. There can now be no doubt but that it is really a natural hybrid between B. tuberculata or a closely allied Brassavola and Cattleya intermedia. As a natural hybrid it calls for mention here.

I **Lindleyana** Brazil

Stems slender, terete, bearing 1 to 2 stout linear leaves, habit tufted, height 6 to 12 inches. Flowers 2 to 3 inches across, 1 to 2 on short spikes, sepals and petals narrow, blush white, lip spreading, white, suffused and marked with rose.

Autumn

BRASSODIACRIUM

The name given to hybrids between Brassavola and Diacrium. None occur naturally.

BRASSOEPIDENDRUM

Designating hybrids between Brassavola and Epidendrum. The only plants known have been raised in Gardens.

BRASSOLÆLIA

A name applied to hybrids between Brassavola and Laelia. All known are of artificial origin.

BRASSOLÆLIOCATTLEYA

This title includes all hybrids between Brassavola and Laeliocattleyas, Brassocattleya with Laelias, Brassolaelia with Cattleyas, and the reverse crosses.

BROUGHTONIA

A small genus allied to Epidendrum and requiring similar culture. The plants quickly get into bad condition if the compost is allowed to become sodden for any length of time, hence they should be grown on rafts or in small pans, and after growth has ceased, water must be given very occasionally, and the plants exposed to as much light as possible. A position near the glass is frequently the most suitable.

S **lilacina** San Domingo

Better known under the name of Laeliopsis Domingensis. Pseudo bulbs compressed, ovoid ; bearing 2 to 3 leaves, rarely attaining 6 inches. Scapes 12 to 18 inches long, bearing usually 3 to 6 flowers, nearly 2 inches across. Sepals and broader petals light rose, with deeper veins. Lip Cattleya-like in shape : the front lobe rose purple with deeper veins, the side lobes whitish.

Summer

S **sanguinea** Jamaica

Habit compact, pseudo bulbs 1 to 2 inches high, compressed. Leaves 3 to 4 inches long, coriaceous, panicles arching, slender, several flowered. Flowers over 1 inch across, rounded, petals much broader than sepals, blood colour. In this species the spur of the lip is adnate to the ovary.

BRYOBIUM **syn. ERIA**

BULBOPHYLLUM

A genus of epiphytal orchids widely distributed and very variable, both in their habit and inflorescence. Though the greater number are of botanical interest only, so remarkable is the structure of their flowers and so beautiful and dainty their colouring and markings, that there are but few species which are not worthy of a place in collections, even if it be necessary to use a lens before a full idea of their beauty be obtained.

The genus is allied to Cirrhopetalum and Megaclinium. So closely indeed that the three genera might well be merged into one as the dividing lines are very confused.

The flowers probably exhibit greater variations in size and general appearance than those of any other genus. From minute blossoms hardly discernible with the naked eye, to others larger than a moderate sized Cattleya. Sometimes set in dense flowered racemes, sometimes single on tall scapes, or nestling beneath the foliage of the plant.

Few are similar, none are alike. The flower scapes are produced from or near the base of the pseudo bulbs. The distinguishing feature of the three genera is the labellum, which is usually somewhat fleshy, brightly coloured and most delicately poised or hinged at the base, so much so that in many species, if the flower be moved from its natural position, the lip nods. Insects of suitable size alighting on the organ and crawling beyond the point of balance, find themselves by the movement of the lip, head downward with their thorax on the inner surface of the column. In struggling to regain their freedom, the pollen is removed and left on the stigma of the next flower visited. Usually the petals are small in size and inconspicuous. In Bulbophyllum the lower sepals are free but approach each other, the lip oscillating between them but all the characters are often greatly modified.

Cirrhopetalum is distinguished by the more or less « umbel » like character of the inflorescence, the lower sepals are usually much elongated, connate the greater part of their length, twisted so that the lower surfaces are uppermost. The twist is so formed at their base as

to leave ample room for the lip movements, the upper sepals and petals are often adorned with hair tufts.

Megaclinium has the flower bearing part of the spike flattened and enlarged, the usually very small flowers being arranged in a row on either side.

The culture of such a widely distributed and polymorphic family, must necessarily be of an elastic nature. It is naturally impossible to give detailed directions, much must be left to the individual cultivator. Very few of the species are difficult to cultivate and given intelligent observation as to the watering and the resting period, the majority will quickly adapt themselves and give a free return of their flowers. The deciduous and hard-bulbed species require a decided rest after growth is matured and it is astonishing the length of time some of the smaller species will go without water and yet show no signs of deterioration or shrivelling. The softer growing kinds do require more water but even they are benefited by an occasional drying in the dormant season.

As regards potting, a good sweet Cattleya compost cut rather fine, is generally suitable and all the species are impatient of over potting. Many of them are of creeping habit and delight in extending beyond the pot rims, and within reason this character should be encouraged. Should they be over potted and the compost becomes in any way sour, they never succeed, hence small hanging pans or pieces of cork, tree stems or bark, or small porous tiles can be often used with success. With ample drainage they may be watered freely when growing and kept in a moist sweet atmosphere.

Usually a suitable position for them will be obtained if the plants are hung from one to two feet from the glass.

To ensure sweetness, finely pounded crocks, or red brick reduced to dust, may be freely mixed with the compost.

The species described in this book by no means form a complete list, but as far as possible we have described the more interesting and those more generally met with in cultivation.

BULBOPHYLLUM—cont.

I **affine** India

Resembles leopardinum in habit, but the flowers are solitary, the petals practically as large as the sepals and the ground colour is more white than yelllow.

Summer

acutiflorum **syn. Cirrhopetalum.**

S **amplebracteatum** Borneo

Habit as in orthoglossum and very near that species but the flowers are rather larger, the petals are more pointed and the lip narrows into a long recurved prolongation. Summer

I **anceps**

A strong growing species, pseudo bulbs flatly compressed 2 to 3 inches or more broad. Leaves leathery, 4 to 8 inches long. Racemes erect or semi erect. Flowers in umbel-like racemes, small in proportion to size of plant, 1 to 1 1/2 inches across, prettily marked, upper sepal slightly hooded, petals creamy white, dotted with purple, lower sepals white splashed with purple, lip bright purple.

Summer

appendiculatum see **CIRRHOPETALUM.**

I **auricomum** Burma

Pseudo bulbs roughly ovoid, nearly an inch high, diphyllous, deciduous. Leaves 3 to 6 inches long. Inflorescence 6 to 9 inches long. The flowering portion pendulous. Flowers small, closely set, sepals and petals white, lip bright yellow, fragrant. Winter

Balfourianum **syn. macrobulbon.**

S **barbigerum** West Coast of Africa

Dwarf habit, creeping. Pseudo bulbs an inch across, flattish, bearing a single leaf 2 to 4 inches long. Flowers in lateral spikes, 6 to 15 flowered. Sepals and petals small pointed, lip remarkable in that it is developed into a soft dusky chocolate tuft of hair and is so articulated that it oscillates in every movement of the air.

Summer

S **Binnendijkii** Borneo

Habit as that of B. Ericssonii but the lip is darker in colour, the purple spotting larger and more pronounced and the dorsal sepal is more erect than in that species. Summer

I **bisetum** Sikkim

Very quaint, dwarf habit. Pseudo bulbs, 3/4 to 1 inch high, conical, at intervals on a creeping rhizome. Leaf 3 to 4 inches high. Spike wire like, pendent, as long as leaf, ending in a cluster of 10 to 20 small flowers. Flowers inverted. The inferior sepals uppermost, connate, but slightly divergent at the tips which is a short bristle-like process. Dorsal sepal narrow boat shaped, extending on each side from base to apex is a narrow twisted bristle like process, and 2 similar organs extend outwards from end of column. Petals ligulate, lip small, whitish, haired. The structure is most remarkable. General colour of external parts of flowers dull greenish yellow nearly covered with sepia red. Autumn

BULBOPHYLLUM—cont.

Bhootanense **syn. Cirrhopetalum.**

S **bracteolatum** Demerara

Bears a verp strong resemblance to B. saurocephalum and is interesting as showing the wide distribution of the genus, and the similarity of species in different continents. Summer

I **cæspitosum**

Small growing. Pseudo bulbs, borne on a creeping rhizome at intervals of 2 to 3 inches. Leaves about 2 inches high. Scapes 2 to 3 inches high, terminating in a bunch of 10 to 20 small creamy yellow flowers. The three divergent sepals ending in yellow tails and the orange red lip with a central white furfuraceous stripe are the only apparent parts. Autumn

I **calarmarium** New Guinea

Pseudo bulbs, quadrangular, over an inch high, borne at intervals on a stout rhizome, carrying a single leaf 6 to 8 inches long by 1 to 1 1/2 broad. Spike erect 9 to 18 inches high. The flowering part bracteate. Flowers produced in succession, sepals and petals yellowish, faintly marked with purple, lip 1/2 to 3/4 of an inch long, haired as in barbigerum. Winter

I **Careyanum** India and Burma

Pseudo bulbs squarely ovoid, stout, about 2 inches high, set at intervals on a creeping rhizome. Leaf 3 to 5 inches, fleshy. Flowers small, reddish brown set in dense cylindrical racemes. There are several varieties. The copper coloured cupreum of Hooker is a well known form. Many emit a more or less offensive odour. Summer

cariniflorum **syn. bisetum.**

cirrhopetaloides **syn. bisetum.**

S **Claptonense** Borneo

Very like B. Lobbii. Sepals shorter and broader than in Lobbii, the sepals striped and the dorsal sepal spotted with brown on a mottled yellow ground, lip purplish. Summer

I **comosum** Burma

Pseudo bulbs clustered 1 to 2 inches high. Leaves light green, 4 to 8 inches high, deciduous. Scapes 6 to 12 inches long, the inflorescence pendent. Flowers small, whitish, densely set, resembling a bottle brush, very fragrant. Autumn

I **concinnum** Assam

A small growing floriferous species with pseudo bulbs 1/2 to 1 inch high, at intervals on a creeping rhizome, bearing a single leaf 1 1/2 inches long by 3/4 inch broad. Flower spikes about 1 inch high bearing a cluster, about 1/2 inch in diameter, of 6 to 8 flowers glistening straw yellow, the upper halves of the sepals and the tips of the smaller petals, together with the lip, deep orange. Winter

cornutum **syn. Cirrhopetalum.**

BULBOPHYLLUM—cont.

I **crassipes** Burma

Bears a very close resemblance to Careyanum, differs in its shorter scape, longer column and is usually of a much lighter colour. Summer

I **cupreum (Lindl.)** Burma

Differs from Careyanum in its smaller,, rounder pseudo bulbs and slender, more lax flowered scapes. Flowers copper colour. Summer

I **cylindraceum** Burma

Almost pseudo bulbless. Leaves coriaceous, 6 to 9 inches high. Scape nearly as tall, ending in a cylindrical, densely flowered spike enclosed in a sheathing bract in the incipient stage. Sepals dull red with deeper veins, lip almost black, upper sepal recurved at apex. Flowers very small. Autumn

I **Dayanum** India

Pseudo bulbs squat, reddish, about 1 inch high, leaves about 3 inches long, coriaceous, dark olive green above, reddish beneath. Flowers about 1 inch in diameter in clusters on short pedicels. Sepals green, marked with purple or purplish red, strongly haired on the edges, petals smaller, red, edged with yellow, lip greenish yellow with red ridges on the disc. Spring

I **Dearei** Borneo

Habit resembling that of Lobbii but the leaves are broader and shorter. Flowers 2 to 3 inches across, dorsal sepal yellow, veined and flushed with orange, the lateral sepals yellow, streaked and suffused with purple. Petals less than sepals, similarly coloured to dorsal sepal. Lip creamy white, marked basally with purple. Summer

I **- var. Lowii** Borneo

A well marked form but probably a variety of Dearei. Sepals and petals yellow lined and dotted with purple. Lip with a bright yellow crest, tipped with purple.

I **densiflorum** North India

Pseudo bulbs squarely ovoid 1 to 2 inches high, carrying 2 fleshy leaves, 6 to 8 inches long, nearly 2 inches broad, deciduous. Spike slender about the height of the foliage, ending in a drooping, dense flowered inflorescence of small green-yellow to yellow flowers, the lower sepals and lip bright ochre yellow. Also recognisable by its peculiar odour. Autumn

fascinator see **CIRRHOPETALUM.**

S **elatius** Borneo

The stout leathery leaves are with the strong petioles 12 to 18 inches high. Scapes rather less, the upper portion crowded with whitish flowers.

Autumn

BULBOPHYLLUM—cont.

S **Ericssoni** New Guinea

Very striking, pseudo bulbs 4 to 6 inches high, erect, flattened, carried at intervals on a strong creeping rhizome, and bearing a solitary leaf, 6 to 12 inches high, broad in proportion. Inflorescence large, 9 to 10 inches across, consisting of several, 6 to 12, large flowers arranged in an umbel, the dorsal sepals so placed as to form a central pyramid. Sepals 3 to 4 inches attenuated, spiral apically, petals much shorter, light green shaded with yellow and marked and spotted with dark brown. Lip large, fleshy, recurved, red purple on a whitish ground.

Summer

S **erythrostachyum** Madagascar

Resembles B. saurocephalum in habit. Leaf and bulb about 6 inches high. Rachis similar to that of saurocephalum but more slender. The flowers are more sparsely distributed, light green with 3 dull purplish-brown stripes on the upper sepal.

falcatum **syn. Megaclinium falcatum.**

fascinator **syn.** CIRRHOPETALUM.

S **Fletcherianum** New Guinea

This and B. Balfouri (macrobulbon) are probably the largest flowered and most remarkable species in the genus yet introduced. Pseudo bulbs roundly oblong, with roughened surface, carrying a single thick leaf, 12 to 18 inches long, 4 to 6 broad, glaucous or silvery green, shaded with purple. Flowers very large, 1 to 9 clustered, somewhat resembling the widely opened beak of a young bird showing a fleshy tongue, lateral sepals about 4 inches long, pointed, purple tinted, splashed with grey-white, dorsal sepal considerably shorter, similarly coloured. Lip lurid purple. Summer

S **galbinum** Malaya

Habit resembling that of Reinwardtii but more robust. Pseudo bulbs 3 to 4 inches high, on creeping rhizomes. Leaf 6 to 9 inches high by 3 inches broad. Scapes 4 to 6 inches high, 2 flowered. Flowers large. Sepals spreading, 2 inches long, olive green, lower sepals speckled with red on their basal halves, petals much smaller, lined with brown-red, column green. Lip triangular, deep red purple tipped with yellow with a few white marks on the basal margin, oscillating on a yellow, red flecked pedestal 1/2 an inch high. Various

S **Gentilii** West Africa

Pseudo bulbs four angled, set closely. Leaves solitary 6 to 8 inches long. Scapes 18 to 24 inches erect, stout. Flowers remarkable, straw yellow marked with purple, lip covered with dark brown hairs. Each flower proceeds from a large yellowish bract. The immature inflorescence somewhat resembling a wheat ear. The dorsal sepals exude clear drops of nectar. Autumn

BULBOPHYLLUM—vont.

I **gibbosum** Java

Leaves produced at intervals from a creeping rhizome, without pseudo bulbs, 6 to 12 inches high, 1 1/2 inches broad, leathery, lanceolate. Spikes erect, greenish yellow, 6 to 9 inches high. The upper halves bearing numerous small whitish flowers, the sepals tipped with soft yellow and the small lip yellow.

Autumn

Godseffianum **syn. B. Dearei.**

S **grandiflorum** New Guinea

A remarkable species, pseudo bulbs four angled, 1 to 2 inches high, at intervals of some distance on a creeping rhizome, bearing a single leaf 4 to 6 inches long, 1 1/2 to 2 inches broad. Scapes single flowered 6 to 10 inches high. Flowers large, dorsal sepal about 4 inches long, hooded, olive green with greenish white maculations. Lower sepals recurved, undulated, twisted, so that the under surfaces are uppermost, without the maculations. Petals and lip inconspicuous.

Autumn

S **Hamelinii** Madagascar

Very remarkable, pseudo bulbs, 4 inches across, flattened, shell like. Leaves 12 to 16 inches high by 4 or more broad. Rhizome stout. Flower stem stout, erect, as tall as the leaves, carrying 100 or more comparatively small flowers, closely set in a decurved head. Flowers malodorous, about 1/2 an inch long by half as much in width, each backed by a purple spotted bract, usually longer than the flowers, upper sepal concave, the lateral sepals meeting in front, whitish, marked with purple, heaviest on the backs, lip tonguelike, purple above, white beneath.

Summer

Henshallii **syn. Lobbii var.**

I **hirtum** North India

Pseudo bulbs greenish, clustered, deciduous, scapes erect, the flowering portion bent downwards. Flowers clustered, greenish, haired, often scented but not as strongly as in B. comosum which it much resembles. Winter

S **inflatum** Sierra Leone

A remarkable species. Pseudo bulbs four angled about 1 inch high, pale green, bearing a single coriaceous leaf, 3 to 4 inches long by one or more broad. Scape pendent with a peculiar swollen rachis, egg shaped about an inch long on which small greenish-yellow, hairy, flowers are thickly set, giving a curious and very attractive effect. Summer

S **lemniscatoides** Java

A remarkable species, pseudo bulbs clustered, roughly ovoid, about an inch high, bearing a single leaf, 2 to 4 inches. Scape 4 to 6 inches, slender, erect. Inflorescence drooping consisting of many small dark purplish flowers, the sepals ornamented with white hairs and carrying a curious ribbon-like, white, rose spotted, appendage which hangs below the flower and gives the whole inflorescence a curious appearance which has been likened to a Chinese lantern. Various

BULBOPHYLLUM—cont.

S **lemniscatum** Burma

Has a strong superficial resemblance to B. lemniscatoides but differs in that the pseudo bulbs are rather larger, tuberculed, and carry three leaves instead of one.

I **leopardinum** Khasia

Habit very similar to that of macranthum but the flowers are borne in clusters on short pedicels and are more fleshy, somewhat globose, sepals and petals yellow, thickly spotted with crimson brown, lip bright crimson, grooved, very fleshy, tongue shaped and excretes moisture in quantity. Summer

I **lilacinum** Malaya

Resembling Careyanum in habit but the flowers are lilac colour with deeper lilac purple spots. Winter

I **Lobbii** Burma - Malaya

Pseudo bulbs ovoid, an inch or more high, carrying a single coriaceous leaf, 5 to 8 inches long. Rhizome creeping. Flowers carried singly on erect stalks, large, 2 to 4 inches diameter. Sepals roughly triangular basally, prolonged, buff yellow, reticulated and marked on upper segment with purple, often more on the back than front, variable. Summer

S **Lobii var. colossus** Malaya

A very fine form of the type with flowers over 4 inches across, buff yellow faintly marked with purple. Summer

Lowii see **Dearei var.**

S **longisepalum** New Guinea

Pseudo bulbs 1 to 2 inches high, ovoid, angled, carrying a single fleshy leaf about 5 inches long. Scapes about 6 inches high. Flowers about 4 inches long. The upper sepal is arched over the column and petals, extending to the length of the two lower. The three are tapered from their bases to the extremities and have a whitish ground colour but suffused, spotted and veined in snake-like markings with light claret colour, lip slightly haired. Summer

Macræi syn. **Cirrhopetalum macræi.**

S **macrobulbon** New Guinea

A companion to B. Fletcherianum, habit very similar but the ground colouring is shaded with yellow and the red more bright, the sepals shorter and more broad, the lip is a deep red purple in colour. Summer

I **macranthum** Burma

Pseudo bulbs, 1 to 2 inches high, stout ovate,adpressed,membranous. Leaf fleshy, broad, 3 to 5 inches long. Flowers usually in twos on short pedicels, broadly star shaped, about 2 inches across, fleshy, vinous red splashed with yellow and brighter markings, lip bright red. Showy. Early Summer

BULBOPHYLLUM—cont.

S **mandibulare** Borneo

Pseudo bulbs glaucous, compressed, about 2 inches high, pear shaped. Leaf fleshy, 9 to 10 inches long by about 3 broad. Scape taller, raceme decurved, 6 to 10 flowered. Flowers about 2 inches longitudinally. Sepals and petals light green, shaded and flushed with brown. Petals lined with brown purple, the lip covered with a mass of purplish, prickle like hairs on a pale yellowish ground.

Summer

S **Micholitzii** New Guinea

Allied to B. grandiflorum with similar habit. Scape 6 to 9 inches high. Dorsal sepal about 5 inches long, 1 1/4 broad, curved forward in such manner as to arch over the column and lip, the apical third curving between the divergent, partially twisted, lowersepals which are nearly as long. Flowers of a soft yellowish green in colour, faintly maculated with white. Lip small, marked with red.

Autumn

S **Medusæ** Malaya

Pseudo bulbs 1 1/2 inches high, carried at intervals on a stout rhizome. Leaves solitary, coriaceous, 4 to 7 inches high, 1 1/2 inches broad. Scapes 4 inches high. Flowers in dense heads pale straw colour with light reddish spots. Two of the sepals are lengthened into threads, 3 to 5 inches long. Summer

S - **var. alba** Sumatra

Flowers white, without spots, lip yellow. Various

I **mirum** Sumatra

A remarkable species. Pseudo bulbs four angled about 1 inch long on a creeping rhizome. Leaf broad, leathery, 2 to 3 inches long. Scape 2 inches, or less, bearing 2 comparatively large flowers. Dorsal sepal convex, yellowish, thickly spotted and margined with bright red-purple. Petals minute disc-like but edged with a row of conspicuous purple-red, white tipped, mobile hairs. Lower sepals 1 1/2 inches long, connate on both edges, shaped not unlike a sharply pointed « sabot ».

Various

mundulum **syn. Cirrhopetalum mundulum.**

I **Neilgherrense** North India

Habit that of Careyanum but with bulbs, rhizomes and leaves, purple tinged. Scape more lax flowered than in Careyanum, flowers ochre yellow. Easily distinguishable by its fetid odour. Various

S **nudiflorum** West Africa

Resembling B. saltatorium but differs in that the scape is much taller.

I **nudiscapum** Sierra Leone Summer

Habit resembling that of calamarium but the pseudo bulbs are set more closely together and the scapes are longer, 12 to 18 inches, lengthening as the flowers are produced, of which 2 to 6 are open at the same time. Flowers carried from the axils of deep yellow bracts. Sepals dark yellow, triangular, 3/4 of an inch from tip to tip, petals inconspicuous, horn like, lip as in barbigerum, capable of similar motion. Autumn and Winter

BULBOPHYLLUM—cont.

I **O'Brienianum** Himalayas

Resembles macranthum in habit but like affine produces solitary flowers on short pedicels. Flowers nearly 2 inches across. Sepals and petals honey coloured, spotted with red purple, lip maroon purple, fleshy, strongly recurved. Summer

S **occultum** Mauritius

Very distinct. Pseudobulbs flattish, growing almost parallel with the rhizome as in barbatum, greenish, diphyllous, leaves fleshy, 2 to 3 inches long, pointed, divergent. Flowers small, whitish, stained with purple, almost hidden by imbricating greenish bracts in a short, rather pointed, hanging raceme. Curious and attractive. Summer

S **orthoglossum** New Guinea

Pseudo bulbs roughly ovate, green, about 2 inches high, carrying a single fleshy green leaf, 5 to 8 inches high by 2 broad. Flowers bracteate comparatively large, nearly 2 inches across, carried in succession. Sepals longer than petals, about equal in breadth, greenish striped and tinged with red-brown. Lip much deeper in colour, peculiar in that it is bent down through the orifice at the base of the sepals, parallel with the flower stalk. Summer

I **patens** Perak

Habit as in macranthum and resembling that species in its flowers but distinct in its narrow pointed lip. Summer

I **Pechei** Burma

Very closely resembles B.Careyanum but the racemes are more elongated and the floral colour brighter. Summer

I **penicilium** Burma

Pseudo bulbs conical-ovoid 1 to 1 1/2 inches high. Leaves solitary, 6 to 9 inches long, nearly 1 broad, channelled on mid rib. Spike about 12 inches, erect and devoid of flowers for the first half, then bending at right angles becoming somewhat swollen and eventually pendent. The bare stem carries 3 greenish bracts and behind each flower is an olive brown bract. The whole rachis is of a dull olive brown or liver colour. Flowers 15 to 25, very curious. Sepals nearly 1/2 inch long, pointedd, narrowly triangular, greenish yellow, striped and nearly suffused with red brown. Petals minute, hairy, dark black brown, lip movable as in and resembling B. barbigerum, dark purplish brown. Winter

refractum **syn. Cirrhopetalum refractum.**

I **rigidum** North India

Habit resembling cylindraceum but larger. Scapes 10 to 20 flowered. Flowers set in dense heads. Flowers small, sepals green with reddish veins, lip convex, yellowish green, shaded red at base. Autumn

BULBOPHYLLUM—cont.

I **rufinum** Burma

Differs from Careyanum in that the pseudo bulbs are larger ; the stout decurved scape bears a lax flowered raceme, 6 to 10 inches long and the yellowish flowers have a few red streaks on the sepals. Summer

S **Saltatorium** Sierra Leone

A small growing species with small clustered, roughened, pseudo bulbs,bearing a single leaf, producing a slender spike 3 or4 inches high, the upper portion carrying 8 to 12 small blooms, the prominent feature of which is the labellum which is haired as in barbigerum and becomes mobile at the lightest breath.

Summer

S **Sanderianum** Brazil

A small growing species with closely set pseudo bulbs approaching one inch in height, carrying a single fleshy leaf, 2 to 3 inches in height. Flowers small on comparatively tall scapes. Sepals green, brown spotted, petals whitish, marked and spotted with purple, lip deep purple brown, hairy. Various

I **saurocephalum** Philippines

A remarkable species. Pseudo bulbs 1 to 2 inches high, 4 or 5 angled, smooth, bearing a solitary leaf, 3 or 4 inches long. Scape with a large swollen, purplish red, rachis set with small flowers. Sepals yellowish nerved with brown, petals whitish marked with red, lip yellowish with purplish base. Various

I **Shepherdii**

Creeping habit. Pseudo bulbs very small, hardly noticeable, the thick fleshy leaves about 1 inch long, are channelled on their upper surface and have a greater girth than the pseudo bulbs. Flowers minute, freely produced, sepals and petals straw yellow shading into yellow. Lip tongue like, ochre red.

Winter and Spring

I **Siamense** Siam

Resembles B. Lobbii, of which it may be a geographical form. Habit similar. Flower pale yellow striated with brown, lip with deeper coloured lines and a yellow disc. Various

I **sicyobulbon**

Pseudo bulbs, 1 to 2 inches high, squarely ovoid, at intervals on a creeping rhizome. Leaves 3 to 6 inches long, carried singly. Scapes as long, the upper halves arching, bearing 15 to 30 closely set flowers. Sepals, smaller petals and tongue-like lip, dark ochreous yellow. Malodorous. Spring

I **Sillemianun** Burma

Pseudo bulbs globose, wrinkled. Leaves 2 to 3 inches long. Flowers solitary, peduncles 2 to 3 inches. Flowers about 1 1/2 inches across, clear yellow, the lip marked with mauve above, whitish beneath, very pretty. Various

BULBOPHYLLUM—cont.

S **tremulum** North India

Not unlike saltatorium in habit but stronger in all parts. Inflorescence 8 to 12 inches high, the upper portion carrying perhaps 20 flowers with curious, strongly reflexed, narrow, haired sepals and a prominent black haired mobile lip.

Summer

umbellatum **syn. Cirrhopetalum guttulatum.**

I **vaginatum**

Pseudo bulbs stout, four angled, at intervals on a creeping rhizome, bearing a stout leathery elliptic leaf, 2 to 4 inches long, by 1 broad. Peduncles 1 1/3 inches long. Inflorescence drooping, about 3 inches across, consisting of some 12 pale yellowish flowers, the lower sepals of which are attenuated over an inch long.

Early Winter

S **virescens** Java

Near to and resembling B. Ericssoni in habit and general appearance but differs in that the sepals are of a greenish suffusion and unspotted. Summer

S **vitiense** Fiji Isles

Pseudo bulbs four angled, 1 inch or more high. Leaves about 6 inches long, rather narrow. Spikes erect taller than leaves, many flowered. Flowers about an inch across, when spread out, all the segments narrow, yellowish white with the upper half of the petals tinted pink. Pretty but not showy. Summer

I **Watsonianum** Hongkong

Pseudo bulbs slender 1 to 2 inches high, monophyllous. Leaf 1 to 2 1/2 inches long by 1/2 inch broad. Intervals between bulbs 1 to 2 inches. Flowers solitary on slender 1 to 2 inch pedicels. Flowers just exceed 1 inch in vertical diameter, rather narrow, dorsal sepal slightly concave, pointed, white flushed with rose, with 7 dark longitudinal lines, petals small, soft white, lightly flushed with rose, lower sepals larger than upper, similarly coloured but darker, sharply pointed apically, but the inner edges are produced into rounded prolongations almost level with the true apex. Lip produced into a narrow chin-like process almost parallel with the sepals, incurved at the junction of the front lobe which is sharply bent backwards with the apex again strongly reflexed, fleshy. Cream to yellow, with 2 central red lines almost hidden by the fleshy side lobes. Differs from typical Bulbophyllums in that the labellum does not easily oscillate.

Winter

BURLINGTONIA **syn. RODRIGUEZIA.**

CALANTHE

Usually Terrestrial orchids but with some species epiphytal, widely distributed, divided into two sections, evergreen and deciduous. The latter section is the more largely grown, being of great service for decoration. In fact, C. Veitchii, the well known hybrid between C. rosea and C. vestita, might be termed a common garden plant. It was first mentioned in 1859 and is now one of the most popular and largely grown of orchids.

The deciduous species have pronounced pseudo bulbs 8 to 9 inches high, or more, bearing broad plicate leaves, which fall, about, or soon after flowering. The flower spikes, produced from the base of the bulbs vary greatly in height and the number of flowers they carry. Much depends on their culture.

In the evergreen section the pseudo bulbs are comparatively small, sheathed in the bases of the leaves, not unlike a Phaius in habit, to which genus Calanthes are closely allied and with which both sections interbreed. The inflorescence, borne on a stout spike, is more of a cluster and the individual flowers are slightly smaller than in the deciduous.

As regards culture. The evergreen kinds on the whole, require treatment similar to that accorded Phaius — a compost as for Cymbidiums and careful judgment as regards watering in the dull months. The deciduous forms must be treated more or less as for bulbous plants. They should be potted just as growth commences, usually in March, using four parts fairly fibrous loam, one part sand, a little leaf mould and finely chopped sphagnum, mixed well together. Some growers place a little dried cow dung above the crocks. Drainage must be liberal but not to the extent given Cattleyas and epiphytal orchids.

Water should be given with descretion when first potted, but as the pots become full of roots it can be given more and more liberally and occasional doses of weak liquid manure applied. When young the plicate leaves are enfolded and moisture must be kept from the young growths, hence the syringe should not be used until the leaves are fully expanded. The plants enjoy sun heat and often a suitable position can be found them on a shelf

CALANTHE—cont.

against a wall in a warm house, not too far from the glass. When the new bulbs are matured, the foliage turns yellow and drops and at the same time the flower spike appears. Again water must be carefully applied but after flowering the bulbs may be shaken from the pots, placed on dry sand in shallow boxes and stored in a moderately dry place, about 60 degrees Fahr. Too much cold and moisture will affect the dormant eyes. Repotting is necessary every year, a 6 or 7 inch pot will usually accomodate the largest bulbs. The bulb preceding the last new one, usually remains in a slightly shrivelled state. It may be removed at the potting season and if larger stock is required, potted separately or several together and in most cases new growths and bulbs will be obtained. Shading must be applied with care according to position, as Calanthes enjoy sunlight which is an important factor in ripening their bulbs.

In both divisions the individual flowers are of good size and characterized by a bract at their base. Sepals and petals, nearly equal, spreading. The front lobe of the lip, usually highly coloured, is more or less 3 cleft, giving it a four lobed appearance. The side lobes enfold the column. The base of the lip is developed into a slender spur, straight or curved, short or long.

I **biloba** India

Pseudo bulbs produced into stem like growths, 6 to 8 inches high carrying plicate leaves, 8 to 12 inches long. Scape erect, slender, 18 to 30 inches. Flowers about 1 inch across. Sepals and petals purplish, tinted with yellowish brown, lip purplish, striped with white, slightly reflexed, 2 lobed. Spur almost absent. At the base of each flower is a slender bract, 1 to 1 ½ inches long. Summer

S **Ceciliæ** Malaysia

Evergreen, about 15 inches high. Flow rs light ochre, shaded with purple. Summer

comosa **syn. veratrifolia** *R. Br.*

S **curculigoides** Malacca

Habit resembling masuca but less. Leaves not so broad. Flowers orange yellow. Summer

CALANTHE—cont.

fulgens **syn. masuca**

S **furcata** Luzon

Very similar to veratrifolia. The flowers are of the same colour but the lateral lobes of the lip are larger and the spur varies considerably in size.

Summer

S **labrosa** Burma

Deciduous. Scapes 12 to 15 inches high, haired. Flowers rather small, rose purple, the lip dotted with purple and whitish at the base. Winter

I **masuca** India

Evergreen, height 20 to 30 inches, a handsome species with broad green leaves and erect spikes carrying large corymbs of deep violet and purplish flowers.

Summer

nivalis **syn. vestita var.**

Perrottetii **syn. veratrifolia.**

Regnierii **syn. vestita Regnierii.**

S **rosea** Moulmein

Deciduous. A parent of the well known Veitchii. Inflorescence 15 to 18 inches high. Bulbs often constricted centrally. Flowers, typically rose pink but varying from white to dark rose. Winter

S **rubens** Malaysia

Resembles rosea but the bulbs are usually more squat, not constricted, and the flowers are darker in colour with a ruby red lip. Winter

S **- var. alba** Malaysia

Flowers pure white.

S **Sanderiana** East Africa

Evergreen, with the habit of masuca but slightly less. Flowers large, handsome, sepals and petals lilac to lilac purple, lip deep purple with a brown marked crest.

Summer

Sanderiana **syn. vestita var.**

Sieboldii **syn. striata.**

C **striata** Japan

Evergreen, with the habit of masuca, leaves, hardly a foot high. Inflorescence slightly taller. Flowers yellow. Summer

Turneri **syn. vestita var.**

S **veratrifolia** East Indies

Evergreen, rather less than masuca in habit. Flowers white with a bright yellow crest and a deeply cut front lobe to the lip. The species has a wide distribution and several slight colour forms are known.

S **vestita** Moulmein

Deciduous. Flowers large, creamy white, usually with a light yellow eye, but very variable in this respect. Winter

CALANTHE—cont.

S - **var. gigantea** Borneo

Flowers larger than in the type with a blotch of bright red at base of the lip ; a magnificent kind. Winter

S - **var. luteo-oculata** Tavoy

Lip with ochre yellow eye.

S - **var. Regneirii** Cochin - China

Often accorded specific rank, as it flowers later than vestita and has a more erect scape. The inflorescence is curviform and the flowers though smaller than in vestita are more closely set. Sepals and petals white or pink tinged, lip rose pink, variable. Winter

S **var. Reg' Sanderiana** Burma

Flowers larger than in Regnierii, whitish or rose shaded, lip with a dark crimson blotch. Winter

S - **var. Reg' Williamsii** Cochin - China

Sepals white, sometimes pink shaded, petals white, rose bordered, lip rose crimson. Winter

S - **var. rubro-oculata** Tavoy

Lip centrally blotched with crimson. Winter

S - **var. Turneri** India

Flowers pure white, rose eye. Winter

S - **var. Turneri nivalis** India

Flowers entirely white. Winter

Williamsii **syn. vestita Regnierii var.**

CALOPOGON

A genius of New World, tuberous rooted, deciduous Orchids, hardy or nearly so. A well drained open compost of fibrous loam and leaf mould and sand, apparently suits them the better but they are not very amenable to cultivation. They are impatient of strong sunlight. In the southern counties they will succeed in a rock garden in sheltered positions but failing a good position a cool house is the better. The species described is the most frequently met with.

C **pulchellus** North America

Scapes 2 to 4 flowered. Height 15 to 18 inches. Flowers about an inch across with nearly equal segments, purple in colour, the lip with a beard or haired tuft of clear yellow. Foliage narrow, grass-like. Early Autumn

CALYPSO

A monotypic, terrestrial genus, the only species known requiring treatment similar to that given Calopogon.

C **Borealis** North America

A beautiful species with the stem thickened, tuber-like basally. Leaves solitary, green, plicate, 2 to 3 inches long, ribbed, somewhat cordate. The erect scape about 3 inches high, bears a solitary pendent flower, pretty and curious, an inch or more across, with narrow, pointed, spreading, rose purple segments, the lip is whitish with red purple and yellow spots and bears a superficial resemblance to the pouch of a Cypripedium, the lateral lobes being bent over the saccate front lobe, which is developed into two blunt horn-like processes at the tip.

Spring

CAMAROTIS **syn. Sarcochilus.**

CAMPYLOCENTRUM

A genus confined to the New World but allied to and resembling Angraecums and Dendrophylax. The genus is very imperfectly known. Some species are leafless, and none are common in cultivation but are occasionally imported. From their scattered distribution the individual plants must be studied as to position etc. The Cattleya house will suit the majority as regards temperature. Compost etc. as for Angraecums.

CATASETUM

Epiphytal orchids, confined chiefly to Central America. The plants are characterized by short, stout, usually pointed pseudo bulbs, large plicate leaves, the bases of which sheath the bulbs, and the freedom with which aerial roots are produced.Usually the spikes are produced from the base of the mature bulb or young growth. The flowers are among the most remarkable in the orchid family. Apart from their wonderful structure the male and female flowers, which differ both in structure and colour, are usually carried on distinct spikes, hence much confusion was caused through insufficient material in the early days and even now though a large number have been described the clarity of some is doubtful. Originally three genera were created — Monocanthus, Myanthus and Catasetum, but in the Orchid Review of 1895 the late Mr. Rolfe shows their identity, reducing them to male and female and retaining the name Catasetum.

CATASETUM—cont.

The male flowers are the more interesting and are produced more freely than the female. The rostellums are often prolonged into two antennæ, one or both of which are sensitive and when touched « jerk » the pollinia to a considerable distance. A disc at the base of the pollinia is viscid and the pollinia is ejected with such force and in such direction as to hit and adhere to the thorax of any suitable insect attracted by the flowers. The disc shortly contracts, in many species bringing the pollen masses into the correct position for attachment to the stigma.

In some species the antennæ are absent but the face of the column is sensitive.

Apart from the peculiarity of the antennæ, the flowers command attention from their varied shapes, structure and colour.

In some the lip, more or less helmet shaped, is placed uppermost, protecting the pollinia and stigma. In others the lip is placed as in Cattleyas, but projects forward and is often laminated or fringed.

Mr. Rolfe established four sections in the genus. Eucatasetum — with the lip superior and galeate in both sections and two antennæ in the male. Myanthus — with two antennæ, lip inferior sometimes fringed but not galeate in the male. The reverse is the case in the females of this section. In them the lip is galeate and superior. Eurrhosae — has the lip more or less saccate, but inferior and the rostellum bears no antennæ. Pseudocatasetum — the lip may be inferior or superior and is deeply saccate. The rostellum does not bear antennæ and the known females have a galeate lip and are much larger than the male.

The female flowers are not so well known but though varying, are, on the whole, more regular in shape than the males.

The majority of the Catasetums come from the tropics of America and require a warm moist atmosphere when growing. Many produce aerial roots in abundance and such plants are very susceptible to over-watering. Care with water is essential to all and all are benefited by a

long rest in a light position. The leaves are deciduous or semi-deciduous.

The plants are better cultivated in small pans or baskets and hung near the glass, using a compost as for Cattleyas, with, if procurable, a very little loam fibre.

Moisture should not be allowed to rest in the young growths, hence syringing should be withheld till the leaves are fully developed. If sufficient moisture be present atmospherically, abundance of heat may be given the plants. Their growing season is comparatively short.

S **atratum** Brazil

Pseudo bulbs stout, conical, 4 to 6 inches high. Scapes semi-erect, often 20 flowered. Flowers about 1 1/2 inches high by 1 broad. Sepals and petals ascending, yellowish green, thickly covered with dark purplish brown spots, often confluent, in some forms almost black, lip fleshy, green and yellowish, spotted with red, chiefly at the margins and with marginal hairs. Antennae absent. Summer

S **barbatum** Demerara

A variable species with dark green pseudo bulbs, 2 to 6 inches high, foliage 4 to 12. Flowers 2 to 3 inches long, 15 to 20, on semi erect spikes, the much narrower petals and narrow upper sepal erect, lower sepals broader, divergent, deep green, blotched and spotted with brown and purple, lip varies from pink to green, margined with greenish white, fleshy, hair like filaments. A curious white tooth-like process is placed at the base of the column. Summer

Bungerothii **syn. pileatum.**

S **callosum** Venezuela

Pseudo bulbs, 4 to 10 inches. Flowers 6 to 12 on semi-erect spikes. Sepals and petals spreading, reddish brown. Lip flattish, green, shaded with yellow apically and with a yellow basal tubercle. Autumn

Claveringii **syn. macrocarpum.**

S **Cliftonii** Central America

A polymorphic species somewhat resembling and apparently allied to S. pileatum. It may yet prove to be a natural hybrid as so far no two plants quite agree in colouring and shape. Usually the prevailing colour is yellow, the sac of the lip is much more deep than in pileatum and often has a very narrow orifice. On the whole the flowers are smaller than in that species.

S **chloranthum** Brazil

Probably a form of C. macrocarpum which it much resembles in habit. The flowers are pale yellowish green, spotted with rose brown. Summer

CATASETUM—cont.

S **Christyanum** Brazil

Pseudo bulbs large, 6 to 9 inches high, with the greatest girth centrally. Scapes erect 5 to 12 flowered. Flowers remarkable. About 4 inches across the spreading lower sepals. The upper sepal and petals are, as in many Catasetums, almost erect, the inner edge of the petals overlapping the sepal, all are of a uniform red brown, the petals sometimes spotted basally. Lip greenish, marked with purple, saccate but with three lobes, each fringed with purplish brown hairs. Column green.

Summer

S **Darwinianum** Roraima

Resembles C. callosum in habit. Spike longer, more strongly arched, bearing as many as 20 flowers. Flowers 2 to 3 inches long, much narrower. Sepals and broader petals brown purple with darker spots, lip inferior, dull green, densely spotted with black-brown, slightly toothed on the margin. Summer and Autumn

S **discolor** Pernambuco

A rather small growing species. Pseudo bulbs rounded, usually 2 to 3 inches high, pointed. Spikes erect, 6 to 10 flowered. Flowers about 1 1/2 inches in diameter. Sepals and petals greenish yellow. Lip galeate but not deeply so, uppermost, yellowish green outside, brown tinted and haired inside, with two lateral, purplish, fringed lobes. Summer

S **fimbriatum** Paraguay

Pseudo bulbs, 6 to 9 inches. Flowers medium size on semi-erect, sometimes lateral scapes, 6 to 12 flowered. Upper sepals and petals narrow, inclined upward, lip saccately cordate, with strongly fimbriated edges, usually whitish, yellowish centrally. The sepals and petals greenish tinted and spotted with red brown, sometimes on a whitish ground. Summer

S **Gnomus** Rio Negro

Pseudo bulbs, 2 to 4 inches high, pointed. Spikes erect 6 to 10 flowered. Flowers medium size. Sepals and petals lanceolate, the petals shorter than the sepals, the former green, spotted with purple, the latter violet purple, lip strongly hooded, greenish, spotted with purple. Summer

S **Imschootianum** Brazil

Pseudo bulbs, 4 to 8 inches high, fusiform. Spikes erect, 10 to 20 flowered. Flowers nearly 2 inches across. Sepals and petals pale, or greenish, yellow, lip saccate with rounded side lobes, deeper yellow. Sepals and petals all inclined upwards.

S **laminatum** Mexico

Pseudo bulbs, 2 to 5 inches, roughly conical. Spikes lateral, ascending or arched, 5 to 9 flowered. Flowers large, 4 inches or more in height, breadth much less. Lip placed much as in tabulare, white, marked with purplish red, saccate basally. The centre occupied by a frilled laminate process, 1/2 an inch high. The edges of

CATASETUM—cont.

S **laminatum**—*cont.* Mexico

the lip are fringed and incurved. Petals and dorsal sepal ascending, with the spreading lower sepals, greenish, flecked and marked with brown purple. A variable species as regards colour. Autumn

S **macrocarpum** Tropical America

Widely distributed and very variable. Pseudo bulbs stout, 2 to 5 inches. Scapes erect, 6 to 12 flowered. Flowers large 3 to 4 inches across, sepals and petals, acuminate, nearly equal, green to yellow, more or less spotted with brown purple, lip yellow, often with darker yellow suffusions, strongly saccate, with 3 short teeth at the apex. Summer

S **Oerstedii** Costa Rica

Very much resembling C.macrocarpum in habit and shape and size of the flowers, which are distinguished by broader sepals and petals and a number of hairs round the orifice of the lip. The colour varies from a green tinted cream to greenish. Autumn

S **phasma** Brazil

Distinguished from C. gnomus by its larger flowers. The margins of the side lobes of the lip are densely serrulated. The petals are spotted rather than suffused with violet-purple. The lip is more white. Summer

S **pileatum** Tropical America

Better known under the name of Bungerothii, this handsome species is apparently distributed through Ecuador, Venezuela etc. but is not so widely spread as C. macrocarpum. Pseudo bulbs somewhat slender, cylindrical, 4 to 8 inches high, Scapes erect, bearing 6 to 12 large flowers, ivory white in the type, with a concave, rounded, oyster-shell like lip, 2 to 3 inches across. Petals broader than the sepals, inclined upwards and usually slightly forward with the dorsal sepal, lower sepals, narrow, spreading. Autumn

S **Rodigasianum** Brazil

A very fine species. Pseudo bulbs stout, 2 to 5 inches.Scape erect or arching, many flowered, 40 have been known. Flowers variable, 2 to 3 inches across. Sepals and petals ovately lanceolate, green, blotched with brown. Lip somewhat concave, bright orange, spotted with chocolate, fimbriated marginally and carrying three teeth at the apex, the central tooth thickened into a callosity, on either side of which the horns rest. Greenish yellow, spotted with red brown. Summer

S **Russellianum** Guatemala

Pseudo bulbs 2 to 3 inches, stoutly conical. Scapes many flowered, pendent. Flowers about 3 inches accross the spreading sepals. Sepals and petals pale green with deeper lines, lip somewhat slipper shaped, the front lobe projecting forwards with fringed margins. Summer

CATASETUM—cont.

S **saccatum** Peru

Very variable. Pseudo bulbs stout, 3 to 6 inches high. Scape erect, 6 to 10 flowered. Flowers large, 4 inches or more across, the lateral sepals spreading, the petals and upper sepal inclined upwards, shielding the column. Colour, a light green almost covered with purple brown. The petals show more of the ground colour. The lip is very curious, three lobed, each lobe strongly fimbriated and bent backwards. At their base a deep sac is formed with a small opening. The side lobes are green, the mid-lobe purple brown, the orifice white. Allied to C. Christyanum but with larger flowers. Summer

S **scurra** Demerara

A small growing species, pseudo bulbs rounded, 1 to 2 inches high. Scapes drooping, 5 to 10 flowered. Flowers about an inch across, white or creamy white. Sepals and petals rounded, almost equal, the petals the broader, lip saccate, with the side lobes erect, toothed on the edges and the front lobes strongly fringed.

Spring

S **splendens** Tropical America

A very handsome and variable Catasetum, apparently a hybrid between C. macrocarpum and C. pileatum (Bungerothii). Forms have been imported from Colombia, Venezuela and other districts and seem to occur where ever the two species are found. It varies in shape and very much in colour and probably certain varieties are really forms obtained from the primary hybrid crossed again with one of the species. The flowers are large but vary so much that it is difficult to say which is the typical form. Some varieties have the lip almost as in pileatum, viz. open and shell shaped, others again approach the helmet shape of macrocarpum. Colouring may be selfed, varying from white to red or broken with splashes and spots of crimson and purple on a greenish ground. Usually the flowers are slightly less than in pileatum. Autumn

S **tabulare** New Granada

A most remarkable and variable species with stout fusiform pseudo bulbs and tall erect or arching spikes bearing 6 to 10 large flowers, 3 inches or more across the spreading lower sepals, which, with the dorsal sepal and upwardly inclined petals are greenish, suffused or spotted with brown. The lip is the remarkable feature. Inclined forward and downward a broad table like fleshy callus occupies the greater portion, the toothed margin is turned up round the callus which is usually white and has in some varieties a rough and in others a smooth surface.

Summer

tridentatum **syn. macrocarpum.**

CATASETUM—cont.

S **trulla** Tropical America

Pseudo bulbs 2 to 5 inches. Scapes many flowered, lateral or drooping. Flowers about 2 inches across,sepals and petals greenish, nearly equal — the lower sepals spreading, the petals inclined upward with the dorsal sepal. Lip trowel shaped, rather concave, ciliated at the margins, green passing into red, deepest apically.

Summer

S **virideflavum** Peru

Very near to C. macrocarpum. Flowers in erect spikes, slightly smaller. Sepals and petals pale green shading to yellow, lip yellowish, flushed and suffused with green externally, yellow within. It may be a sub-variety of C. macrocarpum but it cannot be termed a variety of that species as the color is well defined.

Summer

CATTLEYA

The genus is among the most popular, useful and showy of all Orchids. So popular indeed that the Intermediate house is very often termed the Cattleya house, from the number of Cattleyas and their hybrids grown and the fact that the treatment of the other plants included, is either the same, or made subservient to that given Cattleyas.

Botanically, Cattleyas form a section of the polymorphic genus Epidendrum and are closely allied to Laelias, Sophronitis, Arpophyllum, Brassavola, Schomburgkia, Tetramicra, intercrossing readily with them. Hybrids are very numerous with Laelia, Sophronitis and Brassavola and have greatly enriched our orchid collections.

All Cattleyas are worth growing, many of them in quantity, the flowers being all more or less large and showy and regularly produced. All the species carry their flowers on scapes produced from the apex of the last made pseudo bulb and enclosed in the bud state in a protecting sheath. Their culture is simple, the greater number being well suited to the intermediate house. They should be placed in well drained pots or pans using three parts well frayed Osmunda fibre to one part of sphagnum moss with an addition of finely broken crocks. If good fibrous peat can be obtained it can take the place of the sphagnum moss and one part of the Osmunda. Firm potting is essential and care should be taken that no air spaces are left beneath the rhizome. In Summer while admitting air as

freely as is consistent with the weather, the atmosphere must be kept moist by frequent dampings and it must be borne in mind that though the plants should be shaded during bright sunshine, particularly when young growths are present, yet no class of plant is more impatient of a dark gloomy house, they love the light. In Winter, after growth has been fully matured, the plants should be kept both dryer and cooler, but avoid shrivelling the pseudo bulbs through too much drought.

Where miscellaneous plants are grown with the Cattleyas and it is impossible to keep the atmosphere correctly, resting plants may be placed at the coolest end or hung near the glass. Broadly speaking Cattleyas may be divided into sections, one with clavate pseudo bulbs bearing a single leaf, of which labiata may be regarded as a type and the other with slender cylindrical bulbs bearing 2 or more leaves at their apices.

In both sections the flowers are comparatively large, the petals broader than the sepals and a labellum with side lobes enfolding and nearly obscuring the column. In the labiata section the front lobe and side lobes form an homogenous organ, but in the other section the front lobe is often more clearly defined. In C. bicolor the side lobes are practically absent.

With the tall bulbed section in particular, care must be taken that the plants are not watered too frequently when the young growths first appear.

S **Aclandiæ** Brazil

Height 6 to 8 inches, stems slender, two leaved. Flowers 3 inches across, olive green, blotched with purple, lip magenta purple. Succeeds better in a shallow pan or on a raft. Summer

acuminata **syn. Lælia acuminata.**

albida **syn. Lælia albida.**

Alexandræ **syn. elongata**

alutacea **syn. velutina.**

amethystina **syn. intermedia.**

CATTLEYA—cont.

I **amethystoglossa** Brazil
Pseudo bulbs 2 to 3 feet high, leaves 4 to 7 inches long, leathery. Flowers about 4 inches across in clusters from three to twenty. Sepals and petals bright rose purple spotted, lip magenta purple. Spring

anceps **syn. Lælia anceps.**

Arembergii **syn. Loddigesii.**

Aucklandiæ **syn. Aclandiæ.**

aurea **syn. Dowiana var.**

I **aurantiaca** Guatemala
Has long been known in Gardens as Epidendrum aurantiacum, pseudo bulbs about 12 inches high. Flowers 3 inches across when expanded, clear orange red. Summer

autumnalis **syn. Bowringiana.**

autumnalis **(Beer) syn Lælia autumnalis.**

Bassetti **syn. Luedemanniana.**

I **bicolor** Brazil
Pseudo bulbs slender, 15 to 30 inches high, leaves 4 to 6 inches, rather pointed. Flowers about 4 inches across, sepals and petals nearly equal, bronzy-green, lip rose purple, sometimes margined with white, without side lobes, a character which has a strong influence on hybrids derived from the species. Late Summer

I **- var. Measuresiana**
Sepals and petals bronze, lip with a clear white margin.

Late Summer

Boothiana **syn. Lælia Boothiana.**

I **Bowringiana** Central America
Pseudo bulbs, 12 to 24 inches, swollen at the base. Leaves 4 to 6 inches long. Spikes 5 to 20 flowered. Flowers 2 to 3 inches across, rose purple, lip much darker on the front lobe, throat lighter. Autumn

I **- var. lilacina**
Flowers almost uniformly of a light lilac-magenta tint.

I **- var. oculata** Central America
With distinct eye like markings on the throat.

I **- var. splendens** Central America
Larger and more richly coloured flowers.

I **- var. violacea** Central America
Flowers violet flushed.

CATTLEYA—cont.

I **Brymeriana** Essequibo

A rare natural hybrid between superba and Eldorado. Habit intermediate. Flowers showy. Sepals and petals rose purple shaded with white, the front lobe of the lip deep purple, throat orange yellow. Summer

Brysiana **syn. Lælia purpurata var.**

bulbosa **syn. Walkeriana.**

candida **syn. Loddigesii.**

cernua **syn. Sophronitis cernua.**

Chocoensis **syn. quadricolor.**

cinnabarina **syn. Lælia cinnabarina.**

C **citrina** Mexico

Very distinct, pseudo bulbs, globular, clustered, sheathed in a silvery white membrane. Leaves 5 to 9 inches long, strap shaped. Flowers bright yellow, pendent, borne singly. The sepals and petals inclined forwards, giving, with the white edged lip, a bell-like appearance to the flowers, which are highly fragrant. Owing to the downward growing tendency of its habit, the plant is better grown on a raft or a pan suspended at an oblique angle. The species requires as much sunlight as possible when growth is matured and a decided rest. Water must be practically withheld when the pseudo bulbs are fully matured. Suitable conditions for it may often be found with the Mexican Laelias. Spring and Summer

coccinea **syn. Sophronitis grandiflora.**

crispa **(Beer) syn. Schomburgkia crispa.**

crispa **(Lindl.) syn. Lælia crispa.**

crocata **syn. Eldorado var.**

Deckeri **syn. Skinneri.**

decora **syn. Sobralia decora.**

I **dolosa** Brazil

Dwarf habit, pseudo bulbs 2 to 4 inches high, stout, slightly swollen, diphyllous. Flowers about 4 inches across, rose magenta. Dolosa may be taken as the type of a distinct section. The flowers somewhat resemble those of Loddigesii in shape but are larger and more fleshy. The habit though much more dwarf and stouter in proportion, also bears some resemblance, yet nobilior and Walkeriana, often classed as varieties of dolosa, usually flower from slender leafless growths produced from the rhizome, after which a stout leaf bulb is produced. The section has unfortunately never been common in cultivation and notes of the different characters, apparently have not been made from batches of cultivated plants, but dolosa and Schroderiana flower as do ordinary Cattleyas, while nobilior and Walkeriana flower from a separate growth. Autumn

CATTLEYA—cont.

Dormaniana **syn. Lælia Dormaniana.**

S **Dowiana** Costa Rica

This and its variety aurea are probably the most handsome of the genus.

Pseudo bulbs clavate, height of bulb and leaf 12 to 18 inches. Flowers large 6 to 8 inches across. Sepals and petals nankeen yellow, crimson flecked and flushed beneath. Lip rich crimson purple streaked and lined with old gold.

Both this and its varieties require a light, dry, and fairly warm position when resting. Care should be taken that no drip can fall on them. Late Summer and Autumn

S **- var. aurea** Peru, etc.

Sepals and petals devoid of the crimson markings and the lip exhibits more yellow in the throat. Autumn

S **- var. chrysotoxa.** Colombia

Lip deep crimson purple with deep gold veinings. Autumn

Dubuyssoniana **syn. granulosa.**

elatior **syn. guttata.**

elegans **syn. Lælia elegans.**

I **Eldorado** Rio Negro

Pseudo bulbs clavate, bearing a leathery leaf, less in size than labiata. Flowers 2 to 3 on a spike, 4 to 6 inches across. Sepals and petals pale rose or blush white. Front lobe of lip purplish magenta, throat deep orange. Early Autumn

I **- var. crocata.** Rio Negro

Segments white or very slightly flushed, throat deep orange. Early Autumn

I **- var splendens.** Rio Negro

Sepals and petals rose, lip deep purplish magenta. Early Autumn

I **elongata** Brazil

Pseudo bulbs cylindrical, 1 to 2 feet high. Flowers in clusters on tall peduncles. Flowers variable. Sepals and petals greenish or rose, often spotted with chocolate, lip bright rose. Summer

flavida **syn. luteola.**

I **Forbesii** Brazil

Pseudo bulbs cylindrical, 12 to 15 inches high, diphyllous, spike 2 to 5 flowered. Flowers 3 to 4 inches across. Sepals and petals yellowish, lip yellow streaked with red on the inside of the side lobes, on a whitish ground. Spring and Summer

furfuracea **syn. Lælia furfuracea.**

Gardneriana **syn. Walkeriana.**

I **Gaskelliana** Venezuela

Resembling Mossiae in habit, variable. Flowers 3 to 5 on a spike, sepals and petals whitish, rose purple, throat striated with yellow, colours very variable. Late Summer

CATTLEYA—cont.

I - **var. alba** Venezuela

Flowers pure white excepting the yellow throat.

gigas **syn. Warscewiczii.**

Grahami **syn. Lælia grandflora.**

grandiflora **syn. Sophronitis grandiflora.**

I **granulosa** Brazil

Stems cylindrical, diphyllous, 15 to 20 inches high. Spikes 3 to 7 flowered. Flowers fleshy, about 4 inches across. Sepals and petals olive green, brown spotted. Lip spreading, whitish, densely spotted and asperated with crimson.

Late Summer

I - **var. Dubuyssoniana** Brazil

Sepals and petals clear yellow, sometimes rose spotted. Late Summer

I - **var. Schofieldiana** Brazil

A stronger growing sub-variety with larger and more handsome flowers. Sepals and petals tawny yellow, densely spotted with crimson, lip rose purple.

Late Summer

I **Gautemalensis** Guatemala

A natural hybrid between Skinneri and aurantiaca. (Epidendrum.) Interesting but not showy. Habit intermediate. Flowers small, pale rose purple, shaded with orange, lip similarly coloured with the front lobe deeper purple.

I **guttata** Brazil

Pseudo bulbs cylindrical, 18 to 30 inches high. Leaves leathery. Spikes 3 to 15 flowered. Flowers fleshy, 2 to 4 inches across. Sepals and petals tawny yellow, densely spotted with crimson, lip rose purple. Requires a decided rest.

Late Summer

I **guttata var. leopardina** Brazil

Sepals and petals heavily spotted.

I - **var. Leopoldii** Brazil

Bears the same relation to guttata as Schofieldiana does to granulosa. Habit much stronger than in the type. Spikes sometimes carrying 30 flowers. Sepals and petals bronze, spotted with crimson, lip rich crimson purple. Summer

I **Hardyana** Colombia

A natural hybrid between Dowiana var. aurea and Warscewiczii. Flowers very large with deep rose red sepals and petals, lip frilled, magenta crimson veined with old gold and dark purple, variable. The hybrid has been raised artificially and adds greatly to collections. Late Summer

Harrisoniæ **syn. Loddigesii var.**

Holfordii **syn. luteola var.**

CATTLEYA—cont.

I **intermedia** Brazil

Habit as in Loddigesii but more slender, sepals and petals white flushed with rose, lip rose purple. Summer

I **- var. alba** Brazil

Flowers pure white. Summer

I **Jenmanii** Demerara

A rare handsome species of the labiata section and somewhat resembling C. Gaskelliana. Spikes strong 3 or more flowered. Flowers about 6 inches across. Sepals 2 ½ to 3 inches long, nearly 1 inch broad. Petals as long, 2 ¼ inches broad, somewhat rounded in outline. Lip rather less than in Gaskelliana resembling that of labiata, 2 inches or more broad when spread. Sepals and petals deep magenta rose in colour, lighter basally. Lip slightly darker, deep crimson on the front lobe as in labiata. Throat veined with crimson on a yellowish ground. Column whitish tinted green basally. Winter

I **labiata autumnalis vera** Brazil

Pseudo bulbs clavate, monophyllous, 4 to 10 inches high, stout, leaf 4 to 10 inches long, leathery. Spike 2 to 7 flowered, double sheathed. Flowers large 6 to 8 inches across, showy, very variable. Sepals and petals bright rose, lip deep crimson purple, frilled and waved, throat marked with yellow.

Late Autumn

I **- var. alba** Brazil

Flowers pure white, throat yellow. Late Autumn

I **- var. lilaciana** Brazil

Whole flower of a light blush rose with a dash of crimson in centre of lip.

Late Autumn

NOTE. — Cattleya labiata vera is the type of what is termed the labiata section of Cattleya. Horticulturally all the plants grouped under this section are quite distinct and hence in this list have been referred to as species and placed in alphabetical order. The following plants are included in this and are often referred to as varieties of labiata, resembling C. labiata vera more or less in habit and the shape of their flowers, though their habitats, periods of flowering and floral colour often differ widely :— Cattleyas Dowiana, Eldorado, Gaskelliana, Jenmanii, Lawrenceana, Luedemanniana, luteola, maxima, Mendelii, Mossiae, Percivaliana, quadricolor, Rex, Schroederae, Trianae, Warneri and Warscewiczii.

Lælioides **syn. Skinneri**

S **Lawrenceana Rch. f.** British Guiana

Pseudo bulbs 6 to 9 inches, leaf 6 to 9 inches, red tinged. Spike 3 to 7 flowered. Flowers medium size, rose purple, lip slightly darker, throat nearly white.

Early Summer

CATTLEYA—cont.

Lawrenceana **(Warsc.) syn. Dowiana.**
Lemoniana **syn. Luedemanniana.**
Leopoldii **syn. guttata var.**
lobata **syn. Lælia Boothiana.**

I **Loddigesii** Brazil

Pseudo bulbs, cylindrical, 12 to 24 inches high. Spikes 2 to 7 flowered, pale lilac rose, throat yellowish, somewhat resembles intermedia in general appearance but the flowers are larger, the segments broader and the lip shorter and not so brightly coloured. Summer

I **- var. Harrisoniæ** Brazil

Flowers varying from lilac to magenta, darker than in Loddigesii, mid-lobe of lip reflexed at sides, yellow basally and corrugated. The pseudo bulbs are usually more slender than Loddigesii, than which it requires a slightly higher temperature. Summer

I **- var. violacea.**

Flowers rose purple.

I **Luedemanniana** Caracas

Labiata section. Flowers large. Sepals and petals flesh colour, the petals broad and well filled in. Lip slightly trumpet shaped, rich amethyst and white, yellow and amethyst in the centre, very variable and shows a marked influence on hybrids derived from it. Summer

I **- var. alba** Caracas

Flowers pure white, tinted with yellow in the throat. Summer

I **luteola** Brazil

Habit dwarf, pseudo bulbs clustered, slightly flattened, about 2 inches long, bearing a single leaf about 3 inches long. Flowers about 2 inches across set closely on a short peduncle, pale yellow the side lobes of the lip streaked with purple.

I **- var. Holfordii**

Similar to preceding but larger in all its parts and brighter in color. Summer

macrantha **syn. Sobralia macrantha**
majalis **syn. Lælia grandiflora**
marginata **(Paxton) syn. Lælia pumila.**
maritima **syn. intermedia**

I **maxima** Ecuador

Labiata section, height 12 to 18 inches. Spikes 5 to 10 flowered. Flowers not as large as in labiata, sepals and petals rose, lip darker and distinctly veined. Winter

I **- var. alba**

Flowers pure white.

I **- var. Peruviensis** Peru

Pseudo bulbs shorter and stouter. Flowers darker in colour. Winter

CATTLEYA—cont.

I **Mendelii** Colombia

Labiata section. Flowers variable and very handsome, 6 to 8 inches across. Sepals and petals light blush, lip frilled, the front lobe varying from deep magenta to crimson, usually very clearly defined. Early Summer

I **Mossiæ** Venezuela

Labiata section. Flowers large, very variable, and handsome. Typically with light rose sepals and petals, the lip crimson and rose with yellow markings, often on a suffused white ground, the yellow extending into the throat. Summer

I - **var. Arnoldiana** Venezuela

Sepals and petals nearly white with a dash of rose in the petals extending from the apex to the centre, lip way of Reineckiana. Summer

I - **var. aurea** Venezuela

Buff orange and yellow in the throat and back of the lip which is deep crimson.

I - **var. Hardyana** Venezuela

Sepals and petals marmorated with deep rose. Summer

I - **var. Reineckiana** Venezuela

Sepals and petals pure white, lip beautifully marked, lilac mauve and crimson, crimson and yellow in the throat. There are several forms of this variety.

I - **var. Wagneri**

Flowers pure white, lip with an ochre yellow throat. This variety is again very variable. Occasionally magnificent forms have been imported and in addition varieties have been raised from seed. Summer

I **nobilior** Brazil

Habit resembles that of dolosa but more imposing. Usually the plant flowers from leafless stems produced from the rhizome as does Walkeriana. The flowers are larger and the side lobes are more developed than in dolosa.

I **O'Brieniana** Brazil

Habit intermediate between dolosa and Loddigesii but nearer dolosa, between which species it was at one time supposed to be a natural hybrid. There can however be little doubt but that it is a true species. Pseudo bulbs 4 to 6 inches high, one or two leaved.Leaves fleshy, pointed, about 3 inches. Peduncles short, one to 3 flowered. Flowers 4 to 5 inches across. Sepals and petals satin rose, front lobe of lip darker. Summer

I - **var. alba** Brazil

Habit as in type. Flowers pure white. Summer

ovata **syn. intermedia.**

Popeiansiana **syn. Loddigesii.**

peduncularis **syn. Lælia peduncularis.**

CATTLEYA—cont.

/ **Percivaliana** Venezuela

Labiata section. Flowers rather less than in labiata. Sepals and petals deep rose, lip frilled, richly coloured, magenta, crimson, pink and tawny yellow, throat marked with crimson and gold. Early Winter

Perrinii **(Lindl.) syn. Lælia Perrinii.**

Pinellti **syn. Lælia pumila.**

purpurata **syn. Lælia purpurata.**

reflexa **syn. Lælia crispa.**

S **Rex** Peru Andes

Labiata section. Flowers slightly less than labiata. Spikes 2 to 7 flowered. Sepals and petals creamy white to yellow, lip crimson-red, veined with yellow, shaded white and yellow, frilled white. Sommerr

Rothschildiana **syn. Lælia Amanda.**

rubescens **syn. Lælia rubescens.**

/ **quadricolor** Oaxaca

Labiata section, resembling Trianae in habit, of which species it is probably a geographical form. Flowers very variable, not expanding as fully as those of Trianae. Sepals and petals blush white, lip rich magenta-purple, throat yellow. Autumn and Winter

/ **- var. alba** Oaxaca

Flowers pure white, throat yellow. Winter

S **Schilleriana** Brazil

Resembling Aclandiae in habit but much stronger. Usually both the bulbs and the thick leathery leaves are red tinted. Scapes usually 2 flowered. Flowers about 4 inches across, fleshy. Sepals and petals broadly strap shaped, with undulated rose-brown margins often with darker spots. Lip with side lobes clearly defined, enfolding the column. Front lobe somewhat shovel shaped with reflexed margins, red purple with darker lines and often a lighter border. A well marked species requiring a decided rest. Summer

S **- var. Regnelli** Brazil

Sepals and petals olive green spotted with purple, lip deep rose-red, purple shaded, bordered white. Summer

sessilis **syn. Sobralia sessilis**

Schofieldiana **syn. granulosa var.**

/ **Schrœderæ** Colombia

Labiata section. Resembling Trianae in habit. Flowers varied in colour. Very large with broad waved sepals and petals. The colour is usually a light rose, deeper on the lip. In some varieties the colour is quite a rose purple but seldom covers as extensive area as in Trianae. Throat deep orange, lip frilled. Sweet scented. One of the best Cattleyas. There are numerous well marked varieties, alba, Queen Mary, The Baron etc. Spring

CATTLEYA—cont.

/ **Skinneri** Guatemala

Habit similar to that of Bowringiana but less and without the swollen base to the pseudo bulbs. Spikes 3 to 8 flowered, 2 to 3 inches across, clustered. Sepals and petals nearly equal, rose purple, the colour deeper on the lip, throat paler. Sheath formed in the late summer and autumn and remains brown and withered through the Winter. Early Summer

/ - **var. alba** Guatemala

Flowers pure glistening white, some with purple mark at base of lip, and a yellow stain in throat. Early Summer

/ - **var. oculata** Guatemala

Flowers rose purple, with a conspicuous sulphur yellow blotch in the throat and a deep purple blotch on the lip. Early Summer

speciosissima **syn. Luedemanniana**

sphenophora **syn. guttata.**

sulfurina **syn. citrina.**

S **superba** Essequibo

Pseudo bulbs fusiform, diphyllous. With leaves, about 12 inches high. Spikes 3 to 5 flowered. Flowers slightly fragrant, about 5 inches across, sepals and petals deep rose, lip rich crimson. Summer

S - **var. splendens** Essequibo

Flowers more richly coloured, lip whitish at base. Summer

superbiens **syn. Lælia superbiens.**

tibicinus **syn. Schomburgkia tibicinus**

/ **Trianæ** Colombia

Labiata section. Habit and flowers slightly larger than in the true labiata, very variable. Sepals and broad petals blush, lip purple crimson, throat orange. A very showy species, the more valuable from its period of flowering. Winter

/ - **var. alba** Colombia

Flowers pure white, throat shaded with orange. Winter

/ - **var. delicata**

Sepals and petals very light blush, lip light rose, throat yellow. Winter

undulata **syn. Schomburgkia undulata.**

/ **velutina** Brazil

Stems slender erect about 15 inches high, 2 to 3 leaved. Flowers fragrant 4 to 5 inches across. Sepals and petals nearly equal, orange yellow spotted with purple. The side lobes of the lip small, the mid lobe, spreading, whitish, tinged with yellow, veined with violet, reflexed marginally. Late Summer

vestalis **syn. Forbesii.**

CATTLEYA—cont.

/ **Victoria Regina** Brazil

Very rare. Probably a natural hybrid between labiata and guttata var. Leopoldii. It has tall, stout, diphyllous pseudo bulbs and bears 3 to 5 flowers on erect spikes resembling some of the dark rosy forms of Laeliocattleya elegans.

Various

Wagneri **syn. Mossiæ var.**

/ **Walkeriana** Brazil

Habit similar to that of dolosa but larger. Flowers borne on leafless stems, large, soft rose, lip deep rose. Winter

/ **Warneri** Brazil

Labiata section. Strongly resembling autumnalis vera in habit, floral colouring, etc. in fact it has been called the summer flowering labiata. The foliage is broader and the flowers slightly larger, with deep rose sepals and petals and a deep crimson lip. Summer

/ - **var. alba** Brazil

Flowers pure white with the exception of a yellow stain in the throat.

Summer

Waroqueana **syn labiata vera.**

/ **Warscewiczii** Colombia

The largest of the labiata section with taller bulbs and longer leaves than in labiata. Spikes 2 to 7 flowered. Flowers 8 to 10 inches across. Sepals and petals rose, lip crimson purple with yellow markings in the throat, very handsome. Requires a light position in the Winter, cooler than when growing, as it benefits by a long rest. When growing hardly too much sun heat can be given.

Summer

/ - **var imperialis** Colombia

Flowers larger than in type and more richly coloured. Summer

/ - **var. Sanderiana**

Very fine, sepals and petals dark rose, lip rich magenta purple. The finest of all.

Summer

/ **Whitei** Brazil

A natural hybrid between C. Schilleriana and C. Warneri. Habit and shape of flowers intermediate but often nearer that of Schilleriana. Flowers dark crimson red in colour. Summer

CHARLESWORTHEARA

The name given to hybrids combining the three genera Cochlioda, Miltonia and Oncidium.

CHONDROBOLLEA

To designate hybrids between Bollea and Chondrorhynca. The plant on which the genus was founded was imported and until further materials appear considerable doubt exists.

CHONDROPETALUM

Applied to hybrids between Chondrorhynca and Zygopetalum.

CHONDRORHYNCA

A genus of tufted epiphytes allied to and resembling Zygopetalums. But few species are in cultivation, the better known and the one most largely grown being C. Chestertonii.

A shaded but not gloomy position in a cool part of the Cattleya house usually suits them. The compost should consist of 2 parts Osmunda fibre, 1 part sphagnum moss and 1 part of loam fibre, leaf mould and sand, the whole mixed well. The plants should never be dried out but careful watering is essential at all times, as the leaves quickly drop if the compost gets sodden and sour, or too dry.

/ Chestertonii New Granada

Habit tufted. Leaves 6 to 9 inches high, ½ to ¾ of an inch broad, pointed, channelled. The slender scapes are produced from the axils of the leaves and carry a single bloom 2 ½ to 3 inches in length. The whole flower is of a soft yellow, the lip has a few brown markings near its base and is expanded into a broad fringe, while the petals are delicately fringed. Various

/ Lipscombiæ Panama

Leaves 6 to 9 inches long, broader than in Chestertonii, darker green. Flowers about 2 inches across, white, veined with purple in the bilobed lip. Winter

/ Lendyana Colombia

Foliage broader than in Chestertonii and more fleshy, scapes shorter, bearing a yellowish white flower, darker on the lip. Summer

CHYSIS

Epiphytal, deciduous or semi-deciduous Orchids having swollen, fleshy, clustered pseudo bulbs a foot or more in height and 5 to 6 broadly lanceolate leaves as long or longer. The fleshy flowers, set somewhat closely together are produced on short, slightly arched racemes from the young growths. The plants succeed best in pans or baskets hung near the glass, using a compost as for Cattleyas with, in the case of strong plants, a very little loam fibre. When growing they require liberal supplies of water but after the bulbs are matured the plants must be kept rather dry and should have a lower temperature.

CHYSIS—cont.

The foliage is rather susceptible to attacks from red spider, hence though the plants are fond of light, when in full growth they should not receive too much sun and the atmosphere must be kept moist and bouyant.

/ aurea Venezuela

Spikes 3 to 7 flowered. Sepals and petals tawny and, with the strongly ridged lip, marked with red crimson. Seldom fully expanded. Early Summer

/ bractescens Peru

Spikes 5 to 9 flowered. Flowers with large inflated bracts about 3 inches across, so far the largest in the genus. Sepals and petals waxy white, lip yellowish centrally, with, sometimes, crimson markings. Fragrant. Spring

/ lævis Mexico

Spikes 3 to 7 flowered, strongly arched. Bract nearly as large as in bractescens. Sepals and petals orange yellow, lip marked with crimson, slightly fimbriated. Habit rather stronger than in the other species. Early Summer

CHYTROGLOSSA

A small genus resembling Masdevallia in habit but allied to Ornithocephalus. Only two species are known C. aurata and C. Marileonias. Both are dwarf growing species and are probably now not in cultivation. A Cattleya house, small pans and compost as for Odontoglossums suits them.

CIRRHÆA

A genus of central American epiphytal Orchids, allied to Gongoras and resembling that genus in habit, though the flowers are somewhat reminiscent of Cycnoches. The pseudo bulbs are ribbed and the foliage is plicate. The flowers,18 to 20,are carried in pendulous racemes and like Gongoras are curiously contorted. Usually the flowers are rather more than an inch in diameter. The dorsal sepal pointing downwards equals in size the lateral sepals, which are broader than the petals, but all are narrow.The lip is directed upwards, its outer surface more or less parallel with the curving pedicel. The organ is very narrow, three lobed, the mid-lobe hastate, the lateral lobes longer, narrow, pointed and inclined towards the column.

Their culture is that of Gongoras, and though the plants are usually less in habit, they require an equally decided rest, after the bulbs are fully made up.

CIRRHÆA—cont.

/ Loddigesii Brazil

Sepals and petals greenish yellow, the sepals, lip and occasionally the petals marked and spotted wtih dark red. Summer

/ triste Mexico

Sepals and petals greenish yellow, almost entirely suffused with dull blood purple, the lip still darker.. Summer

/ viridipurpurea Brazil

Flowers greenish externally, the inner surface often marked with dull purple. Summer

- var. *Loddigesii* **syn. Loddigesii.**

/ Warreana Brazil

Flowers set closely together, yellowish green marked with purple, lip white, marked with purple, its apex emerald green with dark markings. Summer

CIRRHOPETALUM

A genus of remarkable Eastern Orchids closely allied to Bulbophyllum — in fact the two genera are somewhat confused, as the demarcating line is by no means clearly defined. The distinguishing features are remarked on under Bulbophyllum and the culture is the same as for that genus. As in Bulbophyllum, the majority of the species like a decided rest but discretion must be used with the softer bulbed forms. The flowers are every whit as varied as in Bulbophyllums and in many even more remarkable, from their dainty bright colourings, ornamental appendages and curious shape. Most of the plants have single leaved pseudo bulbs on creeping rhizomes.

So far no member of the this genus has been discovered in the new world, whereas Bulbophyllums are distributed in the two hemispheres.

/ Amesianum Malaya

Pseudo bulbs about 1 inch, four angled on a creeping rhizome. Leaves 2 to 3 inches long by about 1 broad. Spikes slender 3 to 5 inches high. Flowers about 1 ½ inches long. Lower sepals about 1 inch in length, strawberry red, dorsal sepal hooded, with the small petals old gold, spotted with red, each bearing a single hair. Lip purple red. Various

CIRRHOPETALUM—cont.

/ **Andersonii** Andamans

Pseudo bulbs 1 to 1 ½ inches high, ovate, at intervals on a creeping rhizome, bearing a single leaf 4 to 6 inches high. Spikes erect, 6 to 9 inches. Umbel 2 to 3 inches across. Flowers closely set. Lower sepals ½ to ¾ of an inch long, broad by comparison, slightly divided apically. Light straw or greenish yellow, flushed with pink. Upper sepal hooded, with the petals, lined with red, lip purplish. Autumn

/ **appendiculatum** Bengal

A remarkable species with obscurely four sided pseudo bulbs about ¾ of an inch high, borne at short intervals on a creeping rhizome and bearing a thick, sometimes two, leaf about 2 inches high. Scapes 3 to 4 inches bearing a single large flower about 8 inches long. The lower sepals form the major part of the flower and are white, flushed and lined with purple, separated at the tips, petals small, whitish, with a purple line, the upper sepal also white but ornamented with three purple lines, carrying a brush like plume of purple hairs. Lip tongue like, bright purple. Early Winter

/ **auratum** Philippines

A pretty species with oval, dark green, pseudo bulbs about 2/3 of an inch high. The slender scape is some 4 inches long and bears an inflorescence shaped as in C. campanulatum. The lateral sepals are strap shaped, yellow, marked and tinged with purplish red. The upper sepal and petals are more brightly coloured and fringed with hair. Various

/ **biflorum** Java

Pseudo bulbs 1 to 2 inches high, somewhat cylindrical, carried at intervals on a creeping rhizome. Leaf 2 to 3 inches long. Habit straggling, for which reason the plant is often better suited on a block. Inflorescence two flowered. Flowers about 3 inches long, dorsal sepal narrow, pointed, greenish, striped with purple, petals broader and shorter, similarly coloured but with only 3 purple stripes instead of five and a few spots, lip pointed, brownish, lower sepals about 2 ½ inches long, attenuated, striped basally with purple passing into green, dotted, and flushed with brown, emits a peculiar odour. Summer

S **campanulatum** Sumatra

Pseudo bulbs small, clustered. Leaf about 3 inches long. Scape as tall. Flowers small. The whole umbel being about 1 inch in diameter, the rosy pink lateral sepals are connate and deflexed, giving a campanulate appearance to the inflorescence. The dorsal sepal and petals are yellow, lined with brown, and fringed with, purple hairs, lip red purple. Spring

/ **caudatum** India

A dwarf growing species with the habit of C. biflorum but much less. Inflores cence somewhat resembling that of a miniature Medusae.Flowers creamy white, closely set on short scapes. Summer

CIRRHOPETALUM—cont.

/ chinense China

Near Thouarsii in the general effect of the inflorescence. The whole plant is more slender, the smaller pseudo bulbs produced at longer intervals on the rhizome. The scape is shorter, the flowers lighter in colour with a larger and hooded dorsal sepal, its tip together with the tips of the petals being bright red.

Early Summer

/ Collettii Burma

Closely allied to Rothschildianum but with slightly smaller and less highly coloured flowers. The lateral sepals are 4 to 5 inches long, neither as long or broad as in Rothschildianum but the appendages on the extremities of the dorsal sepal and petals are broader than in that species. Various

/ cornutum India

Pseudobulbs about 2 inches high, ovoid, leaf about 8 inches, fleshy. Scape taller. Flowers about 1 ½ inches in length. The lateral petals have a curious varnish like brown tint and are volute and connate in such a way as to have a horn like appearance. The dorsal sepal and petals, greenish, suffused with the same colour. The flowers emit a peculiar odour. Various

S **Cumingii** Philippines

Pseudobulbs small, four angled. Leaf 2 to 3 inches. Scapes 3 to 6 inches. Flowers red purple, about 1 ½ inches long. Lower sepals curiously twisted and enlarged, dorsal sepal and petals fringed with hairs. Various

/ elegantulum India

Habit creeping. Pseudo bulbs small, ovate, olive green, covered with a brownish membrane. Leaf solitary, about 2 inches long. Peduncle slender, 3 inches long, extended horizontally. Inflorescence about an inch across. Flowers small. Dorsal sepal and petals suffused and lined with dull red as are the bases of the lower sepals. The upper portion of these, and the lip, yellow. Early Winter

/ fascinator Annam

A species closely allied to, and even finer than C. appendiculatum. The flower is very similar but still larger, broader across the lateral sepals and often exceeding 6 inches in length. The ground colour is a light green but striped, marbled and suffused with purple. The dorsal sepal and petals are heavily fringed with amethyst purple hairs. Autumn

/ gamosepalum India

Pseudo bulbs about an inch high, leaf 2 to 4. Scape taller. Flowers about 1 inch over or rather more, red with purplish markings on the lateral sepals, which diverge at their apices.

CIRRHOPETALUM—cont.

/ **gracillimum** Malaya

A small but dainty species. The four sided, ovoid, pseudo bulbs are less than an inch high, clustered, and carry a single leaf about 2 inches long. The slender scape 6 to 9 inches, rises well above the foliage and carries numerous, crimson red flowers. The narrow lateral sepals are 1 ½ inches long, the petals long in proportion to those of many of the genus, are narrow but strongly haired.

Autumn

graveolens **syn robustum.**

/ **guttulatum** India

This is frequently and perhaps rightly known as Bulbophyllum umbellatum. The ovoid pseudo bulbs are 1 to 2 inches high. The leaf about 6 inches and the greenish yellow, purple marked, scape 6 to 10 inches high, bearing flowers about 1 inch in diameter or rather less, yellow green, speckled with bright purple, lip purple, lower sepals twisted, divergent apically. Various

/ **longissimum** Malaya

Pseudo bulbs four angled, 1 to 1 ½ inches high, bearing a fleshy pointed leaf 4 to 6 inches long, 1 to 1 ½ broad. Scape slender, arching, about 6 inches long, ending in a drooping umbel-like raceme of, usually, 4 flowers, exquisitely marked and remarkable for the length of the lateral sepals which gradually taper, from the base to the extreme tip, for a length of 6 to 12 inches. Dorsal sepal ½ to ¾ of an inch long, half as broad, concave, pointed, haired on the edges, light pink-buff with 5, more or less, regular purple lines running from base to apex, but at the apex merging into purplish spots. Interior surface similiarly coloured, petals much smaller, half hidden by the edges of the lower sepals, lip fleshy, soft yellow. The opening at the lower part of the sepals allows the lip just sufficient room to oscillate. The sepals are then connate for the greater part of their length but eventually divide. Colour a soft pink-buff, striped back and front, with deeper pink lines. Winter

S **Macræi** Ceylon

A pretty dwarf species with small pseudo bulbs. Leaves narrow, about 3 inches long. Scape 6 inches long, slender. The lateral sepals 3 inches long, attenuated, with the remainder of the flowers, yellow, suffused and marked with bright red. Various

/ **Makoyanum** Malaya

Pseudo bulbs about 1 inch high, slenderly ovoid. Leaf 3 to 4 inches. Scape slender, 4 to 6 inches. Flowers about 1 ½ inches or more in length. The segments narrow, the lateral sepals attenuated, pale yellow marked and dotted with red.

Winter

CIRRHOPETALUM—cont.

/ Mastersianum Malaya

Pseudo bulbs about 1 inch high. Leaf 4 to 5 inches. Scape as tall. The connate lower sepals are about 1 ½ inches long, broader in proportion than in most species. The whole flower is yellow but the yellow is nearly obscured by a red-brown suffusion. The sepals are inclined backwards to the peduncle.

/ miniatum Annam Various

A neat growing, very attractive, species. Pseudo bulbs about ½ an inch high, clustered. Leaves 2 inches long, pointed, deeply channelled centrally. Scape slender 4 to 5 inches high. Flowers wholly of a lovely cinnabar red. Upper sepal and petals very small, fringed with yellow hairs. Lower sepals extended to a length of 2 ½ inches. Summer and various

/ mundulum Assam

Very much resembles C. cornutum in all its characters, even to the odour. The flowers are lighter in colour and both they and the habit of the plant somewhat less. Various

/ O'Brienianum Borneo

Resembling miniatum and Makoyanum in habit. Upper sepal and petals, dark red purple, as are the bases of the lateral sepals, the apical portions are light yellow. A charming species. Various

/ ornatissimum Himalayas

Compact habit, pseudo bulbs about 1 inch high, bearing a dark green, leathery leaf, 3 to 5 inches long, by 1 to 2 broad. Scape about 6 inches high carrying flowers nearly 3 inches in length, pale purplish brown with darker stripes and nettings. The dorsal sepal and petals are tufted with hairs, lip crimson purple. Autumn

/ picturatum Malaya

Pseudo bulbs 1 to 2 inches, ovoid, leaf 4 to 6 inches, fleshy. Scapes 6 to 10 inches, stout, greenish, speckled with red. Flowers 2 inches or more in length, upper sepal greenish yellow, spotted with red, terminated with a purple tail-like thread, lower sepals greenish yellow. Various

/ - Veitch's var.

Flowers larger and more brightly coloured.

/ pulchrum Malay

Pseudo bulbs four angled, 1 to 1 ½ inches high, on a creeping, membrane sheathed, rhizome. Leaf fleshy 4 to 6 inches long by 2 to 3 broad, glossy. Scape erect, about 6 inches high. Flowers about 1 ¾ of an inch in length. Lower sepals about 1 inch long, yellow, thickly speckled with light red brown, upper sepal deeply concave, thickly spotted with small red dots, confluent apically and forming a purple red spot, terminating in a few bristle like purple hairs with a central hair ⅜ of an inch long, knobbed at extremity, petals small, similarly coloured, margined with ragged hairs. Lip narrow with the edges revolute, the apical half hooked. Summer

CIRRHOPETALUM—cont.

/ refractum Burma

Pseudo bulbs light green, clustered, roughly ovoid, about 1 inch high. Leaves deciduous or often so. Racemes 12 to 15 inches long. Flowers, at short intervals, on the bent upper portions. Lower sepals 1 to 1 ½ inches long, yellowish, faintly lined with red, upper sepal green and purple, bristled. Petals the same colour, lip spotted with red. Known as the « Windmill » orchid from the conformation of the lower sepals and the position of the flowers on the stalk. Winter

S **robustum** New Guinea

A strong growing species with stout, ovate, angled pseudo bulbs 2 inches or more high, bearing a thick leathery leaf, 12 to 18 inches high by 3 to 4 broad. Scape 6 to 12 inches high, carrying flowers 3 inches or more in length. Upper sepals greenish, over an inch long. Lower sepals 2 to 2 ½ inches long, glossy, light green, thickly shaded with tawny red. Petals small, similarly coloured, lip deep red. The column protected by the arching upper sepal. Summer and Autumn

/ Rothschildianum India

Allied to C. Collettii but finer than that species. Pseudo bulbs 1 to 1 ½ inches high, four angled, at intervals on a creeping rhizome, bearing a stout leathery leaf 4 to 6 inches long, keeled at the back, 1 inch broad. Scape 5 to 9 inches high, greenish, speckled with purple. Inflorescence usually arranged with the dorsal sepals in the centre. Flowers 4 to 6 inches long. Dorsal sepal greenish yellow, bearing interrupted lines of red, the margins with purple hairs, strongest apically, petals similar but less. Lower sepals an inch across in their greatest breath. 4 to 6 inches long. Connate portion similarly coloured to the dorsal but the yellow nearly obscured by deep purplish red. Lip bright crimson purple.

Summer and various

/ Roxburghii India

An attractive species with small pseudobulbs, ½ to ¾ of an inch high on a creeping rhizome. Leaf about 2 inches long. Scape slender, 3 to 4 inches. Inflorescence about 1 ½ inches across. The individual flowers are small but very pretty, pale yellow, the dorsal sepal and petals lined with purple, halved apically and marginally, the lateral sepals flecked with red purple, the lip darker yellow, lined with red. Summer

/ Thouarsii Philippines, etc.

Pseudo bulbs about 1 inch high, four angled. Leaf 3 to 5 inches, leathery. Scapes taller. Flowers about 2 inches in length, upper sepal yellow, spotted with purple, lateral sepals tawny yellow, marked with red. Various

/ vaginatum Penang

Resembles a small form of Bulbophyllum Medusae but the threads are less flaccid. Summer

CIRRHOPETALUM—cont.

/ **Wendlandianum** Burma

Allied to and resembling C. Collettii. The pseudo bulbs are smaller. The leaf shorter and thicker. The flowers are lighter in colour and less in size.

Early Summer

CLEISOSTOMA

A polymorphic genus allied to Saccolabiums, but distinguished from that genus by the flowers having the orifice of the pouch closed by a projecting callus or tooth. The habit of the plants resembles that of Vandas, Ærides etc., the foliage usually being coriaceous. The flowers may be in panicles or in closely set, corymb like, spikes, but usually are very small and though sometimes brightly coloured do not compare with the Saccolabiums, Ærides etc.

Their culture should be that accorded Ærides and they should be kept moderately dry during the Winter.

COCHLIODA

Closely allied to Odontoglossums and intercrossing readily with those plants. They are separated from that genus by the different structure, chiefly in the stigma, of the flowers, but are readily recognized by the bright rose or red colour of the flowers, which, particularly in the case of C. Noezliana, have been of the greatest value to the hybridist. The habit is rather more neat than in Odontoglossums, the pseudo bulbs are slightly broader in proportion to their height and with the foliage slightly darker in tint. The culture is the same as given Odontoglossum crispum but if anything drier in the atmosphere.

C **Nœzliana** Peru

Height of plant about 8 inches, spikes arching, 6 to 12 inches long, 10 to 15 flowered. Flowers about 1 inch or more across, sepals and petals slightly reflexed, lip three lobed, all bright orange scarlet, disc of lip yellow. Winter and Spring

COCHLIODA—cont.

Nœtzliana **syn. Nœzliana.**

C **rosea** Peru

Habit as in Noezliana but less. Flowers smaller and carried on shorter spikes, carmine rose in colour with a white column. Winter

C **sanguinea** Ecuador

Habit similar to the preceding species but with more slenderly tapered pseudo bulbs and slightly narrower foliage. Spikes sometimes branched. Flowers about an inch in vertical diameter. Sepals and petals rose pink, the lower sepals connate basally, then divergent, lip paler in colour, column whitish. Autumn

C **stricta** Colombia

Smaller growing than the other species with erect spike of neatly disposed rosy flowers. Spring

C **vulcanica** Ecuador

Habit as in sanguinea. Spike more erect. Flowers slightly larger, dark rose in colour, lip paler on the disc. Spring

CŒLIA

Epiphytal orchids with comparatively small, globose, pseudo bulbs, bearing 3 or 4 narrow, ribbed leaves about 12 to 18 inches long, sheathed basally. The flowers are produced from the base of the bulb on short erect bracteate spikes. The plants grow well with Lycaste Skinneri and should have a similar compost, macrostachya should have a more decided rest than the other species.

C **Baueriana** Mexico

Flowers small, greenish white, in dense racemes, fragrant. Summer

C **bella** Guatemala

Flowers about 2 inches long, funnel shaped, 3 to 5 on spike. Sepals and petals creamy white, sepals tipped with magenta, lip yellow, fragrant. Autumn and Winter

C **macrostachya** Mexico

Stronger growing than the other species. Pseudo bulbs not so smooth. Spike about 6 inches high. Flowers rosy red, in the axils of long, brownish, red, pointed, bracts. Late Summer

CŒLOGLOSSUM **syn. Habenaria.**

CŒLOGYNE

A genus widely distributed throughout the East, most variable in size, shape and colouring of the flowers. Nearly all are worth cultivating as even the smaller species are daintily marked and noteworthy.

They vary in habit, from Dayana which produces spikes, often 3 feet in length, to uniflora, the inflorescenses of which consist of single small flowers nestling beneath the pseudo bulbs and foliage. C. cristata is one of the most popular orchids grown. The pseudo bulbs are more or less ovoid, carried in a creeping rhizome and usually bear 2 plicate leaves.

A compost of 3 parts Osmunda fibre finely shredded and rather more than one part of sphagnum moss suits them well. The species with pendulous flower spikes should be placed in baskets or pans to admit of being hung.

Usually the flower spikes are produced from the centres of the young growths hence care is necessary in watering and syringing that water does not lodge in the young growths, otherwise, water may be freely given until growth is finished when the plants should be kept moderately dry. With plants so variable and widely distributed, cultural methods more or less depend on the nature of the species and the conditions which obtain in its native habitat, e.g. C. corrugata from Khasya requires a decided and cool rest while pandurata from Borneo requires a considerable temperature all the year round and cannot bear a long rest. Where the pseudo bulbs are hard and the foliage somewhat leathery, a decided rest may usually be given but where the bulbs and foliage are light green, smooth and glossy, only a moderate rest should be permitted. On account of their habit of flowering from the young growths the flowering period is often irregular. Some of the smaller growing species may be grown with Bulbophyllums and Cirrhopetalums to advantage.

The genus Pleione is included under Cœlogyne but is kept distinct here as the plants are so well known in gardens under that name.

CŒLOGYNE—cont.

I **Annamensis** Annam

Allied to and possibly a form of C. fuscescens. It differs from that species in that the sepals and petals are pale buff, the lip buff with deeper orange brown markings. Summer

Arthuriana see **Pheione maculata.**

articulata **syn. Pholidota articulata.**

S **aspersa** Borneo

Pseudo bulbs 4 to 6 inches high. Leaves 15 to 25 inches. Racemes 12 to 18 inches long, drooping. Flowers about 3 inches across. Sepals and petals nearly equal, creamy yellow, lip yellow, veined and marked with red brown and orange. Summer

I **assamica** Assam

Habit as in fuscescens of which it may be a variety. Flowers about 1 ½ inches across, 6 to 10 in short nodding racemes. Flowers ochre yellow, lip with a spreading front lobe, lightest centrally, darkest marginally, petals linear. Summer

C **barbata** Assam

Pseudo bulbs 2 to 4 inches, ovately globular, light green. Leaves 9 to 15 inches high. Spikes erect as tall or nearly so, as the leaves. Flowers about 3 inches across, sepals and petals nearly equal, pure white, lip curiously bearded with black-brown hairs. Winter and Early Spring

brunnea **syn. fuscescens**

conchoidea **syn. Pholidota conchoidea.**

coronaria **syn. Trichosma suavis.**

C **corrugata** Khasya

Pseudo bulbs, clustered, yellowish, corrugated. Leaves 4 to 10 inches, spikes erect. Flowers about 1 ½ inches across, sepals and nearly equal, petals pure white, lip white, marked with yellow and orange. Summer

C **corymbosa** Himalayas

Pseudo bulbs about 2 inches, greater in height than in girth, obscurely four-sided. Leaves 4 to 6 inches. Spikes erect, few flowered. Flowers about 3 inches across. Sepals and narrower petals white, lip white, pointed, with 2 ocellate yellow, brown margined, blotches. Early Summer

CŒLOGYNE—cont.

C **cristata** India, etc.

Showy and popular. Pseudo bulbs 1 to 3 inches, light green, somewhat oblong. Leaves 6 to 9 inches. Racemes drooping, 3 to 8 flowered. Flowers large 3 or 4 inches across. The sepals broadest and with the petals pure white. The lip is large, undulated marginally, pure white with the exception of the centre which is stained with yellow and bears fringed keels of yellow. A variety with scented flowers is in cultivation.

The species is of easy culture and stands neglect and varying temperatures almost with impunity.

To obtain the best results a slightly higher temperature than that accorded Odontoglossums should be given, water should be withheld for a short period when the pseudo bulbs are matured, usually about October or November — a slight shrivelling to the bulbs does no harm — and infrequently and carefully given till after the flowering period.

The rhizome often branches and in consesquence the pseudo bulbs become too crowded. The older bulbs should be carefully thinned out and if the plants are not entirely re-potted, fresh compost inserted where possible.

Winter to Spring

- var. *alba* **syn. hololeuca.**

- var Chatsworth India, etc.

Flowers of greater size, more regular formation and usually a greater number, 8 on a spike. Winter to Spring

- var. *citrina* **syn. Lemoniana**

- var. hololeuca India, etc.

Flowers pure white without a trace of yellow. Pseudobulbs borne at greater intervals on the rhizome. Winter to Spring

- var. Lemoniana India, etc.

Flowers as in type but the lip is crested with citron yellow and the pseudo bulbs are carried at nearly as long intervals as in hololeuca. Winter to Spring

- var. maxima India, etc.

Flowers as in type but superior in size, form and substance.

Winter to Spring

- var. Woodlands India, etc.

Flowers almost white, only a faint lemon tinge in the throat.

Winter to Spring

CŒLOGYNE—cont.

S **Cumingii** Singapore

A pretty species with slightly ovate pseudo bulbs 1 to 2 inches high. Leaves 3 to 6 inches. Spikes erect, few flowered. Flowers 1 ½ inches across. Sepals and narrower petals white, lip white, three lobed, the side lobes enfolding the column. Front lobe stained and crested with yellow and orange and a few orange spots. Spring

S **Dayana** Borneo

Pseudo bulbs cone-like,ribbed. Scapes pendent, 2 to 3 feet long, many flowered. Flowers about 2 inches across. Sepals and petals light ochre yellow, lip whitish striped and edged with chocolate-brown, keeled. Spring to Summer

S **decipiens** Burma

A small growing species, often only one-leaved. Height about 6 inches. Spikes erect. Flowers small, pretty, white and yellowish brown. Summer

S **elata** Assam, etc.

Strong growing. Pseudobulbs 3 to 6 inches high, somewhat four-sided, carried at intervals on a brown scaled rhizome. Leaves 12 to 20 inches broad, fleshy. Scapes erect, 5 to 12 flowered. Flowers 2 to 3 inches across. Sepals and petals pure white, lip white with yellow centre and orange crests.

As in many other species the flowers open more or less in succession and in the bud state are enveloped in small, closely-set, sheathing, yellowish bracts.

Spring

C **fimbriata**

Possibly a form of fuliginosa which it very much resembles but is smaller in all parts and the flowers are much lighter in colour. The pseudo bulbs when grown cool are small and globose but given more heat the plants assume the characters of fuliginosa but apparently never become quite so robust.

Summer

I **flaccida** North India

Pseudobulbs 2 to 4 inches somewhat four sided, dark green. Leaves about 9 inches dark green. Racemes arching, 7 to 12 flowered. Flowers 1 ½ inches across. Sepals and narrower petals whitish. Lip three-lobed, streaked with faint red, disc yellow. Requires a decided rest. Spring

I **flavida** India

Pseudo bulbs 1 to 2 inches high, ovate, at intervals on the rhizome. Leaves 6 to 9 inches high. Spikes erect. Flowers very small, yellow. Spike bracteate as in elata.

Various

CŒLOGYNE—cont

I **fuliginosa** India

Pseudo bulbs 1 to 3 inches high, cylindrical, tapering, slightly four-sided on a creeping rhizome, diphyllous. Leaves 3 to 6 inches long, by 1 to 1 ½ broad. Spikes erect 1 to 3 flowered. Flowers produced in succession about 2 inches across. Sepals and petals whitish suffused with reddish brown, lip similarly coloured, the mid lobe nearly covered with short, fringing, black-brown, hairs. From its rather straggling habit this plant is better accomodated on a raft. Summer

I **fuscescens** Burma

Pseudo bulbs roughly four sided, dark green. Leaves about 9 inches long, broad, dark green. Racemes semi-pendent, 4 to 9 flowered. Flowers about 2 inches in length. Sepals and much narrower petals greenish, suffused with brownish red, lip marked with cinnamon. Impatient of strong sunlight. Early Winter

I **Gardneriana** North India

Habit near fucescens but considerably larger. Flowers 10 to 15, more closely set on a nodding raceme, white with a yellow marked lip. Each backed by a dark brown boat shaped bract. Mid Winter

I **graminifolium** Moulmein

Height of bulb and leaves 10 to 16 inches. Leaves linear. Spikes erect 2 to 4 flowered. Flowers about 2 inches across. Sepals narrow, spreading, petals smaller, all creamy white. Lip with the front lobe strongly recurved, side lobes rounded, whitish externally, lined within with golden brown. Extending from base of column to front lobe are 3 waved keels. Front lobe yellow shaded with brown and tipped with white, column salmon colour, winged. Various

Hookeriana see **Pleione Hookeriana.**

I **Huettneriana** Burma

Very much resembles C. flaccida. The colour of the plant is not so deep a green, the bulbs are ribbed more than angled, the leaves shorter and broader. The flowers are all set more closely together, their segments do not reflex at their tips and the ground colour is more white. Summer

humilis see **Pleione humilis**

imbricata **syn. Pholidota imbricata.**

I **integerrima** Philippines

Pseudo bulbs smooth, green, 1 to 2 inches high, cylindrical, slightly compressed. Leaf 3 to 5 inches long, by 1 broad. Racemes arching 8 to 12 flowered. Flowers about 1 ½ inches, lip entire. All the segments a light green, the lip ornamented with four brown bands. Summer

CŒLOGYNE—cont.

Khasyana **syn. Pholidota articulata.**

lactea **syn. Huettneriana.**

I **Lawrenceana** Annam

Allied to speciosa but much taller growing. Pseudo bulbs 2 to 4 inches high, ovoid, diphyllous. Leaves 7 to 12 inches high, by over an inch broad. Scape erect, 1 to 2 flowered, usually from apex of matured bulb. Flowers about 4 inches across. Sepals and linear petals buff yellow. Lip large, three lobed, the front lobe white, disc deep orange, yellow behind. There are 5 much frimbriated, brown tipped, keels in the disc. Column winged apically, whitish. A very fine species. Early Summer

I **lentiginosa** Burma

A pretty species. Pseudo bulbs four angled, set closely together, 2 to 4 inches high. Leaves 4 to 8 inches. Spikes erect rather short, 5 to 8 flowered. Flowers over an inch across. Sepals and narrower petals straw yellow, lip white marked with brown and red brown. Summer

Lowii **syn. asperata.**

maculata see **Pleione maculata.**

S **Massangeana** Assam

An easily grown species, not particular as to temperature. Pseudo bulbs 2 to 5 inches high, globosely cone shaped. Leaves broad, light green, ribbed, 10 to 20 inches high. Spikes 12 to 24 inches long, many flowered. Flowers about 2 1/2 inches across. Sepals and petals light ochreous yellow, lip chocolate, yellow veined, edged with white and with yellow crests. Various

S **Meyeriana** Tropical Asia

Resembles pandurata in habit and inflorescence but less and the rhizome branches more freely. Inflorescence 3 to 7 flowered. Flowers green, the lip marked with black. Late Summer

S **Micholitzii** New Guinea

A remarkable species, habit like that of barbata but less. Spike erect. Flowers large, 2 to 4 produced in succession. Sepals and very narrow petals pure white, lip white, with a large, raised, fleshy, tubercular, chocolate-coloured process occupying the centre. Summer

CŒLOGYNE—cont.

I **miniata** Java

Rhizomes ascending, carrying at intervals of 2 to 3 inches, obscurely ovate pseudo bulbs, 1 to 2 inches high, diphyllous. Leaves 4 to 5 inches long by an inch broad. Spikes from young growths. Bulbs and rhizome of a dull reddish tint. Flowers small 3 to 7 on a spike, cinnabar red, sepals slightly keeled, petals narrow, pointed, carried parallel with column and prolonged beyond it, side lobes of lip enfolding column. A species remarkable for the colour of its flowers in the genus.

Various

I **Mooreana** Annam

A very fine species with flowers resembling those of C. cristata but carried on upright spikes. The pseudo bulbs are ovately globular, carrying two leaves from 12 to 16 inches high. Scapes erect from centre of young growth, 4 to 12 flowered.

Various

I **Mossiæ** Neilgherry

Habit somewhat similar to that of ochracea. Leaves 4 to 6 inches. Spike arching 3 to 7 flowered. Flowers nearly 2 inches across. Sepals and petals nearly equal, pure white. Lip with a yellow lanate marking in the centre.

Summer

nervosa **(A. Reich.) syn. corrugata.**

nervosa North India

Pseudo bulbs ribbed, yellowish. Leaves 4 to 8 inches long. Racemes 6 to 15 flowered, arching, 6 to 9 inches long. Flowers about 2 inches across, rather closely set. Sepals and petals white, lip white, marked somewhat as in ocellata.

Summer

nigrescens **syn. speciosa.**

I **ocellata** North India

Pseudo bulbs broadly ovate, clustered, 1 to 2 inches high. Leaves 4 to 9 inches. Spike semi-erect 5 to 7 flowered. Flowers about 1 1/2 inches across. Sepals and petals white, lip white with two eyelike, orange margined, yellow spots, throat brownish. equires a decided rest. Spring

I **- var. maxima**

Flowers larger than type, racemes 5 to 10 flowered. Spring

C **ochracea** Bhotan

Distinguished from ocellata by its four-sided,taller, pseudo bulbs.Flowers slightly smaller than in ocellata. Racemes 5 to 9 flowered, the ocellated markings are not as symmetrical. Summer

C **odoraratissima** Neilgherry

A small growing species with ovoid clustered pseudo bulbs less than 1 inch high, clustered, bearing narrow leaves, 1 to 3 inches high. Spikes 2 to 3 flowered, slender. Flowers almost 1 inch across, white, the lip with a lemon yellow blotch, petals very narrow. Summer

CŒLOGYNE—cont.

pallida **syn. Pholidota imbricata.**

S **pandurata** Borneo

Pseudo bulbs ovate, strongly compressed, 2 to 5 inches high, set widely apart on a stout rhizome. Leaves 12 to 24 inches high, broad, ribbed. Racemes 15 to 30 inches long, arching, 5 to 15 flowered. Flowers 4 inches across. Sepals and petals green. Lip greenish yellow, warted, blotched and veined with black. Succeeds better on a raft owing to its straggling growth. Summer

papageana **syn. Parishii.**

S **Parishii** Moulmein

Pseudo bulbs clustered 3 to 6 inches high, thin, squarish. Leaves 5 to 7 inches high. Spikes borne from apex of pseudo bulbs, 3 to 5 flowered. Resembles a small pandurata in shape and colouring of the flowers, the lip has keels which are beautifully fringed. Spring

S **peltastes** Borneo

Pseudo bulbs shield shaped. Foliage 8 to 12 inches long. Flowers resembling those of a small pandurata but the lip is creamy white with brown markings. Summer

S **psittacina** Amboina

Pseudo bulbs irregularly cone-like 3-5 inches high. Leaves 12-15 inches high. Scapes taller 4-6 flowered. Sepals broad 1 ½ inches long semi-transparent greenish yellow, petals filiform.Lip large orange red at the base with three raised ragged dark brown keels the two outer doubled extending beyond the column on a yellowish ground. Front lobe, broad, spreading, white, slightly fringed. Side lobes shaded and speckled with brown. Column narrow at base, broadly winged and shaded with yellow apically. Allied to C. Lawrenceana. Summer

I **pulchella** ?

Pseudo bulbs ovoid, 2 inches high. 1-2 leaved. Leaves 3-5 inches long. Spikes erect 4-6 inches high. 6-10 flowered. Flowers about 1 inch across, petals narrow, horn-like, inclined backward, with the broad rounded petals, pure white. Lip white, with a chocolate-brown disc and black-brown crest, not unlike C. Micholitzii in miniature. Spring

præcox see **Pleione præcox.**

Reichenbachiana see **Pleione Reichenbachiana.**

Rhodeana **syn. Rossiana.**

I **Rossiana** Burma

Pseudo bulbs furrowed ovoid, 2 to 3 inches high. Leaves 9 to 12 inches long. Spike erect 7 to 10 flowered. Flowers nearly 2 inches across, the rather narrow sepals and linear petals white, lip white, side lobes reddish on the inner surfaces, front lobe white and yellow. Summer

CŒLOGYNE—cont.

I **Sanderæ** Burma

Pseudo bulbs, 2 to 4 inches somewhat four-angled, at short intervals or clustered on the rhizome. Leaves 3 to 9 inches. Spike erect, bracteate as in elata. Usually produced from the apex of the bulb. Flowers about 2 inches across. Sepals and petals white, lip white with an orange blotch on the disc and 3 brown-haired keels. Summer

Note. — There appears to be two forms of Sanderae in cultivation, one much stronger growing than the other and in which the blooms are not a clear white but rather cream colour.

S **Sanderiana** Sunda Isles

Pseudo bulbs ovoid, furrowed 2 to 4 inches high. Leaves 9 to 15 inches long, by 2 to 3 broad. Racemes 12 to 18 inches long, pendulously arched, 5 to 12 flowered. Flowers 3 to 4 inches across. Sepals and petals snow-white, lip with bright yellow disc, bearing six fringed keels, side lobes streaked with brown. Spring

I **Schilleriana** Moulmein

Pseudo bulbs small, furrowed, clustered. Leaves 2 to 4 inches long, deciduous. Scape one flowered. Flowers about 1 inch across. Sepals and petals yellowish, lip white thickly marked with red brown, front lobe yellow, marked with purplish red. Summer

I **speciosa** Java

Pseudo bulbs 1 to 3 inches high bearing a single leaf about 9 inches long, broad, ribbed. Spikes short 1 to 2 flowered. Flowers 4 to 5 inches across if spread out. Sepals tawny, petals linear, lip yellow outside, internally deep brown, white at apex, centre bearing two fringed crests. Various

I - **var. alba** Java

Typical as regards habit and size of flowers but the colour is of a soft salmon flesh, the sepals and petals inclined to green. Various

I - **var. major** Java

Flowers larger than in the type and deeper in colour. Various

S - **sulphurea** Malaya

Pseudo bulbs 1 to 2 inches high, bearing a single leaf, 5 to 8 inches high. Scape from the red tinted young growth, 4 to 6 inches high, 9 to 15 flowered. Flowers ¾ of an inch across, sepals equal, spreading, petals linear, reflexed, all straw yellow. Lip with an ochreous yellow band across centre. Front lobe bilobed, spreading, side lobes small, pointed, recurved. Column winged. Various

S **Swaniana** East Indies

Height resembling that of Massangeana but less. Pseudo bulbs 3 to 4 inches high, obscurely 4 to 6 angled. Leaves shorter, broader, and more divergent. Racemes pendent, 12 to 20 flowered. Flowers about 2 inches across. Sepals and petals creamy white or white, lip tawny with chocolate veins. Summer

CŒLOGYNE—cont.

S **tomentosa** Borneo

Resembling Massangeana in habit but slightly less. Racemes pendent covered with a reddish tomentum. Flowers light orange red or brown orange, the lip with a little white. Summer

trisaccata **syn. Gardneriana.**

I **uniflora** India

Pseudo bulbs ovoid, light green, ½ to 1 inch high. Leaves 3 to 5 inches long, narrow. Peduncles about 1 inch high, one flowered. Flowers about 1 inch across, sepals and petals pale straw yellow, almost translucent, petals the smaller, lip suffused at base of column. Side lobes of lip resembling in miniature the horns of a Stanhopea. Summer

S **Veitchii** New Guinea

Pseudo bulbs 2 to 4 inches high. Leaves 4 to 7 inches. Spikes pendulous,, 18 to 20 inches, many flowered. Flowers about 1 inch across, lip three-lobed, the front lobe reflexed. Colour entirely white. Summer

ventricosa **syn. Pholidota ventricosa.**

I **venusta** Yunnan

Allied to C. Dayanum. Pseudo bulbs at inch intervals on the rhizome about 2 inches high, diphyllous. Leaves 5 to 8 inches long. Scape pendulous about 10 inches long, many flowered. Flowers about 1 inch across or more, petals much narrower than the sepals, both organs light buff yellow. Lip three lobed, whitish, with the centre of the front lobe and side lobes light yellow. At the base of the front lobe are 6 brown tipped keels. Spring

S **virescens** Annam

Allied to C. Parishii which it resembles in habit and general appearance. It differs in structural details of the lip. Summer

Wallichiana see **Pleione præcox var.**

COLAX

aromaticus **syn. Lycaste aromatica.**

Barringtoniæ **syn. Lycaste Barringtoniæ.**

grandiflora **syn. Bifrenaria Harrisoniæ.**

Jugosus **syn. Lycaste Jugosus.**

palmifolius **syn. Maxillaria palmifolia**

COMPARETTIA

Pretty dwarf epiphytes with coriaceous leaves and pendulous or arching racemes of flowers. Apart from their bright colouration, the flowers are most interesting from their structure. The connate lateral sepals are prolonged into a long spur like chin, concealing a two horned spur formed by the base of the lip. The upper sepals and petals are so arranged as to form a protective hood to the column. The lip is much larger than the other segments and brightly coloured.

The culture should be similar to that given Rodriguesias. A shallow pan, hung in a tilted position suits them, particularly as they are impatient of too much water in the dull season.

S **coccinea** Brazil

Pseudo bulbs about 1 inch high, usually carrying a single leaf, from the apex, about 4 inches long. Scapes slender 6 to 9 inches, 6 to 8 flowered. Sepals and petals yellow shaded with red, lip about ¾ of an inch across, bright scarlet.

Summer

S **falcata** Central America

Habit near to that of coccinea. The bulbs are more smooth and compressed and the leaves broader. Spikes longer, the flowers carried at greater intervals. Flowers crimson red, much lighter centrally. Spur shorter and more straight than in coccinea.

Summer

S **macroplectron** Colombia

Habit much as in falcata. Pseudo bulbs compressed, elliptic in transverse section. Scapes much shorter than in falcata, 5 to 7 flowered. Flowers, the largest known in the genus so far, light rose in colour, with purple rose spots on the sepals, petals and base of the lip, deepest on the petals and lip. Lip more clearly cleft than in the other species, 1 ½ inches across. Spur 2 inches long.

Summer

S rosea **syn. falcata.**

S **speciosa** Ecuador

In habit resembling falcata but more straggling. Scapes 8 to 12 inches long. Flowers nearly as large as in macroplectron, bright cinnabar orange. Spur about 1 ½ inches long.

Summer

CORYANTHES

An epiphytal genus in habit resembling Stanhopea and, excepting that they should have a slightly warmer temperature, requiring exactly similar culture. The flowers are among the most wonderful in the Orchid world, remarkable both for their size and extraordinary structure. They are carried, 2 to 3 in number, in stout, lateral or descending spikes. The sepals and petals, 2 to 3 inches, or more, long, are rather narrow, thin in texture and fade in the course of 2 or 3 days. The lip is thick, fleshy, wax-like in texture and curiously constructed, — without an illustration difficult to understand from description. A short stalk is produced from the base of the column inclined upward and outwards, the wing-like sepals and petals being inclined in the opposite direction, this short stalk ends in a cup or hood like process, which at right angles gives rise to a second stalk or column like process, which expands into a second, much larger cup or bucket so shaped and placed as to catch a liquid secreted by two short horns or knobs at the base of the column. The flowers are strongly odorous and insects are attracted both by the scent and the tissue under the hood. In their endeavours to reach that they fall into the bucket and in their struggles to excape from the flowers remove the pollinia. The process is somewhat similar in Cypripediums though the shape of the lip in that genus compels the insect without the aid of any liquid.

Like Catasetums many of the plants form quantities of aerial roots, which revel in a moist, warm, buoyant atmosphere.

The pseudo bulbs are somewhat cone shaped, strongly ribbed and usually diphyllous, both bulbs and leaves resemble those of Stanhopea in shape but the bulbs are usually taller and the foliage, 9 to 15 inches long, less coriaceous and with the bulbs lighter in colour.

A compost of 2 ½ parts of fine Osmunda fibre and 1 ½ parts of sphagnum moss with an addition of finely broken crocks, or red brick, suits them. The basket or pan should be as small as possible. When growth is finished water should be withheld, but not to the extent as with

CORYANTHES—cont.

Stanhopeas, and when growing water must be carefully given as the compost should never be allowed to get sour or so close as to prevent aeration.

Albertinæ **syn. maculata.**

S **Bungerothii** Venezuela

Flowers large, the lateral sepals 6 inches long by 2 broad, dorsal sepal 2 ½ inches long by over 1 broad, whitish green, dotted with red-purple. Petals about half the length of the lateral sepals, very narrow, similarly coloured but whiter and with fewer spots. Hood large, yellow, deepest on the inner surface where it is spotted with red brown. The bucket is 2 inches deep, yellowish, faintly marked outside, and clearly so on the inner surface, with crimson brown spots.

Summer

S **leucocorys** Peru

Flowers large, the lateral sepals 4 inches long by 2 wide, petals less and very narrow. The sepals greenish yellow marked with purple brown, the petals white with fainter purple markings, lip whitish, marbled and partially suffused with rose purple, hood pure white. Summer

S **macrantha (Hook)** Caracas

Flowers about the size of those of leucocorys. Sepals and petals yellow spotted with dull purple. The first stalk deep purple, the hood greenish purple, the second stalk blood colour, the bucket yellow,streaked and spotted with crimson.

Summer

S **macrocorys** Peru

Flowers of medium size, the lateral sepals broader than in most species, concave and so arranged as to form a shield to the lip, instead of inclining away from that organ. Sepals and petals light greenish white irregularly marked and blotched with light brown. The purplish hood is very long and narrow, the horns larger than usual, the bucket is suffused with dull purple. Early Summer

S **maculata** Demerara

Lateral sepals about 4 inches long, by 1 to 1 ½ inches broad, greenish yellow, spotted with dull crimson, hood yellow or creamy white, bucket suffused and spotted with dull crimson, variable in colour. Summer

S **- var. vitrina** Venezuela

An albino form, colour light greenish yellow, nearly white on the lip.

Summer

S **Mastersiana** Colombia

Lateral sepals 3 to 4 inches long about 2 inches broad. Petals much narrower and shorter, suffused and marked with red on yellow ground, the lip darker red. The whole flower much more compact than in the other species.

Summer

punctata **syn. maculata.**

CORYANTHES—cont.

S **speciosa** Brazil

Lateral sepals 3 to 4 inches long, by nearly 2 inches in their broadest part, light yellowish brown in colour, the hood orange and the bucket tawny red. Summer

CORYNANTHES **syn. Coryanthes.**

CORYTHANTHES **syn. Coryanthes.**

CRYPTOCHILUS

A genus allied to Eria. Pseudo bulbs, small, crowded bearing usually a single fleshy leaf, 4 to 6 inches high. Spikes erect, about as tall. Flowers small, closely set, 3 to 14, distichously arranged, bracteate. The sepals assume a bell-like shape with divergent points, concealing the lip and petals. A compost of three parts Osmunda, 1 part moss, and a little fibrous loam should be given them. During the summer months a position in the Odontoglossum house will suit them but they should be wintered in the Cattleya house and the compost then allowed to become moderately dry between waterings.

/ **lutea** Himalayas

Flowers more globose than in sanguinea and pendent, pale yellow. Spikes erect.

meirax **syn. Eria meirax.**

/ **sanguinea** Himalayas

Flowers blood red with darkened margins. Summer

CRYPTOPHORANTHUS

A genus of small growing tufted epiphytes, closely allied to Pleurothallis but distinguished from them chiefly by the formation of the sepals which enclose the petals and lip and are connate both basally and apically, leaving a slit-like aperture through which small insects obtain egress and fertilize the stigma. The leaves are more or less heart shaped, fleshy, supported by a short stalk. The flowers, usually borne singly, are sheltered and almost hidden by the leaves. The culture is the same as given Masdevallias but owing to the coriaceous nature of the leaves they often succeed better when hung near the glass and should not be kept quite as moist in the Winter.

CRYPTOPHORANTHUS—cont.

C **atro-purpureus** Jamaica

Height of plant 3 to 6 inches. Flowers ½ to ¾ of an inch long, dark purple. Various

C **Dayanus** Colombia

Height 3 to 7 inches. Flowers an inch or more long, large for the genus, pale yellow with snake like markings of red purple, deep yellow beneath. Various

C **gracilentus** Costa Rica

Height about 5 inches, leaves narrow. Flowers small about 1/3 of an inch, dull purple. Various

C **Lehmanni** Brazil

Height 3 to 5 inches. Flowers about 1 inch long, greenish yellow, lined with dull purple. Various

C **maculatus** Brazil

Height about 3 inches. The leaves maculated with dull purple. Flowers very small, yellow densely spotted with crimson. Various

C **minutus**

Height of plant about half an inch. Flowers about 1/5 of an inch long, deep maroon purple. Various

CUCULINA **syn. Catasetum.**

CYATHOGLOTTIS **syn. Sobralia.**

CYBELION **syn. Ionopsis.**

CYCLOSIA maculata **syn. Mormodes pardinum.**

CYCNOCHES

As in Catasetum and Mormodes to which this genus is allied, the flowers are remarkable, male, female and sterile forms are produced, differing in structure from each other. The habit is near that of Catasetum but on the whole the pseudo bulbs are taller, more cylindrical, carrying, — and sheathed by — plicate leaves, and the spikes are produced, usually in pendent racemes, from near the apex of the bulb. The flowers are often fragrant. The sepals and petals are free, disposed more or less stellately, usually reflexed. The lip in chlorochilon is entire, in others the apex is broken in bristles or a fringe-like process and is often uppermost in the spike.

The genus gains its name of the « Swan's neck orchid » from the long slender arched column of many of the species.

CYNOCHES—cont.

The culture, compost etc. is similar to that given Catasetums.

As in that genus the female forms are very imperfectly known and further information regarding them is much to be desired. Usually they are much larger than the male flowers but a far less number is carried on the spike.

S **chlorochilon** Colombia

Pseudo bulbs 4 to 8 inches high, stout. Leaves longer. Racemes 1 to 9 flowered. Flowers 4 to 6 across, so far the largest in the genus, yellowish green, lip creamy white with a blotch of black green at the base. Summer

S **Cooperi** Peru

Resembling pentadactylon in habit etc. but the flowers are slightly larger, the sepals and petals suffused with light mahogany brown and the lip exhibits more white. The femals flowers of both pentadactylon and Cooperi are known and in the latter the flowers are larger, the segments more pointed, and almost entirely chocolate brown in colour. Various

S **Egertonianum** Mexico

Pseudo bulbs 3 to 6 inches. Racemes 12 to 18 inches, 20 flowered. Flowers 1 ½ inches across, greenish, entirely suffused or broken with dull purple, the lip broken apically into purplish fringelike filaments with two larger green ones. Summer

S **Forgetii** Peru

Allied to Peruvianum and Cooperi. Sepals and petals green suffused with pale brown, lip green with its segments blunted. Summer

Lehmanni **syn. Lueddemanniana Lehmanni.**

S **Loddigesii** Brazil

Habit as in chlorochilon. Racemes about 12 inches long, 3 to 9 flowered. Flowers 3 to 4 inches across, greenish, slightly suffused and with darker markings of purplish brown. The lip is whitish on the basal half, the upper half yellow, the whole more or less spotted with red. Summer

S **maculatum** Mexico

Pseudo bulbs 4 to 6 inches high, rather stout. Racemes 12 to 18 inches long, many flowered. Flowers 2 to 3 inches across. Sepals and petals narrow greenish buff, spotted with red purple. Lip shading to white, the « fingers » spotted with purple basally. Summer

CYCNOCHES—cont.

S **pentadactylon** Brazil

Pseudo bulbs 4 to 6 inches. Racemes 10 to 15 inches long, many flowered. Flowers about 2 inches across, greenish yellow, barred and blotched with brown, the lip whitish, sparsely spotted with red. Distinguished by the lip ending in a five fingered process. Summer

S **Peruvianum** Peru

Pseudo bulbs 3 to 7 inches slender. Racemes 10 to 18 inches long, many flowered. Flowers 1 to 2 inches across. Sepals and petals pale green spotted with purplish brown. Lip white, fingered. Summer

S - **var. Tracy's** Peru

Racemes shorter and the flowers more densely set.

Pescatorei **syn. Lueddemannia Pescatorei.**

CYLINDROLOBUS **syn. Eria.**

CYMBIDIELLA

A genus founded by the late Mr. Rolfe to include three species here kept under Cymbidium. They differ but slightly from true Cymbidiums. The labellum strongly three lobed, the side lobes erect and rounded, the front lobe more or less recurved. The three species known C. flabellata, C. Humblotii and C. rhodochila are true epiphytes and all delight in a warm moist atmosphere.

CYMBIDIUM

A popular genus of orchids, the more so since the introduction of insigne (Sanderi) Sanderae and erythrostylum has enabled the hybridist to obtain new and beautiful hybrids, easily grown, floriferous, showy and long lasting.

The family, with a few exceptions, is characterized by short, stout, globosely ovate, pseudo bulbs, sheathed with long narrow persistent foliage, usually keeled or ribbed and producing erect or semi-pendent many flowered spikes, with, in the majority of the species, large and attractive flowers which last a long period. The individual flowers have free, spreading sepals and petals, similar in shape, the petals narrower. The lip is three lobed, the mid lobe usually heart shaped, slightly reflexed, the side lobes erect, protecting the column.

The culture in most cases is very simple. Any glass house from which frost can be excluded, and the necessary amount of shading given, can be used for them. For the most part they are strong rooting plants and should have ample pot room. The compost should consist chiefly of rough but fibrous loam, with the addition of a little sphagnum moss and finely pulled osmunda or if procurable a little fibrous peat, kept open by finely broken crocks, red brick or a little sand. The roots are very fleshy and clinging, hence only the best materials should be used to obviate the need of re-potting. There is no decided resting season but water should be applied with care during the late Autumn and Winter. All depends on the condition of the plant. If the drainage is good as it should be, abundance of water may be given during the growing season.

The better time for potting is in the Spring, and any roots damaged in removing the plant from its old receptacle should be cut well back and if too abundant even good roots may be shortened as unless very great care is taken, the retention of too many roots will cause a number to decay and so sour the new compost.

The plants enjoy light but not direct sunlight, so that shade should be applied to protect them from the morning and midday sun.

affine syn. **Cyperorchis Mastersii var.**

albucæflorum syn. **madidum.**

aloides syn. **aloifolium.**

aloifolium syn. **Finlaysonianum.**

/ **aloifolium (Swartz)** Burma

Foliage broad, coriaceous, dark green, 1 to 2 feet high. Racemes 12 to 18 inches, pendulous, many flowered. Flowers about 1 ½ inches across, all the segments narrow, light yellow, the sepals and petals with a median band of dull purple and the lip nearly suffused with purple. Spring

altissimum syn. **Oncidium altissimum.**

Andersonii syn. **Cyrtopodium Andersonii.**

CYMBIDIUM—cont.

C **Ballianum** Annam

Resembles Parishii in habit. Scapes 3 to 7 flowered. Flowers slightly less than in Parishii with more acuminate segments, wholly white with the exception of a yellow disc to the lip. Originally introduced from Burma the typical form has flowers slightly larger and of a more pure white than the Annamese varieties. Winter and Spring

bambusæfolium **syn. Arundina bambusæfolia.**

bicolor **syn. sinense.**

chinense **syn. sinense.**

C **Cooperi** Annam

Habit as in Sanderi but more robust. Spike 3 to 4 feet high, 10 to 25 flowered. Flowers about 4 inches across. Sepals and petals fawn rose with darker longitudinal lines. Petals spotted with red to half their length, thickly so at their base. The sepals slightly spotted basally. Front lobe of lip tomentose with a strongly undulated margin, yellow fading to white, spotted with bright red, strongly so at the margins, but scattered centrally. Side lobes white externally striped on the inner surfaces and spotted apically.

Plants were imported with C. insigne and were at first supposed to be a new species but it agrees fairly well with a hybrid raised and flowered in the collection of the late J. Gurney Fowler Esq. and named by him—J. Davis. It was obtained from insigne x Schroederi and there can be little doubt but that Cooperi is really a natural hybrid between those species. Early Spring

crassifolium **syn. pendulum.**

I **cyperifolium** Himalayas

Leaves 15 to 18 inches long, narrow. Spike semi-erect 12 to 15 inches high, 5 to 7 flowered. Flowers about 3 inches across, fragrant. Sepals and petals narrow, colored as in giganteum but the lip has the side lobes striped on the inner surface with dark reddish, interrupted lines. Through the centre extend two white, red spotted, fleshy, tomentose keels with a red line between them. Front lobe white with a dark red central mark and a few marginal red spots. Winter

Dayanum **syn. eburneum var.**

C **Dayanum** Assam and Annam

Resembles aloifolium in habit etc. but with much longer and narrower foliage. Racemes pendent. Flowers about 1 ½ inches across. Flowers creamy white, the sepals and petals marked with port wine colour along their centres, lip marked and bordered with the same colour. Autumn

densiflorum **syn. Cyperorchis elegans.**

CYMBIDIUM—cont.

I **Devonianum** Assam

Height 6 to 18 inches with comparatively small pseudo bulbs and broad green leaves. Raceme pendent, 12 to 15 inches, many flowered. Flowers 1 to 1 ½ inches, closely set, sepals and petals olive green, light spotted with crimson, lip dark purplish crimson. Spring

C **eburneum** North India, etc.

Height 12 to 24 inches, leaves narrow. Spikes erect, 1 to 3 flowered. Flowers 3 inches across, very fragrant, white and creamy white with a deey yellow band down the disc of the lip. Winter and Early Spring

C - **var. Dayanum** North India, etc.

Flowers typical in size etc. but with small purple spots on either side of the lip disc. Winter and Early Spring

- **var.** *Dayi* **syn. var. Dayanum.**

- **var.** *Parishii* **syn. Parishii.**

echinocarpum **syn. pendulum.**

elegans **syn. Cyperorchis elegans.**

I **ensifolium** Assam

Height 12 to 24 inches. Leaves dark green narrowly sword shaped, pseudo bulbs comparatively small. Spikes erect about 12 flowered. Flowers about 2 inches across, sepals and petals narrow, yellowish green, with purplish veins and striations, lip spotted with purple brown, fragrant. Summer

estriatum **syn. ensifolium.**

C **erythrostylum** Annam

This and C. Sanderi are probably the two most distinct and among the most beautiful of all Cymbidiums.

Habit reminiscent of that of eburneum. Pseudo bulbs 1 to 2 inches high, slightly compressed. Leaves 10 to 15 inches long by ½ an inch broad, arching. Racemes arching, 5 to 15 flowered. Flowers nearly 3 inches across, petals shorter than the sepals, glistening white, a few minute purple dots being sometimes present on the basal halves of the petals. Lip large but with the front lobe short in proportion, creamy white to yellow in colour, lined with red purple, column entirely crimson.

This species should be wintered in a slightly higher temperature than the cool house. Autumn to Spring

S **Finlaysonianum** Malaya

Leaves 20 to 30 inches high, coriaceous. Racemes 2 to 4 feet long, pendent, many flowered. Flowers 2 to 3 inches across. Sepals and petals narrow, tawny red, lip deep wine red, disc yellow with white and red markings. Summer

CYMBIDIUM—cont.

fragrans **syn. sinense.**

C **Gammieanum** Sikkim

An interesting natural hybrid probably between C. longifolium and Cyperorchis elegans. C. giganteum was suggested as one parent but C. Maggie Fowler exhibited in 1905, though resembling Gammieanum has larger, brighter flowers, which show evident traces of giganteum. The habit of Gammieanum is not unlike that of Cyperorchis elegans. The flowers, rather closely set on the arching racemes, have narrow segments, brownish yellow flushed and lined with brown.

Summer

C **giganteum (Wall)** North India, etc.

Leaves 24 to 30 inches long. Scapes as long, arching laterally, 7 to 15 flowered. Flowers about 4 inches across. Sepals and petals yellowish green striped with red-brown, lip yellowish, spotted with bright red. Front lobe pointed.

Autumn and Winter

C - **var. marginatum** North India, etc.

Lip with white margin. Autumn and Winter

grandiflorum (Grif) **syn. Hookerianum.**

C **Hookerianum** Himalayas, etc.

Leaves 20 to 30 inches long. Racemes as long, arching, 5 to 15 flowered. Flowers large 4 to 5 inches across. Sepals and narrower petals clear green. Lip yellowish, tomentose, spotted with red and crimson purple. A very fine species but the flowers sometimes do not develop beyond the bud state. Winter and Spring

S **Humblotti** Madagascar

A distinct species with habit more resembling that of an Eulophiella than a typical Cymbidium. The clustered pseudo bulbs, so characteristic of the Asiatic species, assume the form of rhizomatus stems (much as in many Eria species) about 6 inches long. Leaves 15 to 18 inches long, rather narrow, their bases clasping the stems. Inflorescence a branched panicle, about 3 feet high, 50 or more flowered. Flowers rather fleshy. Sepals 2 inches long, not ½ an inch broad, the upper extended backward, almost parallel with the pedicel. The two lateral incline downwards almost meeting at their apices. The smaller petals are erect and, with the exception of a few brownish dots basally, like the sepals, are a clear green. The lip is remarkable in colour, the side lobes arch over the small column, the front lobe is reflexed at right angles and has deeply waved margin, narrowly bordered with black, the apical portion is light green, the fleshy crest is bright yellow edged with black and the remainder, with the side lobes, heavily marked with black.

Owing to its habit a raft is more suitable than a pot and little or no loam used in the compost. Autumn

CYMBIDIUM—cont.

S **Huttoni** Java

A very distinct species, the pseudo bulbs and leaves resembling those of Grammangis Ellisii rather than a true Cymbidium. Pseudo bulbs 2 to 5 inches high, ovoid, slightly compressed, bearing 2 or 3 broad leaves, 12 to 15 inches. Scapes pendulous, 10 to 15 inches long, 5 to 15 flowered. Flowers fleshy about 2 inches across, yellowish white, suffused and spotted with dull purple, the petals more so than the lip. Externally the flowers are a dull purplish green. The compost should contain more Osmunda fibre than with the cool house species.

Summer

C **insigne (Sanderi)** Annam

Pseudo bulbs globose slightly pointed. Leaves 20 to 36 inches by about ½ an inch broad, glaucous green. Spikes 3 to 4 feet high, erect, 14 or more flowered. Flowers about 4 inches across, whitish suffused with rose-lilac, the bases of the sepals and petals thickly dotted with crimson red. Lip somewhat rounded, front lobe expanded, yellowish on the disc, the whole beautifully flushed, lined and dotted with crimson purple on a white ground, very variable.

The species is probably the finest in the whole genus and apart from its own distinctive habit and beauty, has been of great service to Horticulture through the hybridist. It was first shown and awarded under the name of Sanderi.

Early Spring

C **l'Ansoni** Burma and Annam

A handsome species, resembling Lowianum in habit, but bearing fewer though slightly larger flowers on shorter spikes. Sepals and petals light tawny yellow veined and suffused with light purplish brown. The lip is broader than in Lowianum with a red brown median line and reddish suffused striated markings in place of the marginal blotch of Lowianum. Disc and base of lip white.

Winter and Spring

C **lancifolium** Himalayas

Pseudo bulbs 2 to 4 inches tall slightly compressed. Leaves 6 to 12 inches, 1 to 2 broad, tapering. Scape pendent, or semi-erect. 6 to 8 flowered. Flowers nearly 2 inches across, segments rather narrow, sepals greenish white, the petals, similar but with a reddish central stripe, lip whitish spotted with red. Autumn

lineare **syn. Isochilus linearis.**

C **Lowianum** Burma

Leaves 20 to 36 inches. Spikes laterally arched, long, 15 to 36 flowered. Flowers 4 to 5 inches across. Sepals and petals yellowish green, more or less suffused with brown, deepest on the nerves. Lip cream colour, the front bordered with crimson red.

Early Spring

C **- var. atro-purpureum** Burma

Border of lip much darker. Early Spring

C **- var. concolor** Burma

Sepals and petals greenish yellow, lip with a yellow border Early Spring

C **- var. eximium** Burma

Bronze sepals and petals.

CYMBIDIUM—cont.

I **madidum** Australia

A species resembling C. aloifolium but with larger pseudo bulbs, shorter, broader, even more coriaceous leaves. Racemes pendulous 12 to 20 flowered. Flowers about 1 ½ inches across, the segments broader than in aloifolium, the sepals and petals dull yellow, the lip flushed with dull purple. Autumn

Mandaianum **syn. l'Ansonii.**

Mastersii **syn. Cyperorchis Mastersii.**

C **Mavis** Annam

Imported with insigne and possibly a natural hybrid. Habit much as in Cooperi, but less. Scapes nearly erect 2 to 3 feet high, 10 to 20 flowered. Flowers about 3 inches across. Sepals and petals, fuscous red arranged in longitudinal lines on a lighter ground. The bases of the petals thickly spotted with dark red, those of the sepals to less extent. Front lobe of lip 1/2 an inch broad by 3/4 long, slightly reflexed, tomentose, creamy white with an almost continuous marginal row of bright red spots and a broken central line of same colour. Side lobes whitish externally, lined with red on a whitish ground internally, slightly spotted apically.

micans **syn. ensifolium.** Early Spring

C **Parishii** Burma

Resembles eburneum in habit but the pseudo bulbs are more stout and the foliage much broader. Scapes erect, 1 to 3 flowered. Flowers fragrant but not as much as those of eburneum, 4 inches across, white, the lip carries two raised orange keels, the centre of the front lobe is yellow, both the front lobe and the inside of the side lobes boldly spotted with purple. Summer

C **- var. Sanderæ** Annam

Resembles Parishii in habit but is stronger growing. Scapes erect, 3 to 6 flowered. Flowers similar to those of Parishii but the purple spots can be more accurately termed blotches and are sometimes confluent. Introduced from Annam this variety was considered as a distinct and beautiful species. It certainly does differ from the typical Parishii but not more than might be expected from a geographical form. Both type and variety are extremely rare.

Summer

pendulum **syn. aloifolium.**

- var. *atro-purpureum* **syn. Finlaysonianum.**

C **pulcherrimum** North India

Allied to C. Dayanum and possibly a form of that species. Foliage less coriaceous. Racemes stout, pendent. Sepals and petals white, with a port wine colour central stripe, the petals slightly flushed with same colour, lip yellowish, the side lobes striped and the front lobe bordered with port wine. Winter

C **pumilum** Japan

A dwarf growing species with narrow leaves, about 6 inches high, spikes erec about as long as leaves. Flowers small. Sepals and petals light red-brown, lip whitish dotted with the same colour, disc yellow. Spring

CYMBIDIUM—cont.

S **rodocheilum** Madagascar

Pseudo bulbs 2 to 5 inches high, carrying 8 to 10 strap shaped arching leaves. Spikes 24 to 30 inches long. Flowers very distinct in colour, 3 to 4 inches in diameter. The reflexed sepals are light green. The erect petals, similar in colour but spotted with dark green purple. The three lobed lip has the side lobes coloured as in the petals, the front lobe, over an inch broad, has a yellow band spotted with dull purple down the disc, the remainder is coloured bright crimson red.

As with Humblotii loam should be absent from the compost or if used it must be very fibrous. Summer

C **roseum** Annam

Habit similar to that of Mavis. Sepals and petals soft rose, arranged in lines similar to Mavis. The tomentose lip is slightly narrower, more pointed and longer. The spotting which is similarly arranged, as in Mavis, is deep crimson red, the marginal spots on the lip crimson rose and comparatively large. Early Spring

Sanderæ **syn. Parishii var.**

Sanderi **syn. insigne var.**

C **Schrœderi** Annam

Habit resembling that of giganteum, but with rather smaller pseudo bulbs. Spike laterally arching, 10 to 30 flowered. Flowers about 3 inches across. Sepals and petals greenish, suffused, striped, and dotted with red brown, lip light yellow striped with red brown on the side lobes with a central line throught the front lobe which has a colour zone similarly shaped to that in Lowianum, but light red brown, inner surface pubescent. Early Spring

scriptum **(Swartz) syn. Grammatophyllum speciosum.**

I **sinense** China

Habit closely resembling that of ensifolium. The leaves are not quite as broad. Spikes erect, 15 to 30 flowered. Flowers about 2 inches across, very fragrant. Sepals and petals narrow, the petals the broader, brown, lined with brown purple, lip yellowish green spotted and marked with purple. Autumn

Simonsianum **syn. Dayanum.**

C **tigrinum** Moulmein

Dwarf habit with small, globosely ovate, pseudo bulbs. Leaves broad in proportion to Lowianum etc. 4 to 6 inches long. Spikes drooping 2 to 5 flowered. Flowers about 2 inches across. Sepals and petals yellowish, with interrupted lines of crimson, lip yellow and creamy white, spotted and striped with crimson, disc haired. Summer

CYMBIDIUM—cont.

C **Tracyanum** Burma

Habit as in giganteum but stronger. Scapes 5 to 15 flowered. Flowers 4 to 5 inches across. Sepals and petals yellowish or suffused with brown, with interrupted lines of crimson. Lip yellow and creamy white, spotted and striped with crimson, disc haired. Very fragrant. Autumn

tricolor **syn. Finlaysonianum.**

Wallichii **syn. Finlaysonianum.**

C **Wilsoni** Yunnan

Allied to giganteum but less in habit. Sepals and petals green, spotted and suffused with brown, lip whitish, heavily spotted and marked with red brown. Winter and Spring

CYNORCHIS

A genus of terrestrial orchids with fleshy or tuberous roots. Foliage decidious in most species. The genus is allied to Habenaria and requires similar culture and compost.

The flowers though rather small are pretty. The sepals are slightly connate, but spread apically. The petals are usually smaller and the lip is 3 to 5 cleft as in Calanthes, produced into a, usually, straight spur. The slender scapes are erect, generally taller than the foliage. The leaves, broadly grass-like, are somewhat fleshy.

C **compacta** South Africa

Height about 4 inches. Flowers small, white, clustered. Winter

S **elegans** Madagascar

Leaves 3 to 4 inches, light green marked with light purple. Scapes taller. Flowers white suffused with rose. Autumn

S **grandiflora** Madagascar

Variable. Leaves 3 to 5 inches long, narrow. Scape taller bearing one or two flowers, 1 ½ inches long. Sepals and petals greenish spotted with purple, lip rose purple. Winter

S **Lowiana** Madagascar

Leaves 6 to 9 inches long, stronger in habit than grandiflora. Sepals and petals greenish white, lip lilac with a purplish base. Winter

S **purpurascens** Madagascar

Usually produces but one leaf, 6 to 9 inches long with or without a rudimentary second leaf. Scape taller, several flowered. Flowers over an inch long, sepals greenish, the upper marked with red, petals rose, lip rose red. Winter

I **triphylla** Mauritius

Height 9 to 12 inches. Flowers rosy pink. Winter and Various

CYPERORCHIS

This genus should be included under Cymbidium but has been so well known in gardens as Cyperorchis that it is here kept separate. The plants differ slightly from Cymbidiums in that the flowers have their segments, more or less, united basally hence do not expand so fully. They intercross readily. The culture as regards compost etc. is exactly similar to that given true Cymbidiums.

C *affine* **syn. Mastersii var.**

C **elegans** North India

Habit near that of Cymbidium eburneum but the leaves are more numerous, thinner in texture and larger. Spikes, sub erect, arching. Flowers closely set in a cylindrical raceme, 20 to 40 flowered. Flowers about 1 ½ inches long with narrow segments, straw yellow, the lip sometimes marked with red. Autumn

C **Mastersii** North India

Habit resembling that of Cymbidium eburneum. Spikes erect, 3 to 10 flowered. Flowers white, larger than in elegans, not so closely set, with broader segments, more fully expanded. Sepals and petals white, lip spotted with rose purple, disc orange yellow, fragrant. Winter

C **- var. affine** North India

Flowers slightly larger than those of Mastersii and the lip more heavily marked with faint purple. Scented. Winter

C **- var. alba** North India

Flowers pure white with exception of yellow keels on the disc. Scented. Winter

CYPRIPEDIUM

Including the South American representatives or Selenipediums and the deciduous species on which the genus was first founded.

The Eastern species and the hybrids obtained from them are the more generally grown, and are distinguished from Selenipediums by their one celled ovary (three celled in Selenipedium) and a difference though not strongly marked in the habit and inflorescence. Pseudo bulbs are absent in the whole family, the foliage, handsomely mottled in many Eastern species, springing direct from a stout rhizome. The flower spikes are produced from the centre of the growths and are more or less erect, one or more flowered. In the American species the scapes

produce a succession of flowers, only one or two being open at the same time. The flowers of all are peculiar and interesting in their structure. The upper or dorsal sepal is large, and, as a rule highly coloured, the two lateral sepals are usually much less conspicuously coloured, and are joined together, forming one apparent segment, the labellum being placed immediately in front of them. The two petals are free, longer but narrower than the dorsal sepal, usually differing in colour to that organ and often with dark haired warts and spots. The lip takes a remarkable slipper like form, the side lobes being turned inwards. One anther is transformed into a plate like structure behind which is placed the boss-like stigma and the remaining two anthers. With the exception of the ovary and a slight difference in the character of the pollen, the floral structure of the family is very similar, but only among the Eastern Cypripedes is mottled foliage found. In all the structure of the labellum answers the same purpose. The particular fly or insect entering by the orifice of the pouch, the shape of which prevents easy exit except by the insect forcing itself beneath the infolded side lobes and emerging by one of two smaller orifices on either side of the column. In so doing it removes one of the pollinia which is left on the stigma of the next flower visited.

Culture. The deciduous species are for the most part hardy and require a damp, but not waterlogged, rather shady position in the garden, using a compost of peat, leaf mould, sand, loam and a little sphagnum moss. The rhizome is creeping and should be kept entirely under the soil. A few leaves may be placed over the rhizomes during Winter to shield them from penetrating frosts. Often a corner can be found, or made for them in the rock garden.

The treatment for all the Exotic Cypripediums and Selenipediums is very similar. For the green leaved forms, particularly insigne and its hybrids, three parts of fibrous loam, one part of Osmunda, one part sphagnum moss mixed with finely broken crocks makes a good mixture. The plants with mottled or tessellated leaves

should have much less loam, one part loam to two each of Osmunda and sphagnum moss. The loam should be fibrous, the more so the better, soil should never be incorporated with the mixture, as although potting should be firm, the fleshy roots are clothed in hairs and the close nature of soil prevents the free passage of water and aeration. Repotting may be done after flowering but on the whole Cypripediums bear careful root disturbance at any time.

As all Cypripedes are pseudo bulbless the plants should never be allowed to get really dry but naturally waterings are more infrequent in the Winter. Direct, particularly mid-day sun, should be kept from them. Practically all should be shaded more heavily than Cattleyas and at all times the atmosphere should be kept moist.

There are few more popular plants than the Cypripediums (Paphiopedilums). There is hardly a glass house from which frost can be excluded but will suit quite a number of them, particularly of the insigne hybrids, which are easily grown and have the advantage of flowering chiefly in the Winter — near Christmas. The flowers last for a long period, either cut or on the plant, and their treatment calls for no especial knowledge or skill. There are already nearly or quite 2000 distinct hybrids in addition to innumerable varieties and the number is constantly being added to.

Note. — The plants included here under the heading « Cypripedium » have under the latest nomenclature been classified into four sections. They are however so widely known in gardens as Cypripediums that for the sake of convenience we have kept them under the name. To avoid confusion and for the sake of reference we give a list of the different species included under each sectional name, together with the sectional distinguishing characters as classified in the Orchid Review of 1896.

Selenipedium, now divided into two tribes, Seleniped-ilum and Phragmipedilum.

Selenipedilum (*Selenipedium*), *Orchid Review* 1896, page 331) — Tall, reed-like plants, with a terminal raceme of small flowers, three celled ovaries and crusta-

ceous, globose seeds. Three species included Chica, Isabelianum, palmifolium.

Phragmipedilum (*Selenipedium, Phragmipedium*).—Ovary three celled, leaves conduplicate, coriaceous, strap-shaped, flowers articulated above the ovary and deciduous, seeds fusiform.

Species included : — Boissierianum, caricinum, caudatum, Czerwiakowianum, Klotzschianum, Lindleyanum, longifolium, Sargentianum, Schlimii, vittatum.

Cypripedilum (*Cypripedium*) — Leaves plicate, perianth persistent with valvate sepals, ovary one-celled, with parietal placentas, seeds fusiform, foliage usually deciduous.

Species included : arietinum, calceolus, Californicum, candidum, cordigerum, debile, elegans, ebracteatum, Fargesii, fasciolatum, guttatum, Himalaicum, Irapeanum, Japonicum, luteum, macranthon, magaritaceum, micranthum, montanum, parviflorum, passerinum, pubescens, Reginae, spectabile, Tibeticum, Yunnanense.

Paphiopedilum (*Cypripedium, Paphiopedium*). Confined to the tropics of the Old World, dorsal sepal folded within the lateral ones in the bud, ovary one-celled, seeds fusiform, leaves conduplicate, coriaceous, often mottled.

Species included :— Appletonianum, Argus, barbatum, bellatulum, Bullenianum, callosum, Chamberlainianum, Charlesworthii, ciliolare, concolor, Crawshawiae, Curtisii, Dayanum, Druryi, exul, Fairrieanum, Gardnerianum, Godefroyae, glanduliferum, glaucophyllum, Gratrixianum, Haynaldianum, hirsutissimum, Hookerae, insigne, Javanicum, Lawrenceanum, Lowii, Mastersianum, nigritum, niveum, papuanum, Parishii, Pereirae, Philippinense, praestans, purpuratum, Robinsoni, Rothschildianum, Sanderianum, Spicerianum, Stonei, superbiens, tonsum, venustum, Victoria-Marie, villosum, virens.

acaule **syn. humile.**

album **syn. spectabile.**

CYPRIPEDIUM—cont.

S **Appletonianum** Assam

Habit as in Hookerae but with green leaves. Flowers medium, dorsal sepal green, margined with white, petals broadest apically, lilac-mauve, shading to green warted with black basally, lip lilac-mauve, shaded with green and brown.

Early Spring

I **Argus** Philippines

Foliage tessellated, scapes 10 to 15 inches high, dorsal sepal whitish striped green, tipped with rose and purple spotted, petals ciliate, black warted, lip dull purple above. Winter

I - **var. Mœnsii** Philippines

Flowers larger and more heavily spotted on the petals.

I - **var. superbum** Philippines

Flowers larger and more brighter in all their parts.

arietinum North America

Hardy. Scapes 7 to 10 inches high, 1 to 3 flowered. Flowers small, sepals and petals brown shaded with yellow green, lip red veined, shaded with white.

Summer

I **barbatum** Malacca

Foliage tessellated, scapes 9 to 15 inches, dorsal sepal green at base, white flushed and striped with purple, petals ciliate at edges, black warted on the upper edge, purplish apically, lip brown purple. Summer and various

I - **var. biflorum** Malacca

Scape two flowered. Summer

I - **var. Crossii** Malacca

Flowers brighter in colour, the purple stripes on the dorsal broader and deeper in colour. Summer

- **var.** *Hookeræ* **syn. Hookeræ.**

I - **var. nigrum** Malacca

Very dark coloured flowers.

I - **var. pulcherrimum** Malacca

Flowers lighter in colour but with well defined markings.

I - **var. superbum** Malacca

Flowers large, lip very dark, dorsal sepal with more white than type.

Summer

I - **var. Warneri** Malacca

Near var. Crossii but with white tips to the petals. Summer

S **bellatulum** Siam, etc.

Dwarf habit. Leaves fleshy, closely set, tessellated. Scape short. Flowers shell shaped, creamy white, spotted and marked, nearly uniformly, with purple maroon. Lip egg shaped, sparsely spotted. Summer and various

CYPRIPEDIUM—cont.

S - **var. album** Siam, etc.

Flowers similar in shape and size but pure white. Summer

Note. — Bellatulum may be considered as representing a section of Paphiopedilums which differ from the the type in their egg shaped labellums, neat habit and thicker leaves, Concolor. Godefroyae and niveum complete the section. They appear to grow on limestone formation and are benefited by the addition of small pieces of old mortar in their compost. More care must be given them as regards watering, at all times water should be kept from the growths and in the dull months the compost must be allowed to get dry between waterings.

I **Boissierianum** Peru

A very fine rare species. Leaves about 2 feet long, scapes as tall, 1 to 4 flowered. Flowers large yellowish green, reticulated with dark green, sepals and petals margined with white, petals 4 to 5 inches long, spread horizontally, lip brownish. Autumn

boreale **syn. calceolus.**

Boxallii **syn. villosum var.**

Binotii **syn. vittatum.**

Bullenianum **syn. Hookeræ var.**

Burbidgei **syn. Dayanum.**

calceolus *(Linn.)* Europe and North Asia

Hardy. Scapes 12 to 18 inches usually 3 flowered. Flowers large, sepals and petals narrow, dark brown red, lip yellow. Prefers a little mortar rubble in the compost. Summer

calceolus (Thunb.) **syn. macranthum.**

calceolus **(Walt.) syn. pubescens.**

Californicum California

Hardy. Height 12 to 18 inches. Flowers less than in calceolus, sepals yellow suffused with brown, petals yellowish, lip white, pink shaded in the front, brown spotted. Summer

S **callosum** Siam

Foliage marbled. Scape 1 to 2 feet, one or two flowered. Flowers large, variable, dorsal sepal, white shaded green at base, striped and often flushed with dark crimson, petals pale green, with rose purple apices, warted and ciliated at margins, lip brown purple. Winter to Summer

CYPRIPEDIUM—cont.

S **callosum var. pulcherrimum** Siam
Flowers large, much brighter in colour than type, with very broad dorsal sepal.

S **- var. Sanderæ**
Dorsal sepal white with apple green stripes and radiating veins, petals pale green, whitish on the upper edges, lip pale green. Winter to Summer

- var. *sublæve* **syn. sublæve.**

Canadense **syn. spectabile.**

candidum North America
Scapes 9 to 12 inches high, 1 to 3 flowered. Flowers small, sepals and petals pale brown, lip whitish flushed with soft pink. Summer

I **caricinum** Bolivia
Rhizome creeping. Leaves tufted, narrow. Scape 12 to 15 inches high. Flowers medium size, dorsal sepal greenish white, petals narrow, 3 to 5 inches long, twisted, greenish white, rosy at tips, lip yellow green with deeper veinings. Various

I **caudatum** Central America
A remarkable species. Leaves 12 to 18 inches long. Scapes taller, 1 to 4 flowered. Flowers large, the upper sepals often 6 inches long, creamy white, with greenish veins. Petals ribbon-like often 30 inches long, brownish crimson, shaded with yellow at the base, lip bronzy green. Spring and Summer

I **- var. Lindenii** Central America
Pouch takes the form of a third ribbon like petal. Early Summer

I **- var. Luxembourg** Central America
Upper and lower sepals butter yellow veined with green, pouch dull green, petals dull purple.

- var. roseum syn. var. Warscewiczii.

I **- var. Sanderæ** Peru
A handsome form with large flowers. Sepals and petals creamy white with heavy bright green veining on the sepals and purplish veining on the petals, pouch tinged with brown. Early Summer

I **- var. Wallisii** Central America
Flowers much paler in colour, nearly white, lip slightly rose spotted. Early Summer

I **- var. Warscewiczii** Central America
Foliage shorter and darker. Flowers brighter in colour, petals flushed with rose purple. Early Summer

CYPRIPEDIUM—cont.

S **Chamberlainianum** New Guinea

Foliage dark green. Scapes often 2 feet long, producing a succession of flowers. Flowers medium size, dorsal sepal yellowish white with rosy lines, base densely spotted, petals twisted, white haired, pouch bright rose-purple in front.

Various

I **Charlesworthii** Burma

Dwarf habit. Leaves narrow, green. Scapes 9 inches high. Dorsal sepal large, broad, flat, suffused and veined with rose. Petals and comparatively small pouch, yellowish brown, glossy. Staminode white. Late Summer

S **ciliolare** Malaya

Foliage tessellated. Scape 12 to 15 inches high. Dorsal sepal white, green veined, suffused with purple, petals purplish, heavily black spotted, margined with long hairs, lip dull purple. Spring

S **concolor** Burma

Dwarf neat habit. Leaves marbled, with grey colour above, purplish beneath. Scapes short 1 to 2 flowered. Flowers medium size, light yellow, speckled with minute crimson dots. Early Summer

var. *niveum* **syn. niveum.**

S - **var Regnierii** Burma

Flowers deeper yellow, 3 to 5 borne on a scape. Early Summer

S - **var. Sanderæ** Burma

Scapes usually 3 flowered. Flowers larger than in the type, more profusely spotted. Early Summer

I **Crawshawiæ** Burma

Resembling Charlesworthii but with much more fleshy leaves, bright green above, olive green beneath. Flowers larger than in Charlesworthii coloured as in C. insigne Sanderæ but with greener shading. Summer

Crossii **syn. barbatum var.**

cruciatum **syn. calceolus.**

cruciformi **syn Lowii.**

S **Curtisii** Sumatra

Foliage clearly tessellated. Scape 7 to 12 inches high. Flowers large bold, dorsal sepal greenish, white margined, veined with green, pouch large, dull purplish brown, petals veined green and spotted with purple, ciliate. Summer and various

S **var. Sanderæ** Sumatra

Resembling the type but the colouring is as in callosum Sanderae. Both are remarkable albino forms and play an important part in hybridization.

Summer and various

CYPRIPEDIUM—cont.

S **Curtisii - var. Sander's** Sumatra

An improved type, remarkable for its dark colouring and dense spotting on the petals. Various

I **Dayanum** Borneo

Foliage brightly tessellated. Scapes 8-15 inches high, dorsal sepal whitish green, green veined ; petals fringed, apical half dull rose, basal half brownish, lip brown purple and greenish. Early Summer

I **Druryi** Travancore

Leaves green, medium size. Scape 9 to 12 inches. Flowers medium size, dorsal sepal oval, yellowish, petals ochre yellow, spotted at base, all with a blackish median line, lip yellow. Spring and early Summer

I **exul** Siam

Habit like insigne, leaves narrower, dorsal sepal pale yellow with small purplish spots and a green suffusion at base, broadly white margined, petals yellow. centred with purplish lines, lip shining yellow. Various

I **Fairrieanum** Assam

Dwarf habit. Foliage soft green, scape about 5 inches high. Flowers rather small, very pretty. Dorsal sepal white, yellowish green at base, veined with purple, with undulating margins, petals deflexed, recurved at apices, ciliate. Lip green, flushed with red, veined with purple. Late Summer and Winter

ferrugineum **syn. calceolus.**

flavescens **syn. pubescens.**

S **Gardneri** New Guinea

Allied to Philippinense but stronger in habit. Foliage dark glossy green coriaceous. Scape 12 to 24 inches high, 2 to 4 flowered. Dorsal sepal yellowish white striped with dark brown. Petals pendulous, twisted, ribbon like, 3 to 4 inches long, yellowish, tinged and suffused with purple brown, darkest apically, lip lighter yellow suffused and striated with brown.

S **glanduliferum** New Guinea

Leaves 12 to 20 inches long, broad. Scapes stout, erect, taller, 1 to 3 flowered. Flowers large, dorsal sepal creamy white and yellow, veined red brown. Petals twisted, 4 to 5 inches long, yellow green with red brown veins, warted on each margin at base, lip yellowish, veined reddish brown. Summer

S **glaucophyllum** Java

A companion to C. Chamberlainianum, which it very much resembles in habit and the character of the inflorescence. On the whole the habit is slightly less, the foliage more glaucous. The hairy petals are strongly twisted, the dorsal sepal is of a curious dark shade of green, the pouch longer and purplish rather than rose tinted as in Chamberlainianum. Winter and various

CYPRIPEDIUM—cont.

S **Godefroyæ** Java

Habit resembling that of bellatulum, but rather less. The flowers are usually smaller but in some varieties exceed those of bellatulum, which they resemble in shape but have a creamy-yellow or white ground covered with blotches, spots and reticulated markings of brown purple. Summer

S - **var. leucochilum** Siam

Lip without any spots. Summer

guttatum North Europe, Asia and America

Hardy. Height about 9 inches with a rather small but very pretty flower. Pure white, marked and suffused with rosy purple on a white ground. Summer

I **Gratrixianum** Annam

Distinct from both exul and insigne which species it somewhat resembles. Foliage 6 to 9 inches long, dark glossy green. Flowers about as large as those of insigne, dorsal sepal green basally, the upper portion and margins white, the whole bearing medium sized, circular black spots, petals and lip greenish, yellow brown, glossy. Various

Hartwegii **syn. longifolium.**

S **Haynaldianum** Philippines

Foliage coriaceous 9 to 12 inches long, narrow, often with rust like markings. Scape 1 to 2 feet high, 3 to 6 flowered. Flowers large, segments narrow, dorsal sepal, rosy apically, basal half yellowish green, brown spotted, petals 3 to 4 inches long, horizontal, with drooping apices, basal halves yellowish green with marginal brown spots, apical half dull purple, lip purple tinged. Spring

Hincksianum **syn longifolium.**

S **hirsutissimum** Assam and India

Foliage narrow, green, 4 to 8 inches long. Scapes 9 to 15 inches, hairy. Flowers large, ciliated, upper sepal densely spotted with black purple, margined with green, petals green marked, purplish at base, apical portions rose purple, lip dull green and brown purple. Spring

hirsutum **syn. spectabile.**

S **Hookeræ** Assam

Leaves tessellated. Scapes slender, 12 to 18 inches high. Flowers medium size. Upper sepal yellowish white with green centre. Petals green, black spotted, purple at apices, lip brown purple. Summer

S - **var. Bullenianum** Borneo

Foliage mottled. Sepals green with a yellow flush. Petals ciliate, as in type, greenish, purple spotted, tipped with purple rose, lip green and brown purple. Summer

CYPRIPEDIUM—cont.

S **Hookeræ var. Volonteanum** Borneo
Larger brighter coloured flowers. Summer

humile North America
Scapes 9 to 12 inches, bearing a single nodding flower. Sepals and petals brown purple, haired. Lip very large 2 inches in length, the orifice arranged as a longitudinal slit, showing the yellowish hairy interior. Dull purple outside veined with rose purple. Summer

C **insigne** India, Assam, etc.
A most popular and useful Cypripedium, very variable easily grown and the parent of very many hybrids. Leaves green. Scape about 12 inches high, sometimes 2 flowered. Flowers large varying greatly in colour. Dorsal sepal green with brown purple spots at centre and base, more or less white apically and marginally, petals with undulating margins, yellowish green, shaded with brown purple, lip similarly coloured. Winter

C - **var. albomarginatum** North India
Dorsal sepal almost entirely margined with white. Winter

C - **var. biflorum** North India
Scape bears two flowers. Winter

C - **var. Bohnhoffianum** North India
Very distinct. Upper sepal chocolate brown, banded above with yellowish green, passing into pure white. Winter

- **var.** *Chantinii* **syn. punctato-violaceum.**

C - **var. Harefield Hall** Assam
A splendid form, very large, boldly shaped flowers, dorsal sepal pale yellowish green heavily spotted with chocolate, broadly margined with pure white, pouch and petals yellowish green, veined dark green and suffused with rich brown. Winter

C - **var. Maulei** North India
Flowers brighter in colour, dorsal sepal spotted with dull purple, upper portion pure white Winter

C - **var. maximum** North India
Flowers very large. Winter

C - **var. oddity** North India
Petals assume the form of the labellum. Winter

C - **var. punctato-violaceum** North India
Violet purple spotting on upper sepal, especially apparent on the white apical portion. Winter

CYPRIPEDIUM—cont.

C - **var. Sanderæ** Assam

Flowers of a beautiful primrose yellow, except the upper portion of the dorsal sepal which is pure white, and for a few minute brown dots and specks present in the centre of the lower portion. Winter

C - **var. Sanderianum** Assam

A companion to var. Sanderae but slightly less in size and different in shape the yellow colouring is more decidedly shaded with green, and the brown dots are absent. Winter

C **insigne var. Sylhetense** Sylhet

Probably the type most frequently met with. The dorsal sepal is green, thickly covered with brownish spots, the apex and upper portions of the margins white. Winter

Japonicum Japan

Hardy. A curious species. Scape about 12 inches high. One flowered, clasped at the base by two large plicate rounded leaves. Flowers large. Sepals greenish dotted with red, petals whitish. Lip white, flushed and stained with crimson. The orifice slit-like. Summer

S **Javanicum** Java

Foliage mottled. Scapes 12 inches high. Flowers ciliated. Upper sepal pale green and whitish, veined green, petals pale green with minute blackish warts, which are absent in the dull purple apices, lip brownish green, pale beneath. Various

S - **var. virens** Borneo

Habit of Javanicum. Flowers less, deep green, dotted with black on petals which apically are flushed with purple. Winter

I **Klotschianum** Guiana

Habit similar to that of caricinum. Scapes 18 to 24 inches high. Flowers comparatively small, dorsal sepal pale green, tinted with rose, petals pale rose, slightly twisted, pouch pale green. Summer

lævigatum **syn. Philippinense.**

S **Lawrenceanum** Borneo

Foliage brightly tessellated. Scapes 1 to 2 feet high. Flowers large, bold, dorsal sepal white with purple red stripes, greenish at base, petals horizontal, greenish, with purple shading, chiefly at the tips and margins, black warted. Lip dull purple tinted with brown, variable. Summer

S - **var. Hyeanum** Borneo

Dorsal sepal pure white with green stripes, petals yellowish green, lip greenish. Summer

CYPRIPEDIUM—cont.

S **Lawrenceanum var majus** Borneo
Flowers larger than in the type with a crimson suffusion on the dorsal sepal.
Summer

Lindenii **syn caudatum var.**

I **Lindleyanum** British Guiana
Foliage 20 to 30 inches long. Scapes taller, 3 to 5 flowered. Dorsal sepal light green with red brown veins, petals narrow, similarly coloured, darker at tips, lip green, reticulated with red. Winter

I **longifolium** Costa Rica
Leaves about 2 feet long. Scapes taller, several flowered. Flowers large, upper sepal pale green with rosy veins and whitish margins. Petals slightly twisted, yellow green with rose and white margins, lip pale green, dotted with rose.
Various

I **- var. Hartwegii** Costa Rica
Habit more robust, and flowers with rose and pink shading in the upper sepals and petals. Various

S **Lowii** Borneo
Resembles Haynaldianum in habit. Scape 20 to 30 inches high, 2 to 6 flowered. Flowers ciliated, upper sepal yellowish veined, brownish purple at base. Petals twisted, horizontal, drooped at their apices, which are violet purple. Shaded with yellow, and spotted black basally, lip brownish. Summer

macranthum North Asia
Scape about 12 inches high, 1 to 2 flowered. Flowers large, the large dorsal sepal and the narrower petals pale red purple, with darker mottlings, lip inflated, rose pink, variable.

I **Mastersianum** Borneo
Leaves tessellated. Scapes 1 to 2 feet high. Flowers large, bold. Dorsal sepal green bordered with yellow, shading into white, petals and pouch rich copper, the petals warted with black, ciliate. Spring and Early Summer

montanum North America
Scape about 12 inches, 1 to 3 flowered, flowers large. Sepals and petals brown, flushed and marked with brown purple. Lip white shaded and marked with lilac and rose. Summer

S **nigritum** Borneo
Habit and flowers near those of C. barbatum, but the flowers are larger and darker, the dorsal sepal somewhat resembling that of C. purpuratum.
Summer

CYPRIPEDIUM—cont.

S **niveum** Tambelan Isles, etc.

Habit as in C. concolor, but with longer more strap shaped foliage. Scapes 6 to 9 inches high, slender, erect, 1 to 2 flowered. Flowers satiny white, round in outline, dotted with purple at the base of upper sepal and petals. Summer

orientale **syn. guttatum.**

pardinum **syn. venustum var.**

I **Parishii** Moulmein

Leaves glossy green, coriaceous, 12 to 15 inches long. Scapes 1 to 2 feet high, 3 to 7 flowered. Dorsal sepal yellowish with green veins. Petals pendulous, twisted 5 inches long, narrow, black spotted, with green basal and blackish purple apical halves, lip yellowish shaded with green. Summer

parviflorum (Sales) North America

Scapes about 12 inches, 1 to 3 flowered. Flowers large, sepals and petals red brown, marked with yellow basally, lip golden yellow with a few brownish markings. Summer

parviflorum **(Sims) syn. pubescens.**

Pearcei **syn. caricinum.**

S **Perieræ** Laukawi

Resembles C. niveum in many respects and may be a hybrid between that and some unknown species. Leaves about 6 inches long, green, faintly mottled. Scape about as long. Flowers less rounded in outline than those of niveum, white with pink spots on the base of the upper sepal and petals. Upper sepal, ovate, pubescent, about 1 inch high, less in width, petals pubescent, oblong about 1 1/2 inch long. Summer

I **Philippinense** Philippines

Leaves glossy green, coriaceous, 6 to 12 inches long. Scapes 12 to 20 inches high, 3 to 5 flowered. Dorsal sepal white, striped with brown purple. Petals pendulous, narrow, twisted, 6 inches long, yellowish at base, shading into red purple, then green. Lip tawny marked with brown. Summer

præstans **syn. glanduliferum.**

pubescens North America

Scapes 1 to 2 feet high, 1 to 3 flowered, Flowers large. Sepals and petals yellowish flushed and marked with red brown. Lip bright yellow. Leaves and scape very pubescent. Summer

purpuratum Hongkong

Dwarf habit, leaves tessellated. Scape about 6 inches high, single flowered. Dorsal sepal white, shaded green and striped with brown purple. Petals purplish red, warted basally, veined with deep purple, lip brownish purple. Summer

CYPRIPEDIUM—cont.

purpuratum (Wright) **syn. barbatum.**

Reginæ **syn. spectabile.**

reticulatum **syn. Boissierianum.**

S **Robinsoni** Malaya

A pretty species, resembling sublaeve in general but the habit is more neat and compact. The pointed leaves, only 3 to 4 inches long, are more brightly tessellated. The slender scapes are 6 to 9 inches high. The dorsal sepal is smaller than in sublaeve and the petals are suffused with dark purplish red, the colour not being confined to the outer portions to the extent it is in sublaeve. Summer

Roebelinii **syn. Philippinense.**

Roezlii **syn. longifolium var. Hartwegii.**

S **Rothschildianum** New Guinea

Leaves green, coriaceous 12 to 20 inches long. Scapes taller, 2 to 5 flowered. Flowers large, dorsal sepal yellowish shaded white, with almost black stripes. Petals horizontal, attenuated, yellowish green, with dark lines and blotches, lip reddish brown. Summer

S **Sanderianum** Malaya

Leaves 12 to 18 inches, dark green, narrow. Scapes erect 1 to 2 feet or more, 3 to 5 flowered. Flowers large and very remarkable. Upper sepal pale yellow shaded with green, with broad reddish stripes ; petals ribbon like 18 to 24 inches long, pale yellow, the basal portion bordered purple brown, then spotted with brown purple, broken with yellow ; lip brown purple, yellowish beneath. Summer

I **Sargentianum** Brazil

Habit near that of Lindleyanum. Scape several flowered. Dorsal sepal, suffused with pale lilac, veined red. Petals darker, lip olive green, veined and shaded with purple. Autumn

C **Schlimii** Colombia

Leaves 7 to 12 inches. Scapes taller. Flowers small, very pretty. Sepals and petals white, flushed rose basally, lip clear rose in front on a white ground, staminode bright yellow. Continually

C **- var. albiflorum** Colombia

Flowers almost entirely white, rose pink at base of petals, and on the enfolded lobes of lip. Continually

- var. *album* **syn. albiflorum.**

Schomburgkianum **syn. Klotschianum.**

sinicum **syn. purpuratum.**

spectabile North America

Scape often more than 2 feet high, 1 to 3 flowered. Flowers large, sepals and petals pale rose, lip deep rose or purplish rose, variable. Summer

CYPRIPEDIUM—cont.

I **Spicerianum** Assam

Foliage green, 4 to 8 inches long. Scapes 8 to 15 inches high, single flowered. Flowers medium size. Dorsal sepal pure white, green at base, with a median purple stripe. Petals pale green, marked and spotted purple, lip brownish purple.

Winter

I - **var. magnificum** Assam

Flowers larger than in type. Dorsal sepal almost pure white.

Winter

I - **var. roseum** Assam

Dorsal sepal suffused centrally with rose. Winter

S **Stonei** Borneo

Foliage fleshy, dark green, 12 to 15 inches or more long. Scapes 1 to 2 feet high, 3 to 5 flowered. Dorsal sepal about 2 inches high, whitish or pink flushed, sparsely striped with blackish crimson. Petals pendently arched, 4 to 6 inches long, narrow, twisted, tawny yellow, spotted with red brown, apical portion brownish red, lip dull rose with crimson reticulations, whitish beneath.

Autumn

S **sublæve** Siam

Imported with callosum which it very closely resembles in foliage. It is however quite distinct from that species. The slender scapes, 12 to 18 inches high, bear a single flower with a narrow, dark greenish dorsal, and spreading petals, flushed with purple on their outer halves. Lip greenish yellow shaded with purple, slightly elongated. Various

S **superbiens** Java

Foliage tessellated. Scape about 12 inches high. Flowers large, dorsal sepal whitish, green veined, brownish at base, petals whitish, green shaded at base, purplish at apex, spotted and warted with black, haired, lip brown purple.

Summer

Thunbergii **syn. macranthum**

Tibeticum Thibet

Allied to macranthum with flowers as large but the pouch is more globose, blackish purple in front, greenish basally, dorsal sepal and petals greenish yellow, lined and reticulated with blackish purple. Summer

S **tonsum** Sumatra

Foliage brightly tessellated. Scape 12 to 18 inches high. Flowers large, dorsal sepal greenish white, veined green, petals similar, slightly flushed with purple, pouch brownish green. Autumn

variegatum **syn. guttatum.**

Veitchianum **syn. superbiens.**

ventricosum **syn macranthum.**

CYPRIPEDIUM—cont.

C **venustum** North India

Foliage mottled, deep purple beneath. Scape 6 to 10 inches. Dorsal sepal greenish white, with purplish stripes, petals warted with purple, purple tipped, lip yellowish, veined with green, and purple flushed. Spring

C **- var. pardinum** North India

Flowers larger and of brighter colour, the yellow more pronounced in the lip. Spring

C **Victoria Mariæ** Sumatra

Habit of Chamberlainianum, but stronger. Flowers very similar but the lip is more elongated. Upper sepal cream colour, shaded green, petals twisted, dull purple, lip purple rose. Spring and Summer

C **villosum** Moulmein

Foliage green. Scape villose, 6 to 15 inches high. Flowers large glossy. Dorsal sepal brownish purple, at base and centre then greenish, narrowly margined with white, the petals have the superior half yellow brown, the lower half much paler, lip brownish yellow. Winter and Early Spring

C **- var. aureum** Moulmein

Yellow suffusion throughout the flower and with a broad margin of white to dorsal sepal. Winter and Early Spring

C **villosum var Boxallii** Burma

A well marked variety often receiving specific rank.

Flowers large, dorsal sepal heavily spotted with black purple, margined with white, petals greenish yellow with red brown markings, the lip tinged with purple. Winter and Early Spring

C **- var. Boxallii atratum** Burma

Dorsal sepal nearly black, whole flower more richly coloured than in type. Winter

C **- var. Measuresianum** Burma

A very handsome variety, dorsal sepal, glossy, purple and black at base, shaded into greenish yellow, marked with purple and margined with white, the lower halves of the petals are mottled with purple and the labellum is creamy white shaded on the front with rose purple. Winter

virens **syn. Javanicum var.**

I **vittatum** Brazil

Habit as in Lindleyanum, the foliage is margined with a narrow yellowish band, dorsal sepal white, shaded with green, spotted with red at the base, petals twisted, pale green, passing into brown purple, lip deep brown purple, shaded with green. Various

- var. *brevi* **syn. vittatum**

CYPRIPEDIUM—cont.

volonteanum **syn. Hookeræ var.**
Wallisii **syn. caudatum var.**
Warnerianum **syn. barbatum var.**
Warscewiczii **syn. caudatum var.**

CYRTOCHILUM **syn. ONCIDIUM**

Bictoniensé **syn. Odontoglossum**
citrinum **syn. Oncidium**
flavescens **syn. Miltonia**
insculptum **syn. Oncidium**
Jungersianum **syn. Oncidium hasatum**
leucochilum **syn Oncidium**
maculatum **syn. Oncidium**
stellatum **syn. Miltonia flavescens**
undulatum **syn. Oncidium**
zebrinum **syn. Oncidium**

CYRTOPERA syn. EULOPHIA

Woodfordii **syn. Cyrtopodium Woodfordii**

CYRTOPODIUM

Handsome Orchids with tall stem like pseudo bulbs which resemble Ansellia but are larger and stouter. Leaves long, strap shaped, strongly ribbed beneath, carried on the upper portion of the stems, which are sheathed by their bases.The inflorescence is a tall, branching, bracteate panicle, produced with and from the side of the young growth. The plants should be potted in a compost similar to that given Cymbidiums, but require to be grown in a warm, moist, stove house and liberally watered when growing and rooting. After growth is completed they should be kept cooler and much drier. Until the growth is well advanced water should be given very occasionally. The reflexed sepals and petals are nearly equal, the lip, attached to the base of the column and forming a blunt spur, is three lobed, the side lobes erect, the front lobe spreading.

CYRTOPODIUM—cont.

S **Andersonii** Brazil and West Indies

Stems 3 to 4 feet high, panicle taller, many flowered, flowers about 1 ½ inches high, sepals and pteals yellow faintly tinged with green, lip rich yellow. Spring

cardiochilum **syn. Andersonii**

glutiniferum **syn. Woodfordii**

micranthum **syn. Oncidium**

S **punctatum** South America

Stems 2 to 3 feet high. Leaves 24 inches long. Spikes as tall as stems, the panicle clothed in large, brown tinted bracts. The inflorescence branched, often 100 flowers and over. A large bract is situate at the base of the inflorescence, a smaller bract at base of each branch and a still smaller at base of flower, all greenish yellow, the basal halves thickly marked with red brown, the flower bracts are nearly covered with brown and end in a brown apiculus. Flowers nearly 2 inches in height, not as broad. Sepals and petals greenish yellow with red spots, petals yellow marked basally with red, side lobes of lip chesnut, the front lobe chesnut, marginally spotted with yellow and having a central yellow area, Crest raised, fleshy, and with the base of the lip, yellow spotted with red. Spring

S - **var. Saintlegerianum** Paraguay

Inflorescence more showy than in the type with highly developed and brightly coloured bracts. Spring

Saintlegerianum **syn. punctatum var.**

speciosissimum **syn. punctatum**

S **virescens** Brazil

Pseudo bulbs shorter and thicker than in punctatum. Flowers slightly less in size, sepals and petals greenish yellow, spotted with red chocolate, lip brighter and marked with red purple. Spring

Wilmorei **syn. punctatum**

S **Woodfordii** West Indies, etc.

Stems, leaves and inflorescence considerably shorter than in punctatum. Sepals and petals greenish, lip shaded with purple. Summer

DECKERIA

undulata **syn. Schomburgkia undulata**

DENDROBIUM

A large, varied and popular genus of epiphytal orchids distributed throughout the East from Ceylon through India, Burma, Assam, Maylasia, parts of China and Japan to the Philippines and Australia. Most of the species are easily grown and freely produce their, usually, brightly coloured and useful flowers.

With so wide a distribution it is but natural that many of the species included should differ widely from each other, so much so, indeed, that Lindley proposed dividing the genus into ten sections, though that number is now reduced. The plants vary in habit from dwarf tufted species, an inch or two in height to, species with pseudo bulbs 3 to 4 feet, or more, in height and stout in proportion. In the majority of species the pseudo bulbs are well defined.

The flowers are characterized by nearly equal sepals and petals, the petals being usually the larger. The bases of the two lateral sepals are adnate to the foot of the column forming with it a more or less prominent «chin», the base of the lip is in many species hidden by the connate portions of the lateral sepals and with them form a second chin.

In the species commonly cultivated the flowers are produced in clusters of usually twos or threes from the nodes of the pseudo bulbs as in D. nobile, in apical spikes as in D. phalaenopsis, in apical clusters as in D. infundibulum, in drooping, or horizontally arched, apical spikes as in D. densiflorum and there are also species which carry their flowers in dense clusters produced from, usually, the apical nodes as in D. bracteosum, or as in D. secundum in short, lateral, nearly apical spikes densely crowded with flowers. In many of the species where the inflorescence comes from the apical « eyes » rather than nodes, each pseudo bulb is capable of producing 3 to 5 spikes, either together or at irregular intervals, a character common to the Indian and Burmese species — densiflorum, chrysotoxum, thyrsiflorum, etc. and the Dendrobiums allied to atro-violaceum, phalaenopsis etc. Variations and modifications are however found in every division.

DENDROBIUM—cont.

The foliage exhibits dissimilarity to nearly as great an extent. In D. nobile and its allies the leaves are ovately oblong in shape, 2 to 4 inches long, and, broadly speaking, are deciduous, though those on the last made pseudo bulb usually persist through the Winter or longer. In densiflorum, chrysotoxum etc. the foliage is much more leathery in texture, larger, more persistent and confined to the upper portion of the pseudo bulb. The foliage of D. phalaenopsis and its allies somewhat resembles that of the Burmese thyrsiflorum, while in D. teretefolium we have hard terete leaves, more like those of some Brassavola or Vandaceous plant, and carried on slender stem like pseudo bulbs, hardly recognizable as such.

In such a large, polymorphic genus, the culture of the species necessarily differs, but summed up briefly the requirements of the Indian and Burmese species are heat and moisture when growing, particularly abundance of sun heat, reasonable exposure to air and light, to mature the growth, in the early Autumn, and then a cooler and decidedly drier — both at the root and in the atmosphere — rest.

The Australian and New Guinea species demand much the same treatment but in spite of the fact that the pseudo bulbs are larger in many cases, they require more water and a higher temperature during the Winter than the Indian and Burmese species.

During the resting period 55° to 60° Fahr. is a sufficiently high temperature for D. nobile and its companions but the temperature for D. phalaenopsis etc. should be never less than 60° Fahr. and rather more by day, particularly if winter growths are present as they often are. Their resting period being much shorter than of the India to China forms, water cannot be withheld for such long periods.

All the species may have a compost of three parts of fine cut Osmunda fibre and one part of sphagnum moss, well mixed and care should always be taken to place a Dendrobium in as small a receptacle as possible. Many are the better if placed in small pans which can be sus-

DENDROBIUM—cont. pended from the roof of the house. In Warm sunny weather, and when root action is abundant, water may be given copiously and frequent syringings indulged in, but the syringe should be entirely witheld in the dull weather, and at no period should water be allowed to lodge in the young growths.

Shading should be applied as for Cattleyas, the greatest amount being given when the growths are young and tender. When the growths are matured as much light, as is consistent with safety should be given.

S **aduncum** Assam

Stems slender, 18 to 30 inches, erect or drooping. Flowers about an inch across, in short cluster like racemes, white suffused with rose. the mid lobe of the lip with a strongly hooked tip, column purple hooded. Summer

S **æmulum** Australia

Stems terete 2 to 6 inches high, carrying 2 or 3 coriaceous leaves. The base of the stem is sometimes swollen into a more typical pseudo bulb. Racemes terminal, 5 to 7 flowered. Flowers 1 ½ inches across. The petals narrower than the sepals, all white sometimes passing into pale yellow, sometimes pink tinged, lip white, fragrant. Spring

S **aggregatum** India

Habit dwarf, pseudo bulbs 2 to 3 inches long, compressed, wrinkled, one leaved, Spikes slender, drooping, bearing 7 to 12 flowers, about 1 ½ inches across, yellow, lip rounded, orange yellow. Requires a long dry rest. Spring

S **- var majus**

Flowers larger and brighter in colour. Spring

S **albosanguineum** Moulmein

Pseudo bulbs stout, noded, 6 to 12 inches high. Spikes from upper nodes, 2 to 3 flowered. Flowers large about 3 inches across, creamy white, the lip with two, or one, large, suffused, crimson blotches at base. Spring

alboviride **syn. scabrilingue**

album **(Wight) syn. aqueum**

S **Amboinense** Amboina

Pseudo bulbs, 1 to 2 feet high, 4 or 6 angled, swollen basally, then apically tapered. Flowers in pairs from the nodes, 4 inches or more across, the segments acuminate, creamy white, the lip yellowish and marked with purple.

Summer

DENDROBIUM—cont.

S **amethystoglossum** Philippines

Stems erect, slender, 2 to 3 feet high. Flowers about 1 inch across, pure white with the mid lobe of the lip bright amethyst. Densely set in apical, drooping racemes, 3 to 6 inches long. Winter

S **amœnum** India

Stems slender about 18 inches long. Flowers from nodes, usually in ones or twos, about 2 inches across. Segments rather narrow, whitish tipped with purple, lip with yellow blotch at base, fragrant. Summer

Andersonii **syn. Draconis**

anosmum **syn. superbum**

I **Aphrodite** Moulmein

Stems sub erect, 9 to 15 inches high, prominently noded. Flowers from nodes, usually solitary, about 2 inches across. Sepals and petals whitish, lip deep orange, with a white margin and apex, and with two purple spots at base. Spring

aphylum **syn. amœnum**

S **aqueum** India

Stems pendulous, 1 to 2 feet. Flowers from nodes, singly or in pairs, about 2 inches across, creamy white with a yellow disc to lip. Autumn

S **arachnites** Moulmein

Dwarf tufted habit with slender clustered stems, about 3 inches high. Flowers, 1 to 3 in clusters, 2 ½ inches across. Sepals and petals narrow, elongated, bright cinnabar red, lip much shorter and broader, veined with purple. Requires very careful watering at all times. Various

S **Ashworthiæ** New Guinea

Pseudo bulbs, 12 to 24 inches high, quill-like basally than clavately thickened apically as in atro-violaceum etc. Leaves coriaceous. Spikes apical 6 to 12 flowered. Flowers about 3 inches across, petals twisted once, with the sepals and lip creamy white, the lip has a few purplish lines on the inside of the side lobes. Ovary hairy. Winter

atrosanguineum **syn. albosanguineum**

S **atro-violaceum** New Guinea

Stems erect, 1 to 2 feet high, tapering at their base, furrowed. Leaves leathery, broad at base, pointed, confined to the apex. Spikes terminal, 4 to 9 inches long, 7 to 15 flowered. Flowers about 2 inches across. Sepals and petals creamy white, spotted with rich purple, lip with the mid lobe pointed, reflexed, the side lobes prominent, violet purple, shaded with green. Winter and Various

DENDROBIUM—cont.

S **aureum** Ceylon, India

Stems 9 to 15 inches high. Flowers from nodes in twos and threes, fragrant, 2 inches or more across. Sepals and petals amber yellow, lip with a brown velvet like disc and purplish markings. Spring

S - **var. Henshalli** Sumatra

Stems taller, more slender, lip whitish, with the brown disc, yellow at base, purple marked. Spring

S - **var. Philippinense** Philippines

Stems much longer, more slender, flowers with more attentuated segments, primrose yellow, lip with orange yellow disc and a few red purple markings or stripes. Spring

Bancroftianum **syn. speciosum var.**

barbatulum **(Wight) syn. chlorops**

barbatulum **(Bateman) syn. Fytcheanum**

S **barbatulum (Lindl)** East Indies

Stems slender, 12 to 15 inches high. Flowers about one inch across, white tinged with pink, densely set in nearly terminal racemes. Summer

I **bellatulum** Annam

A dwarf growing species. Pseudo bulbs, stout, 2 to 3 inches high, black haired. Flowers 1 ½ inches across or more. Sepals and petals white or creamy white, lip with the central portion orange red. A distinct pretty species succeeding better in a cool part of the intermediate house. Autumn

S **Bensoniæ** Moulmein

Stems erect, stout, 15 to 24 inches high, yellowish. Flowers from nodes, in twos or threes, 2 inches or more across. Sepals and petals milk white, lip white, with an orange disc based by two deep maroon blotches. Spring and Summer

S - **var. xanthinum** Moulmein

Lip without the maroon blotches. Summer

S **bicameratum** Burma

Stems slender, 1 to 2 feet high. Flowers borne from nodes in clusters of 5 to 7, small, soft rose purple in colour. Summer

S **bigibbum** North Australia

Pseudo bulbs, 12 to 18 inches high, resembling D. phalaenopsis in habit. Racemes terminal arching or erect, as long as the bulbs, 7 to 15 flowered. Flowers 2 inches or less in diameter, magenta purple in colour with a white crest. Autumn and Early Winter

S - **var. superbum** Brisbane

Flowers larger and more brightly coloured. Early Winter

DENDROBIUM— cont.

I **binoculare** Burma

Resembling D. fimbriatum in habit but less. Racemes sub-erect, produced from the upper nodes, 5 to 9 flowered. Flowers over 2 inches across. Sepals and petals copper colour, lip with the apex golden yellow and a very dark blotch on either side of the disc. Summer

S **Boxallii** Burma

Stems slender, pendulous, 2 to 3 feet long. Flowers from nodes in pairs, 2 to 3 inches across, sepals and petals white, tipped with mauve purple, lip yellow bordered white, tipped mauve purple. Spring

S - **var. Albanense** Burma

Stems, stouter, sub-erect. Flowers larger and brighter. Spring

S **bracteosum** New Guinea

Stems erect about 6 inches high. Flowers from the upper nodes, clustering densely on a short spike. The individual flowers rather small. Sepals and petals rose purple, lip orange red. Each flower based by a bract nearly as long. Early Winter

S - **var. album** New Guinea

Sepals and petals, white, lip orange red. Early Winter

breviflorum **syn. bicameratum**

Brisbanense **syn. gracilicaule**

S **Brymerianum** Burma

Stems 12 to 24 inches high, swollen centrally. Racemes 2 to 5 flowered, short, lateral, produced from the upper parts. Flowers 2 to 3 inches across, more in length, golden yellow, the lip produced into a long, beard like, netted fimbriatum. Spring

I **Bullenianum** Philippines

Pseudo bulbs, 9 to 15 inches high, slender. Flowers closely set in lateral heads. Flowers about ¾ of an inch long, somewhat bell shaped, orange striped with red. Autumn

Bullerianum **syn. gratiotissisum**

S **bursigerum** Philippines

Stems stout, erect, 1 to 2 feet high. Spikes apical, short, lateral. Flowers small, crowded, borne on the upper side, bright rose, lip stained with yellow. Late Summer

calamiforme **syn. teretifolium**

calceolaria **syn. moschatum var.**

calceolus **var.** *cupreum* **syn. moschatum var**

DENDROBIUM—cont.

Cambridgeanum **syn. ochreatum**

S **canaliculatum** Queensland

Pseudo bulbs, short, stout, resembling a small speciosum. Flowers in apical spikes, 12 to 20 inches long. Segments narrow, pointed, sepals and petals yellowish, white basally, lip with a mauve purple disc. Fragrant. Autumn

S **capillipes** Burma

Pseudo bulbs 3 to 6 inches high, stout, clustered. Flowers, on short, 2 to 4 flowered, erect spikes, from upper nodes, 1 to 2 inches across, rounded, golden yellow with deeper disc. Spring

I **cariniferum** Burma

Pseudo bulbs 5 to 12 inches high, black haired. Flowers in apical, 2 to 4 flowered clusters. Flowers 1 ½ to 2 inches across, somewhat funnel shaped. Sepals keeled, with the petals fawn yellow to white, lip red crested. Spring

castum **syn. moniliforme**

S **chlorops** India

Stems slender, tufted, 12 to 18 inches high. Flowers about ¾ of an inch across, in apical, short racemes, densely set. Sepals and petals creamy white, lip green and white. Winter and Spring

S **chloropterum** New Guinea

Pseudo bulbs, 12 to 15 inches, habit as in atro-violaceum. Spikes 5 to 9 flowered, terminal. Flowers about 2 inches across. Sepals and petals green, lip margined green, deep red chocolate centrally. Winter

I **chrysanthum** North India

Stems 2 to 3 feet long, pendulous, set closely together basally. Flowers, in twos or threes from nodes, about 2 inches acoss, deep orange yellow, lip fimbriate with two, dark maroon spots. Flowers on new growth and sometimes twice in a season. Summer and Autumn

S **chrysocrepis** Moulmein

Stems quill like, basally, then expanding into a flattened pseudo bulb 6 to 12 inches in all. Flowers about 1 ½ inches across, usually singly from the older stems, golden yellow, the lip somewhat slipper shaped, the inner surface red, haired. Spring

chrysotis **syn. Hookerianum**

DENDROBIUM—cont.

I **chrysotoxum** Moulmein

Pseudo bulbs 6 to 12 inches high, stout, club shaped. Leaves coriaceous. Flowers in apical, lateral spikes, 7 to 15 flowered. Flowers about 2 inches across, rich golden yellow, lip with a deeper orange disc. Often blooms from old as well as newly made bulbs. Requires a very decided rest. Spring

- var. *superbum* **syn. suavissimum**

I **- var. superbum** Moulmein

Flowers larger, brighter, richer in colour and on longer spikes. Spring

I **ciliatum (Parish)** Moulmein

Stems slender, 12 to 18 inches high. tufted. Racemes terminal and lateral, 6 to 8 inches long. Flowers about 1 inch across, yellowish green, sepals and petals narrow, lip more yellow than the sepals and petals, side lobes streaked with red brown, the triangular front lobe fringed with club shaped yellow hairs. Winter

I **- var. Annamense** Annam

Pseudo bulbs shorter and more stout than in type. Flowers whitish, lip with a purplish base.

I **- var. breve** Moulmein

Stems 3 to 5 inches high, much stouter than in type. Flowers similar. Winter

clavatum **(Roxb.) syn. densiflorum**

I **clavatum (Wall)** Assam

Pseudo bulbs erect, 24 to 30 inches high, stout, clavate, ringed. Racemes 3 to 6 flowered from and near the apices. Flowers 2 to 3 inches across. Sepals and petals golden yellow, lip with a maroon blotch at base, margin finely denticulated. Summer

S **cœlogyne** Moulmein

Habit more resembling that of a Bulbophyllum, the short 1 to 2 inch, roughly four sided pseudo bulbs, being carried at intervals on a creeping rhizome. Flowers solitary from apex of the bulbs, large, 2 to 3 inches. Sepals and petals greenish yellow speckled with red, lip large, deep dull purple. Autumn and Various

cœrulescens **syn. nobile**

crassinode **syn. pendulum**

I **crepidatum (Lindl)** Assam

Stems 12 to 18 inches semi-erect or curved, tufted. Flowers from nodes, in twos or threes, waxy, over an inch across, whitish tipped and flushed with rose pink, lip stained with yellow basally. Variable. Winter and Spring

I **cretaceum** Burma and Assam

Stems about 12 inches, sub-pendulous. Flowers from nodes, usually solitary, over an inch across. Sepals and petals chalky white, lip yellowish, crimson marked. Spring

DENDROBIUM—cont.

S **cruentum** Malaya

Pseudo bulbs erect, about 12 inches high, black haired. Flowers from nodes in pairs, about 2 inches in length. Sepals and petals greenish, lip green with the side lobes bright crimson, a crimson crest and margins to the front lobe.

Summer

S **crumenatum** Burma, Malaya, etc.

Pseudo bulbs swollen, roughly four sided for 3 to 6 inches basally, then tapering into a quill like elongation, sometimes branched, 1 to 2 ft. Flowers solitary or in pairs from the apical portion, an inch or more long, not spreading fully, white pink flushed, lip with a primrose disc, and a few pinkish lines, scented.

Summer

S **crystallinum** Arracan Mountains

Pseudo bulbs stout 12 to 24 inches, erect or sub-pendent. Flowers, 1 to 3, from most of the nodes, 2 inches across, rounded, segments white tipped with magenta, the lip orange basally. Summer

cucullatum **syn. Pierardii**

S **cucumerinum** Australia

Habit near that of linguiforme, but the leaves bear raised tubercles on the ribs. Racemes short, usually 4 flowered. Sepals and petals yellowish white, streaked with red, lip white, spotted red. Summer

cultriforme **syn .Polystachya cultriforme**

S **cumulatum** Moulmein

Stems slender, pendulous, 18 to 24 inches long. Flowers small, in clusters from the nodes, segments white, suffused with rose purple. Summer

cupreum **syn. moschatum var.**

S **cymbidioides** Java

Pseudo bulbs angled pyramidal, about 2 inches high, bearing two leathery leaves, 3 to 6 inches long, Spike arching 6 to 12 inches long 5 to 12 flowered. Flowers fleshy about 2 inches across. Sepals and petals spreading, pale ochre yellow, lip shortened, whitish, marked with red, purple basally. A pretty species and with triflorum and elongatum forming a well marked group. Winter and Various

S **D'Albertisii** New Guinea

Habit much as in D. crumenatum, but stems stouter, variable in habit. Racemes 5 to 20 flowered. Flowers about 2 inches long, sepals white, petals green, twisted, much longer than sepals, lip short, striped with purple. Scented.

Summer

Dalhousieanum **syn. pulchellum**

Dayanum **syn. macrophyllum**

DENDROBIUM—cont.

S **Dearei** Philippines

Pseudo bulbs erect, ringed, 1 to 2 ft. or more. Leaves persistent over a year. Flowers, in short cluster-like racemes, from or near the apices, 5 to 12 flowered. Flowers 2 ½ inches across, pure white with a green disc to the lip, long lasting.

Summer and Early Autumn

C **delicatum** Australia

Resembles Kingianum but with stronger bulbs and slightly larger flowers on longer spikes. Flowers whitish with minute spots of brown purple.

Winter

I **densiflorum** India, etc.

Pseudo bulbs, 12 to 15 inches high, stout, clavate, four sided apically. Leaves coriaceous, persistent. Flowers densely set in pendulous trusses, 6 to 9 inches long. Flowers about 2 inches across, orange yellow, the lip the darker, downy.

Spring

- **var.** *alboluteum* **syn. thyrsiflorum**

- **var.** *Schroderæ* **syn. Schrœderi**

S **Devonianum** India, Burma, etc.

Stems 2 to 3 ft. long, slender, pendulous. Flowers from nodes, often in threes, about 2 inches across. Sepals and petals creamy white tinged with pink, petals magenta tipped, lip white, margined with purple, orange at base, beautifully fringed. Spring

discolor **syn. undulatum**

dixanthum Moulmein

Stems slender erect, 1 to 2 ft. Flowers from nodes, five being frequently produced from a node, about 1 ½ inches across, bright yellow, disc of lip orange yellow. Spring

S **Donnesiæ** Burma

Pseudo bulbs stout, 3 to 6 inches, black haired. Flowers as in infundibulum, 4 inches or more across, pure white, stained with chrome yellow at base of the lip.

Spring

I **Draconis** Burma

Pseudo bulbs, erect, 12 to 18 inches, black haired. Flowers usually in twos from the apical nodes, about 1 ½ inches across, pure white, the lip stained with red. Spring and Summer

eburneum **syn. Draconis**

S **elongatum**

Pseudo bulbs 1 to 1 ½ inches high, four angled, nearly sheathed with a brown membrane, 2 leaved. On an ascending rhizome. Leaves 2 to 4 inches long, ½ an inch broad. Spikes 6 to 12 inches long, 6 to 10 flowered. Sepals and petals nearly equal, petals the narrower. Starry ; white or whitish, lip yellowish, covered with deep ochre yellow, red tinted asperities. Autumn

DENDROBIUM—cont.

extinctorum **syn. Eria extinctorium**

I **Falconeri** Assam

Stems 2 to 3 ft long, knotted, branched pendent. Flowers large solitary, 2 to 3 inches across, very showy. Sepals and petals white, tipped with purple, sometimes flushed, lip white with a maroon purple disc and an orange blotch on either side, the apex tipped with purple. A handsome species, but difficult to keep under cultivation. It succeeds best against a wall in rather a damp position and every effort should be made to conserve and encourage growths from the base.

Spring and Summer

I **- var. albidulum** Assam

Flowers white, delicately flushed with purple in place of the decided purple of the type. Spring

I **falcorostrum** Australia

Pseudo bulbs 4 to 8 inches high, stout, green, erect, usually triphyllous. Spikes terminal 3 to 6 inches high, 6 to 12 flowered. Flowers creamy white, fleshy. Petals ¾ of an inch long. Sepals broadest. Lip striped with crimson on side lobes, crest yellow. Spring and various

S **Farmeri** India, Burma, etc.

Habit resembling that of densiflorum, but rather less. Flowers borne in a similar manner but less densely set on the spike. Sepals and petals straw yellow tinted pink, lip with a golden yellow disc. Spring

S **- var. album** India

Sepals and petals almost pure white. Spring

S **- var. aureum** India

Flowers clear yellow, lip orange yellow. Spring

ferox **(Hask) syn. macrophyllum**

ferox **syn. Farmeri**

I **fimbriatum** Burma

Stems 2 to 4 ft erect. Racemes arching from the upper portions, 4 to 10 inches long, 3 to 15 flowered. Flowers 2 to 3 inches across, deep rich orange yellow, lip with a short dense fimbriation. Spring and various

I **- var. oculatum** Burma

Lip with a dark maroon blotch at base. Spring and various

DENDROBIUM—cont.

S **Findlayanum** Moulmein

Stems 1 to 2ft, semi pendulous, knotted. Flowers, 1 to 3, from the nodes, 2 to 3 inches in diameter. Segments white, tipped with pink magenta, lip with a large orange coloured disc, margined and tipped with white or pink white.

flexuosum **syn. longicornu**

S **formosum** Assam

Pseudo bulbs 12 to 18 inches high, stout, erect, black haired. Flowers in apical clusters, 2 to 5, large, pure white, except the somewhat shovel shaped lip, which has a deep, central, orange yellow stain, front lobe slightly reflexed. Long lasting, fragrant. Autumn

S - **var. giganteum** Burma

Stems often shorter but stouter. Flowers larger, often 4 to 5 inches across. Fragrant. Both type and variety should have a decided rest. Autumn

Freemaniæ **syn. lituiflorum var.**

fuscatum **syn. Gibsonii**

I **fusiforme** Australia

Pseudo bulbs dark colored, furrowed, fusiform. 8 to 12 inches long. Leaves 2 to 7. Spikes terminal 6 to 10 inches long. Flowers densely set, creamy white, fragrant. Sepals and petals equal, alternated, about ¾ of an inch long. Lip marked with purple on side lobes, disc orange, flecked with purple. Summer

S **Fytchianum** Burma

Stems slender, erect, 12 to 18 inches high. Racemes from near their apices, short, 10 to 15 flowered. Flowers about 1 ½ inches across, pure white, the lip often, and the whole flower occasionally, flushed with rose. Winter

S **Gibsonii** Tenasserim

Stems erect 2 to 3ft high. Racemes from the upper portions, 3 to 10 flowered. Flowers 2 to 3 inches across, thick textured, deep golden yellow, the lip with two deep purple brown spots at the base, fimbriated but not so strongly as in D. fimbriatum. Summer

S **glomeratum** Moluccas

Stems slender, erect 2 to 3 ft high. Flowers, in bunches from upper nodes, ¾ to 1 inch long, sepals and petals rosy purple, lip orange. Summer

S **glomeriflorum** Moluccas

Pseudo bulbs slender, 20 to 30 inches high. Flowers small, in dense clusters creamy white at base of sepals, remainder deep rose. Various

DENDROBIUM—cont.

S **Goldei** Australia

Habit resembling that of superbiens. Pseudo bulbs erect, 18 to 36 inches high. Spikes terminal 12 to 30 inches long, many flowered. Flowers about 2 inches across. Segments with waved or undulated margins, all bright claret purple, long lasting. Various

C **gracilicaule** Australia

Resembles a dwarf form of D. speciosum. The pseudo bulbs, 4 to 9 inches long, are swollen basally, and taper to a slender quill like apex. Spikes terminal, 3 to 6 inches long, many flowered. Flowers creamy white, peppered with brown red, with narrow pointed segments. Various

I **gratiotissimum** Moulmein

Pseudo bulbs slender, erect or semi-erect. Flowers from upper nodes in twos or threes. Flowers about 2 inches across. Sepals and petals rather narrow, whitish, tipped with rose, lip similarly coloured, but with a large basal, orange yellow blotch, margin of lip denticulated. Spring

S **Griffithianum** Burma

Habit as in densiflorum but the pseudo bulbs are not so stout. The racemes are longer, the flowers less closely set. Sepals and petals bright yellow, lip orange, denticulated. Spring

S - **var. Guiberti** Burma

Flowers larger, brighter in colour, racemes longer. Spring

Hanburyanum **syn. lituiflorum**

S **Harveyanum** Burma

Stems erect, 6 to 12 inches high, thickest near the apex. Racemes slender, 3 to 9 flowered. Flowers about 2 inches across, golden yellow, the lip blotched with orange, the petals bearded as is the lip of Brymerianum and the lip bears a strong fringe. Spring

hedyosmum **syn. scabrilingue**

heterocarpum **syn. aureum**

Heyneanum **syn. barbatum**

S **Hildebrandii** Burma

Pseudo bulbs erect, 15 to 30 inches. Flowers, in twos and threes, from nodes, 2 to 3 inches across. Sepals and petals rather narrow, pale yellow, twisted, lip rounded, orange with a lighter yellow margin. Spring

Hillii (Hook) **syn. speciosum var. Hillii**

hirsutum **syn. longicornu**

DENDROBIUM—cont.

S **Hodgkinsoniæ** Polynesia

Pseudo bulbs 6 to 15 inches high, slender basally, clavately swollen above, bearing 3 to 5 coriaceous leaves. Spikes terminal, 5 to 12 flowered. Flowers about 2 inches in length. Sepals and petals yellowish white, lip dark crimson purple, shaded with green at the edges, the side lobes striped with dark crimson, crest white, raised in three keels. Winter

S **Hookerianum** Burma

Stems 2 to 5 ft long, slender, pendent, Flowers 2 to 5, from nodes. Flowers three inches across, rich golden yellow, lip orange, purple maroon blotched at base, fimbriated. Very showy. Spring and Summer

S **inæquale** New Guinea

Pseudo bulbs 4 to 8 inches high, four angled on the upper part, slender below diphyllous. Leaves 3 to 5 inches long. Flowers borne singly from the swollen part of the stem, slightly odorous. Lip and lateral sepals uppermost ; sepals and narrower petals white, about 1 inch long, lip shaped much as in Madonnae, i.e. with the front lobe greatly reduced ; sulphur yellow, the side lobes striped with lilac, the base marked with brown, with a raised, tongue like, brown marked, crest at the base and two small whitish horns in front. Column white. Autumn

C **infundibulum** Moulmein

Stems black haired, erect, 12 to 24 inches high. Flowers, 2 to 4, in apical clusters, 4 inches across, pure white excepting a yellow stain on the lip, extending into the funnel shaped throat. Spring and various

- **var.** *Jamesianum* **syn. Jamesianum**

inversum **syn. arachnites**

C **Jamesianum** Moulmein

Differs from infundibulum in its shorter stouter stems, If anything the flowers are larger and have a cinnabar red stain on the lip, the side lobes of which are asperated. Spring and various

Japonicum **syn. moniliforme**

Jenkinsii **syn. parciflorum**

S **Johannis** Australia

Stems erect, stout, 12 to 18 inches. Spikes terminal, 6 to 12 inches long, 10 to 20 flowered. Flowers fragrant, 1 ½ inches across. Segments narrow, undulated. Sepals and petals brown, shaded with green and red, lip yellowish, crimson marked. Autumn

DENDROBIUM—cont.

S **Johnsoniæ** New Guinea

Stems erect, 12 to 18 inches high. Spikes terminal, 6 to 12 inches long, 5 to 10 flowered. Flowers 4 to 5 inches across. Sepals and broader petals pure white, lip three lobed, the mid lobe large in proportion, the side lobes and throat marked with purple. Summer

C **Kingianum** Australia

Stems short, stout, pointed, clustered, 2 to 5 inches high. Spikes terminal 5 to 10 flowered. Flowers an inch or less in length, violet purple, shaded with white. Spring

C - **var. album** Australia

Flowers white. Spring

I **lævigatum** New Guinea

A charming species. Pseudo bulbs 1 to 2 inches high, clothed in a fibrous membrane. Leaves 2 to 3 inches long, smooth. Flowers, in twos or threes from apices, 1 ½ inches across. Sepals and petals nearly equal, clear rose purple. Lip clear yellow, the margin involute, flushed with red beneath, long lasting. Summer

S **lasioglossum** Burma

Stems 12 to 18 inches high, slender, smallest basally and apically. Flowers as in nobile from nodes, about 1 inch or more in diameter, white. Lip somewhat funnel shaped, the side lobes streaked with red, the disc villous with orange yellow hairs. Summer

S **Leeanum**

A rare Dendrobium, possibly a natural hybrid between D. phalaenopsis Schroderianum and D. superbiens or undulatum. It resembles the latter in growth. The sepals broader than the petals, are purplish on the apical halves, whitish basally, the petals, slightly twisted, are rose crimson. The lip is more expanded than in superbiens, rose crimson, greenish at the base. Various

S **Linawianum** China, etc.

Stems erect, 12 to 18 inches. Habit as in nobile. Flowers about 2 inches across. Sepals and petals rosy red, darkest at the tips, lip tipped purplish crimson, whitish at the base with two purple spots. Winter and Spring

Lindleyanum **syn. nobile**

Lindleyi **syn. aggregatum**

DENDROBIUM—cont.

I **linguiforme** Australia

Pseudo bulbs absent. Rhizome thick, creeping, branching. Leaves at short intervals, an inch long, coriaceous, furrowed when old. Spikes from rhizome, 2 to 4 inches high, 3 to 20 flowered. Flowers an inch across. Sepals and petals narrow, white or creamy white, lip shorter than the other segments. Various

I **lituiflorum** Burma and Assam

Stems 20 to 30 inches, slender, pendulous. Flowers 2 to 3, from the nodes, 2 inches or more across. Sepals and petals rose purple, paler basally. Lip trumpet shaped, margined with purple and centrally purple on a whitish ground.

Spring

I - **var. Freemanii** Assam

Stems shorter than in type, more erect.Flowers more richly coloured, lip marked with yellow. Spring

S **Loddigesii** North India

Stems 3 to 6 inches long, creeping, branched. Flowers from nodes, usually solitary, very pretty, about 1 ½ inches across, rounded. Sepals and petals purplish or rose, lip orange in centre, banded by white, tipped with purple, fringed.

From its habit it should be placed on a raft or very shallow pan.

Spring

I **longicornu** India

Stems erect, blackhaired, slender, 12 to 18 inches. Flowers from apices in clusters of 2 to 4, pure white, with yellow centre to lip which terminates in a long funnel shaped spur. The species is near infundibulum but less in all its parts.

Spring

S **Lowii** Borneo

Stems erect, black haired, about 12 inches high. Flowers in clusters, 3 to 5, from apical joints, about 1 ½ inches across, yellow, the lip veined and fringed with red. Summer and Autumn

S **luteolum** Moulmein

Stems slender, erect or arching, 12 to 24 inches high. Flowers 2 to 4, from the upper nodes, about 2 inches across, soft primose yellow, the disc marked with red. Winter

S **Macarthiæ** Ceylon

Stems 18 to 30 inches long, very slender, pendulous. Flowers in twos or threes from upper joints about 4 inches across, appearing less as they are somewhat compressed. Sepals and petals rose pink, lip rose pink in front lobe, veined with rose, with a purple blotch on the disc, throat soft white with purple spots.

It does not succeed will in cultivation and must never be subjected to draughts or allowed to shrivel through drought.

DENDROBIUM—cont.

Macfarlanei **(Rchbf) syn. Johnsoniæ**

I **Macræi** India, etc.

A widely distributed species of little horticultural merit. Rhizome creeping, branched, 2 to 3 ft long, pseudo bulbs compressed 2 to 3 inches long, carrying a single leaf as long or longer than bulb. Flowers 2 to 3, small, white, the lip keeled, the side lobes toothed and inclined backward. Summer

macranthum **(Miq) syn. superbum**

macrophyllum **(Ldl) syn. superbum**

S **macrophyllum (Rich)** New Guinea

Pseudo bulbs stout, erect, slender below, 12 to 18 inches high. Young growths sheathed in bracts. Spikes terminal, 6 to 15 inches long, 7 to 15 flowered. Flowers about 2 inches across. Sepals yellow, petals creamy white, lip yellowish, marked with purple. Pedicels, and outer sides of sepals and petals, haired.

Summer

S **macrostachyum** Burma

Stems slender, pendulous, 1 to 2 ft long. Flowers from nodes, 1 ½ inches across, greenish yellow with rose-violet flushed tips to the sepals and petals, the lip prettily veined with rose pink, and haired. Autumn

S **Madonnæ** Papua

Pseudo bulbs, 5 to 12 inches high, as in atro-violaceum but more slender. Flowers about 2 inches across. Sepals and petals pure white, lip obscurely three lobed, side lobes equal to front, margined or spotted with rose purple.

Winter

I **marmoratum** Assam

Stems slender, erect or sub-pendulous, 12 to 16 inches high. Flowers from nodes 1 ½ to 2 inches across. Sepals and petals white, tipped with purple, lip ciliated, purplish. Spring and Summer

mesochlorum **syn. amœnum**

moniliforme **(Ldl) syn. Linawianum**

C **moniliforme (Sw)** Japan

Pseudo bulbs slender, erect, tufted. Flowers, singly or in pairs from the upper nodes, an inch or more across, white, the lip sparsely spotted with purple, fragrant.

Summer

moschatum **(Griff) syn. pulchellum**

DENDROBIUM—cont.

I **moschatum (Sw)** India, etc.

Stems stout erect, 4 to 6 ft high. Racemes 5 to 15 flowered, from near the apices. Flowers large, 3 to 4 inches across. Sepals and petals yellowish, tinged with rose, lip yellow, darker at base which has two black purple blotches. Musk scented.

Spring and Summer

I - **var. calceolaria** India

Flowers smaller than those of type but brighter in colour. Summer

I - **var. cupreum** India, etc.

Sepals and petals apricot yellow, lip yellow with orange coloured spots, not usually so robust in habit as the type. In both type and varieties the lip is often slipper shaped but the character is not constant. Summer

Moulmeinense **syn. infundibulum**

S **mutabile** Java

Stems slender, erect, 1 to 2 ft high. Flowers small, clustering, from or near the apices on short racemes, white tinted with rose, lip with yellow crest.

Various

niveum **syn. Johnsoniæ**

S **nobile** India and China

Probably the most popular and useful of all Dendrobiums. Stems erect moderately stout, 1 to 2 ft high. Flowers, in twos or threes, from nodes, 2 to 3 inches across, showy, variable. Segments white, heavily tipped with rose purple, the lip has a deep black crimson blotch in the throat, column green.

Hardly two plants bear flowers exactly similar. Although given here as requiring stove treatment, it is most accoomodating as regards culture. By careful watering and drying it can be kept in a very low temperature without injury. It should be exposed to light and given more air when the bulbs are fully matured, but should have as much sun heat as possible when growing, with necessary shading.

Winter and Spring

S - **var. albiflorum** India, etc.

Flowers white, lip with a black purple disc. Winter, etc.

S - **var. Amesiæ** India, etc.

Flowers large, segments white with a rich maroon disc to lip.

Winter

DENDROBIUM—cont.

S **nobile var. Arnoldianum** India, etc.
Marked as in Cooksoniae but on the sepals instead of the petals. Flowers more spreading. Winter, etc.

S - **var. Ballianum** India, etc.
Flowers shining white with a faint flush of pink, disc of lip rose pink, very distinct. Winter, etc.

S - **var. Cooksonii** India, etc.
Petals similarly coloured to the lip. Winter, etc.

S - **var. elegans** India, etc.
Petals very broad, white at base, lip with a narrow disc, banded with sulphur yellow and tipped rose purple. Winter, etc.

S - **var. grandiflorum** India, etc.
Flowers much larger than in the type clearly marked and well coloured. Winter, etc.

- **var.** *Heathfieldianum* **syn. var. Cooksonii**

S - **var. nobilius** India, etc.
Flowers very rich in colour, larger than in type. Sepals and petals deep wine purple, paler at their bases, the maroon disc on lip banded with white. Winter, etc.

S - **var. pendulum** India, etc.
Habit pendulous. Flowers finely coloured. Winter, etc.

S - **var. Sanderiannm** India, etc.
Resembling var. nobilius but the flowers are rather smaller in size though the sepals and petals are broader, the colour is not quite so dark as in nobilius. Winter, etc.

S - **var. Tollianum** India, etc.
Flowers in the way of Arnoldianum but the pedicels are slightly twisted giving the flowers a curious appearance. Winter, etc.

S - **var. virginale** India, etc.
Flowers pure white, the lip shaded with primrose yellow. Winter, etc.

nodatum **syn. Aphrodite**

C **ochreatum** Moulmein, etc.
Stems 12 to 15 inches long, curved, knotted. Flowers usually in pairs, from nodes, 2 to 3 inches across, bright orange yellow, lip with a deep red maroon blotch. Spring

DENDROBIUM—cont.

S **palpebræ** Moulmein

Habit resembles that of Farmeri but less. Pseudo bulbs 3 to 6 inches. Leaves about 4 inches long, 1 ½ broad. Spikes short, ascending, 9 to 12 flowered. Flowers 1 ½ inches across. Sepals and petals white, nearly equal, petals broader, and more rounded. Lip with apical portion white, the remainder golden yellow with 5 roughly defined lines of reddish brown, stiff hairs beneath the column. Edge of lip is minutely fringed. Column yellow, red dish on the inner surface.

Autumn

Parciflorum Assam

Habit dwarf tufted. Pseudobulbs about 1 inch high, thick, bearing a single stout leaf an inch long. Spikes short 1 to 3 flowered. Flowers about an inch across, rounded, orange yellow. Spring

S **Parishii** Moulmein, etc.

Stems 12 to 18 inches high, stout, erect or curved. Flowers often in threes from nodes, 2 to 3 inches across, rich dark rose in colour, the lip haired, bearing two purplish blotches in the throat. Scent strongly suggestive of rhubarb root.

Spring

Paxtonii **(Paxt) syn. fimbriatum var. oculatum**

Paxtonii **(Lindl) syn. chrysanthum**

S **pendulum** Burma

Better known under the name of crassinode. Stems 12 to 18 inches, pendulous, knotted. Flowers, from nodes, 2 to 3 inches across. Sepals and petals white, tipped with purple, lip similarly coloured but with an orange blotch at the base.

Winter and Spring

S **- var. album** Burma

Sepals and petals white, lip with an orange yellow disc. Winter and Spring

S **- var. Barberianum** Burma

Flowers much more richly coloured. Winter and Spring

S **phalænopsis** North Australia

Stems erect, 12 to 18 inches high, rather slender. Spikes terminal, 12 to 18 inches long, 5 to 15 flowered. Flowers about 3 inches across, deep rose shaded with magenta purple. Autumn and Various

S **- var. Schrœderianum** New Guinea

Habit larger than in the type. Pseudobulbs stouter, sometimes attaining a height of 3 ft. Flowers larger and much more variable, the colour ranging from pure white, through rose to deep purple. One of the very finest and most useful of all orchids. Autumn

DENDROBIUM—cont.

pictum **(Griff) syn. Devonianum**

S **Pierardii** India, etc.

Stems 18 to 36 inches long, slender, pendent. Flowers, often in threes, from nodes, about 2 inches across. Sepals and petals blush white or suffused with rose, lip yellowish, veined with rose purple. Winter and Spring

S **- var. cucullatum** India

Stems slender and usually shorter than in type. Flowers with a larger and more cucullate lip. Winter and Spring

S **platycaulon** Philippines

Stems erect, about 12 inches high, flattened apically. Flowers from the apical nodes, about 1 inch across, in short racemes, straw yellow. Summer

S **primulinum** Burma

Stems sub-pendulous, 12 to 18 inches long. Flowers singly or in pairs from depressions on nodes. Flowers 2 to 3 inches across. Sepals and petals pale rose lilac, lip spreading, primrose yellow, streaked with red at base. Winter and Early Spring

S **- var. giganteum** Burma

Stems and flowers larger than in type. Spring

pubescens **syn. Eria flava**

S **pulchellum (Roxb)** Burma, India, etc.

Stems stout 3 to 5 ft high or more, the young growths in particular streaked with red. Flowers 3 to 5 inches across, in 5 to 12 flowered apical racemes. Sepals and petals tawny yellow, shaded with rose, lip with 2 large crimson blotches, villous, slightly fringed. Better known in gardens as Dalhousieanum. Spring

pulchellum **(Lodd) syn. Loddigesii**

S **puniceum** New Guinea

Stems 1 to 2 ft high, erect. Flowers crowded, tubular, rich rose pink in colour, carried in lateral, apical, spikes. Summer and Autumn

S **purpureum** Burma

Pseudobulbs stout, 2 to 3 feet, or more, often curved, furrowed or wrinkled. Flowers produced from the nodes of the old bulbs in dense sessile clusters of 20 or more. Each flower is from ½ to ¾ of an inch long, bell-shaped. Purple rose. Summer

S **regium** Lower Hindustan

Resembling nobile in habit. Flowers from the nodes, 3 to 4 inches across. Sepals rose colour, the base of the lip whitish, the disc yellow and the apex deep rose. Summer

DENDROBIUM—cont.

S **rhodocentrum** India

Stems slender, 2 to 3 ft long, pendulous. Flowers 6 to 12, about 1 inch across, from upper parts, in pendent, cluster- like spikes. Sepals and petals light rose, tipped with purple, lip white with a yellow base, also tipped with purple.

Autumn

S **rhodopterygium** Burma

Resembling D. Parishii but stronger in habit. The flowers are paler and the lip warted, not villose. The blotches at the base of the lip are replaced by streaks of purple.

Summer

S **Sanderæ** Borneo

A splendid species allied to, and resembling, D. Dearei but with larger flowers, borne in larger clusters, and taller more vigorous stems, often 3 ft high. The sepals and petals are pure white, the lip white, shaded and striped with purple.

Various

sanguineum **syn. Broughtonia sanguinea**

S **sanguinolentum** Penang

Stems 3 to 5 ft high, slender, roughly four sided,, attenuated apically. Flowers 6 to 10 in clusters from apices. Segments fawn colour, tipped with rich purple.

Summer and Autumn

sarcostemma **syn macrophyllum**

S **scabrilingue** Moulmein

Stems 3 to 7 inches high, black haired. Flowers 1 to 2, about 1 ½ inches across, from apical nodes. Segments white, lip yellowish green. Wall flower scented.

Spring

S **Schrœderi** India

Habit near that of Farmeri but stouter. Inflorescence like that of densiflorum. Sepals and petals white, lip orange, shading to yellow. Handsome and rare.

Spring

S **Schutzei** Philippines

Allied to D. Dearei and D. Sanderae, but the pseudo bulbs are shorter, 9 to 15 inches high, stouter, and the flowers larger, about 3 inches across, with broader segments, borne in apical clusters, 3 to 6. Sepals and petals pure white, the lip pure white with an emerald green, irregular blotch in the throat and a few dark spots at the base. A very fine species.

Autumn

S **secundum** Malaya, etc.

Stems erect, stout, 2 to 3 ft high. Flowers somewhat tubular, about 3/4 of an inch long, crowded on the upper side of stiff lateral spikes, 2 to 4 inches long, produced from the apices. Sepals and petals rose purple. Lip orange yellow.

Autumn and Winter

DENDROBIUM—cont.

S **secundum var. album** Malaya, etc.
Sepals and petals white, lip orange yellow. Autumn

S **senile** Moulmein
Pseudo bulbs stout, erect, 2 to 6 inches high, woolly haired. Flowers 1 to 2 from upper nodes, about 2 inches across, clear yellow. Though small, requires a decided rest. Spring

S **signatum** Siam
Stems erect, 12 to 18 inches high. Flowers, usually in pairs from nodes about 2 inches across. Sepals and petals narrow, slightly reflexed, pale ochre yellow, lip light yellow with a brown radiating blotch on the disc.
Spring

C **speciosissimum** Borneo
Stems erect, 3 to 6 inches, black haired. Flowers resembling those of D. infundibulum, large, pure white, with a deep orange red stain in the lip and throat.
Summer

I **speciosum** Australia
Stems very stout, 9 to 15 inches high, almost conical. Leaves very leathery. Spikes terminal, 9 to 15 inches long. Many flowered. Flowers 1 to 2 inches across, all the segments narrow, pointed, pale cream yellow, the lip spotted with purple.
In its native country it grows exposed to full sun, hence under cultivation it must have a very long dry rest. The bulbs and leaves are very resistent of drought. Success in flowering is often attained by placing the plant out of doors in the late Summer, provided the pseudo bulbs are thoroughly matured. Various

I - **var. Bancroftianum** Australia
Habit much less than in the type, the pseudo bulbs, brownish and furrowed, slender basally. Flowers similar to those of type but with more attenuated segments.
Autumn

I - **var. Hillii** Australia
Pseudo bulbs considerably taller than in the type, but more slender in proportion, 18 to 36 inches high. Flowers creamy white, lip marked with purple. Spikes 18-24 inches long. Autumn

S **spectabile** New Guinea
Habit of atro-violaceum. Pseudo bulbs erect, 1 to 2 ft high. Spikes terminal 5 to 20 flowered. Flowers about 4 inches in diameter. Segments broad basally, then attenuated, twisted. Sepals and petals creamy yellow shaded with gold, spotted and marked with crimson. Lip light yellow with rich crimson brown markings.
Winter

DENDROBIUM—cont.

S **Statterianum** North Australia

Pseudo bulbs slender, erect, 12 to 18 inches high, resembling bigibbum. Spikes terminal 7 to 15 flowered. Flowers about 2 inches in diameter, entirely rose purple. Autumn

S **suavissimum** Burma

Habit of chrysotoxum. Pseudo bulbs stout, 9 to 15 inches high. Racemes terminal, lateral, 7 to 15 flowered. Flowers 2 inches or more across, rich golden yellow, lip with a deep blood purple blotch. Sweet scented. Spring

S **subclausum** Moluccas

Stems erect slender, 12 to 18 inches high. Flowers from upper nodes, 2 to 4, somewhat tubular in shape, ¾ of an inch long, of a brillant cinnabar orange colour, Summer

I **sulcatum** Khasia Hills

Pseudo bulbs, 8 to 12 inches high, stout, flattish, slender below. Racemes from apical nodes, drooping, 5 to 15 flowered. Flowers about 1 inch across, light orange yellow, the lip darker, slightly marked with red. Spring

S **superbiens** North Australia

Stems erect, 1 to 3 ft. Flowers, in long, terminal,arching spikes, of more substance than those of D. phalaenopsis, about 2 inches across, the segments more or less undulated, rich crimson purple, the petals paler basally and, with the sepals, usually paler on the margins. Autumn and Various

S **superbum** Philippines

Stems pendent, 2 to 4 ft long. Flowers singly or in pairs from the nodes, 3 to 4 inches across. Sepals and petals magenta rose, base of pubescent lip, blood purple, rhubarb scented. Spring

S - **var. anosmum** Philippines

Stems shorter than those of type, not so strongly scented. Spring

S - **var. Burkei** Philippines

Flowers white, with a pale purple disc to lip. Spring

S - **var. giganteum** Philippines

Flowers 5 to 7 inches across, darker and richer in colour than type. Spring

Tattonianum **syn. canaliculatum**

S **taurinum** Philippines

Pseudo bulbs 3 to 4 ft high or more. Spike terminal or nearly so, 12 to 24 inches long, many flowered. Flowers 2 to 3 inches across. Segments narrow, the sepals broader than the petals, greenish white, the petals narrow but twice as long as the sepals, brown shaded with red and purple, lip pale purple. Autumn

DENDROBIUM—cont.

S **teretifolium (R.Br)** Australia

Very distinct. Foliage from 6 to 9 inches long, terete, springing from slender branching stems, the whole plant pendent. Flowers 1 to 2 inches across, in branching panicles, segments narrow, creamy white, the lip bearing a few reddish dots. Autumn

S **tetragonum** Australia

Stems 3 to 12 inches high, erect or pendulous, quill like basally then expanding into a four sided bulb, from the apice of which is borne the short 3 to 5 flowered spike. Flowers pretty and quaint. Sepals about 1 inch long, narrow, pointed, the upper erect, the two lower bent downwards, inclined at their points toward each other, light green with brown red margins and spots, petals narrow, greenish, with or without reddish spots, carried at right angles, smaller than sepals, lip creamy white, the front lobe spotted with red and strongly reflexed, the side lobes lined with red on their inner surfaces. Early Spring

S **thyrsiflorum** Burma

A splendid species, with the habit of densiflorum, but the bulbs are taller, 12 to 30 inches, not so decidedly four sided. The flowers 1 ½ to 2 inches across, are carried in longer drooping thyrses. Sepals and petals white, often pink flushed, lip pubescent, golden orange. Spring

S **Toftii** Australia

Habit near that of undulatum. Pseudo bulbs, 4 to 5 ft high, ribbed with purple. Racemes from apical portions, 12 to 18 inches long. Sepals and petals about 1 ½ inches long, often undulated, the petals narrower than sepals, and the dorsal sepal narrower than the two lateral, whitish, the petals faintly marked with violet. Lip broader than the two other segments, the lateral lobes prominent, embracing the column, suffused and veined with violet, the disc with 3 violet plates.

Summer and Autumn

S **tortile (Lindl)** Moulmein

Habit much as in nobile. Stems erect, 12 to 15 inches tapered basally. Flowers in pairs from nodes, about 3 inches across. Sepals and petals white, rose tinged, twisted, lip lemon yellow, streaked with purple basally. Spring and Early Summer

S - **var. roseum** Moulmein

Sepals and petals deep rose.

S **transparens** Nepal

Stems slender, 12 to 18 inches long, pendulous. Flowers in pairs from nodes, over an inch across, segments lilac pink, lip with a red blotch.

Spring

DENDROBIUM—cont.

transparens var *marmoratum* **syn. marmoratum**

S **Treacherianum** Borneo
Pseudo bulbs, about 2 inches high, four angled, diphyllous. Spikes terminal 2 to 6 inches long, 2 to 5 flowered. Flowers about 2 inches across. Sepals and petals narrow, pointed, pale pink, whitish marginally, lip blood red, palest in the slightly reflexed front lobe. Winter

triadenium **syn. mutabile**

S **triflorum**
Pseudo bulbs, about 1 inch high, ovate, clothed with a brown membrane, on an ascending rhizome, diphyllous. Leaves 3 inches long. Scape 6 to 9 inches long, 3 to 6 flowered. Flowers nearly 2 inches across. Petals as long but narrower than sepals. Upper sepal and petals spreading. Lower sepals twisted at base to form a mentum, and giving an upward inclination to the point, All straw yellow. Lip comparatively short, side lobes pointed, the points meeting above the upper part of the column, streaked and splashed with purple. Front lobe pointed and bent downward, light yellow marked with old gold on centre and front edges of the side lobes. Spring

S **undulatum (R.Br)** Queensland
Stems erect, stout, 2 to 4 ft high, Spikes terminal, 1 to 2 ft, 10 to 20 flowered. Flowers about 2 inches across. Sepals and petals twisted, yellowish brown, shaded with green, lip whitish, shaded brown. Summer

Veitchianum **syn. macrophyllum**

C **Victoriæ Reginæ** Philippines
Pseudo bulbs erect, 6 to 12 inches high. Flowers, about 1 ½ inches across in clusters from nodes. Segments whitish on the basal halves, the outer portions purplish blue. A very distinct and pretty species which succeeds better in the cool or cool intermediate house rather than in the warm. Autumn

S **Wardianum** Assam
Stems 1 to 2 ft long, pendulous. Flowers 1 to 3 from nodes, 2 to 3 inches across. Segments waxy white, tipped with amethyst purple, lip with an ochre yellow disc and two sanguineous basal blotches. Winter and Spring

S **- var. album** Burma
Flowers pure white, excepting the yellow disc to the lip. Spring

- var. *candidum* **syn. var. album**

DENDROBIUM—cont.

S **Wardianum var. giganteum** Burma

The finest type of all, stems stout, 2 to 4 ft long. Flowers 3 to 4 inches across, richly coloured, and of great substance. Winter and Spring

S - **var. Lowii** Burma

A very fine type, larger, both in habit and flowers, than the Assamese from. Winter and Spring

S **Williamsianum** New Guinea

Pseudo bulbs rather slender, 1 to 3 ft high. Scapes terminal, 6 to 18 inches, 5 to 12 flowered. Flowers somewhat like those of D. phalaenopsis in shape but with more rounded segments. About 2 inches across. Sepals and petals white or tinged with mauve, lip blackish purple, paler at the margins. Various

DENDROBRIUM **syn. Dendrobium**

DENDROCHILUM

Of Dendrochilums several species which were formerly cultivated under that name are now separated under the generic name of Platyclinus.

DENDROCORYNE **syn. Dendrobium**

DENDROLIRIUM **syn. Eria**

DENDROPHYLAX

Allied to Angraecum, the genus is most remarkable in that the short lived leaves are very small and often entirely wanting. The plants consisting practically of roots and flowers. The long flexuous, phalaenopsis-like roots extend from a central crown from which is produced the short flower spikes, which bear one or few comparatively large flowers, — Angraecum-like in shape and colouring. From their habit the plants are better accomodated on rafts, pieces of board, or tiles, a thin layer of Cattleya compost being placed on the surface and kept firm by means of copper wire. Although practically leafless and without pseudo bulbs, water must be very sparingly given during the resting season. If the receptacle can be attached to a wall or support in a moderately shady position but little water will be required when the roots are inactive.

DENDROPHYLAX—cont.

S **Fawcettii** West Indies

Flowers 2 to 5 on short scapes, about 2 inches across. Sepals and petals spreading, lip bilobed, then funnel shaped, ending in a long slender spur, 6 to 7 inches long, pure white. Autumn and Various

S **funalis** Jamaica

Habit as in Fawcettii. Flowers smaller, white, spur shorter and straighter than in Fawcettii, lip spreading. Fragrant. Autumn and Various

DEPPIA **syn. Lycaste**

DIACATTLEYA Designating hybrids between Diacrium and Cattleya.

DIACRIUM Often included under Epidendrum but differing from that genus in the position of the lip, which is not parallel to the column as in Epidendrums. The two species here mentioned are the only ones met with in cultivation and are characterized by hollow pseudo bulbs, somewhat resembling those of Schomburgkia tibicinus, surmounted by 3 or 4 stout leathery leaves. Their culture is as for Cattleyas, but after growth is completed the plants enjoy more light and a more decided rest. Cattleya compost may be used to pot them in, and good drainage is essential, hence wood baskets may often be used with advantage as they are more easily hung near the glass, when growth is matured ; and the compost is less likely to become sodden.

S **bicornutum** West Indies

Pseudo bulbs stout, hollow, 6 to 12 inches high. Spikes 9 to 18 inches long, terminal, many flowered. Flowers 2 inches or more across. Sepals and petals pure white, lip trilobed, white, spotted with purple, with a yellow, fleshy, two lobed crest. Fragrant. Summer

S **indivisum** Trinidad

Habit less than in bicornutum. Flowers much smaller, and with rounded side lobes. Flowers often cleistogamous (self fertilizing). Summer

DIALÆLIA Hybrids between Diacrium and Laelia.

DICHÆA

Small tufted epiphytal orchids, somewhat allied to Angraecum and requiring similar culture. All are distinguished by the short, dark green leaves being arranged ichously, with small axillary flowers, freely produced. The plants being attractive when in full flower. Finely cut Cattleya compost with an additional part of sphagnum, is the best compost. The species most commonly met with is.

S **vaginata** Mexico

Habit tufted, stems 3 to 6 inches high. Flowers small, whitish shaded with green, with a few chocolate markings, curious but small. Summer

DICRYPTA **syn. Maxillaria**

DICNIA **syn. Microstylis**

DISA

A genus of terrestrial orchids confined chiefly to South Africa, with more or less tuberous roots, and green, usually narrow, lanceolate leaves, which grow generally in a rosette-like form, producing leafy and finally bracteate erect flower spikes, from their centre. In all of them the conspicuous parts of the flowers are the sepals, the upper one of which is hood-like and contracted into a spur while the two lower are usually brighter in colour and rather flat ; the lip is tongue-like and narrow ; the petals are small and arch over the pollinia.

Disas require a cool, moist, airy,rather shaded position, and a liberal supply of water all the year round, a compost of 3 parts finely shredded Osmunda fibre, 2 parts of Sphagnum moss, 1 part half decayed oak leaves with a little sand and finely broken crocks, and if procurable a very little light loam fibre, with perfect drainage, suits them, but a congenial position seems of more importance than compost or treatment. They have been successfuly grown planted on the stage and,when kept in pots, benefit often results from plunging the pots in a bed of Sphagnum or similar cool, moisture holding material. In the South of England fire heat can be dispensed with to a great extent, being used only when there is danger of frost. Once a suitable position is found the plants readily increase by offsets and should be repotted early in the Spring of each year. The plants are very susceptible to attacks from thrips both on the foliage and flower spikes.

DISA—cont.

C **Cooperi** Natal

Height 12 to 24 inches, 20 to 25 flowered. Flowers clove scented, noticeable for their erect slender spur, over an inch long, dorsal sepal helmet shaped, with the spur, soft white suffused with carmine, lateral sepals rose-carmine, petals greenish yellow. Lip more conspicuous than in most species, greenish yellow. Requires more loam in the compost and allowed to get fairly dry in the Winter.

Summer

C **crassicornis** South Africa

Height 1 to 2 ft, bearing 6 to 10 flowers, whitish blotched inside with purple, lip tongue shaped. Late Summer

C **graminifolia** South Africa

Very distinct. Height about 18 inches. Foliage narrow, cylindrical, 6 to 9 inches high, appearing after the inflorescence. Spikes 5 to 8 flowered. Flowers medium size, bright blue, the lip striped with white and red, violet on the disc. Requires resting. Spring

C **grandiflora** South Africa

Height 18 to 36 inches, 2 to 7 flowered. Flowers large, about 4 inches in diameter, very showy. Lower sepals vivid scarlet, upper sepal large, lighter in colour, veined with crimson and shaded with yellow. Summer

macrantha **syn. crassicornis**

megaceras **syn. crassicornis**

C **racemosa** South Africa

Height 15 to 24 inches 6 to 12 flowered. Flowers 1 to 2 inches across, rose purple. Summer

secunda **syn. racemosa**

C **tripetaloides** South Africa

Height 12 to 18 inches, many flowered. Flowers small, white, flushed with rose pink, dotted with crimson. Summer

DORITIS

A genus allied allied to Phalaenopsis and requiring similar treatment. It differs in that the column is winged and its foot forms a chin-like process with the side lobes of the lip.

S **pulcherrima** Cochin, China

Better known as Phalaenopsis Esmeralda. Leaves 5 to 8 inches long, rounded, purplish beneath. Scapes erect slender, 15 to 30 inches high, many flowered. Flowers about 1 inch across, variable in colour. Sepals and petals light or dark amethyst, lip three lobed, deep purple. Late Summer

DORITIS—cont.

S **tænealis** Burma

Leaves fugitive, the plant resembling Dendrophylax in being practically leafless. Roots 1 to 3 ft long, flattish. Scape short, bearing a few flowers, nearly an inch across, mauve purple with a dark mid lobe to lip. Summer

S **Wightii** Burma

Resembles D. taenealis but the scape is taller, the flowers slightly larger and brighter in colour. The leaves are larger and more persistent.

Summer

N.B. — The genus was founded by Lindley in 1833, on the D. pulcherrima. Reichenbach redescribed it is 1874 as Phalaenopsis but later comparison of herbarium specimens, with living plants at Kew, established the identity. In the meantime taenealis and other species had been included under Doritis, but they differ from Esmeralda hence the late Mr. Rolfe in the O.R. 1917 proposes the name Kingiella, leaving Esmeralda as a monotypic plant.

DOSSINIA marmorata **(Lindl) syn. Anœctochilus brevilabris**

do. do. **(C. Morr) syn. Anœctochilus marmoratus**

DOTHILOPHIS purpurea **syn. Epidendrum Skinneri**

EARINA

A small genus of tufted epiphytes, the species here mentioned is well worth growing for its delicate scent. It should be placed in the Odontoglossum house and given Odontoglossum compost and treatment but kept slightly drier during the Winter months.

S **suaveolens** New Zealand

Stems slender erect, 4 to 8 inches high. Leaves narrow, leathery, 2 to 2 ½ inches long, their bases sheathing the stem which terminates in a short spike, bearing a cluster of small whitish flowers, individually not unlike a small Dendrobium flower. Sweetly scented. Various

ECKARDUA **syn. Persisteria**

ENCYCLIA **(Hook) syn. Epidendrum**

EPICRANTHES **syn. Bulbophyllum**

ELLEANTHUS

In habit this genus much resembles the smaller growing Sobralias, but the small flowers are carried in close heads, a bract often ciliate and taller than the flowers is placed behind each. The flowers are pressed together, the labellums and bracts being the most prominent. The culture and compost should be similar to that given Sobralias. There are many species in the genus but few are met with in cultivation.

I **capitata** Peru

Stems about 2 ft. high. Leaves nerved as in Sobralia, dark green above, paler beneath, 2 to 4 inches long. Bracts taller than the flowers which are about 1 to 1 ½ inches across, purplish magenta in colour. Summer

I **caravata** Brazil, etc.

Habit as in capitata. Flowers yellow, bracts purplish, taller than the flowers. Late Summer

EPICATTLEYA Hybrids between Epidendrum and Cattleya.

EPIDIACRIUM Hybrids between Epidendrum and Diacrium.

EPIDENDRUM

New world epiphytes, very variable both as to habit, size, shaped and colouring of the flowers. They are distinguished from Cattleyas in that the basal portion of the lip is adnate to, or parallel with the column. The distinction is however very slight and hybridisation is easily effected with Cattleyas, Laelias, Sophronitis, Brassavolas etc. proving their close affinity. Had the limits been better understood when the genus was first founded it would probably have been made to include these allied genera. Even as it now stands however, the genus is very large, but the greater number are not worth cultivating except for their botanical interest ; hence they are excluded from this work, though a few of the small flowered kinds are mentioned when, from their bright colours, fragrance or structural peculiarities they are of value other than scientific.

Their distribution ranges from as far north as the United States of America to a corresponding limit in South America.

Broadly speaking their cultural treatment is the same as that given Cattleyas and Laelias but so polymorphic is the genus that very much must be left to discretion.

EPIDENDRUM—cont.

Many of the species have hard, globose pseudo bulbs, with thick, leathery leaves, evidence of their drought and sun resisting properties, and their requirements as to a long decided rest. Others from their softer texture and often stem like pseudo bulbs are better suited with shade and moisture at all seasons of the year. Others with more or less flexuose stems, of which E. radicans may be given as an example, do well placed against pillars or walls.

In each case the receptacle should be as small as possible. A mixture as advised for Cattleyas suits them, but the compression of the compost must be adapted to the nature of the species. The larger growing, harder bulbed kinds may be potted exactly as Cattleyas, but the softer bulbed, smaller sorts, are better potted as if they were Odontoglossums, a little more sphagnum may be added to the compost and the whole pulled carefully, thoroughly mixed and any dust sifted from it.

In the greater number of species, the flowers are produced from the apices of the stems or pseudo bulbs, but while some develop only a single flower, others carry long, stiff or flexuose spikes, simple, or with short branchlets at intervals. In others, the inflorescence is paniculate and again some produce elongating spikes, terminating in cluster-like corymbs of flowers.

The flowers are even more diverse than the inflorescences. All have the free, nearly equal sepals and petals of Cattleyas, but the labellums may have entire lobes or the lobes may be divided or ciliated. In some the lip is the largest of the segments, in others the smallest.

Many of the kinds with stem-like pseudo bulbs, particularly radicans, and hybrids derived from it, may be had in flower at all seasons, as the flowered growth may be cut back and strong growths produced, which flower as they finish growth at different periods.

ACKLANDIÆ **syn. Cattleya Acklandiæ**

EPIDENDRUM—cont.

I **advena** Brazil

Pseudo bulbs 3 to 4 inches high, stout, cylindrical, diphyllous. Leaves leathery, 12 to 14 inches long. Spikes 2 to 4 ft long, arching, bearing short branches at distant intervals. Flowers about 2 inches across. Sepals and petals yellowish, tessellated with brown. Lip yellowish to white, with central purple streaks. A very variable species, both in habit and floral colouring. Summer

æmulum **syn. fragrans**

I **alatum (Batem)** Guatemala

Pseudo bulbs about 3 inches high, globosely conical, bearing 2 stiff, leathery leaves, 12 to 18 inches long. Spikes erect, branching. Flowers about 2 inches across. Sepals and petals shaded with brown purple, lip yellowish, striated and shaded with rose purple. Fragrant. Summer

I **- var. majus** Guatemala

Similar to type, but with larger flowers. Summer

aloifolium **(Batem) syn. Parkinsonianum**

altissimum **(Jacq) syn. Oncidium altissimum**

amabile **(Linden) syn. dichromum var. amabile**

amethystoglossum **syn. Cattleya guttata**

I **arachnoglossum** Colombia

Psuedo bulbs stem like, 3 to 5 ft high. Leaves 3 to 4 inches long. Spikes terminal, gradually elongating, producing many flowers, corymbiform in general appearance. Individually they are rather over an inch across, deep magenta red in colour, the petals slightly toothed, the lip three lobed, spreading and fimbriated, crest bright orange. Various

I **- var. candidum**

Flowers white or very faintly flushed. Various

I **aromaticum** Guatemala

Pseudo bulbs much as in alatum. Foliage stiff, about 12 inches high. Panicles about 2 ft high. Flowers rather small, greenish yellow in colour, powerfully and agreably scented. Spring

I **atro-purpureum (Wild)** Tropical America

Very handsome. Pseudo bulbs 2 to 3 inches high, stoutly ovate, bearing two leaves, 12 to 15 inches long. Flowers large, 2 to 3 inches across, borne on stout 5 to 15 flowered racemes. Sepals and petals green and chocolate brown. Lip pure white with a bright crimson, sometimes radiated, central blotch. Early Summer

I **- var. album** Tropical America

Lip pure white.

EPIDENDRUM—cont.

I **atropurpureum var. Randii** Brazil

Rare. The whole plant of a purplish hue. Flowers larger than in type. Sepals and petals brown with lighter borders. Front lobe of lip, white, with a central, red-purple, rayed blotch. Early Summer

I **- var. roseum** Tropical America

Lip clear rose colour. Early Summer

aurantiacum **syn. Cattleya aurantiaca**

aureum **syn. aurantiacum**

I **auritum** Guatemala

A small but free flowering species. Pseudo bulbs flatly compressed, at intervals, on a creeping rhizome. Leaves narrow, 3 or 4 inches long. Spikes erect, 3 to 5 flowered. Flowers about an inch across, light straw yellow, fragrant. Summer

I **Barkeriola** Central America (?)

A dwarf species. Stems 2 to 3 inches high, leaves narrow, pointed. Peduncles 3 to 5 flowered, flowers about 1 ½ inches vertical diameter. Sepals and petals white flushed with lilac. Lip white with a large, amethyst purple, central blotch and occasionally a smaller blotch. Summer

basilare **syn. Stamfordianum**

bicolor **syn. Cattleya bicolor**

bicornutum **syn. Diacrium bicornutum**

I **bracteatum (Rodg)** Brazil

A gem like species, with small rounded pseudo bulbs and slender foliage, 4 to 8 inches high. Scapes single flowered. Flowers about 1 inch across. Sepals and petals yellowish, lip purple. Summer

bracteolatum **syn. radiatum**

I **Brassavolæ** Guatemala

Pseudo bulbs 9 to 15 inches high, clavately pyriform, two leaved. Scapes stout, erect or semi-erect 10 to 20 flowered. Flowers spreading, 4 inches across. Segments narrow, acuminate, sepals and petals yellow, mid lobe of lip somewhat heart shaped, but long in proportion to width, the apical portion purple, base whitish and yellow. Scented. Spring

calocheilum **syn. alatum**

Cappartianum **syn. advena**

Carolinianum **syn. nocturnum**

Carthaginense **syn. Oncidium Carthaginense**

EPIDENDRUM—cont.

Cattleyæ **syn. Cattleya luteola**

caudatum **syn. Brassia caudatum**

cebolletum **syn. Oncidium cebolleta**

I **ciliare** Tropical America

Widely distributed. Habit much resembling that of a Cattleya. Pseudo bulbs 4 to 7 inches high, usually one, sometimes two, leaved. Scapes erect, 2 to 7 flowered. Flowers spreading 3 to 4 inches across. Sepals and petals narrow, greenish white, lip pure white, three lobed, central lobe linear, the side lobes run parallel with it and are deeply fringed on their outer edges. Winter

I **- var. latifolium** Tropical America

Finer than the type and with broader foliage. Winter

I **cinnabarinum** Brazil

Stems slender leafy, 2 to 4 ft high. Flowers in terminal clusters, on an elongating rachis. Individually about 1 ½ inches across. Sepals and petals scarlet, lip orange yellow, wedge shaped and toothed, sometimes spotted.

Summer

I **Clæsianum** Colombia

Stems erect about 2 ft high, leafy. Racemes pendent or semi-erect, about 2 inches long, many flowered. Flowers closely set, about ¾ of an inch across, pure white.

Spring

I **cochleatum (Linn)** Tropical America

Widely distributed, variable. Pseudo bulbs 2 to 5 inches high, pyriform, compressed di- or monophyllous. Leaves as long or longer. Spikes erect, 5 to 10 flowered. Flowers 2 to 3 inches across. Sepals and petals narrow, attenuated, twisted, inclined backward, yellowish green. Lip deep purplish black, with lighter veins, shaped like a cockle shell. Various

I **Cooperiauum** Brazil

Stems stout, erect, 2 to 4 ft. high, with rather fleshy leaves. Flowers, about 2 inches across, in drooping many flowered racemes. Lip bright rose, sepals and petals lighter, shaded brown. Winter and Spring

coriaceum **(Parker) syn. variegatum**

crassifolium **syn. ellipticum**

crassilabium **syn. variegatum**

crispum **syn. Oncidium Carthaginense**

EPIDENDRUM—cont.

I **cristolobina** Panama

Habit resembling that of Laucheanum but much stronger. Pseudo bulbs stem like, slender, 12 to 18 inches high. The upper portions bearing 5 or 6 narrow pointed leaves, 3 to 4 inches long. The flower spike is erect to nearly the height of the growths, then abruptly curves downward in a tail like inflorescence, 30 inches long. Set with flowers, ¾ of an inch across, with fleshy rounded sepals and petals, yellow brown in colour. The lip somewhat shield-like, greenish white.

Late Winter

cucullatum **(Linn) syn. Brassavola cucullata**

curasavicum **syn. Brassavola nodosa**

cuspidatum **syn. ciliare**

I **cyclotellum** Guatemala

Stems quill like 3 to 5 inches high. Leaves on upper halves, about 3 inches long, deciduous, or nearly so. Flowers 3 to 7, in upright terminal racemes, 6 to 9 inches high, about 2 inches across. Sepals and petals purplish rose, lip similar in colour, but with a whitish disc. Spring

NOTE. — This species with Barkeriola, elegans, Lindleyana, melanocaulon, Skinneri and spectabilis were formerly known as Barkerias. They form a well marked section of Epidendrum and are distinguished by their quill like stems, often sheathed with parchment like membrame, clustered or springing at intervals from a creeping rhizome. The column is winged, and not enclosed by the side lobes of the labellum to which the column is not so markedly adnate as in many Epidendrums.

From their habit of growth a small pan or raft suits them the better and after the growths are matured the plants should receive as much light and air as possible, with but occasional waterings. They are deciduous or nearly so, are very impatient of pipe heat and a position can often be found for them, in a cool house away from hot water pipes. The temperature varying between 50° and 65°.

cycnostachys **syn. Stamfordianum**

cycnostalis **syn. Stamfordianum**

EPIDENDRUM—cont.

I **dichromum** Bahia

Very handsome, very variable. Pseudo bulbs, 2 to 4 inches high, globosely coniform, di- or triphyllous. Leaves 6 to 12 inches, fleshy. Scapes erect, or arching, 2 to 3 ft high. Flowers about 2 inches across. Sepals and petals white, or flushed with pale rose, lip rose, yellow and white. Early Summer

I - **var. amabile** Bahia

Sepals and petals rose tinged with yellow, lip purplish. Early Summer

difforme **syn. umbellatum**

discolor **syn. nocturnum**

dolosum **syn. Cattleya dolosa**

Duboisianum **syn. atro-purpureum**

elatius **syn. Cattleya guttata**

C **elegans (Rcbb f.)** Mexico

Stems slender, erect, 12 to 18 inches. Racemes terminal, erect, 3 to 7 flowered. Flowers about 2 inches across. Sepals and petals dark rose, lip whitish, front portion deep crimson. Succeeds best on a raft. Winter

I **elipticum** Brazil

Stems tall, erect, rather slender, leafy. Flowers, in clusters on terminal elongating spikes, about 1 inch across or more, rose-magenta, with a yellow disc to the lip. Winter to Summer

I **elongatum** West Indies

Similar to preceding but with more slender stems and longer flower scapes. Flowers bright rose. Spring and Summer

I **Endresii** Costa Rica

Stems slender, erect, leafy, 6 to 12 inches high. Flowers nearly an inch in diameter, 5 to 10 in terminal, cluster like racemes, waxy white, marked with violet and orange on the lip. The sepals and petals often marked and flushed. Winter

I **evectum** Colombia

Stems 2 to 3 ft or more, rather slender, erect, leafy. Flowers, in terminal spikes on long peduncles, an inch or 1 ½ inch across, bright rose purple ; lip with 3 well marked lobes all deeply fringed. Almost continuously

S **falcatum** Mexico

Very distinct, habit pendulous, pseudo bulbs small, bearing a single leaf 6 to 9 inches long, thick, hard, falcate. Flowers 1 to 2 from apex of bulb, 4 inches or more across. Sepals and petals narrow, greenish white, lip similarly colored, three lobed, mid lobe narrow, pointed. Very near to E. Parkinsonianum. Summer

EPIDENDRUM—cont

Forbesii **syn. Cattleya Forbesii**

formosum **syn. alatum**

I **fragrans** Tropical America

Widely distributed and very variable. Pseudo bulbs 3 to 8 inches, compressed, usually 2 leaved. Flowers, in short 3 to 7 flowered spikes, about 2 inches across, sepals and petals creamy white, lip white streaked with red purple, fragrant. Summer and Autumn

var. *megolanthum* **syn pentotis**

I **Frederici Guilielmii** Peru

A noble species, stems erect, moderately stout, leafy, 2 to 5 ft high. Leaves and stem often assuming a reddish tint. Flowers in many flowered erect panicles, which vary in size according to the strength of the pseudo bulb. Peduncle, pedicels and flowers, crimson or crimson purple. Flowers about 2 inches across, the lip three lobed, the side lobes rounded, the centre tongue shaped. Two calli at the base of the lip are white as is the apex of the column. Summer

I **glumaceum** Brazil

Pseudo bulbs stout, pyriform, compressed, 4 to 7 inches high. Leaves, two, as long. Spikes erect, 10 to 15 flowered. Flowers about 1 ½ inches across, lip uppermost. Sepals and petals spreading, acuminate, white externally, on the inside striped with pale rose, lip suffused and streaked with rose centrally, on a whitish ground. Summer

glutinosum **syn. odoratissimum**

Godseffianum **syn. advena**

granulosum **syn. Cattleya granulosa**

guttatum **(Linn) syn. Oncid luridum**

I **Hanburii** Mexico

Pseudo bulbs clustered, globosely ovate, about 2 inches high, dark purplish green ; diphyllous, leaves 6 to 9 inches long, purplish, coriacious.Spikes 2 ft. high. Flowers about 2 inches across. Sepals and petals purplish brown, with undulated margins. Lip rose, with deeper crimson, radiating lines, mid-lobe rounded slightly bilobed, side lobes arched over the column, similar in color but sometimes tipped with white. Spring

Harrisonianum **syn. Cattleya Loddigesii**

Hugelianum **syn. Cattleya Skinneri**

Humboldtii **syn. Schomburgkia Humboldtii**

EPIDENDRUM—cont.

I **Ibaguense** Columbia

Stems erect, slender, 2 to 4 ft leafy. Flowers 1 to 1 ½ inches across, in dense globose corymbs, on long terminal peduncles. Sepals and petals orange yellow, the lip with a yellow fleshy crest on the disc and fimbriated side lobes.

Various

incumbens **syn. aromaticum**

indivisum **syn. Diacrium bicornutum**

intermedia **syn. Cattleya intermedia**

I **inversum** Brazil

Pseudo bulbs stout, slightly compressed. Scape terminal, erect, 5 to 9 flowered. Flowers about 1 inch across, the lip uppermost. Sepals and petals creamy white, lip white suffused and streaked with pink mauve ; fragrant. Autumn

I **ionosmum** British Guiana

Pseudo bulbs sub globose, 2 to 3 leaved. Leaves 3 to 6 inches long, spikes erect, 10 to 15 inches high, 3 to 10 flowered. Flowers about 1 ½ inches across, sepals and petals yellowish brown, lip streaked with red, strongly violet scented.

Early Summer

Juncifolium **syn. Oncid. Cebolleta**

labiatum **(Rchb f.) syn Cattleya labiata**

lactiflorum **syn. falcatum**

I **Lambeauanum** Brazil

Resembling (Nanodes) Matthewsii in habit, but slightly more robust. A solitary flower is produced from the end of the growth on a short erect peduncle. Flower about an inch in length. Sepals and ascending petals whitish, lip orbicular. Claret red with a lighter margin. Not fringed. Summer

I **Lankesterii** Panama

A curious species coming under the section Nanodes. Producing short clustered growths 1 to 2 inches long, sheathed with 4 to 5 small, fleshy, green, channeled leaves. Flowers in pairs from the apices of the growths. About ½ an inch across. Sepals and petals nearly equal, the dorsal sepals slightly the larger. Almost translucent, pale greenish yellow, slightly tinged with pink, lip entire, pointed, fleshy, clear yellow, column tinged dull purple. Various

NOTE. — The above name has apparently never been published, though we have distributed the plant under it. Its published name now appears to be E. Schlecterianum.

EPIDENDRUM—cont.

I **latilabrum** Tropical America

Stems erect, or sub erect, fleshy, leafy, light green, height 6 to 9 inches. Flowers 3 to 4 ; umbel-like, about 2 inches across, green, the front lobe of the lip in two spreading divisions. Summer

I **Laucheanum** Brazil

Stems as thick as a goosequill, 4 to 9 inches high, bearing 2 to 4 narrow, pointed leaves, 3 to 4 inches long, hardly ½ an inch broad. The whip like inflorescences are by no means unattractive, particularly when several are carried on a plant. Peduncles ascending 5 to 9 inches long. The inflorescence as long or longer, hanging downward, often carrying more than 100 blooms. Flowers small, sepals and broader petals of a dull, red brown colour. Lip thick, rigid, green or yellowish green. Autumn

I **leucochilum** Colombia

Stems 15 to 30 inches high, slender, stiff, 3 to 5 leaved. Peduncles stout, 5 to 9 flowered. Flowers about 3 inches across. Sepals and petals narrow, spreading, greenish. Lip three lobed, white. Various

I **Lindleyanum** Mexico

Stems slender, erect, 9 to 15 inches high. Flowers 3 to 9 on terminal spikes, 12 to 24 inches long. Flowers about 2 inches across. Sepals and petals rose purple, lip, white with an apical, deep, purple blotch. Autumn

- var. *cyclotellum* **syn. cyclotellum**

lineare **(Jacq.) syn. Isochilus linearis**

lineatum **(Solish) syn. fragrans**

longipetalum **(Ldl.) syn. alatum**

luteolum **syn. Cattleya luteola**

macrochilum **syn. atropurpureum**

marginatum **(Link) syn. radiatum**

I **Matthewsii** Central America

Nanodes section. A dwarf habited plant with short stems and distichous, fleshy leaves, often red tinted. Flowers at the apex of the growths as in Medusae. Hardly an inch across. Sepals and petals almost transparent, purplish outside, lip deep purple, fringed, glossy. Height of plant about 2 inches. Various

maximum **syn. Cattleya maxima**

EPIDENDRUM—cont.

C **Medusæ** Eucador

Better known as Nanodes Medusae. Very singular. Stems 4 to 12 inches, fleshy, pendent, branched, bearing imbricated, glaucous leaves. Flowers, 2 or more, terminal, 2 to 3 inches across. Sepals and petals yellowish green, shaded with brown ; lip large, rounded, of a dark purplish tint, strongly fringed. Should never be allowed to get really dry. Various

I **melanocaulon** Central America

Habit much as in Lindleyanum but less, stems dark. Sepals and petals rose lilac, the lip broadest basally, deeper in colour and with a greenish disc. Summer

I **myrianthum** Guatemala

Stems slender 3 to 5 ft. high, leafy. Leaves long and narrow. Flowers in terminal many-flowered branched panicles. Flowers about an inch long, bright purplish rose ; the labellum four cleft. Summer

C **nemorale** Mexico

Pseudo-bulbs sub-globose or ovate, di or triphyllous. Leaves 9 to 15 inches long. Flower spike branching, 2 to 3 ft. high, many flowered. Flowers 3 to 4 inches across. Sepals and petals rather narrow, rose mauve, lip large with an almost white centre, bordered with rose. Summer

nigromaculatum **syn. prismatocarpum**

I **nocturnum** West Indies

Stems erect, stout, compressed leafy. 20 to 36 inches high. Spikes terminal. Flowers 6 to 12 on long pedicles, about 4 inches across, sepals and petals greenish white, lip white, three lobed, the central lobe narrow, pointed. Fragrant, particularly at night. Spring

nodosum **syn. Brassavola nodosa**

I **odoratissimum** Brazil

Pseudo bulbs, stout, 3 to 6 inches high. Flowers in erect spikes. Small, yellowish green to white ; very sweet-scented. Summer

I **organense** Organ Mountains

Resembles polybullon somewhat, but the pseudo-bulbs are stouter, slightly larger, the leaves thicker ; the flowers are carried 3 to 7 on short racemes. Sepals and petals yellow brown, sepals streaked purple brown behind, lip whitish with purple radiating lines round the crest. Autumn

osmanthum **syn. advena**

pachysepalum **syn. variegatum**

EPIDENDRUM—cont.

S **Parkinsonianum** Mexico

Very near to falcatum but the foliage is borne at greater distances on the rhizome and is flattish, the flowers are similar to those of falcatum but whiter.

Summer

I **pentotis** Brazil

Habit much as in fragrans. Pseudo bulbs 6 to 9 inches high, 2 leaved. Spike terminal, short ; 2 to 5 flowered. Flowers about 3 inches across. Sepals and petals acuminate, nearly equal, reflexed, creamy white. Lip somewhat heart-shaped, reflexed apically, white, flushed and striped with purple, fragrant.

Summer

I **plicatum** Cuba

Pseudo bulbs 2 to 3 inches high, sheathed in membrane, ovate, diphyllous. Leaves narrow, coriaceous. Spike 15 to 24 inches, arching, 8 to 12 flowered. Flowers about 2 inches across. Sepals and petals nearly equal, spreading, greenish, the sepals tinged and the petals flushed and spotted with purple on their apical portions. The reverse surfaces of the petals are wholly crimson, or nearly so. Lip bright crimson, the side lobes yellowish basally, the spreading, crenulated, front lobe is whitish basally and is prolonged into an apiculus. Summer

I **polybulbon** Central America

Very pretty, pseudo bulbs about 1 inch high on a creeping rhizome, carrying 2 leaves slightly longer. Peduncle with a single flower which nestles between the leaves. About ¾ of an inch across. Sepals and petals brownish, margined with yellow ; lip somewhat heart-shaped, white. Free flowering. The whole plant has a cushion-like appearance. Winter

I **var. album** Central America

With light greenish yellow sepals and petals. Winter

I **prismatocarpum** Central America

Pseudo bulbs stout, tapering, 6 to 9 inches high. Leaves as long or longer. Spikes erect 10 to 20 flowered. Flowers about 2 inches across, with rather narrow segments. Sepals and petals cream yellow blotched with purple, lip rose, margined with yellow. Brightly colored, long lasting. Summer

I **pseudepidendrum** Central America

Stems slender, erect, 2 to 3 ft high. Leaved on the upper portion. Racemes terminal, few flowered. Flowers very distinct, about 2 ½ inches across with narrow sepals and petals of a bright green. Lip much broader, rich orange scarlet, shading to yellow on the serrulate margins. Winter

EPIDENDRUM—cont.

I **pumilum** Costa Rica

Very similar in habit and appearance to Endresii and requiring similar treatment to that species. The lip is slightly different in shape and the flowers are greenish yellow with an orange yellow crest on the lip. Spring

pusillum **(Rolfe) syn. bracteatum**

I **pygmæum** Brazil

Very near organense and polybulbon in habit, pseudo bulbs diphyllous, 1 ½ inches high, stoutly pyriform, leaves as long. Flowers 1 to 3, greenish brown. Summer

I **radiatum (Lindl)** Mexico

Resembles fragrans but the pseudo bulbs are stouter, 3 to 6 inches high, with 2 to 3 leaves longer than the bulbs. Spikes erect 3 to 7 flowered. Flowers about 2 inches across. Sepals and petals cream-colored, spreading. Lip white, shell-like,with radiating purple lines. Various

S **radicans** Mexico and Guatemala

Stems long, 3 to 6 feet, or more, slender, leafy, scandent, producing aerial roots in quantity. Flowers in clusters on terminal elongating spikes. Flowers about 1 ½ inches across, bright orange scarlet, the lip has the front lobe cleft, the edges of both portions and of the side lobes being raggedly toothed. Long lasting. Various

Randii **syn. atropurpureum var Randii**

I **raniferum** Mexico

Stems 2 to 3 ft. high, erect, leafy on upper half. Racemes terminal drooping, few flowered. Flowers about 2 inches across. Sepals and petals spreading, yellow green, spotted with red brown. Lip four-lobed, white passing to yellow on edges of side lobes and front of mid lobe. The crest white, spotted with purple. Variable. Various

rhizophorum **syn. radicans**

sanguineum **syn. Broughtonia sanguineum**

I **sceptrum** Venezuela

Somewhat like fragrans in habit but with taller pseudo bulbs, 12 to 15 inches. Spikes erect. 12 to 18 inches high, 12 to 30 flowered. Flowers about 1 inch across. Sepals and petals, golden yellow spotted with purple-brown, lip yellow, white at the base, streaked, spotted, and suffused with purple. Autumn

Schillerianum **syn. Cattleya Schilleriana**

Schlecterianum see Lankesterii

EPIDENDRUM—cont.

I **Skinneri** Guatemala

Stems slender, erect, about 12 inches high. Flower spikes 15 to 20 inches long, terminal, bearing 15 to 30 flowers over an inch across ; deep rose in colour.

I **spectabile (Rchb f.)** Guatemala

Stems 4 to 6 inches high. Racemes terminal 8 to 10 flowered. Flowers about 3 inches across, rose lilac approaching white ; lip dotted with bright red.

Summer

Spruceanum **syn. nocturnum**

I **Stamfordianum** Honduras

Pseudo-bulbs 9 to 12 inches high, somewhat fusiform. Leaves, 2 to 4 ; about 6 inches long. Differs from other species in that the branching inflorescence, 12 to 18 inches long, springs from the base of the bulb. Many-flowered. Flowers 1 ½ inches across. Yellow spotted with bright red, the front lobe of the lip fimbriated. Fragrant. Spring

sub-umbellatum **syn. difforme**

tibicinus **syn. Schomburgkia tibicinus**

tridactylum **syn. Amblostoma cernuum**

tridens **(Lodd) syn. nocturnum**

tripterum **(Sm) syn. Cœlia Bauriana**

I **umbellatum** Tropical America

Stems fleshy 4 to 9 inches high. Leaves fleshy. Flowers 2 to 6 in terminal umbel like racemes. Flowers about 2 inches across, wholly green. Front lobe of lip divided, the divisions inclined backward. Side lobes small, green. Near latilabre.

Various

undulatum **syn. Oncidium Carthaginense**

I **variegatum (Hook)** Tropical America

Pseudo bulbs stout, 8 to 15 inches high. Leaves coriaceous. Flowers about ¾ of an inch across, closely set on erect spikes. Sepals and petals greenish yellow, thickly spotted with red-brown ; lip whitish, tipped with purple. Autumn

verrucosum **syn. nemorale**

violaceum **syn. Cattleya Loddigesii**

C **virgatum (Lindl.)** Mexico

Habit resembling vitellinum but much more robust. Flowers small, brownish, borne in large branching panicles. Often mistaken for vitellinum when out of flower. Early Summer

EPIDENDRUM—cont.

I **virens** Mexico

Habit resembling that of alatum, but the flowers are yellowish green, stained with brown. The three lobed lip is whitish, with central purplish markings. Summer

viscidum **syn. ciliare**

C **vitellinum** Mexico

Pseudo bulbs ovoid 1 to 3 inches high. Foliage 6 to 9 inches long, glaucous. Scapes slender, semi-erect, branching, 12 to 20 inches high. Flowers about 1 ½ inches across, sepals and petals nearly equal, bright cinnabar red, lip and column yellow. Flowers produced from current season's growths before same are fully matured. Autumn

C **- var. majus** Mexico

Pseudo bulbs more globose than in the type. Flowers with broader segments, of a brilliant cinnabar orange color, lip and column yellow. Flowers produced from the fully matured pseudo bulb. Summer

Walkerianum **syn. Cattleya Walkeriana**

C **Wallisii** Columbia

Stems slender, erect, 2 to 4 ft. high. Flowers in short, terminal and nearly terminal. 2 to 4 flowered, racemes. Flowers 1 ½ inches across. Sepals and petals nearly equal, golden yellow, spotted with maroon. Lip broad, spreading, white, feathered with purple, very variable. Continuously

I **xanthinum** Brazil

Stems slender, leafy, erect, 20 to 36 inches high. Flowers borne in terminal clusters, bright yellow ; lobes of lip fringed. Winter

Ybaguense **syn. Ibaguense**

EPILÆLIA Hybrids between Epidendrums and Laelias.

EPIPHORA **syn. Polystachya**

EPIPHRONITIS Hybrids between Epidendrums and Sophronitis.

EPISTEPHIUM

A genus of terrestrial orchids, allied to, and resembling Sobralias in habit, but differing from the fact that the sepals are free, not connate basally as in Sobralia. The summit of the ovary has a toothed ring absent in Sobralia. The flowers are produced on terminal spikes.

The culture and compost accorded, should be as advised for Sobralias.

EPISTEPHIUM—cont.

I **Williamsii** Brazil

Stems erect, 12 to 18 inches high. Leaves, dark glossy green, 3 to 4 inches long. Flowers, 5 to 8, in terminal spikes ; about 3 inches in diameter, light red purple ; the petals are broader than the sepals. The lip has a darker zone of purple, in front of a whitish purple rayed disc, which bears a crest of yellowish hairs.

Summer

ERIA

A genus found chiefly in India and Malaysia. Very polymorphic, and though small flowered, often interesting and attractive, particularly as some of the smaller species flower profusely. The flowers resemble those of Dendrobium in shape. Indeed the genus is allied to Dendrobium but differs in having 8 pollen masses instead of four ; and the pollen masses are united into one or two bundles instead of being free.

Erias include some of the smallest growing of the orchid family and in others the pseudo bulbs reach a height of two feet. While some species have thick persistent leaves, others are practically deciduous. Hence though the general treatment and compost should be as for Dendrobiums, success in their culture is attained more by observation of the individual species than by adherence to any particular rules. The resting period, in particular, must be determined by the individual characters. The flowers, borne singly, or in short lateral or semi-erect spikes are produced usually from, or near, the apices of the pseudo bulbs. In many species, the inflorescence springs from a small depression and when withered, a small clearly defined hole is left in the pseudo bulb.

I **acervata** Himalaya

Pseudo bulbs 2 to 3 inches high, stout, flattened, clustered. Spikes as long, many flowered. Sepals and petals creamy-white, lip yellow. Various

I **amica** North India

Pseudo bulbs 2 to 6 inches high. 2 to 3 leaved. Spikes 3 to 4 inches long. 6 to 12 flowered. Flowers about ½ an inch across, with a greenish yellow bract at base of pedicel. Sepals and smaller petals greenish yellow with faint brownish lines, lip fleshy, reflexed, ochre yellow, side lobes tipped with dull red. Extending to the front lobe are 3, brown-red, fleshy keels. Spring

ERIA—cont.

I **anchorifera** Burma

Habit of flava but the flowers have a distinct anchor-shaped black mark on the lip. Various

barbata **syn. Eriodes barbata**

I **bicolor** Ceylon

Pseudo bulbs 2 to 6 inches high, 3 to 4 leaved. Leaves 6 to 9 inches long. Flowers 6 to 10 in short, semi-erect spikes, so arranged as to bring the flowers to the under side of the rachis. Flowers about 1 inch across, sepals and petals white, nearly equal. Lip three-lobed, white. Apex of column and cap. blood-red. Spring

I **bractescens** Burma

Pseudo bulbs 4 to 6 inches high ; stem-like. Flowers 2 to 5, comparatively large, in short lateral spikes. Sepals and petals white, lip marked with red. Bracts conspicuous, yellowish. Summer

convallarioides Burma

Pseudo-bulbs 2 to 8 inches high, stout, clustered, flattened. Inflorescences 3 to 6 inches, nodding, flowers small, densely set, white. Summer

coronaria see **Trichosma suavis**

Elwesii **syn. meirax**

I **extinctoria** Burma

Curious. The speudo bulbs are small, rounded, wrinkled and flattened, about ¼ of an inch in diameter. They carry a single small deciduous leaf, followed by a slender peduncle, 2 inches high, which carries a solitary flower half an inch long or more, in color whitish suffused with pink. Succeeds better on a tile or piece of cork. Autumn

I **flava** Burma

Pseudo bulbs 2 to 4 inches high, fleshy, compressed ; at intervals on a stout rhizome. Leaves 3 to 5, fleshy, variable. Scape 8 to 12 inches long, several flowered. Flowers about 1 inch across, yellowish, the disc of lip marked with brown purple, inside and out. The backs of sepals, pedicels and peduncle covered with a white woolly tomentum. Fragrant. Various

I **floribunda** Burma

Pseudo bulbs 6 to 12 inches high, mediumly stout, usually carrying 7 leaves on apical portion. Leaves 3 to 6 inches long by 1 broad. Scapes 2 to 3 inches long arched, often 5 to 6 from same bulb. Flowers small, crowded. Sepals and petals whitish, lip tinted with light rose-red, cap, and upper portoin of column, red. Autumn

ERIA—cont.

I **globifera** Annam

A distinct growing species with globe-like pseudo bulbs about the size of marbles, at short intervals on a creeping rhizome. Pseudo bulbs brown in color, the surface lightly corrugated, covered with a brown membrane, bearing a single leaf, 3 to 5 inches long by nearly ½ inch broad. Flowers solitary on short peduncles ; drooping, inverted. Sepals and petals about ¾ of an inch in length, the sepals slightly the broader, cream color with basal pink striations, petals similarly colored but whiter. Lip 3 lobed, the side lobes lined with pink, the pointed front lobe much reflexed, bearing 2, yellow, marginal callosities. The backs of the sepals, ovary and pedicel are covered with a dense tomentum. Winter

S **ferox** Malaya

Height 1 to 3 ft. pseudo bulbless. Leaves 2 to 3 inches long, with the stems, covered with short brownish hairs. Flowers usually in fours, whitish, sepals hairy externally, lip broad, tinged with red on its basal margins. Summer

lanipes **syn. flava**

I **lanata** Burma

Resembling flava of which it is probably a variety. Flowers slightly larger than in flava. The tomentum more pronounced. Their inner surfaces brighter yellow. Scented. Winter

I **meirax** Moulmein

A tiny plant somewhat like extinctoria in habit. The flattened cake-like pseudo bulbs are about ½ an inch in diameter, carry a single deciduous leaf and a nearly sessile flower comparatively large, light brown in color, almost tubular in shape. Autumn

I **obesa** Burma

Pseudo bulbs 1 to 3 inches high, stout, clustered, flattened. Flowers in short spikes, white or creamy white, lip dark with a few purple streaks. Summer

S **ornata** Java

Habit much as in tomentosa but easily distinguished by its bright cinnabar orange colored bracts,which form the conspicuous part of the inflorescence and are very distinct and ornamental. Various

I **pannea** Burma

Curious and pretty. The leaves 2 to 8 inches high are terete and channelled, usually five, in flattened fascicles, imbricated basally. The central leaf is the taller, the outer gradually lengthen ; borne at intervals on a creeping rhizome. The young growths are woolly as is the short 1 to 3 flowered scape, and backs of the sepals and petals, which are whitish, contrasting with the orange red lip. Summer

ERIA—cont.

pubescens **syn. flava**

I **rhyncostyloides** Java

A very fine species. Pseudo bulbs clustered, stout, 4 to 6 inches high, bearing 4 to 5 leaves 12 to 18 inches tall. Inflorescence 8 to 12 inches long, cylindrical, carrying some 300 small, densely set, white, rosy flushed flowers, each about ½ an inch across, the lip is darker in color at the base. Autumn

I **ringens** Burma

Pseudo bulbs 3 to 6 inches high, fusiform, clustered. Racemes 2 to 3 inches long, lateral or arching. Flowers small, crowded ; white, with a pink suffusion. Summer

I **rugosa** Java

Habit near to stellata. The inflorescence is shorter and the flowers peppered with black spots. The sepals are slightly tomentose externally. Autumn

I **siccaria** Burma

Habit near to flava but the leaves are much narrower, fleshy, channelled, approaching a terete form. The flowers are less in size, whitish, sparsely marked with purple brown on the lip. Various

I **stellata** Java

Pseudo bulbs roughly four-sided, about 3 inches high, somewhat like a Calanthe bulb, bearing 2 broad, green, pointed leaves 6 to 9 inches long. Spikes 12 to 18 inches, arching, 6 to 10 flowered. Flowers 2 inches across ; segments, spreading, acuminate, creamy white. Summer

I **stricta** Nepal

Pseudo bulbs stem-like, 2 to 5 inches high, having 2 leaves from between which are produced erect many-flowered spikes, about 3 inches high. Flowers densely set, small, white, arranged in two lines. Winter

I **tomentosa** Burma

A strong growing species, resembling an enlarged flava. Pseudo bulbs 3 to 5 inches high, at intervals on a stout rhizome. Leaves 3 to 6 inches long by half as broad. Inflorescence 6 to 18 inches, remarkable for the brownish yellow bracts at the base of each flower. Various

S **velutina** Burma

Stem 1 to 2 ft. high, leafy, the upper part and the 2 to 3 inch, long, leaves, softly villous, with brown hairs. Flowers whitish, singly or in short spikes. Summer

S **vestita** Malaysia

Stems 12 to 18 inches, pendulous, slender, leafy. Leaves 3 to 4 inches long, covered with soft rufous hairs, spikes 3 to 4 flowered. Flowers reddish outside, white interiorly, lip yellowish. Summer

ERIODES

A genus founded by the late Mr. Rolfe on the plant better known in gardens as Eria barbata and Tainia babata. Though resembling both genera, it is yet different to them. Its treatment should be that given to deciduous Calanthes, but it should not be dried so severely and osmunda fibre and moss included in the compost.

S **barbata** Burma

Pseudo bulbs pyramdial, wrinkled, 2 to 3 inches high. Leaves plicate. Spikes erect, downy, 18 inches high, lax-flowered. Flowers an inch or more across. Sepals and petals narrow, reflexed more or less, lip recurved, mobile, yellowish with reddish suffusion and stripes. The pedicels carry on one side a line of brown hairs.

Spring

ERIOPSIS

Epiphytal orchids, natives of Peru, Colombia and Brazil. The long arching flower spikes are produced from the base of the pseudo bulbs, which are usually wrinkled; and though the individual flowers are rather small the whole inflorescence is more than attractive. The sepals and petals are almost equal, spreading, though the lateral sepals form with the base of the column a short mentum. The column is rather prominent as the side lobes of the lip do not enfold it ; the front lobe is more or less flat and spreading.

A compost of three parts finely cut Osmunda and 1 part sphagnum suits them and though water should be given liberally when the plants are growing, they are impatient of water during the winter, though it must not be entirely withheld.

While the growths are young a position on the shady side of the house should be given them, but when growth is matured they should receive more light and air.

E. Heleniae is a strong growing species and should be accorded ample pot room, with a little loam fibre in the compost.

I **biloba** Peru

Pseudo bulbs 2 to 5 inches high, ovately globose, 2 to 3 leaved. Leaves 10 to 15 inches, dark green. Spikes 12 to 18 inches high, arching, bearing 20 to 30 flowers. Flowers about 1 inch across, sepals and petals dark yellow margined with brown, lip yellowish, suffused with brown, the front lobe white, spotted with purple.

Spring

ERIOPSIS—cont.

C **Heleniæ**

Pseudo bulbs stout, wrinkled, 6 to 15 inches high. Leaves 3 to 5, 10 to 24 inches long. Scapes 1 to 3 ft. arched ; many flowered. Flowers orange-yellow, marked and shaded with purple, larger than those of biloba. Summer

I **rutidobulbon** Colombia

Pseudo bulbs much as in biloba. Leaves 2 to 3, 6 to 12 inches long. Scape 15 to 30 inches. Flowers 1 inch across or more, orange shaded with red-purple. The lip has the front lobe white, spotted with purple, much as in biloba which the species resembles. Various

ESMERALDA **syn. Arachnanthe**

EULOPHIA

A widely distributed genus of epiphytal or semi-epiphytal and terrestrial orchids. But few of the species in cultivation, bear showy flowers, but the greater number produce many-flowered spikes, simple or panicled, usually from the base of the bulb, and though not comparing with Cattleya, Phaius, etc. are not unattractive.

The flowers have their sepals and petals free, nearly equal, the lip being shortly and bluntly spurred, and is crested or keeled centrally. The culture is similar to that given Phaïus, but the majority of the species enjoy a more decided rest. The severity and duration of which must be ascertained by the requirements of the individual species. The compost given should be similar that accorded Phaius but pulled to a finer texture and contain more osmunda and sphagnum.

Many of the species, as can be discerned by their hard foliage, and pseudo-bulbs, are adapted to withstand sun and drought and such kinds are the better for a severe rest.

S **Guineensis** West Tropical Africa

Pseudo bulbs 1 to 2 inches high, bearing two, plicate, deciduous leaves, 12 to 18 inches high. Spikes erect about 30 inches high, 6 to 12 flowered. Flowers about 2 ½ inches across. Sepals and petals dull purplish green, narrow,inclined upwards when young. Eventually the lower sepals incline towards and rest on the labellum no doubt acting as guides to insects. Front lobe of lip large, somewhat. heart shaped, the side lobes small, nearly white, mid lobe white flushed and streaked with crimson. Summer

EULOPHIA—cont.

S **Guineensis var. purpurata** West Tropical Africa

Rather less in habit than type, but with much richer colored flowers, sepals and petals deep rose purple, lip bright purplish magenta veined with crimson. A very handsome orchid. Summer

I **lurida** West Coast of Africa

Pseudo bulbs 2 to 3 inches high, somewhat resembling those of a small Cymbidium as does the habit. Leaves 6 to 9 inches long, deciduous. Aerial roots are freely produced. Panicle 6 to 12 inches long ; branched, bearing numerous, small, yellowish brown flowers. Autumn

I **maculata** Congo and (Brazil ?)

Pseudo bulbs small, bearing a single leathery, maculated leaf. Spike 12 to 18 inches high, several flowered. Flowers about 1 inch or more across. Sepals reddish brown, petals and lip whitish.

I **pulchra** Bourbon Isles

Much resembles Saundersiana in habit but is rather less. Flowers yellowish green, the lip spotted with purple and the sepals and petals marked. Various

I **Saundersiana** West Coast of Africa

Pseudo bulbs 6 to 9 inches high, slenderly pear-shaped, bearing two broad,pointed, dark green, shining leaves. Scape erect, 20 to 30 inches, 10 to 20 flowered. Flowers over an inch across ; sepals and petals yellowish green marked with black purple. Lip, three lobed, the mid lobe again divided, much lighter in color, the side lobes striped more profusely than the mid lobe. Spring

I **virens** Ceylon

Pseudo bulbs 2 to 3 inches high, ovately globose. Leaves narrow, grass-like. Spikes erect, 15 to 24 inches. Flowers about 1 inch across, yellowish green, with light brownish suffusion and a few brownish lines. Spring

EULOPHIELLA

At present this genus contains only the three species here mentioned. All are very handsome orchids and succeed under similar conditions. They require warmth throughout the year. When growing a moist buoyant atmosphere is essential and though shading is necessary full advantage should be taken of sun heat to increase the day temperature.E.Elizabethiae can be grown in a pan,but E. Peetersiana and E. Hamelinii, from their more robust growth, are usually accommodated better on a teak wood raft or shallow receptacle. A compost of 2 parts osmunda

fibre and one part sphagnum with the addition of a few well dried beech leaves, mixed with finely broken crocks suits them, but care must be taken not to allow the compost to become in any way sour. They require abundance of water when growing, but must have perfect drainage.

The genus is characterized by ringed pseudo-bulbs springing from a creeping rhizome and bearing tall narrow leaves. The flowers, on erect, or laterally inclined, spikes produced from the base of the pseudo-bulbs, have rounded rather fleshy segments, the lip being three-lobed. All are showy and free flowering.

S **Elizabethiæ** Madagascar

Very handsome. Leaves 1 to 3 feet high, 1 ½ to 2 inches broad. Scapes arching or lateral. Many flowered. Flowers fleshy 2 to 2 ½ inches across. Pure white. Lip three-lobed, delicately articulated with base of column, disc bright yellow. Reverses of segments, and pedicels, purplish. Spring

S **Hamelinii** Madagascar

Habit more robust than in Elizabethiae. Rhizomes stouter, pseudo-bulbs stouter. Leaves 2 to 4 ft. broader and more fleshy. Spikes 3 to 8 ft. high, erect, many-flowered. Flowers large. Sepals and petals acuminate rather than rounded ; white or flushed with rose mauve ; lip white with a yellow crest. Various

S **Peetersiana** Madagascar

Habit much as in Hamelinii. The pseudo-bulbs, borne on long twisted scandent stems, are sheated in leaves 2 to 4 ft. long. Scapes erect 3 to 5 ft. high. Flowers 3 to 4 inches across, sepals bright purple, with deeper purple tips. Petals wholly one shade of purple, lip whitish with a broad purple border. Throat white, streaked with orange and there are four erect crests on the disc. Spring

ETÆRIA Javanica **syn. Anœctochilus Javanicus**

EXERIA **syn. Eria**

EYDISANTHEMA **syn. Epidendrum**

FERNANDEZIA **(Lindl.) syn. Lockhartia**

FIELDIA **(Gaudich) syn. Stauropsis**

GALEANDRA

This family is confined to Central America. Probably they are really epiphytal, but are often terrestrial in suitable posit.ons. They are distinguished by, usually, stem-like pseudo-bulbs and terminal, usually, nodding racemes of flowers with rather narrow sepals and petals and a more or less tubular lip which is prolonged into a broad funnel shaped spur. Comparatively few species bear showy flowers.

A compost of 3 parts osmunda, 1 part sphagnum moss and 1 part of loam fibre should be used for them, and though they like a position near the glass care should be taken that the young leaves are not exposed to too strong sunlight, as they are very susceptible to attacks from red spider and thrips. In the Autumn they should be exposed to more light and when growth is matured given a decided and slightly coolor rest.

S **Batemanii** Mexico

Pseudo bulbs short, ovate. Leaves 6 to 9 inches long. Scape terminal, nodding, 3 to 5 flowered. Flowers about 2 inches longitudinally. Sepals and petals narrow, reflexed, yellow, lip purple with a yellow tube. Summe

S **Baueri Lindl.** Brazil

Stems 15 to 18 inches high. Leaves 4 to 7 inches. Scape 3 to 4 inches long, several flowered. Flowers nearly 2 inches across. Sepals and petals reflexed or spreading. Yellow suffused with purplish brown. Lip yellowish, lined and flushed with purple on the front lobe. Autumn

Baueri **(Batem) syn. Batemanii**

S **Clæsii** Brazil

Stems 9 to 15 inches high. Leaves short, bluish green. Scapes drooping 6 to 8 flowered. Flowers about 2 inches across. Sepals and petals greenish purple, lip purplish, paler basally, shading to white. Summer

S **d'Escagnolleana** Brazil

Habit resembling that of Devoniana but much less. Flowers showy. 2 ½ inches across. Petals and sepals yellow or flushed with brown. Lip yellow, spotted with rose. Summer

S **Devoniana** Bahia

A strong growing species with stems 2 to 4 ft. high. Leaves 9 to 15 inches long, keeled ; scapes 6 to 8 inches long, several flowered. Flowers 4 inches across, sepals and petals narrow, recurved at tips, brownish purple margined with yellow. Lip, white flushed and marked with purple. Autumn

GALEANDRA—cont.

S **flaveola** Venezuela

Stem 9 to 12 inches high. Leaves 5 to 8 inches long, dark green. Scape short, few flowered. Flowers 1 ½ to 2 inches across, narrow, yellowish, the lip spotted with pale purple. Summer

S **Lagoensis** Brazil

Stem about 2 ft. high. Foliage 12 inches long, nearly an inch broad. Scapes stout, 5 to 8 inches high, several flowered. Flowers about 2 inches across, pale purplish green, darkest on the mid lobe of the lip. Autumn

S **nivalis** Brazil

Stems 9 to 12 inches. Leaves narrow, 5 to 9 inches long. Scapes 3 to 5 flowered. Flowers about 2 inches in diameter. Sepals and petals olive green, lip white with a purple blotch on the disc. Various

GEODORUM

Terrestrial old-world orchids, with bulb-like tuberous root stocks, and plicate leaves, deciduous or nearly so. The spikes usually erect or arching, are produced from the base of the new growth. The flowers are produced on the apical portion of the scapes. The sepals and ofteu broader petals are free or connivent at their bases, nearly equal. The usually pointed lip is entire or slightly three-lobed, forming at its base a blunt chin.

The plants require similar treatment to Phaius, Eulophias, etc. They are not unlike Phaius in habit, etc. but very variable. A compost of good fibrous loam, 3 parts, 1 part of sphagnum moss and 1 part of Osmunda may be given with the addition of a little sand and leaf mould. A decided rest is essential.

S **dilatatum** India

Height 6 to 12 inches. Flower scape erect. Flowers white marked with pink and yellow. Spring

I **pictum (Ldl.)** New Holland

Height 1 to 2 ft. Flowers in dense racemes, dull rose purple shaded with brown and white. Summer

plicatum **syn. Phaius callosum**

GOMEZA

A small genus of epiphytal orchids, somewhat resembling Oncidiums in their general appearance, allied to Odontoglossums and Miltonias. Usually the pseudo-bulbs are ovate in outline, somewhat compressed, and carry two leaves. The spikes are produced from the axil of a leaf as in Odontoglossums, are usually arched and carry several flowers which though individually small or of medium size, are more or less noticeable from the freedom with which they are produced and their sweet scent. The segments are narrow but often strongly undulated,the two lateral sepals are connate basally, sometimes for half their length. The compost should be as advised for Odontoglossums, and they may be grown at the warmest end of the Odontoglossum house during Summer, but are the better if removed to a slightly increased temperature during winter. Water must be carefully given when the plants are at rest, but never witheld as for hard bulbed species of orchids.

C **Barkeri** Brazil

Pseudo bulbs 2 to 4 inches high. Leaves about 6 inches. Scapes arching 12 to 20 flowered. Flowers about 1 inch across, light yellowish green, the lip slightly red spotted. Spring

C **crispa** Brazil

Habit much as in Barkeri but with a longer scape. Sepals and petals undulated, green, shading to yellow. Spring

C **planifolia** Brazil

Habit as in the preceding species. The flowers are light greenish yellow, deliciously fragrant, the lateral sepals connate, the greater part of their length. Spring

C **scandens** Brazil

Pseudo bulbs borne, at intervals of 2 to 4 inche,s on stout stems much as in Oncidium flexuosum. Leaves 2 to 4 inches long. Spikes arching 5 to 7 inches long, many flowered. Flowers light green, the lip with the keels and basal half white. Spring

Glaziovii **syn. scandens**

GONGORA

Epiphytal orchids, easily grown, free flowering and worth attention from the curious, almost fantastic structure of their blossoms which has gained for them the name of « Punch and Judy » Orchids. The flowers, carried on long, thin, drooping spikes, produced from the base of the pseudo-bulbs, are interesting and attractive from their remarkable shape. Usually the pedicel is curved so that the flower has the labellum uppermost. In many species all the segments are narrow and attenuated, the lateral sepals are free, often strongly reflexed, the upper sepal, often reduced in size, is attached to the column, while the petals small and pointed are adnate to the middle of the column and often have the appearance of horns rather than of the petals usually associated with orchids. The lip, continuous with the base of the column, usually runs parallel above that organ. It somewhat resembles that of a Stanhopea, is rather fleshy, hollowed and horned. The whole flower is much smaller than in Stanhopea, seldom exceeding 2 inches in diameter, usually less, but the spikes often carry 20 flowers. The pseudo-bulbs are somewhat oblong, usually pale yellowish green in color, and strongly ribbed, so much so as to give some the appearance of being 6 to 9 sided, and bear 2 broad, plicate, rather fleshy leaves, from their apex. In common with some Catasetums, etc. numerous, erect, aerial roots are often produced.

Their culture is very similar to that given Stanhopeas. The compost should be similar and like them the species require a decided rest at a slightly lower temperature when the growth is thoroughly matured, and when growing a warm moist atmosphere, but not too frequent waterings. From the nature of the inflorescence a wooden basket is preferable to a pot or pan. If the latter are used the compost should be sufficiently elevated to bring the plant slightly above the rim of the receptacle.

S **armeniaca** Nicaragua

Pseudo bulbs about 2 inches. Leaves 4 to 6. Flowers on flexuose drooping scapes. 12 to 20 flowered, sepals reflexed, yellow, barred and marked with red purple. Petals minute, lip ochre yellow, fleshy, saccate, ending in a short pointed process. Scented. Summer

GONGORA—cont.

S **atropurpurea** British Guiana

Pseudo bulbs 2 to 4 inches, stout, ribbed, bearing two large leaves. Scapes drooping, many flowered. Flowers about 2 inches across. Sepals and smaller petals, dark purplish brown with darker spotting; lip similarly colored, curiously contorted. Various

I **bufonia** Brazil

Pseudo bulbs 2 to 4 inches high, strongly ribbed. Leaves large, light green. Flowers, yellowish white, marked and spotted with dull purple. Various

Charlesworthii **syn. scaphephorus**

fulva **syn. quinquenervis**

I **galatea** Mexico

Better known as Acropera Loddigesii. Pseudo bulbs clustered, ovate, 1 to 2 inches high. Leaves 4 to 8 inches. Flowers about an inch in diameter. 4 to 12 on pendent flexuose spikes. The segments are broader than in other Gongoras, and the upper sepal is strongly galeate. Color tawny yellow, shaded brown, the lip darker. Scented. Summer

I **- var. luteola** Mexico

Flowers similar, but pale yellow. Summer

Heisterii **syn. atropurpurea**

irrorata **syn. bufonia**

leucochila **syn. quinquenervis**

macrantha **syn. Coryanthes macrantha**

S **maculata** Guatemala

Habit as in atropurpurea. Flowers large, clear yellow spotted and marked with chocolate red. Spring

S **- var. alba**

Flowers pure white, sparsely spotted with rose on the lip. Spring

I **portentosa** Colombia

Pseudo bulbs about 3 inches high, furrowed. Spikes long, drooping. Flowers large, tawny yellow, with minute purple red spots. Early Summer

S **quinquenervis** Trinidad

Near to, if not a variety of maculata. Spring

I **Sanderiana** Peru

Resembles portentosa in habit but stronger. The flowers are larger, 4 to 7 on arching spikes. Sepals and petals yellowish, tinged with brown, spotted with rose. The upper sepal tinged with rose. Lip bright yellow. Summer

GONGORA—cont.

I **scaphephorus** Peru

Pseudo bulbs about 3 inches. Scapes arching 1 to 2 ft. long, 12 to 20 flowered. Flowers medium size, yellowish white, blotched and spotted with purple brown, lip marked with purple. Scented. Summer

speciosa **syn. Coryanthes speciosa**

GOODYERA

Dawsoniana **syn. Hæmaria Dawsoniana**

macrantha see **Anœctochilus**

Ordeana see **Anœctochilus**

pubescens see **Anœctochilus**

quercicola **syn. Physurus querceticola**

velutina see **Anœctochilus**

GOVENIA

A genus of terrestrial orchids characterized by tuberous rhizomes from which spring stem-like growths, formed by bracts and the sheathing bases of the leaves. Leaves usually two, deciduous or nearly so. The erect flower spike bears on its upper portion 5 to 10 flowers of medium size. The upper sepal is arched and with the narrower petals so placed as to protect and partially conceal the column and the tongue-like lip. The lower sepals are larger and divergent apically, connivent basally and form, with the foot of the column a short chin.

The culture is similar to that accorded Bletias and Phaius, a mixture of 3 parts fibrous loam, 1 part leaf-mould and sand, and a little chopped sphagnum, well mixed, should be given them and a decided rest after growth is thoroughly matured.

I **deliciosa** Mexico

Height about 18 inches. Flowers white, the lip yellowish basally and spotted with purple on the white apical portion. Summer

I **Gardneri** Brazil

Height about 2 feet. Flowers white, the lip, and sometimes the other segments, sparsely spotted with red. Summer

GRAMMANGIS

A small genus of epiphytal orchids, allied to Grammatophyllum and Cymbidium. The species here described is often included under Grammatophyllum. It requires similar culture to that given the Madagascaran Cymbidiums (Cymbidiella), but should have a more decided rest.

s **Ellisii** Madagascar

Pseudo bulbs stout, rather square, 5 to 8 inches high. Leaves 18 to 24 inches long, 2 to 3 broad, scapes produced from base of pseudo bulb, long, arching, 15 to 20 flowered. Flowers 2 to 3 inches across. Sepals nankeen yellow marked with chocolate red. Petals as in Lycaste, smaller than the sepals, similarly colored or whitish tipped with rose purple. Lip white, streaked with purplish red, sweet scented. Summer

Huttoni **syn. Cymbidium Huttoni**

GRAMMATOPHYLLUM

A genus of strong growing handsome epiphytes carrying their blossoms on long scapes, produced from the base of the pseudo bulbs which, in the different species, vary considerably in size. The majority have stout clustered pseudo bulbs and often produce quantities of aerial roots, but the genus may be said to be in two sections, the other having tall Cyrtopodium-like pseudo bulbs with distichous foliage. In both sections the leaves are long and strap-shaped, and though the flowers are not brightly-colored, their number and curious markings render them conspicuous. The sepals are free and spreading, the petals narrower than the sepals, the lip being much shorter, with erect, prominent, side lobes and a tongue-like, pointed, front lobe.

All the species require stove heat and careful watering with, particularly in the bulbous section, a decided and slightly cooler rest.

A compost of three parts Osmunda fibre, 1 part moss and 1 part loam fibre well mixed with broken crocks suits them. In the case of the larger growing kinds pieces, up to halves, of broken red bricks may be used.

elegans **(Walp.) syn. Cyperorchis elegans**

Ellisii **syn. Grammangis Ellisii**

GRAMMATOPHYLLUM—cont.

fastuosum **syn. speciosum**

S **Fenzlianum** Amboyna

Pseudo bulbs short, stout, 3 to 5 leaved. Leaves coriaceous. Scape 3 to 4 ft. long, many-flowered. Flowers about 2 ½ inches across, yellow, shaded with green, blotched with chocolate. Summer

var. *Measuresianum* **syn. Measuresianum**

giganteum **syn. speciosum**

S **Guilielmii II.** New Guinea

Habit as in Fenzlianum. Flowers 3 inches across. Scapes 3 ft. long, sepals and petals greenish, blotched with brownish red. Early Summer

macranthum **syn. speciosum**

S **Measuresianum** Philippines

Habit much as in Fenzlianum. Pseudo bulbs 3 to 8 inches high, stout. Scapes 3 ft. long, many flowered. Flowers large, handsome. Sepals and petals bright green, blotched with purplish chocolate, lip marked with purple. It has been considered a variety both of G. Rumphianum and Fenzlianum. Spring

S **multiflorum** Philippines

Habit as in Measuresianum but rather less. Flowers smaller. Sepals and petals brownish purple, margined with green, lip yellowish white, streaked with chocolate, disc with four white keels. Summer

S **Papuanum** New Guinea

Habit resembling that of speciosum. Flowers rather less in size but brighter in color. Yellow, thickly spotted with crimon red. Petals slightly broader than the sepals. The small lip has the front lobe sparsely haired. Probably neither this species nor C. speciosum can complete their growth in a single season.

Rœmplerianum **syn. Eulophiella Petersiana**

S **Rumphianum** Moluccas

Habit as in Fenzlianum, but with rather taller pseudo bulbs. Sepals and petals pale yellowish green, irregularly blotched with dull brown ; lip whitish, lined with purple. Summer

scriptum **syn. speciosum**

Seegerianum **syn. Measuresianum**

S **speciosum** Malaya

A grand species with tall, stem like, pseudo bulbs, 3 to 10 ft. high, sheathed with the bases of long, narrow, distichously arranged foliage. Flower scapes 5 ft. or more in length carrying up to 100 flowers. Flowers very large, 5 to 7 inches across.Sepals and petals ochre yellow, hieroglyphically blotched with wine purple, lip marked with red.

GROBYA

A genus of epiphytal orchids with small, ovate or globose, clustered, pseudo bulbs and grass-like ribbed foliage. The flowers are densely borne on short erect spikes produced from the base of the pseudo bulbs and though small are not unattractive.The petals broader than the sepals, assume together a helmet-like shape protecting the column.

Culture and compost as for Mexican Laelias.

I **Amherstiæ** Brazil

Flowers yellowish with darker markings and spots. Autumn

I **galatea** Brazil

Flowers green and purple shaded with yellow. Summer

Gymnadenia **syn. Habenaria**

HABENARIA

A very widely distributed, polymorphic genus of terrestrial, tuberous rooted, deciduous orchids. Europe, India, The East Indies, North and South America, Africa, Madagascar, Japan, The Philippines, and Australia all contain representatives so that the genus may be said to be of world-wide distribution. Under such diverse conditions and climates, as may be expected, the species vary greatly, from small insignificant plants to others of great beauty and charm. Some are at home in the rock gardens, while others require stove temperature.

The foliage grows in a more or less rosette-like form, the leafy flower spike being produced from the centre of the growth, bearing few or many flowers on the apical portion. The sepals and usually smaller petals are free, but the sepals in some species cohere at the base and in some the petals are bilobed. The lip may be entire, deeply lobed or fringed, sometimes twisted to the point of contortion. Usually its base is prolonged into a well defined spur.

For the species given here, a mixture of 2 parts fine Osmunda fibre, 1 part loam fibre, 1 part sphagnum with the addition of a little leaf-mould, and sand or finely broken brick, may be used. Water freely when growth is vigorous, but at other times great care is necessary. A decided rest should be given after the growth is matured, but as the plants must be rested in the warm house care must be taken that the tubers do not shrivel. When grow-

HABENARIA—cont. ing the plants should be carefully shaded from the sun but allowed as much subdued light as possible.

S **carnea** Penang

Height of flower spike about 12 inches. Foliage maculated with white. Flowers large, flesh color, the lip deeply cleft and slightly darker than the sepals and petals. Spur 1 to 2 inches long. Autumn

S **var. nivosa** Penang

Similar to type but with pure white flowers. Autumn

gigantea **syn. Susannæ**

militaris **syn. pusilla**

S **pusilla** Cochin, China

Height 9 to 18 inches. Leaves green or slightly mottled. Sepals and petals greenish, the petals and upper sepal forming a helmet. Lip scarlet ; spur greenish. Autumn

S **rhodocheila** China

Height 6 to 15 inches. Leaves green. Flowers medium size. Sepals and petals greenish, lip bright orange. Autumn

S **Rœbelinii** Annam

Habit similar to that of pusilla. Sepals, petals, spur and column bright red, lip scarlet. Summer

S **Susannæ** India and Malaysia

Height 18 to 36 inches. Flowers large, pure white, lip divided into three lobes - the two outer fringed, the central one tongue-like. Autumn

HÆMARIA

Dawsoniana see **Anœctochilus**

discolor see **Anœctochilus**

HARTWEGIA (Lindl.)

I **purpurea** Mexico

A tufted epiphyte from 2 to 4 inches in height with slender stems carrying a fleshy somewhat triangular olive green, grey marked leaf. Spikes erect, taller, produced from junction of the stem and leaf several flowered. Flowers small but of a pleasing rose purple color. Allied to Epidendrum and requiring similar treatment and compost. During the winter season due regard must be paid to the absence of pseudo-bulbs. Various

Hecabe lutea **syn. Phaius maculatus**

Helcia **syn. Trichopilia sanguinolenta**

Helleborine ramosissima **syn. Cyrtopodium punctatum**

HEMIPILIA

Terrestrial, tuberous, orchids allied to Habenaria. The flowers are carried on short few flowered racemes. The sepals are larger than the petals which with the upper sepal form a hood over the column. The lip is prolonged into a spur. Only one leaf is produced at a time.

Culture and compost as for Habenarias.

HEMIPILIA—cont.

I **amethystina** Burma

Leaf about 4 inches long, somewhat cordate, light green marbled with red-brown. Scape 8 inches high. Upper sepals and petals very small. Lower sepals divergent, lip and spur comparatively large. Colour white, the lateral sepals with a central green band, the lip marked with rose purple. Autumn

I **calophylla** Tenasserim

Leaf about 3 inches long, half as broad, dark green, mottled with red brown. Scape about 6 inches high, mottled. Flowers similar in shape to those of amethystina, lateral sepals reflexed. Petals whitish, sometimes pink flushed. Lip purple. Autumn

HOULLETIA

Epiphytal orchids found in America and like Stanhopeas, to which they are allied, remarkable for the structure of the lip.

The species have comparatively small pseudo-bulbs, usually globosely cylindrical and slightly furrowed, bearing a single, large, plicate leaf on a long foot stalk. The scapes, produced from the base of the pseudo-bulbs, are usually erect and carry from 5 to 12 flowers of medium size, often strongly scented, rather fleshy in substance. The sepals and narrower petals are free and spreading. The lip is somewhat narrow with two horn-like processes, inclined backward, springing from the hypochil. The front lobe roughly spear shaped, has the apex often slightly reflexed.

As regards culture, they should be treated as Stanhopeas, using a similar compost, but as the tall leaves and erect spikes prevent them being suspended, pots or pans must be used in place of baskets. Careful watering is essential and moisture must be kept from the young leaves. After growth is matured a rest is necessary, but a fairly warm temperature is required.

I **Brocklehurstiana** Brazil

Pseudo bulb and leaf 30 to 40 inches high. Scapes 12 to 24 inches. Flowers about 3 inches across. Sepals and petals rich chocolate with darker spotting, lip yellow shaded with white, spotted with purple brown. Fragrant. Summer

chrysantha **syn. Wallisii**

I **odoratissima** Columbia

Habit as in the preceding species. Sepals and petals brownish red with darker lines, lip tipped with yellow. Violet-scented. Summer

HOULLETIA—cont.

I **odoratissima var. Antioquiensis** Colombia

Superior to type with deep chestnut brown sepals and petals.

Summer

I **Sanderii** Peru

Habit resembling that of Brocklehurstiana but considerably less. Scapes 9 to 12 inches high, 2 to 4 flowered. Flowers inverted, more resembling those of an Acineta in shape, almost globular, the sepals hooded. Creamy white passing to yellow at the base of the lip. Odour fetid. Summer

stapeliæflora **syn. Brocklehurstiana**

I **Wallisii** Antioquia

Habit as in Brocklehurstiana but less. Spikes semi-erect or drooping, 4 to 8 flowered. Flowers semi-globose, fleshy, yellow, thickly spotted with purple brown.

Summer

HUNTLEYA **syn. zygopetalum**

IONE **syn. bulbophyllum**

IONOPSIS

A genus of small growing, tufted, epiphytes, allied to Oncidium, with very small pseudo-bulbs more or less sheathed with the bases of the usually keeled, pointed, 4 to 6 inch high foliage. The flowers are carried in simple or branching panicles 12 to 18 inches long. Sepals and petals, often more or less connivent,are comparatively small, but the lip is broad and spreading often two-lobed. The plants should be placed in very small perforated pans, or on wood blocks, using a compost of finely cut Osmunda fibre or best peat mixed with half its bulk in sphagnum, hung near the glass and freely supplied with water when growing, but great care is necessary in the dull months as the plants are impatient of stagnant compost.

I **paniculata** Brazil

Sepals and petals white or flushed with rose; lip marked with purple at the base.

Various

I **utricularioides** Central America

Habit less than in the preceding species. Flowers white with a small spot of rose purple at the base of the lip. Spring

IPSEA

A small genus of terrestrial, deciduous, orchids with tuberous roots, producing narrow grass-like leaves. The tubers should be potted in a mixture of three parts fibrous loam and 1 part of leaf mould and finely cut sphagnum, the compost being kept open by finely crushed pot-sherds. After growth is completed a careful rest is necessary.

IPSEA—cont.

I **speciosa** Ceylon

The Daffodil orchid. Leaves 5 to 8 inches high. Scapes erect 12 to 18 inches high, 2 to 6 flowered. Flowers bright yellow, fragrant. Winter

Isanthemum syn. **Odontoglossum**

ISOCHILUS

Epiphytes of tufted habit, with slender erect stems, clothed with narrow, alternate, ascending leaves and bearing short, dense, apical, one-sided racemes. For compost use finely cut Cattleya mixture and never allow the plants to get really dry.

I **linearis** Tropical America

Height 6 to 20 inches. Flowers small but of a pretty rose-red, shaded with purple. Spring and Summer

I - **var. alba** Tropical America

Flowers pure white. Summer

I **major** Mexico

Height 1 to 2 ft. Flowers larger than in the preceding species and of a darker color. Summer

Kefersteinia syn. **Zygopetalum**

Kingiella see under **Doritis**

KRÆNZLINELLA

A genus of little importance horticulturally. Its nearest ally is Scaphosepalum, but the flowers are not inverted nor are the sepals thickened basally as in that genus.

The compost and culture should be as for Masdevallias, but the greater number of species benefit by greater warmth.

The habit is tufted, the leaves fleshy, slightly keeled, and the racemes are several flowered, often prolongating.

The flowers, of which the sepals are larger than the petals, are usually brownish.

I **platyrachis** Costa Rica

Height 5 to 6 inches. Inflorescense nearly as long, rachis flattened. Flowers golden brown. Autumn

I **rufescens** Peru

Height 4 to 5 inches. Flowers about ¾ of an inch long, reddish brown, shaded with yellow and with darker stripes. Winter

LACÆNA

A small genus allied to Acineta, and requiring the same cutlural treatment as that genus and Stanhopeas. As the spikes are pendent, baskets are better suited to the plants than pots. The pseudo-bulbs are usually more conical than

LACÆNA—cont. in Acineta. The foliage, more pronouncedly stalked, and the smaller flowers differ in the structure of the labellum.

l **bicolor** Guatemala

Spikes 20 to 30 flowered, sepals and petals cream color, lip white, spotted and blotched with purple. Summer

l - **var. alba** Columbia

Without the purple spotting on the lip.

l - **var. Sanderiana** Columbia

Lip almost covered with dark purple on the basal portion, and more densely spotted on the remainder, than in the type. Summer

l **spectabilis** Mexico

Habit rather less than in the preceding species. Flowers, white suffused with rose-pink with darker spots. Early Summer

LÆLIA

A genus of showy epiphytal orchids differing only from Cattleyas by the presence of eight pollinia instead of four. So closely are they allied to Cattleyas that numerous hybrids known as Laeliocattleyas have been effected. The genus is very variable and has a fairly wide distribution. The culture and compost is naturally that given to Cattleyas, though some of the most beautiful are better suited in the cool house. All the Mexican species require abundance of light, air and moisture, when growing and a decided rest in a more dry atmosphere. Many of these Mexican species are characterized by shorter bulbs, which admits of them being grown in shallow pans or baskets and hung near the glass. Broadly speaking all of these species are the better for a long cool resting period, no attempt should be made to hurry them into growth, but when commenced that should be encouraged as much as possible, by atmospheric heat and moisture, particularly during the day. The flower spikes are often produced before the growth is matured, though in many, maturity is effected before the flowers open. Though given as cool house the majority of the Mexican Laielias enjoy a much higher temperature by day, than do Odontoglossums, during their growing season but a cool temperature towards morning seems to suit them. Hence, where several are grown, they succeed better if they can be accomodated in a division to themselves.

LÆLIA—cont.

acuminata **syn. rubescens**

C **albida** Mexico

Pseudo-bulbs ovate 1 to 2 inches high, bearing 2 narrow leaves. Spikes 9 to 15 inches, 5 to 8 flowered. Flowers medium size, sepals and petals white, lip rose flushed. Winter

C - **var. bella** Mexico

Flowers larger than in the type, sepals and petals tipped with rose, mid-lobe of lip magenta-rose. Winter

C - **var. Mariannæ** Mexico

Sepals and petals flesh rose, lip mauve with buff stripes. Winter

I **Amanda** Brazil

Syn. Laeliocattleya Amanda. A supposed natural hybrid between C. Intermedia and L. Boothiana. The habit is not unlike that of C. Intermedia. Flowers large, sepals and petals rose purple with darker veins, lip similarly colored but darker. Summer

C **anceps** Mexico

Pseudo-bulbs 3 to 5 inches high, more or less four-sided, usually one, sometimes two leaved,producing from the apex tall, erect,ancipitous scapes, bearing 2 to 6 flowers. Flowers 3 to 4 inches across, sepals and petals deep rose, lip crimson purple, side lobes yellow striated with red.

NOTE. — The species is most variable as regards color, hardly two plants having similar flowers. Two sections, easily distinguishable, can be made. The true anceps, characterized by shorter and more decidely four-sided bulbs and the so-called « white » anceps, which have taller, more compressed, ringed pseudo-bulbs and rather larger flowers with white sepals and petals and a colored lip, the color more or less confined to the front lobe. Pure white varieties are known in both type and sub-variety. Both have a straggling habit of growth and baskets are usually handier than pans or pots. Repotting should be done as seldom as possible, never while the compost remains sweet and firm. Better to allow the plants to extend beyond their receptacles.

C - **var. alba** Mexico

Flowers pure white excepting a shade of yellow in the throat. Winter

C - **var. alba Bull's** Mexico

Flowers pure white without any trace of yellow. Winter

C - **var. amabilis** Mexico

Flowers white with a delicate flush, lip very pointed and with a few crimson stripes in the throat. Winter

C - **var. Amesiæ** Mexico

A very richly colored form with deep crimson feathering to the tips of the petals, throat yellow. Winter

LÆLIA—cont.

C-anceps var. **Ashworthiana** Mexico
Sepals and broad petals pure white, lip veined with lilac and a few lilac markings on the front lobe. Winter

C-var. **Ballantineana** Mexico
A rich colored, large flowered form, sepals bright purple, tipped, petals rose purple, front lobe of lip, nearly square, of an intense velvet-like crimson ; side lobes tipped with purple, throat golden with crimson stripes. Winter

C - var. **Barkeriana** Mexico
A very deep colored form, lip intense crimson purple with a yellow disc. Winter

C-var. **Chamberlainiana** Mexico
A grand form, the largest of all. Sepals and petals broad, soft rosy lilac. Lip open, crimson purple, the side lobes similarly colored in front. Spike very long. Winter

C-var. **Crawshayana** Mexico
Flowers large. Sepals and petals clear purple rose, lip rich crimson purple on the front lobe and edges of the side lobes ;keels yellow. Winter

C - var. **Dawsonii** Mexico
A splendid white form, sepals and very broad petals pure white, the side lobes of lip radiated with purple while the front lobe has a diffused blotch of rose purple margined with white. Winter

C - var. **delicata** Mexico
Sepals and petals white, flushed with rose ; lip shaded with violet, throat orange yellow. Winter

C - var. **Finckeniana** Mexico
Included here under anceps, but there can be little doubt but that it is a natural hybrid between anceps and albida. The sepals are pure white, the large oblong lip has purple lines extending half way up the side lobes, the front lobe bears a bright purple, crescent shaped, central blotch. Winter

C - var. **Hardyana** Mexico
Flowers very rich in color, shapely and of great substance, lip very dark. Winter

C - var. **Hillii** Mexico
Sepals and petals white, lip blushed with rose pink, throat yellow with crimson markings. Winter

C - var. **Hollidayana** Mexico
Flowers white, throat veined with crimson and a crimson blotch on the lip. Winter

LÆLIA—cont.

C **anceps var. Hollidayana var. alba** Mexico
Flowers wholly white excepting the yellow disc to the lip. Winter

C - **var. oculata** Mexico
A dark-red flowered form with two yellow blotches at the base of the lip. Winter

C - **var. Percivaliana** Mexico
Sepals and petals blush pink, lip with tips of side lobes mauve purple, front lobe tipped with purple magenta, remainder white. Winter

C - **var. Rosefield** Mexico
Sepals and petals rose purple, banded basally with white, lip dark-purple crimson with a creamy white disc and orange keels. Side lobes thickly lined and suffused with blood-red on their inner surfaces. Winter

C - **var. Sanderiana** Mexico
A most beautiful form, pure white sepals and petals and a rose-purple blotch on the front lobe of the lip. Winter

C - **var. Schroderæ** Mexico
A grand form. The flowers have an intense crimson-maroon lip and very dark sepals and petals, with darker tips to the petals. Winter

C - **var. Schroderianum** Mexico
Pseudo-bulbs larger than in the type. Flowers very large with broad, pure white segments, the throat only being streaked with purple crimson. Winter

C - **var. Simondsii** Mexico
Sepals and petals pure white, the base of the lip is lined with slate blue and the front lobe carries a few bluish spots. Winter

C - **var. Stella** Mexico
Sepals and petals pure white, front lobe of lip white with rose markings. Throat yellow with purple lines. Winter

C - **var. vestalis** Mexico
Flowers pure white except the pale yellow disc and a few purple lines in the throat. Winter

var. *virginal* **syn. var. alba**

C - **var. Williamsianum** Mexico
Flowers large, pure white, throat orange yellow, lined with crimson. Winter

aurantiaca
See Cattleya aurantiaca.

LÆLIA—cont.

C **autumnalis** Mexico

Pseudo-bulbs 2 to 4 inches high, bearing 2 or 3 coriaceous leaves 4 to 8 inches long. Spikes tall, erect, 3 to 9 flowered. Flowers about 4 inches across. Segments rose purple, lip with basal portions whitish and a yellow longitudinal ridge. Scented.

Late Autumn

C - **var. alba** Mexico

Flowers pure white except for a light tinge of yellow in the throat.

Late Autumn

C - **var. atrorubens** Mexico

Flowers larger than those of the type, crimson purple, lateral lobes of lip whitish.

Early Winter

Barkeriana **syn. anceps var. Barkeriana**

I **Boothiana** Brazil

Pseudo-bulbs 4 to 8 inches high, clavate, single leaved. Scapes 2 to 5 flowered. Flowers large, 5 to 7 inches across ; sepals and petals light rose purple with deeper veins, waved ; lip much crisped, crimson purple, shaded with amethyst,with paler veins.

Early Summer

Brysiana **syn. purpurata var. Brysiana**

caulescens **syn. flava**

I **cinnabarina** Brazil

Pseudo-bulbs 5 to 9 inches high, cylindrical, tapering, with the (usually one) coriaceous leaves, reddish. Spikes erect, 12 to 24 inches long, 6 to 15 flowered. Flowers 2 to 3 inches across, segments pointed, bright cinnabar red.

Spring

var. *crispilabia* **syn. crispilabia**

I **Cowani** Brazil

Habit of cinnabarina but the pseudo-bulbs are taller, more slender and swollen at their bases. The reddish color is absent or not so pronounced. Flowers in erect spikes, clear yellow.

Summer

C **Crawshayana** Mexico

A supposed natural hybrid between anceps and albida. The habit is similar though stronger than that of albida. Flowers intermediate in size between those of the parents. Sepals and petals amethyst purple, lip deep rose purple, throat white striped with crimson.

Winter

I **crispa** Brazil

Pseudo-bulbs 6 to 12 inches high, single leaved. Spikes 4 to 9 flowered. Flowers large with white, sometimes flushed sepals and petals, lip crisped, bright purple with deeper veinings.

Summer

LÆLIA—cont.

I **crispa var. superba** Brazil
A superior variety with broader sepals and petals, lip deeper purple.
Summer

I **crispilabia** Brazil
Resembling cinnabarina in habit but less, sepals and petals lilac-mauve, lip deep amethyst and white, much crisped. Spring

Dayana **syn. pumila var. Dayana**

I **Digbyana** Honduras
Pseudo-bulbs stout 3 to 8 inches high, compressed, bearing a fleshy rigid, glaucous leaf, 4 to 8 inches long. Flowers 1 to 2 ; large, 6 inches across. Sepals and petals rather narrow, creamy white shaded with green. Lip cream-white, broad, rounded, with a strongly fringed margin. Requires a very decided rest.
Various

I **Dormaniana** Brazil
There is considerable doubt as to the correct genus under which this species should be included. It was first named by Prof. Reicherbach as a Laelia and is better known as such, but it is also placed under Cattleya. There are eight pollinia, but four are rudimentary and there is a suspicion that it is a natural hybrid. The thin terete stems are 6 to 12 inches high, 2 to 3 leaved. Spikes 2 to 4 flowered. Flowers about 3 inches across. Sepals and petals olive brown, side lobes of lip rose with purple veins. Front lobe short, bright crimson purple, often with a central white mark beneath the anther. Autumn

elegans **syn. Læliocattleya elegans**

C **Eyermaniana** Mexico
A supposed hybrid between grandiflora and albida, habit resembling that of albida but larger. Sepals and petals rose purple, lip rose purple shading into white with yellow keels. Autumn

C **flava** Brazil
Resembling cinnabarina in habit but less. Pseudo-bulbs 3 to 6 inches high. Leaves of great substance. Spikes 8 to 10 flowered. Flowers canary yellow.
Summer and Autumn

C **furfuracea** Mexico
Habit of Autumnalis but less, the large flowers are light rose purple ; lip with the midlobe brightest in color. Autumn

gigantea **syn. grandiflora**

I **glauca** Mexico
Habit like that of Digbyana but much less. Flowers 3 to 4 inches across, fragrant. Sepals and petals white shaded with green, lip white, sometimes sparsely marked with pink and purple. Not fringed. Spring

C **Gouldiana** Mexico

Formerly supposed to be a natural hybrid between autumnalis and anceps, but there can be no doubt as to its true specific rank. The habit is that of L. autumnalis but the flowers are much superior, brighter in color and differ in form. Segments deep rose purple, lip with yellow keels. Winter

C **grandiflora** Mexico

Pseudo-bulbs clustered small rounded. Leaves 5 to 6 inches long, leathery. Spikes 1 to 2 flowered. Flowers very large, 6 inches across. Sepals and petals rosey, lip whitish in centre, margined, marked and spotted with mauve purple. Summer

I **grandis** Bahia

Pseudo-bulbs one leaved. Height of bulb and leaf 18 to 24 inches. Scapes 3 to 5 flowered. Flowers 4 to 5 inches across ; sepals and petals nankeen yellow, shaded with buff, lip whitish, veined, and more or less suffused, with rose purple. Summer

vàr. *tenebrosa* **syn. tenebrosa**

I **harpophylla** Brazil

Stems slender 9 to 15 inches high, bearing a single pointed leaf 6 to 8 inches long. Scapes 3 to 9 flowered. Flowers 2 to 3 inches across, bright orange red, mid lobe of lip margined with white. Late Winter and Spring

C **Jongbeana** Brazil

Pseudo-bulbs short stout, one, sometime two leaved, height about 6 inches. Scapes 1 to 5 flowered. Flowers 4 to 5 inches across flat, sepals and petals soft rose purple, lip crisped, bordered with dark rose-purple ; disc with yellow ridges. Winter and Spring

Lawrenceana **syn. crispilabia**

I **Lindleyana** Brazil

Really a natural hybrid between Brassavola tuberculata and Cattleya intermedia, hence should be placed under Brassocattleya. Stems, slender, terete, bearing 1 to 2 linear leaves. Flowers large, sepals and petals blush white, stellate, lip broadly rounded, marked with rose. Various

lobata **syn. Boothiana**

I **longipes** Brazil

A pretty dwarf growing species with the habit of a miniature cinnabarina. Spikes erect. Flowers about 1 ½ inches across, sepals and petals light mauve, lip primrose yellow and maroon. Summer

Lucasiana **syn. longipes**

I **Lundii** Brazil

A dwarf growing species, pseudo-bulbs, small, ovoid, clustered, with the narrow, fleshy, channelled leaves, 2 to 3 inches high. Flowers borne singly from the undeveloped young growth as in Cattleya Walkeriana. Flowers about 1 ½ inches across, light lilac, lip three lobed, the front lobe undulated, radiated and reticulated with bright purple. Various

majalis **syn. grandiflora**

C **monophylla** Jamaica

A pretty tufted species with erect slender stems, bearing a single leaf. Height of plant about 6 inches. Scapes single flowered. Flowers bright orange scarlet,2 inches in diameter. Should be kept slightly warmer in the winter than the average cool house. Autumn

I **Patinii** Columbia

Resembling Cattleya Skinneri in habit, but the pseudo-bulbs are shorter and stouter in proportion. Flowers 3 to 8 on stout, erect, spikes. Sepals and petals rose-purple, lip darker with a pale throat. Winter and various

peduncularis **syn. rubescens**

I **Perrinii** Brazil

Pseudo-bulbs 6 to 12 inches high, often reddish, bearing a leaf of similar length. Scapes 2 to 5 flowered. Flowers about 5 inches across. Segments rather pointed. Sepals and petals rose, front lobe of lip deep crimson purple, throat white. Early Winter

præstans **syn. pumila var.**

C **pumila** Brazil

A most variable species so much so that the two sub-varieties Dayana and praestans have both received specific rank, but the many connecting forms clearly show that they can be regarded merely as varieties. Many color variations are known both in the type and the sub-varieties. The habit is dwarf and compact ; the pseudo-bulbs, 2 to 3 inches high, bear a single leaf. Scapes 1 to 2 flowered. Flowers large, sepals and petals inclined backward, rose purple, lip deep purplish crimson, with yellow ridges centrally, and a pale blotch at the apex. Autumn

C **- var. Dayana** Brazil

Flowers darker and slightly smaller than those of the type, lip deeper purple and with prominent purplish keels. Early Autumn

C **- var. præstans** Brazil

Lip trumpet shaped, red purple in color, shaded with yellow, ridges hardly shown. Autumn

NOTE. — Both type and varieties should be suspended near the glass and never allowed to get really dry.

LÆLIA—cont.

l **purpurata** Brazil

A grand species. Pseudo-bulbs stoutly clavate, with the long dark green leaf 20 to 30 inches high. Scapes 3 to 9 flowered. Flowers large 6 to 9 inches across. Sepals and broader petals light rose-white, the lip has the throat yellow, striped with crimson, and the broad front lobe rich, crimson purple. Spring and early Summer

l - **var. alba** Brazil

Sepals and petals pure white, lip lighter in color than in the type, but the name is applied to any white sepalled and petalled form with dark colored labellums. Early Summer

l - **var. atropurpurea** Brazil

Sepals and petals dark rose, lip deep magenta purple. Early Summer

l - **vas. Brysiana** Brazil

Sepals and petals dark rose with darker veins ; lip dark crimson. Early Summer

l - **var Queen Alexandra**

Flowers pure white with the exception of a yellow stain in the throat. Early Summer

l - **var. Russelliana** Brazil

Sepals and petals white, flushed with pale rose, lip rose lilac, throat light yellow. Early Summer

l - **var. Schroderæ** Brazil

Sepals and petals pure white, lip light, lilac magenta, with crimson veinings proceeding from the yellow throat. Early Summer

l **Regnellii** Brazil

Pseudo-bulbs, borne at short intervals on a creeping rhizome, subfusiform 2 to 3 inches high. Leaves usually 2, fleshy, 3 to 5 inches long. Spikes erect 1 to 2 flowered. Flowers 1 ½ to 2 inches broad, lip three-lobed,front lobe with an undulated margin. Color lilac rose. Summer

Rivieri **syn. Boothiana**

C **rubescens** Mexico

Dwarf growing. Pseudo-bulbs 1 to 2 inches high, compressed, bearing a single leaf about 4 inches long. Scapes slender, arching 9 to 15 inches high, 4 to 8 flowered. Flowers about 2 inches across, white or flushed with rose, with a dark maroon spot at the base of the lip. Winter

l **rupestris** Brazil

Habit that of a dwarf sturdy form of L. flava. Spikes several flowered. Flowers closely set, over an inch across, purple violet in color with a paler throat. Autumn

Russelliana **syn. purpurata var.**

Schilleriana **syn. Læliocattleya Schilleriana**

superbiens **syn. Schomburgkia superbiens**

LÆLIA—cont.

l **tenebrosa** Bahia

Habit very similar to that of L. purpurata, but slightly less and with narrower foliage. Scapes 2 to 5 flowered. Flowers large, 6 to 9 inches across. Sepals and petals reddish brown, lip deep dusky purple, lighter at the edges, variable.

l **- var. Walton Grange** Bahia

Sepals and petals light yellow, lip white with a deep purplish disc, from which a few purple lines radiate.

Turneri **syn. Læliocattleya elegans var.**

l **xanthina** Brazil

Pseudo-bulbs 6 to 12 inches high, single-leaved. Scapes 2 to 5 flowered. Flowers about 3 inches in diameter. Sepals and petals clear yellow, lip yellow, the front lobe white, veined and suffused with crimson purple. Spring and early Summer

LÆLIOCATTLEYA

A compound name, designating hybrids derived from Cattleyas and Laelias.

Several occur naturally and have been imported, notably Lc elegans,(L purpurata, C Leopoldii), a very handsome and variable hybrid. Lc Schilleriana, (L purpurata x C intermedia), often erroneously called a variety of Lc elegans, Lc albanense, (C warneri x L grandis), Lc Gottoiana, (L tenebrosa x C warneri), Lc interelegans, (C. intermedia x Lc elegans), Lc Pittiana, (L grandis x C amethystoglossa), etc., etc.

Læliopsis **syn. Broughtonia**

LEPTOLÆLIA

The name given to hybrids between Leptotes (Tetramicra) and Laelia.

Leptotes **syn. Tetramicra**

Limatodes **syn. Calanthe**

LIMODORUM

The greater number of plants formerly known under this name are now placed under their correct genera Dendrobium, Angraecum, Phaius, Cymbidium, Calanthe, Vanda, Arachnanthe, Epidendrum, etc., etc.

Lindblomia **syn. Habenaria**

LIPARIS

A widely distributed genus of Epiphytal and terrestrial orchids. The genus has little to recommend it to Horticulturists as though of easy culture, the majority have very small, though numerous flowers, whitish or very dull in color.

A moist rather shady position in the Cattleya house suits the majority of the Indian and Burmese species, or they may be suspended near the glass. A compost of 3 parts of Osmunda fibre to two parts of sphagnum moss, the whole finely cut, suits the smaller growing kinds. The larger may have an addition of a little loam fibre. A rest, but not a drastic one, is necessary to them.

In some the pseudo-bulbs are clearly defined, in others it takes the form of a swollen stem carrying 2 or 3 smooth, ribbed or plicate leaves. The flowers are carried in terminal racemes. Usually the sepals and narrower petals are spreading, the lip is adnate to the base of the column. Among the species occasionally met with are.

I **bis-striata** Burma

Pseudo-bulbs stem-like, 4 to 6 inches high. Scapes 4 to 6 inches long. Flowers small, yellowish. Summer

I **Duthei** India

Very dwarf, light-green pseudo-bulbs and short spikes of greenish white, small, flowers. Summer

S **elegans** Penang

Pseudo-bulbs ovate, bearing 1 to 3 leaves, 3 to 8 inches long. Scapes about 15 inches high, many flowered. Flowers with greenish sepals and petals and an orange red lip. Summer

S **fulgens** Philippines

Pseudo-bulbs about 2 inches high. Leaves 4 to 6 inches long. Scapes as long, bearing 15 to 25 flowers, each about ½ an inch across and of a uniform red. Summer

I **lacerata** Burma

Pseudo-bulbs ovoid about 1 inch high. Flowers about ½ an inch across, laxly set, light pink, the lip dull red, with the 2 lobed front portion lacerated. Summer

I **longipes** Burma

Pseudo-bulbs 2 to 6 inches long, cylindrical. Leaves 4 to 8 inches long. Scape 6 to 10 inches high, crowded with small, creamy white flowers. Summer

LISSOCHILUS

Handsome terrestrial orchids, with plicate foliage and tall erect flower spikes. They are tuberous rooted, a number having flat,rhizomatous pseudo bulbs, the foliage and habit somewhat resembling that of Phaius. Many species are rather difficult under cultivation, as they are exposed to the extremes of moisture and heat when growing and to drought and heat when resting.

Under cultivation they should be potted in fibrous loam, leaf mould, and sand, with the addition of a little finely chopped sphagnum and Osmunda fibre. Water liberally when growing and keep in a warm moist atmosphere. After growth is completed the plants should receive a thorough rest, but should still be kept in the warm house. In some the tubers are just beneath the ground surface. In others they more resemble the habit of Eulophia.

The flowers are usually attractive and remarkable for their curiously twisted appearance, the petals being larger than the sepals.

A **giganteus** Congo

Flower spikes 8 to 16 ft. high, carrying 20 to 40 large flowers with bright rose and lilac sepals and petals, lip bright purple, shaded with rose lilac with darker veins ; disc marked with yellow. This species grows by, and in the water side but as the water recedes is subjected to drought. Autumn

S **Horsfallii** Old Calabar

Scape 4 to 6 ft. high. Flowers large. Sepals purple, shaded with magenta, disc crimson marked with white. Spring

S **Krebsii** Natal

Scape 2 to 4 ft. high. Flowers medium size, sepals chocolate color marked with green, petals bright yellow, lip chocolate red, front lobe yellow. Various

S **roseus** Sierra Leone

Scapes 3 to 4 ft. high. Flowers large. Sepals deep sienna brown, petals and disc soft rich rose ; disc shaded with gold. Autumn

S **speciosus** Natal

Scapes 4 to 7 feet. Flowers about 2 inches across. Sepals green, petals yellow, lip yellowish, the side lobes suffused with purple. Summer

S **streptopetala** West Coast of Africa

Scapes about 2 ft. high. Flowers small with narrow segments. Yellowish. Autumn

LISTROSTACHYS The correct name of several plants included under Angraecum. The difference between the plants is strictly botanical,and culture and general appearance are similar.

LOCKHARTIA A small genus of epiphytal, Western orchids with slender tufted stems, usually clothed in more or less small, distichous leaves, from the axils of which, on the upper stem portions, are produced small, but pretty, usually yellow, flowers. The plants may be grown on blocks, or in small pans or pots. Using a compost of 2 parts osmunda fibre and 2 parts sphagnum moss, with finely broken potsherds. Careful watering is necessary at all times, particularly in the dull months.

S **acuta** Trinidad
Height about 6 inches. Flowers, in loose corymbs, yellow marked with red. Summer

S **elegans** Trinidad
Height rather less than in acuta. Flowers usually solitary, petals yellow, the lip spotted with red. Summer

S **lunifera** Central America
Height about 12 inches, leaves 1 ½ inches long. Flowers bright yellow, barred and spotted with red on the lip. Summer

LOWIARA Hybrids between Brassavola, Laelia and Sophronitis.

LUEDDEMANNIA A small but attractive genus, requiring similar culture and compost to that given Acineta, which they resemble in habit. They are allied to Cycnoches, Acinetas, etc.

The flowers are smaller and more numerous than in Acineta, and distinguished, from those of that genus and of Cynoches,by the lip,which, narrow at the base,develops into three lobes, the central one triangular and the side lobes roughly like inverted wings. Baskets are the more suitable receptacles on account of the pendent flower spikes.

I **Lehmanni** Colombia
Flowers, borne 20 to 30 on pendent spikes, wax-like, orange yellow in color, the outer surfaces of the sepals, copper colored. Summer

I **Pescatorii** Columbia
Racemes 30 to 50 flowered, sepals orange brown, petals and lip deep yellow, disc hairy. Summer

LUEDDEMANNIA—cont.

Sanderiana **syn. Lacæna bicolor var.**

I **triloba** Andes

Pseudo-bulbs and foliage, less than in the two preceding species. Flowers in pendent racemes, deep orange yellow, lip marked with chocolate red. There is a slight crimson flush on the sepals. Summer and Autumn

LUISIA

An old-world genus. All are epiphytes with terete foliage ; somewhat resembling Vanda teres in habit. The fleshy flowers are small and produced, usually, in almost sessile clusters from the sides of the stem. They are freely produced, but the prevailing colors are dull. The petals are usually longer and more narrow than the sepals. The lip, comparatively large, is often reflexed. Under cultivation the plants seldom exceed 9 or 12 inches in height.

S **Amesiana** Burma

Flowers comparatively large, in clusters ; sepals and petals pale yellow, brown on the exterior ; lip white, shaded with yellow, spotted with purple.

Summer

Burmanica **syn. teretifolia**

S **Psyche** Burma

Flowers usually in two's, sepals and petals green, lip blotched with deep purple.

Summer

S **teretifolia** Burma

Flowers small, chocolate-brown ; borne in clusters. Various

I **volucris** North India

Flowers single, or in two's, comparatively large. Sepals and petals creamy white, lip purplish brown. Various

S **trichorhiza** India

Flowers large for the genus. Sepals and petals greenish brown, lip grooved, deep chocolate or purplish brown. The plant may be distinguished by the numerous, downy roots. Summer

LYCASTE

The majority of the species of this genus are natives of Central America, with large, showy, long-lasting, fleshy flowers. The plants are characterized by stout ovoid pseudo-bulbs, often furrowed or wrinkled in the older, bearing 1 to 3, large, plicate leaves, enfolded when young. In many of the species particularly in aromatica, Deppei, etc., after the leaves fall, two sharp thorn-like processes are left on the cicatrice at the top of the bulb.

The flowers are carried singly on erect scapes, produced several in number from the base of the last made pseudo bulbs, usually just previous to, or contemporary with, the young growth. The sepals are much larger than the petals, which to an extent they enfold, or are spreading. The petals are more or less reflexed at their apices, and with the lip, more brightly colored than the sepals. The lip bears a fleshy, crest-like process on its centre. The flowers vary in size from about an inch across in aromatica to 4 or more in Skinneri, and the larger flowered species.

The culture is simple. Obtained from fairly high altitudes, the cool and intermediate houses suit them the better. The stout hard pseudo-bulbs indicate that a decided rest is necessary. Care must be taken that, particularly while young and enfolded, moisture is not allowed to accumulate on the leaves. The syringe should be withheld, certainly until the foliage is matured and free. Should moisture effect a lodgement, black decayed spots result, and inferior growth. A little top air is advisable, by day and night, when weather conditions are suitable. After growth is matured a decided rest in a light position ripens the bulbs.

Several beautiful natural hybrids have been imported, but few have been raised artificially. The compost should consist of fibrous loam with only sufficient, sphagnum moss, decayed leaves and crock, or red brick, dust to keep it open and sweet. Free drainage is very essential.

albida **syn. Skinneri var. delicatissima**

LYCASTE—cont.

C **aromatica** Mexico

Habit dwarf, flower scapes 3 to 4 inches high, flowers golden-yellow, lip spotted with orange, very fragrant. Twenty or more flowers are often produced from a flowering bulb. Winter

C **- var. majus** Mexico

Flowers larger than in the type and deeper yellow.

Balsamia **syn. cruenta**

Barringtoniæ **(Hook) syn. costata**

I **Barringtoniæ (Ldl.)** West Indies

Height of bulbs and leaves 20 to 30 inches, flowers large, clear greenish-yellow, with a few red markings on the lip. Spring

brevispatha **syn. candida**

I **candida** Central America

Height 10 to 15 inches, flowers about 2 inches across, sepals pale green, with a few rose markings; petals white, slightly flushed with rose ; lip white, sparsely spotted with rose-purple. Early Spring

I **- var. Lawrenceana** Central America

Sepals reflexed, green, with faint red markings ; petals white, rosy in centre ; lip similarly coloured. Spring

C **costata** Peru

Height 20 to 30 inches, flowers large, ivory-white; lip with the front lobe fringed. Fragrant, chiefly at night. Spring and late Winter

cristata **syn. Paphinia cristata**

crocea **syn. fulvescens**

C **cruenta** Guatemala

Habit similar to aromatica, flowers larger than in aromatica but not produced in such numbers, bright yellow, lip with a basal sanguineous blotch. Spring

I **Denningiana** Ecuador

Height 20 to 30 inches, flowers large, sepals and petals greenish-white, lip light chocolate-brown, with a fleshy callus on the disc. Winter

C **Deppei** Mexico

Height 12 to 16 inches, flowers large sepals pale green, flushed or spotted with red, petals pure white, lip with the mid lobe pointed, bright yellow and red spotted, side lobes white, marked with red. Winter

LYCASTE—cont.

C **Dyeriana** Peru

A curious species, the counterpart, among Lycastes, of Cattleya citrina among Cattleyas. Habit drooping, pseudo-bulbs angled. Leaves somewhat strap shaped, glaucous silver. Flowers, freely produced, sepals light green, petals dark green. Lip green with the apical half bluntly spear shaped, the sides deflexed and daintily fringed. Basal half fluted, side lobes inclined upwards. Summer

C **fulvescens** Colombia

Height 20 to 30 inches, flowers large, nodding, sepals and petals yellowish-brown, lip orange-brown, fringed at the margin. Various

C **gigantea** Colombia

Height 20 to 30 inches, pseudo-bulbs large, flowers large, sepals and petals olive-green, lip purplish, margined with orange-yellow. Winter

grandiflora **syn. Maxilaria grandiflora**

grandis **syn. Paphinia grandis**

Harrisoniæ **syn. Bifrenaria Harrisoniæ**

Heynderyzii **syn. gigantea**

I **jugosus** Brazil

Better known under the name of Colax jugosus. Though reduced to Lycaste, it is probably quite as nearly related to Zygopetalum, as it readily hybridises with members of that genus. Pseudo-bulbs about 2 inches high, leaves about 8 inches, Spikes erect, 2 to 3 flowered ; flowers medium size, sepals white, petals densely marked with purple, lip short, coloured as the petals, with fleshy keels.

Early Summer

C **lanipes** Ecuador

Height 18 to 30 inches, flowers large, white, shaded with green ; lip serrated.

Autumn

C **lasioglossa** Guatemala

Very distinct. Height 10 to 15 inches. Pseudo-bulbs somewhat tapered. Sepals 2 to 3 inches long, rather narrow, greenish externally, deep reddish brown on inner surfaces, haired basally ; petals and lip yellow, the lip tongue-like covered with wooly hairs. Winter and Spring

Lawrenceana **syn. candida var.**

I **leucantha (Klot'h)** Central America

Height 18 to 24 inches, flowers large, sepals green, shaded with brown ; petals yellowish-white, lip light yellow, shaded with creamy-white. Various

leucantha **(Lindl) syn. candida**

LYCASTE—cont.

C **Locusta** Peru

A remarkable species. Habit as in costata, flowers large ; the whole flower, excepting the white column, is a shade of green ; lip with a whitish fringe.

Spring

C **- var. Sander's** Peru

A very superior and rare form, with larger flowers ; the lip is more heavily fringed, and has a slight yellow tint, inside the fringe. Spring

I **macrobulbon** Colombia

Habit of aromatica, but larger ; sepals yellow, petals and lip orange-yellow, lip lightly brown-spotted. Winter and Spring

I **- var. Youngii** Colombia

Rare, superior to type ; flowers larger, brighter in colour, lip more free from spotting. Winter and Spring

I **macrophylla** Peru

Height 18 to 24 inches, flowers large, sepals olive-green, shaded with light mahogany red; petals white, spotted with deep rose ; lip with the side lobes white, rose at their apices ; mid-lobe tongue-shaped, white, thickly spotted with crimson.

Winter and early Spring

C **- var. Measuresiana** Peru

Sepals rich brown, tipped with green ; petals densely spotted with rose-purple, margined white ; lip similar. Winter

mesochlæna **syn. lanipes**

Mooreana **syn. Locusta Sander's var.**

plana **syn. macrophylla**

rugosa **syn. Paphinia rugosa**

C **Schilleriana** Central America

Height 20 to 30 inches, flowers large, sepals pale green, petals creamy-white, lip white, shaded with yellow. Spring

C **Skinneri** Guatemala

The most popular species. Height 15 to 24 inches, flowers large and handsome, variable ; sepals white, more or less suffused with rose ; petals smaller, usually marked with deep rose ; lip whitish, thickly spotted with rose and crimson.

Winter

C **- var. alba** Guatemala

Flowers pure white, crest of lip light yellow. Winter

C **- var. armeniaca** Guatemala

Flowers wholly flushed with apricot-yellow. Winter

C **- var. delicatissima** Guatemala

Sepals blush white, petals rose-pink, lip creamy-white, with a few rose spots.

Winter

LYCASTE—cont.

C **Skinneri var. picta** Guatemala

Flowers large, sepals rose-flushed, petals white, rosy at base ; lip creamy-white, spotted with deep rose. Winter

C **- var. pulcherrima** Guatemala

Sepals pale rose, petals white, shaded to rose-purple ; lip white, with yellowish base. Spring

C **- var. purpurata** Guatemala

Sepals and petals blush white, lip deep crimson-purple. Winter

C **- var. rosea** Guatemala

Sepals and petals rich rose, lip white, with crimson spots. Winter

C **- var. rubella** Guatemala

Sepals white, faintly rose-flushed ; petals deep rose, lip white, marked with purple-rose, crest creamy-white. Winter

C **- var. superba** Guatemala

Flowers similar to preceding variety, but larger and of richer colour. Winter

C **- var. virginalis** Guatemala

Flowers wholly of a delicate rose flush on a white ground. Winter

tetragona **syn. Bifrenaria tetragona**

tyrianthina **syn. Bifrenaria tyrianthina**

C **tricolor** Guatemala

A free flowering, variable species, habit resembling that of a reduced Skinneri. Flowers 10 to 30, larger than in aromatica, more campanulate, white shaded with green and rose. Summer

- var. alba

Flowers white, slightly green tinted on the sepals and petals, lip white. Summer

I **xytriophora** Ecuador

Height 12 to 20 inches, flowers 3 to 4 inches across ; sepals green, shaded with brown ; petals white, basal half yellowish-green ; lip white, stained with rose and yellow. Spring

Youngii **syn. macrobulbon var. Youngii**

MACODES

marmorata **syn. Dossinia marmorata**

petola see **Anœctochilus**

Sanderianus see **Anœctochilus**

MACOMARIA Hybrids between Macodes and Haemaria.

MACRADENIA

lutescens **syn. Epidendrum odoratissimum**

MACROCHILUS (Knowles). Fryanus **syn. Miltonia spectabilis**

MALAXIS

acuminata **syn. Microstylis Wallichii**

caudata **syn. Brassia caudata**

latifolia **(Sm.) syn. Microstylis congesta**

plicata **syn. Microstylis congesta**

MASDEVALLIA

A genus of tufted, epiphytal, American Orchids — most interesting either from the brilliant colouring of the flowers or their curious fantastic shapes. In this genus the sepals are the most prominent parts of the flower, usually extending into a tail-like form, the lip taking a secondary position as regards size, and, with the petals being often quite inconspicuous. In all sections the plants are devoid of pseudo bulbs, the leaves springing direct from a creeping rhizome. They grow best in a cool house, with a north-west or western aspect. The atmosphere should always be kept moist, and the plants never allowed to become dry, execpt during the coldest days of winter, and all alike should be shaded from the direct sun. The Chimaera section are best suited with teak wood baskets, the flowers being often produced in a pendent or lateral position. M. cocinea and kinds of allied habit are better placed in well-drained pots or pans, using two parts sphagnum moss to two parts of fibre, finely cut, with a few decayed oak leaves added. As the whole genus is pseudo-bulbless no rest is required. Naturally less water should be given during the Winter, but broadly speaking they must be kept moist during all the year. Often a corner of the Odontoglossum house can be given up to them and slightly heavier shading used. Masdevallias are under cultivation subject to a black spot or smudge which appears on the leaves, usually on their backs. Such discoloration is hardly due to any one cause, but usually from stagnant moisture or improper airing. Draughts must be avoided, but top air should be used day and night

MASDEVALLIA—cont.

whenever possible. Slightly different positions may be selected for the plants until one exactly suitable is obtained. Compost should be renewed wherever it appears stale. A sweet, moist, quiet atmosphere and a moderately shady position seem to be the essentials.

The genus is very polymorphic in respect to the shape, colour and size of the flowers. In all, the sepals are united more or less at their bases, forming a tube. In M. coccinea, M. Veitchiana, etc. this tube is very short, though sufficiently large to contain the petals, column, and lip, the sepals showing a flat, exposed, brilliantly coloured surface, the flowers being carried singly on scapes much taller than the leaves.

In M. coriacea, etc., the tube is much larger, fleshy, and the outer surfaces of the sepals are the more apparent, the free portions being short and broad, with short tails ; the petals and lip are also larger and more in evidence.

In M. Estradae, the tube and free portion of the sepals are short and open, not fleshy, and end in long tails.

In M. polysticta, etc., the flowers resemble those of M. Estradae, but several are borne on short, erect spikes, and the tails are not so long.

The Chimaera group, which here includes M. bella, Carderii, Chestertonii, erythrochaete, Gaskelliana, Houtteana, Lowii, Nycterina, radiosa, Troglodytes, vespertilio, venosa, have the tube very short and open, or almost wanting. Though only one flower at a time is carried by the scapes, in several varieties, as the one flower decays, the scape lengthens and produces a second, third, or more. In Chimaera and the species nearest allied to it, the flowers are often hairy and the labellums are, comparatively, large. These kinds should be kept a little warmer during winter than other Masdevallias.

The genus Scaphosepalum is often included under Masdevallia, but is readily distinguished by the shape and position of the sepals, and the character of the scapes, which lengthen and continue to bear flowers for long periods.

MASDEVALLIA—cont.

C **abbreviata** Peru

Height 5 to 6 inches, leaves narrow, flowers in erect racemes, whitish, sparsely purple-spotted. Tails yellow, short.

C **achrochordonia** Ecuador

Leaves 5 to 7 inches high, scapes much longer, bearing 6 to 12 flowers, the bases of the chocolate-brown,lateral,sepals forming a cup ; upper sepal same color, tails yellowish, 3 to 4 inches long. Spring

C **amabilis** Colombia

Leaves 4 to 6 inches high, scapes taller, flowers showy, upper sepal orange-yellow or rose, red veined ; lateral sepals orange-yellow, crimson-spotted ; tails 1 to 2 inches long. Summer

anchorifera **syn Scaphosepalum anchorifera**

C **angulata** Ecuador

Leaves coriaceous, 5 to 8 inches high ; scapes single-flowered, about 4 inches high; flowers shaped as in Peristeria, lower sepals dark crimson-red, with lighter spots and markings, upper sepal much narrower and lighter in colour, tails short,reflexed, crimson-red ; scapes red-spotted. Autumn

C **Arminii** Pamplona

Leaves 1 to 2 inches high, scapes longer, flowers purplish-rose, sepal tails yellow, 1 to 2 inches long. Various

astuta **syn. erythrochæte**

atro-purpurea **syn. auro-purpurea**

C **attentuata** Costa Rica

Leaves 3 to 4 inches high, flowers whitish, with long, yellow tails. Winter

I **auropurpurea** Colombia

Leaves 2 to 3 inches high, scapes longer, several flowered, upper sepal with little more than the tail free, lateral sepals forming a cup, dark velvet-like purple ; tails bright yellow, an inch long. Continuously

Backhouseana **syn. Chimæra var.**

C **Barlæana** Peru

Leaves 4 to 5 inches long, scape taller, upper sepal orange-yellow, margined with red ; lateral sepals carmine-scarlet, tails 1 to 2 inches, crimson, the two lower cross each other. Spring

C **bella** Columbia

Leaves 5 to 8 inches high, scape pendulous, flowers large, triangular in outline ; sepals yellow, spotted with chocolate red, ending in long, slender, dark red tails, lip whitish, conspicuous, shell-shaped, motile. Autumn and various

MASDEVALLIA—cont.

Benedictii **syn. Houtteana**

Boddœrtii **syn. ignea var.**

C **Bonplandii** Colombia

Resembling Peristeria, but stronger in habit, flowers larger, greenish-yellow externally, marked on the interior surface of the tube with dark purple.

Summer

brevis **syn. Scaphosepalum brevis**

Bruchmulleri **syn. coriacea var.**

C **caloptera** Peru

Leaves 3 to 5 inches high, scapes taller, 2 to 3 flowered, flowers whitish, opaque; upper sepal hood-like, with two violet-purple streaks and a few spots on the inner surface ; lower sepals streaked and suffused with violet-purple on their basal halves; tails short, bright yellow, divergent. Various

I **calura** Costa Rica

Leaves 3 to 4 inches high, flowers deep chocolate-red, with darker shading ; tails 1 to 2 inches long, orange-yellow. Spring and Summer

C **campyloglossa** Colombia

Leaves 3 to 5 inches high, coriaceous ; flowers whitish, purple-spotted and veined. Summer

candida **syn. tovarensis**

C **Carderi** Colombia

Leaves 3 to 5 inches high, scapes pendulous, flowers bell-shaped, white, blotched with purplish-brown ; tails 1 to 2 inches long, sometimes brown-spotted.

C **caudata** Colombia

Height 4 to 5 inches, flowers 1 to 1 ½ inches across, upper sepal yellow, spotted and veined with red ; lateral sepals mauve-purple, marked with white ; tails 2 to 3 inches long, yellow. Summer

- var. *Shuttleworthii* **syn. caudata**

C **- var. xanthocorys** Colombia

Flowers less in size than in the type, upper sepal pale yellow, streaked with red brown ; lateral sepals pale yellow, spotted and flushed with rose.

Summer

C **Chestertonii** Colombia

Leaves 5 to 7 inches high, scape pendulous, several flowered, sepals broad, yellowish-green, thickly marked with black-purple ; tails similarly coloured, 1 inch long, lip broad, emarginate, yellowish-white suffused with pink, with reddish ridged veins. Various

MASDEVALLIA—cont.

C **Chimæra** Colombia

Leaves 6 to 10 inches high, scapes longer, erect or pendulous, 3 to 5 flowered ; flowers large, very variable in colour and size ; sepals, without the tails, about 1½ inches long by over an inch broad, yellowish, thickly spotted with dark reddish purple spots, with fimbriate margins and hispid inner surfaces ; lip slipper-shaped, whitish ; tails 3 to 4 inches long. Spring and Summer

C - **var. Backhouseana** Colombia

Flowers very large, but with shorter tails, light yellow, with reddish, warted spots, tails reddish-brown, lip narrow, whitish. Spring and Summer

C - **var. gigantea** Colombia

Flowers very large, with darker spots. Summer

C - **var. Gorgona** Colombia

Sepals very hairy, canary-yellow, spotted with red-purple ; lip tinged with Indian yellow. Spring and Summer

C - **var. Leroyana** Colombia

Flowers very large, yellow, thickly marked with dark chocolate-red, with scattered yellow hairs, strongest at the margins ; tails purplish-red, lip white. Spring and Summer

C - **var. Rœzlii** Colombia

Sepals blackish purple on exteriors, greenish-yellow at base, inner surfaces densely spotted with purplish-black on a light, red suffused ground ; base of dorsal sepal sparsely spotted, all densely covered with a short pubescence ; lip white, tinged with pink. Spring

C - **var. Sanderiana** Colombia

The largest and finest variety ; flower spike erect, 1 to 2 feet high, 3 to 8 flowered ; diameter between the tail ends often exceeds 2 feet ; colour a deep crimson on a hairy, yellow ground. Summer

C - **var. senilis** Colombia

Flowers pale yellow, with dark red spots, sepals covered with a long whitish pubescence. Summer

C - **var. severa** Colombia

Sepals rather narrow, pubescent, yellowish-white, thickly marked with dark chocolate red, strongest at the bases, which are narrowly margined with yellow ; lip white, with yellow veins. Summer and various

C - **var. Wallisii** Colombia

Flowers large, yellow-ochre, lightest on the lower halves of the lateral sepals, thickly marked with purplish-red, hairy, tails purplish-red. Spring and summer

MASDEVALLIA—cont.

C **chimæra var. Winniana** Colombia

Flowers larger than, but resembling those of var. Roezlii ; base of dorsal sepal, yellow, spotted with purple. Summer

C **civilis** Peru

Height 5 to 7 inches, flowers smooth ; large, 4 inches between tips of upper and lower sepals tails, greenish-yellow on the outside of the tube,which is nearly 1 inch across, internally deep purple at base, spotted above ; tails short, greenish-yellow, the two lower crossing apically. Odour fetid. Spring and Summer

C **coccinea** Pamplona

Leaves 6 to 9 inches high, scapes taller, one-flowered, flowers variable, bright rose-pink to magenta-purple. The upper sepal is linear, more or less reflexed ; the two lower sepals are connate for part of their length, broad, and taper to short tips.

All the following varieties, except Lindeni, are better known as varieties of Harryana, but, like Harryana and Lindeni they are but forms of the type :—

C - **var armeniaca** Colombia

Soft apricot-yellow, with a crimson flush. Spring

C - **var. atropurpurea** Colombia

Dark crimson, suffused with a purplish tint. Spring

C - **var. atrosanguinea** Colombia

Flowers large, deep blood-crimson. Spring

C - **var. Bull's blood** Colombia

Intense crimson, with a shade of purple. Spring

C - **var. cœrulescens** Colombia

Flowers very large, magenta-crimson, flushed with purple-violet. Spring

C - **var. maxima** Colombia

Flowers still larger, and of deeper colour. Spring

C - **var. eonchiflora** Colombia

Large, shell-like flowers, rich, rosy-lake in colour. Spring

C - **var. Denisoniana** Colombia

Near to var. Bull's blood, colour, a deep blood crimson, with a magenta tinge. Spring

C - **var. flambeau** Colombia

Flowers a bright crimson-scarlet colour. Spring

C - **var. grandiflora** Colombia

Bright magenta, flushed with crimson, very large. Spring

MASDEVALLIA—cont.

C **coccinea var. Harryana** Colombia
Flowers blood crimson, very variable. Spring

- **var.** *coccinea* **syn. coccinea**

C - **var. lilacina** Colombia
Large, rose-lilac flowers. Spring

C - **var. Lindeni** Colombia
Flowers medium size, lilac magenta. Spring

C - **var. luteo-oculata** Colombia
Mouth of perianth tube, clear-yellow. Spring

C - **var. Mars** Colombia
Flowers large, deep crimson. Spring

C - **var. meteor** Colombia
Very bright, brilliant scarlet. Spring

C - **var. miniata** Colombia
Very brilliant, flowers vermilion-red and scarlet. Spring

C - **var. oculata** Colombia
Rich coloured flowers, with a white eye. Spring

C - **var. purpurea** Colombia
Medium sized flowers, flushed with purple. Spring

C - **var. magnifica** Colombia
Flowers large, deep red, with a purple suffusion. Spring

C - **var. regalis** Colombia
Flowers large and broad, dark glowing crimson. Spring

C - **var. rotundiflora** Colombia
Deep coloured flowers, round in outline. Spring

C - **var. sanguinea** Colombia
Large, red-crimson flowers, flushed with orange. Spring

C - **var. splendens** Colombia
Deep magenta flowers, with crimson veins, large and broad. Spring

C - **var. versicolor** Colombia
Rich magenta flowers, with irregular marks and margins of maroon-crimson.

C - **var. violacea** Colombia
Pleasingly suffused with violet-magenta. Spring

MASDEVALLIA—cont.

Colibri syn. **Ephippium**

conchiflora syn. **coccinea var.**

C **coriacea** Colombia

Leaves fleshy, 5 to 7 inches high, flowers fleshy, freely produced, sepals connate for some distance, white shaded with yellow and spotted with purple, tails short. Spring and Summer

C - **var. Bruckmulleri** Colombia

Flowers slightly smaller than in the type, and with a reddish suffusion. Spring and Summer

C **corniculata** Colombia

Leaves 5 to 7 inches long, scapes one flowered, flowers pale yellow, marked with reddish-brown ; tails bright yellow, that to the upper sepal being the longest. Summer

C **cucullata** Colombia

Leaves 9 to 12 inches high, coriaceous, sepals deep maroon-purple with whitish-yellow bases, and yellow ends to the tails. Spring and Summer

I **cupularis** Costa Rica

A small-growing species, with glossy brown and chocolate-spotted flowers ; tail short, yellowish. Various

C **Davisii** Peru

Leaves 6 to 9 inches high, flowers 1 to 2 inches across, yellow, with a few orange markings ; variable. Spring and Summer

Dayana syn. **Cryptophoranthus Dayanus**

C **demissa** Colombia

Height 6 to 8 inches, scape s... rt, flowers bell-shaped, chocolate and yellow, tails an inch long, dark yellow. Summer

Denisoniana syn. **coccinea var.**

C **deorsa** Colombia

A very distinct species. Leaves rather fleshy, glaucous green. 9 to 14 inches long, pendent. Flowers fairly la...ge, light buff yellow. Blotched and marked with purple brown. Lip deeper purple. The dorsal sepal shorter than the lateral, all tailed. Summer

C **elephanticeps** Colombia

Leaves 6 to 9 inches, scapes taller, one-flowered ; flowers large, red-purple and yellow, tails 2 to 3 inches long, yellow. Spring and Summer

C **Ephippium** Colombia

Leaves 5 to 9 inches high, scapes taller. Flowers large, upper sepal small; the two lateral sepals form a large cup, deep chestnut-brown ; tails 3 to 4 inches long, yellow ; the upper one is carried erect, reflexed at the apex ; the two lower tails run parellel with each other, and point immediately downward. Autumn and various

MASDEVALLIA—cont.

C **erythrochæte** Colombia

Leaves 6 to 9 inches long, scapes longer, flowers white, shaded with yellow and spotted with purplish-red, tails 2 inches long, purplish-red, lip white shaded with pink. Summer and Autumn

C **Estradæ** Colombia

Leaves 2 to 4 inches high, scapes longer, flowers small, very pretty, sepals with the lower halves bright yellow, the upper halves violet-purple, ending in short, yellow tails. Summer and various

C **floribunda** Mexico

Leaves 3 to 5 inches high, scapes longer, semi-pendent ; flowers pale yellow, dotted with brown-purple ; tails reddish. Various

C **Forgetiana** Brazil

Leaves rather fleshy, 3 to 5 inches high, scapes about as tall. Flowers about 1 inch across of an apricot tint on the outersurfaces, much deeper within, lip triangular, thickened and warted at apex. Summer

C **fulvescens** Colombia

Leaves 3 to 5 inches high, scapes nearly as tall, single-flowered. Flowers semi-transparent, white shaded with ochre-yellow, flushed with pink, tails 2 inches long, ochre-yellow, at the base of the upper tail, on the interior surface, is a blotch of light rose-purple. Winter

galeottiana **syn. floribunda**

C **Gargantua** Colombia

Leaves 5 to 7 inches high, coriaceous ; scapes shorter, flowers very large, fleshy, yellowish green, marked with purple ; tails yellow. Summer

Gaskelliana **syn. erythrochæte**

C **gemmata** Colombia

Very small, leaves linear, 1 to 2 inches high, scapes slender, erect, bearing curious flowers, having the two lateral sepals joined together, dark purplish-brown, the upper sepal is lighter in colour, tails short, stiff, orange-yellow, divergent. Spring and Summer

gibberosa **syn. Scaphosepalum gibberosum**

Gorgona **syn. Chimæra var.**

Harryana **syn. coccinea var.**

C **hieroglyphica** Colombia

Height 4 to 6 inches, scapes about 6 inches, sepals mauve, flushed with purple, marked with white ; tails 1 to 2 inches long, purple at their bases, then yellow. Summer

MASDEVALLIA—cont.

C **Houtteana** Colombia

Height of leaves 6 to 10 inches, scapes procumbent, flowers spreading, sepals whitish, shaded with yellow at the base, thickly spotted and suffused with red, tails 1 to 2 inches long, purplish red, lip, pink-white, movable. Summer

C **ignea** Colombia

A beautiful species, and with its different forms, a useful companion to coccinea and its varieties. Leaves 6 to 8 inches high, scapes 12 to 18 inches high, flowers large, variable, usually cinnabar-red, with crimson veins, upper sepal ending in a deflexed tail ; lower sepals merely pointed. Spring

C - **var. aurantiaca** Colombia

Flowers bright orange, with bright red veins. Spring

C - **var. Bletchley Park**

Very near to militaris but still finer and more brilliant in colour. Spring

C - **var. Boddærtii** Colombia

Flowers deep crimson, shaded with yellow. Spring

C - **var. Massangeana** Colombia

Flowers large, of a bright cinnabar red colour. Spring

C - **var. militaris** Colombia

Very handsome, flowers larger than in the type, brilliant red, shaded with scarlet. Sprinrg

C **inflata** Colombia

Height 5 to 7 inches, flowers light orange, shaded with ochre-yellow ; tails yellow, perianth tube much inflated. Summer

C **infracta** Brazil

Height 5 to 7 inches, scapes longer, upper sepal whitish with yellow shades, lower sepals pale violet-purple on inner surfaces ; tails 1 to 2 inches long, yellow. Spring and Summer

C - **var. purpurea** Brazil

Flowers larger than those of the type, purple colouring richer and deeper. Spring and summer

C **ionocharis** Peru

Height 3 to 5 inches, flowers white, with violet-purple markings ; tails short, yellow. Summer and Autumn

C **Laucheana** Colombia

Leaves 2 to 4 inches high, scapes taller, flowers white, with greenish-yellow tails. Autumn

MASDEVALLIA—cont.

C **leontoglossa** Colombia

Leaves coriaceous, 6 to 8 inches high, flowers on shorter scapes, fleshy, pale yellowish-green, spotted with purple, tails short divergent, yellowish-green, with purple spots and marks ; lip thickly covered with deep purple, hairy and asperated. Spring

Lindeni **syn. coccinea var.**

Lowii **syn. trinema**

longicaudata **syn. infracta**

C **ludibunda** Colombia

Leaves 2 to 5 inches, scapes taller, flowers purple, the upper sepal much darker than the two lateral ones ; tails bright yellow, 2 to 3 inches long. Spring and Autumn

C **macrura** Colombia

Leaves coriaceous, 9 to 14 inches high, scapes about equal in length, flowers very large, tawny yellow, internally thickly warted with black, tails 4 to 5 inches long, lighter in colour. Winter

C **maculata** Venezuela

Leaves 4 to 6 inches high, scapes slightly taller, 1 to 3 flowered, in succession. Sepals 2 ½ inches long, upper sepal triangular at base, clear yellow, lower sepals connate at base, reflexed at edges, dark purplish brown, larger than upper sepal, terminating in two yellow crossed tails. Late Summer

C **melanopus** Peru

Height of leaves 4 to 6 inches, scapes taller, racemose ; flowers white, purple spotted, tails short, bright yellow. Spring and Summer

C - **var. approviata** Peru

Flowers pure white, with light yellow tails. Spring

C **melanoxantha** Ocana

Leaves 6 to 12 inches high, scapes taller, flowers over an inch long, upper sepal greenish-yellow, lower sepals deep, velvet-like, chocolate colour. Early Summer

militaris **syn. ignea var.**

C **Mooreana** Venezuela

Leaves coriaceous, 4 to 9 inches high, scapes single-flowered, flowers large, light yellow shaded with green outside ; inner surfaces of the lateral sepals very rough, dark brown, tails long. Allied to Gargantua. Spring

MASDEVALLIA—cont.

C **muscosa** Columbia

Habit dwarf, scapes 5 to 8 inches high, thickly haired, with a smooth interrup tion. Flowers yellowish-green, the external surfaces of the lateral sepals brownish, tails ½ to 1 inch long, yellowish-green. The flower is most remarkable ; the lip is comparatively large, irritable, and peculiarly shaped. Dark brown on the front lobe. On any small insect entering the flower it springs up, closing firmly over the column, and imprisoning the insect for about twenty minutes. Various

myriostigma **syn. floribunda**

C **nidifica** Ecuador

Height of leaves about 2 inches, flowers small, curious and pretty ; the outer surface of the flower is yellow, marked with purple, the upper tail purplish, the two lower yellow. Summer

Normanni **syn. Reichenbachiana**

C **nycterina** Colombia

Leaves 5 to 8 inches high, scapes one-flowered, decumbent, sepals yellowish, spotted with red-purple ; tails long, purplish-red. Summer

C **O'Brieniana**

Very near to M simula but with broader leaves, not set so closely together. Flowers similarly coloured to those of simula but larger and more brightly coloured. Early Spring

ochracea **syn. coriacea**

octhodes **syn. Scaphosepalum octhodes**

Parlatoreana **syn. splendida var. Parlatoreana**

C **Peristeria** Colombia

Leaves 4 to 7 inches high, scapes shorter, flowers large, fleshy, yellowish-green, studded with purple, wart-like spots, tails stout, 1 ½ inches long, greenish yellow, external surfaces green ; lip dark purple, petals so placed with the column as to give the interior of the flower a similar appearance to that of Peristeria elata, The « Dove Orchid ». Summer

C **platyglossa** Columbia

Leaves 5 to 7 inches high, rigid, scapes shorter, decumbent, flowers light green, lip very broad, tails absent. Summer

C **polysticta (Rchb.f.)** Peru

Leaves 4 to 7 inches, scapes racemose, flowers white spotted with purple ; apices of tails yellow. Very similar to melanopus, but the flowers are larger, and the lip is differently shaped. Spring

MASDEVALLIA—cont.

C **porcelliceps** Colombia
Dwarf, neat habit, leaves coriaceous, flowers fleshy, yellowish-green, with brown markings, lip brown. Spring

psittacina **syn. Houtteana**

pulvenaris **syn. Scaphosepalum pulvenare**

punctata **syn. Scaphosepalum punctatum**

C **racemosa** Colombia
Leaves 3 to 6 inches high, produced at intervals from the rhizome ; scape racemose, 9 to 16 inches high ; flowers very showy, brilliant orange-red, shaded with crimson, lateral sepals connate, 1 to 2 inches across ; the upper sepal much smaller, reflexed, all without tails. Summer

- **var.** *Crossii* **syn. racemosa**

C **radiosa** Columbia
Leaves 3 to 6 inches high, scapes decumbent, producing successive blooms ; sepals broadly campanulate, 1 to 2 inches across, dark tawny-yellow, thickly spotted with purple-brown, tails 2 to 3 inches long, black-purple ; lip small, movable, white, shaded with rose. Summer

C **Reichenbachiana** Costa Rica
Leaves 5 to 7 inches high, scapes taller, successive flowered, flowers large, tube crimson above, upper sepal greenish-yellow, reflexed ; lower sepals greenish-white, tails 1 to 2 inches long, green. Summer

Rœzlii **syn. chimæra var. Rœzlii**

C **Rolfeana** Costa Rica
Leaves 4 to 6 inches high, scapes shorter, single-flowered ; flowers rich chocolate-brown, sepal tails 1 to 2 inches long. Summer

C **rosea** Peru
Leaves 4 to 7 inches high, scapes taller, one-flowered, tube about an inch long, red and orange ; upper sepal tail-like, red above, yellow on the interior, inclined over the large lateral sepals, which are a soft rose-carmine in colour with short red tails. Various

rufolutea **syn. civilis**

C **Schlimii** Venezuela
Leaves 9 to 15 inches high, scapes taller, racemose ; flowers of medium size, upper sepal light yellow, lateral sepals broad, dark brown-purple ; tails about 2 inches long, bright yellow. Various

C **Schroderiana** Colombia
Handsome and rare, leaves 5 to 7 inches high, scapes taller, flowers large, purple-rose and white, with long, yellow tails. Summer

MASDEVALLIA—cont.

senilis **syn. chimæra var. senilis**

severa **syn. chimæra var. severa**

Shuttleworthii **syn. caudata**

C **simula** Colombia

A diminutive species, leaves 2 to 3 inches high, linear, scapes half-an-inch high, flowers small, very freely produced ; upper sepal transparent yellowish, barred with purple ; lower sepals yellow, purple spotted ; lip dull purple, movable, as in muscosa, but apparently only once. Spring

C **splendida** Peru

A supposed natural hybrid between Veitchii and amabilis, with bright orange-red sepals, flushed with crimson-purple, tails an inch long, orange-red. Summer

C **- var. Parlatoreana** Peru

Finer than the type, with larger, richer coloured flowers. Summer

swertiæfolia **syn. Scaphosepalum swertiæfolium**

C **torta** Colombia

Leaves 6 to 9 inches high, coriaceous ; flowers large, opaque ; tube broadly open, externally greenish-yellow, with purple-red stripes and dots ; internally flushed and striped with purple ; lower sepals prolonged beyond the upper one, connate their whole length; upper sepal an inch long, divergent ; all yellow on their inner surfaces ; lip purple-red, with three dark lines, petals yellow, with two central red lines, column green. Summer and various

C **Tovarensis** Tovar

Leaves about 6 inches high, scapes as long, 2 to 5 flowered, flowers medium size, pure white, tails short. Winter

C **triangularis** Colombia

Leaves about 8 inches high, scapes as long, flowers with widely spread sepals, light ochre-yellow, spotted with brown- purple. Winter

C **triaristella** Costa Rica

Habit like that of gemmata, scapes as tall as the leaves, flowers reddish-brown with a yellow tail to each sepal, about half an inch long. Early Summer

trichæte **syn. gemmata**

C **tridactylites** Colombia

Resembling triaristella in habit, upper sepal yellow and red, lower sepals purplish-red, sepal tails clear yellow. Summer

C **triglochin** Ecuador

Habit of triaristella ; scapes several flowered, sepals red, tails divergent, short, yellow. Autumn

MASDEVALLIA—cont.

C **trinema** Cauca

Dwarf habit, flowers with sepals nearly equal, spreading, roughly triangular, whitish, heavily spotted and marked with red-purple, lip dark purple.

Various

trochilus syn. **Ephippium**

C **Troglodytes** Colombia

Leaves 4 to 6 inches high, scapes shorter, decumbent ; flowers with campanulate sepals, whitish externally, red-brown on the inner surfaces ; tails 1 ½ inches long, reddish-brown. Summer

C **Veitchiana** Peru

A magnificent species ; leaves about 9 inches high, scapes taller; flowers large, handsome, bright vermilion, flushed with crimson-purple ; tails short.

Spring and various

C - **var. grandiflora** Peru

Flowers larger, and still more brilliantly coloured. Various

C **velifera** Colombia

Leaves coriaceous, 6 to 9 inches long ; scapes one-flowered, taller ; flowers large, sepals ochre-yellow, spotted brownish-red on their inner surfaces, the connate lateral sepals bent downwards ; upper sepal tail 2 inches long, lower tails shorter. Summer

C **venosa** Colombia

Habit and flowers somewhat resembling those of Houtteana, but the foliage is broader and the flowers larger ; lower sepals connate nearly their length, upper sepal at base only, colour whitish, flushed and spotted with purple-red, darkest on the exterior ; tails an inch long, yellowish-green. Summer

C **Wageneriana** Venezuela

Leaves about 2 inches high, scape taller, single-flowered ; flowers spreading, ½ to ¾ of an inch across, yellow, thickly spotted with faint red, with a few streaks of the same colour ; tails 1 ½ inches long, yellowish-green. Summer

Wallisii syn. **Chimæra var. Wallisii**

I **Wendlandiana** Colombia

Habit dwarf, flowers white, marked with purple ; sepals yellow-tipped.

Summer

C **xanthina** Colombia

Habit of Wageneriana, but rather stronger ; sepals spreading, bright yellow ; the two lateral sepals have a blotch of purple at the base. Summer

C **Xipheres** Colombia

Resembling muscosa in habit but more robust. It has the same irritable property in the lip. Leaves slightly larger than in muscosa, asperated on the upper surface; scapes taller and flowers larger ; dark reddish-brown. Summer

MAXILLARIA

A genus widely distributed throughout Central America, from Brazil to the West Indies. The species vary greatly, but may be broadly divided into three sections — one, of which Sanderiana, grandiflora, etc., are representative, has short rhizomes and clustering pseudo-bulbs ; another, of which meleagris and tenuifolia are typical has pseudo-bulbs borne at short intervals on long, scandent, or ascending rhizomes. In both sections the pseudo-bulbs are comparatively small, oval, rather flat, generally ancipitous, and often sheathed with the leaf bases and foliaceous bracts, producing the single-flowered scapes from the bases, usually between the pseudo-bulb and a leaf. A third section of which M. picta may be taken as representative, has ovoidly globose, slightly furrowed pseudo-bulbs and dark green, glossy strap-shaped foliage.

The culture of Maxillarias is very similar to that given Lycastes, excepting that fibre and sphagnum moss are preferable potting materials. The plants should be kept moist all the year round, and be shaded rather heavily during sunny weather.The section with scandent rhizomes are better placed on blocks of wood or pieces of tree fern. Attention must be given to the airing should a black spot appear on the foliage.As with Masdevallias, this is usually due to stagnant moisture or atmosphere and may be remedied by the proper use of the ventilators or a little extra heat to render the atmosphere buoyant.

The flowers are not unlike those of Lycastes in general shape, with usually spreading sepals, larger than the petals, roughly triangular in shape, often attenuated : and a fleshy lip with a raised callus·

Many of the species may be given a slightly higher temperature than that given Odontoglossum.

C **acicularis** Brazil

Pseudo-bulbs clustered, bearing a single leaf about 2 to 3 inches high, terete, fleshy. Flowers, on short scapes, about ½ an inch across, dark-brownish red.

Summer

acutifolia **syn. rufescens**

MAXILLARIA—cont.

C **acutipetala** Central America

Height of pseudo-bulbs and leaves 9 to 12 inches, scapes 4 to 6 inches high, flowers 2 inches across, sepals and petals orange-yellow, sometimes blotched with red, purple-marked at back ; lip light yellow, spotted with red.

Spring

affinis **syn. Xylobium hyacinthinum**

Amesiana **syn grandiflora var. Amesiana**

angustifolia **syn. variabilis**

C **arachnites** Colombia

Habit dwarf, foliage short and stiff, flowers medium size, sepals and petals yellow, narrow, twisted, lip darker yellow, bordered and marked with purple.

Spring

aromatica **syn. Lycaste aromatica**

articulata **syn. rufescens**

atro-purpurea **syn. Bifrenaria atropurpurea**

aurantiaca **syn. Bifrenaria aurantiaca**

Barringtoniæ **(Hort.) syn. Bifrenaria Harrisoniæ**

Barringtoniæ **(Loddiges) syn. Lycaste Barringtoniæ**

brevispatha **syn. Lycaste candida**

Brocklehurstiana **syn. Houlletia Brocklehurstiana**

C **callichroma** Veaezuela

Height 8-12 inches or more, scapes less, sepals white, shading into yellow ; Flowers 2 to 3 inches across ; petals similarly coloured, but purplish-brown at the base ; side lobes of lip brown, mid-lobe white, disc yellow.

Summer

C **candida** Brazil

Height 6 to 9 inches, pseudo-bulbs rather flat, scapes about 4 inches, flowers of medium size, white. Summer

ciliata **syn. Lycaste Barringtoniæ**

Colleyi **syn. Batemannia Colleyi**

costata **syn. Lycaste costata**

C **crassifolia** Colombia

Height 12 to 15 inches, leaves very thick, rigid ; flowers small, yellow ; scapes much shorter than leaves. Axillary. Various

cristata **syn. Paphinia cristata**

C **crocea (Lindl.)** Brazil

Height 6 to 9 inches, foliage narrow, scapes shorter, flowers about 2 inches across, orange-yellow, with a reddish-brown lip, segments narrow.

Summer

MAXILLARIA—cont.

cruenta **syn. Lycaste cruenta**

C **cucull ta** Mexico

Height about 12 inches, foliage narrow, flowers about 1 inch in diameter. Sepals yellowish, shaded and suffused with dull red, chiefly on basal halves. Petals similar, smaller, forming a hood over the column. Lip tongue-like. Black-red.

Autumn

Deppei **syn. Lycaste Deppei**

C **dichroma** Ecuador

Habit and size of flower as in venusta ; sepals pure white, petals white at their apices, suffused with pink-purple on the lower halves ; lip margined with same colour.

C - **var. alba** Ecuador

The petals are tinged with brown, and the lip is slightly marked with purple on the under side. Winter

eburnea **syn. grandiflora**

C **elegantula** Ecuador

Resembling fucata in shape of flower, sepals white at the base, shading into chrome-yellow and chocolate-red, with reddish spots ; petals white at the base, bright yellow, marked with chocolate apically ; lip reflexed, with two bright, canary-yellow callosities, narrowly margined with chocolate-red.

elongata **syn. Xylobium elongatum**

flagellifera **syn. Scuticaria Steelii**

C **Fletcheriana** Peru

Allied to Hubschii, but stronger. Flowers larger, with broader segments, cream white, marked with purplish-red ; disc of lip yellow, a fine species.

Spring

C **fractiflexa** Eucador

Habit as in venusta ; flowers with the sepals and petals ending in twisted tails about 5 inches long ; colour purplish, with the central parts whitish ; lip white and red. Remarkable. Various

C **fucata** Eucador

Height 12 to 18 inches, scapes about one third as tall, flowers large, petals white at their bases, terra-cotta centrally, passing into ochre-yellow, with red spots ; petals smaller, white and yellow, marked with red ; lip red, brown at base, with the disc and apex yellow. Summer

- **var.** *Hubschii* **syn. Hubschii**

fulvescens **syn. Lycaste fulvescens**

fuscata **(Klot.) syn. picta**

fuscata **(Rchb.f.) syn. rufescens**

gigantea **syn. Lycaste gigantea**

MAXILLARIA—cont.

C **grandiflora** Peru

Height 12 to 18 inches, scapes 6 to 9 inches, flowers large, 3 to 4 inches across, sepals and petals milk-white, midlobe of lip lemon-yellow, side lobes streaked with yellow and crimson. Spring

guttata **syn. Zygopetalum xanthinum**

Harrisoniæ **syn. Bifrenaria Harrisoniæ**

Henchmanni **syn. variabilis**

Heynderycxii **syn. Lycaste gigantea**

C **Houtteana** Guatemala

Habit as in tenuifolia, but with larger pseudo-bulbs and shorter, broader leaves. Flowers about 1 inch across, sepals and petals brownish red, margined with yellow. Lip yellow, spotted with red, reflexed. Summer

C **Hubschii** Eucador

Habit similar to that of fucata ; flowers similar in shape, sepals and petals white, sometimes apically marked with purple ; lip margined with mauve-purple inside, blotched and dotted with the same colour on the outside base.

hyacinthina **syn. Xylobium hyacinthinum**

C **irrorata** Andes

Habit as in venusta, but with narrower bulbs and leaves ; scapes 6 to 9 inches high, flowers white, bordered, blotched, and washed with purple ; lip yellow, marked with purple. Summer

leontoglossa **syn. Xylobium lentoglossum**

C **lepidota** Colombia

Height 9 to 15 inches, scapes shorter, sepals narrow, 2 ½ inches long, yellow at the base, passing into red-brown at the apices ; petals shorter, yellow ; lip yellow, spotted with black-purple. Autumn

leptosepala **syn. setigera**

leucantha **syn. Lycaste leucantha**

leucocheile **syn. picta**

C **Lindeniæ** Eucador

Resembling venusta in habit, pseudo-bulbs flat, leaves broad, height 12 to 15 inches, scapes about 9 inches high, flowers 5 inches across the sepals, ovary twisted so that the flower appears inverted ; sepals pure white, petals white, lined with rose-pink ; lip yellow, with the fleshy callus covered with an ochreous powder, margined with red, blotched and spotted beneath with purple-maroon ; column white, marked with purple, curiously scented. Winter

MAXILLARIA—cont.

C **longisepala** Venezuela

Height 6 to 10 inches, scapes nearly as long, sepals 4 inches long, narrow, purplish brown ; petals similar, but shorter ; lip yellowish-green, margined with red-brown. Summer

C **luteo-alba** Colombia

Height 15 to 18 inches, scapes about 6 inches high, flowers fragrant, sepals 2 to 3 inches long, white at the base, passing into tawny-yellow ; petals similarly coloured, shorter ; lip creamy-white, the side lobes streaked with dark purple. Various

luteo-grandiflora **syn. luteo-alba**

luteola **syn. Polystachya luteola**

lyncea **syn. Stanhopea tigrina**

macrobulbon **syn. Lycaste macrobulbon**

macrophylla **syn. Lycaste macrophylla**

C **marginata** Brazil

Pseudo-bulbs ovoid, height, with the narrow leaves, about 9 inches, scapes about 4 inches high ; flowers 1 to 1 ½ inches in diameter, sepals orange-yellow, margined with red, petals similar, smaller ; lip light yellow, side lobes streaked with purplish-red. Autumn

C **meleagris** Mexico

Habit resembling that of tenuifolia, but the foliage is broader and not quite so long ; flowers yellowish, thickly speckled with dark crimson-red. Summer

monoceros **syn. picta**

C **nigrescens** Colombia

Height 12 to 15 inches, scapes 3 to 5 inches long. Flowers large but with narrow segments, sepals and petals dark port-wine colour, lip blackish-purple. Winter and Spring

C **ochroleuca** Brazil

Pseudo-bulbs 2 to 3 inches high, compressed, bearing at apex a solitary leaf 9 to 12 inches long, nearly 1 broad ; basal leaves 2 to 4 similar. Scapes 4 inches high, carried in fascicles, in axils of basal leaves, each bearing a single flower with narrow acuminate sepals over 1 inch long, and shorter similar petals, whitish basally, yellowish apically, lip bright orange yellow. Summer

C - **var. longipes** Brazil

Habit larger than that of the type, flowers superior in size, lip marked with ochre-yellow in the throat. Summer

palmifolia **syn. Xylobium decolor**

MAXILLARIA—cont.

I **Parkeri** Guinea

Height 12 to 18 inches, scapes rather short, flowers large, sepals tawny-yellow, petals creamy-white, lined with purple on the basal halves, lip with mid-lobe buff-yellow, passing into white ; side lobes streaked with purple.

pertusa **syn. lepidota**

phyllomega **syn. Lycaste macrophylla**

C **picta** Brazil

Pseudo-bulbs ovoid. Height 12 to 16 inches, scapes about 6 inches. Flowers 1 ½ to 2 inches across, sepals and petals incurved, sepals light tawny-yellow inside, marked with purple behind ; petals marked with red at the base, lip white, marked with purple ; column blackish-purple, very fragrant. Winter and various

C **porphyrostele** Brazil

Very near to picta, but less in habit ; sepals and petals incurved, light yellow ; petals with a purple stripe at their base, lip streaked with purple on the side lobes, column purple. Spring

C **præstans** Guatemala

Pseudo-bulbs shining green, flattish, ancipitous, 2 to 3 inches high, carrying a single leathery leaf 6 to 11 inches long, nearly 1 ½ broad. Scapes erect 6 to 8 inches high, single flowered. Flowers 3 inches across the spreading lower sepals. Sepals 1 ½ inches long, narrow ; petals smaller, inclined upward, in front of the erect dorsal sepal. All clear greenish yellow, the sepals with a few minute reddish spots basally, the petals with much larger spots on the basal halves. Front lobe of lip tongue-like, slightly asperated, brownish yellow, with interrupted lines of darker spots, side lobes almost black. Spring

pubigera **syn. Bifrenaria Harrisoniæ**

C **punctata** Brazil

Height 8 to 12 inches, scapes about 5 inches long. Flowers over 2 inches across, sepals and petals light yellow, sparsely red-spotted ; lip yellow, lined with red. Various

punctulata **syn. marginata**

revoluta **syn. variabilis**

C **robusta** Brazil

Height about 12 inches, flowers of medium size on short scapes, sepals and petals creamy-white, darker on the reverse sides, lip pure white, with a yellow centre and a few crimson streaks on the side lobes ; fragrant. Spring

Rollissonii **syn. Zygopetalum Rollissonii**

rubro-fusca **syn. nigrescens**

MAXILLARIA—cont.

C **rufescens** Trinidad

Habit near that of picta. Height 8 to 10 inches, scapes short, sepals reddish-brown, petals smaller, yellow ; lip yellow, spotted with red, variable.

Various

C **Sanderiana** Eucador

The finest of all ; height of plant 8 to 15 inches, scapes decumbent or semi-erect, flowers very large, often 6 inch s across ; sepals and smaller petals white, thickly marked with blood-red on their basal halves ; lip fleshy, ivory-white ; side lobes stained with blood-red, yellowish centrally ; variable. Spring

I **sanguinea** Central America

A pretty species with the habit of tenuifolia, but much less ; foliage long and narrow, scapes 1 to 2 inches long, sepals reddish-brown margined and tipped with yellow ; petals yellow, thickly spotted with red-crimson ; lip purple-red, creamy-white at the apex. Winter and varions

C - **var. xanthoglossa** Central America

Sepals and petals deeply crimson marked. Lip deeper yellow.

Spring

C **setigera** Venezuela

Height 8 to 12 inches, scapes about 4 inches long, sepals and petals pointed, white, shading to yellow ; lip white, with a yellow disc ; the side lobes streaked with purple. Spring

Skinneri **syn. Lycaste Skinneri**

spathacea **syn. Bifrenaria Harrisoniæ**

squalens **syn. Xylobium squalens**

stapelioides **syn. Zygopetalum stapelioides**

Steelii **syn. Scuticaria Steelii**

C **striata** Eucador

Habit resembling that of venusta ; flowers large, handsome ; sepals and petals yellow, striped with red-chocolate ; lip white, striped with purplish-red ; the front lobe suffused with red on the margin. Autumn

C - **var. grandiflora** Eucador

Flowers larger and more richly coloured than in the type Autumn

C **tenuifolia** Mexico

Pseudo-bulbs borne at intervals on ascending rhizomes, sheathed with brown, imbricating bracts ; leaves narrow, about 12 to 16 inches long, pointed ; scapes about 2 inches long, sepals and petals dark red, flecked and marked with deep yellow ; lip blood-red at the base, passing into yellow, red-spotted.

Spring

tetragona **syn. Lycaste tetragona**

tricolor **(Lindl.) syn. marginata**

MAXILLARIA—cont.

tyrianthina **syn. Bifrenaria tyrianthina**

C **variabilis** Mexico

This species has the habit of tenuifolia, but the pseudo-bulbs are small, and the leaves seldom exceed 4 inches in length ; flowers about an inch across, deep purplish-red, on short pedicels, variable. Spring and various

C - **var. lutea** Mexico

Sepals and petals yellow. Spring

C **venusta** Colombia

Height 12 to 18 inches, scapes about 9 inches high ; flowers large, bent over, sepals and petals pure white, petals shorter, lip fleshy, buff-yellow on the inner surface, white and red-spotted below. Very fragrant.

xanthina **syn. Zygopetalum xanthinum**

MEGACLINIUM

A genus allied to Bulbophyllum and Cirrhopetalum. All the species, at present known, are confined to Africa. They require similar culture to that given Bulbophyllum, which they resemble in habit. They are distinguished chiefly by the flowers being borne on both sides of a flattened, much enlarged rachis. As in Bulbophyllum, the labellums are often articulated and capable of motion. The pseudo-bulbs are usually globose or ovoid, and bear one or two leaves. In Clarkei, falcatum, minutum, etc., the rachis is only a few inches, 2 to 4, in length, and carried at right angles to the penduncle, while in another section, of which Bufo and purpureo-rachis are examples, the rachis is erect but usually spiral.

The plants are of easy culture and are usually benefited by a decided rest.

S **bufo** Sierra Leone

Rachis green, flowers small, brownish, with darker, brown-purplish spotting ; lip dark purple. Spring

S **Clarkei** West Coast of Africa

Rachis light green in the centre, margined and spotted with purple-brown ; flowers purple-brown ; dwarf. Spring

S **falcatum** Sierra Leone

Rachis brownish-green, upper segments of flowers, dark, brownish red, lower segments greenish-yellow ; dwarf. Spring

MEGACLINIUM—cont.

S **maximum** West Coast of Africa

Pseudo-bulbs four angled. Peduncle 6 to 8 inches high. Rachis right angled, flattened, greenish brown. Flowers yellowish, more or less, thickly spotted with red-brown. Summer

S **minutum** Sierra Leone

Very small, rachis purple-brown, flowers dull maroon and yellow, shaded with green. Spring

S **purpuratum** West Coast of Africa

Rachis long, yellowish-green, spotted with red-purple ; flowers yellowish, spotted and marked with purple. Spring

S **purpureo-rachis** West Coast of Africa

A remarkable species with flatly-oval, diphyllous bulbs. Rachis very large, erect, spiral, purple-red in color. Flowers yellowish, spotted with purple-red. Summer

S **triste** West Coast of Africa

Penduncle tall. Rachis inclined at right angles, the flattened surfaces not so prominent as in many other species. Flowers greenish, nearly covered with black spots, petals hornlike. Pseudo-bulbs foursided. Spring

MEIRACYLLUM

A small genus. The species here given being the only one occasionally met with in cultivation. Treatment compost, etc., should be similar to that given Sophronitis.

C **gemmæ** Mexico

A pretty, small growing orchid, resembling Sophronitis cernua in habit. Leaves small, fleshy, red-tinted. Flowers in short racemes. Sepals and petals subequal, slightly spreading, lip continuous with base of column, all bright amethyst in color. Spring

sophronitis **syn. gemmæ**

MESOSPINIDIUM

aurantiaca **syn. Ada aurantiaca**

roseum **syn. Cochlioda rosea**

sanguineum **syn. Cochlioda sanguinea**

vulcanicum **syn. Cochlioda vulcanica**

MICROSTYLIS

Widely distributed, usually terrestrial Orchids, allied to Liparis. The genus is rather large, and the following species are the most remarkable and worth growing, either from their curiously constructed flowers, which are produced on erect spikes from the centre of the growth, or their charmingly coloured foliage. The leaves are plicate or membranaceous, and sheath and surmount a usually cone-like pseudo-bulb, or spring from fleshy roots. As winter approaches the foliage decays, and the plants then require a decided rest, similar, but not to the same extent, to that given decidous Calanthes. The plants require a compost of finely cut fibre with the addition of a little loam fibre, decayed oak leaves and sphagnum moss. Though, when growing a liberal supply of water should be given them, thorough drainage is essential.

Bernaysii **syn congesta**

biloba **syn. Wallichii**

S **calophylla** Malaya

Height of spike about 9 inches, flowers yellowish, leaves undulated, greenish-brown in the centre, margined with greyish-green, spotted with green.

Summer

S **commelynæfolia** Java

Without the Calanthe-like pseudo-bulbs characteristic of most of the other species, the plants form a mass of creeping, branched, purple-red stems, clothed with light-green, broadly heart-shaped, alternate leaves. Each stem terminating in a short, erect, many flowered spike. Flowers small purple-violet.

Various

S **congesta** Tropical Asia

Flowers greenish-yellow, densely carried in a cylindrical spike ; height about 12 inches, foliage clear green. Summer

S **discolor** Ceylon

About 9 inches high, flowers yellow, shading to orange ; leaves deep reddish-purple, bordered with green. Summer

fusca **syn. congesta**

S **Josephiana** Sikkim

Height about 12 inches, flowers yellow, comparatively rather large; leaves broad, of a brown-bronze shade ; light green below. Spring

MICROSTYLIS—cont.

S **macrochila** Penang

Spike about 15 inches high, flowers comparatively large, with narrow, yellowish sepals and petals and a red-purple lip, half an inch broad, with deeper veins; foliage light green, prettily mottled with cream and light brown. Summer

S **metallica** Borneo

About 9 inches high, flowers rose-purple, foliage dark, glossy purple above, with a metallic sheen, rosy beneath. Summer

S **purpurea** Ceylon

Height about 9 inches, flowers yellowish-purple, foliage very handsome, upper surface of leaves a dark, metallic crimson; under surfaces and leafstalks reddish-grey. Summer

S **Scottii** Penang

Height about 6 inches, flowers yellowish, foliage light green and cream, prettily mottled with light brown, chiefly at the margins and along the mid-rib. Summer

S **Wallichii** India & Burma

Height about 9 inches, very variable, flowers greenish-yellow or purplish, foliage green, but often shaded with purple. Summer

MILTONIA

Handsome, large-flowered epiphytes, natives of Tropical and southern sub-Tropical America. The genus is allied to Odontoglossums, Oncidiums, and Brassias, and, as in Oncidiums, etc., the flower spike is produced from the base of the pseudo-bulb and sheathed by the leaf bases. The sepals and petals are nearly equal and in the majority of the species the lip is broad, somewhat rounded and flat. In cuneata and Clowesii it is wedge shaped and in candida, the shape roughly resembles that of a Cattleya. Careful watering is essential in the dull months as the plants are then very impatient of heavy watering. Vexillaria and its varieties have been freely intercrossed, and also crossed with M. Roezlii and its varieties, the result being quite a number of highly decorative, easily grown Miltonias requiring similar treatment to that given M. vexillaria. Hybrids have also been obtained with Odontoglossums and Oncidiums. Miltonia vexillaria is, and should be most largely grown, but the same remark can be applied to all the species known. Their culture, excepting that they require rather more heat, is similar

MILTONIA—cont.

to that given Odontoglossums, but for vexillaria and its varieties the temperature should be kept as equable as possible all the year, and for this reason, the plants are better treated as for Odontoglossums during the summer months, though if possible more sun heat may be conserved in the house, and removed to the intermediate house during winter. What may be termed a cool intermediate temperature suits the majority of the species throughout the year. When growing a moist bouyant atmosphere and warmth, as far as possible, without the aid of pipes, is productive of strong growths and flower spikes. Thrips are particularly fond of Miltonias and during the Spring and early Summer a keen watch must be kept on the young growths, flowers and flower buds. Careful manipulation of the top ventilators is necessary as a dry atmosphere conduces to their attack. In suitable weather the syringe may be freely used on plants not in full bloom, and, occasionally, weak insecticides used as preventives.

The compost should be that given to Odontoglossums and particularly for vexillaria and its allies,all dust should be sifted from the potting mixture. Potting for vexillaria should be effected either early in September or in March. After potting great care in watering is necessary, particularly in Winter, as though leaf growth may be present root activity is very reduced.

I **anceps** Brazil

Habit much as in M. spectabilis. Height of pseudobulbs and leaves 6 to 8 inches, scapes taller, ancipitous, single-flowered. Flowers about 2 inches across ; sepals greenish-yellow, marked at the base with red-purple; lip white, marked on the basal half with red-purple. Summer

bicolor **syn. spectabilis var. bicolor**

I **Binotii** Brazil

A supposed natural hybrid between candida and Regnelli ; sepals and petals buff-yellow, blotched with brown, marked at their bases with purple; lip pale-lilac, suffused with purple Summer

I **Bluntii** Brazil

A supposed natural hybrid between spectabilis and Clowesii; sepals and petals creamy-yellow, blotched with reddish-brown ; lip white, shaded at the base with crimson-purple Late Summer

MILTONIA—cont.

I **Bluntii var. Lubbersiana** Brazil

A very handsome variety, with larger flowers than the type and richer colours. Late Summer

I **candida** Brazil

Pseudo-bulbs 2 to 4 inches, pyriform, compressed ; leaves 8 to 15 inches, scapes slightly taller; 5 to 6 flowered. Flowers large, 3 inches or more across, sepals and petals chestnut brown,tipped and marked with yellow, the petals more so than the sepals ; lip white, with two purplish blotches on the disc.

I **var. grandiflora** Brazil

Superior to the type in size and colouring of the flowers. Autumn

cereola **syn. Regnelli**

I **Clowesii** Brazil

Habit resembling that of candida, but the pseudo-bulbs and leaves are rather taller ; flowers large, 3 inches across, sepals and petals chestnut-brown, barred and tipped with yellow ; lip pointed, white, violet-purple on the basal half.

- var. *Lamarckeana* **syn. Lamarckeana**

I **cuneata** Brazil

Habit much as in Clowesii, but the foliage is rather less ; scapes 1½ to 2 feet high, 3 to 6 flowered, flowers large, sepals and petals chestnut-brown, tipped with yellow ; lip white, narrow at the base, often lightly rose-marked on the disc. Sometimes rose flushed. Spring

S **Endresii** Central America

Habit and shape of flowers resembling vexillaria, but less; scapes 3 to 5 flowered, flowers white, each segment with a light reddish blotch at its base, that on the lip being much the larger ; crest of lip bright yellow. Spring and various

I **festiva** Brazil

Probably a natural hybrid between spectabilis and flavescens ; habit of spectabilis, scape 1 to 2 flowered, sepals and petals rather narrow, creamy-yellow, suffused with lilac-purple, streaked with deep purple. Summer

I **flavescens** Brazil

Height 14 to 18 inches. Pseudo-bulbs borne at intervals on rhizome. Scapes 6 to 10 flowered, sepals and petals narrow, petals shorter, yellow ; lip yellowish-white, marked on the basal half with red-purple. Summer

I **Joiceyana** Brazil

A supposed hybrid between Clowesii and candida, hence really a form of Lamarckeana, which it resembles. Autumn

Karwinskii **syn. Odontoglossum læve**

MILTONIA—cont.

I **Lamarckeana** Brazil

A supposed natural hybrid between candida and Clowesii ; habit intermediate, sepals and petals deep brown, barred and tipped with yellow, purplish at their bases ; lip white on the apical half, with a central purple blotch, shaded with purple at the base. Autumn

I **leucoglossa** Brazil

A supposed hybrid between spectabilis and candida ; habit near that of spectabilis, sepals and petals whitish, shaded with green, spotted with violet-purple ; lip white, purplish at the base on either side of the yellow disc.

Lubbersiana **syn. Bluntii var. Lubbersiana**

Moreliana **syn. spectabilis var. Moreliana**

I **Peetersiana** Brazil

A supposed hybrid between spectabilis variety Moreliana and Regnelli ; habit intermediate, sepals and petals light purple, lip purple, with a darker shade in front of the yellow disc. Autumn

S **phalænopsis** Colombia

Habit resembling that of vexillaria, but less, with linear leaves ; height 8 to 12 inches, scapes 3 to 5 flowered, sepals and petals white ; lip white, the two basal lobes streaked with purple, the two, larger, anterior lobes centrally blotched and flushed with light purple. Late Spring

pulchella **syn. phalænopsis**

I **Regnelli** Brazil

Habit of Clowesii but less, foliage narrower. Pseudo-bulbs flatter. Height 12 to 15 inches, scapes nearly as tall, 3 to 5 flowered ; flowers flat, 2 to 3 inches across, sepals and petals white, sometimes rose-flushed at their bases ; lip much as in a small vexillaria, margined with white, centrally light rose, streaked with rose-purple ; crest yellow. Autumn

I **- var. purpurea** Brazil

Sepals and petals suffused with light rose-purple, margined with white ; lip suffused with rich rose-purple. Autumn

S **Rœzlii** Colombia

Habit resembling that of vexillaria ; foliage narrower, height 12 to 15 inches, scapes 1 to 4 flowered ; flowers flat, large, handsome, white, with a purple blotch at the base of each petal ; base of lip marked with yellow. Autumn

- var. alba Colombia

Flowers wholly white, except for the yellow shading at the base of the lip. Autumn

rosea **syn. spectabilis**

MILTONIA—cont.

I **Russelliana** Brazil

Pseudo-bulbs stout, height of plant about 12 inches, scapes taller, 6 to 9 flowered sepals and petals reddish-brown, tipped with yellow ; lip rose-lilac, passing towards the apex into white, shaded with yellow. Segments narrow. Various

I **Schroderiana** Costa Rica

Pseudo-bulbs ovoid, height of bulb and leaves 8 to 10 inches, scapes erect, taller, 7 to 9 flowered ; flowers fragrant, sepals and petals chestnut-brown, marked and tipped with yellow ; the petals carried almost parallel with the upper sepal, lateral sepals deflexed, lip with the basal half rose-purple, the upper half milk-white, rare. Summer

speciosa **syn. cuneata**

I **spectabilis** Brazil

Very handsome ; pseudo-bulbs flat-oval, carried at intervals on a creeping rhizome ; height of bulb and leaves 8 to 12 inches, foliage often yellowish-green, scapes as tall, one, occasionally two-flowered ; flowers large, nearly flat, sepals and petals creamy-white, rose-flushed at their bases ; lip broad, spreading, rose-purple, with deeper veinings ; margin pale rose or whitish. Summer

I - **var. bicolor** Brazil

Flowers rather larger than those of the type, white, with a plum-purple blotch at the base of the lip. Early Autumn

I - **var. extraria** Brazil

Flowers pure white with the exception of a large central crimson blotch in the lip. Autumn

I - **var. lineata** Brazil

Flowers white, lip rose-purple at the base, with carmine-rose veins extending from it. Summer

I - **var. Moreliana** Brazil

Flowers rather larger than those of the type, of a deep, rich, purple colour, the lip veined with rose. Autumn

I - **var. var. atrorubens** Brazil

A splendid form, with very large flowers, much darker than those of Morelania. Autumn

I - **var. var. rosea** Brazil

Sepals and petals white, with a longitudinal pale rose band down their centres; lip bright rose, veined with rose-purple. Summer

I - **var. radians** Brazil

Sepals and petals creamy-white, lightly flushed with rose ; lip white, flaked, blotched, and partially suffused with deeper rose. Summer

MILTONIA—cont.

I **spectabilis - var. virginalis** Brazil

Flowers white, with a more or less wedge-shaped blotch of rose at the base of the lip. Summer

stellata **syn. flavescens**

I **vexillaria** Colombia

A most beautiful and popular species ; pseudo-bulbs flat, oval ; height of bulb and leaves 9 to 15 inches, foliage glaucous green, scapes much taller, two or more often produced from the same pseudo-bulb, each carrying 3 to 9 large, flat flowers; flowers very variable, usually lilac-rose ; sepals and broader petals, about 1 ¼ inches long, inclined upwards, petals overlapping the sepals. Lip two lobed 2 ½ inches across, usually darker than the other segments, crest yellow. Spring

I - **var. alba** Colombia

Flowers pure white, with a faint rose tinge at the base of the sepals and petals. Spring

I - **var. Chelsiensis** Colombia

A grand form, very rich in colour, and with dark, radiating lines on the base of the lip. Spring

I - **var. Cobbiana** Colombia

Sepals and petals rose-pink, margined with white ; lip pure white, large. Spring

I - **var. Daisy Heywood** Colombia

Flowers very large, sepals and petals tinged with rose ; lip pure white, with a basal yellow blotch. Spring

I - **var. Hilliana** Colombia

Sepals and petals rose, sepals with two purple lines, lip margined with rose, spotted with purplish-rose ; base yellow with three dark lines. Spring

I - **var. insignis** Colombia

Flowers deep rose-blush, sepals with two parallel lines near their bases, lip with a whitish basal area, having a central purplish-red blotch and a transverse yellow band at the base. Spring

- **var.** *Klabochorum* **syn. var. rubella**

I - **var. Leopoldii** Colombia

Very distinct, flowers of a deep rich rose, lip with a large, deep, maroon-red basal blotch. Spring

I - **var. leucoglossa** Colombia

Sepals and petals pale rose, lip pure white. Spring

MILTONIA—cont.

I **vexillaria - var. Memoria G. D. Owen** Colombia

A splendid form, most richly coloured ; flowers very large, petals and upper sepal bright rose, lower sepals rose, with a broad bar of crimson-purple on their lower halves ; lip rose, with a very dark, crimson-purple, butterfly-shaped disc. Spring

I **- var. Princess May** Colombia

Flowers large, sepals with a faint blotch of rose, remainder of flower pure white, except the golden-yellow disc. Spring

I **- var. radiata** Colombia

Flowers soft rose, lip with a very dark disc, from which proceed dark, radiating lines. Spring

I **- var. rubella** Colombia

A distinct variety, with flowers rather smaller than that of type, usually of a deeper rose shade ; sepals and petals bordered with rose-white, lip with a white space in front of the yellow disc. Spring, Summer and Autumn

I **- var. var. melanocentra** Colombia

Flowers of a deep rose, disc of lip deep, almost black-maroon. Summer

I **- var. var. superba** Colombia

Flowers resembling the type, but with a dark maroon disc to the lip. Summer

I **- var. rubra** Colombia

Flowers deep rose, lip with darker veins, and three, deep coloured, radiating streaks in front of the yellow disc. Spring

I **- var. Sanderiana** Colombia

A large flowered, handsome form ; sepals rose, shading to white, the lateral two with crimson-dotted lines near the base ; petals and lip rose, lip with a deep blood-red blotch at the base, from which radiate thick lines. Spring

I **- var. splendens** Colombia

Flowers very large, dark rose colour ; lateral sepals with a crimson basal stripe. Spring

I **- var. superba** Colombia

Flowers of medium size, with dark rose-pink sepals and petals, the lower sepals streaked with red-purple near their bases ; lip large, clear carmine-rose, with a basal, triangular, purplish-red, rayed blotch, banded with white. Summer

- var. *virginalis* **syn. var. alba**

Warneri **syn. spectabilis var. rosea**

MILTONIA—cont.

I **Warscewiczii** Colombia

Pseudo-bulbs flattish, 3 to 5 inches high ; leaves 5 to 10 inches long, scapes panicled, much taller ; flowers set close together, sepals and petals brownish-red, rather narrow, with undulated margins, whitish at the tips ; lip two-lobed, rosy-purple, shading to white at the margin ; disc red-brown, base white.

Spring

I - **var. Weltoni** Colombia

Habit stronger than in the type ; leaves 8 to 15 inches long, scapes, many flowered ; flowers larger, sepals and petals tipped with cream-white or yellow ; lip large, flat, two-lobed, deep rose, shading to white at the edges ; at the base immediately below the column is an irregular, yellow, blotch, zoned with deep purplish-rose ; in the centre of the lip is a large blotch of glossy yellow-brown.

Early Spring

I - **var. xanthina** Colombia

Flowers yellowish, lip white bordered. Early Spring

MILTONIODA Hybrids between Miltonia and Cochlioda.

MILTONIOPSIS Originally applied to Miltonia Bleuana the first hybrid obtained from M. vexillaria and M. Roezlii.

MONOCHANTHUS **syn. CATASETUM**

MONOCHILUS **syn. ZEUXINE**

MOOREA **syn. Neomoorea**

MORMODES A genus of American epiphytes, allied to Catasetum, and required the same compost and culture. A decided rest when growth is matured and abundance of moisture, with heat, during the summer months. The genus is remarkable for the peculiar structure of their flowers, which are carried on stout scapes, produced from the base or side of the pseudo-bulbs. When spread open the flowers are about 3 inches across with free sub-equal sepals and petals. The labellum is so twisted and contorted as to partially arch over the column. The side lobes being often strongly revolute. The pollen masses are attached to a thick caudicle, and, as in Catasetum, on being disturbed, spring from the flower. The foliage is plicate and deciduous. As in Catasetums the syringe should be withheld while the foliage is young. The species can hardly be distinguished from Catasetum when out of flower but as a rule the pseudo-bulbs are taller, the leaves are more numerous and more narrow.

MORMODES—cont.

I **aromaticum** Mexico

Resembling pardina in habit but the flowers are smaller, pale yellow, flushed with pink and marked brown red. Sepals and petals somewhat incurved. Lip triangular. Very fragrant. Summer

atro-purpurea **(Hook.) syn. Hookeri**

S **badium** Peru

Habit resembling that of pardina ; flowers deep purplish-crimson.

Winter

S - **var. luteum** Peru

Resembling the type, but the flowers are of a bright yellow.

Winter

barbata **syn. Hookeri**

brachystachya **syn. Buccinator**

S **Buccinator** Mexico and Venezuela

Pseudo-bulbs 5 to 9 inches high, stout ; leaves 8 to 12 inches long, scapes about a foot long, flowers variable, sepals and petals pale green to buff, lip fleshy, trumpet-shaped, whitish or yellow ; flowers often crimson-spotted.

Autumn

S - **var. majus** Colombia

Flowers larger than in the type, ochre-colour, spotted on the sepals and petals with cinnamon, lip with pale brownish markings. Autumn

calanthum **syn. colossus**

I **Cartonii** Colombia

Habit as in Buccinator, but with shorter, denser flowered scapes ; flowers fragrant, yellow, streaked with red ; lip twisted, pointed. Summer

S **Cogniauxii** Colombia

Habit resembling that of Buccinator, but stronger ; scapes 5 to 9 flowered, sepals and petals yellowish-brown, with darker lines ; lip rose-pink. Summer

S **colossus** Central America

Pseudo-bulbs 8 to 12 inches high ; leaves about 15 inches, scapes about 2 feet long, flowers very large, sepals and petals rather narrow, rosy on their basal halves, passing into yellow ; lip bright yellow, sparsely dotted with red.

Summer

S **Dayana** Mexico

Habit near that of Buccinator, but with fewer flowers on the scape ; sepals and petals ochre-yellow, lined with red ; lip white. Autumn

flavida **syn. Buccinator**

MORMODES—cont.

S **fractiflexa** Costa Rica

Resembling Buccinator ; scape lax flowered, sepals and petals greenish-white, streaked and dotted with purple ; lip white, streaked on the under side with purple.

Greenii **syn. Uncia**

S **Hookeri** Panama

Pseudo-bulbs short, stout ; leaves 6 to 9 inches high, scapes short, erect ; flowers about 2 inches across, sepals and petals dark reddish-brown, lip velvet-like, deep reddish-crimson, covered with short hairs. Spring

S **ignea** Colombia

Robust habit ; height of plant 18 to 24 inches, flowers fleshy, sepals and petals reddish-brown, lip orange colour. Winter

S **- var. maculata** Peru

Superior to the type ; sepals and petals yellow, shaded with brown, spotted with purple-brown ; lip red, spotted with dark brown. Winter

incisa **syn. Uncia**

lentiginosa **syn. Buccinator**

leucochila **syn. Buccinator**

S **Lawrenceana** Colombia

Pseudo-bulbs stout, leaves about a foot long, scapes long, many flowered ; sepals and petals orange-yellow, striped with reddish-brown ; lip yellow, spotted with purple-brown. Various

I **lineata** Guatemala

Habit resembling that of Buccinator ; scapes long, many flowered; flowers large, yellow, shaded with green, streaked and marked with reddish-brown, very fragrant. Summer

I **luxata** Mexico

Pseudo-bulbs stout, about 6 inches long ; leaves 12 to 18 inches, scapes several flowered, flowers large, variable ; sepals and petals yellowish-green or creamy-white, marked with brown ; lip similarly coloured, with a brown-purple streak on the internal surface, fragrant. Summer

I **- var. eburnea** Mexico

Flowers ivory-white, but with the typical brown-purple streak on the lip. Summer

I **- var. punctata** Mexico

Flowers white, densely spotted with red. Summer

macrantha **syn. punctata**

MORMODES—cont.

marmorea **syn. Buccinator**

S **Ocanae** Colombia

Pseudo-bulbs 3 to 4 inches high, leaves 9 to 14 inches, scapes about 12 inches, several flowered ; flowers large, dark orange-yellow, dotted with red-brown. Autumn

S **pardina** Mexico

Pseudo-bulbs 5 to 8 inches high, leaves 12 to 15 inches, scapes arching, many flowered ; flowers with rather narrow segments, light yellow, spotted with bright brownish-red. Summer

- var. *citrina* **syn. var. unicolor**

I **- var. unicolor** Mexico

Resembling the type in all but the colour of the flowers, which are of a lemon yellow. Summer

S **Rolfeana** Peru

Habit near that of luxata, but rather less ; flowers large, sepals and petals green, with darker stripes, shaded with brown ; lip deep brownish-crimson. Fragrant. Summer

S **speciosa** Colombia

Resembling Buccinator in habit ; flowers large, sepals and petals golden-yellow, dotted with brownish-red ; lip tipped with deep purple. Spring

S **Uncia** Mexico

Pseudo-bulbs 3 to 5 inches high, stout ; leaves about 15 inches long, flowers large, sepals and petals yellow, spotted with dark red ; lip yellow, streaked with red ; dark purple at the base, fragrant. Summer

S **vernixia** Roraima

Habit as in Buccinator ; flowers set close together, sepals and petals shining, blackish-purple ; lip coloured similarly to the sepals and petals, but lighter in the centre, spotted with black-purple. Winter

vitellina **syn. Buccinator**

Wagneriana **syn. Buccinator**

Warscewiczii **syn. lineata**

Williamsii **syn. luxata**

MORMOLYCE

A small genus allied to Maxillaria and requiring similar culture. The species here described is more quaint than showy, but not without attraction.

MORMOLYCE—cont.

I **lineolata** Mexico

Pseudo-bulbs clustered, about 1 inch high, compressed, bearing a single strap shaped leaf, 4 to 6 inches high. Scape from base of bulb. Slender erect, taller than leaf, carrying a single flower, an inch or more in longitudinal diameter, sepals and petals about equal. The petals inclined upwards with the dorsal sepal, lower sepals inclined downward, all yellowish brown. The blackish brown lip is parallel or nearly so above the sepals. Various

MYANTHUS **syn.** CATASETUM

Myrmecophila see **Schomburgkia**

MYROMBOMA **syn.** VANILLA

Mystacidium *distichum* **syn. Angræcum distichum**

NANODES **syn. Epidendrum**

NAUENIA **syn.** LACÆNA

NEIPPERGIA **syn.** ACINETA

NEMATOCEROS **syn.** CORYANTHES

NEOBENTHAMIA

S **gracilis** Zanzibar

A remarkable species, at present the only known member in the genus ; stems slender, branching, 4 to 6 feet high, clothed with narrow leaves about 6 inches long ; flowers in terminal, capitate racemes, sepals and petals white, lip white, spotted with rose-purple on either side of a central yellow stripe. Though quite distinct from Sobralias, it should be accorded the same culture as that genus, but requires a warmer temperature and a slightly larger proportion of fibre and moss in the compost.

NEOGYNA

Gardneriana **syn. Cœlogyne Gardneriana**

NEOMOOREA

Originally known as Moorea, that name was changed to Neomoorea as it had previously been applied to the Pampas grass. Allied to Houlletia but one species is known at present. This should be potted in a mixture of fibre, sphagnum moss and a little loam fibre, as though epiphytal it attains rather large dimensions somewhat resembling the larger Lycastes in habit.

NEOMOOREA—cont.

I **irrorata** Colombia

Pseudo-bulbs stout, ovoid, 2 to 5 inches high, producing adventitious roots and bearing two plicate, rather leathery leaves, 15 to 30 inches high. Scapes as tall, erect or slightly arched, many-flowered. Flowers about 2 inches in diameter, broadly cupshaped, fleshy. Sepals and narrower petals reddish brown, whitish basally. The two lower sepals carinate. Lip shorter than the other segments, strongly 3 lobed. The centre lobe narrow, pointed, the side lobes winglike, roughly triangular, bright yellow, banded, marked and spotted with black purplish-brown, crest yellow, bearing two, small, erect, triangular, pointed keels, column white. Various

NEOTTIA

petola **syn. Macodes petola**

pubescens **syn. Goodyera pubescens**

speciosa **syn. Spiranthes colorata**

NEPHELAPHYLLUM

A small genus of terrestrial orchids confined to the East. The species here described is often met with under cultivation. It should be given the same position, treatment and compost as Anoectochilus, but has a better constitution than most of the jewel plants.

S **pulchrum** Java

Flowers not showy, whitish. Stems creeping, composed of pyriform joints, each bearing a single, cordate, leaf about 3 inches long, silvery green reticulated with darker green. Strongly ribbed and tinged with purple beneath.

NOTYLIA

Tropical American orchids. The greater number have inconspicuous flowers and are seldom met with under cultivation. The pseudo-bulbs are small, carry one leaf and are sheathed by the bases of others as in Odontoglossums, etc. The racemes are usually pendent and carry numerous small flowers. The sepals and petals are almost equal, spreading. The lip entire. The plants should be placed in small pans, hung near the glass, but must be shaded during the growing season. Compost as for Odontoglossums.

NOTYLIA—cont.

I **albida** Mexico

Racemes about 6 inches long. Flowers densely set, yellowish white, tinged with green. Summer

I **bicolor** Guatemala

Leaves stiff, dwarf, equitant. Racemes 2 to 4 inches long, sepals white, petals and lip lilac with deeper spotting basally. Autumn

I **Bungerothii** Mexico

Larger than the other species. Pseudo-bulbs stout, leaves 6 to 9 inches long. Sepals yellowish green, petals narrower, white with an orange spot at base, lip white, rounded. Summer

OBERONIA

A genus of little value to Horticulture. All are epiphytal and are distributed through Tropical Asia. They are without pseudo-bulbs, the fleshy, distichous, équitant, Iris-like leaves clasp each other and form a thickening at the base of the plant. Some species are but 1 or 2 inches high, others about 12 inches. The flowers are very small and set closely, in great numbers, on a cylindrical tail-like rachis. Culture as for Bulbophyllums, but discretion is required during the dull months as to watering.

S **acaulis** India

Inflorescence about 6 inches long, dull, yellowish. Leaves narrow, 6 to 12 inches long.

S **ensiformis** Burma

Leaves 6 to 18 inches long. Inflorescence orange yellow.

S **Griffithiana** Burma

Leaves, 1 to 3 inches long, linear. Inflorescence purplish brown.

S **iridifolia** Burma

Leaves broadly ensiform, 3 to 5 inches high, or more, inflorescence brownish orange or yellow.

S **myosurus** Burma

Leaves 2 to 4 inches, terete, bearing small yellowish papillea. Inflorescence brown orange.

OCTOMERIA

A genus of epiphytal orchids distributed through Central America. They are allied to Pleurothallis which they much resemble in habit, but have 8 pollinia instead of two. The flowers are usually carried in nearly sessile clusters, produced from the junction of the base of the leaf with the stem. Pseudo-bulbs are absent. In Pleurothallis the flowers are produced from a similar position but are usually carried on spikes. Though small and not showy the flowers are freely produced and the following species are not without attraction. The compost is as for Odontoglossums with which all the cool house species may be grown.

C **crassifolia** Brazil

Height 6 to 10 inches. Leaves comparatively short ; lanceolate, fleshy. Flowers small in heavy clusters, whitish yellow. Autumn

C **diaphana** Brazil

Height 3 to 4 inches. Leaves somewhat cordate. Flowers white, transparent, comparatively large, often solitary. Summer

C **graminifolia** West Indies

Height about 6 inches, leaves narrow, pointed. Flowers yellow with two red spots. Summer

C **grandiflora** Brazil

Leaves and stems 9 to 15 inches high. Leaves narrow, pointed, coriaceous, often purplish. Flowers in two's, about ¾ of an inch. Sepals and petals nearly equal, translucent, creamy white, lip yellow apically, and on margins, the base, centre and column, red brown. Summer

C **juncifolia** Brazil

Height about 12 inches. Leaves thick, hard, almost terete, but broadened centrally, channelled. Flowers pale yellow, in clusters. Summer

I **supraglauca** Brazil

Height 2 to 3 inches. Leaves fleshy, glaucous green above, dark green,obscurely tessellated with purple beneath. Flowers 2 to 3, about ¾ of an inch long, sepals and petals pale greenish-yellow, lip shorter, yellowish, with a dark purple blotch basally. Summer

ODONTIODA

Hybrids between Odontoglossum and Cochlioda.

ODONTOGLOSSUM

The most popular family among the cool house Orchids. Odontoglossum crispum, and its very numerous and beautiful varieties, is probably the most extensively grown Orchid in cultivation, and deservedly so. It finds more admirers than any other species of the genus on account of its exquisite beauty, usefulness, and simple, easy culture.

Distributed throughout the mountainous regions facing the Pacific, extending from Peru to the southern portion of Mexico, the genus is very polymorphic. Not only is it remarkable for the differences between the species, which merge into Oncidium and Miltonia, but there is no other Orchid family in which so many natural hybrids occur. These are particularly abundant in the Colombian districts which yield crispum, triumphans, nobile (Pescatorei), Lindleyanum, odoratum, etc. Inter-crossing has evidently been perpetuated in these districts for ages past, and the presence of these mules, their variation from the species, and the differences in colour and size exhibited between crosses from the same parent species, between the crosses themselves and the hybrids from such crosses with the species, tend to make this genus both very large, interesting, and of great horticultural value.

Briefly, the characters of the genus are broadly defined as follows :

The scapes, simple or branched, are produced from the base of one, or both sides of the last made pseudo-bulbs, which are usually of a flattened, ovoid form, with well defined edges ; two or three pairs of leaves sheath the bases of the pseudo-bulbs, and usually two leaves are borne at the apex. Except in coronarium and a few others, the pseudo-bulbs are set closely together on small rhizomes, and the flower scapes, usually, greatly exceed the leaves in height.

The flowers are characterized by sub-equal, free, spreading sepals and petals, the lip, usually entire, proceeds from the base of the column, its blade extending in front of and between the lower sepals at right angles to the stigma, the apices of the side lobes parallel or

ODONTOGLOSSUM— cont°

slightly above the column, column winged on each side of the stigma, the crest of the lip with 2 or more raised processes. As the buds develop their pedicels gradually twist so causing the lip to point downward.

Odontoglossums are epiphytal on trees, etc., and though growing in tropical countries are found at considerable altitudes — hence the majority are better accomodated in a cool house, in the atmosphere of which abundance of moisture should be kept all the year round; every facility should be afforded for a free circulation of air, for although impatient of draughts, a close atmosphere is, perhaps, more deleterious to these plants than to any other. There are very few days in the year when the bottom ventilators should be entirely closed : severe wind frosts must, however, be guarded against. In Summer a hot dry atmosphere is most inimical. If, owing to situation, such an atmosphere is likely to obtain, top ventilation should be used with great care.Rather than dry the atmosphere, it is better to use less top air by day and increase it in the night. The syringe may be freely used in hot weather if sufficient air can be admitted, but care should be taken that the moisture does not lodge in the young growths.

Thrips are the greatest enemy and are particularly fond of the young growths and flowers, in both of which they find shelter. Abundant moisture, and spraying with weak insecticides are the best deterrents.

Careful regulation of the shading is also of importance, helping largely towards the best results. Odontoglossums enjoy light, but not strong sunlight. During our late autumn, winter, and early spring they cannot receive too much light, but in the hot, sunny weather these plants should be rather heavily shaded.

Houses with a North or Northern aspect are often advised for Odontoglossums, but though such houses admit sufficient light through the Summer months and certainly have the advantage of maintaining a cool temperature during hot weather, they are usually far too dull and stagnant during the dull months, hence houses facing South-West or even due South are better, provided

ODONTOGLOSSUM— cont.

that shading is heavy enough and can be attended to. Where the early morning sun impinges direct on the houses it is advisable to leave the blinds down during the night or erect a screen within effective distance.

Potting, with O. crispum and its allies, should be performed usually about September, as the plants do not like root disturbance during the hottest weather. In the autumn they have time to recuperate before winter sets in. About March, potting can also be done as roots are then formed before the hot weather.

A good general compost for potting Odontoglossums in, consists of equal parts of fresh sphagnum moss, finely cut fibre, with the addition of a little sharp silver sand that has previously been washed through a fine sieve, and a few half decayed oak or beech leaves.

Drainage should be ample, broken pots sherds being usually used, but pieces of bracken (Pteris aquilina) rhizomes form a good substitute. If slightly charred before use, danger of fungoid growths is removed. Two parts of the pot may be filled with this substitute and the remainder with the compost.

Odontoglossum roots are usually more slender than those of Cattleyas, etc., hence the compost should be cut more finely and though pressed firmly, it must not be forced in too tightly. A clean, sweet, soft compost is perhaps more necessary with Odontoglossums than with stronger growing orchids. Where Osmunda fibre is used, a small proportion of good quality Polypodium fibre may be well mixed with it.

After potting, watering, until root growth is well advanced, should be very carefully performed, preference being given to frequent dampings between the pots on the stages, etc. No part of an Odontoglossum house should be allowed to remain dry for any length of time.

C **acuminatissimum** Colombia

A supposed natural hybrid between luteo-purpureum and Lindleyanum. Habit intermediate between the parents. Flowers large, but with rather narrow segments; sepals and petals orange, barred with crimson-brown ; lip yellow, with a broad red-brown bar. Spring

ODONTOGLOSSUM—cont.

acuminatum **syn. apterum**

C **Adrianae** Colombia

A supposed natual hrybrid between crispum and Hunnewellianum. Habit less than in crispum. Flowers very variable, handsome, compact in outline ; segments white or yellow, spotted, usually very thickly, with reddish-brown ; lip much crisped. Spring and Summer

C - **var. Ashworthianum** Colombia

Very handsome ; flowers large, creamy-white, densely spotted with light brown. Spring

C - **var. Lady Wigan** Colombia

Segments beautifully waved, petals and upper sepals whitish, prettily spotted with light brown ; the two lower sepals are also spotted with brown on a brown-tinged ground.

C - **var. tigrinum** Colombia

Flowers much darker than the type, with heavy, conspicuous spotting. Spring

affiine **syn. læve**

Alexandræ **syn. crispum**

anceps **(Klot.) syn. Miltonia anceps**

anceps **(Lem.) syn. maculatum**

C **Andersonianum** Colombia

A most variable natural hybrid between crispum and gloriosum.It is frequently imported, and, with its numerous forms, is probably the most common of hybrid Odontoglossums. Typically, Andersonianum is intermediate in all its characters. The flowers are carried in simple or branched panicles ; the sepals and petals are pointed, creamy-white, spotted and marked with red-brown ; the lip is similarly coloured, but usually has a large blotch in front of the crest ; often fragrant.

C - **var. augustatum** Colombia

Segments longer than in the type, with larger blotches. Spring

C - **var. Ardarroch** Colombia

Flowers large, handsome ; segments creamy-white, thickly spotted with small, red-brown blotches. Spring

C - **var. Bogaerdianum** Colombia

Flowers nearest to crispum in size, light yellow, tinted with rose on the sepals, blotched with deep, rich crimson-brown. Spring

C - **var. Bradshawii** Colombia

Very pretty ; segments rather narrow, long, bright yellow, marked with elongated, red-brown spots. Spring

ODONTOGLOSUM—cont.

C **Andersonianum - var. egregium** Colombia

Sepals and petals yellow, with a rose-purplish suffusion, heavily spotted with dark-brown. Spring

C **- var. giganteum** Colombia

Flowers very large, segments white, blotched with red-brown. Spring

C **- var. imperiale** Colombia

Sepals and petals pale yellow, thickly blotched with dark red ; lip broad, with a large, central, blood-red blotch. Spring

C **- var. Kitsoni** Colombia

Flowers resembling those of crispum ; sepals creamy-white, tinged longitudinally in the centre with purple, and blotched with reddish-brown ; the petals bear smaller spots, the lip is yellow at the base, and has a large, central, red-brown blotch. Spring

C **- var. Le Doux's** Colombia

Flowers more nearly resembling those of crispum ; sepals and petals white, tinged with rose ; sepals heavily spotted with red-brown, petals with three red lines at the base and a few reddish spots ;lip white, yellowish at the base, and with a large, central, red blotch. Spring

C **- var. lobatum** Colombia

Flowers large, segments creamy-white ; sepals and petals thickly spotted with chestnut-brown on their bases ; lip centrally spotted with brown. Spring

C **- var. Marshallii** Colombia

Flowers round in outline, segments white, sepals and petals with a central group of small, purplish spots ; lip with several similar, larger spots. Spring

C **- var. Mrs. de B. Crawshay** Colombia

Flowers large, creamy-white, sparsely spotted with red-brown. Spring

C **- var. pulvereum** Colombia

Sepals and petals bright yellow, thickly dotted on their lower halves with small, cinnamon-brown spots ; lip similarly coloured, but with fewer spots and a small blotch in front of the crest. Spring

C **- var. Raymond Crawshay** Colombia

Flowers creamy-white, spotted and marked with red-brown, chiefly on the central areas of each segment. Spring

C **- var. splendens** Colombia

Flowers large, sepals and petals white, tinged with rose, blotched with red-brown ; lip shaded at the base with yellow, lined with crimson, and spotted with dark brown. Spring

ODONTOGLOSSUM—cont.

C **Andersonianum - var. superbum** Colombia

Very handsome ; sepals and petals white, suffused with rose, regularly blotched with chocolate-red ; lip white, with a yellow disc, and a central, large crimson blotch. Spring

C **- var. Youngi** Colombia

Flowers round in outline, shaded with pink ; the basal halves of the sepals and petals marked with chocolate-red, disc of lip deep yellow. Spring

angustatum **(Bat.) syn. ramosissimum**

C **apterum (nebulosum)** Mexico

Pseudo-bulbs flat, oval ; height of leaves and bulb about 12 inches, scapes erect or semi-erect, 3-7 flowered ; flowers large, sepals and petals white, with the basal halves covered with clouded, red-brown spots ; lip marked on the yellow crest and basal portion with brighter spots. Spring and early Summer

C **- var. candidulum** Mexico

Flower without any spots, but with the yellow crest to the lip. Spring

C **- var. pardinum** Mexico

Much finer than the type, the spotting being spread over two-thirds of the surface of the segments. Spring

C **aspersum** Mexico

A supposed natural hybrid between maculatum and Rossii ; flowers resembling those of Rossii in shape, sepals and petals yellowish white, thickly blotched with brown ; petals broader, with only a few basal spots, lip cordate, creamy-white, shading to yellow ; crest orange streaked with red. Winter

C **- var. violaceum** Mexico

Lip rose purple, petals margined with mauve-purple. Winter

C **aspidorhinum** Colombia

Habit resembling that of constrictum, but rather less ; scapes erect, borne often two at a time from the same pseudo-bulb, and for two or three years in succession; flowers small, sepals and petals yellow, marked with red-brown, lip fringed at the margin, pure white, sometimes bearing a few circular, lilac-crimson spots. Autumn

C **astranthum** Ecuador

Resembling odoratum in habit, scape a branching panicle, sepals and petals narrow, pointed, yellow, streaked and spotted with pale rose, orange-yellow, spotted with red-purple at the base of the column. Summer

C **baphicanthum** Colombia

A supposed natural hybrid with the same parentage as Andersonianum ; sepals and petals sulphur or canary-yellow, undulated, with few purplish-red blotches, lightly suffused with purple, lip with a few red-brown marks, and a deeper yellow crest. Spring and Summer

ODONTOGLOSSUM—cont.

C **baphicanthum var. immaculatum** Colombia
Flowers as in the type, but free from spots and of a pretty primrose yellow shade tinged with rosy-mauve. Summer

C **Bergmani** Colombia
A supposed natural hybrid between crispum and luteo-purpureum ; the habit and shape of the large flowers resemble more the last named parent, but the colour is white, blotched with reddish-brown. Spring

C **Bickleyense.** Colombia
A supposed natural hybrid, with the same parents as the preceding; the flowers, however, are more intermediate in shape, white ,spotted and blotched with reddish-brown. Spring

bicolor **syn. Oncidium dichromum**

C **Bictoniense** Guatemala
Pseudo-bulbs flattish, oval ; height of leaves and bulbs about 15 inches, scapes erect, usually taller, several flowered ; flowers of medium size, sepals and petals yellowish-green, blotched with chestnut brown, lip heart-shaped, wholly of a pale rose. Autumn

C - **var. album** Guatemala
Sepals and petals reddish-brown, lip pure white. Autumn

C - **var. roseum** Guatemala
Sepals and petals brownish, lip deep rose. Autumn

C **var. splendens** Guatemala
Sepals and petals green, marked with brown, lip bright rose-lilac. Autumn

C - **var. sulphureum** Guatemala
Sepals and petals yellow, lip pure white. Autumn

C - **var. superbum** Guatemala
Rather stronger than in the type, and with larger flowers, sepals and petals dark chocolate-brown, lip mauve-purple with darker shading. Autumn

C **blandum** Colombia
Habit dwarf, height of pseudo-bulbs and slender leaves about 9 inches, scape semi-erect, about 9 inches long, sepals and petals white, spotted with red-purple, lip white, with a few larger spots. Not unlike naevium, but the front lobe of the lip is broader in proportion. Spring

C **Bleichroederianum** Colombia
A supposed natural hybrid between crispum and gloriosum and hence resembling Andersonianum, but the ground colour of the flowers is yellow. Spring

ODONTOGLOSSUM—cont.

Bluntii **syn. crispum**

C **brachypterum** Colombia

A supposed natural hybrid between luteo-purpureum and nobile ; flowers resembling those of nobile in shape, light yellow in colour, blotched with cinnamon-brown. Spring

C **Brandtii** Colombia

A handsome natural hybrid with the same parents as brachypterum, sepals and petals light yellow, marked with maroon on their basal halves, lip white, spotted with red. Sprinrg

C **Brassia** Colombia

A distinct, natural hybrid with the same parents as Andersonianum. The flowers somewhat resemble a Brassia in outline, segments long, rather narrow, sulphur-yellow, sparsely spotted with chocolate-red. Spring

C **brevifolium** Peru

Habit resembling that of coronarium, but the pseudo-bulbs are set much more closely together on their rhizomes, and the thick fleshy leaves are very much shorter ; the flowers are larger and brighter, sepals and petals rich chestnut, bordered with gold ; lip bright yellow. Should be grown on a raft. Spring

cærulescens **syn. Rossii**

candelabrum **syn. coronarium**

C **cariniferum** Costa Rica

Pseudo-bulbs about 3 inches high, leaves about 12 inches, scapes branched, about 2 feet high ; flowers of medium size, sepals and petals keeled at their backs, dark greenish-brown, tipped and bordered with yellow ; lip kidney-shaped,yellowish. Autumn

C **Cervantesii** Mexico

A dwarf-habited species, height of pseudo-bulbs and leaves rarely exceeding 6 inches ; scapes drooping, 3 to 5 flowered, about 6 inches long, flowers round in outline, segments whitish or tinged with rose, the basal halves marked with interrupted, chocolate-red bars, arranged in concentric circles. Spring

C **- var. Andersoni** Mexico

Lip bordered with red-brown spots. Spring

C **- var. decorum** Mexico

Flowers larger than in the typical form, the coloured bars are shorter, broader, and of a purplish shade, covering a greater space. Spring

C **- var. majus** Mexico

A superior form to the type, the flowers being larger. Spring

ODONTOGLOSSUM—cont.

C **Cervantesii var. punctatissimum** Mexico
Segments spotted with neat, red-purple spots. Spring

C **- var. roseum** Mexico
Flowers suffused with pale rose. Spring

C **chaetostroma** Colombia
A supposed natural hybrid between Hallii and cristatum. The flowers are nearest to those of Hallii in shape ; sepals blackish-purple, tipped with yellow ; petals yellow, with small blotches of black-purple, lip yellow, marked with red-brown. Spring

chiriquense **syn. coronarium var. chiriquense**

cinnamomeum **syn. Schillerianum**

C **cirrhosum** Ecuador
Pseudo-bulbs flattish, nearly oblong, 2 to 4 inches high, leaves 9 to 12 inches high, scapes branched, many flowered. 2 to 3 feet high, flowers large, segments tapering to undulating tails ; sepals white, spotted with purplish-crimson, petals broader, similarly coloured, but with fewer spots on the basal halves ; lip sparsely spotted apically, bright yellow, with a few radiating, red lines, at the base. Spring

C **- var. gemmatum** Ecuador
The dark purple markings are arranged in groups at the bases of the sepals and petals. Spring

C **- var. Hrubyanum** Eucador
Flowers white, with a few faintly marked spots. Spring

C **- var. Klabochorum** Eucador
Superior to the type, the flowers being much larger, with deep chestnut brown spots. Spring

C **- var. Pitts** Eucador
The largest flowered variety known. Very broad in proportion basally, color, typical but brighter. Spring

C **- var. roseum** Eucador
Flowers suffused with light rose, evident chiefly on the petal margins. Spring

C **- var. superbum** Eucador
Very handsome, flowers larger than those of the type, with broad, heavily spotted segments. Spring

C **citrosmum** Mexico
Pseudo-bulbs large, stout, 3 to 6 inches high, leaves about 9 inches high, broad, leathery, scapes pendulous, 2 to 3 feet long, 15 to 30 flowered ; flowers large, round, fragrant, sepals and petals white, or tinted flesh colour, lip rose colour, with a yellow, red-spotted crest. Requires a decided rest, and succeeds better hung near the glass. Spring and early Summer

ODONTOGLOSSUM—cont.

C **citrosmum var. album** Mexico
Flowers pure white, except for the yellow crest on the lip. Early Summer

C - **var. punctatum** Mexico
Flowers flushed with rose, and dotted with purplish spots. Early Summer

C - **var. roseum** Mexico
Sepals and petals white, blade of lip deep rose. Early Summer

C - **var. sulphureum** Mexico
Sepals and petals buff-yellow, lip shaded with rose. Early Summer

C **Claesianum** Colombia
A very handsome, supposed natural hybrid between crispum and luteo-purpureum, flowers large, with broad segments, white, heavily blotched with chocolate. Spring

Clowesii **syn. Miltonia Clowesii**

C **constrictum** Venezuela
A pretty, floriferous species, with oval bulbs, 2 to 3 inches high, and narrow leaves 12 to 15 inches high, scapes erect or nodding, branched, many flowered ; flowers of medium size, scented ; sepals and petals yellow, blotched with red-brown, lip white, with one or two rose coloured blotches in front of the crest. Winter and Spring

C - **var. castaneum** Venezuela
Sepals and petals red-brown, shaded with greenish-white at the base. Winter and Spring

C - **var. Sanderianum** Venezuela
Flowers larger, more brightly coloured, and much more handsome than the type, very variable, scented. Spring

C **Cookianum** Colombia
A probable natural hybrid between blandum and triumphans, sepals and petals yellow, blotched with chestnut, lip white, tinted with yellow, and marked near the base with purple. Winter

C **Coradinei** Colombia
A supposed natural hybrid between crispum and Lindleyanum ; sepals and petals yellow, with a few chestnut blotches, lip yellow, with a large central, chestnut-brown blotch. Spring

C - **var. expansum** Colombia
Flowers large, with broad segments, creamy-white, spotted with rich red-brown. Spring

C - **var. hemileucum** Colombia
Flowers with a whitish, instead of a yellow ground, spots smaller, but more numerous. Spring

ODONTOGLOSSUM—cont.

C **Coradinei var. mirabile** Colombia

A splendid form ; flowers much larger than the type, sepals white, nearly covered with bright red-brown ; petals white, with one large central chestnut-brown blotch. Summer

C - **var. Rosefield** Colombia

Flowers very large, segments yellow, with a few large reddish blotches ; only one blotch is present on each petal. Spring

- **var. splendens** Colombia

Flowers larger than the type, sepals and petals bright yellow, with two large chestnut bars on the sepals, and two smaller blotches on the petals ; lip chestnut-brown, bordered with white. Summer

- **var. suffusum** Colombia

Flowers resemble the typical form, but the yellow ground colour of the segments is suffused with light rose. Spring

C **cordatum** Mexico

Pseudo-bulbs flatly oval, 2 to 4 inches high, leaves about 6 inches long, scapes erect, 1 to 2 feet high, sometimes branched, several flowered ; flowers large, sepals narrow, pointed, chestnut-brown, tipped and marked at the base with yellow ; petals shorter and broader, pale yellow, spotted and blotched with red-brown, lip heart-shaped, pointed, white, spotted with brown, chiefly at the tip and on the margins. Spring

C - **var. Kienastianum** Mexico

Sepals and petals with very broad blotches, lip dark brown in front. Spring

C - **var. sulphureum** Mexico

Sepals and petals suplhur-yellow, lip white, blotched and tipped with sulphur. Spring

C - **var. superbum** Mexico

Much superior to the type, flowers larger and brighter, scapes taller and branched. Spring

C **coronarium** Colombia

A very handsome species, pseudo-bulbs large, ovoid, carried at intervals on a stout rhizome, leaves 6 to 12 inches long, broad, coriaceous, scapes erect, 12 to 18 inches high, densely many flowered ; flowers large, round, glossy, sepals and petals red-copper, bordered with yellow, lip bright yellow. Should be grown on a raft. Spring

C - **var. chiriquense** Chiriqui

Flowers larger than those of the type, sepals chestnut-brown, petals yellow, marked with brown ; lip yellow, with a brown discal blotch. Spring

ODONTOGLOSSUM—cont.

C **coronarium var. Dayanum** Colombia
Petals yellow, marbled with brown. Spring

C **- var. miniatum** Eucador
Pseudo-bulbs set more closely together, and habit less than that of the type, flowers slightly smaller, with chestnut-brown, yellow margined, sepals and petals and a yellow lip. Spring

C **crinitum** Colombia
Habit resembling that of crispum, but less, scapes racemose, many flowered ; sepals and petals rather narrow, waved, pointed, ochre-yellow, marked with brown, lip white, marked with brown, crest heavily toothed, as if bearded. Spring

C **- var. sapphiratum** Colombia
Sepals and petals green, spotted with brown, lip white, with bluish spotted disc. Spring

C **crispum** Colombia
A very handsome, variable species ; pseudo-bulbs stout, ovoid, 2 to 4 inches high, leaves 9 to 15 inches high, scapes 15 to 30 inches long, rarely branched, usually arched, flowers large, white, often tinged with rose, and blotched, more or less, with red ; petals often broader than the sepals, often with two diverging teeth ; column arched, with two laciniated wings. Spring

O. crispum may be seen in flower practically all the year round, but the main flowering season is late spring and early summer.

C **- var. Amesianum** Colombia
Flowers very large, sepals flushed with rose-crimson, blotched in the centre with rich chocolate ; petals very broad, white, with a large central chocolate blotch. Spring

C **- var. Ami Charles** Colombia
Sepals and petals finely fringed at the edges, white, shaded with rose, thickly spotted with chocolate ; lip white, very broad, thickly spotted with rich brown. Spring

- var. *Andersonianum* **syn. Andersonianum**

C **- var. apiatum** Colombia
A magnificent form, flowers very large, with broad, toothed segments, pure white, with bold blotches of deep, rich chocolate. Spring

C **- var. apiculatum** Colombia
Sepals white, with a faint rose-purple flush, and a central chocolate-red blotch, petals pure white, broad, finely serrated. Spring

C **- var. Arthur Briscoe** Colombia
Flowers very large, pure white, with, near the centre of the sepals and petals, five rounded, vivid red spots, confluent or nearly so. Spring

ODONTOGLOSSUM—cont.

C **crispum var. Ashworthianum** Colombia

A distinct and splendid form, flowers finely shaped, crisped, and toothed. The sepals and petals are almost wholly of a bright rose-purple, of a lighter shade and finally silver-white as it approaches the margins. They are white at their bases and the rose-purple is also broken by a few white marks, lip white, ornamented centrally with dark, red-purple blotches, yellow at the base. Spring

C - **var. augustatum** Colombia

Flowers of good size, white, the segments, including the lip, being thickly blotched with purple crimson. Spring

C - **var. aureum** Colombia

Flowers flushed with lemon-yellow, the sepals spotted with brown, and the lip with two brown spots. Spring

C - **var. Ballantinei** Colombia

Very handsome, flowers white, the sepals nearly covered with a rich, dark, red-chocolate blotch, petals less heavily marked, lip with smaller spots, yellow on the base and disc. Spring

- **var.** *Baron Schroder's* **syn. var. Schroderianum**

C - **var. Baroness Schroder** Colombia

A rich-coloured form, with large flowers ; sepals and petals almost covered with rich claret-purple, excepting a white patch at their bases, a narrow, white margin, and a few pale markings ; lip blotched with red-brown. Spring

C - **var. Bonnyanum** Colombia

Flowers large, boldly-shaped ; sepals shaded with rose, with a large, central chestnut-brown blotch ; petals white, lip white, with one large, brown blotch and a few smaller ones near the margin. Spring

C - **var.** - **var. Crawshay's** Colombia

Flowers large and finely fringed, sepals and petals white, lightly flushed with rose, the lateral sepals flushed with rose, and sometimes the upper one, bearing one large, dark, red-brown blotch ; lip with one large blotch and a few spots on the lower part. Spring

C - **var. Cooksoni** Colombia

A grand form, with white segments ; the sepals and petals heavily blotched with crimson-brown, lip with one large blotch and a few smaller spots on either side of the golden-yellow crest. Spring

ODONTOGLOSSUM—cont.

C **crispum var. Crawshayanum** Colombia

Flowers large, with pure white segments, heavily blotched and spotted with deep crimson-red ; the apical portion of the lip is spotted with scarlet, and the disc is golden yellow. Spring

C **- var. Cypheri** Colombia

Flowers large, the sepals bearing large, dark maroon blotches ; petals splashed and marked with the same colour centrally. Spring

C **- var. Daphne** Colombia

Very beautiful and distinct, sepals pure white, but almost covered with pale violet, petals white, with a few pale violet spots towards their centres ; lip fimbriated, with a large, brown blotch, throat yellow. Spring

C **- var. de Barri Crawshay's** Colombia

Flowers very large, with white, rose-tinted segments, barred and blotched with reddish-brown. Spring

C **- var. Dell var** Colombia

A grand, distinct form, sepals rich red-brown, tipped and marked with yellow ; petals yellow, with a white patch near the base, above and below which is a transverse blotch ; lip white at the base, passing into primrose-yellow, with a central broad, deep brown blotch. Spring

C **- var. Duchess** Colombia

Flowers large, suffused with light rose-purple, with numerous dark brown-red spots. Spring

C **- var. Duke of York** Colombia

A grand variety, with broad, waved segments, sepals lightly rose flushed, spotted with bright red, the apical spots being the largest ; petals nearly white, with bright red spots, which are larger, but more sparsely distributed apically ; lip fringed, with a large, central scarlet spot ; a yellow base and disc. Spring

C **- var. Dulcotense** Colombia

Flowers very large, white, with a purple blotch in each segment. Spring

- var. *excelsior* **syn. Wilckeanum var. excelsior**

C **var. fastuosum** Columbia

Flowers large, sepals white, with a central, longitudinal rose-lilac flush ; petals white, with one or two purplish-brown spots, lip large, white, with a few central brown-purple spots, and a row of small ones on the basal margins. Spring

C **- var. Franz Masereel** Colombia

A splendid form, flowers of large size, segments white, rose-purple flushed, heavily spotted and blotched with blood-red and red-crimson. Spring

ODONTOGLOSSUM—cont.

C **crispum var. giganteum** Colombia

Habit more robust than in the type ; flowers much larger on taller spikes, sepals white, slightly flushed ; petals white, heavily frilled ; lip large, frilled, white, with a yellow disc and a few chestnut-brown spots. Spring

C - **var. Golden Queen** Colombia

Flowers large and handsome with broad, light yellow segments, spotted with deep brown. Spring

C - **var. guttatum** Colombia

Flowers large, white, the sepals and petals sparsely spotted with red ; lip large, deep yellow, and dotted with red at the base, with a single, large, central spot and smaller marginal spots. Spring

C - **var. Hyeanum** Colombia

A very richly coloured, large flowered form ; the segments are white, but the sepals and petals are nearly covered with deep crimson-purple ; the lip is also heavily spotted, but shows more white. Spring

C - **var. imperator** Colombia

A grand variety ; flowers with large, broad segments ; sepals and petals suffused with rose-pink, the sepals heavily blotched with rich red-brown, the petals chiefly marked in the centre, lip finely crisped, with basal and central blotches. Spring

C - **var. Kegeljani** Colombia

Flowers white, with about six red-brown blotches on the sepals ; twice the number of smaller blotches on the petals, and one large and several small blotches on the lip. Spring

C - **var. Lehmanni** Colombia

Scape branched, flowers rather below the type in size ; segments broad, white; the lip spotted with reddish-brown. Spring

C - **var. - var. Schofield's** Colombia

Sepals tinged with rose, with three to five ruby-red spots ; lip ruby-red, bordered with white. Spring

C - **var. Lionel Crawshay** Colombia

Sepals flushed with rose, and spotted and blotched with deep red rose ; petals white, with one or two spots ; lip white, with a yellow crest, and one large reddish blotch. Spring

C - **var. Lowianum** Colombia

Sepals white, flushed with rose and blotched with crimson ; lip similarly coloured, petals streaked and blotched at their apices with scarlet-crimson. Spring

ODONTOGLOSSUM—cont.

C **crispum var. Luciani** Colombia

A fine form, with white, rose-tinged flowers, each segment carrying several large, purplish-brown blotches. Spring

C **- var. Mrs. J. Leemann** Colombia

A distinct form ; the ground colour of the segments is French white, evenly spotted with red-brown. Spring

C **- var. Mundyanum** Colombia

A splendid form ; the sepals and petals are regularly and heavily blotched with purplish-brown, and the lip spotted with red-brown. Spring

C **- var. nobilius** Colombia

One of the finest varieties ; sepals nearly covered with a large, irregular, rich red-brown blotch ; the broad petals bear two or three central blotches of the same colour ; and the lip has one large, central blotch and a few small marginal spots. Spring

C **- var. Oakfield Sunrise** Colombia

Very distinct and handsome ; sepals white, shaded with yellow ; petals white, stained (not blotched), with bright reddish-brown ; lip white, with a yellow crest and narrow, brown lines on the base. Spring

C **- var. Peetersii** Colombia

Very highly coloured, segments white, shaded with rose, with large, irregular blotches of blood-red crimson and rose. Spring

C **- var. Pittiae** Colombia

A distinct, beautiful form, with broad, white, rose-flushed segments ; sepals and petals centrally blotched with claret-crimson ; lip with one large, reddish blotch in the centre, and several smaller ones round the crest. Spring

C **- var. Pittianum** Colombia

A grand form. Flowers large and shapely, segments white, the sepals and petals heavily blotched with rich blood-red, the colour showing through on the reverse side ; lip with several smaller blotches of vivid red. Spring

C **- var. Prince of Wales** Colombia

Flowers of very great size, with broad, crisped segments of the purest white, except for a slight pink stain on the petals, and three light cinnamon spots in front of the crest of the lip. Spring

C **- var. purpurascens** Colombia

A beautiful form ; sepals white, with a decided rose tinge and, centrally, thickly spotted with brown-purple ; petals white, lightly rose-tinted, and with a few small, brown spots ; lip white, with a few central, rich brown spots ; disc yellow. Spring

ODONTOGLOSSUM—cont.

C **crispum var. Queen Victoria** Colombia

Flowers finely shaped, with broad segments ; sepals white, tinged apically with rose ; petals white, all with a large, irregular, purple-brown, central blotch, and a few smaller spots near the base ; lip with a medium-sized, central blotch, and a regular row of smaller spots on either side of the crest. Spring

C **- var. Reginae** Colombia

Flowers large, sepals white, spotted with brown-purple, clear at the apices ; petals white, with two rows of spots ; lip white, with a yellow disc, with one large and a few small spots in the centre, and the lip similarly coloured around the crest. Spring

C **- var. roseum** Colombia

Flowers shaded more or less, heavily with rose, the sepals, as a rule, being the darker, lip sometimes spotted. The name is often applied to any rose-tinted form. Spring

C **- var. Rosslyn** Colombia

Flowers very large, with broad segments ; sepals white, tinged with rose, deepest on the reverse side, and having one or two purplish-red blotches. The waved petals are pure white, lip white, with several large, central, confluent, chestnut-red blotches ; disc clear yellow. Spring

C **- var. Sanderae** Colombia

A splendid form, marvellously coloured. The flowers are compact in shape, with a white ground, which is nearly hidden by large blotches of rich crimson-chestnut; crest of lip deep yellow. Spring

C **- var. Sanderianum** Colombia

A most beautiful form, with round flowers, the segments heavily blotched with port-wine colour. Spring

C **- var. Sander's Monarch** Colombia

Flowers large, very distinct, sepals canary-yellow, tinged with lilac, with several chestnut-red, confluent blotches ; the broad, fringed petals are similarly coloured; lip with a large, chestnut-red, central blotch, margin cream-white, base yellow. Spring

C **- var. Schroderianum** Colombia

A magnificent form, with large, finely shaped flowers ; segments white, all with one or two large and several smaller blotches of rich, deep chocolate-red, the colours showing through on the reverse side. Spring

C **- var. Seraphim** Colombia

A grand white form, pure white, excepting the yellow disc to the lip, and occasionally a slight rose flush on the lateral sepals. Spring

ODONTOGLOSSUM—cont.

Ccrispum var. Starlight Colombia

A grand form, with large flowers flushed with rose ; the petals are beautifully fimbriated, and each segment is densely dotted with red-brown.

Spring

C - **var. Stevensii** Colombia

A noble form ; sepals and petals white, heavily blotched and spotted with cinnamon-brown ; lip with one large, apical blotch and a few spots near the margins ; disc orange-yellow. Spring

C - **var. Trianae** Colombia

A grand, large-flowered form ; sepals white, shaded with rose ; the upper one with a single, large, central, reddish spot ; the lateral sepals have three large similar spots and a number of smaller, bright rose spots ; petals pure white, lip white, with a large, central, copper-red blotch, and a few marginal spots of the same colour. Spring

C - **var. Veitchianum** Colombia

Very rich in colour, with finely shaped flowers ; sepals white, with several large blotches of crimson-brown, surrounded by a band of lilac-rose; petals broad, much undulated, toothed, coloured similarly to the sepals, but with a very large, central blotch and two or three smaller, nearly confluent blotches ; lip broad, white, toothed, splashed with crimson near the centre, and pencilled near the edges ; disc yellow. Spring

C - **var. Victoria Regina** Colombia

Flowers large, with broad segments ; sepals and petals flushed with violet-rose, darkest on the reverse sides, sparingly spotted with red-brown ; lip nearly white, fringed with a few red-brown spots. Spring

C - **var. virginale** Colombia

Flowers of the purest white, excepting the yellow disc to the lip.

Spring

C - **var. Waltonense** Colombia

Large, finely formed flowers, with heavily fringed sepals and petals, white, flushed with rose and blotched with bright reddish-brown ; lip white, with a large, central chocolate blotch, and numerous smaller, similarly coloured spots ; disc yellow. Spring

C - **var. Wilsonii** Colombia

Flowers of medium size, sepals and petals white, all the segments spotted and blotched with chestnut-brown. Spring

C - **var. Wrigleyanum** Colombia

Flowers round, white, blotched with bright cinnamon. Spring

ODONTOGLOSSUM—cont.

C **crispum var. xanthotes** Colombia

A distinct form ; sepals white, blotched, or spotted, with light yellow ; petals pure white, lip blotched with yellow. Spring

C **- var. - var. Brooman White's** Colombia

Flowers larger than the type ; the lip has a regular row of eleven deep yellow blotches between the margins and the lighter yellow disc ; and each sepal has a large, irregular, deep yellow, central blotch. Spring

C **cristatellum** Ecuador

Possibly a natural hybrid between Kegeljani and cristatum. The habit is less than in crispum, the pseudo-bulbs and leaves being about 12 inches high, and the scape but little taller. Flowers from 2 to 2 ½ inches across, sepals and petals yellow, with a few large blotches of chocolate-red ; lip broad, apiculate, chestnut-brown, with a narrow, yellowish-white border ; base yellow, with a deeply toothed crest. Various

C **cristatum** Ecuador

Pseudo-bulbs about 2 inches high, leaves about 9 inches, scapes several flowered ; flowers medium size, sepals and petals chestnut, tipped with yellow, and yellow at their bases ; lip pale yellow or whitish, with one large, apical, chestnut-brown blotch, and several small marginal spots, crest laciniated. Spring

C **- var. Argus** Ecuador

Flowers with yellow sepals and petals, spotted and marked with purplish-brown; lip white, with purplish markings. Spring

- var. ***cristatellum*** **syn. cristatellum**

C **- var. Lehmanni** Popayan

Differs in the lip, which is apiculate, and with two white basal crests. Spring

C **crocidipterum** Colombia

Height of pseudo-bulbs and leaves about 12 inches high, many flowered ; flowers medium size, sepals and petals pale yellow, spotted with brown ; lip similarly coloured to the other segments, but with a bilobed white crest, zoned with pale yellow ; hawthorn scented. Spring and various

C **cuspidatum** Colombia

A supposed natural hybrid between luteo-purpureum and gloriosum. In flowers of the typical plants the influence of gloriosum seems to predominate ; scapes branched, flowers of medium size, sepals and petals yellow,blotched with chestnut or reddish-brown ; lip pale yellow, with a large, central, red-brown blotch. Spring

ODONTOGLOSSUM—cont.

C **cuspidatum var. magnificum** Colombia

Flowers nearest to those of luteo-purpureum in size and shape, scape long, much branched ; segments rich yellow, heavily blotched with chestnut-brown. Spring

- var. *platyglossum* **syn. luteo-purpureum var. platyglossum**

C **- var. xanthoglossum** Colombia

Sepals and petals brighter in colour than the type ; lip yellow, without the central blotch. Spring

Dawsonianum **syn. Rossii**

C **Dayanum** Colombia

Resembling gloriosum in habit ; the flowers are very distinct, sepals and petals narrow, yellow, shaded with green and thickly spotted with reddish-brown ; lip greenish-yellow, with a central, broad, brown blotch ; crest white, with prominent bristles. Winter

C **Dellense** Colombia

A supposed natural hybrid between nobile (Pescatorei) and triumphans or, as originally described, between nobile and praenitens. Flowers large, sepals and petals white at their bases, then passing into yellow, darkest at their apices, spotted and banded with purplish-brown ; lip toothed, white, stained with yellow in the centre, blotched with brown round the crest and sides of the base ; crest yellow, toothed. Spring

C **deltoglossum** Colombia

A supposed natural hybrid between crispum and gloriosum. Its distinguishing feature from Andersonianum, of which it is really a variety, is that the lip is more deltoid in shape ; the segments are sulphur-yellow, blotched and marked with brown. Spring

C **- var. Stevensii** Colombia

A very handsome form ; flowers larger than in the type, sepals and petals light yellow, sepals blotched with red-brown, petals with only a few small spots, lip yellow, with a large, apical, red-brown blotch. Spring

C **Denisoniae** Colombia

A handsome, natural, hybrid between luteo-purpureum and crispum ; flowers large, sepals sulphur-yellow, blotched and barred with red-brown ; petals similarly coloured, lip pale sulphur-yellow, with a large, reddish blotch in front of the crest. It is the same cross as Wilckeanum, and that plant and its varieties should properly be known under the name of Denisoniae, which was given years before that of Wilckeanum. Spring

ODONTOGLOSSUM—cont.

C **dicranophorum** Colombia

A supposed natural hybrid between triumphans and Lindleyanum ; flowers of medium size, sepals and petals light yellow, the sepals with two large, brown blotches, and the petals with one large blotch and a few brown spots at their bases; lip adnate to the column at the base, light yellow, with a central brown blotch and a forked crest.

Donnianum **syn. maculatum var. Donnianum**

C **Dormanianum** Colombia

A rare and pretty Odontoglossum allied to crocidipterum — it may be a natural hybrid. The flowers resemble those of naevium in shape, and are pale yellow — almost whitish-yellow, thickly spotted with mauve-purple ; lip with a large, apical blotch and a yellow, red-marked base. Spring

C **Edithiae** Colombia

A form of the hybrid between crispum and gloriosum. Flowers nearly as large as those of crispum, yellow or yellowish-white, suffused with rose-purple ; sepals and petals blotched with chestnut-brown ; lip bright yellow, with a few brown spots and reddish marks. Spring

C **Edwardii** Ecuador

A distinct, handsome species, with stout, ovoid pseudo-bulbs, 4 to 8 inches high ; leaves 15 to 30 inches high ; stained with purplish-red at their bases ; scapes 3 to 4 feet high, branched ; flowers very numerous, fragrant, about an inch across, dark purplish-mauve in colour, except for an ochre-yellow callus on the lip. Spring

Ehrenbergii **(Lind.) syn. Rossii**

Ehrenbergii **(Planch.) syn. apterum**

C **elegans** Ecuador

A handsome, natural hybrid. In the *Orchid Review*, vol. 3, page 326, Mr. Rolfe believes that the name « elegans » has been applied to two hybrids — the one between cirrhosum and cristatum, and the other — the more handsome and larger flowered of the two — between cirrhosum and Hallii. Both crosses must, however, bear considerable likeness to each other. The flowers are carried on branched scapes, with pointed, waved segments ; sepals pale yellow, often nearly covered with red-brown ; petals pale yellow, blotched with red-brown; lip whitish apically, red-brown in front of the toothed, bristled, orange and red-streaked crest. Spring

C - **var. Pollett's** Ecuador

Flowers larger and more handsomely blotched than in the type ; the petals bear larger blotches, and the lip is margined with chocolate on the base. Spring

ODONTOGLOSSUM—cont.

C **elegans var. Sander's** Ecuador

Flowers larger than in the typical form, spotted, thickly so on the sepals, with dark chestnut-red on a cream-white ground ; petals broad. Spring

C **elegantius** Colombia

A rare, natural hybrid, supposed to be between nobile (Pescatorei) and Lindleyanum ; scapes branching ; flowers sulphur colour, blotched with brown. Spring

C **- var. Baroness Schroder** Colombia

Finer than the type ; sepals and petals sulphur-yellow, shading to white at their bases, blotched and barred with chocolate ; lip whitish, with a large chocolate blotch. Spring

C **epidendroides** Colombia

Pseudo-bulbs ovate-oblong, with the narrow leaves about 10 inches high ; scape about 15 inches high ; sepals and petals yellow, blotched with brown-purple ; lip white, marked with mauve-purple. Spring

epidendroides **(Ldl.) syn. Lindleyanum**

erosum **syn. stellatum**

C **eugenes** Colombia

A very handsome, supposed natural hybrid between nobile and triumphans ; sepals pale yellow, blotched with chestnut-brown ; petals whitish, margined with pale yellow, sparsely spotted with chestnut-brown ; lip colored much like that of triumphans. Spring

C **excellens** Colombia

A very handsome, variable, natural hybrid between nobile and triumphans ; sepals bright yellow, paler in the centre, marked with clustering chestnut-brown blotches ; petals bright yellow, white at their bases, with a central cluster of chestnut-brown blotches ; lip white, spotted with reddish-brown, crest orange-yellow. Spring

C **- var. chrysomelanum** Colombia

Flowers golden-yellow in all their segments, and blotched with red-brown. Spring

- var. Dellense see **Dellense**

- var. *Harvengtense* see **Harvengtense**

C **- var. luteolum** Colombia

A very distinctly coloured form ; flowers light sulphur-yellow, with a slight purplish suffusion on the backs of the sepals, the centres of the petals shades to white, and there are a few reddish spots and streaks at the base of the lip. Spring

C **- var. Thompsonii** Colombia

A splendid form ; flowers very bright yellow, blotched and spotted with rich crimson-chocolate ; the bases of the petals are almost pure white. Spring

ODONTOGLOSSUM—cont.

C **excellens var. R. Ashworth's** Colombia

Very distinct in colour ; flowers whitish, shaded with lemon-yellow ; petals sparsely-spotted, sepals more heavily marked, with the dots arranged in a cluster; lip whitish, with a deep blood-red blotch and yellow disc. Spring

C **facetum** Colombia

A very handsome, rare Odontoglot, which may, perhaps, be a natural hybrid between sceptrum and Hunnewellianum. The habit is near that of luteo-purpureum, but rather less ; flowers large, sepals light yellow, heavily blotched with cinnamon-brown ; petals finely toothed, coloured similarly to the sepals, but the blotches are smaller and more numerous. The lip is almost circular, handsomely fringed, with a large, red-brown blotch in front of the heavily keeled crest.

fuscatum **syn. cariniferum**

C **Galleottianum** Mexico

A pretty, dwarf species, allied to apterum, but resembling Cervatesii in habit ; scapes erect or semi-erect, 1 to 3 flowered ; flowers about 2 inches across, pure white, excepting a few small, brownish-red spots at the bases of the petals and the crest of the lip, which is light yellow, lined with ochre-yellow.

Snmmer

C **gloriosum** Colombia

Habit resembling that of crispum, but less; scape 1 to 2 feet high, often branched ; flowers variable, hawthorn-scented ; segments rather narrow, sepals and petals yellow, with usually elongated spots of chestnut-brown ; lip yellow, with a large, irregular, brown blotch in front of the toothed crest. Spring

C **Godseffianum** Colombia

A supposed natural hybrid between Lindleyanum and triumphans ; flowers large, handsome ; sepals and petals yellow, blotched with cinnamon-brown ; lip yellow, with a large, central, red-brown blotch. Spring

C **grande** Guatemala

Pseudo-bulbs 2 to 4 inches high, leaves 8 to 10 inches high, dull green in colour, of thick texture ; scapes 4 to 7 flowered, about 12 inches high, produced when the pseudo-bulbs are partially formed ; flowers large, 5 to 7 inches across, showy ; sepals bright yellow, heavily barred with chestnut-brown, and the apical portion bright yellow ; lip short, nearly round, whitish or pale yellow, sparsely blotched with red-brown, chiefly on the half nearest the column.

This species, together with Insleayi, Schlieperianum, and Williamsianum, should be kept much drier than crispum and its allies after the pseudo-bulbs are matured.

Autumn

C **- var magnificum** Guatemala

Flowers larger and more brillantly coloured than those of the type ; a greater number are borne on a spike.

ODONTOGLOSSUM—cont.

grande var. *pallidum* syn. **Schlieperianum**

C - **var. Pitt's** Guatemala
Sepals and petals light yellow, marked with a darker shade of yellow in place of the chestnut-brown of the type ; lip white, with a few yellow blotches.
Autumn

C - **var. Sanderae** Guatemala
Sepals lemon-yellow, barred with pale Indian-yellow ; petals of a shining, light Indian-yellow tint on their inner halves ; light lemon-yellow on their outer halves; lip white, with a central, irregular, half circle of yellow. Autumn

- **var.** *Williamsianum* syn. **Williamsianum**

- **var. Monkholme** Guatemala
The chestnut-brown coloring of the type, is replaced by dark yellow.
Autumn

C **Hallii** Ecuador and Peru
Pseudo-bulbs 2 to 5 inches high, broad flattish ; leaves 10 to 15 inches long, scapes 2 to 4 feet long, arching ; flowers large, variable, slightly fragrant ; the sepals are usually tipped with clear yellow, the remaining portion bearing large, nearly confluent, dark chocolate-red blotches on a yellow ground ; petals similarly coloured, but tipped and margined with yellow ; the basal halves are marked with numerous, small irregular-shaped spots, between them and the tip being one large blotch ; lip broad, fringed, pointed, yellow, with a row of chocolate-red spots near the margins and a few larger, central blotches, crest consisting of many yellow, red-marked, filiform processes.

C - **var. leucoglossum** Ecuador
Lip with a white, instead of a yellow ground colour. Spring

C - **var. magnificum** Ecuador
A superior form, with large, richly coloured flowers, the petals showing much more yellow than the type. Spring

C - **var. xanthoglossum** Peru
Flowers very handsome, with broader segments than the type, and the yellow colour is of a much brighter shade. Spring

C **Hallii-xanthum** Ecuador
A supposed natural hybrid between Hallii and Kegeljani (polyxanthum). Flowers intermediate between the two parents ; segments shorter than those of Hallii ; the ground colour is more yellow, and the blotching is not so heavy.
Spring

ODONTOGLOSSUM—cont.

C **Harryanum** Colombia

Pseudo-bulbs 2 to 4 inches high, pale green ; leaves 6 to 12 inches high, scapes 15 to 30 inches high, occasionally branched ; flowers large, sepals deep chestnut-brown, tipped and broken with yellow ; petals inclined inwards, whitish at the base, marked with mauve-purple, apically yellow, chestnut-brown centrally ; lip three-lobed, the side lobes white, striped with mauve-purple, mid-lobe white, changing to pale yellow ; crest heavily fringed, bright yellow. Though it can be grown with crispum, the species often benefits by a slightly increased temperature. Spring and early Summer

C - **var. flavescens** Colombia

Very distinct ; sepals and petals deep yellow, the petals veined with white basally ; lip primrose-yellow, with a deep yellow crest. Early Summer

C - **var. superbum** Colombia

Flowers larger, darker, and more richly coloured than the type ; sepals and petals dark purplish-brown, with a few yellow lines ; lip tipped with yellow, orange at the base, claret-crimson, veined with yellow centrally. Spring

C - **var. Wilsonianum** Colombia

Sepals and petals almost entirely covered with black-maroon. Spring

C **Harvengtense** Colombia

A variable natural hybrid, probably between crispum and triumphans ; flowers large, light yellow, spotted with cinnamon-brown, the spots on the petals being much smaller than those on the other segments ; lip much crisped.

hastatum **syn. Oncidium hastatum**

C **hastilabium** Colombia

Pseudo-bulbs ovoid, 3 to 5 inches high ; leaves 9 to 15 inches long, scapes branched, erect, 3 to 5 feet high ; flowers fragrant, sepals and petals light yellow, shaded with green, barred and spotted with purple-brown ; lip broad, white, or suffused purple, rounded, pointed, with reflexed sides. Summer

C **hebraicum** Colombia

A natural hybrid between crispum and gloriosum ; scapes usually branched : sepals and petals pale yellow, marked with chestnut-brown spots, their shape suggesting Hebrew characters ; lip yellow, darkest at the base, with a central reddish-brown blotch. Spring

C - **var. lineoligerum** Colombia

Flowers creamy-white, shaded with yellow, the sepals and petals marked with longitudinal bars and blotches of purple-crimson on their basal and central areas ; lip pale yellow, with a few crimson-purple spots. Spring

ODONTOGLOSSUM—cont.

C **Hennisii** Ecuador

Pseudo-bulbs 1 to 2 inches high, leaves about 6 inches long, narrow ; scapes 8 to 12 inches high ; flowers about 2 inches across, sepals yellow, with two brownish-blotches — one towards the base, and one in the centre ; petals shorter, yellow, spotted centrally with brown and lined with brown at the bases ; lip white, with the front lobe reddish-brown, and red-brown spots on the side lobes ; crest bearded. Spring

C **Hinnus** Ecuador

A supposed natural hybrid between cirrhosum and cristatum; flowers variable, resembling those of cirrhosum, but with broader segments, yellowish, blotched with chestnut-brown ; lip with a large, central, reddish-brown blotch, yellowish-white apically. Spring

C **histrionicum** Colombia

A probable natural hybrid between gloriosum and luteo-purpureum ; flowers large, sepals and toothed petals sulphur-yellow, spotted with deep brownish-red ; lip broad, toothed, blotched and marked with red-brown. Spring

Holfordianum **syn. mulus var. Holfordianum**

Hookeri **syn. cordatum**

C **Horsmanii** Colombia

A handsome, natural hybrid between nobile and luteo-purpureum ; flowers large, sepals and petals white, shaded with yellow, blotched with cinnamon-brown, the sepals heavily so ; lip with a broad, whitish, expanded front lobe, spotted on the base with purplish-red ; crest toothed, yellow, marked with red. Spring

Hrubyanum **syn. cirrhosum var. Hrubyanum**

C **Humeanum** Mexico

A natural hybrid, originally supposed to be between cordatum and Rossii, but more probably the parents are maculatum and Rossii. Scapes usually two-flowered, sepals white or yellowish, covered with small, rounded, nearly confluent blotches of deep chocolate-brown ; petals white, the basal halves only, spotted with chocolate-brown ; lip cordate, white or creamy-white, with a fleshy crest, yellow marked with a few brown streaks. Winter

C **Hunnewellianum** Colombia

Pseudo-bulbs about 2 inches high, leaves 6 to 9 inches long, scapes about 15 inches ; flowers round in outline, sepals and petals bright yellow, spotted with dark brown ; petals paler at the bases ; lip creamy-white, spotted with light cinnamon, crenulate at the margins ; crest toothed. Spring

hystrix **syn. luteo-purpureum var. hystrix**

C **Imschootianum** Colombia
A supposed natural hybrid between Lindleyanum and tripudians ; flowers intermediate, sepals and petals yellow, marked with purplish-brown ; lip white, with a purplish-brown blotch in front of the crest, which is marked with mauve-purple. Winter

C **Insleayi** Mexico
Habit resembling that of grande ; scapes often 8 to 10 flowered, flowers less in size, sepals and petals pale yellow, barred with chestnut-red ; lip bright yellow, with a marginal row of crimson-red spots. Late Summer and various

C **- var. aureum** Mexico
Flowers yellow, the lip only, faintly spotted near the margin with orange. Late Summer

- var. *Imschootiana* **syn. var. aureum**

C **- var. leopardinum** Mexico
Sepals and petals broader than those of the type, chestnut-brown, broken with yellow ; lip bright yellow, margined with deep red blotches. Late Summer

C **- var. pantherinum** Mexico
Sepals and petals broader than in the type, chestnut-brown, with paler margins ; lip yellow, blotched with dark red. Late Summer

C **- var. splendens** Mexico
Flowers much larger than the type ; sepals and petals shining brown, tipped and edged with yellow ; lip bright yellow, with marginal carmine spots. Autumn

C **Jenningsianum** Colombia
A natural hybrid, with the same parents as Andersonianum. Flowers creamy-white, with many light cinnamon blotches — most numerous on the petals ; base of lip yellow, with a few cinnamon lines and cinnamon blotches on the central area. Spring

C **- var. limbatum** Colombia
Sepals and petals margined with sulphur-yellow. Spring

C **Josephinae** Colombia
A pretty, natural hybrid, originating from crispum and gloriosum. Sepals white, spotted on the lower halves with chocolate-red ; petals shorter, white, with numerous chocolate-red spots on the lower halves and three bars at their bases of the same colour ; lip white, yellow at the base, with a few spots in front of the crest.

Karwinski **syn. læve**

C **Kegeljani (polyxanthum)** Ecuador

Pseudo-bulbs 3 to 4 inches high, leaves 12 to 15 inches long, scapes 20 to 30 inches ; flowers large, sepals and petals lemon-yellow, blotched with cinnamon-brown, those on the petals being the smaller, and near the bases ; lip lemon-yellow, but nearly covered with a large, dark brown blotch ; margin toothed. Spring

C - **var. grandiflorum** Ecuador

Flowers larger than the typical form; sepals deep ochre-yellow, with a few large, irregular, deep brown blotches ; petals with smaller blotches close to their bases; lip glossy chestnut-brown, narrowly bordered with white ; crest yellow, striated with red-brown. Spring

I **Krameri** Costa Rica

A dwarf species, with broad, pale green pseudo-bulbs ; leaves about 6 inches high, scapes about 8 inches high, 2 to 5 flowered ; flowers fragrant, 1 to 2 inches across ; sepals and petals light violet, shading to white at the margins ; lip purplish-violet, banded with white and red at the base. Summer and various

I - **var. albidum** Costa Rica

Sepals and petals pure white ; lip light rose-pink, yellow at the base. Various

I - **var. album** Costa Rica

Flowers white, having lost all trace of the violet tint. Various

C **læve** Mexico and Guatemala

Pseudo-bulbs 3 to 5 inches high, leaves 9 to 12 inches high, scapes 2 to 3 feet, branched ; flowers fragrant, 2 to 3 inches across ; sepals and petals dark brown, tipped and barred with greenish-yellow ; lip deflexed, pale lilac-purple, white at the apex, sometimes lilac-purple. Spring

C - **var. Reichenheimii** Mexico

Scape 2 to 4 feet high, sepals and petals yellowish-green, barred with purplish-brown ; lip not deflexed, variable in colour usually light purple. Both type and variety should be rested. Spring

Lawrenceanum **syn. Insleayi**

C **Leeanum** Colombia

A supposed natural hybrid between gloriosum and crispum. Flowers large, but with rather narrow segments ; sepals and petals deep yellow, densely spotted with reddish-brown ; lip paler yellow, with a large, red-brown blotch in front of the crest. Winter

Lehmanni **syn. cristatellum**

ODONTOGLOSSUM—cont.

C **lepidum** Colombia

Probably a natural hybrid between Lindleyanum and luteo-purpureum; flowers yellowish-white, sepals blotched with cinnamon-brown, the petals carrying but one blotch; lip with a large blotch in front of the crest, and brown streaks at the base. Spring

C **ligulare** Colombia

A natural hybrid between Lindleyanum and crispum, hence resembling Coradinei. Sepals and petals orange-yellow, with a large, dark-brown blotch in front of the crest. Spring

liliflorum **syn. ramosissimum var. liliflorum**

C **limbatum** Colombia

A supposed natural hybrid between crispum and gloriosum, thus a form of Andersonianum. Sepals suffused with rose-purple, petals white, lip white, with marginal, red-brown spots. Spring

C **Lindenii** Colombia

Pseudo-bulbs ovate or globose, 3 to 5 inches high, stout; leaves 12 to 18 inches long, scape 4 to 6 feet long, arching, branched at the upper extremity, where the flowers are carried to the number of fifty. Flowers comparatively small, sepals and petals undulated, clear yellow, shaded at their bases with green; lip clear yellow, with a fleshy crest. Spring

C **Lindleyanum** Colombia

Habit much as in crispum, but less; scapes slender, arching, flowers 2 to 3 inches across, sepals and petals yellow; the sepals usually bear two reddish-brown blotches, and the petals one large, central blotch and a few smaller ones at the base, arranged in lines; mid-lobe of lip reflexed, red-brown, tipped with light yellow; side lobes whitish, spotted with purple. Spring

C **- var. mirandum** Colombia

Slightly stronger in habit; sepals and petals yellow, with a broad, reddish-brown, longitudinal, central stripe, lip chestnut-brown, tipped with yellow. Spring

Lindleyi **syn. Oncidium maculatum**

I **Londesboroughianum** Mexico

Pseudo-bulbs flatly ovoid, about 3 inches high, carried at intervals on a woody rhizome; leaves 12 to 15 inches long, deciduous; scape 2 to 3 feet high, branched; flowers medium size, sepals and petals bright yellow, with reddish-brown markings; lip bright yellow, with reddish basal markings. Should be grown on a raft and exposed to as much sun as safety permits. When growth is matured rest decidedly.

ODONTOGLOSSUM—cont.

Lueddemanni **syn. cordatum**

lunatum **syn. Aspasia lunata**

C **luteo-purpureum** Colombia

Habit resembling crispum, but stronger. Flowers large, variable ; sepals nearly covered with chestnut-brown, tipped and marked with yellow ; petals similarly coloured, but showing more yellow ; lip often fringed, yellowish-white, with a large, chestnut-brown blotch in front of the crest, which is covered with teeth-like processes. Spring

C **- var. Amesianum** Colombia

Very distinct ; sepals and petals shaded with light yellowish-green ; lip creamy-white, with a yellow crest. Spring

C **- var. Ashworthianum** Colombia

Flowers very large, sepals reddish-brown, tipped with yellow ; petals creamy-yellow, lemon-yellow at the tips, with a few red-brown spots ; lip large, fringed, primrose-yellow in front, red-brown centrally; crest much toothed, fringed, white-yellow and purple. Spring

C **- var. Cobb's** Colombia

Sepals dark chestnut-brown, tipped with yellow, and with two basal yellow lines ; petals yellow, barred and spotted with red-brown ; lip broad, fringed, yellow, with a large, chestnut-brown blotch in front of the crest, and a few marginal, crimson spots. Spring

C **- var. crispatum** Colombia

Remarkable in that the broad, apical portion of the mid-lobe of the lip is convoluted into deep folds. Spring

C **- var. hystrix** Colombia

Differs from the type, chiefly in the lip being more convoluted and the crest more spinose. Spring

C **- var. illustris** Colombia

Flowers large, very rich in colour ; sepals and petals nearly covered with rich, polished chestnut-brown ; lip pale yellow, with a large, chestnut blotch. Spring

C **- var. magnificum** Colombia

Flowers large, sepals bright chestnut-brown, yellow at their tips and bases ; petals yellow, blotched and spotted with chestnut-brown ; lip yellow, with a large chestnut-brown blotch in front of the crest.

var. *prionopetalum* **syn. prionopetalum**

ODONTOGLOSSUM—cont.

C **luteo-purpureum - var. sceptrum** Colombia

Horticulturally this var. is distinct from luteo-purpureum, and often accorded specific rank. The scapes are usually shorter, the flower segments shorter and broader, giving the flowers a more compact appearance ; sepals chestnut-brown, margined and slightly broken with golden-yellow, with small, chestnut-brown blotches and spots ; lip yellow, convolute, with a broad chestnut-brown blotch in front of the toothed crest. Spring

C **- var. - var. aureum** Colombia

Sepals yellow, suffused with light brown ; petals yellow ; spotted with light brown, much toothed ; lip yellow. Spring

C **- var. Vuylstekeanum** Colombia

Very distinct ; flowers of good size, with finely undulated segments, all of a clear, soft yellow, with darker yellow markings in place of those of the typical brown. Spring

C **lyroglossum** Colombia

A handsome, supposed natural hybrid, between luteo-purpureum and probably crispum ; sepals and petals bright yellow, heavily blotched with chestnut-brown; lip yellow, with a large, central, chestnut blotch ; apical portion fringed and very convolute. Spring

C **- var. Major Pigott's** Colombia

Very handsome ; flowers 4 inches across the sepals, rich, clear yellow, evenly spotted with dark chestnut ; lip heavily fringed. Spring

C **macrospilum** Colombia

A supposed natural hybrid between crispum and luteo-purpureum ; flowers creamy-white, shaded with rose and boldly spotted with chestnut-red. Spring

maculatum **(Hook.) syn. cordatum**

C **maculatum (La Llave)** Mexico

Habit as in cordatum, but the psuedo-bulbs are set more closely together, and the scapes are longer ; flowers 2 to 3 inches across, sepals dark brown, tipped and broken basally with yellow ; petals yellow, spotted on their basal halves with brown ; lip yellowish-white, spotted with brown, pointed.

C **- var. Donnianum** Mexico

Sepals and petals nearly covered with dark blackish-brown. Spring

I **madrense.** Mexico

Pseudo-bulbs flattish, 2 to 4 inches high ; leaves 6 to 9 inches high, scapes 10 to 15 inches, 6 to 8 flowered ; flowers fragrant, sepals and petals white, with a basal, longitudinal, purplish-brown blotch ; lip white, orange-yellow at the base. Spring

ODONTOGLOSSUM—cont.

C **Marriottianum** Ecuador

A supposed natural hybrid between cirrhosum and Hallii ; flowers with rather narrow segments, yellowish-white, spotted and marked with purple ; crest of lip yellow, purple-streaked. Spring

maxillare **(Hook. f.) syn. madrense**

C **Measuresianum** Colombia

A beautiful form of the natural hybrid between gloriosum and crispum ; flowers white, shaded with rose and thickly blotched and spotted with wine-crimson. Spring

membranaceum **syn. Cervantesii**

miniatum **syn. coronarium var. miniatum**

mirandum **syn. Lindleyanum var. mirandum**

C **mulus** Colombia

A variable natural hybrid, between gloriosum and luteo-purpureum ; scapes sometimes branched, sepals and petals yellow, heavily blotched with dark brown; lip yellow, with a central dark brown blotch. Spring

C **- var. Holfordianum** Colombia

Very handsome ; sepals and petals dark yellow, the sepals blotched with chocolate-brown, the petals spotted with the same colour ; lip yellow, with one large, central blotch, and a few spots and marks on the yellow crest. Spring

C **Murrellianum** Colombia

A supposed natural hybrid between nobile and probably gloriosum. The flowers more nearly resemble nobile ; sepals and petals white, suffused with purplish-violet and blotched with purple, lip similarly coloured, but with a yellow crest. Spring

C **naevium** Colombia

A pretty species ; pseudo-bubs 2 to 3 inches long, flattish ; leaves about 12 inches long, narrow ; scapes nodding, many flowered, 12 to 15 inches long ; segments narrow, tapered, white, spotted with deep red-purple ; crest of lip bright yellow. Resembles a small O. cirrhosum. Summer

C **- var. majus** Colombia

Superior to the type, the flowers being larger, and the spots of a richer colour.

nebulosum **syn. apterum**

C **Nevadense** Colombia

Pseudo-bulbs ovoid, flattish, 3 to 4 inches high ; leaves 9 to 12 inches long, scapes 12 to 18 inches long, arched ; flowers variable, about 3 niches across ; sepals and petals dark brown, narrowly margined with yellow ; the petals marked with yellow, basally ; lip with the front lobe fringed, pointed, white or creamy-white ; the large side lobes are white, striped with chestnut-brown. Spring

C **nobile (Pescatorei)** Colombia

A handsome and popular species, better known under the name of Pescatorei; pseudo-bulbs ovoid, 3 to 4 inches high, leaves 8 to 12 inches long, scapes branching, 1 ½ to 2 ½ feet long, many flowered ; flowers variable, round in outline, about 3 inches across ; sepals and petals white, sometimes rose-flushed ; lip narrow at the base, with a broad, rounded front lobe, similarly coloured to the other segments, but with a yellow, red-streaked crest, and occasionally a few purple spots. Spring

C **- var. Germinyanum** Colombia

Sepals white, suffused with rose, and sparsely spotted with rose-purple ; petals similarly spotted, on a white ground ; lip white, with a few purple spots ; crest yellow, side lobes marked with purple. Spring

C **- var. leucoxanthum** Colombia

Flowers of good size, and of the purest white, except some orange on the crest of the lip, wings, and base of the column. Spring

C **- var. Lindeniae** Colombia

Flowers white, with a single large, violet-purple blotch, or two or three nearly confluent blotches, in the centre of each segment ; lip blotched at the base with the same colour. Spring

C **- var. Lowianum** Colombia

Flowers large, suffused with light mauve, spotted and dotted with darker mauve. Spring

C **- var. Sanderae** Colombia

Very fine in shape. White, spotted on the segments with cinnamon-brown. Spring

C **- var. Schroderianum** Colombia

Very handsome ; sepals and petals white, centrally spotted with rich rose-purple, lip white, marked on the side lobes with rose-purple ; crest yellow. Spring

C **- var. Thomsonianum** Colombia

Sepals and petals flushed with light rose, blotched centrally with deep purple; lip with one large, central blotch of purple, and stained with deep purple towards the base. Spring

C **- var. Veitchianum** Colombia

A very handsome form, with larger flowers than the type ; all the segments irregularly blotched with rich magenta-purple. Spring

Nœtzlianum **syn. Cochlioda Nœtzliana**

ODONTOGLOSSUM—cont.

C **odoratum** Venezuela

Habit resembling that of gloriosum, with which it is often confused ; scapes branching, many flowered ; flowers variable, sweetly scented ; sepals and petals golden yellow, blotched with brownish-red ; lip similarly coloured, but whitish at the base. Spring

I **Oerstedii** Costa Rica

A pretty, dwarf-habited species ; scapes 2 to 5 flowered, about 6 inches high ; flowers scented, between 1 to 2 inches across, white, except for the base of the lip, which is yellow, and the yellow, orange-spotted crest. After growth is completed it should be rested. Spring

I - **var. majus** Costa Rica

Flowers larger than in the type. Spring

oncidioides **syn. Londesboroughianum**

C **Owenianum** Colombia

A rare species or natural hybrid, with the habit of crispum, but rather less. Flowers about 3 inches across ; sepals whitish-yellow, centrally suffused with dark chocolate-brown ; petals yellowish-white, with or without a chocolate blotch in their centres ; lip resembling that of nobile in shape, wholly white. Spring

C **pardinum** Ecuador

Pseudo-bulbs 2 to 4 inches high, leaves 6 to 9 inches, scapes erect, 2 to 3 feet high, branched ; flowers fragrant, about 2 inches across ; sepals lemon-yellow, petals and lip lemon-yellow, spotted with red-brown. Spring

pendulum **syn. citrosmum**

Pescatorei **syn. nobile**

phalænopsis **syn. Miltonia phalænopsis**

phyllochilum **syn. Oncidium hastatum**

Pittianum **syn. Wilckeanum var. Pittianum**

planifolium **syn. Gomeza planifolia**

C **platycheilum**

Pseudo-bulbs about 2 inches high, ovoid, ancipitous ; leaves about 9 inches long, scape erect, 3 flowered, flowers about 2 inches across, sepals and petals creamy-white, blotched basally with chestnut-brown ; lip large, cordate, pale rose, with scattered blotches of crimson-purple. Spring

platyodon **syn. Lindenii**

C **Pollettianum** Colombia

A very handsome form of the natural hybrid between gloriosum and crispum. Flowers large, sepals and petals white, tinged with purple on the reverse surfaces, heavily blotched and spotted with reddish-brown on their inner ; lip creamy white, with a large, central, reddish blotch. Spring

polyxanthum **syn. Kegeljani**

ODONTOGLOSSUM—cont.

C **praenitens** Colombia

Pseudo-bulbs 2 to 3 inches high, rather narrow ; leaves narrow, about 8 inches long ; scapes arched, 8 to 10 flowered ; flowers about 3 inches across, sepals and petals bright yellow, blotched with rich chestnut-brown ; lip blotched on a lighter yellow ground. Spring

C **praestans** Colombia and Peru

Resembling gloriosum in habit ; flowers of medium size, petals and sepals reddish-brown, shading into a yellowish-green ; lip white, blotched with red-brown ; crest ragged, yellow ; rare. Spring

principissa **syn. Aspasia principissa**

C **prionopetalum** Colombia

A supposed natural hybrid between crispum and luteo-purpureum ; flowers more nearly resembling those of crispum in shape, primrose-yellow, heavily barred with bright chestnut ; petals jagged. Spring

C **pulchellum** Guatemala

Pseudo-bulbs 2 to 3 inches high, leaves rather stiff, narrow, 8 to 12 inches long; scapes erect, about 12 inches long ; 5 to 10 flowered ; flowers pretty, fragrant, pure white, except the yellow, fleshy disc to the lip. On the plant the flowers appear inverted, the lip being uppermost.

With its varieties it should be kept more dry than crispum after the bulbs are matured. Spring

C - **var. Dormanianum** Guatemala

Differs from the type in its much stronger habit and larger flowers, which are nearly two inches in diameter. Spring

C - **var. majus** Guatemala

Flowers larger than the type, and more strongly scented. Spring

C **purum.** Colombia

Habit and inflorescence resembling that of Lindleyanum; scapes arching, flowers of medium size, sepals and petals yellow, the sepals nearly covered with sepia-brown ; petals blotched, chiefly basally, with the same colour ; lip whitish, the front lobe deflexed, with a large, central rosy blotch.

radiatum **syn. luteo-purpureum**

C **ramosissimum** Colombia

Pseudo-bulbs nearly oval, 2 to 4 inches high ; leaves 12 to 15 inches long ; scapes erect, 2 to 4 feet high, branched, many flowered ; flowers about 2 inches across, all the segments much undulated, white, spotted with mauve-purple. Spring

ODONTOGLOSSUM—cont.

C **ramosissimum var. liliflorum** Colombia

Habit stronger, flowers larger, with less undulated segments, pale rose-purple in colour, broken with white, chiefly at the bases of the sepals and petals.

Spring

C **ramulosum** Colombia

Pseudo-bulbs roughly conical, 3 to 4 inches high, bearing 2 leaves apically, 15 inches long. Spike 4 feet high, branching apically, 30 to 40 flowered. The zigzag side branches carrying 5 to 6 flowers each. Flowers ¾ of an inch in vertical diameter, upper sepal slightly hooded, with the spreading lateral sepals much constricted on their basal halves, petals broader, incurved over the small column, all dark red-brown on their basal halves, the spreading portions bright yellow. Lip reflexed, tongue-like, clear yellow, crest edged darker yellow.

Winter

Reichenheimii **syn. læve var. Reichenheimii**

C **retusum** Peru

Habit and inflorescence resembling Edwardii ; scapes 100 to 150 flowered. Sepals and petals orange-red, having a green line at their bases ; lip orange.

Spring

C **Rochfordianum** Colombia

A form of the natural hybrid Adrianæ. Sepals and petals buff-yellow, suffused with rose, the sepals heavily barred and blotched with dark brown, the petals spotted with purple ; lip yellow, fringed, spotted with bright purple.

Spring

C **Roeblingianum** Colombia

Probably a natural hybrid with gloriosum, which it somewhat resembles in habit and inflorescence, as one parent. Flowers of medium size, sepals white, with two large, red-brown blotches ; petals white, with one large and several smaller red-brown blotches ; lip pointed, with a reddish brown blotch in front of the crest.

Spring

Rœzlii **syn. Miltonia Rœzlii**

roseum **syn. Cochlioda rosea**

C **Rossii** Mexico

A pretty, useful species. Habit dwarf, about 6 inches high ; scape 2 to 5 flowered ; flowers 2 to 3 inches across, variable ; sepals white, or rose flushed, spotted with dark brown ; petals white on their upper halves, spotted on the basal areas; lip broad, with a waved margin, white or flushed with rose ; crest yellow. Water should be carefully given after growth is complete.

Winter

C **- var. albens** Mexico

Flowers large, sepals white, banded with green ; petals white, with a few basal blotches of green ; lip white.

Winter

C **- var. majus** Mexico

Habit slightly more robust than the type ; flowers larger and more richly coloured.

Winter

ODONTOGLOSSUM—cont.

C **Rossii var. rubescens** Mexico
Flowers suffused with rose, very apparent in the lip. Winter

C - **var. virescens** Mexico
Flowers white, with green spots on the sepals and petals in place of the typically coloured ones. Winter

Rubescens syn. **Rossii var. rubescens**

C **Ruckerianum** Colombia
A supposed natural hybrid between crispum and gloriosum. Sepals and petals creamy-white, bordered with purplish-rose, spotted on the basal halves with chestnut-brown ; lip yellow at the base, with a few chestnut-brown central blotches. Spring

C - **var. Crawshay's** Colombia
Sepals white, suffused with rose, with two very large, reddish-brown blotches; petals similarly coloured, but with several blotches and finely toothed edges ; lip white, yellow at the base, with a central,red-brown blotch. Spring

C - **var. ocellatum** Colombia
Flowers large, heavily shaded with purplish-rose. The sepals bear a number of rounded, crimson chocolate spots, and the petals are similarly marked, but the spots are smaller ; lip white, with a broad, yellow disc. Spring

C - **var. Rosefieldense** Colombia
A very fine var. ; sepals and petals creamy-white, with a rich purplish-rose, central flush, and a group of chocolate spots on each segment ; lip white, with a large, lobed blotch in front of the crest. Spring

C - **var. splendens** Colombia
Flowers larger than those of the type, and more richly coloured. Spring

Sanderianum syn. **constrictum var. Sanderianum**

sceptrum syn. **luteo-purpureum var. sceptrum**

C **Schillerianum** Venezuela
A rare species, with the habit of odoratum, but stronger. The scapes are branched, sepals and petals yellow, thickly marked with large and small, brown blotches ; lip downy, yellow, with a central, purplish blotch, white at the base. Spring

C **Schlieperianum** Costa Rica
Habit as in grande. Spikes taller, 3 to 8 flowered. The flowers are rather less in size ; sepals yellow, barred with brown ; petals similar in colour, but barred on the basal halves only ; lip pale sulphur-yellow, with a few dull brown bars at the base ; crest orange-yellow, bordered with crimson. Late Summer

C - **var. citrinum** Costa Rica
Flowers pale yellow, barred with a deeper yellow shade in place of the typical brown bars. Late Summer

ODONTOGLOSSUM—cont.

C **Schlieperianum var. flavidum** Costa Rica

Flowers sulphur-yellow, with a few light cinnamon bars at the bases of the sepals and petals. Late Summer

Schroderianum **(Rch.f. 1887) syn. Miltonia Schroderiana**

C **Schroderianum (Rchb. f., 1882)** Colombia

Possibly a natural hybrid between nobile and, perhaps, tripudians. Flowers somewhat resembling those of tripudians in outline ; sepals and petals waved, white, blotched with mauve-purple ; lip white, with two mauve-purple, central blotches ; crest spinose, yellow, with a few red spots. Summer

C **Scottii** Colombia

A fine form of the natural hybrid between gloriosum and crispum ; flowers clear creamy-yellow, heavily spotted and barred with dark brown. Spring

C **Shuttleworthii** Colombia

A supposed natural hybrid between crispum and luteo-purpureum.Resembling crispum in the shape of the flowers, which are whitish, heavily blotched with chocolate-brown ; lip finely fringed. Spring

C **Smeeanum** Colombia

One of the finest forms of the crispum and gloriosum hybrid. Flowers very large, white, blotched with deep red-brown. Spring

C **Staurastrum** Colombia

A supposed natural hybrid between Lindleyanum and tripudians. Flowers resembling those of Lindleyanum in shape, but larger. Sepals and petals yellow, shaded with green and blotched with sepia-brown ; lip white, the mid-lobe nearly covered with brown. Spring

C **stauroides** Colombia

A supposed natural hybrid between Lindleyanum and nobile. Flowers intermediate in shape, sepals and petals light yellow, blotched and marked with purplish-brown ; lip white, with a large, central blotch of purple-brown and similarly coloured markings on the base ; crest yellow. Spring

C **stellatum** Mexico and Guatemala

Resembling Rossii in habit, but the flowers are less in size ; sepals and petals dull green, with purplish spots ; lip toothed, white. Winter

C **stellimicans** Colombia

Probably a natural hybrid between nobile and triumphans.Sepals bright yellow, blotched with red-brown ; petals bright yellow, with a brown basal line ; lip yellow, spotted with red-brown basally. Spring

ODONTOGLOSSUM—cont.

C **tentaculatum** Colombia

Probably a natural hybrid between gloriosum and luteo-purpureum ; flowers large, sepals chestnut-brown, bordered and broken with bright yellow ; petals yellow, spotted with chestnut-brown ; lip bright yellow, with a large, chestnut blotch in front of the crest. Spring

tigrinum **syn. Oncidium tigrinum**

C **tripudians** Colombia and Peru

Habit resembling that of nobile, but the scapes are usually simple ; flowers 2 to 3 inches across, variable ; sepals yellow, but covered, except at the tips and bases with chestnut-brown, occasionally with a few yellow, intermediate markings ; petals yellow, with large, chestnut-brown blotches ; lip white or creamy-white, blotched with rose-purple ; crest much toothed.

C **- var. oculatum** Colombia

Sepals chestnut-brown, tipped with yellow ; petals yellow, banded with chestnut-brown ; lip white, blotched with violet around the crest, and a large, central, brown-violet blotch. Spring

C **- var. xanthoglossum** Colombia

Lip with a yellowish ground colour. Spring

C **triumphans** Colombia

Pseudo-bulbs flatly ovoid, 3 to 4 inches high ; leaves 12 to 15 inches long ; scapes arching, 1 ½ to 3 feet long. Flowers large, variable ; sepals and petals golden yellow, transversely barred and blotched with chestnut-brown ; lip white at the base, rich cinnamon-brown in front, bordered with white or pale yellow. Spring

C **- var. aureum** Colombia

Sepals and petals soft yellow, blotched with orange-yellow ; lip white, with a large, soft yellow blotch on the front portion, and a few yellow spots about the crest. Spring

C **- var. Dell** Colombia

A grand form ; sepals deep gold, heavily barred with chocolate-red ; petals white basally, edged and tipped with deep gold, barred and spotted with dark chocolate-red. Spring

C **- var. Dulcote** Colombia

Flowers large, blotched with deep chocolate-brown, the sepals very heavily so. Spring

C **- var. Lionel Crawshay** Colombia

Very handsome ; flowers large, with broad segments, clear yellow, heavily blotched with red-brown, the disc and margin of the lip being yellow.

ODONTOGLOSSUM—cont.

C **Uro-Skinneri** Guatemala

Pseudo-bulbs 2 to 4 inches high, broadly ovoid ; leaves 9 to 12 inches long ; scapes erect, 2 to 3 feet high, occasionally branched ; sepals and petals greenish, marked with chestnut brown ; lip large, broadly heart-shaped, rose, marbled with white. Spring

C **- var. album** Guatemala

Sepals and petals yellow, shaded with green ; lip pure white. Spring

C **velleum** Ecuador

Pseudo-bulbs about 2 inches high, leaves narrow, 8 to 10 inches long ; scape long, flowers about 2 inches across, sepals and petals yellow, blotched with brown ; lip brown, yellow at the tip and base. Spring

C **vexativum** Mexico

A supposed natural hybrid between maculatum and apterum. Flowers nearest in shape to those of apterum ; sepals brown, margined with white ; petals white, spotted on the basal halves with greenish-brown ; lip white, with a few olive-brown basal spots. Winter

vexillarium **syn. Miltonia vexillaria**

C **Victor** Ecuador

Probably a natural hybrid between Hallii and cirrhosum.Sepals and petals waved, pointed, yellow, spotted with cinnamon-brown ; lip white, blotched with brown ; crest toothed. Spring

Vuylstekeanum **syn. luteo-purpureum var. Vuylstekeanum**

C **Wallisii** Colombia

Pseudo-bulbs about 2 inches high, leaves narrow, 12 to 15 inches long ; scapes arched, 12 to 18 inches long ; flowers about 2 inches across, variable ; sepals brown, margined with yellow ; petals yellow, blotched with brown ; lip white, with a central rose-purple blotch on the front part. Spring

Warneri **syn. Oncidium Warneri**

C **Warnerianum** Mexico

A supposed natural hybrid between apterum and Rossii. Flowers large, sepals white, barred at the base with brownish-red ; petals white, spotted at the base with brownish-red ; lip white, with a yellow disc. Winter

Warscewiczii **(Rch.f.) syn. Miltonia Endresii**

Warscewiczii **(Brid.) syn. Schlieperianum**

C **Wattianum** Colombia

A rare and handsome Odontoglossum — a natural hybrid,with Harryanum and Lindleyanum as parents. The habit somewhat resembles that of triumphans. Scapes erect or arching, 15 flowered ; flowers large, sepals and petals golden-yellow,blotched with chocolate-red ; lip white, fringed, shaded with lemon-yellow apically, and bearing a large, rich crimson-purple blotch ; the base is suffused with violet-mauve and spotted with red. Summer

ODONTOGLOSSUM—cont.

C **Wattianum var. Hardy's** Colombia

Sepals and petals deep chocolate, barred with greenish-yellow, tipped with yellow ; lip with the basal half pink, lined with purple ; apical half white, with a large, roughly crescent-shaped blotch of chocolate-crimson. Summer

Weltoni **syn. Miltonia Warscewiczii**

C **Wendlandianum** Colombia

A rare plant, possibly a natural hybrid. The pseudo-bulbs and leaves resemble those of crispum, but are less in size ; scapes branching, flowers resembling those of cirrhosum in shape, sepals and petals creamy-white, blotched with cinnamon-brown, fringed ; crest toothed. Spring

C - **var. Crawshayanum** Colombia

Very distinct ; sepals and petals tapered, soft brownish-red in colour, tinged and thickly spotted with light purplish-red ; lip white, sparsely red-spotted. Spring

C **Wilckeanum** Colombia

A supposed natural hybrid between crispum and luteo-purpureum ; handsome and variable. Flowers large, sepals waved, pale yellow, barred and blotched with red-brown ; petals pale yellow, blotched with red-brown, edges toothed ; lip pale sulphur-yellow, with a large redbrown blotch in front of the crest. Spring

C - **var. albens** Colombia

Flowers larger than in the type, and with a white instead of a pale yellow ground. Spring

C - **var. nobilor** Colombia

Sepals and lip creamy-white, blotched with bright brown ; petals yellow, with light brown blotches. Spring

C - **var. pallens** Colombia

Sepals and petals white, shaded with yellow and heavily blotched with brown ; lip white, with a large, central, brown blotch and smaller spots on the crest. Spring

C - **var. Pittianum** Colombia

A splendid form ; flowers large, sepals clear yellow, with two or three large red-brown blotches ; petals fringed, clear yellow, with a zone of red-brown blotches and a few smaller, central and basal blotches ; lip with a few central blotches. Spring

C - **var. Queen Empress** Colombia

A splendid form ; flowers very large, sepals rich yellow, with a large, central, irregular, rich red-chocolate area ; petals fringed, bearing much smaller blotches; lip yellow, blotched with red ; disc golden yellow. Spring

ODONTOGLOSSUM—cont.

C **Wilckeanum var. Rosslyn** Colombia

A most beautiful form. Flowers large, sepals pale yellow, heavily blotched with chocolate brown ; petals bright yellow, with one large, central brown spot and several smaller ones at the bases ; lip similarly marked. Spring

C - **var. Rothschildianum** Colombia

A grand form. Sepals and petals yellow, heavily blotched with rich brown ; lip with one large central blotch. Spring

C **Williamsianum** Costa Rica

Habit as in Schlieperianum ; spikes erect, 5 to 14 flowered. Flowers large, sepals waved, greenish-yellow, heavily barred with chestnut-brown; petals waved, pale yellow, with a large, basal, red-brown blotch ; lip creamy-white, sparsely blotched, basally, with flesh colour. Summer

C **Wyattianum** Peru

A very distinct handsome species. Pseudo-bulbs flatly compressed, tapered, ancipitous, about 4 inches high, by nearly 2 broad. Surmounted by 2 leaves, one, the shorter, from the crown and one from just beneath the crown. Leaves 6 to 9 inches long. Spikes from base of bulb, inside the sheathing outerleaves, erect, 6 to 12 inches long, 5 or more flowered. Flowers 2 to 3 inches, vertical diameter. Sepals 1 ¼ to 1 ½ inches long, by ½ an inch broad, golden brown. At the base is a roughly triangular white blotch, margined with light purple brown. Petals nearly or quite equal to sepals, but more pointed, marked basally with white and purple, which merges into the golden brown. Lip very remarkable, about 1 ½ inches long, broadly ventricose, trumpet like in profile. Immediately beneath the column, it is contracted into an isthmus, carried at a right angle, with raised, rounded sides at the base, between which and extending beyond the base of the side lobes, are several purple tipped filaments. Side lobes large, rounded, erect. Front lobe spreading broadly two lobed. The edges of the side lobes are apparently confluent with the front lobe, but a small portion of each, near the front lobe, has a narrow sinus on either side of it, enabling the white front lobe to slightly reflex. Side lobes and mesochil purple, broken and veined with white. Column white, lined with red brown on the sides, with two yellow pointed auricles above the stigma.

The nearest affinity of this species seems to be Harryanum. The plant has not yet been authoritatively determined. Winter and Spring

zebrinum **syn. Oncidium zebrinum**

ODONTOCIDIUM Hybrids between Odontoglossum and Oncidium.

ODONTONIA Hybrids between Odontoglossum and Miltonia.

ŒCEOCLADES **syn. SACCOLABIUM**

ONCIDIODA Hybrids between Oncidium and Cochlioda.

ONCIDIUM

A very large and varied genus of epiphytal Orchids, of considerable horticultural value, distributed throughout the whole of Central America ; from Mexico and the West Indies to the southern parts of Brazil. The genus is very polymorphic in its characters — its nearest allies are Odontoglossums, Miltonias, and Brassias. In the greater number of known species, the habit, etc., resembles that of Odontoglossums, but there are many wide digressions. Oncidium macranthum and its allies produce long, flexuous, shortly branched flower scapes, such as are never seen in Odontoglossums. In O. Cavendishianum, the pseudo-bulbs are absent or very much reduced, and the leaves are large and of great substance,O. Jonesianum, etc., have terete, fleshy leaves; while a few species, natives chiefly of the West Indies, have nearly equitant foliage.

The flowers of the different species vary greatly in size, shape and colour. The most constant characters, and those which are of most service in distinguishing the genus, are the short column, with a petaloid wing on either side of the stigma, a protuberance below the stigma, and the deeply toothed or tuberculated crest on the lip. There is a strong resemblance to Odontoglossum flowers, and hybrids have been obtained between the two genera.

Like Odontoglossums, Oncidiums require abundance of moisture when growing and a sweet, fresh atmosphere, but after growth is completed water should be carefully supplied, and with those species which have hard pseudo-bulbs and coriaceous foliage, be sparingly given, but never withheld sufficiently long to cause shrivelling of the pseudo-bulbs or leaves. In many species the pseudo-bulbs and leaves are much more coriaceous than in Odontoglossums, so, speaking broadly, Oncidiums require and enjoy more light and a decided rest. O. macranthum and its allies are practically growing throughout the year and are seldom in a condition to rest. O. splendidum and similar hard-bulbed or hard-leaved kinds, must be rested severely, or premature and weak growths result. As with most of the orchids the individual characteristics must be studied.

ONCIDIUM—cont.

The usual composts as advised for Odontoglossums, are the best potting materials.

The dwarf-growing kinds should be placed in pans, and hung near the glass in their respective houses.

I **acrobotryum** Brazil

Resembles Harrisonianum in habit and has similar greyish or glaucous foliage. The scapes are branched, but the flowers are set at greater intervals than in Harrisonianum and are not quite as large. Sepals and petals somewhat concave, brown, margined with yellow. Lip broadly triangular, clear yellow, toothed, crest and column wings white. Summer

albo-violaceum **syn. incurvum**

C **aemulum** Peru

Habit of macranthum. Scape long, flexuose ; flowers large, upper sepal rich cinnamon-brown, lateral sepals ochre-brown ; petals bright, polished cinnamon ; lip brownish, marked with purple, yellow, streaked with reddish-brown basally. Various

C **alcicorne** Colombia

Pseudo-bulbs flattish, 2 to 3 inches long ; leaves narrow, pointed, about 9 inches long ; scapes erect, branched, 2 to 3 feet high; flowers about an inch across, bright yellow, with paler marks. Summer

altissimum **(Lindl) syn. Baueri**

I **altissimum (Sw.)** West Indies

Pseudo-bulbs 3 to 4 inches high and 2 to 3 inches wide, leaves narrow, 10 to 15 inches high ; scapes 3 to 5 feet high, shortly branched on their upper halves, many flowered ; flowers about 1 ½ inches in diameter, sepals and petals pale yellow, barred and blotched with chestnut-brown, chiefly centrally ; lip yellow, marked with red-brown at the base. Summer

S **ampliatum** Central America

Pseudo-bulbs broad, wrinkled, dull green, mottled with purplish-red and brown ; leaves 8 to 12 inches long, broad, leathery ; scapes arching, branched, 2 to 4 feet long, many flowered ; flowers about 1 ½ inches across, sepals small, yellow, blotched with red-brown ; petals yellow, white behind ; lip spreading, bright canary-yellow, white beneath. Spring

S **- var. majus** Central America

More robust in habit, and with larger, brighter coloured flowers. Spring

anceps **syn. Miltonia anceps**

ONCIDIUM—cont.

C **Andigenum** Ecuador

Habit as in concolor ; flowers of medium size, sepals and petals creamy-white, blotched and dotted with brownish-crimson ; lip white, spotted with rich crimson; crest orange-yellow, side lobes large, creamy-white, suffused with pink, marked with crimson at their bases. Autumn

C **annulare** Colombia

Habit resembling that of macranthum. Flowers large, handsome ; sepals and petals rich chestnut-brown, the sepals narrowly yellow-bordered,the petals broadly so and interlocking apically ; lip brown and yellow, with three purplish teeth on the crest. Summer

anomalum **syn. panchrysum**

I **anthocrene** Colombia

Pseudo-bulbs 4 to 6 inches high, flatly oblong in shape ; leaves 9 to 12 inches high, scapes 2 to 4 feet high, arching, often branched ; flowers 2 inches or more across, sepals and petals waved, barred with yellow ; lip creamy-yellow, with a red band in front of the crest ; the side lobes yellow, marked with red.

Winter

I **aurarium** Bolivia

Pseudo-bulbs about 6 inches high, flatly pear-shaped ; leaves about 12 inches high, scapes branched, 3 to 5 feet high ; flowers about 1 ½ inches across, sepals and petals yellow, spotted with brown ; lip light yellow, disc reddish-brown, with yellow keels. Late Summer

C **aureum** Peru

Pseudo-bulbs 1 to 2 inches high, leaves narrow, 4 to 6 inches high ; scapes 15 to 24 inches high ; flowers about an inch across, sepals and petals greenish-yellow, shaded with purple near the bases ; lip large, bright golden-yellow.

Spring

C **auriferum** Colombia

Pseudo-bulbs 2 to 3 inches high, leaves narrow, about 9 inches high ; scapes 12 to 18 inches high, branched ; flowers about an inch across, sepals and petals pale yellow, transversely barred with pale brown; lip citron-yellow, with a reddish blotch near the crest. Spring

aurosum **syn. excavatum var. aurosum**

ONCIDIUM—cont.

C **Baldeviamae** Colombia

Habit of serratum, but slightly more robust ; scape long, flexuose ; flowers large, sepals rich, polished ochre-brown, the upper sepal rounded and bordered with light yellow blotches, the lower sepals large, narrow, and clawed at the base, then broadening out and bluntly tapered ; petals interlocked at their apices, of the same colour as the other segments, but the margins are crenulate and and broken with light yellow, less in size than the sepals ; the sides are bent upwards, so that a transverse section would resemble the letter «V» ; lip tongue-like, deflexed ; crest white and yellow, with a few small, red-rose spots. Summer

I **barbatum (Lindl.)** Brazil

Pseudo-bulbs 2 to 3 inches high, leaves 3 to 5 inches high ; scapes erect, slender, branched, 12 to 18 inches, or more, high ; flowers about an inch across, sepals and petals yellow, blotched with chestnut-brown ; lip bright yellow, crest spotted with red, disc bearded. Autumn

Barkeri **syn. tigrinum**

C **Batemannianum** Brazil

Pseudo-bulbs nearly ovoid, 3 to 4 inches high ; leaves about 9 inches high ; scapes 3 to 4 feet high, branched towards the apices ; flowers over an inch across, sepals and petals undulated, yellow, marked and blotched with chestnut-brown, lip spreading, bright yellow ; crest much toothed, heavily spotted with rich purple. Various

var. *spilopterum* **syn. spilopterum**

I **Baueri** West Indies, etc.

Habit near that of altissimum, but more robust; scapes often 7 feet high, branched from the base ; flowers over an inch across, sepals and petals narrow, yellowish-green, spotted with red-brown ; lip yellow, crest whitish. Summer

I **bicallosum** Guatemala

Leaves 8 to 12 inches high, stiff, leathery ; pseudo-bulbless, scapes about 18 inches high, sometimes branched ; flowers of medium size, sepals and petals yellow, shaded with brown-green ; lip bright yellow, spreading ; crest whitish, dotted with red. Winter

I **bicolor** Brazil

Pseudo-bulbs 2 to 3 inches high, flatly oval, ribbed ; leaves 5 to 8 inches long, scapes 12 to 15 inches high, branched ; flowers of medium size, sepals and petals yellow, spotted with chestnut-brown ; lip large, deep yellow, spotted with chestnut-brown at the base, whitish beneath. Autumn

bicornutum **syn. pubes**

ONCIDIUM—cont.

I **bifolium** Uruguay

Pseudo-bulbs ovoid, 1 to 2 inches high ; leaves narrow, 4 to 6 inches high ; scapes 12 to 15 inches high ; flowers over an inch across, sepals and petals yellow, barred and spotted with reddish-brown ; lip bright yellow, spreading.

Early Summer

I - **var. majus** Uruguay

Habit more robust than in the type. Flowers larger and carried on taller scapes; sepals and petals nearly covered with brown ; lip brilliant yellow.

Early Summer

bifrons **syn. Warscewiczii**

Bluntii **syn. Miltonia Bluntii**

Boydii **syn. luridum var. guttatum**

brachyphyllum **syn. Cebolleta**

C **bracteatum** Colombia

Pseudo-bulbs oval-oblong, flat ; leaves 9 to 15 inches long, scapes 3 to 4 feet high, shortly branched, many flowered ; flowers an inch in diameter, sepals and petals bright yellow-green, spotted with black-purple ; lip light yellow, whitish beneath. Summer

Brassia **syn. Brassia maculata**

I **Brunleesianum** Brazil

Pseudo-bulbs narrow, flatly oblong, 3 to 5 inches high ; leaves 4 to 7 inches long, scapes 12 to 18 inches or more, branched, many flowered ; flowers nearly an inch across ; sepals pale yellow, with a few faint red bars on the apical half ; lip with large, bright yellow side lobes, the mid-lobe deep, almost black, maroon-crimson. Summer

cæsium **syn. Geertianum**

C **caloglossum** Brazil

A supposed natural hybrid between Marshallianum and Forbesii. Habit nearest that of Marshallianum ; scape branched, sepals and petals yellow, with dark brown stripes, which are nearly confluent on the petals ; lip bright yellow, blotched in front with brown. Summer

C **caminophorum** Venezuela

A dwarf-habited species, with psuedo-bulbs and leaves seldom 6 inches high ; scapes branched, about 12 inches high ; flowers small, sepals and petals yellow on their apical halves, brown on their basal halves ; lip bright yellow, with a chestnut-brown blotch in front of the crest ; the side lobes yellow, red-spotted.

Summer

ONCIDIUM—cont.

C **candidum (Lindl.)** Guatemala

Pseudo-bulbs narrowly oblong, flattish, 1 ½ to 2 inches high ; leaves narrow, about 9 inches high ; scapes about 12 inches high ; 5 to 7 flowered ; flowers small, sepals and petals milk-white, the two lower sepals connate and hidden by the lip, so that but four segments appear when viewed from the front ; lip milk-white, with a stain of yellow at the base ; and a yellow crest, ringed with red-brown.

Summer and various

candidum **(Rch.f.) syn. Miltonia candida**

cariniferum **syn. Odontoglossum cariniferum**

S **Carthaginense** Tropical America

Leaves 9 to 15 inches high, coriaceous, broadly bayonet shaped, dark green, spotted with red ; pseudo-bulbless ; scapes 3 to 5 feet long, shortly branched; flowers about an inch in diameter, with waved segments, creamy-white, blotched and spotted with purplish-rose. Summer

S **- var. roseum** Tropical America

Flowers suffused with rose, and with a large, rose-crimson blotch in front of the disc of the lip. Summer

var. *sanguineum* **syn. var. roseum**

I **Cavendishianum** Tropical America

Habit as in Carthaginense, but the leaves are dark-green, and larger ; scapes 2 to 3 feet high, branching apically ; flowers fragrant, 1 to 2 inches across ; sepals and petals undulated, yellow, (sometimes wholly so), spotted with red ; lip bright yellow. Spring

I **Cebolleta** Brazil

Pseudo-bulbs small, hardly to be distinguished from the leaves, to which they form a thickened base. Leaves 9 to 18 inches high, stoutly terete, tapering, channelled on the face ; scapes erect, 15 to 30 inches high, branched ; flowers variable, about 1 ½ inches across ; sepals and petals yellow, spotted with red-brown ; lip bright canary yellow. Spring

cepula **syn. Cebolleta**

Cervantesii **syn. Odontoglossum Cervantesii**

cheirophorum Colombia

Very pretty. Habit dwarf, seldom exceeding 6 inches ; scapes longer,branched; many flowered ; flowers small, fragrant, bright yellow, except the crest of the lip ; which is often whitish. Autumn

chiriquence **syn. Odontoglossum chiriquence**

ONCIDIUM—cont.

chrysodipterum **syn. tetracopis**

chrysomorphum Colombia

Pseudo-bulbs ovoid, 1 to 2 inches high ; leaves 7 to 10 inches high, scapes stout, 1 ½ to 2 feet high, branched, many flowered ; flowers nearly an inch in diameter, fragrant ; sepals and petals golden-yellow, lip light yellow.

Summer

chrysopterum **syn. micropogon**

C **chrysopyramis** Colombia

Pseudo-bulbs 1 ¼ to 3 inches high, leaves 5 to 7 inches long, scapes 1 ¼ to 2 ¼ feet high, slender, arching, branched ; flowers nearly an inch across, entirely of a soft canary-yellow. Summer

I **chrysoraphis** Brazil

Habit nearest to that of pubes ; scapes branched, flowers nearly an inch across, sepals and petals light yellow, spotted with dark brown ; lip yellow, spreading.

Summer

I **chrysothyrsus** Brazil

Pseudo-bulbs about 3 inches high, flatly oblong ; leaves about 8 inches long, scapes 2 to 3 feet high, branching on the apical portion ; flowers showy, sepals and petals small, pale green, barred with purplish-red ; lip large spreading, bright yellow, with a few crimson lines at the base. Autumn

ciliatulum **syn. barbatum**

ciliatum **syn. barbatum**

ciliolatum **syn. barbatum**

cirrhosum **syn. Odontoglossum cirrhosum**

I **citrinum** Trinidad

Pseudo-bulbs 1 to 2 inches high, ovate ; leaves 4 to 6 inches high, scape 12 to 18 inches high ; flowers with small, yellow sepals and petals, faintly red-marked ; lip large, bright citron-yellow. Summer

citrosmum **syn. Odontoglossum citrosmum**

C **Clæsii** Colombia

Resembling macranthum in habit. Spikes long, flexuose, branching, many flowered, flowers medium size. Sepals deep brown, petals lighter, flushed with purple. Lip narrow, reflexed, deep purple. Summer

Clowesii **syn. Miltonia Clowesii**

ONCIDIUM—cont.

C **concolor** Brazil

Pseudo-bulbs 1 to 2 inches high, leaves about 6 inches long, scapes drooping, sometimes branched ; flowers large, sepals, petals, and the large lip bright canary-yellow. Early Summer

confragosum **syn. viperinum**

constrictum **syn. Odontoglossum constrictum**

convolvulaceum **syn. globuliferum**

I **cornigerum** Brazil

Pseudo-bulbs 2 to 4 inches high, leaves 4 to 7 inches long, scapes slender, branched, pendulous ; flowers crowded, rather small ; sepals and petals yellow, spotted and barred with red-brown ; lip bright yellow, sometimes marked with red. Spring

coronarium **syn. Odontoglossum coronarium**

C **corynephorum** Peru

Habit somewhat resembling that of macranthum, but the pseudo-bulbs are more tapered, carried at longer intervals, on an ascending rhizome. Foliage lighter green. Spikes long, branching, flexuose. 20 to 50, or more, flowered. Flowers about 1 ½ inches across. Sepals and petals nearly equal, roundly ovate, light rose, margined with white. The lip larger nearly covered with a circular purple crimson blotch, lighter basally, and with a yellow callus.

Various

C **- var. Muellerii** Peru

Possibly a distinct species, but closely allied to corynephorum. Sepals and petals white, tinged with pink. Lip rose-purple. Summer

cosymbephorum **syn. luridum**

C **crispum** Brazil

Pseudo-bulbs 3 to 4 inches high, brownish ; leaves 6 to 9 inches high, broad ; scapes 2 to 4 feet high, branched ; flowers large, variable, handsome ; segments much crisped, sepals greenish-brown, petals rich chestnut brown, lip large, rich chestnut brown, yellow spotted and marked with red at the base.

Various

C **- var. grandiflorum** Brazil

A splendid form. Flowers much larger than those of the type, the petals and lip narrowly margined with golden-yellow, and at the base of the lip is a radiating blotch of golden-yellow. Various

var. *marginatum* **syn. Forbesii**

cristatum **(Beer) syn. Odontoglossum cristatum**

ONCIDIUM—cont.

C **crocodiliceps** Mexico

A pretty, dwarf-habited species ; pseudo-bulbs ovoid, wrinkled ; leaves oblong, acute ; flowers carried in a one-sided raceme ; sepals and petals light yellow, shaded with green, striped and blotched with cinnamon-brown ; lip white, with a tuft of yellow hairs at the base ; a bi-lobed velvet-like callus, a few lilac stripes and spots. Autumn

I **Croesus** Brazil

Habit dwarf, pseudo-bulbs ovoid-oblong, about an inch high ; leaves narrow, about 4 inches high ; scapes taller, 2 to 4 flowered ; flowers rather over an inch across, sepals and petals a bright reddish-brown ; lip three-lobed, bright yellow, except for the disc and crest which are of a deep velvety-black. Summer

I **cruciatum** Brazil

Habit as in pubes ; flowers of a similar size, but carried more laxly in the panicle ; sepals and petals yellow, marked and spotted with red ; lip whitish with two slender horns over the lateral horns of the crest. Spring

cruentum **syn. pelicanum**

C **cryptocopis** Peru

Pseudo-bulbs narrow, 4 to 5 inches high ; leaves 12 to 15 inches long, scape 3 to 6 feet long, flexuous, branched ; flowers large, sepals and petals pale chestnut-brown, beautifully crisped and narrowly margined with gold ; lip reflexed, yellow. Spring

cucullatum **syn. olivaceum**

cuneatum **(Lindl.) syn. luridum**

C **curtum** Brazil

Pseudo-bulbs 2 to 3 inches high, leaves 6 to 12 inches long, scapes 2 to 3 feet high, branched ; flowers large, sepals chestnut-brown, barred wtih yellow, petals chestnut-brown, margined with yellow ; lip bright yellow, with a broad, marginal band of chestnut-brown spots. Spring

C **dasystyle** Brazil

Pseudo-bulbs 1 to 1 ¾ inches high, leaves 5 to 6 inches, scapes slender, 15 to 24 inches high, often branched, flowers 1 to 2 inches across, sepals and petals pale yellow, blotched with red-brown ; lip spreading, pale yellow, with a large, black-maroon, fleshy crest. Spring

dentatum **syn. micropogon**

ONCIDIUM—cont.

C **dichromum** Peru

Pseudo-bulbs about 2 inches high, leaves 5 to 9 inches high, scapes 18 to 24 inches, branched ; flowers medium size, sepals and petals small, bronze-red, shaded with yellow ; lip broadest at the apcial portion, clear orange-yellow. Spring

digitatum **syn. leucochilum**

C **diodon** Colombia

Habit in the pseudo-bulbs and leaves resembling that of macranthum, but less ; scape erect, branching, many flowered ; flowers small, sepals and petals dark brown, with a light yellow callus. Summer

I **divaricatum** Brazil

Pseudo-bulbs nearly round in outline, much compressed ; leaves 9 to 15 inches long, broad, leathery ; scapes slender, 4 to 6 feet high, branched, many flowered; flowers very variable, about an inch across ; sepals and petals chestnut-brown, tipped with golden-yellow ; mid-lobe of lip yellow, with a central chestnut spot ; the larger side lobes yellow, spotted with chestnut. Summer

Ehrenbergii **syn. Odontoglossum Ehrenbergii**

elegans **syn. Tetramicra rigida**

elegantissimum Brazil

Probably a natural hybrid between Forbesii and dasystyle. Flowers large, sepals yellow, spotted with brown ; lip bright yellow, marked with brown, the callus bordered with black-purple. Summer

C **Enderianum** Brazil

A supposed natural hybrid between crispum and curtum. Flowers large, showy; sepals yellow, barred with light brown ; petals light chestnut, the edges marked with golden-yellow ; lip golden-yellow ; with a wide, marginal zone of light chestnut, bordered on the outer edge with a narrow, golden line. Summer

C **endocharis**

Habit resembling that of cheirophorum, scapes slender ; flowers small, bright orange-yellow. Winter

epidendroides **syn. Odontoglossum epidendroides**

C **euxanthinum** Brazil

Pseudo-bulbs flattish, 2 to 3 inches high ; leaves narrow, about 9 inches long ; scapes 12 to 18 inches long, drooping, branched ; flowers about an inch across, sepals and petals bright yellow, barred with red-brown ; lip spreading, golden-yellow, with a few central, reddish dots. Late Summer

ONCIDIUM—cont.

C **excavatum** Peru

Pseudo-bulbs stout, 3 to 5 inches high ; leaves 12 to 18 inches high, scapes 2 to 3 feet high, branched, many flowered; flowers 1 to 2 inches across, sepals yellow, with a few basal, red bars ; petals yellow, sometimes basally spotted with red ; lip bright canary yellow, with a deep pit in the under side. Autumn

C - **var. aurosum** Peru

Flowers larger than the type, and with more red marks at the base of the sepals and the petals. Autumn

C **falcipetalum** Venezuela

Habit much as in serratum ; scapes often 20 feet long, flexuose, branched ; flowers large, sepals dark brown, narrowly margined with yellow, the petals narrow, with wavy margins, yellow, with brown spots on the basal halves ; lip narrow, reflexed, purplish-brown. Autumn

festatum **syn. aureum**

fillipes **syn. graminifolium**

fimbriatum **(Hoff.) syn. barbatum**

I **fimbriatum (Lindl.)** Brazil

Habit resembling that of sarcodes, but rather less ; scapes 2 to 3 feet long, slender, drooping, branched, many flowered ; flowers nearly an inch in diameter ; sepals and petals bright yellow, barred and marked with red ; lip yellow, margin of front lobe fimbriate. Spring

C **flabelliferum** Brazil

A supposed natural hybrid between Forbesii and dasystyle.Flowers large, sepals and petals chestnut-brown, marked with yellow ; lip large, bright yellow, thickly spotted with rich chestnut-brown on the margins. Summer

flavescens **syn. Miltonia flavescens**

I **flexuosum (Sims)** Brazil

Pseudo-bulbs oval-oblong, 2 to 3 inches high, carried at intervals on stout, ascending rhizomes ; leaves 4 to 9 inches long, scapes 2 to 3 feet high, slender, wiry, branched apically, many flowered ; flowers about an inch in diameter, vertically, sepals and petals red-brown, tipped with greenish-yellow, the lower sepals connate, nearly their whole length ; lip spreading, bright canary-yellow ; red-brown on the front part of the crest. Summer and various

ONCIDIUM—cont.

C **Forbesii** Brazil

Pseudo-bulbs 2 to 3 inches high, monophyllous apically, leaves 6 to 12 inches, scapes 1 ¾ to 3 feet high, branched ; flowers large, handsome ; all the segments broad, waved, rich chestnut-brown, with narrow, broken, golden-yellow margins. Autumn

C - **var. Borwickianum** Brazil

Lip broken and blotched with yellow. Autumn

C - **var. Measuresianum** Brazil

A splendid form, very distinct ; flowers large, pure golden-yellow, except for a narrow border to each segment of purplish-brown, shaded with ochre. Autumn

C **Forstermanianum** Guatemala

Pseudo-bulbs about 3 inches high, broad, compressed, densely spotted with brown, except towards the apices ; leaves 6 to 10 inches high, scapes slender, branched, 2 to 5 feet long, many flowered, flowers small, yellow, blotched with reddish-brown. Summer

funerum **(Lindl.) syn. reflexum**

fuscatum **syn. Miltonia Warscewiczii**

Galeottianum **syn. Odontoglossum Galeottianum**

gallopavinum **syn. Batemannianum**

C **Gardneri** Brazil

Probably a natural hybrid between Forbesii and dasystyle. Scapes branched, 1 ¾ to 3 feet high ; flowers large, handsome ; sepals rich brown, barred with yellow ; petals chestnut-brown, with marginal, yellow markings ; lip bright yellow, with a marginal zone of red-brown, broken with yellow. Summer

Gautieri **syn. unicorne**

C **Geertianum** Mexico

Pseudo-bulbs 1 to 2 inches high, leaves narrow, 6 to 9 inches long ; scapes erect, 12 to 18 inches high ; flowers 1 to 2 inches, vertical diameter ; sepals and petals greenish, shaded with red ; lip bright canary-yellow. Summer

Gireoudianum **syn. Brassia Gireoudiana**

ONCIDIUM—cont.

C **globuliferum** Colombia

Pseudo-bulbs 1 to 1 ½ inches high, flatly oval or orbicular, set rather closely together on slightly ascending rhizomes ; adventitious growths are also produced at long intervals on thin, flexuose, wiry growths, apparently abortive flower scapes, produced from the base of the pseudo-bulbs, normal growths being often produced simultaneously from the opposite basal side of the pseudo-bulb ; scapes varying in height, often branched ; flowers golden-yellow, spotted with red on the bases of all the segments. Various

C **graminifolium** Mexico and Guatemala

Pseudo-bulbs 2 to 3 inches high, leaves narrow, 6 to 12 inches high ; scapes slender, 3 to 5 feet long, branched ; flowers variable, nearly 2 inches across vertically ; sepals and petals yellow, blotched with chocolate-brown ; lip bright yellow. Various

C **grandiflorum** Colombia

Habit resembling that of macranthum. Scape long, branched, flexuose, many flowered ; flowers large, rich brown, the upper sepal and petals bordered with yellow ; both sepals and petals beautifully crisped ; lip narrow. Summer

C **Gravesianum** Brazil

The habit resembles that of crispum. Pseudo-bulbs furrowed, reddish, about 3 inches high ; leaves 4 to 7 inches long, scapes 2 to 3 feet high, branched ; flowers about 2 inches across, sepals brown, barred with yellow ; petals brown, marked with yellow ; lip yellow, marked with brown at the base ; the front lobe widely bordered with brown. Summer

guttatum **syn. luridum var. guttatum**

S **haematochilum** Trinidad

A rare and variable supposed natural hybrid between Lanceanum and luridum. Leaves 9 to 12 inches high, leathery, dull green, spotted with red-brown ; scapes 1 ½ to 2 ¾ feet high, branching on the apical portion, many flowered ; flowers variable, about 2 inches across ; sepals and petals yellowish-green, heavily blotched with chestnut-brown ; lip blood-red, margined with spots of red on a yellow ground ; crest rose-purple. Autumn

Hallii **syn. Odontoglossum Hallii**

I **Harrisonianum** Brazil

A dwarf habited species, pseudo-bulbs and leaves seldom exceeding 6 inches in height. Scapes branched, 10 to 15 inches high, many flowered ; flowers crowded, rather small ; sepals and petals bright yellow, blotched with red ; front lobe of lip spreading, yellow, basal lobes spotted with red . Autumn

ONCIDIUM—cont.

I **hastatum** Mexico and Guatemala

Pseudo-bulbs ovoid, 3 to 4 inches high ; leaves 6 to 9 inches high, scapes 3 to 5 feet high, sparsely branched ; flowers 1 to 2 inches across, sepals and petals narrow, yellowish-green, heavily barred with chocolate-brown ; lip three-lobed, the side-lobes whitish, the mid-lobe claret-red, passing into yellowish-green apically.

I - **var. Roezlii** Guatemala

Mid-lobe of lip claret-red, side lobes yellow.

hastiferum **(Hort.) syn. macranthum var. hastiferum**

hastilabium **syn Odontoglossum hastilabium**

hemichrysum **syn. aureum**

Henchmannii **syn. Carthaginense**

I **heteranthum** Peru

Pseudo-bulbs about 2 inches high, leaves narrow, 3 to 6 inches long ; scape slender, branched, 3 to 4 feet long, many flowered ; flowers nearly an inch across, sepals and petals creamy-white, barred with brown ; lip yellow, red-brown at the base ; only the terminal flower on each branch is perfect, the rest consist each of five narrow, yellowish-white segments. Summer

I **hians** Brazil

A dwarf-habited species, about 3 inches high ; scapes slender, 6 to 12 inches high ; flowers small, sepals and petals red-brown, margined with yellow ; lip yellow, spotted with red-brown ; crest very large, white. Summer

holochrysum **syn. onostum**

C **Hookeri** Brazil

Pseudo-bulbs about 2 inches high, leaves 6 to 10 inches high, scapes 15 to 20 inches long, flowers rather small, sepals and petals reflexed, yellowish, spotted with dull red ; the two lateral sepals connate for half their length ; lip bright yellow, with a large, chestnut-coloured callus. Autumn

Huntianum **syn. Carthaginense**

C **hyphaematicum** Ecuador

Pseudo-bulbs oblong, 3 to 4 inches high ; leaves about 12 inches long, scapes 4 to 5 feet long, branched, many flowered ; flowers medium size, sepals and petals waved, red-brown, tipped with yellow ; lip broad, bright yellow, stained with blood-red beneath. Late Summer

ONCIDIUM — cont.

C **incurvum** Mexico

Pseudo-bulbs 3 to 4 inches high, ribbed ; leaves 12 to 15 inches long, scapes 3 to 7 feet long, branched, arching ; flowers about an inch across, fragrant ; sepals and petals rose-pink, tipped and spotted with white, lip white, with a yellow crest. Autumn

C - **var. album** Mexico

Flowers pure white.

interlobum **syn. superbiens**

C **insculptum** Tropical America

Pseudo-bulbs stout, 3 to 5 inches high ; leaves 12 to 18 inches long, scapes 7 to 12 feet long, flexuose, branched ; flowers nearly 2 inches across, segments dark, polished brown ; the sepals and petals margined with straw-yellow, crisped; mid-lobe of lip, convex, reflexed. Summer

Insleayi **syn. Odontoglossum Insleayi**

intermedium **syn. luridum var. intermedium**

ionosmum **syn. tigrinum**

I **iridifolium** Tropical America

A pretty, dwarf-habited species, with nearly equitant foliage and without pseudo-bulbs ; height about 3 inches. The scapes bear a single flower, sepals and petals small, lip large, pale yellow, spotted with bright red. Summer

Janeirense **syn. longipes**

S **Jonesianum** Paraguay

Habit as in Cebolleta, but rather less, and the pseudo-bulbs are slightly more prominent. Scapes drooping, 12 to 20 inches long ; flowers large, sepals and petals white, shaded with yellow, spotted with chestnut-brown, lip broad, white, sparsely red-spotted in front of the crest. The plants succeed better when placed on wooden blocks or rafts, with the foliage pointing downward. Autumn

S - **var. phaeanthum** Paraguay

Sepals and petals reddish-brown, lip white. Autumn

juncifolium **syn. Cebolleta**

Jurgensenianum **syn. hastatum**

Karwinskii **syn. Odontoglossum læve**

Kienastianum **syn. triliugue**

Klotzschianum **syn. Odontoglossum apterum**

ONCIDIUM—cont.

S **Kramerianum** Ecuador

Pseudo-bulbs flattish, round in outline ; leaves 6 to 10 inches long, deep green, with darker markings, purple-shaded beneath ; scapes slender, 2 to 3 feet long ; round and knotted, flowers large, produced as in papilio, several of the Masdevallias, etc., i.e. as one flower decays, the scape lengthens and produces others in succession, continuing so for a long time. The upper sepal and petals are similar, erect, or nearly so, 2 to 3 inches long, narrow, broadening and undulate at their apices, rich reddish-brown ; lower sepals large, drooped, orange-red, broken with golden-yellow, lip spreading, bright canary-yellow, bordered with red-brown spots. Various

S - **var. resplendens** Ecuador

Flowers large, and much more brightly coloured ; lip yellow. Various

læve **syn. Odontoglossum læve**

C **lamelligerum** Ecuador

Pseudo-bulbs 4 to 6 inches high, leaves 15 to 24 inches long, scapes long, flexuose, branched ; flowers large, upper sepal broad, light brown, margined with yellow ; lower sepals diverging, long, light brown ; petals very crisped, light yellow, the basal halves nearly covered with light brown ; lip narrow, light yellow, stained with purple. Summer

S **Lanceanum** Trinidad and Guiana

Leaves 12 to 20 inches long, deep green, spotted with purplish-red ; pseudo-bulbless ; scapes branched apically, 18 to 30 inches high; flowers large, fragrant; sepals and petals yellow, shaded with green, spotted with chocolate-brown ; lip rose-purple, darkest at the base. Summer

S - **var. Louvrexianum** Guiana

Front lobe of lip white. Summer

I **lancifolium** Brazil

Pseudo-bulbs stout, slightly ribbed, 2 to 3 inches high ; leaves 6 to 9 inches long ; scapes stout, erect, branched ; flowers large, yellow, the segments spotted basally with cinnamon brown ; crest whitish. Spring

C **Larkinianum** Brazil

Probably a natural hybrid between Marshallianum and Forbesii. Flowers large, sepals yellow, transversely marked with chestnut-brown ; petals almost entirely chestnut-brown, bordered with yellow ; lip clear yellow, marked with chestnut-brown on the base. Various

ONCIDIUM—cont.

C **Leopoldianum** Peru

A species closely resembling corynephorum, but differing in its deltoid, not rounded lip. Sepals and petals white, freckled and suffused with rose-purple basally. Lip violet-purple, margined with white, crest yellow. Various

C **leucochilum** Mexico

Pseudo-bulbs 3 to 5 inches high, leaves 8 to 12 inches long, scapes 4 to 8 feet high, branched, arched or drooping, many flowered ; flowers variable, nearly 2 inches in diameter ; sepals and petals yellowish-green, barred and blotched with dark brown ; lip spreading, white. Various

leucostomum **syn. hians**

I **Lietzii** Brazil

Pseudo-bulbs 3 to 5 inches high, leaves 6 to 9 inches long, scapes branched, 2 to 3 feet high, slender, many flowered ; flowers over an inch across, reddish-brown. Autumn

S **Limminghii** Venezuela

A pretty, dwarf species, with a creeping habit ; scapes slender, a few inches high, one or few flowered ; flowers about 1 ½ inches across, upper sepal and petals ochre-brown, with a yellowish margin ; the two lower sepals yellow, barred with red ; lip yellow, dotted in front and on the side lobes with bright red. Should be grown on a block or piece of tree fern stem. Summer

Lindenii **(Lodd.) syn. luridum**

longifolium **syn. Cebolleta**

C **longipes** Brazil

Habit similar to that of Croesus ; scapes 2 to 5 flowered, sepals and petals red-brown, broken and tipped with yellow; lip bright yellow, crest whitish, surrounded by a reddish ring. Summer

C **Loxense** Peru

Pseudo-bulbs 4 to 5 inches high, leaves 9 to 15 inches high, scapes flexuose, 3 to 6 feet long, branched ; flowers large, sepals chocolate-brown, barred with light yellow ; petals rich olive-brown, with a few yellow markings ; lip spreading,bright orange-yellow, broadest apically. Spring

C **Lucasianum** Peru

Pseudo-bulbs ovate, or nearly so ; leaves 6 to 8 inches high, scapes slender, 3 to 4 feet long, branched, arching ; flowers medium size, sepals and petals yellow, lip broad, golden-yellow ; crest brown. Spring and various

ONCIDIUM—cont.

C **ludens**

Habit resemblnig that of serratum. Flowers large, sepals rich brown, shaded with ochre-yellow ; upper sepal bordered with yellow, petals rich yellow, marbled with brown, sometimes interlocked at their apices ; lip pale yellow, shaded with brown. Summer

luridum **(Knowles) syn. Carthaginense**

S **luridum** West Indies

Leaves 1 to 2 feet high, leathery, dark green, often spotted with brown, without pseudo-bulbs ; scapes 3 to 9 feet long, branched ; flowers 1 to 2 inches across, variable, usually yellowish-green, covered with nearly confluent, reddish-brown blotches. Summer

S **- var. guttatum** West Indies

Flowers yellow, spotted with orange-red. Summer

S **- var. intermedium** West Indies

Scapes shorter ; flowers larger than in the type, bright yellow, spotted with red-brown. Summer

luteo-purpureum **syn. Odontoglossum luteo-purpureum**

C **macranthum** Tropical America

A grand Orchid. Pseudo-bulbs 4 to 6 inches high, leaves 15 to 20 inches high, scapes long, flexuose, branched ; flowers very large, the upper sepal yellow, shaded with olive-brown ; the two lower sepals shaded with orange-yellow, petals bright yellow, lip white, bordered with violet-purple, purplish at the base. Spring and Summer

C **- var. hastiferum** Peru

Flowers larger and more brightly coloured than in the type ; lip with a fleshy, hooked process rising from the centre. Summer

macropetalum **(Klotsch) syn. micropogon**

macropterum **syn. suave**

maculatum **(Beer) syn. Odontoglossum maculatum**

I **maculatum** Mexico

Pseudo-bulbs stout, 3 to 4 inches high ; leaves 7 to 10 inches long, scapes 1 to 2 feet high, sometimes branched ; flowers about 2 inches across, sepals and petals yellowish-green, heavily blotched with chestnut-brown ; lip whitish, passing into yellow on the apical half. Winter

ONCIDIUM—cont.

C **Mantinii** Brazil

A supposed natural hybrid between Marshallianum and Forbesii. Flowers large, sepals and petals yellow, the centres covered with rich chestnut-brown ; lip clear yellow, with a few purplish-brown spots. Winter

C **Marshallianum** Brazil

Pseudo-bulbs 3 to 5 inches high, leaves 7 to 15 inches long, scapes 3 to 6 feet high, branched ; flowers large, variable ; sepals yellow, barred with reddish-brown ; the larger petals bright-yellow, centrally spotted with red-brown ; lip large, spreading, bright yellow ; the base and crest spotted with orange-red. Early Summer

C **- var. superbum** Brazil

Flowers larger than in the type, golden-yellow, marked with crimson-brown. Early Summer

C **Martianum** Brazil

Pseudo-bulbs ovoid, about 2 inches high ; leaves 5 to 7 inches long, scapes 12 to 18 inches high, branched ; flowers medium size, sepals and petals small, yellow, barred with chestnut-brown ; lip large, spreading, bright canary-yellow, spotted with red-brown round the crest. Summer

C **metallicum** Colombia

Habit resembling that of serratum, but slightly more robust. Flowers large, of a rich, polished chestnut-brown ; the upper sepal and petals marked on the borders with rich yellow ; the lateral sepals shaded with yellow on their apical portions ; lip distinct in shape, narrowest in the middle ; the front lobe hastate in shape. Spring

I **microchilum** Guatemala

Pseudo-bulbs 1 to 2 inches high, leaves 7 to 12 inches high, much as in splendidum, scapes 3 to 4 feet high, branched ; flowers about an inch across, sepals and petals brown, marked with yellow ; lip with the front lobe very small, the side lobes whitish, basally marked with purple. Summer

microglossum **syn. barbatum**

I **micropogon** Brazil

Habit near that of barbatum ; flowers variable, sepals yellow, barred with red-brown ; petals bright yellow, lip yellow, with reddish spots at the base, three lobed. Summer

C **monachium** Colombia

Habit resembling that of serratum. Flowers large, sepals dark brown, the lateral two divergent and curving upwards and backwards ; the upper sepal narrowly bordered with yellow ; petals interlocking apically, reddish-brown, blotched and edged with light yellow ; lip narrow, dark brown. Spring

ONCIDIUM—cont.

monoceras **syn. unicorne**

nævium **syn. Odontoglossum nœvium**

S **nanum** Guiana

Leaves 3 to 6 inches high, dull green, spotted with red, without pseudo-bulbs ; scapes drooping, branched ; flowers small, sepals and petals yellow, spotted with red ; lip spreading, bright yellow. Summer

S **nigratum** British Guiana

Pseudo-bulbs 4 to 5 inches high, leaves 9 to 15 inches high, broad ; scapes flexuose, 10 to 15 feet long, branched ; flowers about an inch across, sepals and petals white, barred or blotched with black-purple, lip pale yellow, with a red-brown bar in front of the crest. Spring

nodosum **syn. Kramerianum**

nubigenum **syn. olivaceum var. nubigenum**

I **oblongatum** Mexico

Pseudo-bulbs stout, 2 to 3 inches high ; leaves about 12 inches high, scapes erect, 3 to 6 feet high, flowers of medium size, lip with a deep cleft in the front lobe, light yellow, spotted with reddish-brown at the base of the segments. Winter

C **obryzatum** Peru

Pseudo-bulbs 2 to 3 inches high, flattish ; leaves narrow, 6 to 10 inches long; scapes branched, 4 to 6 feet long, many flowered ; flowers variable, rather small, showy, fragrant ; sepals and petals bright yellow, barred on the basal portions with red-brown ; lip clear yellow, marked with orange-red round the crest. Winter

obsoletum **syn. Carthaginense**

odoratum **syn. Odontoglossum odoratum**

Oerstedii **syn. Carthaginense**

C **olivaceum** Colombia

A pretty Oncidium, with ovate-oblong pseudo-bulbs about 2 inches high; leaves 3 to 6 inches high, scapes branched, 1 to 2 feet high ; flowers variable, about 1 ½ inches in vertical diameter ; sepals and petals olive-green or chestnut-brown, sometimes shaded with yellow ; lip light rose-purple, blotched and spotted with purple-crimson. Spring

C **- var. andigenum** Colombia

Sepals and petals pale yellow, spotted with purple ; lip white, blotched with purple. Spring

ONCIDIUM—cont.

C **olivaceum var. flavidum** Colombia
Sepals and petals yellow, blotched with brown ; lip purple, margined with white. Spring

C **- var. Lawrenceanum** Colombia
Scapes taller than in the type, sepals and petals deep chocolate-brown ; lip deep rose, heavily spotted with crimson-brown. Spring

C **- var. macrochilum** Colombia
Habit more robust than in the type, scapes flexuose, many flowered ; flowers larger, sepals and petals crimson, shaded with maroon ; lip broad, purple. Spring

C **- var. maculosum** Colombia
Scapes nodding, many flowered ; sepals and petals deep red-brown, lip violet, with purple spots. Spring

C **- var. nubigenum** Colombia
Habit less than that of the type, scapes erect, few flowered ; flowers slightly smaller, sepals and petals brownish ; lip white, yellowish at the base, with a violet blotch in front of the crest. Spring

- var. *phalœnopsis* **syn. phalænopsis**

C **- var. sanguinolentum** Colombia
Scapes few flowered, flowers with greenish, crimson-streaked sepals and petals, lip rose-coloured, spotted with crimson. Spring

S **onustum** Ecuador
A pretty, dwarf-habited species, with equitant foliage ; scapes about 12 inches long, arched ; flowers large comparatively, bright yellow. Autumn

C **ornithorynchum** Mexico and Guatemala
Pseudo-bulbs oval-oblong, 1 to 2 inches high ; leaves 7 to 12 inches long, scapes arching, branched, 1 to 2 feet long, many flowered ; flowers very fragrant, nearly an inch across vertically, soft rose-lilac in colour ; the lateral lobes of the lip usually darker than the remainder of the flower ; crest yellow. Winter

C **- var. albiflorum** Guatemala
Flowers dull white, evcept for the yellow crest of the lip. Winter

C **- var. album** Guatemala
Flowers as in var. albiflorum, but of a purer white. Winter

pachyphyllum **syn. Cavendishianum**

pallidum **syn. Harrisonianum**

ONCIDIUM—cont.

C **panchrysum** Colombia

Pseudo-bulbs 2 to 3 inches high, broad ; leaves 9 to 12 inches high ; scapes 18 to 30 inches high, branched, many flowered ; flowers of medium size, bright canary-yellow. Summer

C **panduratum** Colombia

Pseudo-bulbs oblong, about 3 inches high ; leaves about 9 inches high, scapes about 18 inches high, many flowered ; flowers small, deep reddish-brown ; the sepals margined with yellow on their upper halves, and the side lobes of the lip yellow. Summer

panduriferum **syn. Carthaginense**

pantherinum **syn. Harrisonianum**

papilio West Indies

Habit resembling that of Kramerianum, but the upper part of the scape is flattened. Flowers large, dorsal sepal and petals 3 to 5 inches long, narrow, broadest at their apices, nearly erect, reddish-crimson ; lateral sepals large, decurved, chestnut-red, with transverse, yellow bars ; lip with the front lobe nearly orbicular, canary-yellow, broadly margined with bright red. Various

S - **var. majus** Trinidad

A handsome variety. Flowers much larger than in the type, and more richly and brightly coloured. Various

pardinum **syn. Odontoglossum pardinum**

C **pectorale** Colombia

A supposed natural hybrid between Forbesii and Marshallianum.Flowers large, sepals chestnut-brown, barred and margined with yellow ; petals larger, chestnut-brown, narrowly bordered and spotted with yellow ; lip bright yellow. Spring

pelicanum **syn. reflexum**

pentaspilum **syn. Harrisonianum**

Pescatorii **syn. Odontoglossum nobile**

C **phalaenopsis** Ecuador

A beautiful species, with the habit of olivaceum, but rather less. Flowers 2 inches in vertical diameter, sepals creamy-white, mottled with red-violet ; petals creamy-white, barred with red-violet ; lip broad, bilobed, creamy-white, spotted basally with violet-crimson. Spring

phyllochilum **syn. hastatum**

ONCIDIUM —cont.

I **phymatochilum** Mexico

Pseudo-bulbs 3 to 4 inches high, broad, flattish ; leaves 9 to 15 inches long, broad ; scapes 3 to 5 feet high, branched ; flowers 2 inches across, with undulated attenuated segments, sepals and petals narrow, pointed, pale yellow or creamy-white, spotted with and banded with brown or red ; lip white, spotted with red around the crest. Early Summer

Pinellianum **syn. Batemannianum**

C **Pollettianum** Brazil

A supposed natural hybrid between dasystyle and probably Forbesii. Flowers large, sepals yellow, petals chestnut-brown, bordered with yellow ; lip broad, yellow, with brownish, marginal markings.

C **praetextum** Brazil

Pseudo-bulbs ovoid, 1 to 2 inches high, broad ; leaves 5 to 9 inches high, scapes 18 to 36 inches high, branched ; flowers fragrant, about 1 ¼ inches across; sepals light chestnut-brown, barred with yellow ; petals chestnut-brown, lip broad, yellow, with a wide, brown margin. Spring

psittacinum **syn. maculatum**

puberum **syn. pubes**

I **pubes** Brazil

Pseudo-bulbs sub-cylindric, 2 to 3 inches high ; leaves 3 to 6 inches high, scapes 1 ¼ to 2 feet long, branched, nodding, many flowered ; flowers nearly an inch across, variable ; sepals and petals red-brown, barred and spotted with yellow ; lip red-brown, margined with yellow. Summer

S **pulchellum** Jamaica, etc.

Without pseudo-bulbs, leaves narrow, equitant, 3 to 6 inches high ; scapes slender, branched, 12 to 18 inches high ; flowers rather small, white, flushed with rose ; the lip with a yellowish spot in front of the crest. Summer

S **pulvinatum** Brazil

Pseudo-bulbs about 2 inches high, broad ; leaves 9 to 12 inches high, broad, leathery ; scapes slender, 5 to 8 feet long, branched, many flowered ; flowers about an inch across, sepals and petals red-brown on their basal halves, yellow on the apical halves, lip light yellow, spotted with red. Much resembles divaricatum in habit but the crest is cushion-like. Summer

I **pumilum** Brazil

Leaves 2 to 4 inches high, stiff, erect, without pseudo-bulbs ; scapes 6 to 8 inches high, branched ; flowers small, sepals and petals yellow, spotted with red-brown ; lip yellow. Summer

ONCIDIUM—cont.

pusillum **syn. iridifolium**

I **pyramidale** Peru

Pseudo-bulbs 1 to 2 inches high, leaves narrow, 5 to 9 inches high ; scapes erect, 12 to 18 inches high, branched, many flowered ; flowers about an inch across, bright yellow, spotted and marked with red. Summer

quadricorne **syn. hians**

quadripetalum **syn. tetrapetalum**

ramiferum **syn. Harrisonianum**

ramosissimum **syn. Odontoglossum ramosissimum**

ramosum **syn. Batemannianum**

I **raniferum** Brazil

Pseudo-bulbs 1 to 2 inches high, leaves narrow, 5 to 8 inches high ; scapes about 9 inches high, branched, many flowered ; flowers small, bright yellow, with an orange crest to the lip. Various

C **reflexum** Mexico

Pseudo-bulbs 1 to 2 inches high, leaves narrow, 6 to 9 inches high ; scapes 2 to 2 ¾ feet high, branching on the apical portion, flowers about 1 ¼ inches in length, sepals and petals yellowish-green, barred with red-brown ; lip large, bright yellow, spotted with red on the crest. Late Summer

Regnellii **syn. Miltonia Regnelli**

Rigbyanum **syn. sarcodes**

Rogersii **syn. varicosum var. Rogersii**

C **Rolfeanum** Colombia

Allied to trilingue. Pseudo-bulbs about 3 inches high, leaves about 12 inches high, narrow ; scapes long, branched ; flowers of medium size, sepals brown, the upper one margined with yellow ; petals very crisped, yellow, transversely blotched with brown ; lip small, three-lobed, yellow, margined with brown ; the basal lobes yellow, marbled with brown-purple. Summer

roseum **(Beer) syn. Cochlioda roseum**

roseum **syn. Carthaginense var. roseum**

Rossii **syn. Odontoglossum apterum**

C **rupestre** Peru

Pseudo-bulbs stout, about 3 inches high ; leaves 9 to 12 inches high, scapes 18 to 24 inches high, branched ; flowers medium size, sepals and petals yellow, blotched, basally with red-brown ; lip golden-yellow,with a red-brown basal blotch. Summer

ONCIDIUM—cont.

Russellianum **syn. Miltonia Russelliana**

Saintlegerianum **syn. spilopterum**

S **Sanderæ** Peru

Resembling and allied to papilio. Habit similar. Flowers as large, very attractive, the colour is a clear bright yellow, broken on the crisped lateral sepals with red-brown, the rounded lip is bordered with spots of the same colour.

Added attraction is given by the column wings, which are broken into numerous filaments on either side of the stigma. Autumn

C **Sanderianum** Peru

Habit resembling that of serratum. Flowers large, sepals chocolate-brown, the upper one bordered with yellow ; petals crisped, interlocked, golden-yellow, with broad, brown bars ; lip brown, with purplish side lobes and a yellow crest. Summer

sanguineum **syn. Carthaginense var. roseum**

I **sarcodes** Brazil

Pseudo-bulbs 4 to 7 inches high, leaves 6 to 10 inches long, scapes 3 to 7 feet, slender, shortly branched ; flowers large, sepals and petals chestnut-brown, bordered with yellow ; lip bright yellow, chestnut-spotted near the crest. Spring and early Summer

scansor **syn. globuliferum**

I **Schillerianum** Brazil

Pseudo-bulbs about 2 inches high, rather broad ; leaves about 6 inches high, scapes 2 to 4 feet long, thin, branched, many-flowered, the branches intertwining with the central peduncle ; flowers small, yellow ; barred with dark brown. Summer

I **Schlimii** Colombia

Pseudo-bulbs flatly ovoid, 2 inches or more high ; leaves 8 to 12 inches high, scapes slender, branched, 3 to 5 feet long, many flowered ; flowers about an inch across, sepals and petals yellow, blotched with red-brown ; lip spreading, yellow, banded with red-brown around the crest. Autumn

I **serratum** Peru

Pseudo-bulbs 4 to 5 inches high, leaves 9 to 18 inches long, scapes long, flexuose, branched ; flowers large, segments crisped, sepals chestnut-brown, the upper one narrowly bordered with yellow, the lateral two deflexed and curved upwards and sideways ; petals chestnut-brown, the upper portions yellow, interlocking apically when the flowers first open ; lip narrow, purplish-brown ; crest whitish. Summer

sessile **syn. lancifolium**

ONCIDIUM—cont.

Sktnneri **syn. rupestre**

speciosum **syn. Miltonia cuneata**

I **sphacelatum** Mexico and Guatemala

Pseudo-bulbs 4 to 6 inches high, stout ; leaves 15 to 24 inches long, scapes 3 to 5 feet high, branched, many flowered ; flowers about an inch across, sepals and petals dark chestnut-brown, barred with yellow, yellow on the reflexed tips, lip golden-yellow, with a reddish band in front of the crest. Spring and early Summer

I **sphegiferum** Brazil

Pseudo-bulbs oval, broad, flattish ; leaves 6 to 9 inches high, leathery ; scapes 3 to 4 feet high, branched, many flowered ; flowers about an inch across, orange-yellow ; all the segments red-brown basally. Summer

C **spilopterum** Brazil

Pseudo-bulbs 2 to 3 inches high, leaves rather narrow, 6 to 12 inches high ; scapes erect, 1 ¼ to 3 feet, often branched on the upper portion ; sepals and petals yellow, marked with chocolate ; lip spreading, bright canary-yellow, crest large, magenta-purple. Early Spring

I **splendidum** Guatemala

Pseudo-bulbs about 2 inches high, broad, compressed, their breadth at the apex little less than the greatest horizontal diameter, bearing a single, stiff, fleshy, leathery leaf, 9 to 15 inches high ; scapes stout, erect, branched, 2 to 3 feet high; flowers large, sepals and petals yellowish-green, barred and blotched with rich brown, recurved at the tips ; lip large, flat, clear yellow. Mid Winter

I **Sprucei** Brazil

Habit resembling that of Cebolleta, but the leaves are more robust and swollen centrally. Scapes tall, branching on the upper portion, many flowered ; flowers medium size, sepals and petals yellow, blotched with red ; lip yellow, stained basally with red. Summer

stellatum **syn. Miltonia flavescens**

stelligerum **syn. hastatum**

stenopetalum **syn. Batemannianum**

I **suave** Mexico

Pseudo-bulbs about 3 inches high, broad ; leaves 6 to 9 inches long, scapes slender, 15 to 36 inches long, branched ; flowers fragrant, about an inch across ; sepals and petals dark brown, lip bright yellow, blotched with red-brown near the crest. Summer

subcilliatum **syn. barbatum**

ONCIDIUM—cont.

C **superbiens.** Colombia

Pseudo-bulbs 3 to 5 inches high, leaves 12 to 18 inches high, scapes long, flexuose, branched ; flowers large, sepals reddish-brown, tipped with yellow, barred on the basal halves with brown ; lip narrow, purple.

C **Suttonii** Brazil

Pseudo-bulbs resembling a miniature tigrinum. Leaves 3 to 4 inches long, narrow acuminate. Spike slender, 6 to 12 flowered.Sepals and petals reflexed,yellow, spotted and suffused with brown ; lip three-lobed, the side lobes thickly marked with red-brown ; crest tubercled, brown, tipped with white. Winter

Tayleuri **syn. suave**

C **tetracopis** Colombia

Habit resembling that of serratum ; flowers large, upper sepals bright chestnut-brown, bordered with yellow, the lateral sepals wholly brown and larger ; petals bright yellow, spotted on the basal halves with brown ; lip narrow, reflexed, yellow, stained with brown in front of the crest. Summer

S **tetrapetalum** West Indies

Leaves without pseudo-bulbs, 3 to 6 inches high, nearly equitant ; scapes 18 to 24 inches high, sometimes branched ; flowers about an inch in vertical diameter, sepals and petals chestnut-brown, barred with yellow ; lip white, with a red blotch in front of the crest. Summer

tigrinum **(Hort.) syn. maculatum**

C **tigrinum** Mexico

Pseudo-bulbs stout, about 3 inches high ; leaves 9 to 12 inches long, scapes stout, erect, branched, 2 to 4 feet high ; flowers large, fragrant ; sepals and petals yellow, heavily blotched, transversely, with chestnut-brown; lip spreading, bright, clear yellow. Autumn and Winter

- var. *splendidum* **syn. splendidum**

C **- var. unguiculatum** Mexico

Flowers less than in the type, and not so highly coloured. Winter

C **trilingue** Peru

Habit resembling that of serratum. Flowers less in size, sepals and petals reddish-brown, edged with yellow ; lip curiously shaped, the large, convex crest appearing, from the front, like three tongues, whence the name.

Spring

ONCIDIUM—cont.

S **triquetrum** Jamaica

Habit resembling that of pulchellum. Scapes slender, about 12 inches high, 10 to 15 flowered ; flowers nearly an inch across, sepals shaded with purplish-green, petals whitish, spotted with purple, lip white, spotted and streaked with purple ; crest orange-yellow. Autumn

I **trulliferum** Brazil

Pseudo-bulbs strong, stout, 4 to 8 inches high ; leaves 5 to 9 inches long, scapes 18 to 30 inches high, branching on the upper portion, many flowered ; flowers nearly an inch in vertical diameter, sepals and petals bright yellow, barred with red-brown ; lip bright yellow, basal lobes spotted with red-brown.

Late Summer

C **undulatum** Colombia

Allied to, and with a similar habit to superbiens, but the pseudo-bulbs are not so tapered. Flowers large, sepals bronze-brown, shaded centrally with green ; petals larger, white, blotched on the basal halves with purplish-mauve, and with a few purplish spots on the upper margins, lip narrow, rich purple.

Early Summer

undulatum **(Salis.) syn. Carthaginense**

unguiculatum **(Klotsch) syn. concolor**

unguiculatum **(Lindl.) syn. tigrinum var. unguiculatum**

I **unicolor** Brazil

Pseudo-bulbs about 2 inches high, leaves 3 to 5 inches long, scapes 6 to 7 inches high, 2 to 4 flowered ; flowers deep canary-yellow. Autumn

I **unicorne** Brazil

Pseudo-bulbs 2 to 3 inches high, leaves 5 to 9 inches long, scapes arched, branching, 12 to 18 inches high ; flowers small, sepals reddish-brown, petals red-brown, tipped with yellow, lip with the basal half red, the apical half yellow ; crest with a reddish horn. Winter

C **unifforum** Brazil

Possibly a variety of longipes. The flowers do not differ from that species in colour, but only one flower is produced on a scape. Various

S **urophyllum** West Indies

Without pseudo-bulbs ; habit resembling that of pulchellum ; scapes slender, branching, arched, 18 to 30 inches high ; flowers about an inch across, sepals and petals yellow, blotched with chestnut-brown ; lip broad, canary yellow, crest red and white. Summer

C **varicosum** Brazil

Pseudo-bulbs oval-oblong, furrowed, 3 to 4 inches high ; leaves 6 to 9 inches high, scapes 3 to 5 feet long, branched, arching, flowers variable, sepals and petals small, yellow, barred with red-brown ; lip large, spreading, bright yellow, often with a dark reddish stain in front of the crest . Autumn and Winter

ONCIDIUM—cont.

C **varicosum var. Rogersii** Brazil

Superior to the type — so much so as to often be accorded specific rank, The colours of the flowers are the same as in the typical form, but the blade of the lip is four-lobed and 2 to 3 inches across. Winter

S **variegatum** West Indies

Leaves without pseudo-bulbs, 3 to 4 inches high, equitant, sharp pointed, broken at the edges ; scape slender, 15 to 20 inches high, branched; flowers rose-pink ; the petals blotched with red, and with red stains at the base of the lip and sepals. Summer

verrucosum **syn. Brassia verrucosa**

C **viperinum** Uruguay

Pseudo-bulbs about an inch high, leaves 2 to 3 inches high, scapes slender, erect, about a foot high ; flowers nearly an inch across, sepals and petals small, reddish brown, barred with pale yellow ; lip canary-yellow. Various

I **volvox** Venezuela

Pseudo-bulbs 2 to 4 inches high, leaves 8 to 12 inches high, scapes slender, erect, eight or more flowered ; flowers about an inch across, sepals and petals yellow, thickly spotted with red-brown ; the apical portions clear yellow, lip yellow, with a reddish band around the crest. Autumn

C **Waluewa** Brazil

Pseudo-bulbs compressed, 2 to 3 inches high, bearing a solitary leaf about 3 inches long. Scape 6 to 9 flowered, recurved. Flowers about ¾ of an inch across; petals irregularly banded with pale purple on a creamy white ground. The lower sepals are apparently joined together and with the upper are greenish white. Lip curiously shaped, narrow at base, then forming a rhomboid with the sides reflexed and the points resting on the lower sepal. Again expanding into a kidney shaped apex, with a sinus in front. From the base to the apex of the rhomboid runs a raised purplish keel. The remainder is yellowish white, spotted with red. Spring

C **Warneri** Mexico

Pseudo-bulbs 1 to 2 inches high, leaves very narrow, about 6 inches high ; scapes slender, erect, eight or more flowered ; flowers variable, an inch in vertical diameter, sepals and petals greenish, striped with rose, lip fourlobed, bright yellow. Spring

C **Warscewiczii** Costa Rica

Pseudo-bulbs ovoid, about 2 inches high ; leaves 7 to 12 inches long, scapes 15 to 24 inches high, flowers about an inch across, golden yellow; the lip shaded with brown basally. Various

Weltoni **syn. Miltonia Warscewiczii var. Weltoni**

Wendlandianum **syn. suave**

ONCIDIUM—cont.

I **Wentworthianum** Guatemala

Pseudo-bulbs 3 to 4 inches high, broad, marked with brown ; leaves 9 to 12 inches long, scapes slender, branched, 3 to 6 feet long ; flowers about an inch across, sepals and petals yellow, blotched with red-brown, but quite yellow apically ; lip yellow, spotted with red-brown near the crest. Summer

C **Wheatleyanum** Brazil

A supposed natural hybrid between crispum and dasystyle. Flowers large, sepals and petals rich brown-crimson, bordered with yellow, lip clear yellow, margined with crimson-brown, the base and crest being black-maroon.

I **Widgreni** Brazil

Pseudo-bulbs about 2 inches high, leaves 4 to 6 inches high, scapes slender, 12 to 15 inches high ; flowers about an inch across, sepals yellow, barred with red-brown ; petals red-brown, lip with the front lobe red-brown, the side lobes yellow. Various

Wrayæ **syn. graminifolium**

xanthoclorum **syn. oblongatum**

C **xanthodon** Ecuador

Allied to serratum ; pseudo-bulbs 3 to 5 inches high, leaves 18 to 24 inches long, scapes long, slender, branched ; flowers nearly 2 inches across, sepals and petals crisped, rich chocolate-brown, edged with golden-yellow ; lip narrow, yellow at the base. Summer

C **zebrinum** Venezuela

Pseudo-bulbs 3 to 5 inches high, produced at intervals on stout rhizomes ; leaves 10 to 15 inches long, scapes long, flexuose, branched ; flowers 1 ½ inches across, sepals and petals undulated, white, with five or more transverse,red-brown stripes ; lip small, white, spotted with red-brown. Autumn

ORNITHIDIUM

Epiphytal orchids, natives of tropical America. The axillary flowers are small but in a few species are attractive by reason of the numbers produced and their bright color. The sepals are usually larger than the petals, and protect those organs and the lip.

There appears to be two distinct sections in the genus. In the one the pseudo-bulbs spring from a creeping rhizome and form a more or less cushion-like plant. In the other ascending growths are formed and the flowers are carried in fascicles from the axils of the leaves.

The treatment is as for Maxillarias to which the genus is allied.

ORNITHIDIUM—cont.

I **coccineum** Jamaica

Pseudo-bulbs small clustered ; leaves narrow, 6 to 9 inches high ; scapes single flowered 2 inches high ; flowers about half an inch in diameter or more ; bright coral-red, freely produced, on short pedicels. Winter and Spring

I **densum** Mexico

Pseudo-bulbs 1 to 2 inches high, compressed ; flowering growths about 2 feet high ; flowers small, greyish white, tinged with purple, many in a fascicle. Various

I **fragrans** Brazil

Allied to densum. The flowers are larger than in that species, but fewer in number ; white suffused with purple ; fragrant. Various

C **sophronitis** Venezuela

Dwarf habit ; pseudo-bulbs small egg-shaped. Leaves small, coriaceous. Flowers comparatively large, produced singly ; bright scarlet. The flowers are freely produced and the plant in flower rivals Sophronitis grandiflora. Spring

ORNITHOCEPHALUS

A genus of epiphytal orchids, distributed through Central America. The flowers are small, in usually arching or drooping racemes. The following species has probably the greatest horticultural value and is attractive from the distinct coloring of the long-lasting flowers.

It should be grown in the intermediate house, suspended near the glass, but well shaded during Summer. Compost, finely cut fibre, sphagnum in equal proportions and a few decayed leaves.

I **grandiflorus** Brazil

Pseudo-bulbs small, sheathed by the leaves, which are from 3 to 6 inches long ; broad in proportion. Scapes produced from the axils of the leaves, arching, 6 to 9 inches long, many flowered ; flowers about three-quarters of an inch across, sepals and petals white, green at the base ; lip crisped, white, green at the base. Early Summer

ORNITHOCHILUS

A small genus of Asiatic epiphytal orchids allied to Aerides and requiring similar treatment. The species most commonly met with is :—

S **fuscus** Burma

Stem short, leaves 3 to 9 inches long by nearly 2 broad ; racemes arching or lateral, branched ; flowers small but attractive, about ½ an inch broad ; sepals and petals yellow streaked with red, the petals linear, the spurred lip is similarly colored, the spreading mid-lobe is usually fimbriated, sometimes entire. Summer

PACHYNE spectabilis **syn. Phaius grandifolius**

OTOCHILUS

Epiphytal orchids allied to Pholidota and Coelogyne. The inflorescence and habit resembles that of Pholidotas of the articulate section. Pseudo-bulbs about 2 inches long, ovately cylindric, proliferous and ascending. The small flowers are carried in pendant spikes, each flower based by a comparatively large bract.

Culture and compost as for Coelogyne.

fragrans **syn. porrecta**

I **fusca** Burma

Pseudo-bulbs 2 to 3 inches long, produced in succession from just below apex of preceding bulbs ; diphyllous. Leaves 4 to 6 inches long, scape produced from centre of young growth ; 10 to 20 flowered ; flowers opposite, alternate ; sepals, petals and lip narrow, almost white, slightly flushed with pink ; column projecting, with the ovary and narrow bract, fuscous brown, curious by reason of the projecting column and small pearl-likedrop excreted by the flower.

Winter and Spring

I **porrecta** Burma

Slightly larger than O fusca, which it much resembles. Colour very similar, side lobes of lip larger ; fragrant. Summer

PACHYSTOMA

The two plants here described have been removed from the genus Pachystoma and transferred to a new genus «Ancistrochilus» established by the late Mr. R. A. Rolfe. The true Pachystomas are Asiatic. The following species are natives of Africa being distinguished from Pachystoma by the shape of the lip and the single stipe attached to the pollinia. They are however closely allied to the true Pachystomas and to Ipsea and the second species has so long been termed Pachystoma that both species are generally known under that name.

The culture is similar to that given Bulbophyllums, but a decided rest is necessary.

S **Rothschildianum** Nigeria

Pseudo-bulbs varying, somewhat conical, broad at the base, 1 and 2 inches high, covered with a brownish membrane. Placed on a creeping rhizome. Leaves 6 to 8 inches long, ribbed, 2 inches wide, Spikes from base of bulb, 6 to 12 inches high, 2 to 4 flowered. Flowers about 3 inches across. Sepals larger than the petals, the two lower connivent, sometimes overlapping. With the petals rose-pink. Lip three lobed, the side lobes, large, rounded, erect, green, tinged with brown, the front lobe narrow, tongue like, curved downward, purple, yellow apically.

Winter

PACHYSTOMA—cont.

speciosum **syn. Ipsea speciosa**

S **Thompsonianum** Old Calabar

Habit resembling that of Rothschildianum, but less. Leaves 5 to 8 inches high, scapes about 9 inches high, 2 to 4 flowered. Sepals and petals white, spreading, lip three lobed, the side lobes erect, green, thickly spotted with deep purple, mid lobe narrow, recurved, white, nearly covered with deep purple lines.

Autumn

PALUMBINA candida **syn. Oncidium candida**

PANISEA uniflora **syn. Cœlogyne uniflora**

PAPHINIA

Small-growing, epiphytal Orchids, all the known species being natives of South America. The genus has bene included under Lycaste, but the plants present such well marked horticultural differences that — as with Pleiones, Thunias, etc., it seems better for gardening purposes to still accord them generic rank.

The known species have all short, clustering pseudobulbs, rarely 2 inches high, bearing two or three plicate leaves, and producing from their bases short, pendent scapes, two or more flowered. Flowers large in proportion to size of plants. Sepals and petals free, spreading, subequal, the petals narrower than the sepals. Lip curiously lobed, haired apically.

The plants should be placed in small pans, well drained and filled with leaf-mould, fibre and sphagnum moss, mixed with finely broken crocks, suspended near the glass, and during bright summer sunshine shaded rather heavily. The atmosphere must always be kept moist, but when not growing water must be given carefully and sparingly.

S **cristata** Trinidad, Guiana, etc.

Leaves 6 to 10 inches high, flowers 3 to 4 inches across, sepals and petals yellow, chiefly so on the basal halves, thickly marked transversely with chocolate-brown ; lip curiously shaped, dark chocolate-purple, with an apical tuft of whitish hair.

Various

S **- var. Modiglianiana** Brazil

Flowers white, except the tip of the column, which is lemon-yellow.

Various

PAPHINIA—cont.

S **cristata var. Randii** Brazil

Flowers reddish-brown, sepals and petals bordered with white, the petals broadly so, marked with white basally. Various

S **grandiflora** Brazil

Habit resembling that of cristata, but the flowers are larger ; sepals and petals creamy-white, transversely spotted and banded with chocolate-purple on the basal halves, the apical halves wholly chocolate-purple, sometimes with paler margins; lip blackish-purple at the narrow base, then widening into a creamy-yellow disc, with chocolate-red side lobes, again narrowing and spreading into the fleshy front lobe, which has two blackish-purple, teeth-like lobes, and apically is covered with creamy-white, shaggy hairs. Autumn

grandis **syn. grandiflora**

S **rugosa** Colombia

Leaves 4 to 6 inches high, flowers 2 to 3 inches across, variable ; sepals and petals light yellow, dotted with red ; lip reddish-purple, with an apical, dense tuft of white hairs. Various

PAPHIOPEDILUM see **CYPRIPEDIUM**

PAPHIOPEDIUM **syn. PAPHIOPEDILUM**

PATTONIA **syn. GRAMMATOPHYLLUM**

PAXTONIA **syn. SPATHOGLOTTIS**

PEDILIA **syn. MICROSTYLIS**

PEDILONUM **syn. DENDROBIUM**

PERISTERIA

All the known species contained in this genus are of horticultural value. Natives of Central America, they vary considerably in habit, but all are characterized by stout, globose or semi-globose pseudo-bulbs, from the base of which the flower spikes are produced ; broad, plicate leaves and large, fleshy flowers nearly globular in shape, the column bearing two large, fleshy wings. The plants should be potted in loam fibre, Osmunda fibre, and leaf-mould. Quantities of fleshy roots are produced so that ample pots are required for their accomodation, hence careful watering is necessary when growth first commences. When in full growth water may be freely given, but after growth is completed, water should be given very sparingly until it can be entirely withheld and the plants exposed to full light.

PERISTERIA—cont.

I **aspersa** Venezuela

Pseudo-bulbs 3 to 5 inches high, stout ; leaves about a foot long, scapes short, semi-pendent ; flowers large, produced in clusters of from 5 to 15 ; sepals and petals yellowish brown, densely marked purplish-red ; lip darker, the front lobe rich maroon crimson. Summer and various

Barkeri **Acineta Barkeri**

I **cerina** Central America

Pseudo-bulbs about 3 inches high, leaves 7 to 12 inches long, scapes short, pendulous ; flowers in a dense raceme, light citron-yellow, with a juniperlike odour. Summer

I **elata** Panama

A strong growing, handsome species, with stout pseudo-bulbs often 6 inches high ; leaves 2 to 3 ½ feet high, scapes erect, 3 to 6 feet high ; flowers fragrant, 2 to 3 inches across, waxy white ; the lip often minutely spotted with purple. The column, with its wings, is considered to resemble a dove, hence the term « Dove Orchid » often applied to this plant. Summer

Humboldtii **syn. Acineta Humboldtii**

longiscapa **syn. Lacæna bicolor**

maculata **syn. pendula**

I **pendula** Guiana

Pseudo-bulbs 4 to 6 inches high, leaves 12 to 15 inches long, scapes pendent, bearing a dense cluster of fragrant flowers, which are yellowish-white, dotted with purple. Autumn

stapelioides **syn. Zygopetalum stapelioides**

PERISTYLUS **syn. HABENARIA**

PESCATOREA **syn. ZYGOPETALUM**

PHAIOCALANTHE Hybrids between Phaius and Calanthe.

PHAIOCYMBIDIUM Name applied to hybrids between Phaius and Cymbidiums.

PHAIUS

A genus of terrestrial and epiphytal or sub-epiphytal Orchids, of which P. grandifolius has long been cultivated. The greater number of species are distinguished by short, stout pseudo-bulbs, carried on thick rhizomes, and sheathed by the leaf bases. The leaves are tall and plicate, and the flower scapes are erect, usually produced from the base of the pseudo-bulbs between the sheathing leaf bases. The flowers are large. The sepals and petals are free, spreading, the petals usually the narrower. The lip varies considerably but in the Asiatic species is not unlike that of a Cattleya but produced into a short spur.

The terrestrial section enjoy a compost of rough fibrous loam mixed with fibre and a little sphagnum, and kept open with crockdust. For the strong growing species Wallichii, etc., small species of well dried cow dung may be added. When in full growth abundance of water should be given and the plants carefully shaded. During the resting season it is not advisable to allow the compost to become too dry, but the plants should be placed in a more exposed position and in a slightly lower temperature.

Water should be kept from the foliage at all times.

The epiphytal species require little loam, and that of a very fibrous quality, in their compost. Great care must be exercised as to shading. They are very susceptible to draught and are particularly liable to attacks from Thrips.

All the Asiatic species are accommodating as regards temperature, but those from Madagascar should be kept as equable as possible.

Several beautiful hybrids have been obtained by crossing the two sections and their treatment may be said to be intermediate. The hybrids between Phaius and Calanthe are amenable to culture and very beautiful, but probably owing to the deciduous nature of the Calanthe parent their foliage acquires a shabby appearance during the winter and at that period they must be kept fairly dry.

Botanically Thunias are included under Phaius, but they have been known in gardens as Thunias for so long, and the treatment required is so different, that it is thought better to still keep them separate in this work.

PHAIUS—cont.

albus see **Thunia alba**

Assamicus **syn. Blumei v r. Assamicus**

Australis **syn grandifolius**

Bensoniæ see **Thunia Bensoniæ**

Bernaysii **syn. Blumei var. Bernaysii**

S **bicolor** Ceylon

Pseudo-bulbs comparatively small, height of leaves about 18 inches, scapes 18 to 27 inches high ; flowers variable, 3 to 4 inches across ; sepals and petals reddish-brown, lip white, bordered with rose ; throat ochre-yellow. Summer

S - **var. Oweniae** Ceylon

Sepals and petals reddish-brown, lip deep yellow, with the front lobe of a rich maroon-purple. Summer

S **Blumei** Java

Habit resembling that of grandifolius, but rather stronger in all its parts, with larger flowers ; sepals and petals deep buff-yellow, mottled or nearly suffused with red ; lip whitish externally, the front lobe crimson, bordered with yellow. Spring

S - **var. Assamicus** Assam

Sepals and petals light yellow, lip light yellow, bordered with white. Spring and Summer

S - **var. Bernaysii** Australia

Sepals and petals white externally, soft, clear yellow within; lip sulphur-yellow, bordered with white. Flowers often cleistogamous. Spring

S - **var. Sanderianus** Assam

A splendid variety, so distinct that it is still better known as a species. The stout scapes reach a height of 7 to 8 feet, and the very large flowers have glossy, deep bronze sepals and petals ; the lip is dark, dusky rose, boldly margined with white.

S **callosus** Malaya

Habit as in grandifolius. Flowers large, sepals and petals reddish-brown, shaded with rose externally, whitish at the tips ; lip yellowish-white, shaded with pink ; beneath the front lobe of the lip is a rich, rose-purple patch. Summer

Carroni **syn. Wallichii**

S **Cooperii** Malaya

A very distinct and rare species, allied to and resembling P. Callosus in habit, but with broader leaves, lighter green in color. Flowers large ; sepals and petals red-brown, yellowish behind, lip white changing to light yellow ; throat blotched with red-brown. Winter

S **flavus** Java

Pseudo-bulbs ovoid, globose, 3 to 5 inches high ; the leaf bases form a cylindrical stem, and with the leaves are 2 to 3 feet high ; scapes less, flowers less than in grandifolius, sepals and petals soft ochre-yellow, lip similarly coloured, with a few reddish-brown marks and specks on the front lobe.

Summer

giganteus **syn. grandifolius**

grandiflorus **syn. grandifolius**

grandifolius **(Lnd.) syn. Wallichii**

S **grandifolius (Lour.)** Tropical Asia and Australia

Pseudo-bulbs ovate, leaves 2 to 3 feet high, scapes 3 to 4 feet high, flowers 3 to 4 inches across, sepals and petals yellow-brown, silvery-white behind ; lip rose-purple, bordered with white ; pale yellow-brown, marked with rose-purple in the throat.

Spring

- **var.** *Blumei* **syn. Blumei**

S **Humblotii** Madagascar

Pseudo-bulbs rather small, leaves 15 to 24 inches high, scapes 18 to 30 inches, flowers about 2 inches across, sepals and petals light rose-purple, shaded with white ; lip open, the side lobes not convolute over the column, and forming a tube as in grandifolius, etc. ; the front lobe soft rose-purple, whitish centrally ; side lobes reddish-brown, shaded at the margins with crimson ; on the disc are two large, bright yellow teeth.

leucophœus **syn. grandifolius**

S **maculatus** North India

Habit much as in flavus, of which it is probably a variety, but stronger. Pseudo-bulbs 3 to 5 inches high ; the leaf bases form a cylindrical stem. The leaves are dark green, spotted with yellow ; scapes 2 to 3 feet high, flowers 3 inches across, resembling those of flavus in shape ; sepals and petals buff-yellow, lip of a similar colour, but marked with chocolate-red on the front lobe.

Spring

Mannii **syn. Wallichii var. Mannii**

Marshalliæ see **Thunia Marshalliæ**

S **Mishmiensis** Assam

Very distinct. The pseudo-bulbs are elongated into leafy stems, and with the leaves are 15 to 24 inches high or more. Flowers produced in axillary racemes, medium size, soft rose-pink in colour, the lip bearing a ridge of white hairs down the centre ; spur yellow ; the flowers change to buff in fading.

Winter

PHAIUS—cont.

niveus see **Thunia Alba**

S **Philippinensis** Philippines

Pseudo-bulbs 1 to 2 inches high, leaves 12 to 24 inches high, scapes 18 to 30 inches, flowers about 2 ½ inches across, sepals and petals reddish-brown, passing into yellow on the margins, whitish externally ; lip trumpet-shaped, the front margin frilled, white, tinged with pink, changing to yellow.

roseus **syn. Mishmiensis**

Rumphii **syn. callosus**

Sanderianus **syn. Blumei var. Sanderianus**

S **simulans** Madagascar

Epiphytal; with elongated, cylindrical, branched, climbing stems.Leaves 10 to 15 inches high, scapes 12 to 24 inches high ; flowers 2 to 3 inches across, white ; the side lobes of lip pubescent, mid-lobe blotched with rose, bearing deep yellow keels ; disc behind keels white, with near the base a circular tuft of yellow hairs. Base of column pink. Winter

Tankervillii **syn. grandifolius**

tuberculatus **syn. tuberculosus**

S **tuberculosus** Madagascar

Terrestrial, with tufted, ovoid, ringed rhizomes. Leaves 15 to 30 inches high, flowers 2 to 3 inchess across ; sepals and petals white ; lip three-lobed, expanded, white, side lobes without hairs, mid-lobe with 3 yellow keels, with purple disc behind the keels and bearing basally numerous white hairs. Base of column bearing a V-shaped yellow mark. Winter

N,-B. — P. simulans and P. tuberculosus have been very much confused, but the late R. A. Rolfe explains the differences very fully in the Orchid Review of 1901, pp. 41-44.

vestitus **syn. Calanthe vestita**

S **Wallichii** North India

Habit as in grandifolius, but stronger ; scapes 3 to 5 feet high, flowers large, white externally, tawny-buff, shaded with red on the inner surfaces ; lip white, with a yellow disc, lined with red, passing to orange-yellow on the basal half. Winter and Spring

S - **var. Mannii** North India

Flowers larger than those of the type, and more deeply coloured, shaded with yellow externally. Winter

PHALÆNOPSIS

This beautiful family of Orchids is widely distributed throughout the Eastern Tropics from New Guinea to Burma, but the greatest number and the more showy members are confined to the Philippines and adjacent islands.

The genus is characterized by the absence of pseudo-bulbs, by large, broad, usually very leathery leaves, the bases of which sheath the short stems. The roots in many of the species are flat and clinging, often attaining considerable length. The scapes, either simple or branched, in common with some of the Oncidiums and other Orchids, occasionally produce adventitious plants. In a few of the species the roots have the same power, but to a less degree.

The flowers vary considerably in colour, size, and shape, as might be expected from the scattered distribution of the species ; but, taken as a whole, the genus is one of the most admired Orchidic families. The sepals and petals are free and spreading, the petals usually the broader. The lip is spurless, and forms, a more or less, right angle with the foot of the column. In one section, represented by P. amabliis, the petals are much broader than the sepals ; the lip has well developed side lobes, arching from the base and the front lobe is like a spear blade, terminating in two, long, recurved tendrils.

Where a number of Phalænopses are grown, it is usual to devote a house to their culture, including with them some of the Vandas, Ærides, Cypripediums, etc., which succeed well under the same treatment. Unless the number of plants warrant it, there is, however, no real need to do so. With the necessary attention, grand examples have been, and can be, grown in the warm Orchid house. Teak wood cylinders, or pans, suspended near the glass, are most suitable for growing the plants in. Whatever receptacle is used, it should be nearly filled with clean crocks or broken red brick, the upper portion mixed with sphagnum to which is added about one third of fibre, and a few decayed oak leaves if procurable ; surfaced over with sphagnum moss, which should always be kept green and growing. The compost should be

PHALÆNOPSIS—cont. renewed each Spring, or whenever it appears stale, carefully removing the old, without disturbing the live roots which cling to the sides of the receptacle and the crocks.

The atmosphere should always be moist and the plants never allowed to become really dry.

Endeavour should be made to prevent the pipe heat ascending directly to the plants.

The growing season approximately extends from spring to late autumn, and throughout the summer months the plants should be most liberally supplied with water and the atmosphere kept very moist. During the same season shading must be carefully regulated ; the young leaves are most impatient of the sun's direct rays, yet the plants require light. In winter shading is seldom or never required, but in the early spring it is advisable to apply it, as the young leaves are very tender.

S **amabilis (Blume)** Malaya

Leaves large, green, 6 to 15 inches long ; scapes branching, arched, varying in size, sometimes simple ; flowers large, occasionally 5 inches across ; sepals and very broad petals pure white, lip three-lobed, side lobes large, spotted with red, yellow basally ; the front lobe spear-shaped, ending in two long, tendril-like processes curved towards the column ; crest yellow, spotted with red. Winter

S **- var. aurea** Malaya

Flowers slightly larger than in the type ; the front portion of the lip light yellow. Winter

S **- var. Rimestadiana** Java

Very near the type but apparently stronger in habit and constitution than the typical amabilis. It makes a splendid decorative orchid and spikes may be had practically throughout the year. Various

amabilis **(Lindl.) syn. Aphrodite**

ambigua **syn. Aphrodite**

S **amethystina** Sunda Islands

Habit dwarf, leaves 3 to 4 inches long, scape about a foot long, sometimes branched ; flowers small, sepals and petals white, lip three-lobed, bright amethyst-purple, broken with white. Late Autumn

antennifera **syn. Doritis pulchella**

S **Aphrodite** Philippines

Leaves large, resembling those of amabilis in size, etc., purplish beneath ; scapes 2 to 3 feet long, branched or simple, arching ; flowers large, sepals and broader petals pure white, lip three-lobed, the side lobes and base spotted and marked basally with purple, stained with pale yellow ; the front lobe hastate, white, with two long, recurved appendages, as in amabilis. The lip is broader than in amabilis, and the purple colouring different. Autumn and Winter

PHALÆNOPSIS—cont.

S **Aphrodite var. gloriosa** Sulu Islands

Foliage light green ; the markings on the lip are purple, without any yellow ; the front lobe is rather narrow. Autumn and Winter

S **Boxallii** Philippines

Leaves 5 to 7 inches long, scapes 6 to 10 inches long, flowers about 1 ½ inches across, sepals and petals yellow, blotched and transversely barred with red-brown; lip remarkable in shape, the white front lobe is crescent or anchor-shaped, with a central tubercle ; the side lobes are represented by two whitish plates ; at the base of the front lobe is a yellowish, fleshy plate, with a purple tooth near its base. Spring and various

Brymeriana **syn. intermedia var. Brymeriana**

S **Buyssoniana** Cochin, China

Habit resembling that of Esmeralda, (Doritis pulchella) of which it may be a form, but slightly stronger. Flowers larger, sepals bright crimson-purple, the two lower ones bordered with white ; petals crimson-purple, arching over the column, lip crimson-purple, shaded with scarlet and ochre. Summer

S **Casta** Philippines

A supposed natural hybrid between Aphrodite and Schilleriana, Leaves lightly mottled when young, usually changing to deep green ; flowers large, sepals white, the upper one flushed basally with light purple, the lateral two stained with yellow and spotted with red at the bases ; petals white, lip much as in Aphrodite, but with shorter tendrils, yellow, spotted with red at the base of the lobes. Autumn and Winter

S **Cornu-cervi** Malaya, Burma, etc.

Leaves bright, glossy green, 6 to 10 inches long ; scapes erect or sub-erect, flattened on the apical portion, where from 6 to 12 flowers are produced in succession, two or more being expanded at the same time. Flowers about 2 inches across, sepals and petals yellowish-green, barred and blotched with red-brown ; lip whitish, the front lobe crescent-shaped. Various

S **Cynthia** Philippines

A supposed natural hybrid between Schilleriana and Aphrodite. The habit seems nearest to that of Schilleriana. Flowers large, sepals and petals flushed with rose basally, passing into white at the margins and apical portion; the lateral sepals dotted with red on the basal halves. Front lobe of lip blush-white, yellow, spotted and lined with light purple at the base ; the apical tendrils are short, as in Schilleriana ; side lobes large, blush-white spotted with dark and light crimson-purple. Winter

equestris **syn. rosea**

PHALÆNOPSIS—cont.

Esmeralda **syn. Doritis pulchella**

gloriosa **syn. Aphrodite var. gloriosa**

grandiflora **syn. amabilis**

S **intermedia** Philippines

A natural hybrid between rosea and Aphrodite, habit resembling that of Aphrodite, but less. Flowers of medium size, sepals and broader petals white, lip three-lobed, white, spotted with red at the base, the side lobes light amethyst-purple, the front lobe reddish-purple, with two short, apical tendrils. Winter

S **- var. Brymeriana** Philippines

Sepals and petals white, flushed or spotted with light purple basally ; the side lobes of the lip light purple, streaked with red. Winter

S **- var. Portei** Philippines

Flowers larger than in the type, sepals and petals white, flushed basally with purple ; the side lobes of the lip are amethyst-purple, with the basal portions yellowish, spotted with red ; front lobe amethyst-purple. Winter

S **leucorrhoda** Philippines

A supposed natural hybrid between Aphrodite and Schilleriana. Foliage green, sometimes marbled with grey ; flowers large, sepals and petals white, shaded with rose-purple on the basal portions ; the side lobes of the lip are white, spotted with red-purple and stained with yellow on the front margins ; the front lobe white, stained basally with yellow. There are two apical tendrils but shorter than those in Aphrodite. Winter

Lobbii **syn. intermedia**

S **Lowii** Moulmein

A dwarf-habited species. Leaves 2 to 5 inches long, green deciduous ; scapes slender, arching, about 12 inches long ; flowers 1 ½ to 2 inches across, sepals and much broader petals white, flushed with purple basally ; lip three-lobed, the side lobes horn-like, whitish, with a yellow spot; mid-lobe deep purple; oblong in shape, with a raised mid-line. Summer

S **Luedemanniana** Philippines

Leaves 6 to 9 inches long, green ; scapes procumbent, 8 to 12 inches long ; flowers variable, about 2 inches across ; sepals and petals whitish, beautifully marked on the lower halves with transverse amethyst bars and marks, and on the upper portions with cinnamon-brown ; lip three-lobed, the side lobes erect, narrow, whitish ; the mid-lobe bright amethyst-purple, with a paler margin and a median haired ridge. Various

PHALÆNOPSIS—cont.

S **maculata** Borneo

A dwarf habited plant ; leaves 2 to 4 inches long, scapes about 6 inches long, flowers small, sepals and petals creamy-white, with a few red-brown transverse blotches ; lip three-lobed, the lateral lobes small, erect, white, spotted with red-brown, mid-lobe bright red, with a raised median line. Various

S **Mannii** Assam

Leaves 6 to 9 inches long, green, spotted with violet basally, shaded with violet at the edges ; scapes 9 to 15 inches long, often shortly branched, sepals and petals golden-yellow, barred and blotched with chestnut-brown; lip three-lobed, the side lobes erect, small, light yellow or white, mid-lobe whitish, anchor-shaped. Spring and various

S **Mariae** Philippines

Leaves glossy, green, 6 to 10 inches long ; scapes drooping, 12 to 15 inches long, often shortly branched ; flowers about 1 ½ inches across, sepals and petals white, shaded with yellow, stained with amethyst-purple basally,and marked with transverse bands of chestnut-brown ; lip three-lobed, the side lobes narrow, slightly incurved, white with a purple, central stain; the mid-lobe bright amethyst-purple, with paler margins and a median, white-haired ridge. Winter and various

S **Parishii** Burma

A dwarf species ; leaves 2 to 4 inches long, deep green ; scapes about as long, 5 to 9 flowered ; flowers small, sepals and petals white, lip three-lobed, the side lobes small, horn-like, yellow, spotted with purple, mid-lobe bright rose-purple, crest fimbriated, white, with a yellowish-brown centre. Summer

Portei **syn. intermedia var. Portei**

proboscidioides **syn. Lowii**

Regnieriana **syn. Doritis pulchella**

Rimestadiana **syn. amabilis vâr.**

rosea Philippines

Flowers 4 to 8 inches long, green ; scapes 15 to 24 inches high, branched ; flowers about 1 ½ inches across, sepals and petals white, flushed chiefly in the centres with rose-purple ; lip three-lobed, with the side lobes light rose-purple, brownish at the base. Various

- var. leucaspis Philippines

Flowers rather smaller than those of the type, rose-purple, mottled with white; the petals and lip deeper in colour than the sepals. Various

Ruckeriana **syn. Sarcochilus unguiculatus**

PHALÆNOPSIS—cont.

Sanderiana Philippines

Very handsome. Perhaps a natural hybrid between Aphrodite and Schilleriana, but more probably a true species. Leaves 6 to 12 inches long, dark green or marked with grey ; scapes 1 ½ to 3 feetlong, simple or branched ; flowers large, the upper sepal and broader petals rose-pink, mottled with white ; lip three-lobed, the side lobes large, incurved over the column, white spotted with pale rose ; the front lobe hastate, white, streaked with purple at the base, with two apical incurved tendrils about an inch long ; crest two-lobed, bright yellow, spotted with red. Late Autumn and Winter

- var. alba Philippines

Flowers white, with a few basal, purple spots on the side lobes of the lip, and some yellow spots on the crest. Late Autmun

- var. marmorata Philippines

The lip is marked on the front lobe with a central line of purple spots and purplish stains at the sides ; there are three purple bars on the bases of the side lobes, and the lateral sepals have numerous rows of small, purple spots on the basal areas. Late Autumn

- var. punctata Philippines

The lateral sepals are spotted in a similar manner to those of Stuartiana, and the lip is spotted with crimson, chiefly on the side lobes. Late Autumn

Schilleriana Philippines

Leaves 10 to 18 inches long, deep green, marbled and transversely blotched with grey, purplish red beneath ; scaped 2 to 4 feet long, branched ; flowers large, sepals and broader petals light rose-purple, whitish at the margins, the lateral sepals dotted with purple on the inner basal halves ; lip three-lobed, usually lighter in colour ; the side lobes with a yellow stain and red spots at the bases, front lobe often whitish and dotted with amethyst-purple, with two apical appendages like the flukes of an anchor ; crest bright yellow, spotted with red. Winter and various

S- **var. purpurea** Philippines

Flowers much deeper and richer in colour than the type. Spring

S - **var. vestalis** Philippines

Flowers wholly white. Spring

S **speciosa** Andamans

Leaves 6 to 12 inches long, bright green ; scapes drooping, 10 to 18 inches long, flowers about 2 inches across, sepals and petals amethyst-purple, with paler margins ; lip three-lobed, the side lobes erect, purple at the base, orange centrally and white apically ; the front lobe narrow, rich amethyst-purple, with a pubescent keel. Winter

PHALÆNOPSIS—cont.

S **speciosa var. Imperatrix** Andamans

Flowers larger than those of the type, deep rose-purple, with white markings on the sepals and petals. Winter

S **Stuartiana** Philippines

Leaves 7 to 15 inches long, beautifully mottled with transverse grey blotches, purplish-red beneath ; scapes variable in length, branched, many flowered ; flowers variable, 1 ½ to 2 ¾ inches in diameter ; upper sepal and petals white, sometimes minutely spotted with purple on the basal halves ; the lower sepals have their outer halves white, their inner halves yellow, thickly spotted with red-purple ; lip three-lobed, the side lobes yellow spotted with red-purple on the basal halves ; the upper portions white, and not so thickly spotted ; the mid-lobe yellowish or white, spotted with red-purple, with two apical, white, anchor-like appendages. Winter

S - **var. Bella** Philippines

The front lobe of the lip is blotched with purple-chocolate, the side lobes streaked with red. Winter

S - **var. nobilis** Philippines

Flowers larger than in the type, with fewer and larger spots on the lateral sepals and lip. Winter

S - **var. punctatissima** Philippines

In addition to the typical marking, the sepals and petals are thickly dotted with small, purple-red spots. Winter

S **Sumatrana** Sumatra

Leaves 6 to 10 inches long, bright green ; scapes about equal in length, 5 to 10 flowered ; flowers about 2 inches across, sepals and petals creamy-white, transversely barred with red-brown ; lip three-lobed, the side lobes narrow, erect, whitish, spotted with orange on the inner sides, the middle lobe narrowly oblong, whitish, streaked with purple on either side of a raised keel ; the apex bears a dense tuft of hairs. Summer

S **tetraspis** Andamans

Leaves 6 to 9 inches long, green ; scapes about 6 inches long, flowers about 2 inches in diameter, somewhat resembling those of Sumatrana in shape, ivory-white ; the narrow side lobes of the lip yellowish on the outer side, the front lobe with a dense, apical tuft of bristle-like hair. Summer

S **Valentini** Malaya

A supposed natural hybrid between Cornu-cervi and violacea. Flowers intermediate in size, upper sepal purplish, the lateral sepals and petals shading to white basally, and there banded with purple ; lip three-lobed, the side lobes erect, white, with a few purple spots, lip purplish-mauve. Various

PHALÆNOPSIS—cont.

S **Veitchiana** Philippines

A supposed natural hybrid between Schilleriana and rosea. Leaves faintly marked with grey, flowers about 2 inches across, sepals white, lightly flushed on the basal portions with purple ; the broader petals white, with a deeper purple flush ; the side lobes of the lip broad, white, basally spotted with red, passing to crimson-purple on the apical portions ; front lobe crimson-purple, with two straight, apical teeth. Winter

S **violacea** Malaya

Leaves 5 to 9 inches long, bright green, often with waved margins ; scapes about as long as the leaves ; flowers 2 to 3 inches across, the dorsal sepal and petals white, shaded with green, bright violet-purple at their bases ; the lateral sepals are violet-purple from their bases to two-thirds of their length ; lip three-lobed, the side-lobes yellow, the front lobe bright violet-purple. Summer

S **- var. Bowringiana** Malaya

Flowers light yellow, with a purple blotch at the base of the lateral sepals ; the bases of the upper sepal and petals being banded with the same colour.

Summer

S **Youngi** Philippines

A supposed natural hybrid between Aphrodite and Schilleriana. The flowers resemble those of leucorrhoda in shape and size. The upper sepal and petals are white, tinted with rose, deepest at the bases ; the lower sepals are tinted with pale rose and dotted with reddish-purple ; the side lobes of the lip are white, striped basally with crimson ; the front lobe is dotted with rose-purple.

Winter

Zebrina **syn. Sumatrana**

PHOLIDOTA

Though allied to Cœlogyne and requiring similar culture, horticulturally the plants included in this genus have not so much to recommend them. The flowers are of small size, though freely produced, and are carried in terminal racemes, each flower being partly hidden by an overlapping bract, from which they have been termed rattlesnake orchids. The plants have either decided, more or less globose, pseudo-bulbs on creeping rhizomes, or ascending articulated stems, with fleshy joints. The hard-bulbed species require a decided rest. The following species are more frequently met with :—

S **articulata** India and Burma

Stems articulated, joints 3 to 4 inches long, leaves 3 to 6 inches long, racemes lax flowered, flowers yellowish-white, bracts yellow, shaded with green.

Late Summer

PHOLIDOTA—cont.

I **chinensis** China

Resembles P. imbricata, but is less in habit and lighter green, pseudo-bulbs set rather closely on rhizome, ovoidly conical, or somewhat globose, usually 2 leaved. Leaves 4 to 6 inches high by 1 ½ broad. Flowers creamy-white. Bracts greenish white. Summer

S **conchoidea** Philippines

Habit resembling that of imbricata, but much stronger ; leaves broad, leathery; flowers and bracts shaded with brown. Spring

I **imbricata** India and Burma

Pseudo-bulbs stout, oblong, about 2 inches high ; leaves 8 to 12 inches high ; dark green, flowers closely set, yellowish-white, or shaded with green ; bracts yellowish. Summer

Khasyana **syn. articulata**

pallida **syn. imbricata**

I **clypeata** Borneo

Pseudo-bulbs about 2 inches high, bearing a dark green leaf, 3 to 4 inches long. Spike short. Flowers whitish, the column resembling a three-lobed petal bordered with brown, giving the appearance of two lips to the flower. Various

S **ventricosa** Java

Pseudo-bulbs ovately pyriform, 2 to 4 inches high. Leaves 15 to 20 inches high. Spikes erect, shorter than foliage. Flowers yellowish white. Summer

I **Lugardii** Burma

Resembling articulata but stouter in habit. Sepals and petals whitish, lip slightly tinged with flesh colour. Summer

Phragmipedium **syn. Phragmipedilum**

PHRAGMIPEDILUM see **Cypripedium**

PHYSOSIPHON

A small genus of tufted epiphytes, resembling Pleurothallis in habit and requiring similar culture. As in Pleurothallis the flower scapes are produced from the junction of the stem and leaf. The sepals are the conspicuous parts of the flower and are connate basally.

C **Loddigesii** Mexico

Leaf stalks 1 to 2 inches high, sheathed with a brown membrane ; leaves fleshy, about 4 inches high ; scapes erect, 6 to 9 inches high, 12 to 25 flowered, produced from the junction of the leaf stalk and blade ; scapes are produced by the same leaf in successive years. Flowers small, petals and lip minute, hidden in a green, three-sided tube, formed by the connate bases of the sepals ; free part of sepals orange-brown. Summer

PHYSURUS argenteus see **Anœctochilus**

Ortgiesii see **Anœctochilus**

pictus see **Anœctochilus**

querceticolus see **Anœctochilus**

PILUMNA **syn. Trichopilia**

PLATANTHERA **syn. Habenaria**

PLATYCLINIS

A genus of epiphytal Orchids, natives chiefly of the Philippines, The flowers are neither large or showy, but the inflorescence is much admired, and the plants are well worth growing. They are characterised by small pseudo-bulbs, which bear a single stalked leaf, and produce from their apices a slender flower spike, the upper part of which carries a nodding or pendent raceme of numerous flowers, often fragrant. The sepals and petals are nearly equal and the column carries two horn-like processes.

A compost of fibre, sphagnum moss and a few half decayed leaves suits the plants, which should be placed in well drained pans, hung near the glass, in a light, but not too sunny position, and freely supplied with water. When growth is dormant a careful rest is necessary. It is not advisable to allow the plants to dry to shrivelling point.

I **arachnites**

Dwarf habit. Spikes 4 to 5 inches long, 15 to 20 flowered. Sepals ½ an inch long, petals less, narrow, pointed, yellow tinged with green. Winter

S **Cobbiana** Philippines

Pseudo-bulbs 1 to 2 inches high, leaves narrow, 6 to 9 inches long ; flower stalks 9 to 12 inches high, raceme with a zigzag rachis, densely flowered ; flowers small, straw-yellow or creamy white, with an orange-yellow lip.

Late Autumn

I **cornuta** Java

A distinct species with cylindric tapered bulb, 1 to 1 ½ inches high, carrying a single leaf 2 to 3 inches long, narrowly hastate. Inflorescence short. Flowers creamy white, the sepals as in glumacea being attenuated. Summer

PLATYCLINIS—cont.

I **cuncumerina** Philippines

Habit near that of filiformis. Pseudo-bulbs 1 inch or more high, cylindrically conical, bearing a single leaf, 6 to 7 inches high. Peduncle slender, as long as the leaf. Inflorescence 6 inches long, nodding. Leaves small, light greenish-yellow, the lip carrying 2 brownisb lines and the column two horn-like arms.

Early Winter

S **filiformis** [Philippines

Pseudo-bulbs about an inch high, leaves 5 to 7 inches long, flower stalks very slender, raceme many flowered, flowers fragrant, small, canary-yellow. Known as the golden chain orchid. Summer

I **glumacea** Philippines

Pseudo-bulbs 1 to 2 inches high, leaves 10 to 15 inches long, flower-stalks 8 to 12 inches high, raceme many flowered, flowers yellowish-white, scented like new-mown hay. Spring

I **-var. valida** Philippines

Leaves nearly twice as broad as those of the type. Spring

S **uncata** Philippines

Habit resembling that of filiformis, but less ; flowers very small, greenish. Winter

I **latifolia** Philippines

Pseudo-bulbs 1 to 2 inches high. Leaves 10 to 15 inches, dark green, rather leathery. Flower spikes slightly taller. Inflorescence nodding. Flowers arranged in two rows, creamy white, with a reddish bract behind. Winter

PLEIONE

Botanically, this genus is included under Cœlogyne, but it presents so many differences from a horticultural point of view that it seems preferable to keep it separate. Pleiones are distinguished from Coelogyne by the pseudo-bulbs, which are of annual duration only. The leaves are deciduous, falling, usually, after the pseudo-bulbs are matured. The large, brightly coloured flowers are carried, one or two, on short scapes, produced frmo the base of the pseudo-bulbs, and precede or are contemporaneous with the young growth. The sepals and narrow petals are free, spreading often slightly reflexed. The lip large, keeled or crested, the front margin usually fringed.

The pseudo-bulbs should be repotted shortly after they have flowered, placing them 1 to 2 inches apart, in well drained pans, using either a compost of fibre, sphagnum moss, leaf-mould and sand ; or leaf-mould. Water must be given with great care, until root-growth is well

PLEIONE—cont. advanced, when abundance may be given. After the pseudo-bulbs are matured only sufficient water should be given to prevent them from shrivelling. The plants like a position where they can receive abundance of air, light, and moisture. The flowers, leaves, and pseudo-bulbs vary greatly under cultivation.

Arthuriana **syn. maculata var. Arthuriana**

I **Birmanica** Burma

Habit resembling that of præcox. Scapes usually two-flowered, flowers about 3 inches across, sepals and petals mauve-purple, lip mauve-purple, the front margin toothed, the disc bearing three, toothed, keels on a white, brown-spotted ground. Late Winter

C **Hookeriana** Sikkim

Pseudo-bulbs seldom exceeding an inch in height, leaves smaller than in most of the species, produced with the flowers ; flowers 2 to 2 ½ inches across, sepals and petals rose-purple, lip lighter in colour,blotched apically with brown-purple, throat pale yellow. Spring

C **- var. brachyglossa** Sikkim

Lip white, with a light yellow disc, spotted with brown, shorter and more expanded than in the type ; sepals and petals pale rose. Spring

C **humilis** North India

Pseudo-bulbs 1 to 2 inches high, often producing growths from the apices ; leaves 6 to 9 inches high, flowers 2 to 3 inches across, sepals and petals blush-white, spotted with amethyst-purple ; on the disc are six or more fringed veins, between which are stripes of amethyst-purple ; margin of lip fringed. Winter

C **- var. albata** North India

Sepals and petals white, lip white, with light purple, radiating lines and two orange spots on the front portion. Winter

C **lagenaria** Khasia

Pseudo-bulbs about an inch high, leaves 7 to 12 inches long ; flowers 2 to 3 inches across, sepals and petals rose-lilac, lip whitish, the basal half convolute over the column, pale rose-lilac, with purple stripes on the inner sides ; the front portion expanded, the margin crisped, white, barred and blotched with crimson-purple ; disc yellow and red, with five fringed lines ; throat yellow, striped with crimson. Winter

PLEIONE—cont.

I **maculata** North India and Assam

Pseudo-bulbs an inch or more high, leaves 6 to 10 inches high, flowers about 2 inches across, sepals and petals white, lip white, the side lobes streaked on the inner side with purple ; the front lobe blotched and marked with crimson-purple, the disc yellow, with five raised fringed lines, marked between with purple.

Late Autumn

- var. *alba* **syn. var. virginea**

I **- var. Arthuriana** Burma

Habit and flowers less than in the type ; the petals lined with purple, the front lobe margined with purple. Late Autumn

I **- var. virginea** North India

Flowers pure white, the lip stained with yellow in the throat.

Late Autumn

C **pogonioides** China

As in Hookeriana the leaves and flowers are borne together. Flowers nearly 3 inches across, light purple, the disc bearing four fringed keels.

Spring

C **praecox** North India and Burma

Pseudo-bulbs 1 to 2 inches high, leaves 9 to 15 inches high, flowers large, about 3 inches across ; sepals and petals rose-purple, lip pale rose or whitish, the side lobes convolute over the column, the front lobe fringed marginally, disc yellow, with five fringed keels. Early Winter

C **- var. Wallichiana** North India

Flowers rather larger, and of a darker colour than the type ; the front lobe of the lip toothed rather than fringed. Early Winter

C **Pricei** Ceylon

Pseudo-bulbs smooth, squatly conical, partially or wholly sheathed in membrane. Leaf 4 to 6 inches high, plicate. Flowers large, 4 inches across. Sepals and petals, spreading, almost equal, light-rose magenta. Lip large, whitish, rose flushed, most deeply on the margins, which are fringed. Interior whitish with 2 raised, bluntly toothed keels and a few brownish-red spots and lines. The flowers are solitary, produced from the centres of the young growths. Spring

C **Reichenbachiana** Moulmein

A distinct species, with much larger pseudo-bulbs (2 to 2 ½ inches high) than its congeners, flowers about 2 inches across, sepals light rose-lilac, stained and streaked with amethyst-purple centrally and apically ; petals lighter in colour, lip with the basal half convolute over the column and whitish ; the expanded portion white, spotted with purple ; margin haired. Late Winter

Wallichiana **syn. præcox var. Wallichiana**

PLEIONE—cont.

C **Yunnanense** Yunnan

Habit much as in præcox. Sepals and petals bright rose-purple,lip paler,blotched with dark purple. Late Winter

PLEUROTHALLIS

A large genus of epiphytal Orchids widely distributed through tropical and sub-tropical America, usually at considerable altitudes. The solitary, usually coriaceous leaves are generally carried on slender stems, clothed with membranous sheaths. The major number of plants are of tufted habit, or the leaves are borne at intervals on a creeping rhizome. The flower spikes, sometimes two or more together, are produced from the base of the leaf, in many species for several years in succession, as in the allied genera Stelis, Physosiphon and Octomeria. The inflorescence varies considerably, some kinds producing erect, many flowered racemes ; others but one or two flowers on a long or short peduncle ; while a number bear a clustre of flowers on short, or nearly absent peduncles. In a few species, the inflorescence is bent downward and forward so resting on the leaf. The flowers apparently being produced from the centres of the leaves. The sepals are usually the most conspicuous parts of the flower, the lateral two being connate at their bases, and often for the greater part of their length. The petals are often comparatively small and the lip in many species is mobile.

Though comparatively few members of this genus possess flowers of garden value, yet many of them are well worth including in collections. They have the advantage of being evergreen, are extremely floriferous, and among the easiest of all Orchids to grow. Potted in good leaf-mould, fibre, and sphagnum moss, and supplied with water all the year round — liberally so when growing, they rapidly increase in size.

I **apthosa** Mexico

Height of plant about 12 inches, leaves fleshy, flowers comparatively large, nearly sessile, the sepals are most conspicuous, purplish-crimson in colour. Winter

PLEUROTHALLIS—cont.

C **Barberiana** Colombia

Leaves about half an inch high, stemless, scapes 2 to 5 inches long, slender, nodding, several flowered ; flowers small, sepals and petals whitish, spotted with purple, with deeper spots. Various

C **astriophora** ?

A pretty species. Rhizomes creeping. Leaves fleshy, 1/3 to 1/2 an inch long, tapered at both ends, on thin peduncles. Spikes erect, 5 to 12 flowered, flowers small, starry, whitish, marked with black-brown. Summer

C **bicarinata** Brazil

Height of plant 6 to 10 inches, scapes erect, several flowered, about as long as the leaves ; flowers small, greenish-yellow. Spring

C **Birchenallii** Brazil

Allied to P. scapha which it much resembles in habit. The floral segments are nearly 2 inches long, whitish, thickly lined and suffused with claret purple. Summer

C **cardiostelis** Brazil

Peduncles slender, 6 to 12 inches high. Leaves heart shaped, 4 to 6 inches long by 2 to 3 broad. Flowers brownish, few, lying on centre of leaf. Summer

coccinea **syn. Rodriguezia secunda**

I **crinita** Brazil

Leaves small, fleshy, hard, keeled, rounded, tapered basally and apically, green, speckled with brown-red, on a creeping rhizome. Flowers small, yellowish, barred and marked with red-purple. Various

C **gelida** Jamaica

Height of plant 10 to 18 inches, scapes erect, many flowered, longer than the leaves ; flowers creamy-white or yellowish, sometimes shaded with green. Summer

C **Grobyi** Brazil

Height of plant 3 to 4 inches, scapes longer than the leaves, several flowered ; flowers small, bright, yellow, streaked with crimson, freely produced. Summer and various

C **insignis** Colombia

Height of plant 3 to 5 inches, scapes but little longer than the leaves, 1 to 2 flowered ; flowers comparatively large, the sepals and petals prolonged into tails, including which they are 2 inches or more in length ; whitish-green, shaded, and streaked with reddish-purple ; the mid-lobe of the lip purplish-red. Summer and various

C **lateritia** Brazil

A dwarf tufted plant, 1 to 2 inches high. Spikes taller, flowers small, cinnabar red. Summer

PLEUROTHALLIS—cont.

C **longissima** Mexico

Height of plant 7 to 9 inches, scapes erect, longer than the leaves, many flowered ; flowers white, shaded with yellow. Spring

peduncularis **(Hook.) syn. apthosa**

C **prolifera** Brazil

Leaves, with their stems, 4 to 6 inches long, broad, thick, shell-like ; scapes shorter than the leaves, resting on them, few flowered ; flowers small, reddish-purple. Young plants are often produced in the place of the flower scapes. Summer

C **punctulata** Colombia

Height of plant 4 to 6 inches, the leaves so twisted that the flowers hang beneath them. Flowers solitary, comparatively large ; sepals light yellow, spotted with brown-purple ; petals smaller, similarly spotted, on a reddish ground, lip deep maroon-purple. Winter

C **Roezlii** Colombia

A fine species ; height of plant 12 to 16 inches, scapes longer than the leaves, nodding, several flowered ; flowers large, deep blackish-purple, lip tongue-like, covered with whitish hairs. Spring

C **rubens** Brazil

Height of plant 6 to 9 inches, scapes erect, rather longer than the leaves, many flowered ; flowers of a pleasing yellowish-green. Winter

I **Scapha** Caracas

Height of plant 8 to 12 inches, scapes longer than the leaves, several flowered ; flowers comparatively large, the segments being produced into tails ; upper sepal and petals yellowish-white, marked with purple ; the lower sepals shaded with brown. Winter

I **saurocephala** Brazil

Stems angular. Leaves with stems 8 inches long, 2 inches broad, coriaceous, Flowers yellowish brown, dotted with purple inside, spikes erect. Various

C **seriata** Brazil

Leaves clustered on short slender pedicels about ½ an inch high. Leaf blades fleshy, nearly orbicular, tapered basally, rounded and pointed apically. Peduncles slender, wiry, 2 to 3 inches high, 1 to 3 flowered. Flowers small, the lower sepals connate, nearly to their length, the three sepals nearly equal, yellow, spotted on their basal halves, with purple. Lip mobile, dark purple. Late Summer

C **stenopetala** Brazil

Stem 3 to 4 inches, leaf dark green, fleshy, about 2 inches. Spikes about 6 inches. Flowers greenish white, sepals much attenuated. Summer

PLEUROTHALLIS—cont.

C **strupifolia** Mexico

Leaves fleshy, strap shaped, 12 to 18 inches long. Racemes 3 to 4 inches long or more, disposed on the leaf. Flowers whitish, thickly marked with purple-red. Various

C **ornata** Colombia

A dwarf quaint species. Height 1 to 2 inches. Flower spikes taller. Flowers comparatively large, pale purplish brown, the margins of the sepals fringed with white, hair-like tendrils, which move in the slightest draught. Various

C **tribuloides** Jamaica

Height about 2 inches. Flowers on erect spikes, numerous, small, brick-red. Various

tubata **syn. Physosiphon Loddigesii**

C **velaticaulis** Brazil

Stems and leaves 12 to 15 inches high. Spikes erect, 6 to 10 inches high. Flowers greenish white. Autumn

C **venosa** Brazil

Stems and leaves 12 to 18 inches high. Spikes erect, about 6 inches high in bundles. Flowers greenish yellow, the sepals bearing 3 stripes of brown and the petals one. Winter

POGONIA

A genus of terrestrial, deciduous, tuberous-rooted Orchids, distributed in both hemispheres. The flowers are of little value in the following species, but the leaves are handsomely marked. The tubers should be potted in fibrous loam and leaf-mould, with the addition of a little sphagnum moss. When growing, water should be liberally supplied but, after the foliage dies off, no water should be given until the tubers show signs of growth.

S **concolor** Java

Leaves solitary, 3 to 5 inches across, soft velvety-green.

S **discolor** Java

Leaves solitary, 3 to 5 inches across, roundly cordate in outline; upper surface deep olive-green, flushed with bluish-green, with radiating ribs of bronzy-red, and covered with reddish hairs ; the under surface is light rose-purple.

S **flabelliformis** Malaya

Leaves solitary, cordate, 3 to 6 inches across, convolute basally, pale bluish-green in colour.

POGONIA—cont.

S **Fordii** Hongkong

Leaves orbicular, dark brownish-green, shaded with purple and covered with whitish hairs on the upper surface ; under surface rose-coloured.

Nervelia **syn. flabelliformis**

POLYCHILUS **syn. Phalænopsis**

POLYCYCNIS

A genus closely allied to Cycnoches with short stem like pseudo-bulbs, plicate leaves, 6 to 9 inches high. Scapes arching produced from the base of the stem. Sepals and petals narrow, lip curiously shaped, the hypochil winged. Column arched as in Cycnoches.Culture as for Cycnoches.

I **barbata** Central America

Pseudo-bulbs 1 to 2 inches high, compressed. Leaves solitary 20 to 30 inches long, many flowered. Flowers about 1 ½ inches across, orange-yellow, dotted with dark purple, lip lighter but spotted with blood-red, column hooded. Summer

I **gratiosa** Costa Rica

Pseudo-bulbs about 2 inches high. Racemes drooping, many flowered. Flowers 1 to 2 inches across, brownish-purple in colour. Summer

I **lepida** Colombia

Pseudo-bulbs about 2 inches in height, dark green. Racemes 15 to 20 flowered. Flowers about 1 inch across. Sepals and petals yellow, nearly covered with purplish brown, lip pale yellow, spotted with chocolate, whitish apically. Summer

I **Lehmanni** Colombia

Pseudo-bulbs about 1 inch high. Racemes drooping, many flowered. Flowers about 1 ½ inches across, light brown, spotted with purple, disc covered with long white hairs. Summer

POLYSTACHYA

Epiphytal Orchids widely distributed in Africa, Asia and America. The greater number are small growing. Flowers small, often inverted. Sepals more or less connivent, the lateral sepals usually the broader, forming a « chin » with the base of the column. Petals similar, usually narrower, the lip often slightly recurved apically. Usually they are borne in erect spikes from the apex of the bulb, but may be solitary or in laxly branched panicles. The pseudo-bulbs are small, clustered, and are usually prolonged into one, sometimes two, leaves. A mixture of fibre, sphagnum and a few decayed leaves, seems to suit them. Water must not be entirely withheld in Winter, but sparingly given.

POLYSTACHYA—cont.

S **bracteosa** Sierra Leone

Pseudo-bulbs almost round, flattened. Leaves about 4 inches high, rather broad. Raceme nodding, often branched. Flowers small, bracteate, yellow marked with brown. Summer

S **campyloglossa**

Pseudo-bulbs about 1 inch high. Leaves with stem, about 3 inches. Flowers sweet scented 2 to 3 in erect spikes, sepals green tinged with yellow, olive green externally, petals smaller, yellow, lip yellowish, tipped with white. Summer

I **cultrata** Mauritius

Pseudo-bulbs 3 to 4 inches high, leaf 6 to 8 inches. Spike 4 to 6, nodding, carrying 6 to 10 comparatively large flowers, white, the apex of the lip and its median line slightly tinted with red. Summer

galatea **syn. grandiflora**

I **grandiflora** Sierra Leone

Pseudo-bulbs 3 to 4 inches high. Leaves as long, 1 inch broad. Flowers, 1 to 3, usually solitary, fleshy, the largest in the genus. Lower sepals 1 inch long, half as broad, dorsal sepal half as large, pale greenish yellow. The inferior sepals spotted with dull red purple, striated basally, petals small, horn-like, pale green. Lip coloured as sepals, brightest on the undulated margins, reflexed at tip with two rosy blotches beneath. Flowers inverted so that the mentum is highest. Sepals diverging so that the greatest area of the under side of the lip is apparent. Summer and various

S **laxiflorus** Africa

Height of thickened stem-like bulbs and leaves 6 to 9 inches. Spike semi-erect, branched, 30 to 50 flowered. Flowers creamy white, changing to yellow, lip yellow, margined and streaked with red on the side lobes. Summer

I **Leonensis** Sierra Leone

Height about 6 inches. Spikes erect, few flowered. Upper sepal and petals light green, lateral sepals suffused, more or less with purplish brown, lip white, the lateral lobes touched with purple. Autumn

I **luteola** Mexico ?

Height of leaf and pseudo-bulb 3 to 4 inches. Spikes erect, several flowered. Flowers yellow, shaded with green, fragrant. Summer

I **Ottoniana** South Africa

Leaves in pairs, narrow, with the bulb 4 to 5 inches long. Flowers usually solitary, white, the sepals with a purple median line, the lip with a yellow blotch on disc. Summer

POLYSTACHYA—cont.

I **paniculata** Uganda

A distinct handsome species. The pseudo-bulbs are flat, stem-like, leafy, purplish marked when young. 6 to 12 inches high, terminating in a branched inflorescence closely set with flowers, in colour red-orange, shaded with yellow.

Various

I **Pobeguinii** French Guinea

This and paniculata are the two outstanding forms of Polystachyas cultivated at present. Pobeguinii is a dwarf growing species with small clustered pseudo-bulbs. The inflorescence is quite out of proportion to the size of the pseudo-bulbs. Scape erect or arching, 5 to 9 inches long, bearing numerous small, but highly attractive, closely set flowers. Sepals and petals light rose purple-crimson, lip recurved, darker and brighter in colour, with a bright yellow, hairy disc.

Summer

S **pubescens** South Africa

Height of leaf and pseudo-bulb about 4 inches. Spikes erect 2 to 3 inches high. Flowers bright yellow, streaked with red, lip bearded, fragrant.

Autumn

POTINARA Hybrids combining Sophronitis, Brassavola, Cattleya and Laelia.

PRESCOTTIA American terrestrial orchids, seldom met with under cultivation. The genus is allied to Stenorrhyncus and requires similar treatment. A mixture of fibrous loam, sphagnum moss and leaf-mould suits them. After flowering a resting period is required.

Promenæa **syn. Zygopetalum**

RENANTHERA Epiphytal orchids distributed from India to Java, allied to Vandas and Arachnanthe and requiring similar culture. The leaves are distichous, usually fleshy or coriaceous. The flowers are carried in often branching panicles, are long lasting, and in many species very showy. The sepals and petals are free, spreading, the upper sepal and petals narrower than the lateral sepals. The lip is short, often fleshy, and shortly spurred.

S **Annamensis** Annam

A species closely resembling A. Imschootiana in habit. Racemes branching, as in that species, but the flowers are less in size, about 1 ½ inches in vertical diameter and more closely set. The sepals and petals are yellow spotted with crimson. The short fleshy lip and tips of the petals wholly crimson. Early Summer

RENANTHERA—cont.

Arachnites **syn. Aracnanthe moschifera**

S **coccinea** Burma, and Cochin China

Height 3 to 7 feet ; in its native home, and when allowed to under cultivation, often attaining a much greater height ; leaves 4 to 5 inches long, leathery ; scapes long, branched, many flowered ; flowers 3 to 4 inches in vertical diameter, upper sepal and petals narrow, blood-red, spotted with yellow ; lower sepals large, narrowest basally, bright vermilion-red ; lip small, yellow and red. Various

S - **var. alba** Cochin China

Flowers pure white. Various

Flosœris **syn. Aracnanthe moschifera**

I **Imschootiana** Burma

A handsome dwarf species. Height 6 to 24 inches, leaves 3 to 4 inches long, scapes branched or simple, many flowered ; flowers similarly shaped to those of coccinea, less in size, bright vermillion in colour. Spring

Hookeriana **syn. Arachnanthe Rohaniana**

Lowii **syn. Aracnanthe Lowii**

S **matutina** Java

Height 1 to 3 feet or more, leaves 4 to 6 inches long, leathery ; scapes flexuose, branched ; flowers about 2 inches vertically, reddish-crimson, shaded with yellow. Summer

I **pulchella** Burma

Habit as in Imschootiana but rather less. Flowers smaller, set more closely together, yellow tipped with crimson. Summer

S **Storiei** Philippines

Habit resembling that of coccinea. Leaves often 10 inches long ; flowers broader than those of coccinea, upper sepal and petals dark orange, lower sepals rich, dark crimson, with lighter crimson shading, lip crimson, yellow and white. Various

PTEROCERAS **syn. Sarcochilus**

RESTREPIA

The habit of Restrepias strongly resembles that of many Pleurothallis, and under cultivation they may be given the same treatment. On the average the flowers are larger than those of Pleurothallis, more brightly coloured, and produced singly on slender peduncles. The upper sepal and smaller petals are thread-like, slightly expanded basally, club-like apically, while the lower sepals are much larger and connate, except just at the tips. The lip rests on the sepals and, at a distance, is hardly distinguishable from those organs. The flowers are daintily coloured and with their quaint appearance are decidedly attractive.

RESTREPIA—cont.

C **antennifera (H. B. & K.)** Colombia

Height of plant 4 to 6 inches, flowers comparatively large, upper sepal and petals yellowish, marked with red, the lower sepals yellowish-white, each with seven red-purple stripes ; lip much smaller. Summer and various

antennifera **(Ldl.) syn. maculata**

C **Dayana** Costa Rica

Height 5 to 8 inches, leaves broad, leathery ; flowers glossy, less than those of antennifera ; upper sepal and petals violet-brown, lower sepals brown, shaded with yellow ; lip yellow, spotted with purple. Summer

C **Ecuadorensis** Ecuador

Habit resembling that of antennifera. Flowers similar in size, but with shorter lateral sepals ; upper sepal pellucid white, lined with maroon basally, tipped with yellow ; petals similar, smaller, but tipped with purple ; lower sepals densely spotted with maroon, on a whitish ground ; lip similarly spotted, on a yellowish ground. Summer

C **elegans** Venezuela

Height 4 to 6 inches, flowers less than those of antennifera ; upper sepal and smaller petals white, streaked with purple basally ; tails yellow, lower sepals yellow, dotted with purple ; lip similarly coloured. Spring and various

C **Falkenbergii** Colombia

A strong growing species, 8 to 12 inches high ; leaves 3 to 5 inches broad, shaded with purple beneath ; flowers as large as those of antennifera, yellow, marked with white and purple. Winter and various

C **Lansbergii (Rch. f.)** Venezuela

Habit resembling that of antennifera, but less, and with smaller flowers ; upper sepal and smaller petals crimson ; lower sepals whitish, dotted with crimson ; lip yellow, spotted with purple. Summer

C **maculata** Colombia

Resembling antennifera in habit, and often confused with that species. Flowers as in antennifera, but the lower sepals are ochreous-yellow, densely spotted with brown-purple, arranged in rows ; lip similarly coloured. Summer

C **pandurata** Colombia

Height of plant 3 to 5 inches, leaves dull purple beneath, peduncles shorter than the leaves, flowers less than in antennifera, upper sepals whitish, veined and tipped with purple ; petals smaller, similarly coloured, but with three purple streaks on the expanded part ; lower sepals whitish, densely spotted with crimson-purple, arranged in lines ; lip similarly coloured. Various

RESTREPIA—cont.

C **Reichenbachiana** Costa Rica

Height 2 to 3 inches, peduncles much longer than the leaves, flowers canary-yellow, the lower sepals tipped with dark purple, and there is a purplish streak or streaks at the base of each segment. Summer and various

C **sanguinea** Colombia

Height of plant 2 to 5 inches, peduncles as long as the leaves, flowers crimson, with a little yellow at the base of column and lower sepals. Winter and various

C - **var. gemma** Colombia

Height of plant 3 to 5 inches, peduncles longer than the leaves, flowers about 2 inches in vertical diameter, upper sepal pellucid white basally, with two narrow crimson-purple lines and a broad central line of the same colour, extending into the thread-like portion ; petals similar, smaller ; lower sepals whitish, thickly spotted with crimson-purple, with a little yellow basally ; lip smaller. Summer

C **striata** Colombia

Height 3 to 6 inches, peduncles as long, or longer than the leaves ; flowers comparatively large, upper sepal and smaller petals maroon, lower sepals yellow, each with seven maroon stripes ; lip yellow, with three maroon stripes and paler spots. Various

C **trichoglossa** Colombia

Habit resembling that of antennifera, but much less; flowers also smaller, upper sepal and smaller petals white, marked with purple basally, with a yellowish knob at the ends of the tails ; lower sepals yellowish-white, densely spotted with crimson-purple ; lip similarly coloured. Summer

RHYNCOSTYLIS—(Blume.)

A small genus closely allied to Saccolabium and requiring similar culture to that given Saccolabiums, Vandas, etc.The flowers are densely carried in cylindrical racemes, produced from the axils of the leaves. The flowers individually are not very large ; the labellum is produced into a long, saccate, compressed spur.

In their native countries plants of Rhyncostylis, Saccolabium, Vandas, Ærides, etc., no doubt attain considerable height, but the dimensions given are those usually seen in plants under cultivation.

S **cœlestis** Siam

Height 9 to 18 inches, leaves 4 to 6 inches long, scapes erect, densely flowered; flowers about ¾ of an inch in diameter, all the segments white, the sepals and petals tipped with indigo-blue and the apical half of the lip the same colour. Summer

RHYNCOSTYLIS—cont.

gurwalica **syn. retusa**

guttata **syn. retusa var. guttata**

papillosa **syn. Saccolabium papillosum**

præmorsa **syn. retusa var. præmorsa**

S **retusa** India to Java

Height 6 to 12 inches, leaves 8 to 12 inches long, scapes pendulous, 1 to 2 feet long, densely flowered ; flowers fragrant, about ¾ of an inch in diameter, sepals and petals white, spotted with amethyst-purple ; the front lobe of the lip wholly purple. Summer

S - **var. Heathii** Burma

Scapes of great length, flowers pure white. Summer

S - **var. guttata** India to Java

Leaves longer and narrower than in the type, flowers slightly less in size, but more numerous and more densely spotted. Summer

- **var.** - **var.** *giganteum* **syn. præmorsa**

S - **var.** - **var. Holfordianum** India

A fine var. with racemes and flowers as large as those of the var. praemorsa, with a rich crimson lip. Summer

S - **var. majus** Moulmein

Habit stronger than in the type, scapes and flowers larger. Summer

S - **var. praemorsa** India

Habit more robust, leaves praemorse apically, flowers larger, carried on longer scapes, usually paler, with lilac spotting. Summer

violacea **syn. Saccolabium violaceum**

RODRIGUEZIA

The species formerly known as Burlingtonias are included under this genus. All are epiphytal, dwarf growing and natives of Tropical America. The pseudo-bulbs are small, oncidium like, and carry, usually, one leaf apically, the remaining leaves sheathing the broad portion of the small bulbs, the spikes usually simple, being produced from the base. Flowers showy, large in proportion to the size of the plant. The upper sepal and petals generally similar, the lateral smaller. The lip often spurred, has the front lobe broad and spreading.

The plants are impatient of too much compost, and should be placed in small pans, or in the case of decora

RODRIGUEZIA—cont. which has a running rhizome, on rafts. The compost should consist of half fibre and half spagnum moss. They delight in a moist warm atmosphere when growing, but when growth is completed water must be carefully and sparingly given.

Under wrong conditions the plants are very susceptbile to attacks from red spider and Thrip, against which the usual remedies may be employed. Mealy bug also finds a home in the sheathing leaves, and if present must be carefully removed by a fine brush.

S **decora** Brazil

Pseudo-bulbs borne at wide intervals on creeping stems. Spikes arching, 5 to 10 flowered. Flowers over an inch in length. Sepals and petals white or flushed with rose, spotted with red, lip spreading, usually white. Summer

S **- var. picta**

Flowers including the lip more brightly coloured and heavily spotted. Summer

S **fragrans** Brazil

Flowers in pendant or arching racemes, as large as in decora, but more closely set, pure white, the lip yellowish at the base. Fragrant. Early Summer

S **pubescens** Brazil

Very similar to fragrans but has the column pubescent, the lip carries more yellow, and is somewhat different in shape. Summer

S **secunda** Trinidad

Pseudo-bulbs small, compressed. Leaves narrow. Scapes usually arching, 6 to 12 inches long. Sepals and petals rose pink, lip of a darker shade. Summer

S **venusta** Brazil

Racemes pendulous. Flowers clustering, white or slightly flesh coloured, lip spreading, stained with yellow. Leaves rather rigid. Summer

ROLFEARA Hybrids between Brassavola, Cattleya and Sophronitis.

ROPHOSTEMON **syn. Pogonia**

ROPTROSTEMON **syn. Pogonia**

SACCOCHILUS **syn. Saccolabium**

SACCOLABIUM

Epiphytal Orchids, natives of India, Burma, Malaya, etc. As in Rhyncostylis, the scapes are produced from the axils of the leaves, and the flowers — the lip of which has the basal portion developed into a saccate spur — though not large, are usually handsome, their number compensating for any deficiency in size.

The culture of Saccolabiums is very similar to that given Ærides, Vandas, etc. The plants may be placed in pots, teak-wood cylinders or, in the case of the smaller growing kinds, in pans or teak-wood baskets, which will admit of the plants being hung near the glass. The receptacles should be half filled with clean crocks, and then surfaced with sphagnum moss, mixed with fibre. While growing the plants should receive abundance of water ; when not in growth they must not be allowed to become dry, and the atmosphere should always be kept moist.

S **acutifolium** North India

Height 6 to 12 inches, leaves 4 to 6 inches long, flowers clustered, about ¾ of an inch across, sepals and petals greenish-yellow, spotted with red-brown ; lip with a broad, bright yellow, red-spotted sac ; front lobe of lip white, fringed. Spring

S **ampullaceum** India

Stems 3 to 8 inches high, leaves 5 to 6 inches long, scapes erect, 3 to 5 inches high, many flowered ; flowers small, bright rose-carmine in colour. Summer

S **- var. Moulmeinense** Moulmein

Habit more robust than in the type, leaves spotted with dull brown, flowers deep rose-carmine. Summer

S **bellino-bigibbum** Burma

A natural hybrid, resembling bellinum in habit and the shape of the lip, but the flowers are smaller ; sepals and petals red-brown, more or less shaded with yellow at the margins, the petals with a narrow, central line ; lip white, spotted with purple ; the base of the sac yellow, spotted with brown. Autumn

S **bellinum** Burma

Height 3 to 6 inches, leaves twice as long, scapes short, stout, bearing a cluster of comparatively large flowers ; sepals and petals yellow, blotched with blackish-purple ; the blade of the lip spreading, fimbriated, whitish, spotted with purple, with an orange-yellow disc ; the sac large, white, with a few basal, purple spots and a large, deep yellow central blotch. Spring and various

SACCOLABIUM—cont.

S **bigibbum** Burma

Habit very dwarf, leaves 3 to 4 inches long, racemes sub-corymbose, short, drooping, eight or more flowered ; flowers smaller than those of bellinum, variable ; sepals and petals yellow, lip whitish, fimbriated ; sac large, yellowish.

Autumn

Blumei **syn. Rhyncostylis retusa**

S **calceolare (Lindl.)** India

Habit 2 to 6 inches, leaves about 4 inches long, scapes short, flowers small, variable, carried in nearly umbellate racemes ; sepals and petals yellow, lip fringed, whitish, with a comparatively large sac, whitish apically, and with a few red spots, orange-yellow at the base. Summer

calceolare **(Paxt.) syn. intermedium**

S **calopterum** New Guinea

Height 6 to 12 inches, leaves fleshy, 4 to 8 inches long, scapes branched or simple, 9 to 18 inches long ; flowers about 1 ¼ inches across, wholly of a bright magenta-crimson ; spur about half an inch long, inflated apically.

Various

cœleste **syn. Rhyncostylis cœlestis**

curvifolium Burma

Height 6 to 12 inches, leaves 6 to 12 inches long, decurved ; scapes short, erect, many flowered ; flowers variable, about an inch in vertical diameter, bright cinnabar red, sac spur-like, slender. Summer

- var. luteum Moulmein

Flowers of a clear yellow shade. Summer

denticulatum **syn. acutifolium**

gemmatum North India

A pretty and distinct species. Height 6 to 12 inches, leaves 2 to 3 inches long, terete, scapes short, many flowered ; flowers very small, white and purple.

Summer

giganteum North India

Stem stout, height 6 to 18 inches, leaves 6 to 12 inches long, broad, leathery ; racemes drooping, 9 to 18 inches long, densely flowered ; flowers fragrant, comparatively large ; sepals and petals white, sparsely spotted with amethyst-purple; the petals often with only one apical spot ; lip bright amethyst-purple.

Winter and various

- var. illustre Cochin, China

Habit more robust than in the type. Flowers larger and more richly coloured.

Winter

- var. Petotianum Cochin, China

Flowers larger and pure white. Winter

SACCOLABIUM—cont.

gurwalicum **syn. Rhyncostylis retusa var. guttata**

Harrisonianum **syn. violaceum var. Harrisonianum**

Heathii **syn. Rhyncostylis retusa var. Heathii**

Hendersonianum Borneo
Stems short, leaves 3 to 6 inches long, racemes erect, 3 to 6 inches long, many flowered ; flowers small, bright rose colour ; the small lip and spur palest in colour. Various

intermedium North India
Habit resembling that of calceolare, but taller ; flowers smaller, sepals and petals yellow, spotted with red-purple ; lip whitish, with an inflated, sac-like, yellow spur. Summer

miniatum **(Hook.) syn. curvifolium**

miniatum Java
Stems short, leaves 3 to 4 inches long, scapes erect, flowers about ¾ of an inch across. bright orange-red. Spring

Mooreanum Sumatra
Stems short, leaves 3 to 5 inches long, scapes short, densely flowered ; flowers small, the segments rose colour, tipped with green. Summer

S **- var. candidulum** Sumatra
Flowers white. Summer

S **Pechei** Moulmein
Habit dwarf, leaves 4 to 8 inches long, broad, scapes few flowered, flowers as large as those of bellinum, sepals and petals ochre-yellow, spotted with red ; blade of lip whitish, sac large, yellowish, deeper yellow and spotted with red at the base. Summer

præmorsum **syn. Rhyncostylis retusa var. præmorsa**

retusum **syn. Rhyncostylis retusa**

Rheedii **syn. Rhyncostylis retusa**

S **rubescens** Annam
Stems 6 to 12 inches high. Leaves coriaceous 5 to 6 inches long, by 1 or more broad, unequally bilobed. Scapes erect, 6 to 12 inches high. Flowers small, numerous, with the nearly straight spur, light rose purple in colour. Column yellow apically. Summer

rubrum **(Lindl.) syn. curvifolium**

speciosum **syn. Ærides maculosum**

SACCOLABIUM — cont.

spicatum **syn. Rhyncostylis retusa**

S **violaceum** Philippines

Height 9 to 18 inches, leaves 9 to 12 inches long, broad ; scapes, pendulous, many flowered ; flowers fragrant, about 1 inch across, sepals and petals white, spotted with amethyst-purple, lip amethyst-purple, with darker lines.

Winter

S **- var. Harrisonianum** Pulo-copang

Flowers pure white, scented. Winter

SARCANTHUS

Epiphytal Orchids allied to Saccolabium, and requiring similar culture. The species are very polymorphic, and though the genus contains a considerable number, many are of botanical interest only. The flowers in the following species are small, but highly coloured ; the lip is spurred. The culture is as for Ærides and Vandas, which they greatly resemble in habit.

S **appendiculatus** Burma

Stems 1 to 2 feet or more, simple or branched ; leaves 2 to 4 inches long, terete, slender ; scape simple or branched, 12 to 18 inches long ; flowers yellowish, striped with red-brown, lip striped with purple-brown. Spring

S **erinaceus** Moulmein

Stems 4 to 6 inches high or more, leaves fleshy, flat, pointed; racemes drooped, 3 to 6 inches long ; flowers white, suffused with pink, lip deep rose.

Summer

guttatus **syn. Rhyncostylis retusa**

S **insectifer** Burma

Stems 6 to 15 inches high, leaves short, broad, coriaceous, flowers in clusters on short spikes, sepals and petals yellow, shaded with green and striped with red-brown ; lip white, marked with rose-purple. Summer

S **ornithorhyncus**

Dwarf habit. Leaves 3 to 4 inches long, spike lateral, longer. Flowers small, pretty. Sepals and petals yellowish, flushed with rose purple centrally. Lip bright amethyst-purple. Spur rose white. Column erect, prominently beaked.

Summer

S **Williamsonii** Assam

Stems 3 to 6 inches. Leaves terete. Racemes sometimes branched. Flowers small, numerous. Sepals and petals pale pink-lilac, lip lilac with amethyst side lobes. Summer

SARCOCHILUS

A polymorphic genus of epiphytal Orchids, distributed from Burma to Australia and the Phillippines. The habit somewhat resembles that of Sarcanthus ; the flowers usually have a saccate lip, and though not large, are often prettily coloured.

Thorough drainage is essential to their culture, as the plants must never be allowed to become really dry. They must be placed in a compost similar to that given Saccolabiums, and treated in the same way.

S **Berkleyi** Malaya

Height 3 to 9 inches, leaves 5 to 8 inches long, broad ; scapes pendulous, 6 to 15 inches long ; flowers crowded, about 1 ½ inches vertically ; sepals and petals creamy-white, lip creamy-white, with a purple stain ; the front lobe forming a compressed tube. Summer

I **Fitzgeraldii** N.S. Wales

Stems short, leaves 3 to 5 inches long, scapes drooping, about a foot long ; flowers an inch across, white, sepals and petals densely spotted with rose-purple; lip shorter, saccate, white, spotted with rose-purple ; front lobe bright yellow. Summer

I **Hartmanni** Queensland

Stems short, leaves fleshy, 3 to 5 inches long ; scapes erect, flowers smaller than in Fitzgeraldii, sepals and petals white, spotted basally with red ; lip shorter, saccate, white, streaked with red-purple. Spring

I **luniferus** North India

A curious plant ; the leaves are usually absent, and when produced rarely last any length of time. Roots long, flexuose. Scapes drooping, many flowered ; flowers small, sepals and petals yellow, spotted with orange-red, lip saccate, white. Should be grown on a block or raft. Requires a decided rest. Various

S **purpureus** North India

Stems scandent or sub-erect, often branched ; leaves 3 to 5 inches long, scapes 6 to 9 inches long, many flowered ; flowers about 1 inch across, sepals and petals light rose-purple, lip dark rose-purple. Spring

S **unguiculatus** Philippines

Habit resembling that of a Phalaenopsis ; leaves 6 to 8 inches long, broad ; scapes pendulous, 6 to 9 inches long, few flowered; flowers fleshy, 2 to 2½ inches across ; sepals and petals pure white, lip white, the side lobes streaked with red; front lobe yellowish, spotted with red. Summer

SARCOPODIUM **syn. Bulbophyllum**

SATYRIUM

Terrestrial tuberous-rooted, deciduous Orchids, distributed chiefly in South Africa and Northern India. The plants usually form, two or more, broad, often nearly orbicular, basal leaves. Some species flower from the preceding year's tubes. The flower spikes are erect, often stout, and more or less leafy. The flowers are generally crowded on the upper part of the bracteate spikes, the sepals and petals being nearly similar, while the lip is often large, hooded, two-spurred or saccate.

Satyriums should be potted in well drained, fibrous loam, mixed with a little sand and leaf-mould. When in growth they should be liberally supplied with water, but after the growth dies down, the tubers should be kept cool and dry.

C **carneum** South Africa

Height 1 to 2 feet, spike several flowered, flowers large, whitish, suffused with flesh colour ; bracts rose-margined. Summer

C **candidum** South Africa

Height 1 to 2 feet. Spike many flowered. Flowers rather small. Sepals and petals narrow. Lip much larger. White, fragrant. Summer

C **macrophyllum** Cape Colony

Height 1 ½ to 2 feet, spike many flowered ; flowers medium size, rose-pink. Summer

C **Nepalense** North India

Height 1 to 2 feet, spike densely flowered, flowers fragrant, variable, white to rose-pink. Autumn

C **sphaerocarpum** Cape Colony

Height 12 to 18 inches, spike many flowered, flowers large, whitish ; the lip shaded with red-brown, and the sepals and petals striped with red-brown. Summer

SCAPHOSEPALUM

The plants constituting this genus were formerly classed under Masdevallia, but on account of the structure of the flowers and the mode of inflorescence, are now considered quite distinct. The flowers are small, but a practically indefinite succession is maintained by prolongations of the slender scapes. The flowers resemble those of Masdevallias in many particulars, but the partially connate lower sepals and small lip are uppermost, and the basal portions of those sepals bear a thickened plate,

SCAPHOSEPALUM— cont.

the upper portions are attenuated and divergent. The base of the dorsal sepal is tube-like, covering the column and petals. Culture as for Masdevallias.

C **anchoriferum** Costa Rica

Leaves 3 to 6 inches high, scapes about 6 inches long, flowers small, upper sepals greenish, spotted and ribbed with maroon ; the apices thickened, expanded, ending in short, drooping tails, greenish-yellow, faintly crimson-spotted ; lower sepal dark crimson-maroon. Summer

C **breve** British Guiana

Habit resembling that of anchoriferum, but less ; upper sepals brownish, the expanded portions orange-yellow and purple ; lower sepal yellow, spotted with purple, tail dark purple. Summer

C **gibberosum** Colombia

Leaves 6 to 8 inches high, scapes taller, flowers comparatively large, slender ; the plates on the upper sepals very long, creamy-white or shaded with green, dotted with purple ; all the sepals end in tails, the tail on the lower being twice as long as those on the upper two. Summer

C **octhodes** Colombia

Leaves 3 to 8 inches high, scapes slender, flexuose, wiry, 1 to 3 feet long ; flowers small, yellow, shaded with green. Continually

C **pulvinare** Colombia

Leaves 5 to 9 inches high, coriaceous, broad ; scapes longer than the leaves, flowers of medium size, upper sepals olive-green, ribbed with brown, with two short, purple tails ; lower sepal olive-green, blotched with purple, with a much longer purple tail having a curved tip. Winter

C **punctatum** Colombia

Leaves 3 to 5 inches high, scapes drooping, flowers comparatively large, of a light greenish tint, heavily spotted with purple-brown ; the lateral sepals yellowish, thickly dotted with dark brown ; the tail of the lower sepal longer than those on the upper sepals. Autumn

C **swertiaefolium** Colombia

Leaves soft, thin, 3 to 6 inches high, acute ; scapes drooping, short, flowers yellow, spotted with brown and shaded with purple ; the tails of the upper sepals yellowish and bent downward ; the tail of the lower sepal shorter and bent upward. Autumn

SCHELOCHILUS

Epiphytal orchids natives of South America. Pseudo-bulbs small, developing into a coriaceous leaf, 3 to 5 inches long. Spikes produced from the base of the bulb, erect or semi erect, sometimes branched, bracteate. Flowers rather small, the two lateral sepals connate and produced into a spur. The upper sepal narrower than the petals. Culture as for Rodriguezias.

S **carnatus** Colombia

Spikes pendant, 7 or more flowered. Flowers about 1 inch across. Sepals bright yellow, petals smaller, purple, margined with white, lip white, with a purple blotch. Autumn

S **Ottonis** Caracas

Flowers yellow, marked on the inner surfaces with purple, smaller than in carnatus. Summer

S **variegatus** Colombia

Pseudo-bulbs thin, flat. Flowers white lined with purple. Autumn

SCHLIMMIA

A small genus of epiphytal Orchids, with short pseudo-bulbs, bearing a single leaf. The flowers are carried on stout, few-flowered scapes, and, in comparison with the plant, are rather large. The lateral sepals are connate, forming a helmet-like sac. The plants require similar culture to that given Stanhopeas.

I **jasminodora** Colombia

Pseudo-bulbs and leaves taller than in trifida ; scapes erect or sub-erect, 10 to 15 inches long ; flowers white, fragrant, dorsal sepal narrow, erect, petals reflexed. Winter

I **trifida** Colombia

Pseudo-bulbs about an inch high, leaves 5 to 8 inches high, scapes drooping, flowers fragrant, white, spotted with purple on the upper sepal, which is inclined downward, petals narrow, bent outward, lip striped apically, white, marked with orange. Winter

SCHOMBOCATTLEYA

Hybrids between Schomburgkia and Cattleya.

The recorded hybrid was raised from Cattleya crossed with Schomburgkia tibicinus, now placed under the name Myrmecophila tibicinus.

SCHOMBOLÆLIA

Hybrids between Schomburgkia and Laelia.

As in Schombocattleya only one hybrid has been recorded and that from Myrmecophila tibicinus.

SCHOMBURGKIA

Strong growing epiphytal orchids, closely allied to Laelia. It has long been known that two distinct sections were included in this genus, the one with fusiform bulbs, Laelia-like in habit, with usually two leaves, and much elongated, bracteate flower scapes, large, rather narrow segmented, flowers, the disc of the lip bearing undulate keels. The other with hard, hollow, nearly cylindrical, tapering pseudo-bulbs, carrying three or four short, thick, leathery leaves at their apex. The scapes elongated, sometimes branched, bracts short and more rounded, flowers with well developed side lobes to the lip and the front lobe without keels.

The late Mr. Rolfe, in the « Orchid Review » of March 1917, differentiates between the two sections keeping crispa, marginata, rosea, Luedemannii, undulata, Wallisii, splendida, superbiens (Laelia), Weberbaueriana and Lyonsii under Schomburgkia, and placing tibicinis, Galleottiana, Thompsoniana, chronodora, lepidissima, Humboldtii, and Sanderiana under the name Myrmecophila.

The two sections have so long been known under the common name Schomburgkia that it seems better to retain that name here. At any rate, until the second name has become familiarized by usage.

Both sections may be grown with Cattleyas, requiring similar compost and treatment, but Myrmecophilas require more careful attention as regards watering. Water should be given liberally when the roots are active, but after growth a long dry rest with full exposure to light is required. The true Schomburgkias should never be repotted until absolutely necessary. If the compost remains good, the leading growths may project over the pot with advantage.

The following species are most frequently met with under cultivation.

SCHOMBURGKIA—cont.

carinata **syn. Lyonsii**

I **crispa** British Guiana

Pseudo-bulbs fusiform, 4 to 8 inches high ; leaves 8 to 10 inches long, scapes erect, 2 to 4 feet long, flowers 2 inches or more across, much crisped ; sepals and petals brown, shaded with yellow ; lip whitish, or shaded with rose. Winter

I **Galleottiana** Mexico

Pseudo-bulbs cylindrical, 9 to 18 inches high. Scapes 3 to 5 feet long. Flowers larger than in tibicinus which it most resembles. The sepals and petals only slightly undulated, purplish rose. The side lobes of the lip marked with yellow and dark rose. Summer

grandiflora **syn. tibicinis var. grandiflora**

I **Humboldtii** Venezuela

Pseudo-bulbs sub-cylindrical, tapered, 6 to 9 inches high ; leaves 6 to 8 inches long, leathery ; scapes 3 to 4 feet long, flowers 2 to 3 inches across, sepals and petals undulate, pale lilac ; the petals darker apically, lip broad, the side lobes convolute over the column, amethyst-purple ; mid-lobe broad, bright purple, with paler streaks ; disc yellow, keeled with purple. Various

- var. alba Venezuela

Flowers white, disc of lip yellow. Summer

I **Lueddmannii** Venezuela

Allied to undulata which it much resembles, but differs chiefly by the bright yellow crest to the lip. Summer

I **Lyonsii** Jamnica

Pseudo-bulbs fusiform, 6 to 12 inches high ; leaves 9 to 12 inches or more long, scapes 3 to 4 feet long, flowers variable, about 2 inches across ; sepals and petals white, thickly marked and spotted with purple; lip white, sparsely purple-spotted, edged with yellow. Summer

I **rosea** Colombia

Habit resembling that of undulata, with flowers slightly less in size ; sepals and petals undulated, dull reddish-purple ; lip purplish-rose, with three white keels on the disc. Early Spring

I **Sanderiana** Tropical America

Pseudo-bulbs sub-cylindrical, tapered, 6 to 12 inches high ; leaves thick, 4 to 6 inches long, flowers about 3 inches across, rosy-purple ; the mid-lobe of the lip veined centrally with deeper rose-purple. Summer

SCHOMBURGKIA—cont.

I **splendida** Colombia

Pseudo-bulbs fusiform, 12 to 15 inches high ; scapes 4 feet long, 10 to 15 flowered. Flowers 4 inches across. Sepals and petals strongly undulated, brownish purple, lip rose-purple. Winter

I **superbiens** Guatemala

Pseudo-bulbs fusiform, 9 to 15 inches high, diphyllous ; scapes 3 to 7 feet high, bearing 13 to 20 large flowers, with deep rose sepals and petals, and a rich crimson lip, the disc of which is yellow. Winter

I **Thomsoniana** West Indies

Habit resembling that of Sanderiana. Flowers of about the same size, sepals and slightly narrower petals cream-yellow, shading to buff-yellow apically ; lip three-lobed, side lobes convolute over the column, white externally ; mid-lobe deep maroon-purple, disc yellow, with dark purple keels. Summer

I **tibicinis** Honduras

Pseudo-bulbs sub-cylindrical, 9 to 18 inches high ; leaves 6 to 12 inches long, scapes 3 to 5 feet high or more, flowers variable, sepals and rather narrower petals undulate, reddish or purplish-brown, paler basally ; lip three-lobed, the side lobes spreading, with erect edges, orange-yellow, streaked laterally with red-purple, rosy beneath ; lip whitish, shading to purple on the margins ; disc yellow. Early Summer

I - **var. grandiflors** Honduras

Flowers larger and more richly coloured than in the type. Early Summer

I **undulata** Colombia

Pseudo-bulbs fusiform, 9 to 12 inches high ; leaves 6 to 9 inches long, scapes 2 to 4 feet long, flowers nearly 2 inches across, sepals and petals undulated, purplish-brown ; side lobes of lip pale rose, mid-lobe purple, disc white, with five raised, longitudinal ridges. Spring

violacea **syn. undulata**

SCUTICARIA

Curious epiphytal Orchids, characterized by short, fleshy stems or pseudo-bulbs and long, subterete leaves, furrowed on one side ; each leaf is continuous with its stem, which springs from a woody rhizome. The scapes are short, produced from the side of the stem. The plants are better suited when placed on a raft, furnished with a little compost of fibre and moss, and suspended near the glass. The plants should be liberally supplied with water when growing, but after growth is completed should be kept dry, but not so much so as to shrivel the foliage.

SCUTICARIA—cont.

I **Hadweni** Brazil

Leaves 9 to 18 inches long, often sub-erect, scapes 1 to 2 flowered ; flowers nearly 3 inches in diameter, sepals and petals spreading, yellowish-green, thickly, sometimes confluenlty, blotched and spotted with chestnut-brown, lip broad, pale yellow, blotched and spotted with light brown centrally, the margins whitish, spotted with flesh colour. Summer

S **Steelii** British Guiana

Leaves 2 to 4 feet long, drooping, scapes 1 to 4 flowered, flowers nearly 3 inches across, light yellow, spotted and marked with reddish-brown ; crest of the lip orange-yellow ; the side lobes of the lip are striated with brown-crimson. Summer and various

SELENIPEDILUM see under **Cypripedium**

SELENIPEDIUM see under **Cypripedium**

SELONOCYPRIPEDIUM Hybrids between Selenipedium and Cypripedium. The recorded plant is derived from Paphiopedilum and Phragmipedilum, not Selenipedilum.

SERAPHYTA A small genus closely allied to Epidendrum and requiring the same compost.

I **multiflora** West Indies

Stems leafy, reed-like, slender, 1 to 2 feet high. Inflorescence terminal, a large branching and sud-divided panicle bearing numerous small flowers, each almost ½ an inch across, greenish-white, with attenuated segments. In the aggregate the flowers are attractive. Winter and various

SERASTYLIS At present a monotypic genus. Culture and compost as for Oncidiums.

I **modesta** Colombia

Pseudo-bulbs about 2 inches high, tapering into a leaf 3 to 5 inches long by about 2 broad. Scapes about nine inches long, arching downward, densely flowered. Flowers nearly 1 ½ inches across. Sepals and petals nearly equal, reddish,margined with yellow, lip white streaked with purple. The column has two large wing-like auricles, the side lobes of the lip are similarly formed while the mid-lobe is tongue-like. Winter

SIEVKINGIA A small genus of epiphytes allied to Acineta and requiring similar culture.

SIEVKINGIA—cont.

I **Reichenbachiana**

Pseudo-bulbs about 1 inch high, clustered, bearing a solitary plicate leaf, scapes pendulous, bearing about six flowers, 1 ½ to 2 inches across. Sepals pale yellow, the narrower petals deeper yellow, and with the lip fringed with deep yellow hairs, lip yellow, the base spotted with red. Various

SIGMATOSTALIX

A genus of little horticultural value. The flowers are small but freely produced. Odotoglossum compost and treatment suits the species, but they require a slightly higher temperature than that accorded Odontoglossum crispum and its allies.

I **radicans** Brazil

The species most commonly met with has compressed, tapering pseudo-bulbs, 1 to 1 ½ inches high, carried at intervals on a creeping rhizome and bearing 2 linear leaves, 6 inches long. Spikes erect produced from the axils of the basal leaves, about 6 inches high ; 6 to 12 flowered. Flowers small, sepals and slightly narrower petals, greenish yellow, reflexed, lip broad, spreading, recurved, white, the side lobes developed into small horns. The small hypochil bears a tumid yellow crest. Column erect, dark brown. Various

I **Peruviana**

Habit less than in radicans. Sepals and petals stone color with a dark band at the base of the upper sepal and petals, lip light yellow with an orange yellow disc. Autumn

SOBRALIA

A genus of terrestrial Orchids, natives chiefly of Central America. All are of easy culture, free flowering, and have the advantage of being evergreen and ornamental in character at all seasons of the year. The reed-like stems are furnished with plaited sheathing leaves. The flowers, usually large and showy, are produced from the apices of the stems. They vary in duration, but in the majority of the species, as one flower decays another becomes apparent, six or more being often thus borne in succession.

The characters of the flowers may be broadly defined as follows ; the sepals are connate near their bases ; the petals are free. There is no division between the lateral lobes and front lobe of the lip ; the lateral lobes are convolute over the column ; generally the front lobe is

SOBRALIA—cont.

broadly orbicular in outline, usually beautifully crimped, undulated, or slightly fimbriate, undivided or two-lobed. At the apex of the column, commencing near the stigma, are two fleshy, curved, horn-like processes, very apparent in some species.

In macrantha, xantholeuca, and the large-flowered kinds, the flowers are of considerable dimensions, the sepals often are 4 inches long and the lip still longer ; both in size and beauty comparable with Cattleyas and Laelias.

Sobralias have usually strong, fleshy, extending roots, and, being terrestrial plants, the pots should be of ample size, and the compost should consist chiefly of rough, fibrous loam and with a portion of fibre, or peat, and sphagnum moss, about one fourth added, with an addition of coarse sand, broken brick or pot sherds.Drainage should be abundant, and during the growing season water should be liberally supplied ; in fact, as the plants have no pseudo-bulbs, the compost must never be allowed to get dry, even in winter, though, naturally, in the dull season of the year, and when the plants are at rest, much less water is required. In addition to the species several fine garden hybrids have been raised.

I **Brandtiae** Brazil

Stems 2 to 5 feet high, flowers large, but not equalling those of macrantha in size, purplish-rose in colour ; disc of the lip orange-coloured, with five slightly elevated lines ; column horns large. Summer

I **Cattleya** Colombia

Stems stout, height 4 to 12 feet, or more, flowers of medium size, sepals and petals purplish-brown, lip purplish, with three yellow, crested keels ; flowers carried on lateral shoots near the apex. Autumn

I **Charlesworthii** Colombia

Near Ruckeri, but with larger, finer flowers.Sepals and petals bright rose purple, lip margined with intense purple and with a broad median yellowish band. Summer

I **decora** Mexico and Guatemala

Height about 2 feet, flowers of medium size, sepals and petals white, with a light rose blush ; lip light rose pink. Summer

SOBRALIA—cont.

I **Elizabethae** Guiana

Height about 3 feet, spikes racemose, 3 to 9 flowered. Flowers about 4 inches across, sepals and petals pure white, lip white with a yellow disc and faint rose markings at the base. Column horns large, yellow beneath. Winter and Spring

I **fragrans** Colombia

Height about 12 inches, stem two-edged, flowers small, very fugacious, fragrant, creamy-white ; lip rather brighter in colour, mid-lobe of lip fringed with nine, ragged, central crests. Summer

Galeottiana **syn. decora**

I **Holfordii**

Height 2 to 4 feet or taller, flowers large, rich rose-carmine, deepest on the lip ; throat shading to soft white. Late Summer

I **leucoxantha** Costa Rica

Height 2 to 5 feet, flowers large, sepals and petals waxy-white, slightly shaded with cream ; lip whitish externally, shaded with golden-yellow on the inner surface ; the throat flushed and lined with orange. Summer

I **Lowii** Colombia

Stems of a dark purplish shade, 1 to 3 feet high ; flowers medium size, deep purple-rose. Summer

I **Lucasiana** Tropical America

Stems 3 to 5 feet high, flowers large, sepals and petals white, the latter faintly rose-tinged ; lip broad, flat, soft rose-purple ; throat yellow. Summer

I **macrantha** Mexico

Stems 3 to 8 feet high, flowers large, fragrant, rich crimson-purple ; lip very broad, throat whitish, shaded with yellow. Summer

- var. *alba* **syn. var. Kienastiana**

I **- var. albida** Mexico

Flowers very large, sepals and petals creamy-white, lip soft purple. Summer

I **- var. Hodgkinsonii** Central America

Flowers very large, sepals light rose-lilac, petals deep, bright rose-lilac, lip broad, brilliant rose-purple, throat bright yellow. A rare and distinct variety, if variety it is. Summer

I **- var. Kienastiana** Mexico

Flowers large, pure snow white. Summer

SOBRALIA—cont.

I **macrantha var. nana** Mexico

Height 1 to 3 feet, flowers less in size than those of the type, lip dark violet-purple, yellow in the throat. Summer

- var. *Princess May* **syn. Princess May**

I **- var. Schroder's** Mexico

Flowers large, deep crimson-purple ; throat orange-yellow beneath the column. Summer

I **- var. splendens** Mexico

Flowers darker than those of the type, but slightly less in size. Summer

I **Princess May** Popaya

Stems 2 to 4 feet high, flowers of medium size, sepals and petals blush-white, front lobe of lip rosy-mauve, throat lemon-yellow, sepals connate to about one-third of their length. Summer

I **rosea (Poepp.)** Colombia

Height 3 to 6 feet, flowers large, racemose, sometimes four are open together; sepals and petals dark rosy-mauve, the outer surface of the sepals silvery-white : lip crimson-rose, throat and base of the lip whitish. Summer

Ruckeri **(Lind. ex Lindl.), syn. rosea**

I **Ruckeri (Lind. & Rchb. f.)** Colombia

Stems 4 to 6 feet high, flowers very large, racemose, sepals and petals white, lightly rose-flushed ; lip broad, soft lilac-rose. Spring

I **Sanderae** Central America

Height 3 to 5 feet, flowers large, sepals and petals pale sulphur-white, lip sulphur-white, tinged with rose ; front lobe of lip broad, bright rich crimson-purple ; throat rich yellow, especially on the apical area. Autumn

sessilis **(Hook.), syn. decora**

I **sessilis (Lindl.)** British Guiana

Stems 1 to 3 feet high, the leaf sheaths covered with blackish, pubescent hairs ; flowers of medium size, deep rose colour, with the lower half of the lip and throat yellowish-white. Autumn

I **virginalis** Central America

Habit as in sessilis, but without the blackish hairs on the stems. Flowers white, lightly flushed with rose, deepest on the front portion of the frilled lip ; throat yellow. Summer

SOBRALIA—cont.

I **Wiganiae** Central America

Possibly a natural hybrid between xantholeuca and another species. Flowers large, soft yellow, tinged with rose. Summer

I **Wilsoniana** Central America

Stems 3 to 6 feet high, flowers large, sepals and petals blush white, lip broad, two lobed, light rosy-mauve ; throat sulphur-yellow, shading to blush white, with a few darker, slightly raised lines beneath the column. Summer

I **xantholeuca** Central America

Stems 3 to 8 feet high, flowers large, sepals and petals creamy-yellow, lip of a darker yellow, but with a lighter patch at the apex of the sinus ; throat shaded with brown. Summer

I **- var. rubra** Central America

Flowers as in the type, but wholly of a rich crimson shade ; the throat only shaded with yellow. Summer

I **- var. superba** Central America

Flowers richly shaded with deep cream-yellow, throat of lip marked with orange-brown. Summer

I **- var. Wigan's** Central America

Sepals and petals creamy-white, suffused with pale primrose ; lip creamy-white, throat canary-yellow. When young the flowers are flushed with light pink. Summer

SOPHROCATTLEYA Hybrids between Sophronitis and Cattleya.

SOPHROLÆLIA Hybrids between Sophronitis and Laelia.

SOPHROLÆLIO-CATTLEYA Hybrids between Sophronitis and Laeliocattleya.

SOPHRONITIS

A genus of epiphytal Orchids closely allied to Cattleyas, but of dwarf habit, the largest known species, seldom exceeding 3 inches in height. The small pseudo-bulbs bear a single leathery leaf, and, as in Cattleyas, produce from the junction of pseudo-bulbs and leaf, a short peduncle. All the known species succeed best in the cool house. They should be placed in well-drained, shallow pans, using a compost as for Cattleyas, and hung near the glass. The plants should be liberally supplied with water when growing, and never at any season dried to excess.

SOPHRONITIS—cont.

C **cernua** Brazil

Height of pseudo-bulbs and leaves 1 ½ to 2 inches, rhizome creeping, scapes 1 to 3 flowered, flowers small, sepals and petals cinnabar-red, lip cinnabar-red, orange-yellow at the base. Winter

C **grandiflora** Brazil

Habit variable, about 3 inches in height. Scapes usually one-flowered. Flowers large, variable, sometimes 3 inches or more across, sepals and much broader petals brilliant scarlet, the three lobed lip of the same color, but orange-yellow, streaked with scarlet on the side lobes and at the base. Winter

C - **var. coccinea** Brazil

Flowers large, brilliant rose-scarlet in colour. Winter

C - **var. militaris** Brazil

Flowers of a brilliant scarlet-red. Winter

C - **var. var. purpurea** Brazil

Flowers bright carmine-purple. Winter

C - **var. rosea** Brazil

Flowers rich rose, shaded with purple. Winter

Hoffmanseggii **syn. cernua**

isopetala **syn. cernua**

C **Lowii** Brazil

Very near to, if not a variety of S grandiflora, but quite distinct in its dark chrome yellow coloring.

The flowers are rather smaller than in grandiflora but very freely produced. Winter

milltaris **syn. grandiflora var. militaris**

modesta **syn. cernua**

nutans **syn. cernua**

C **pterocarpa** Brazil and Paraguay

Pseudo-bulbs short, stout, hidden by the coriaceous leaves; scapes three or more flowered ; flowers rosy-purple. The ovary is characterized by broad wings and a long neck. Winter

purpurea **syn. grandiflora var. purpurea**

rosea **syn. grandiflora var. rosea**

C **violacea** Brazil

Height about 3 inches, rhizome creeping, scapes 1 to 2 flowered, flowers about an inch across, violet-magenta, paler at the bases of the segments. Winter

SPATHOGLOTTIS

Terrestrial Orchids distributed throughout the East from Burma to China and Hong Kong. The plants form small, corm-like pseudo-bulbs, set closely together, and have tall, plicate, grass-like foliage. The flowers are often umbel-like, but elongating, on erect scapes, produced from near the base of the pseudo-bulbs. The lip is three-lobed, the front lobe spreading more or less at the apical portion, narrowest at, or near, its junction with the basal lobes.

The plants may be potted entirely in leaf-mould or fibrous loam ; or leaf-mould and a little sand should be added to the usual mixture of fibre and sphagnum. Drainage must be ample, as during growth water must be liberally supplied, though when quite dormant a decided rest benefits them.

augustifolia **syn. plicata**

augustorum **syn. Vieillardii**

S **aurea** Malacca

Leaves 2 to 3 feet long, scapes often taller, flowers about 3 inches across, sepals and petals bright canary-yellow, lips bright yellow, spotted with red ; the apical halves of the basal lobes clear yellow. Autumn

C **Fortunei** Hongkong

Leaves 9 to 18 inches high, often deciduous, scapes shorter, flowers 1 to 1 ½ inches across, pure yellow, with the side lobes of the lip spotted and streaked with red. Autumn

S **gracilis** Borneo

Leaves and flower scapes 2 to 3 feet high, flowers over 2 inches across, golden-yellow ; the incurved lateral lobes of the lip spotted with red. Winter

S **Kimballiana** Borneo

Leaves 2 to 3 feet high, or more, scapes as tall, flowers 3 inches or more across, larger than in aurea, bright golden-yellow ; the backs of the sepals being a rich copper colour ; the lip has the bases of all its lobes spotted with red. Summer

lilacina **syn. plicata**

S **Lobbii** Burma

Leaves 12 to 15 inches high, scapes pubescent, taller ; flowers about 1 ½ inches across, bright sulphur-yellow, with a few brownish-red streaks and spots on the lateral sepals and at the base of the lip. Autumn

Micholitzii **syn. plicata var. Micholitzii**

SPATHOGLOTTIS—cont.

S **Paulinae** Australia

Leaves 15 to 24 inches long, scapes taller, many flowered ; flowers about an inch across, light rose-purple. Summer

S **Petri** Pacific Isles

Leaves 12 to 18 inches long, scapes taller, flowers over an inch across, pale rose-lilac. Summer

S **plicata** Malaya

Leaves 2 to 3 feet high, sometimes more ; scapes as tall, many flowered ; flowers 1 to 2 inches across, sepals and petals rose-purple ; the callus at the base of the labellum whitish. Summer

S - **var. alba** Malaya

Flowers pure white.

S - **var. Micholitzii** New Guinea

Habit less than in plicata, pseudo-bulbs more globose, flowers larger,with blunter segments, rich amethyst-purple ; the callus at the base of the labellum yellow, spotted with cinnamon. Summer

spicata **syn. plicata**

S **Vieillardii** New Caledonia

Pseudo-bulbs comparatively large, leaves 3 to 3 ½ feet high, scapes as tall or nearly so ; flowers about 2 inches across, sepals and petals whitish, or flushed with rose ; the side lobes of the lip reddish-brown or rose, front lobe whitish, or shaded with rose. Autumn and various

SPIRANTHES

A widely distributed genus of terrestrial Orchids. The flowers, usually small, or of only medium size, in some species are arranged spirally, carried on erect, often bracteate or leafy spikes. The upper sepal and petals are more or less connate, forming a hood, the lateral sepals are free, the lip varies in shape, but all the segments are nearly equal. Few species are met with under cultivation. The roots are often tuberous. Good turfy loam, with a little sand and leaf-mould added, suits the majority of the species best. Many like a few pieces of crushed mortar-rubble added.

S **colorata** Tropical America

Leaves about 6 inches long by 4 inches broad, scapes 1 to 2 feet high, flowers and bracts scarlet. Spring

S - **var. maculata** Tropical America

Foliage spotted with light whitish-green on a darker ground.

Spring

SPIRANTHES—cont.

The following British species could probably be suited in a rock garden :

autumnalis

Tuberous rooted. Leaves about 1 inch long, bright green tufted. Spike 4 to 8 inches high, from the side. Flowers small white, frgarant, on the upper portion and diverging to one side. Likes a little chalk in the soil. Late Summer

aestivalis

Larger than the preceding species, the leaves ascending the flower stem, which reaches a height of 12 inches, and is produced from the centre of the leaves. About a dozen white flowers are carried in a loose spiral. Requires a damp shady situation and prefers well drained leaf mould and peat. Summer

Romanzoviana

Tubers large. Leaves 3 to 6 inches long, clasping the stem which varies in height, but ends in a densely flowered spike, 2 to 3 inches high. Flowers white, larger than in autumnalis and arranged in 3 rows. Late Summer

STANHOPEA

A genus of epiphytal Orchids, nearly all the known members of which possess large, showy, often strongly scented flowers. The lip is remarkable in its structure ; the portion, termed the hypochil, next to the base of the column, is always more or less saccate ; proceeding from this is the mesochil, which often bears two horn-like bodies either running parallel with the variously shaped epichil (the apical portion of the lip), or bent upwards at various angles. The lip, in its entirety, is of great substance and wax-like ; the column, usually more or less winged and elongated, arches over the labellum, the apices of the two organs often nearly meeting, but all the organs are subject to modification. The sepals and petals are of membranous texture. The scapes are stout, pendulous, 2 to 7 flowered. The pseudo-bulbs are usually more or less ovoid in shape, 2 to 3 inches high, and bear a single leaf, 12 to 24 inches in height, broad and prominently nerved, with a channelled footstalk.

On account of the pendulous character of the scapes, teak wood baskets are the most convenient in which to grow the plants. The compost should consist of equal parts of fibre and sphagnum moss or rather more of fibre. When growing, abundance of water may be given, and the atmosphere of the house kept moist, but after growth is completed the plants are benefited by a cooler atmosphere and a decided rest, including full exposure to light.

STANHOPEA—cont.

Amesiana **syn. Lowii var. Amesiana**

amœna **syn. Wardii**

atro-purpurea **syn. insignis**

aurantia **syn. Bucephalus**

aurata **syn. graveolens**

aurea **syn. Wardii var. aurea**

I **Bucephalus** Peru and Ecuador

Scapes several flowered, flowers large, fragrant, tawny-yellow, shaded with orange, irregularly spotted with purplish-crimson ; hypochil boat-shaped, free from spots ; the horns of the mesochil bent forward, epichil nearly rotund, column narrow. Late Summer

I **- var. guttata** Ecuador

Sepals, petals and hypochil deep apricot-yellow, the petals and the hypochil marked with four brown blotches. Summer

I **- var. Roezlii** Nicaragua

Sepals, petals and base of the lip deep saffron-yellow, spotted with brown ; column white, dotted with purple ; the mesochil horns white. Summer

calcoolata **syn. eburnea**

I **Devoniensis** Mexico

Scapes 2 to 3 flowered, flowers large, fragrant ; sepals and petals light fawn-yellow, spotted with dark brown-crimson ; the apical areas of the sepals free from spots, lip white, spotted with purple ; the hypochil with a deep maroon-purple stain over the lower half ; the horns of the mesochil are ivory-white, nearly parallel with the sides of the epichil, which is ivory-white, with a few purple spots on the basal half ; slightly three-toothed apically ; column narrowly winged, white, spotted with purple. Summer

I **eburnea** Brazil

Scapes 1 to 2 flowered, flowers large, fragrant, ivory-white, with a few purple marks on the hypochil and mesochil ; the hypochil is long and boat-shaped, with two horn like processes at the base ; mesochil without horns, epichil sub-acute. Summer

I **- var. spectabilis** Venezuela

Sepals and petals pale straw colour, lip white, with a few crimson lines and dots at the base. The fragrance is more powerful than in the type. Summer

STANHOPEA—cont.

I **ecornuta** Central America

Scapes 1 to 2 flowered, flowers large, sepals cream-white, petals cream-white, spotted basally with purple ; lip somewhat slipper-shaped, without horns, consisting of the hypochil only, very fleshy, orange, shaded with yellow at the base and on the interior, white apically. Summer

expansa **syn. tigrina**

flava **syn. insignis**

I **gibbosa** Central America

Scapes several flowered, flowers large, yellow, barred and blotched with dull crimson, darkest on the petals. The horns of the mesochil are narrow and sickle-shaped ; epichil pointed. Summer

grandiflora **(Rchb. f.), syn. Bucephalus**

grandiflora **(Ldl.), syn. eburnea**

graveolens **(Morr.), syn. oculata**

I **graveolens (Lindl.)** Guatemala

Scapes 1 to 3 flowered, flowers large, disagreeably odorous ; sepals and petals straw-yellow, lip with the hypochil deep apricot-yellow, the horns of the mesochil ivory-white, sometimes dotted with purple ; column broad, winged nearly its whole length. Summer

guttata **(Beer), syn. Bucephalus**

guttata **(Koch), syn. oculata**

guttulata **syn. oculata**

Harrisoniæ **syn. Bifrenaria Harrisoniæ**

implicata **syn. Martiana**

I **inodora (Lodd.)** Mexico

Scapes several flowered, flowers medium size, pale straw-yellow ; the saccate hypochil deep yellow, mesochil two-horned and two-toothed, epichil roundly ovate. Summer

inodora **(Rchb. f.), syn. graveolens**

I **insignis** Brazil and Peru

Scapes 1 to 4 flowered, flowers large, fragrant, sepals and petals pale dull yellow, spotted with purple, paler and free from spots apically ; lip white, spotted with purple ; the sub-globose hypochil deep purple beneath ; the horns of the mesochil almost meeting at their apices ; epichil deeply channelled along the middle, column broadly winged. Summer

I **- var. flava** Brazil

Flowers yellowish, unspotted, very sweetly scented. Summer

STANHOPEA—cont.

Jenischiana **syn. Bucephalus**

I **Lowii** Colombia

Scapes several flowered, flowers large, fragrant ; sepals and petals straw colour, the petals dotted with brown-purple centrally ; lip ivory-white, hypochil globose, with an incurved yellow tooth on each margin; on the upper half,inside, are stripes of suffused, dull maroon spots ; mesochil without horns, epichil ovate obtuse.

Winter and various

I - **var. Amesiana** Colombia

Flowers deliciously fragrant, porcelain-white; the inside of the hypochil suffused with rose. Summer

maculosa **syn. Devoniensis**

I **Martiana** Mexico

Scapes usually 2 flowered, flowers large, sepals and petals pale straw-yellow, with crimson-purple spots, those on the petals being the larger ; sometimes there is a large crimson blotch at the base of the petals ; lip white, dark purple on the inside of the hypochil ; the horns on the mesochil are broad at their bases, cirrhose apically ; epichil slightly three-toothed apically. Autumn

nigro-violacea **syn. tigrina var. nigroviolacea**

I **oculata** Mexico

Scapes 3 to 7 flowered, flowers large, fragrant, variable ; sepals and petals light yellow, with numerous ocellated, red spots ; lip rather narrow, the basal half of the hypochil orange-yellow, with two, sometimes four deep blackish spots ; the anterior half whitish, often red-spotted ; mesochil and epichil ivory-white, sometimes red or purple-spotted ; the mesochil horns pointed. Summer

odoratissima **syn. insignis**

I **platyceras** Colombia

Scapes usually two-flowered, flowers very large, sepals and petals nankeen-yellow, spotted with red-purple, paler and spotted at the basal end ; mesochil and epichil whitish, spotted with red-purple ; mesochil horns broadly sickle-shaped, column long, narrowly winged, whitish, dotted with purple. Summer

I **quadricornis** Central America

Scapes 2 to 3 flowered. Flowers medium size, pale yellow, sparsely spotted with red. The hypochil bears two erect horns and the mesochil two, epichil very short.

Summer

I **saccata** Guatemala

Scapes 2 to 4 flowered, flowers comparatively small, the sepals and petals turned backward, greenish-yellow, apically, deep yellow basally, speckled with brown ; hypochil deeply saccate, mesochil short, with two broad, flat horns.

Summer

STANHOPEA—cont.

I **Shuttleworthii** Colombia

Scapes 3 to 7 flowered, flowers large, sepals and petals apricot-yellow, blotched on the basal portions with dark-purple ; hypochil orange-yellow, with maroon blotches ; mesochil and horns whitish, epichil whitish, shaded with yellow and dotted with purple ; column whitish, spotted with purple on the wings.

Summer

I **tigrina** Mexico

Scapes 2 to 4 flowered, flowers very large and showy, variable ; sepals deep sanguineous red, blotched and spotted basally with yellow, and clear yellow apically ; petals yellow, entirely so, or occasionally spotted, on the apical areas ; wine-red basally, and the intervening portions blotched with wine-red ; lip large, the hypochil deeply concave, orange-yellow, blotched with maroon-purple ; mesochil short, bearing two sickle-like, ivory-white, purple-spotted horns,which run nearly parallel with the sides of the ivory-white, purple-spotted epichil ; the latter organ is very broad, three-toothed apically ; column very broad, yellowish, spotted with red. Summer

I - **var. nigroviolacea** Mexico

Flowers wholly of a deep brown-purple, except the edges of the sepals and petals, and the mesochil and epichil. Summer

I - **var. superba** Mexico

Flowers larger and more richly coloured than in the type.

Summer

velata **syn. Martiana**

venusta **syn. Wardii**

I **Wardii** Guatemala

Scapes 3 to 7 flowered, flowers large, fragrant ; sepals and petals golden-yellow, usually more or less spotted with red-purple ; hypochil saccate at the base, deep orange, with two maroon blotches, or one large, confluent blotch, the front part orange-yellow or whitish ; the mesochil has two narrowly falcate, light yellow or whitish horns bent over the epichil, which is pale yellow, spotted with red, cordate, acute ; column nearly straight, pale yellow, spotted with red.

Summer

I - **var. aurea** Guatemala

Flowers very fragrant, deep orange-yellow ; the hypochil bearing two dark maroon blotches. Summer

I - **var. venusta** Guatemala

Sepals and petals entirely orange-yellow, lip orange-yellow, but with the hypochil and epichil dotted with purple, as also is the whitish column.

Summer

STANHOPEASTRUM **syn. Stanhopea**

STAURITIS **syn. Phalænopsis**

STAUROGLOTTIS **syn. Phalænopsis**

STAUROPSIS

A small genus of Orchids allied to Vandas, resembling them in habit and requiring similar culture. The chief character separating them from Vanda is the absence of a spur to the labellum. The foliage is distichous, coriaceous and flat. Rather less water than that given Vandas should be allowed them in the dull months, their fleshier stems and leaves being capable of resisting greater drought.

Batemanni **syn. lissochiloides**

S **fasciata** Burma

Stems slender, 1 to 3 feet high or more ; leaves 3 to 4 inches long, scapes 4 to 9 inches long, 4 to 9 flowered ; flowers about 2 inches across, sepals and petals light chestnut-brown, barred with yellow ; lip three-lobed, white ; the front lobe spotted with red-brown, flowers whitish on the exterior surfaces.

Summer

S **giganteus** Burma

Stems stout, 1 ½ to 3 feet high or more ; leaves 18 to 24 inches long, broad; scapes drooping, 6 to 12 flowered ; flowers about 3 inches across, sepals and petals yellow, with ocellated, chestnut-brown spots ; lip similarly coloured, but paler, and with three white, longitudinal raised lines. Spring or Summer

S **lissochiloides** Philippines

Stems stout, 1 to 5 feet high or more, leaves 18 to 24 inches long, broad, coriaceous ; scapes 12 to 20 flowered ; flowers about 3 inches across, sepals and petals yellow, densely spotted with red-purple, purplish-crimson beneath ; lip three-lobed, saccate at the base ; the side lobes erect, buff-yellow or purple-crimson ; the mid-lobe boat shaped, purple-crimson. Summer

S **Warocqueana** New Guinea

Stems stout, 1 to 4 feet high or more ; leaves about 6 inches long, scapes branched, flowers small, sepals and petals light buff-yellow, thickly spotted with reddish-brown ; lip white, spotted with rose. Winter

STELIS

A large genus of epiphytal orchids allied to Pleurothallis, distributed through tropical America.They closely resemble Pleurothallis in habit and like the plants of that genus, flower from the base of the leaf, the inflorescences being often produced again from the old leaves. The flowers are small, usually carried on erect spikes, the sepals are more or less connate at the base, then spread, surrounding and partially concealing the shorter and smaller petals, lip and column. Though not showy there is an attraction about a well-flowered plant. Culture as for Pleurohthallis.

C **gigas** Brazil

Height 6 to 9 inches. Leaves fleshy. Spikes 6 inches long. Sepals fleshy, deltoid, greenish-white, petals small, dark brown. Autumn

C **smaragdina** Brazil

Height 4 to 6 inches. Leaves fleshy. Spikes about 6 inches high. Flowers small, bright green. Autumn

C **Miersii** Brazil

Height about 3 inches. Spikes taller, closely set with small greenish-white flowers. Summer

C **micrantha** Jamaica

Height 4 to 6 inches. Spikes taller, many flowered. Flowers small, inclined downwards. Sepals broadly triangular, yellow or greenish-white.Petals and column deep red. Autumn

STENIA

A small genus of epiphytal Orchids, with or without pseudo-bulbs. The best known species is the one here described, which should be potted in fibre with the addition of a few decayed leaves, and sphagnum and kept in a moist, shaded position.

I **fimbriata** Colombia

Pseudo-bulbs none ; leaves 7 to 10 inches long, scapes short, sub-erect, one-flowered ; flowers about 2 inches across, sepals and petals light-yellow, lip light yellow, spotted with purple on the basal half, the apical half having a fimbriate margin. Summer

STENOGLOTTIS

Terrestrial Orchids, natives, all the species at present known, of South Africa. The tuberous roots produce a tuft of leaves, from the centre of which spring the erect, many flowered braeteate spikes, 6 to 15 inches. The flowers are small but pretty. The sepals and lip are the prominent parts of the flower, the smaller petals practically enclosing the column. The lip is narrow, longer than the other segments, divided and toothed apically. The plants should be potted in well-drained, fibrous loam and leaf-mould and watered liberally when growing. After growth is completed, many of the leaves, sometimes all, die off, then less water is required until the new growths appear. Repot in early Spring.

C **fimbriata** South Africa

Spike about 12 inches high, many flowered ; flowers small, dark purple ; lip trifid, leaves about 6 inches long, banded or spotted with dark brown. Autumn

C **longifolia** Natal

Habit more robust than in the preceding species, spikes 1 to 2 feet high, many flowered ; flowers larger, variable, light mauve-purple ; lip five-toothed, leaves 9 to 12 inches long, usually green, sometimes sparsely spotted with dark brown. Autumn and Winter

C **- var. alba** Natal

Flowers pure white. Autumn

C **- var. splendens** Natal

Habit more robust than in the type ; flowers rose-purple. Autumn

STENORHYNCHUS **syn. Spiranthes**

TANKERVILLIA **syn. Phaius**

TAINIA

Terrestrial orchids distributed through the East,distinguished by flask-shaped pseudo-bulbs which taper into a single, plicate, stalked leaf. lower spikes erect, several flowered. The flowers are not showy, and have rather narrow segments, the sepals with the base of the lip form a chin. They enjoy a mixture of fibrous loam, sphagnum moss and a few decayed leaves with the addition of a little Osmunda fibre. After growth a decided rest is benecial, similar to that given decideous Calanthes, to which genus they are allied.

TAINIA—cont.

S **Hookeriana** Burma

Scapes 20 to 30 inches high. Flowers 1 ½ inches across. Petals narrower than sepals, with them yellowish green, lined and suffused with brown. Lip keeled, three lobed. Side lobes inclined over column. Front lobe heart shaped, reflexed, whitish, faintly dotted with red.

S **latifolia** North India

Scapes 12 to 24 inches. Flowers greenish-brown, 1 ½ to 2 inches across. Summer

S **Penangiana** Penang

Scapes 12 to 18 inches high. Flowers about 2 inches across, yellowish-brown. Summer

TETRAMICRA

A genus of small growing epiphytes of tufted habit, without defined pseudo-bulbs, but with short stems, bearing usually a single, thick, terete or sub-cylindric leaf. The flowers are produced from the junction of the leaf. The plants should be given a similar compost to Cattleyas, to which the genus is closely allied, and suspended in pans near the glass, a liberal supply of water being accorded when growing. After growth a decided rest is necessary.

I **bicolor** Brazil

The better known, and at present the showiest species of this genus. Height of plant 3 to 7 inches, scapes short, 2 to 4 flowered ; flowers variable, 1 to 2 inches in diameter ; sepals and petals white, lip purple, sometimes margined or shaded with white. Winter and various

THEOCOSTELE

Epiphytal Orchids seldom met with under cultivation. Allied to Acriopsis they resemble Bulbophyllums in habit and require similar treatment.

I **alata** Burma

Pseudo-bulbs small, clustered, bearing a single, broad, dark green leaf, 5 inches long. Scapes drooping, 6 to 7 inches long, bearing numerous flowers, yellowish, spotted with red, about ¾ of an inch across. Petals linear, much narrower than the sepals. Lip three lobed, side lobes small, rounded, mid lobe haired centrally, red margined with yellow. Column thin, curved. Summer

Zollingeri **syn. alata**

Thrixspermum **syn. Sarcochilus**

THUNIA

A small genus of Orchids, the species at present known being confined to North India, Assam, Burma, the Andamans, etc. Usually these plants are classed as terrestrial Orchids, but our own collectors inform us that, in the majority of cases, they are epiphytal ; occasionally they are terrestrial, but only in rich humus, combined with a favourable situation. Botanically, the plants are included under Phaius, but horticulturally they are quite distinct ; the difference between Phaius and Thunia being more marked than that between Lælias and Cattleyas, Odontoglossums and Oncidiums, etc.

The inflorescence of Thunia is terminal, on leafy, tapering stems. The large flowers are carried in nodding racemes, a large, spathe-like bract being present at the base of each pedicel. The labellums, in most species, have, more or less, heavily fringed keels. The stems are biennial. Some time after flowering the leaves decay, and the plants should be kept cool and dry until the following spring, when, from the base, the young growths are produced. The plants should then be potted in rough, fibrous loam and peat, with a little sand, and well drained. After root growth commences, the plants may be freely watered until the flowering season is past. When growing, they enjoy warmth and moisture.

S **alba** North India

Stems 2 to 4 feet high, 5 to 12 flowered ; flowers large, variable ; sepals and petals white, lip white, with five fringed, purplish keels on the disc and a few purple streaks on either side of them ; front margin fringed. Summer

S - **var. Dodgsoni** North India

Sepals and petals white, front part of the lip citron-yellow, with a few streaks of yellow. Summer

- **var.** *flavotincta* **syn. var. Dodgsoni**

S - **var. nivalis** North India

Flowers pure white. Summer

S **Bensoniae** Moulmein

Stems about 2 feet high, 2 to 6 flowered ; flowers large, sepals and petals amethyst-purple, paler basally ; lip large, open ; the side lobes convolute over the column, magenta in front, whitish at the base ; the mid-lobe deep amethyst-purple, frilled at the edges ; the centre occupied with numerous yellow, longitudinal, fringed keels. Summer

THUNIA—cont.

S **Bensoniæ - var. superba** Moulmein

Flowers rather larger and more richly coloured than in the type, deep rose-purple, with rich bronzy, orange-coloured keels on the lip. Summer

S **Brymeriana** Upper Burma

Habit nearest that of Marshalliæ, between which and alba it may be a natural hybrid. Flowers large, sepals and petals white, the sides and front part of the lip beautifully radiated with crimson-purple ; the yellow, fringed keels are tinted with red. Summer

Dodgsoni **syn. alba var. Dodgsoni**

S **Marshalliae** Moulmein

Stem 2 to 3 feet high, stout, 3 to 8 flowered ; flowers large, sepals and petals pure white, the basal half of the lip is whitish, and the front lobe is often narrowly white-bordered ; the remainder being covered with numerous forked veins of rich orange, and dense, orange-yellow, fringed keels. Summer

Marshalliana **syn. Marschalliæ**

nivalis **syn. alba var. nivalis**

S **pulchra** Burma

Stems 2 to 3 feet high or more, 4 to 8 flowered ; flowers of medium size, sepals and petals white, lip without a spur, white, with brown and yellow crests. Summer

S **venosa** Burma

Habit as in alba, but the lip is veined with purple. The flowers are slightly smaller. Summer

S **Winniana**

Very handsome ; habit as in Bensoniæ, but with larger flowers, which have rich, magenta-rose sepals and petals, the lip being of a similar colour, but with a deep crimson-purple front lobe, heavily crested. Summer

xanthophlebia **syn. pulchra**

TREVORIA

A genus of epiphytal, central American, Orchids ; named in honour of the late Sir Trevor Lawrence by its discoverer, the late Consul . C. Lehmann. The plants are allied to Coryanthes, Stanhopea, etc.

I **chloris** Colombia

The pyriform pseudo-bulbs bear a single leaf, as in Stanhopeas. The pendant spike bears 3 or 4 fleshy inverted flowers, 2 to 3 inches across, green in color, curiously constructed. The sepals broad, The dorsal recurved, the petals and front lobe of the lip attenuated and the base of the lip urceolate.

Spring

TRIAS

Dwarf growing epiphytes native to Burma, and the East. The pseudo-bulbs are small, sub-globose clustered, and bear a single fleshy leaf at the apex. The single flowered scapes are produced from the base of the bulb, several together. Flowers fleshy, comparatively large for the size of the plant. Sepals spreading, much larger than the petals, lip tongue like, mobile. Culture and compost as for Bulbophyllums.

T **disciflora**

Pseudo-bulbs about 1 inch high. Leaves 2 to 3 inches high. Flowers large. Sepals about 1 inch long, roughly triangular, upper sepal ½ an inch broad at greatest width. Lower sepals slightly larger, reflexed on outer margins, horizontal, connate at base, forming a cup-like mentum, light yellow, spotted with red. The lower sepals more thickly spotted than the upper. Lip tongue-like, capable of movement as in Bulbophyllum, but not so pronounced, petals dark red, small, horn-like, parallel with the yellow column. Late Autumn

T **oblonga** Burma

Pseudo-bulbs barely an inch high. Leaves 1 to 2 inches long, Flowers about 1 inch across. Sepals brownish green, lip grooved, purple. Autumn

T **picta** Burma

Habit much as in oblonga. Leaves pointed, channelled, 3 to 4 inches long. Flowers hardly an inch across, fleshy. Sepals and petals broadly triangular, petals pointing forward, yellowish, densely spotted, with red purple lip tongue-like, similarly coloured. Spring

TRICHOCENTRUM

A genus of dwarf growing, epiphytal Orchids. In several of the species the flowers are large for the size of the plant, and the broad lip is produced into a long, slender spur. The pseudo-bulbs are very small or wanting ; the leaves in one section of the genus are carried horizontally, in the other section they are equitant. The scapes are short, drooped, one or few flowered.

A well-drained compost, similar to that given Bulbophyllum, is a suitable material for the plants, and they should be placed in shallow pans and hung near the glass in a moist, rather shaded position. At all seasons careful watering is necessary, for, although the plants must never be allowed to become really dry, they are very impatient of a soddened compost.

TRICHOCENTRUM—cont.

S **albo-purpureum** Brazil

Leaves 3 to 6 inches long, scapes 1 to 2 flowered, flowers about 2 inches across, sepals and petals tawny-brown, tipped with green ; lip broad, white, with a large, purple blotch on each side of the crest, which consists of four thin keels, with a yellowish spot in front. The front portion of the lip is white, with a few purple streaks. Summer

I **fuscum** Mexico

Leaves 3 to 6 inches long, scapes 1 to 2 flowered, flowers about an inch across, sepals and petals purplish-green, shaded with brown ; lip white, with two rose-purple, basal blotches, and a few yellow lines on the disc : spur slender. Autumn and various

I **maculatum** Colombia

Leaves narrow, fleshy, 2 to 4 inches long ; scapes 1 to 2 flowered, flowers over an inch across, sepals and petals white, spotted centrally with rose ; lip white, spotted with rose apically ; the basal portion bright yellow, dotted with red, spur slender. Winter and various

I **orthoplectron** Central America

Leaves 3 to 6 inches long, scapes 1 to 2 flowered, flowers large, 2 inches or more across, sepals and petals light cinnamon-brown, lip large, soft crimson-lake, paler on the margins and darker on each side of the yellowish disc. Autumn and various

S **Pfavii** Central America

Leaves 3 to 5 inches long, scapes 1 to 2 flowered, flowers about 1 ½ inches vertically, sepals and petals white, with a basal, brown blotch ; lip cuneate, white, with a large, red, basal spot, spur short. Winter and various

I **porphyrio** Central America

Leaves 3 to 5 inches long, scapes one-flowered, flowers about 2 inches in diameter, sepals and petals brown, tipped, and the margins broken, with yellow ; lip rich magenta-purple, faintly suffused with white apically ; crest with three purple lines, in front of which, on the disc, is a sulphur-yellow blotch. Various

I **tigrinum** Central America

Very hanasome ; leaves 3 to 5 inches long, dotted with red ; scapes 1 to 2 flowered, flowers fragrant, about 2 inches across, sepals and petals greenish-yellow, spotted and barred with purplish-brown ; lip broadest at the apical portion, pure white, with a wedge-shaped, purple suffusion on each side of the yellow crest. Spring and various

I **triquetrum** Peru

Leaves equitant, 3 to 6 inches high ; scapes short, axillary ; flowers about 1 ½ inches across, sepals and petals pale straw-yellow, lip straw-yellow, blotched and suffused with orange ; spur slender. Summer and various

TRICHOGLOTTIS

fasciata **syn. Stauropsis fasciata**

TRICHOPILIA

Epiphytal Orchids distributed, at considerable elevations, through Central America. The greater number of known species possess large, showy flowers, and are well worth cultivating, Trichopilias usually have flattish or elongated pseudo-bulbs, which bear a single, leathery leaf. The short scapes, produced from the base of the pseudo-bulbs, are usually pendulous, sometimes erect.

The flowers are large, showy, with generally narrow, often twisted, sepals and petals, and a large, more or less funnel shaped lip. The column has a curious, hood like usually toothed apex. The plants should be placed in well drained pots in a compost of 2 parts fibre and 1 part sphagnum moss. A few decayed leaves and a little loam fibre may be added for the stronger growing speceis. The plants should be stood in a position near the glass. At all times water must be carefully given, and after growth is completed but little is required. Most of the species will grow in the Odontoglossum house during the summer months, or a cool, rather shaded position in the Cattleya house, but usually the Odontoglossum house is too cool and moist during winter for them. Often they can be rested with Dendrobiums of the nobile section.

1 **brevis** Peru

Pseudo-bulbs cylindro-conical, 2 to 5 inches long ; leaves 4 to 6 inches long, scapes 2 to 3 flowered, flowers about 3 inches or more across the petals, sepals and petals yellow, barred and blotched with chestnut-brown ; lip frilled, milk-white, with a few purplish, basal markings. Summer and various

candida **syn. fragrans**

1 **coccinea** Central America

Pseudo-bulbs 2 to 3 inches high, flattish ; leaves 6 to 9 inches long, scapes one-flowered, flowers large, sepals and petals narrow, twisted, brownish-green ; lip white on the outer surface, deep crimson within ; the front lobes paler in colour, blotched and streaked with rose-carmine, sometimes white margined. Early Summer

1 **- var. crispa** Central America

Habit slightly more robust than in the type, scapes 2 to 3 flowered, sepals and petals cherry-crimson, with whitish, undulated margins ; lip whitish, externally, throat rich, deep crimson, the remaining portion as in the type, but with an irregularly crisped margin. Early Summer

TRICHOPILIA—cont.

I **coccinea - var. lepida** Central America

Sepals and petals reddish-crimson, with a broad, white margin, interrupted with rose-pink spots ; the margin of the lip crisped and spotted with rose-pink.

Spring

I **- var. marginata** Central America

Pseudo-bulbs usually less than those of the type, scapes 2 to 3 flowered, sepals and petals reddish-crimson, margined with white ; front lobes of lip rose-carmine, darker basally. Spring

I **- var. - var. Champlatreux's** Central America

Sepals and petals red-crimson, margined with white, broken with red-crimson spots ; lip large, fluted, narrowly-margined with white, strawberry-red, darkest on the area beneath the column, whitish externally. Summer

crispa **syn. coccinea var. crispa**

C **fragrans** Colombia

Pseudo-bulbs compressed, 3 to 5 inches high, leaves 7 to 12 inches high, scapes erect or nearly so, 2 to 5 flowered ; flowers fragrant, sepals and petals white, tinged with green ; lip spreading, white, with a light yellow spot near the base.

Autumn and various

C **- var. nobilis** Colombia

Pseudo-bulbs shorter, thicker, and wider ; leaves shorter and broader, flowers larger, of a purer white, and with a large, yellow blotch at the base of the lip.

Autumn

I **Galeottiana** Mexico

Pseudo-bulbs compressed, narrow, 3 to 5 inches long ; leaves 4 to 8 inches long, scapes 1 to 2 flowered, sepals and petals pale yellow, lip light yellow, with a darker yellow, sometimes red-spotted disc. Summer

S **hymenantha** Colombia

Pseudo-bulbs wanting, leaves subterete, channelled on the face, 5 to 10 inches high ; scapes pendulous, 5 to 12 flowered, flowers about 1 ½ inches across,sepals and petals whitish or pale straw-yellow, lip white, sparsely spotted with deep red; margin fringed. Summer

I **laxa** Colombia

Pseudo-bulbs compressed, 2 to 3 inches high ; leaves 8 to 12 inches long, scapes arching, 5 to 9 flowered, flowers fragrant, 2 to 3 inches across ; sepals and petals dull rose, shaded with green ; lip whitish. Various

lepida **syn. coccinea var. lepida**

marginata **syn. coccinea var. marginata**

nobilis **syn. fragrans var. nobilis**

picta **syn. Galeottian-**

TRICHOPILIA—cont.

I **punctata** Costa Rica

Pseudo-bulbs and leaves resembling those of laxa, but less ; scapes sub-erect, flowers about 2 inches across, sepals and petals pale green, spotted with red-purple ; lip white, shaded with green. Winter

Reichenheimia **syn. laxa**

I **rostrata** Colombia

Pseudo-bulbs compressed, 4 to 6 inches high ; leaves narrow, 4 to 7 inches long; scapes sub-erect, 2 to 3 flowered ; sepals and petals light yellow-green, twisted ; lip white, with some yellow markings on the disc, spotted and marked with orange in the tube. Summer

C **sanguinolenta** Central America

Pseudo-bulbs compressed, 1 to 2 inches high, leaves 4 to 7 inches long ; scapes sub-erect, 2 to 3 flowered ; flowers 2 to 3 inches across, sepals and petals olive-green, barred and spotted, often ocellately, with chestnut-brown ; lip white, spotted and marked on the basal half with red-purple. Various

I **suavis** Central America

Pseudo-bulbs compressed, broad, about 3 inches high ; leaves 4 to 9 inches long, scapes 2 to 5 flowered, flowers large, fragrant, variable ; sepals and petals cream-white, spotted with pale rose ; lip cream-white, the apical half spotted and blotched with rose-pink ; disc spotted and marked with orange. Spring

I **- var. alba** Central America

Flowers pure white, except for a light yellow stain in the throat. Summer

I **- var. grandiflora** Central America

Flowers larger than in the type ; the lip spotted with rich crimson, the throat deep orange. Summer

subulata **syn. hymenantha**

I **tortilis** Mexico

Pseudo-bulbs compressed, about 2 inches high ; leaves 5 to 7 inches long, flowers large, sepals and petals narrow, twisted, pale rose, margined with pale yellow-green ; lip white, blotched and spotted with red-brown; margin crisped and undulated. Various

Turialvæ **(Batem.) syn. Galeottiana**

TRICHOSMA The correct name for the species here given is Eria coronaria.

TRICHOSMA—cont.

C **suavis** North India

An epiphytal Orchid of tufted habit, without pseudo-bulbs. Stems 3 to 6 inches high, as thick as a stout quill, bearing two leaves 4 to 8 inches long, 1 to 1 ½ inches broad ; scapes, from between the leaves, 3 to 5 flowered ; flowers fragrant, about an inch across ; sepals and petals creamy-white, lip three-lobed, the side lobes erect, white, streaked on their inner surfaces with red-purple ; mid-lobe reflexed, yellow, margined with white and crimson-brown.

The plants should be potted in 2 parts fibre, 1 part sphagnum, with a few decayed leaves and sharp sand added. Winter

TRIGONIDIUM monophyllum **syn. Lælia monophylla**

TROPHIANTHUS **syn. Aspasia**

UROPEDIUM Lindeni see **Cypripèdium caudatum var. Lindeni**

VANDA

Epiphytal Orchids distributed throughout the warmer countries of the East. The genus contains many most handsome species and is remarkable for the great differences observable in the colour and size of the flowers, and the habit of its members. In habit the majority of the species resemble Ærides, i.e., they have erect, leafy stems, with distichous, evergreen leaves and fleshy roots. The flowers are carried on lateral scapes, produced from the axils of the leaves. The distinguishing feature with regard to their flowers is that the lip is joined to the base of the column, and is saccate at its base or obtusely spurred. The sepals and petals are subequal, free spreading.

The plants should be potted as advised for Ærides, and many of the species may be grown in the same house. As much light as possible, short of the sun's direct rays, should be given the plants, and at no season of the year, with few exceptions, must they be allowed to get dry. Under cultivation it often happens that some species, particularly suavis, lose the bottom leaves, and the stem assumes a naked appearance. In many cases, side shoots are produced, but where these do not occur, the plants may be shortened to wherever good roots appear, and re-potted. Should there not be many roots from the stem, such may be encouraged by binding sphagnum moss round them and keeping it moist. On

VANDA—cont. the whole the species are of very easy culture, and rank among the most showy and handsome of stove plants.

In their wild state the plants often attain considerable dimensions, but the heights, etc., given in this catalogue are as generally seen under cultivation.

I **alpina** North India

Habit dwarf, leaves 2 to 3 inches long, scapes short, 1 to 2 flowered ; flowers 1 to 2 inches vertically, sepals and petals greenish-yellow, lip three-lobed, the side lobes blackish-purple, the front lobe striped with blackish-purple and light yellow, with two short, horn-like processes at the apex. Summer

I **Amesiana** Burma

Stems short, leaves nearly terete, grooved on the face, 7 to 12 inches long ; scapes sub-erect, 18 to 30 inches long, often branched ; flowers fragrant, variable, about 1 to 2 inches across ; sepals and petals white, tinted with rose ; lip amethyst-purple or deep rose, with a paler margin. Early Summer

I **- var. alba** Burma

Flowers pure white. Early Summer

I **amœna** Burma

A supposed natural hybrid between Roxburghii and cœrulea. Flowers between 2 to 3 inches across, sepals and petals glossy, bluish-grey, spotted with blue ; front lobe of lip violet-blue, side lobes white, spotted with blue. Summer

Batemannii **syn. Stauropsis lissochiloides**

S **Bensoni** Burma

Stems 9 to 18 inches high, leaves 7 to 10 inches long, scapes sub-erect, 12 to 18 inches long ; flowers about 2 inches across, sepals and petals yellowish-green, reticulated with chestnut-brown ; lip rose or violet-purple, expanded into two lobes apically ; the basal lobes and spur whitish. Spring and various

S **- var. Trister** Burma

Flowers sulphur colour externally, sepals and petals brownish, shaded with red on the interior surfaces ; lip whitish-yellow. Spring

S **bicolor** North India

Habit much as in Bensoni, flowers as large or larger,sepals and petals brownish, with darker, tessellated markings, the lower sepals much the larger ; the side lobes of the lip whitish, bordered with yellow ; mid-lobe clear lilac, spur short, blunt. Spring

Boxalli **syn. lamellata var. Boxalli**

Cathcartii **syn. Aracnanthe Cathcartii**

VANDA—cont.

S **Charlesworthii** Burma

Probably a natural hybrid between cœrulea and Bensoni. Habit intermediate, flowers 2 to 3 inches across, sepals and petals coloured much as in cœrulea, but veined and suffused marginally with light rose-purple. The lip more resembles that of Bensoni in texture, of a deep blue shade, with two small, reddish-purple apical lobes and two yellow marks between the side lobes. Spring

I **cœrulea** North India, Assam, and Burma

A popular species. Stems 1 to 3 feet high, leaves 5 to 9 inches long, scapes ascending, variable in length ; flowers large, handsome, variable, 3 to 4 inches across or more ; sepals and petals light blue, with darker tessellations ; the petals slightly twisted basally ; lip small, deep blue, spur short.

It is seldom that any two plants of this beautiful species have flowers exactly alike. Almost every shade of colour is seen, from a soft, bluish-tinted white to a deep blue, and pink forms are known V. cœrulea does not require such a high temperature as suavis, Sanderiana, etc., but during its growing season requires abundance of fresh air, without draughts, warmth and moisture. In the Autumn after the growing and flowering periods are completed, a temperature of 55° to 60° should be maintained, the plants kept as dry as safety permits and as much light given them as possible, air being admitted as often as in consistent with out-door conditions. The foliage will lose color consideraby but will regain it in the following spring. Autumn

S **cœrulescens (Griff.)** Burma

Stems about 12 inches high, leaves 5 to 9 inches long, scapes slender, erect or sub-erect, many flowered ; flowers variable, an inch or more across ; sepals and petals pale mauve-blue ; lip deep violet-blue. Summer

cœrulescens **(Lndl.) syn. cœrulea**

S **concolor** China

Stems 1 to 3 feet high or more, leaves 7 to 10 inches long, scapes lateral or ascending, flowers fragrant, about 2 inches across ; sepals and petals yellowish-brown, whitish externally ; lip white, marked with red on the side lobes ; the mid-lobe yellow, shaded with brown apically ; spur short. Summer

S **cristata** North India

Stems 1 to 2 feet high, leaves 5 to 7 inches long, scapes short, few flowered ; flowers about 2 inches across, sepals and petals yellowish-green, lip broadly oblong, deep red-purple, traversed by five or more raised, whitish lines ; at the apex are three divergent, horn-like lobes. Early Summer

Cumingii **syn. lamellata**

VANDA—cont.

S **Dearei** Sunda Isles

Strong growing. Height 2 to 8 feet. Leaves fleshy, closely set, 12 inches, or more, long. Scapes few flowered. Flowers fleshy, large, soft yellow.

Summer

S **Denisoniana** Burma

Resembling Bensoni in habit, but with rather longer and broader leaves; flowers about 2 ½ inches vertically, sepals and petals ivory-white, lip three-lobed, the side lobes pure white, the mid-lobe white, tinted with green, shaded with orange-yellow on either side of the callus, with four or five raised, thickened lines ; two lobed apically, spur short. Early Summer

S **var. hebraica** Burma

Sepals and petals sulphur-yellow, spotted, marked, and barred with orange-yellow ; lip sulphur-yellow, the side lobes whitish, spur orange-yellow inside.

Spring

densiflora **syn. Saccolabium giganteum**

gigantea **syn. Stauropsis gigantea**

Griffithii **syn. alpina**

S **helvola** Java

Stems 1 to 3 feet high, leaves 6 to 12 inches long, scapes erect or sub-erect, flowers 2 inches or more across, sepals and petals straw-yellow, shaded on the apical halves with purplish-brown ; lip with a brighter and deeper shade of purple.

Early Summer

S **Hookeriana** Malaya

Stems 2 to 5 feet high, leaves slender and cylindrical ; scapes 2 to 9 flowered, flowers about 2 ½ inches across, sepals white, flushed with light purple ; the lower two often wholly white, the broader petals white, flushed with light purple, with deeper purple dots ; lip three- lobed, the side lobes amethyst-purple, with paler striations ; front lobe broadly fan-shaped, white, thickly spotted and marked with amethyst-purple ; margin crenulate, spur short. Autumn and various

S - **var. gigantea** Malaya

Flowers larger and more richly coloured than in the type. Summer and various

insignis **(Warner), syn. tricolor var. insignis**

S **insignis (Blume)** Malaya

Resembling suavis. Stems 1 to 2 feet high or more, leaves 9 to 12 inches long, scapes 4 to 7 flowered, flowers 2 inches or more in diameter, sepals and petals bright tawny-yellow, with oblong, chocolate spots ; lip with two small, white side lobes, mid-lobe bright rose-purple, somewhat convex in shape.

Summer

S - **var. Schroderiana** Malaya

Sepals and petals light yellow, shaded with orange ; lip cream-white, with two orange lines in front of the spur. Summer

VANDA—cont.

I **Kimballiana** Burma

Height about 12 inches, leaves sub-cylindric, 6 to 9 inches long, channelled down the face ; scapes 12 to 18 inches long, several flowered ; flowers nearly or quite 2 inches in diameter, sepals and petals white, sometimes flushed with pale purple ; lip three-lobed, the side lobes small, yellow, spotted with red-brown ; mid lobe bright amethyst-purple, spur pale purple, about an inch long.

Autumn and various

S **lamellata** Philippines

Habit dwarf, leaves 12 to 15 inches long, narrow ; scapes erect or sub-erect, many flowered ; flowers 1 to 2 inches across, light yellow, blotched with chestnut-brown. Winter

S - **var. Boxallii** Philippines

Leaves and scapes rather longer than in the type; sepals and petals cream-white, the inner halves of the broader lower sepals red-brown, lip rose-purple, white, spotted with light purple basally. Winter

S **limbata** Java

Height 1 to 2 feet, stems stout, leaves 6 to 8 inches long, scapes erect, 10 to 12 flowered ; flowers about 2 inches across, sepals and petals cinnamon-brown, with darker tessellations, margined with yellow ; lip light rose-lilac, margined with white, spur short. Summer

Lindleyana **syn. Stauropsis gigantea**

lissochiloides **syn. Stauropsis lissochiloides**

Lowii **syn. Aracnanthe Lowii**

S **Luzonica** Luzon

Habit resembling that of suavis but the aerial roots are much larger. Leaves 12 to 15 inches long. Scapes shorter than in suavis, 6 to 12 flowered. Flowers more closely set, and smaller. Sepals 1 inch or more long, nearly as broad, petals slightly smaller. Colour pure white ; at the base of each segment is a ring of crimson, the petals bear a few irregular streaks and splashes of same colour, and the sepals a few minute dots on the apical portion. The lip has the front lobe almost entirely crimson. So far each plant that has flowered has the crimson coloring differently placed. Late Autumn

S **Moorei** Burma

A supposed natural hybrid between Kimballiana and cœrulea. Habit resembling that of Kimballiana, but the foliage is broader ; sepals and petals pale blue, lip deep amethyst-purple. Autumn

VANDA—cont.

S **Parishii** Burma

Stems short, leaves 6 to 9 inches long, 2 to 3 inches broad, fleshy ; scapes sub-erect, several flowered ; flowers scented, fleshy, about 2 inches across ; sepals and broader petals greenish-yellow, spotted with red-brown ; lip magenta-purple, with a paler margin. Summer

S - **var. Marriottiana** Burma

Flowers not scented, sepals and petals bronzy-red, shaded with brown, rose-purple towards the base, but white at the base ; mid-lobe of lip magenta-purple, the small side lobes white, streaked with rose-purple. Summer

I **parviflora** India

Much resembles V. coerulescens in habit and general appearance, but the flowers are slightly smaller. Sepals and petals pale yellow, the lip is somewhat funnel shaped, white or yellowish white, with purple crests. Summer

I **pumila** Burma

Height 6 to 18 inches. Leaves 4 to 5 inches long, keeled, unequally bilobed apically. Spikes 2 to 3 flowered. Flowers over 2 inches across when spread. Upper sepals and petals nearly equal. Lower sepals nearly twice as broad, so twisted as to leave an aperture for the short blunt spur, yet allow the apices to nearly meet. Colour creamy white, the sepals sometimes dotted with red basally. Lip very thick and fleshy, white, with about eight slightly irregular, broad, red, longitudinal stripes, much broader and thicker but shorter than the other segments. A pretty species. Summer

pulchella **syn. Saccolabium calceolare**

I **Roxburghii** North India, Burma, and Ceylon

Stems 6 to 18 inches high, leaves 5 to 7 inches long, scapes sub-erect, 5 to 12 flowered ; flowers fragrant, variable, about 2 inches across, pale green, tessellated with brown, whitish behind ; lip with small, white side lobes and a violet-purple mid-lobe, paler basally. Summer

- **var.** *unicolor* **syn. concolor**

S **Sanderiana** Philippines

A magnificient Orchid. Height 1 to 2 feet or more, leaves 12 to 15 inches long or more, scapes sub-erect, 7 to 15 flowered ; flowers large, often nearly 5 inches across and almost flat ; upper sepal soft rose, suffused with white ; the lower two larger, tawny-yellow, crossed and re-crossed with prominent, sanguineous-red veins ; petals smaller than the sepals, coloured like the upper sepal, but with the tawny, red-spotted blotch near the base ; lip comparatively small, remarkable in structure, the basal half concave, not spurred, dull tawny-pellow, streaked with red ; the front part bluntly cordate, recurved apically, chocolate-purple, with three prominent ridges. Late Summer and various

VANDA—cont.

scripta **syn. Grammatophyllum speciosum**

S **spathulata** Mysore, Malabar, and Ceylon

Stems tall, several feet ; leaves 3 to 5 inches long, borne at intervals, sometimes marked and spotted with red ; scapes erect, many flowered; flowers about 2 inches across, sepals and petals golden-yellow, lip golden-yellow, shaded with orange on the front lobe, The reverse sides of the segments are greenish-yellow, shaded with brown on their apical portions. Various

Stella **syn. concolor**

Storiei **syn. Renanthera Storiei**

striata **syn. cristata**

suaveolens **syn. tricolor**

S **suavis** Java

A splendid species. Height 1 to 5 feet, leaves 12 to 18 inches long, scapes long, several flowered ; flowers 2 to 3 inches across, very fragrant ; the upper sepal and petals turned away from the lip, and the petals often so twisted as to bring their reverse surfaces to the front, or nearly so ; sepals and petals white, spotted and barred with blood-purple, sometimes with a light purplish suffusion; lip three-lobed, the front lobe narrow, pale rose-purple ; side lobes deep rose-purple. Various

S - **var. Chatsworth** Java

Sepals and petals thickly spotted and streaked with blood-purple, lip rosy-purple, dotted with deeper purple ; the side lobes rich violet-purple, margined with white. Various

S - **var. Gottschalckei** Java

Habit more robust than in the type, flowers larger, the sepals and petals are more densely spotted, the lip is bright rose-purple, tipped with white. Various

S - **var. Sanderae**

Habit as in the type. Flowers pure white, with light greenish-yellow spots in place of the typical red or blood-purple spots. Various

S **teres** India, Burma, etc.

Stems and leaves terete, height 2 to 7 feet, scapes 2 to 5, or more, flowered, flowers large, 3 to 4 inches across, variable ; sepals white, more or less tinged with rose ; petals larger, usually rose-magenta ; lip three-lobed, the side lobes rounded, convolute over the column, orange-yellow, banded with red spots on the inner side ; the front lobe narrowest basally, orange, spotted with red ; the apical portion is spreading, magenta-rose in colour, with a deep marginal cleft ; spur funnel-shaped. Requires a decided rest in Winter and as much light as possible. Spring

VANDA—cont.

S **tieres var. Andersonii** Sylhet

Upper sepal and petals magenta-rose, almost white marginally ; lower sepals whitish, with a few red spots ; front lobe of lip deep purple-rose apically. Spring

S **- var. aurorea** Sylhet

Sepals soft white, petals white, faintly suffused with rose-purple; lip light rose, spur buff-yellow. Spring

S **- var. candida** North India

Sepals and petals white, side lobes of lip and spur pale yellow, front lobe of lip white, with a faint, central, light rose flush. Spring

tessellata **syn. Roxburghii**

tesselloides **syn. Roxburghii**

tricolor **(Hook.) syn. suavis**

S **tricolor (Lindl.)** Java

Habit as in suavis, of which it is probably a form. Scapes several flowered, flowers 2 to 3 inches across, variable, fragrant ; sepals and petals whitish-yellow, spotted with reddish-brown ; the petals sometimes twisted as in suavis, though usually to a less extent ; lip three-lobed, the side lobes small, erect, rounded, whitish ; mid-lobe bright magenta-purple, whitish at the base, sparsely streaked with red-brown. The lip is slightly convex above, with three ridges. Various

S **- var. Dalkeith** Java

Sepals and petals pale yellow, densely spotted with red-purple in irregular longitudinal rows ; lip bright red-purple, streaked basally with white. Various

S **- var. Dodgsoni** Java

Flowers larger than in the type, sepals and petals amber-yellow, marked with red-brown and margined with violet ; lip rich violet-purple, whitish at the base. Various

S **- var. insignis** Java

Sepals and petals light yellow, spotted with crimson ; lip pale rosy-lilac. Various

S **- var. Patersoni** Java

Sepals and petals creamy-white, densely spotted with cinnamon-brown ; lip bright magenta. Various

S **- var. planilabris** Java

A fine form. Flowers larger than in the type, sepals and petals citron-yellow, thickly marked with rich brown ; lip large, nearly flat, deep rose,margined with purplish-mauve, whitish at the base. Various

Vidalii **syn. lamellata**

VANDA—cont.

violacea **syn. Saccolabium violaceum**

C **Watsonii** Annam

A very distinct charming species, somewhat resembling V. Kimballiana in habit, but much stronger. Height 1 to 2 feet. Leaves 9 to 15 inches long, set more closely together. Spikes erect or semi-erect, 15 to 24 inches long; many flowered. Flowers about 2 inches across, pure white, the lip larger than the other segments, concave with a denticulated margin, a yellowish crest and a few red-brown dots basally. Various

VANILLA

A widely distributed genus of climbing or scandent-habited Orchids, the greater number have fleshy leaves, and produce short spikes of rather large flowers. The fruits are elongated capsules, and yield — in particular those of planifolia — vanilla, used as a flavouring. The plants under cultivation are used as stove climbers, the long, green stem, thick, long-lasting leaves, and aerial roots being both ornamental and distinct. The genus is very variable, some species being practically leafless. The culture is very simple : a compost of equal parts fibre and moss being used. The plants derive much of their support from the moist atmosphere, hence only small receptacles need be used. The stems often attain a great length.

aromatica **syn. planifolia**

grandiflora **syn. Pompona**

majaijensis **syn. planifolia**

S **phalaenopsis** Seychelle Isles

Very distinct. The long, aerial-rooted stems are leafless, and the showy flowers are borne in umbels of 5 to 7 ; they are about 3 inches across ; sepals and petals faint blush-white, the two lower sepals being divided to the base; lip pale rosy-blush externally, tawny-orange within, broadly funnel-shaped. Summer

S **planifolia (Andr.)** Central America

Leaves deep green, fleshy, 5 to 7 inches long ; flowers greenish-white, fruits about 6 inches long. Summer

- var. variegata

Leaves variegated with creamy-white. Summer

S **Pompona** Tropical America

A strong-growing species ; leaves 6 to 9 inches long, 2 to 3 inches broad ; flowers large, yellowish ; fruits stout, 4 to 6 inches long. Summer

VANILLA—cont.

sativa **syn. planifolia**

sylvestris **syn. planifolia**

viridiflora **syn. planifolia**

VUYLSTEKEARA Hybrids between Cochlioda, Miltonia and Odontoglossum.

WARREA A small genus of terrestrial Orchids, natives of Central America. The pseudo-bulbs are sub-cylindrical, tapered, comparatively small for the size of the plant. bearing tall plicate leaves. Scapes stout, erect, taller. Flowers subglobose. the sepals rather broader than the petals, the lateral two produced into a short spur. Rarely met with under cultivation, but requiring similar treatment and compost to Phaius grandifolius.

candida **syn. Zygopetalum candidum**

digitata **syn. Zygopetalum Wailesianum**

discolor **syn. Zygopetalum discolor**

I **grandiflora** Peru

Scapes 24 to 30 inches high, 6 to 10 flowered. Flowers large. Sepals and petals whitish. The inside of the petals marbled with rose and white, the expanded lip flushed with crimson, with centrally, dark brown-black marblings. Summer

I **Hookeriana** Peru

Habit similar to that of tricolor but stouter. Flowers of a red-purple shade, darkest on the lip. Various

I **tricolor** Colombia

Scapes 2 feet high, 7 to 10 flowered. Flowers about 3 inches across. Sepals and petals white, tinged with yellow, lip yellow and deep purple, margined with white, the concave basal half having three ridges. Summer

unijugata **syn. tricolor**

Wailesiana **syn. Zygopetalum Wailesianum**

WALUEWA **pulchella syn. Oncidium Waluewa**

WARSCEWICZELLA **syn. Zygopetalum**

XIPHOSIUM **syn. Eria**

WILSONARA Hybrids between Cochlioda, Oncidium and Odontoglossum.

XYLOBIUM Epiphytal Orchids allied to Bifrenaria. The pseudo-bulbs are usually walnut shaped, small for the size of the leaves, set closely together and bearing one or two, large, strongly veined, rather hard leaves, contracted into stout petioles. The flowers are not very large, but a great number are carried in the dense racemes, which are usually shorter than the leaves. The sepals are erect, then spreading, the two lateral are larger than the dorsal and their bases form a chin, petals smaller than the upper sepal. The mid-lobe of the lip only is usually apparent. Flowers often fragrant. The compost should consist of that advised for Maxillarias, but a little loam fibre may be added. After growth is completed water should be withheld to a great extent. A temperature midway between that of the cool and intermediate house suits them.

I **decolor** West Indies

Pseudo-bulbs oblong, compressed, 1 to 2 inches high, bearing a single leaf, 12 to 15 inches high ; scapes erect, many flowered ; sepals and petals sulphur colour, or shaded with white ; lip whitish. Spring

I **bractescens** Peru

Scapes 24 to 30 inches high, 15 to 25 flowered. Sepals and petals narrow, greenish-yellow in color, lip marked with red-brown. Noticeable for the long attenuated bracts at the base of each flower pedicle. Autumn

I **elatum** Peru

A strong growing species, the dark green leaves attaining a height of 3 feet, or more, and the scapes about the same. Flowers yellowish green, marked with dull red on the backs of the segments. Lip tubercled with dark red-brown. Probably the finest in the genus. Spring

I **elongatum** West Indies

Habit much as in decolor, scapes many flowered ; sepals and petals pale yellowish-white, lip purplish-brown. Spring

I **leontoglossum** Colombia

Habit resembling that of the two former species. Flowers bright yellow, spotted with maroon ; the mid-lobe of the lip fleshy, and asperated with purple-brown. Winter and Spring

I **squalens** Brazil

Pseudo-bulbs stout, 2 to 3 inches high ; leaves 9 to 12 inches high, scapes densely flowered, sepals and petals yellowish white, the petals and mid-lobe of the lip streaked with purple, side lobes of lip deep purple. Spring

ZYGO-BATEMANNIA Hybrids between Zygopetalum and Batemannia.

ZYGOCOLAX

Hybrids between Zygopetalum and Colax.

ZYGONISIA

Hybrids between Zygopetalum and Aganisia.

ZYGOPETALUM

A large and, as at present defined, a very polymorphic genus, but containing many handsome, large-flowered Orchids. All are epiphytal or semi-epiphytal and distributed chiefly through the central parts of America. Under Zygopetalum are included Bollea, Huntleya, Kefersteinia, Pescatorea, Promenæa, Warscewiczella, Zygosepalum, true Zygopetalums, and (partially) Batemannia and Warrea, etc. The chief distinguishing character of the flowers is a usually large, transverse, fleshy crest to the lip, often furrowed, either entire or lobed, seldom fimbriated. The base of the lip forms, with the foot of the column, a short, blunt chin ; the front lobe of the lip is large and spreading.

The pseudo-bulbless species formerly known as Bollea, Huntleya, Warscewiczella, Zygopetalum, Pescatorea, Kefersteinia, Baetmannia, etc., require similar cultural conditions. Too much sun is hurtful, hence shading must be carefully attended to, and the atmosphere should be kept moist and as equable as possible. The plants should be placed in teak-wood baskets or well drained pans, using a compost of three parts of sphagnum moss to one of good, fibrous peat or Osmunda fibre. It is advisable to disturb the roots as little as possible, though the compost must not be allowed to become sour. The true Zygopetalums, of which Mackayi may be taken as typical, are of a more robust habit, and should be potted in two parts of fibre, one part fibrous loam, and one part sphagnum moss, with broken crocks and a few decayed leaves. The species with creeping rhizomes should be placed, preferably, on pieces of tree fern stems, fixed in pots, or placed in small pans using a compost of half moss and half fibre. During hot weather many of the true Zygopetalum may be accomodated in the cool house, but should be returned to an intermediate house temperature in winter. Though disliking direct sunlight, they are partial to more light than should be given the sections previously mentioned. The species formerly known as

ZYGOPETALUM—cont. Promenæas are much less in size, hence should be placed in small, well drained pans, and hung near the glass during the summer in the cool house, and in the winter in the intermediate. All the sections should receive plenty of water, and must never be allowed to shrivel through want of it. All the genus is liable to attacks from the different scale insects, the smooth ribbed leaves providing both shelter and easily obtained food. Sponging is naturally the remedy. Should the atmosphere become too arid outbreaks of Thrip and red spider will occur. The young leaves particularly of the true Zygopetalums are enfolded, and care must be taken that water does not lodge in the cup so formed, but once the leaves have expanded the syrings may be judiciously used.

Africanum **syn. Odontoglossum Bictoniense**

I **brachypetalum** Brazil

Pseudo-bulbs 2 to 3 inches high, leaves 15 to 24 inches long, scapes erect, 18 to 24 inches high, 7 to 10 flowered ; flowers about 2 ½ inches across vertically, sepals and petals brown, shaded with green basally ; lip broad, spreading, light mauve, veined with bright mauve-blue, whitish at the margins ; crest ridged and furrowed, white, with blue lines. Winter

S **Burkei** British Guiana

Pseudo-bulbs 2 to 3 inches high, leaves narrow, 9 to 15 inches high ; scapes erect, 12 to 18 inches high, 3 to 6 flowered ; flowers about 2 ½ inches vertically, sepals and petals green, with longitudinal, interrupted, or continuous lines of brown-chocolate ; the apices often suffused with the same colour ; lip white, with a fleshy crest, ribbed with violet-purple. Winter

S **Burtii** Costa Rica

Without pseudo-bulbs, leaves, 10 to 15 inches long, scapes erect, one-flowered; flowers 3 to 4 inches across, fleshy ; sepals and petals whitish basally, then yellow ; the upper halves red-brown, spotted with brownish-yellow ; the petals with a more or less radiating, reddish, basal blotch, lip with the basal half white, the apical half red-brown, erect, white, with narrow, light, purple, incurved teeth.

- var. *Wallisii* **syn. Wallisii**

S **candidum** Brazil

Without pseudo-bulbs, leaves 6 to 9 inches long, scapes short, one-flowered ; flowers 2 inches or more across, sepals and petals white, the upper sepal bent forward, the petals and remaining sepals reflexed, lip with the side lobes white, margined on the front with violet ; the mid-lobe broad, with a striated, violet-blotch in the centre, margined with light violet, striated with white. Summer

ZYGOPETALUM—cont.

S **cerinum** Panama

Pseudo-bulbless, leaves 6 to 12 inches long, scapes 3 to 6 inches high, one-flowered ; flowers fleshy, 3 inches across ; sepals and petals of a pale, waxy citron-yellow, lip bright yellow, crest furrowed, the ridges red-brown. Autumn

citrinum **syn. xanthinum**

S **cochleare** Guiana

Without pseudo-bulbs, leaves 8 to 15 inches long, scapes one-flowered, flowers fragrant, 2 to 3 inches across ; sepals and petals waxy-white, lip white,with broad, longitudinal lines of violet-purple ; crest frilled. Summer

cochleata **syn. cochleare**

I **cœleste** Colombia

Without pseudo-bulbs, leaves 6 to 12 inches long or more, scapes usually sub-erect, one-flowered ; flowers 3 to 4 inches across, sepals and petals bluish-violet, darkest centrally and yellowish at the tips ; lip similarly coloured, crest very large, buff-yellow, ridged. Summer

I **crinitum** Brazil

Pseudo-bulbs 2 to 3 inches high, leaves 1 to 2 feet long, scapes taller, several flowered ; flowers 2 to 3 inches across, sepals and petals green,barred with brown; lip white, streaked with densely haired, violet-blue or reddish-crimson, veins. Fragrant. Winter and Spring

I **- var. cœruleum** Brazil

Flowers larger than in the type, lip beautifully marked with radiating blue-purple, hairy veins. Winter and Spring

S **Dayanum** Colombia

Without pseudo-bulbs, leaves 9 to 15 inches long, scapes short, one-flowered ; flowers variable, fleshy, about 3 inches across,cream-white, tipped with pale green; lip white, marked with crimson, crest deep crimson. Winter

S **- var. candidulum** Colombia

Sepals and petals pure white, lip tinted with purplish-crimson. Winter

S **- var. rhodacrum** Colombia

Sepals and petals tipped with purplish-rose. Winter

S **- var. splendens** Colombia

Sepals and petals blotched apically with dark violet ; lip deep violet. Winter

I **discolor** Costa Rica

Habit tufted, leaves 6 to 12 inches high, scapes one-flowered, flowers variable, about 2 inches across ; sepals and petals ivory-white or straw-yellow, the petals tinted with purple, lip violet-purple, darkest centrally ; crest coarsely toothed. Summer

ZYGOPETALUM—cont.

S **Dormanianum** Ecuador

Without pseudo-bulbs, leaves 6 to 12 inches high, scapes one-flowered ; flowers large, but narrower than in the majority of species ; sepals and petals white, the sepals tipped with yellow ; lip white, crest yellow. Spring

euglossum **syn. intermedium**

flabelliforme **syn. cochleare**

fragrans **syn. marginatum**

S **Gairianum** Ecuador

Without pseudo-bulbs, leaves 9 to 15 inches high, scapes one-flowered, flowers variable, large ; sepals and petals deep, blackish violet-purple, lip purplish-rose, crest often orange, with fifteen or more purplish ridges. Summer

I **Gautieri** Brazil

Pseudo-bulbs 2 to 3 inches or more high, furrowed, borne at intervals on creeping rhizomes ; leaves 9 to 18 inches high, scapes erect or nodding, 15 ot 20 inches long, several flowered ; flowers variable, 2 to 3 inches in diameter ; sepals and petals green, heavily blotched and barred with brown ; lip deep purplish-blue, paler marginally ; crest furrowed, deep velvet-like purple. Very near to Z maxillare of which is often called a variety. Various

S **gramineum** Colombia

Without pseudo-bulbs, leaves 5 to 9 inches long, scapes 3 to 5 inches high, one-flowered ; flowers 1 to 1 ½ inches across, sepals and petals light yellowish-green, with lines of brownish-red spots ; lip yellowish, spotted with red-purple, densely so centrally ; margin denticulate, crest maroon-purple, four-lobed. Various

S **graminifolium** Brazil

Pseudo-bulbs small, borne at intervals on a creeping rhizome ; leaves narrow, grass-like, 6 to 15 inches long ; scapes erect, 12 to 18 inches high, several flowered; flowers about 2 inches across, sepals and petals green, nearly covered with dark, almost black bronzy-brown ; lip violet-blue, with a few white streaks ; crest deep violet-blue, ridged. Summer

S **grandiflorum** Colombia

Pseudo-bulbs 2 to 3 inches high, leaves broad, 9 to 12 inches long ; scapes short, 3 to 5 flowered ; flowers 3 inches across, sepals and petals light green, with longitudinal, brown bands ; lip three-lobed, the side lobes white, the mid-lobe white, with ten or more red-purple, raised lines ; crest orange-yellow, with red ridges. Late Summer

intermedium **(Hort.) syn. Mackayi var. intermedium**

ZYGOPETALUM—cont.

I **intermedium (Lodd.)** Brazil

Pseudo-bulbs 2 to 3 inches high, rather narrow ; leaves 12 to 24 inches long, scapes erect, taller than the leaves, several flowered ; flowers 2 to 3 inches in diameter, sepals and petals green, tinged, sometimes blotched with brown ; lip broad, bi-lobed, white, with interrupted, radiating lines and suffused spots of violet-purple ; crest furrowed, Autumn

I **Jorisianum** Venezuela

Pseudo-bulbs 2 to 3 inches high, leaves 6 to 9 inches long, scapes sub-erect, several flowered ; flowers 2 ½ inches across, sepals and petals green, heavily spotted and barred with purple-brown ; lip three-lobed, each lobe fimbriated ; front lobe cream-white, side lobes yellow, cream-white basally ; crest purple. Summer

S **Klabochorum** Ecuador

Without pseudo-bulbs, leaves 12 to 15 inches high, scapes short, one-flowered; flowers 3 to 4 inches across, sepals and petals incurved at the tips, the basal halves white, the apical portions brownish-purple ; lip short, with an incurved margin, white or yellowish, covered with short, crimson-purple-tipped papillæ ; crest with crimson-purple ridges and white furrows. Various

S **Lalindei** Colombia

Without pseudo-bulbs, leaves 8 to 14 inches long, scapes short, one-flowered; flowers variable, 2 to 3 inches across ; sepals and petals lilac at the base, passing into rose and tipped with yellow, sometimes bright violet, the upper one tipped with green, and the lower margins of the lateral sepals brown-purple or straw-yellow ; lip golden-yellow. Various

S **lamellosum** Colombia

Without pseudo-bulbs, leaves 9 to 15 inches long, scapes short, one-flowered, flowers 2 to 3 inches across, sepals and petals yellow, sometimes green shaded ; lip yellowish-white, crest orange and brown. Summer

S **Lawrenceanum** Colombia

Without pseudo-bulbs, leaves 6 to 12 inches high, scapes short, one-flowered ; flowers 3 to 4 inches across, sepals and petals white, with, near the apex, a large violet or mauve blotch ; lip rich velvety-purple in front, crest yellow, white on each side. Various

S **Lehmanni** Colombia

Without pseudo-bulbs, leaves 12 to 18 inches long, narrow ; scapes one-flowered ; flowers about 3 inches across, sepals and petals white, with parallel stripes of plum-purple, whitish basally and on the margins ; lip deep mauve-purple, with bristle-like papillæ, arranged in lines, crest ridged, chestnut-brown. Various

ZYGOPETALUM—cont.

S **Lindeni** Venezuela

Without pseudo-bulbs, leaves 7 to 9 inches long, scapes short, one-flowered ; flowers about 3 inches vertically, sepals and petals white, lip large, white, with a few radiating, purple streaks on the disc ; crest broadly triangular.

Winter and various

S **Lindeniae** Tropical America

Pseudo-bulbs small, borne at short intervals on creeping rhizomes ; leaves 5 to 8 inches long, scapes shorter, 1 to 3 flowered ; flowers 3 to 4 inches in diameter, sepals and petals light rose-pink, lip large, shortly pointed, white, with many longitudinal, radiating, rose-coloured lines ; crest fleshy, similarly marked.

Summer and various

S **lucidum** British Guiana

Leaves narrow, 6 to 8 inches long ; scapes shorter, one-flowered ; flowers about 2 inches across, sepals whitish basally, light purplish-brown on the upper halves, petals light purplish-brown ; each segment has a bright green, crescent-shaped, transverse, central band ; front lobe of lip lurid purple, light yellow apically, ochre-yellow basally, crest light yellow, shaded with orange. Summer

I **Mackayi** Brazil

Pseudo-bulbs ovoid, 2 to 3 inches high ; leaves 12 to 24 inches long, scapes 18 to 30 inches high, several flowered ; flowers about 3 inches across vertically ; sepals and petals light yellowish-green, blotched with purplish-brown ; lip broad, white, streaked and spotted with violet-purple, arranged in lines ; crest ridged. Fragrant. Autumn and Winter

- **var.** *crinitum* - **syn. crinitum**

- **var. intermedium** Brazil

Leaves longer than in the type, flowers large, lip more expanded and of a paler colour. Winter

mandibulare **syn. maxillare**

S **marginatum** Colombia

Without pseudo-bulbs, leaves 6 to 12 inches long, scapes one-flowered, flowers fragrant, 2 to 2 ½ inches across vertically ; sepals and petals yellowish-white, side lobes of lip yellowish-white, the front lobe white, margined with rose or purple-rose, and striated with violet-purple on the disc ; crest strongly ridged.

Various

I **maxillare** Brazil

Pseudo-bulbs 2 to 3 inches high, borne at short interavls on creeping rhizomes; leaves 8 to 15 inches long, scapes erect or nodding, 12 to 18 inches long, several flowered ; flowers variable, about 2 ½ inches across vertically ; sepals and petals green, blotched and barred with chocolate-brown ; lip three-lobed, violet-blue, paler at the margins ; the side lobes joined to the fleshy, violet-purple crest, ridged on the inner side. Various

ZYGOPETALUM—cont.

meleagris Brazil

Stems short, erect ; leaves 9 to 12 inches long, scapes short, one-flowered ; flowers fleshy, about 3 inches across ; sepals and petals white basally, yellow centrally, red-brown, marked with yellow, on the apical halves ; lip white, the apical area yellowish-brown ; crest white, fringed. Summer

I **micropterum** Brazil

Pseudo-bulbs barely an inch high, leaves about 3 inches long, scapes short, 1 to 2 flowered ; flowers nearly 2 inches in diameter, sepals and petals creamy-white, lip white, the front lobe elongated, the side lobes very small, the disc marked with three bars of dull crimson, the base spotted with purple. Summer

microtus **syn. crinitum**

S **mystacinum** Colombia

Habit as in gramineum. Scapes drooping, one-flowered ; flowers over an inch across, sepals and petals yellowish-white, the blade broken into numerous fringes; the fleshy crest, white, spotted with purple. Winter

S **Patini** Colombia

Without pseudo-bulbs, leaves 7 to 12 inches high, scapes one-flowered, flowers about 3 inches across, the upper sepal and petals rosy-pink, the lateral sepals pink on the upper longitudinal halves, deep rose on the lower halves ; lip short, with the lamellated crest yellow. Various

pubescens **syn. crinitum**

quadratum **syn. marginatum**

Rœzlii **(Rchb. f. 1877), syn. intermedium**

S **Roezlii (Pescatorea Roezlii Rchb. f. 1874)** Ecuador

Without pseudo-bulbs, leaves 8 to 12 inches long, scapes one-flowered, flowers large, sepals and petals creamy-white, with violet purple blotches apically ; lip violet-purple. Winter

I **Rollisonii** Brazil

Pseudo-bulbs rounded, barely an inch high ; leaves 2 to 3 inches high, scapes deflexed, 1 to 2 flowered ; flowers 1 to 2 inches across, sepals and petals pale yellow, lip whitish, spotted with crimson. Autumn and Winter

S **rostratum** British Guiana

Pseudo-bulbs 1 ½ to 3 inches high, borne at short intervals on stout, creeping rhizomes ; leaves 7 to 10 inches long, scapes short, 1 to 2 flowered ; flowers 4 inches or more in vertical diameter, sepals and petals slightly undulated, greenish, shaded centrally with rose-brown, whitish at the base ; lip large, white, streaked basally with purple ; crest ribbed, light yellow, streaked with purple. Early Summer

ZYGOPETALUM—cont.

I **Sanderae**

A bulbless species. Leaves 6 to 8 inches high. Scapes 4 to 6 inches high, from axils of sheathing leaves, one-flowered. Flowers large, sepals and petals green,about 2 inches across. The narrower petals ascending. Column white, streaked with light violet on inner surface. Lip over an inch broad, in reality considerably larger, but with the apical portion completely reflexed, the edges of the superior half heavily voluted and crisped. Colour white. The whole central portion suffused and lined with violet. Ruff similarly coloured, but darker. A showy species.

Summer

I **Sanderianum** Brazil

Habit resembling that of Gautieri. Scapes erect, several flowered ; flowers nearly 3 inches in vertical diameter, sepals and petals light green, dotted basally with purplish-brown ; lip broad, blue, much paler behind ; crest purplish-blue.

Various

S **Schroderianum** Central America

Without pseudo-bulbs, leaves 9 to 15 inches long, scapes one-flowered, flowers fragrant, 3 to 4 inches across ; sepals and petals white, slightly incurved, lip rosy-purple, crest furrowed. Various

I **stapelioides** Brazil

Pseudo-bulbs about an inch high, leaves 3 to 4 inches long, scapes usually sub-pendulous, 1 to 2 flowered ; flowers nearly, or quite, 2 inches across, sepals and petals greenish-yellow, transversely spotted and barred with dark purple ; lip three-lobed, the side lobes coloured similarly to the sepals and petals, the mid-lobe dark purple, sometimes yellow-marked. Summer

stenochilum **syn. crinitum**

S **velatum** Colombia

Without pseudo-bulbs, leaves about 9 inches long, scapes one-flowered, flowers about 2 ½ inches across, fragrant ; sepals and petals creamy-white, lip yellowish-white, the front lobe having a band of crimson near the margin ; crest ridged,

Various

velutinum **syn. intermedium**

S **venustum** Roraima

Resembling a true Zygopetalum, but with a tufted habit and without distinct pseudo-bulbs. Leaves narrow, 6 to 9 inches high ; scapes erect or sub-erect, taller than the leaves, 5 to 10 flowered ; flowers about an inch across, waxy-white ; the base and apex of the column are streaked with purple, crest toothed.

Summer

S **Wailesianum** Brazil

Without pseudo-bulbs, leaves narrow, 6 to 9 inches long, scapes one-flowered, flowers 1 ½ to 2 inches across, sepals and petals creamy-white, lip white, stained on the disc with violet-blue ; crest keeled, lined with violet-blue.

Autumn

ZYGOPETALUM—cont.

S **Wallisii (Batemannia)** Costa Rica

Without pseudo-bulbs, leaves 12 to 18 inches or more high, carried in tufts at often wide intervals, on rhizomes which will attain a great length ; scapes one-flowered, flowers 4 inches or more across, light greenish-yellow externally; sepals green, shaded with brown, yellowish basally on the inner surfaces ; petals similarly coloured, but streaked with scarlet basally ; lip greenish, the apical portion brown ; crest whitish, marked with red-brown. Summer

S - **var. major** Costa Rica

A splendid form. Flowers 5 ½ inches across, sepals and petals rich chestnut-brown, with darker tessellations, yellowish-white basally ; the petals with a dark maroin-purple, radiating blotch ; lip dark chestnut-brown, reticulated, chiefly marginally, with blackish-purple. Autumn

S **Wallisii (Pescatorea)** Ecuador

Without pseudo-bulbs, habit much as in Roezlii, flowers about 3 inches across, sepals and petals creamy-white, tipped with bluish-violet ; lip deeper violet, narrowly white-margined ; the crest consists of seventeen white keels, tinted at the sides with purple. Various

S **Wendlandii** Costa Rica

Without pseudo-bulbs, leaves 7 to 10 inches long, scapes one-flowered, flowers variable, about 4 inches across, sepals and petals pale-yellowish green,or whitish; lip white, the central area lined and suffused with violet-blue ; crest ridged, violet-blue. Autumn

S - **var. discolor** Costa Rica

Flowers fragrant, sepals and petals yellowish-green, paler basally ; lip with a large, bright violet, central blotch, broadly white-margined. Autumn

S **Whitei** Colombia

Without pseudo-bulbs, leaves 9 to 14 inches long, scapes one-flowered, flowers 2 ½ inches across, sepals and petals creamy-white, the adjacent halves of the lower sepals shaded with yellow ; lip light yellow, with a golden-yellow disc and fourteen, or more, indistinct keels. Winter

I **xanthinum** Colombia

Pseudo-bulbs about an inch high, leaves about 3 inches long, scapes short, 1 to 2 flowered, flowers about 2 inches across, sepals and petals bright citron-yellow, lip the same colour, but thickly spotted with red on the side lobes and the front surface of the column. Late Summer

Zygosepalum **syn. Zygopetalum**